SONY

COLOR VIDEO CAMERA

BVP-550
BVP-550P

Digital 1000

MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher (BVP-550)

Serial No. 40001 and Higher (BVP-550P)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

X-RAY RADIATION WARNING
Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Color Video Camera BVP-550/550P. This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1. Installation

Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2. Service Overview

Describes information about board locations, circuit description, replacement of part and notes on services.

Section 3. Setup menu

Describes information about setup menu and selfdiagnosis mode.

Section 4 Electrical Alignment

Describes electrical adjustment.

Section5 Spare Parts

Describes parts list, exploded views, supplied accessories and fixtures list used in the unit.

Section 6 Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 7. Block Diagrams

Describes overall block diagram and the block diagrams for every circuit board.

Section 8. Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 9. Board Layouts

Describes board layouts for every circuit board.

Relative manuals

Besides this maintenance manual the following manuals are available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

- **System manual (Not supplied with this unit)**
  This manual is necessary for connection and operation of this unit and other peripheral equipments.
  If this manual is required, please contact Sony service organization

Section 1
Installation

1-1. Supplied Accessories

Accessories	Sony Part No.	Qt'y
Microphone	1-542-233-11	1
Microphone Spacer	3-179-882-01	1
Tripod Adaptor VCT-14	—	1
Operation Manual (English, German)	—	1 each
Maintenance Manual	—	1

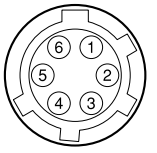
1-2. Connectors and Cables

1-2-1. Connector Input/Output Signals

Output Signal

- TEST OUT
  BNC 75 Ω 1.0 Vp-p

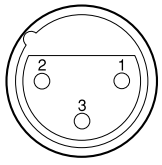
REMOTE (6P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	SERIAL DATA IN	Serial data for camera control
2	SERIAL DATA OUT	
3	UNREG (G)	
4	VBS (X) OUT	VBS 1 Vp-p, Zo = 75 Ω
5	VBS (G) OUT	
6	UNREG OUT	+10.5 V to +17 V

MIC IN (3P FEMALE)

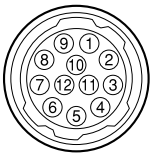


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	MIC IN (G)	–60 dBu High impedance balanced
2	MIC IN (X)	
3	MIC IN (Y)	

(0 dBu=0.775 Vrms)

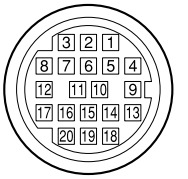
LENS (12P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	RET VIDEO ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
2	RET 2 ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
3	GND	GND for UNREG
4	AUTO +5 V OUT	AUTO: +5 V MANU: 0 V or OPEN
5	IRIS CONT OUT	+3.4 V (F16) to +6.2 V (F2.8)
6	UNREG OUT	+10.5 V to +17 V
7	IRIS POSITION IN	+3.4 V (F16) to +6.2 V (F2.8)
8	AUTO/MANU OUT	AUTO IRIS: 0 V MANUAL IRIS: +5 V
9	EXTENDER ON/OFF IN	EX 2 ON: 0 V EX 0.8 ON: +1.8 V OFF: +4.8 V
10	ZOOM POSITION IN	WIDE: 2 V TELE: 7 V
11	NC	No connection
12	NC	No connection

VF (20P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	NC	No connection
2	ABNORMAL IND OUT	H: Indicator lights L: Indicator goes out
3	16:9 MODE OUT	H: NORMAL (4:3) L: WIDE (16:9)
4	NC	No connection
5	COMP/VBS SW IN/OUT	*Note1
6	CCIR/EIA OUT	H:CCIR, L:EIA
7	NC	No connection
8	G TALLY OUT	H: Indicator lights L: Indicator goes out
9	NC	No connection
10	Y (X) OUT	1 Vp-p, VF:Zi = 1 kΩ
11	ZEBRA $\overline{\text{ON}}$ IN	H: OFF, L:ON
12	VF VIDEO OUT (X)	1.0 Vp-p, VF:Zi = 1 kΩ
13	NC	No connection
14	B-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
15	R-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
16	BATT IND OUT	H: Indicator lights L: Indicator goes out
17	TALLY IND OUT	H: Indicator lights L: Indicator goes out
18	+9.3 V (VF) OUT	REG +9.3 V
19	GND	GND
20	UNREG OUT	+10.5 V to 17 V

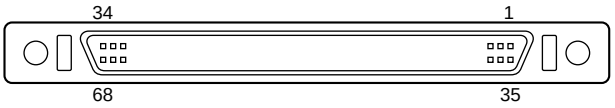
Note1: Specification of COMP/VBS SW Signal

When powering on, the microcomputer of the camera identifies a viewfinder in use by detecting the voltage at pin 5.

H: Color VF, L: B/W VF

- In use of B/W VF
  Voltage control of pin 5 is disabled during operation. Switching between the return video signal and monochrome signal for the viewfinder is done by the camera and selected signal is output at pin 12 to the viewfinder.
- In use of Color VF
  By controlling the voltage at pin 5 during operation, switching between the decoded return video signal and the camera component signal is done in the viewfinder.
  H: Camera, L: Return video

ANALOG CA (68P FEMALE)



(EXTERNAL VIEW)

*: In connection with CCU, **: In connection with VTR

No.	SIGNAL	SPECIFICATIONS
1	UNREG GND	GND for UNREG
2	UNREG GND	GND for UNREG
3	VF UNREG GND	GND for VF UNREG
4	LENS UNREG GND	GND for LENS UNREG
5	UNREG IN	10.5 V to 17 V
6	UNREG IN	10.5 V to 17 V
7	VF UNREG IN	10.5 V to 17 V
8	LENS UNREG IN	10.5 V to 17 V
9	R OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
10	B OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
11	VBS OUT (G)	GND for VBS VIDEO
12	Y OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
13	B-Y OUT (X)	700 mVp-p, with sample 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV*
14	NC	No connection
15	C OUT (X)	SC for S connector
16	VBS GENLOCK IN (X)	1.0 Vp-p ±6 dB
17	RET VIDEO IN (G)	GND for RET VIDEO
18	MONITOR VIDEO OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
19	BATTERY ALARM IN	Zi = 300 Ω *Note 2
20	NC	No connection
21	AUDIO CH1 CONT OUT	0 V (0 dB) to 7 V (–50 dB or less)
22	MIC 1 OUT (Y)	Zo ≤ 600 Ω, –60 dBu balanced
23	NC	No connection
24	SKIN TONE GATE OUT	1.0 Vp-p
25	TAPE REM IN	*Note 4
26	VTR SYNC OUT	+5.0 Vp-p Negative pulse, Zo ≤ 100 Ω
27	RET EN OUT	ENABLE; 0 V, DISABLE; +5 V or OPEN
28	PB REF IN	PB; +4.5 V, CAM; 0 V or OPEN
29	H CONT IN	0 V to 5 V, Analog
30	ANALOG GND	
31	DIGITAL HD OUT	3 Vp-p for Digital
32	COM CONT IN	5 Vp-p
33	IIC CLOCK OUT (CA)	5 Vp-p
34	IIC CLOCK OUT (ST)	5 Vp-p

No.	SIGNAL	SPECIFICATIONS
35	UNREG GND	GND for UNREG
36	UNREG GND	GND for UNREG
37	VF UNREG GND	GND for VF UNREG
38	LENS UNREG GND	GND for LENS UNREG
39	UNREG IN	10.5 V to 17 V
40	UNREG IN	10.5 V to 17 V
41	VF UNREG IN	10.5 V to 17 V
42	LENS UNREG IN	10.5 V to 17 V
43	G OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
44	R/G/B GND	GND for R/G/B VIDEO
45	VBS OUT (X)	1.0 Vp-p ±10%, Zo = 75 Ω
46	R-Y OUT (X)	700 mVp-p, with sync 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV*
47	Y/R-Y/B-Y GND	GND for Y/R-Y/B-Y
48	NC	No connection
49	C OUT (G)	GND for C
50	VBS GENLOCK IN (G)	GND for GENLOCK/H CONT IN
51	RET VIDEO IN (X)	1.0 Vp-p, Zi = 1 kΩ
52	MONITOR VIDEO OUT (G)	GND for MONITOR VIDEO
53	VTR START/STOP OUT	Zo ≤ 10 kΩ
54	NC	No connection
55	MIC 1 OUT (G)	GND for CAM MIC
56	MIC 1 OUT (X)	Zo ≤ 600 Ω, –60 dBu balanced
57	NC	No connection
58	NC	No connection
59	AUDIO LEVEL IN	Zi ≥ 1 kΩ (–15 dBu at 0 VU)
60	NC	No connection
61	V RESET IN/CF OUT	V Reset;0 V to +5 V, CF; 0 V to –5 V
62	REC TALLY IN	ON; +5 V, OFF; +2.5 V or 0 V, Zi ≥ 20 kΩ *Note 3
63	VTR SAVE OUT	SAVE; +4.5 V, STANDBY; 0 V, Zo ≤ 10 kΩ
64	GND	
65	SD IN/OUT	Serial data for camera control
66	COM DATA OUT	5 Vp-p
67	IIC DATA IN/OUT (CA)	5 Vp-p, 4700 Ω, Pull up
68	IIC DATA IN/OUT (ST)	5 Vp-p, 4700 Ω, Pull up

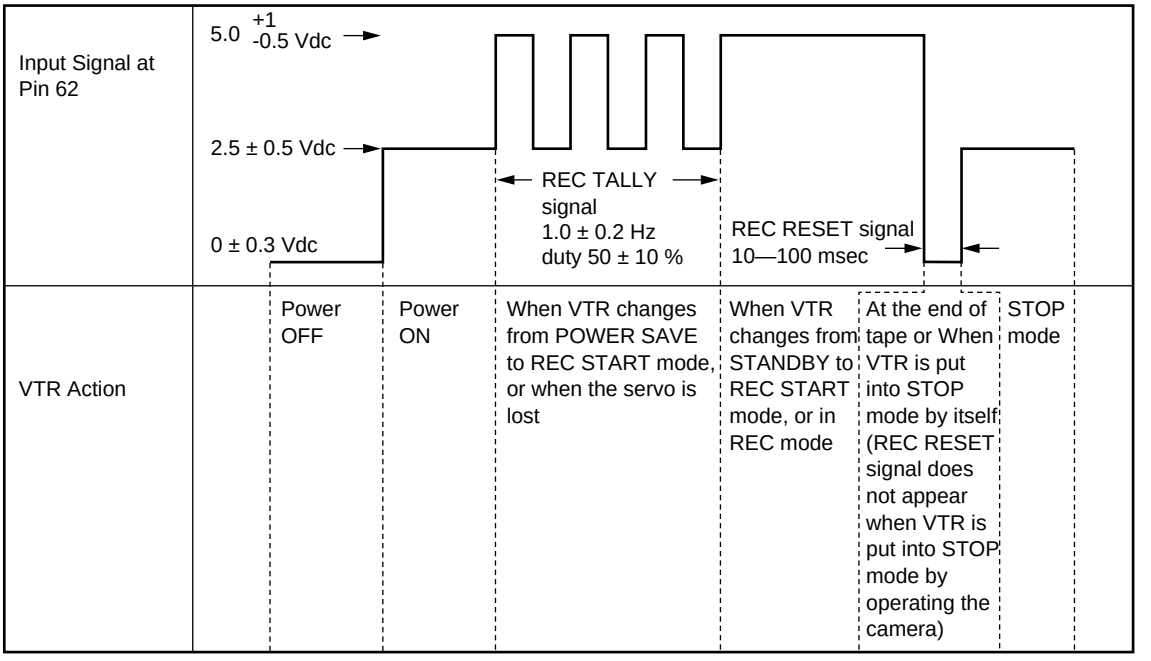
(0 dBu=0.775 Vrms)

Note 2 : Specifications of BATT ALARM Signal

VTR has a battery voltage detection and waring signal generation circuits and it sends the signal shown below to the camera.

Battery Terminal Voltage (VTR internal battery)	12.0—11.1 Vdc	11.1—10.8 Vdc	10.8 Vdc—
Input Signal at Pin 19	0 V	1.0 ± 0.2 Hz duty 50 ± 10 %	2—3 Vdc across 300 Ω
LED on Viewfinder	Stays out	Blinks at 1 Hz	Lights up

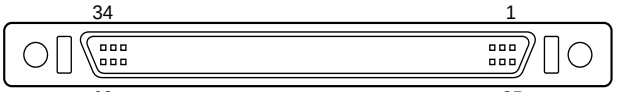
Note 3 : Specifications of REC TALLY Signal



Note 4 : Specifications of TAPE REM Signal

Tape Remaining (VTR)		Input Signal at Pin 25	Remark
TAPE1	**TAPE2**		
+5 V	+5 V	+3.4 V	
+5 V	0 V	+3.1 V	G TALLY lamp lights at +3.1 V
0 V	+5 V	+2.2 V	
0 V	0 V	0 V	

DIGITAL CA (68P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	Y (L) OUT	
2	Y (2) OUT	
3	Y (4) OUT	3.3 Vp-p
4	Y (6) OUT	
5	Y (8) OUT	
6	R-Y (L) OUT	
7	R-Y (2) OUT	
8	R-Y (4) OUT	3.3 Vp-p
9	R-Y (6) OUT	
10	R-Y (8) OUT	
11	B-Y (L) OUT	
12	B-Y (2) OUT	
13	B-Y (4) OUT	3.3 Vp-p
14	B-Y (6) OUT	
15	B-Y (8) OUT	
16	DIGITAL GND	GND for DIGITAL
17	DIGITAL BLANKING OUT	3.3 Vp-p
18	DIGITAL SYNC OUT	3.3 Vp-p
19	NC	No connection
20	NC	No connection
21	NC	No connection
22	NC	No connection
23	NC	No connection
24	NC	No connection
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	NC	No connection
29	NC	No connection
30	NC	No connection
31	NC	No connection
32	NC	No connection
33	NC	No connection
34	18 MHz OUT (G)	GND for 18 MHz

No.	SIGNAL	SPECIFICATIONS
35	Y (1) OUT	
36	Y (3) OUT	
37	Y (5) OUT	3.3 Vp-p
38	Y (7) OUT	
39	Y (M) OUT	
40	R-Y (1) OUT	
41	R-Y (3) OUT	
42	R-Y (5) OUT	3.3 Vp-p
43	R-Y (7) OUT	
44	R-Y (M) OUT	
45	B-Y (1) OUT	
46	B-Y (3) OUT	
47	B-Y (5) OUT	3.3 Vp-p
48	B-Y (7) OUT	
49	B-Y (M) OUT	
50	DIGITAL GND	GND for DIGITAL
51	DIGITAL SAMPLE OUT	3.3 Vp-p
52	DIGITAL VD OUT	3.3 Vp-p
53	DIGITAL CF OUT	3.3 Vp-p
54	NC	No connection
55	NC	No connection
56	NC	No connection
57	NC	No connection
58	NC	No connection
59	NC	No connection
60	NC	No connection
61	NC	No connection
62	NC	No connection
63	NC	No connection
64	NC	No connection
65	NC	No connection
66	NC	No connection
67	NC	No connection
68	18 MHz OUT (X)	3.3 Vp-p

1-2-2. Connection Connector

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Connection Connectors/Cables
TEST OUT (BNC)	1-560-069-11 Plug, BNC or B-B Cable assembly (cable length 1.5 m, option)
REMOTE (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
MIC IN (3P FEMALE)	1-508-084-00 XLR, 3P Male or CANNON XLR-3-12C equivalent

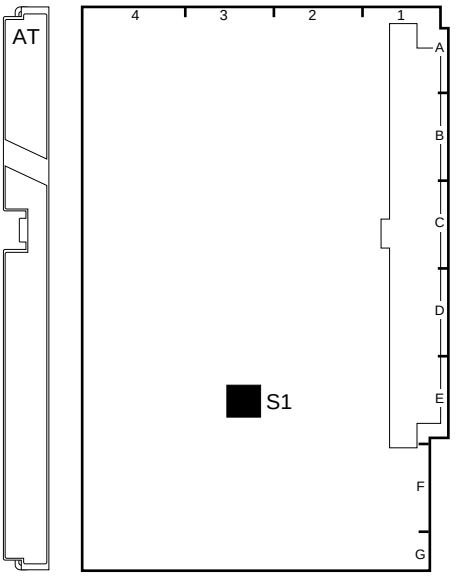
1-3. Installaton Conditions

Operating Temparature : –20°C to +45°C
Storage Temparature : –20°C to +50°C
Humidity : No condence

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temparature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric fields
  A place subjected to direct sunlight or strong light

1-4. Function of Internal Switches

AT-95 Board



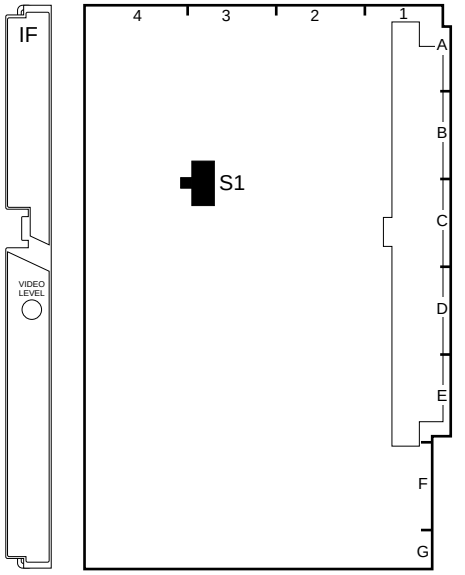
S1 : Setup menu select switch (S1-1 to S1-4)
Setup menu indicated on the viewfinder can be selected in combination of switches S1-1 to S1-4.

( ) in parentheses: Factory-set positions

				Setup Menu					
S1-1	S1-2	S1-3	S1-4	Operation	Paint	Maintenance	Reference	Triming	Config
OFF	OFF	OFF	OFF	YES	NO	NO	NO	NO	NO
(ON)	(OFF)	(OFF)	(OFF)	YES	YES	NO	NO	NO	NO
OFF	ON	OFF	OFF	YES	YES	YES	NO	NO	NO
ON	ON	OFF	OFF	YES	YES	YES	YES	NO	NO
OFF	OFF	ON	OFF	YES	YES	YES	YES	YES	NO
ON	OFF	ON	OFF	YES	YES	YES	YES	YES	YES

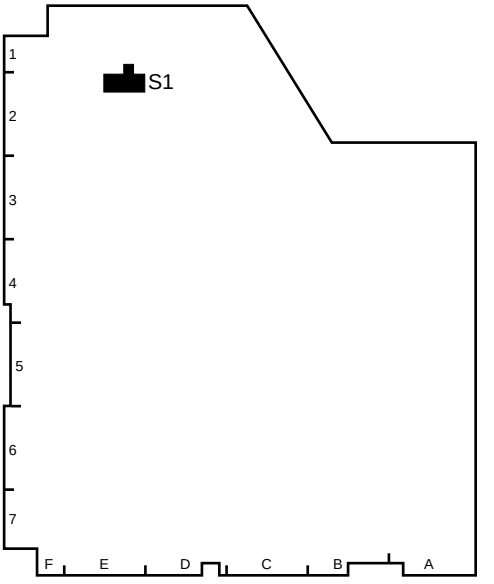
For details on the setup menu, refer to Section 3.

IF-510 Board



S1 : VF connector signal select switch
Selects an output signal at VF connector.
RET: Return video signal from CCU
GEN: Reference signal for external synchronization which is input at GENLOCK IN connector of CA
Factory-set position: RET

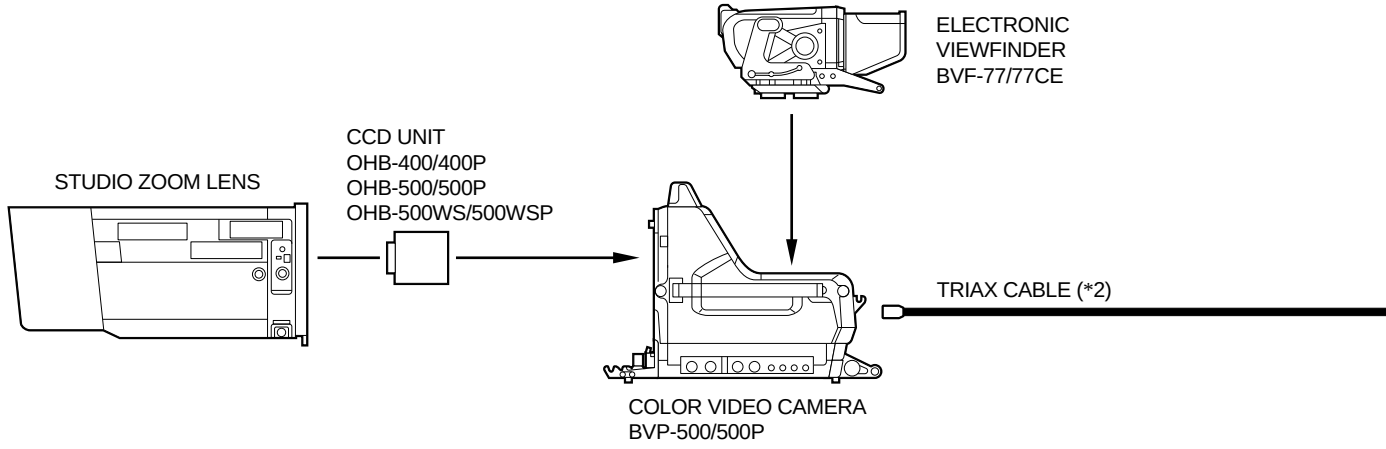
MB-602 Board

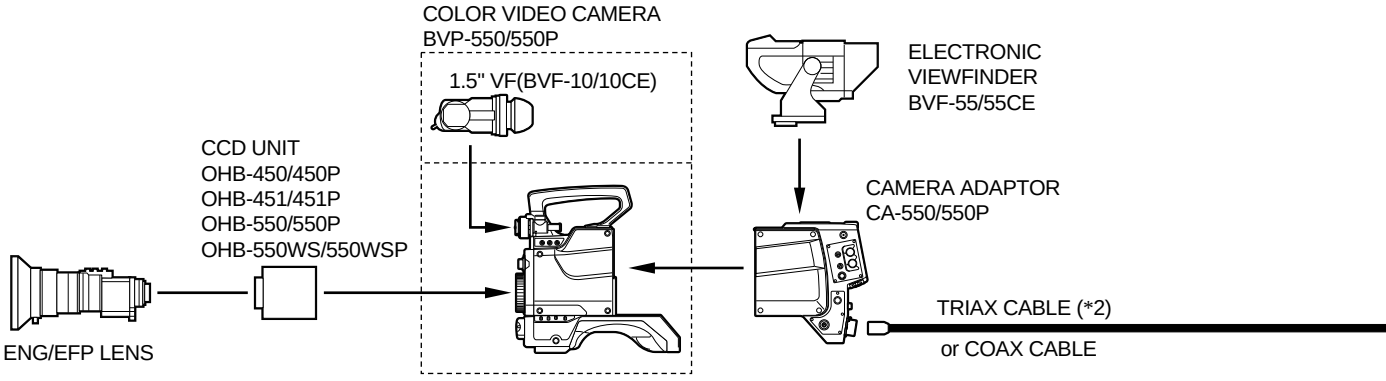


In setting a switch on MB-602 board, open the left side panel.

S1 : PHANTOM POWER switch
Turn on when connecting the PHANTOM +48 V microphone to MIC connector.
Factory-set position: ON

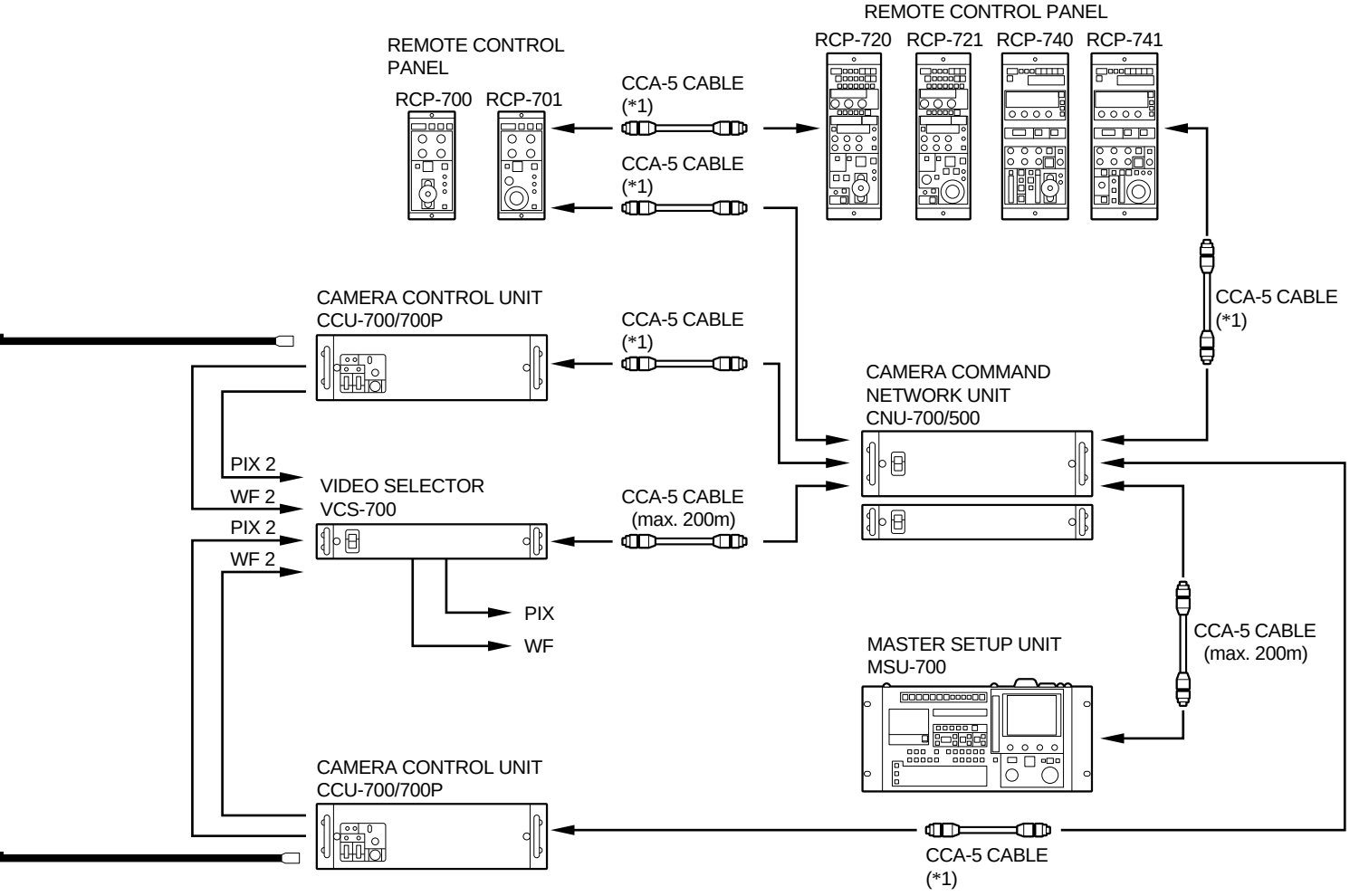
1-5. Instance of Sytem Configuration



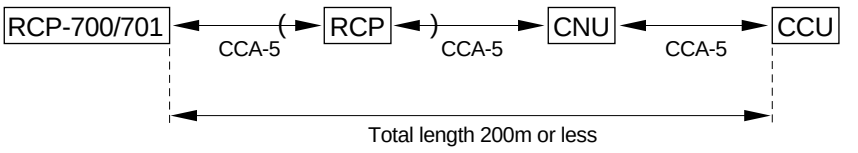


OTHER OPTIONAL ACCESSORIES

For BVP-500/500P	STANDALONE UNIT BKP-5910/5910P
	SCRIPT HOLDER BKP-7911/7912
For BVP-550/550P	ELECTRET CONDENSER MICROPHONE ECM-MS5
	MICROPHONE C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION CRS-3P
	CARRYING CASE LC-303SFT
For CA-550/550P	TELEPROMPTER UNIT BKP-5971

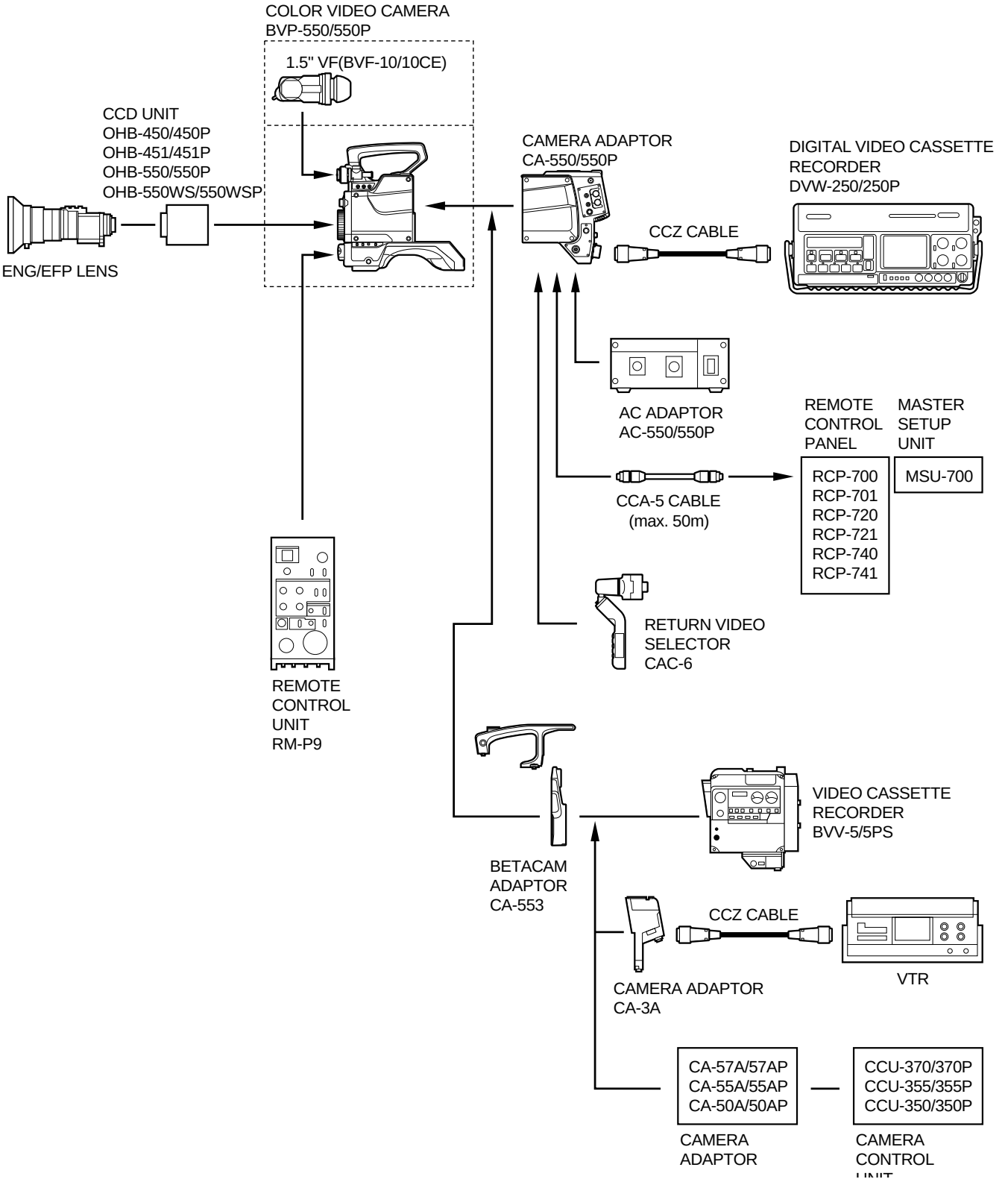


*1: CCA-5 CABLE LENGTH



*2: TRIAX CABLE LENGTH

Diameter	Maximum length
8.5 mm	1000 m
14.5 mm	2000 m


COLOR VIDEO CAMERA
BVP-550/550P
1.5" VF(BVF-10/10CE)
CCD UNIT
OHB-450/450P
OHB-451/451P
OHB-550/550P
OHB-550WS/550WSP
ENG/EFP LENS
CAMERA ADAPTOR
CA-550/550P
DIGITAL VIDEO CASSETTE
RECORDER
DVW-250/250P
CCZ CABLE
AC ADAPTOR
AC-550/550P
REMOTE
CONTROL
PANEL
MASTER
SETUP
UNIT
RCP-700
RCP-701
RCP-720
RCP-721
RCP-740
RCP-741
MSU-700
CCA-5 CABLE
(max. 50m)
RETURN VIDEO
SELECTOR
CAC-6
REMOTE
CONTROL
UNIT
RM-P9
VIDEO CASSETTE
RECORDER
BVV-5/5PS
BETACAM
ADAPTOR
CA-553
CCZ CABLE
VTR
CAMERA ADAPTOR
CA-3A
CA-57A/57AP
CA-55A/55AP
CA-50A/50AP
CAMERA
ADAPTOR
CCU-370/370P
CCU-355/355P
CCU-350/350P
CAMERA
CONTROL
UNIT

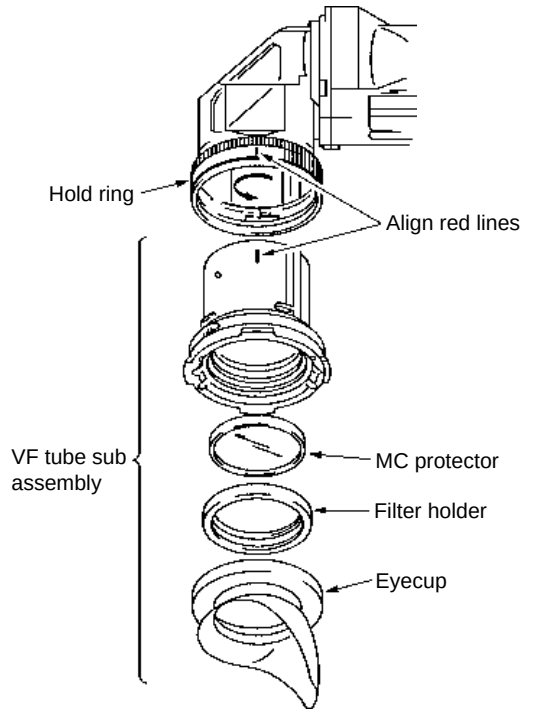
1-6. Optional Accessories for Viewfinder

The following accessories are available separately for the supplied viewfinder. Please order as necessary.

- VF Rotation Bracket BKW-401
  By fitting the BKW-401 to the camera, you can rotate the viewfinder out of the way so that your right leg does not hit the viewfinder while you are carrying the camera.

- Fog-proof Filter (Sony Part No. 1-547-341-11)
  Use in place of the MC protector shown in the figure.

- Lens Assembly for Aged Eye
  (Sony Part No. A-8262-537-A)
- Lens Assembly for Low Power
  (Sony Part No. A-8262-538-A)
- Lens Assembly (Standard magnification with special compensation for aberration)
  (Sony Part No. A-8267-737-A)
- High Performance (3X) Lens Assembly
  (Sony Part No. A-8314-798-A)
  Use in place of the VF tube sub assembly shown in the figure.



* To protect the viefinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.

Section 2
Service Overview

2-1. Notes on Service

2-1-1. Note on Replacement of Parts

Every component electrical part mounted on the PR-211 and CN-1142 boards cannot be replaced. And also a 68-pin connector on the CN-1120/1121 board cannot be. If there is any defective part, replace the mounted circuit board itself.

2-1-2. Note on Replacement of PR-211 Board

The PR-211 board is equipped with a termination board CN-1142 on it. If replacing the PR-211 board, be sure to connect the CN-1142 board that was used before to a new PR-211 board.

2-1-3. Description of EEPROM Data

The table below gives the holding data of EEPROM on every printed circuit board.

Board	Ref. No.	Holding data
VA-163	IC26	VA-163 adjustment data
AT-95	IC46	Triming/Reference files
SG-234	IC21	SG-234 adjustment data
DA-88	IC10	DA-88 adjustment data
IF-510	IC155	IF-510 adjustment data
MB-602	IC5	Model name, Serial number of the unit

Note

The IC listed above cannot be replaced because it is the EEPROM that is holding data inherent in the board. The part number listed in Section 5 “Spare Parts” is for an EEPROM which is not programmed. If replacement is needed, consult your Sony representatives.

2-1-4. Extension Boards

The extension boards and harness are available separately for check or adjustment of some printed circuit boards.

Extension Board/Harness	Sony P/N	To be extended
EX-464	J-6395-040-A	VA-163 AT-95 SG-234 DA-88 IF-510 Plug-in boards for CA

2-1-5. Notes on Repair Parts

1. WARNING

Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

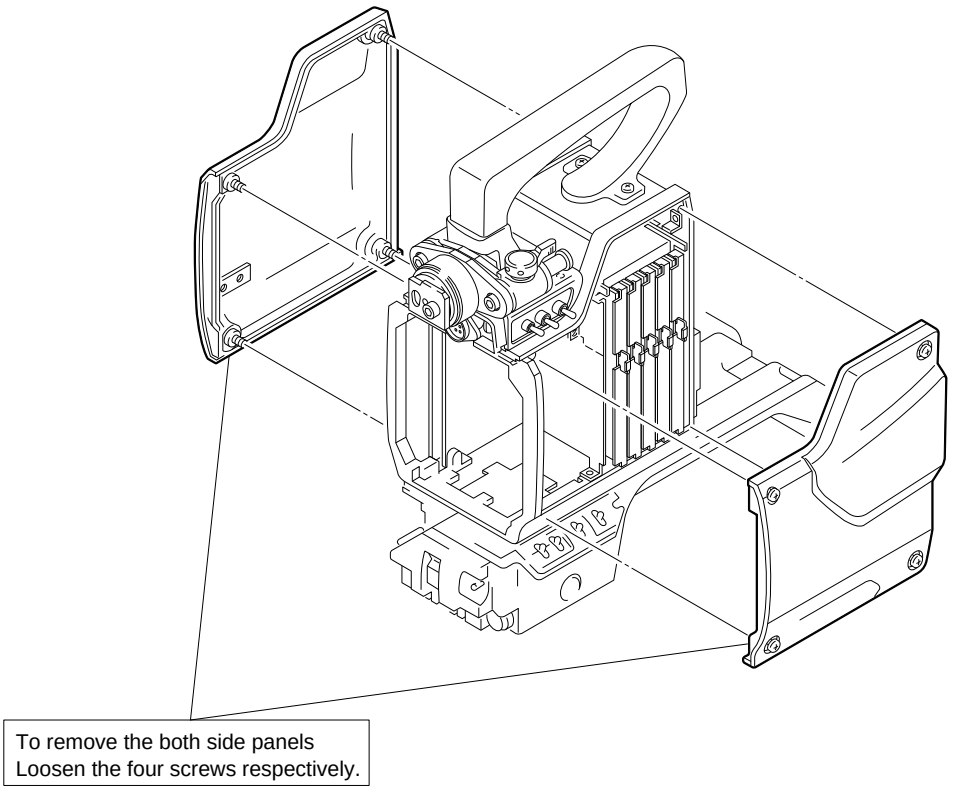
5. Destination Representation

The part indicated “For UCJ/CE” in the spare parts list is used in the unit written below.

For UCJ: The part is used in a unit for Japan, U.S.A. and Canada.

For CE : The part is used in a unit for regions except the above countries.

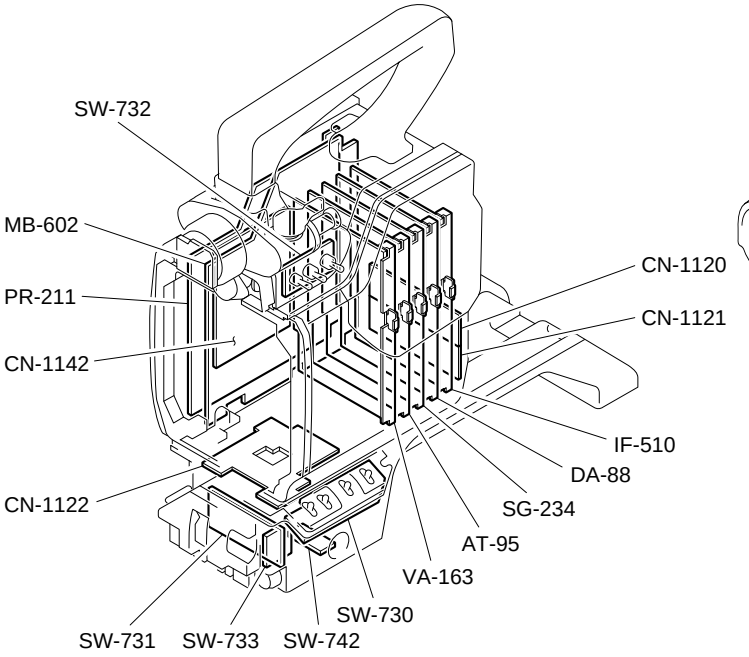
2-2. Removal of Cabinet



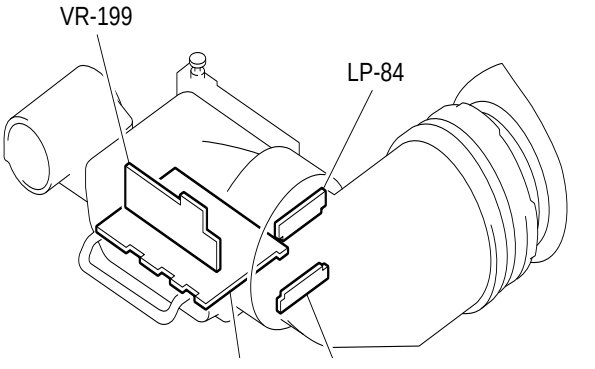
To remove the both side panels
Loosen the four screws respectively.

2-3. Location of Printed Circuit Boards

Camera block



Viewfinder block



2-4. Circuit Description

Circuit description for the BVP-550/550P and CCD unit OHB-450/451/550/550W series (available separately) is described here. The BVP-550/550P is called as BVP, and OHB-450/451/550/550W series is called as OHB in this section.

(1) CCD Drive System (OHB)

TG-159 board

The TG-159 outputs the pulses for driving the CCD to the DR-271 board and outputs the pulses for sampling the CCD output to the PA-181 board.
The driving pulses are synchronized with the HD and VD pulses input from the BVP and are output.
Pulses are generated from the VCO clock (36 MHz) of the board. The clocks for the digital processing circuit (36 MHz, 18 MHz)are also output to the BVP.
CCD V-sub voltage, white shading data and so on are also stored in the EEPROM of the TG-159 board.

DR-271 board

The DR-271 board converts the pulses from the TG-159 board to directly drive the CCD. The converted pulses are transmitted to the CCD via the BI-91(R)/91(G)/91(B) board respectively. The board also has a circuit which makes +29 V from +15 V for the V-sub voltage. Furthermore, the board also has an interface circuit for the optical filter.

BI-91(R)/91(G)/91(B) boards

The CCDs are mounted on the BI-91(R)/91(G) /91(B) boards. These boards supply the driving pulses and control voltages to the CCD.
The signals output from the CCD are sent to the PA-181 board via the emitter follower.

PA-181 board

The PA-181 board extracts video signals from the CCD signals output from the BI-91(R) /91(G)/91(B) boards by a correlated double sampling circuit, and amplifies the R and G signals by one time, and the B signal by three times. The resultant signals are output to the VA-163 board of the BVP.

DR-302 board (OHB-451/451P only)

The DR-302 is a driving board for one optical filter disk, which motor-drives a filter selected by the RCP or MSU. The DR-302 board consists of a motor-drive circuit, and a servo circuit comprised of a selected filter detection and filter position voltage generation circuits.

(2) Video Signal System

VA-163 board

The VA-163 board amplifies the video signals output from the OHB and performs the following processings:

- Black shading correction
- Gain-up control
- Blanking cleaning
- White shading correction
- Feedback clamping
- White balancing
- Flare compensation, and
- Pre-knee

In addition, it also switches between the video signals, TEST SAW(TEST1) signal and 3-STEP TEST(TEST2) signal.

PR-211 board

The PR-211 board converts the analog R, G, and B video signals into digital signals with an A/D converter having sampling/holding functions.
It generates clocks required for the A/D conversion and the digital processings from the clocks generated by the OHB.
In addition, the PR-211 board adds a linear matrix and detail signals to the analog-to-digital-converted R, G and B signals.
It performs the processings such as pedestal control, gamma correction, knee correction and white clipping for the signals. It also performs the followings.

- Generates an internal color-bar signal and switches between this signal and the main line signals.
- Creates detail and aperture signals from digital R and G signals.
- Creates a skin tone singal.
- Detects signals for an auto iris, flare compensation, DCC, and auto white/black balancings.
- Detects black/white shadings, generates a waveform to compensate them and outputs the wavefoem to the VA-163 board.
- Detects black levels and outputs the feedback clamp voltage to the VA-163 board.
- Generates TEST SAW waveforms and output them to the VA-163 board.

- Generates a 27-MHz clock signal required for the VTR control.

The video signals that has thus been digital-processed, are then converted to Y, R-Y and B-Y signals. Some signals are output to the DA-88 board and the others are output via the MB board as a digital video signal output at the same time. The Y/C signals are generated from the Y, R-Y and B-Y signals with a color encoder IC on the PR-211 board. These signals, that were sampled at 36-MHz rate and quantized by 10 bits, are digital-to-analog converted. And the resultants are then output to the DA-88 board as a monochrome signal for VF, wide-band luminance signal, or modulated chroma signal. The monochrome signal for VF has a zebra signal for level indication, and character signal and center marker signal on it.

DA-88 board

The monochrome signal for VF (VF Y) sent from the PR-211 board goes through a lowpass filter and is output to the MB-602 board. The wide-band luminance signal Hi-Ys is output via a lowpass filter to the IF-510 board. The modulated chroma signal C goes through a black clamp circuit and lowpass filter and is added to the Hi-Ys. The resultant is output to the IF-510 board as a VBS signal.
The Y, R-Y and B-Y signals, that are input from the PR-211 board as the digital video signals, are aligned in phase with video signals in another channels by a digital delay line. The resultant is digital-to-analog converted and is then output via a lowpass filter to the IF-510 board. On the other hand, an analog component signal is generated in combination with the above-mentioned Hi-Ys signal, R-Y and B-Y signals. The analog component signal is controlled, on the level adjustment and reference signal addition, by the AT-95 board according to equipment connected to the camera (VTR or CCU). The analog component signal is output to external equipment via the 68P interface connector .

IF-510 board

Input signals at the IF-510 board are as follows;
Signals from the DA-88 board: VF Y, VBS, Y, R-Y and B-Y
Signals from external equipment: Reference signal for external synchronization, Return video signal
By combination with these signals, the IF-510 board outputs the following signals.

- VBS OUT signal
  Output via a buffer amplifier to external equipment.
- VBS OUT signal for RM
  Output to an interface connector for a remote control unit RM-P9. Using the setup menu, a character signal to confirm the menu setting can be mixed to this signal.
- TEST OUT signal
  With the signal select switch at the right top of the camera, the above-mentioned VBS or the VF Y signal can be selected as a TEST OUT signal output at the TEST OUT connector.
- VF OUT/MONI OUT signal
  The same signal is output as the VF OUT signal and the MONI OUT signal. One of the VF Y, VBS, or return video or reference signal selected by S1 on the IF-510 board, is selected. The selected signal is mixed with a center marker and safety-zone pulse, and is then output. The VF OUT signal is output at the VF connector and the MONI OUT signal is output at the 68P interface connector.
- R/G/B output signals
  The Y, R-Y and B-Y signals are converted to the R, G and B signals by a matrix circuit. The converted signals are output at the 68P interface connector.
- Y/R-Y/B-Y output signals for VF
  These signals are for a color viewfinder. A character signal and SKIN GATE signal are mixed with the above-mentioned Y, R-Y and B-Y signals. The resultants are output to the VF.
  In addition, the IF-510 board is equipped with the following circuits.
- HD/VD external sync circuit
  When displaying the return video or reference signal on the viewfinder screen, it is necessary to synchronize the cursor signal with those signals. And a sync signal is separated from those signals to generate the external HD and VD signals, and the resultant is sent to the cursor signal generation circuit on the PR-211 board.
- Peak-detects the G signal and outputs to the AT-95 board.
- Transmits the SKIN GATE signal from DA-88 board to the CCU via the 68P interface connector.

(3) Auto system

AT-95 board

The AT-95 board consists of a microcomputer which controls the camera according to the instructions stored in a ROM. Operations of the board are listed below;

- Analyzes instructions of the function switches, video system detection data and analog data.
- Outputs various control signals and compensation signals to the boards.
- Outputs status information and self-diagnosis infomation as character data from the character generator.
- Incorporates the interface function with the RM-P9 or the CCU-700/700P.

(4) Pulse system

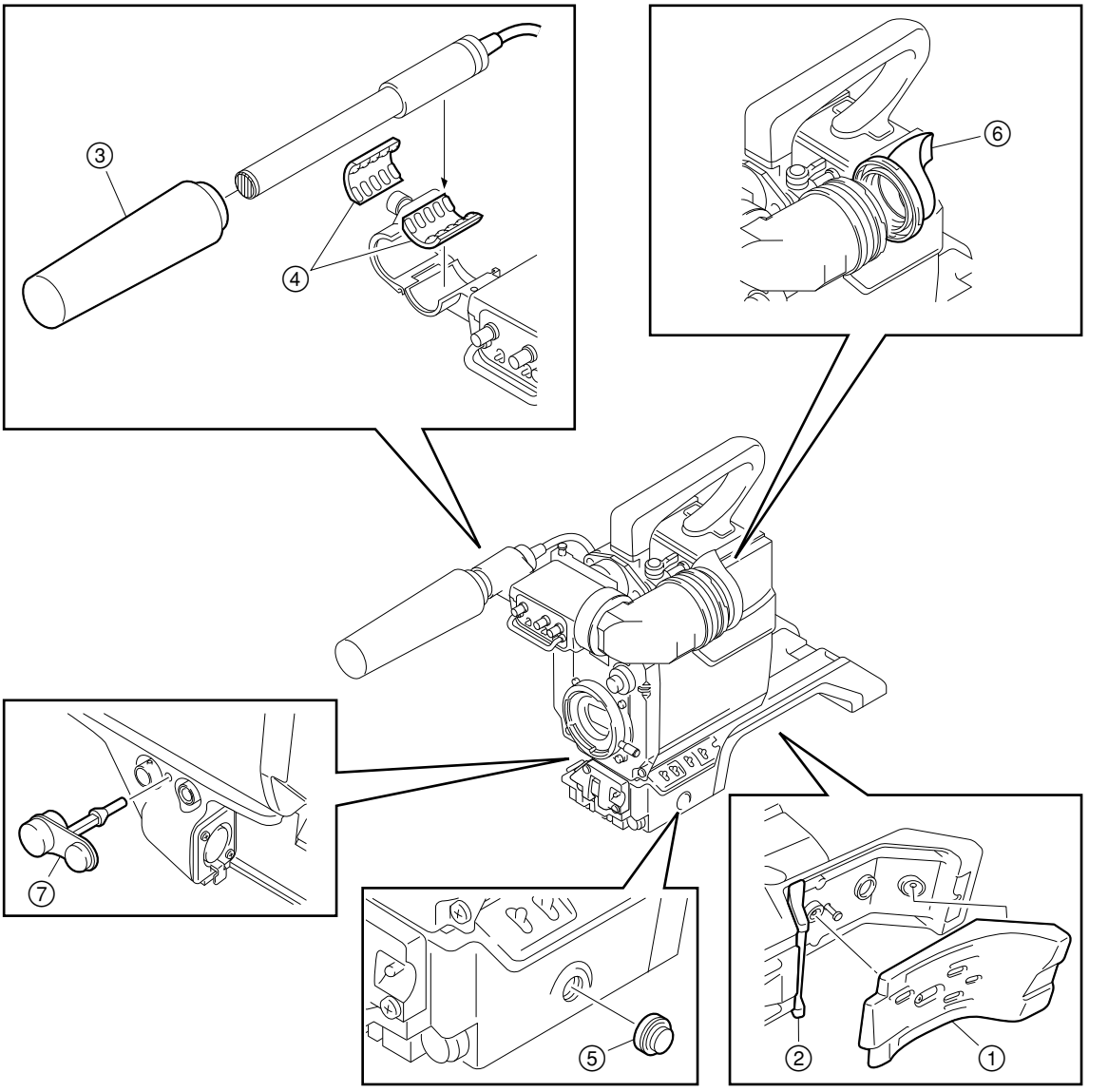
SG-234 board

The SG-234 board has a sync signal generator which generates various sync signals for the camera. The sync signals are generated from the clock pulse input from the OHB via the PR-211 board. They are output to the board of the camera, OHB and the camera adaptor (CA) respectively. This generator has two modes to synchronize with a reference signal input for external synchronization. One is a VBS input mode when the camera is used alone and the other is V RESET/H CONT mode when the CCU is connected to the camera. Input channels of the V RESET and H CONT signals differ depending on the type of CA in connection with the camera.

2-5. Periodic Replacement Part

Parts listed below are periodic replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N
①	PAD ASSY (LARGE)	A-8278-237-A
②	PAD ASSY (SMALL)	A-8278-238-A
③	WIND SCREEN	3-708-875-0X
④	MIC CUSHION, RUBBER	3-692-138-0X
⑤	COVER, SW	3-676-244-1X
⑥	EYE CUP	3-723-079-0X
⑦	CAP, CONNECTOR	3-692-914-1X



2-6. Cleaning

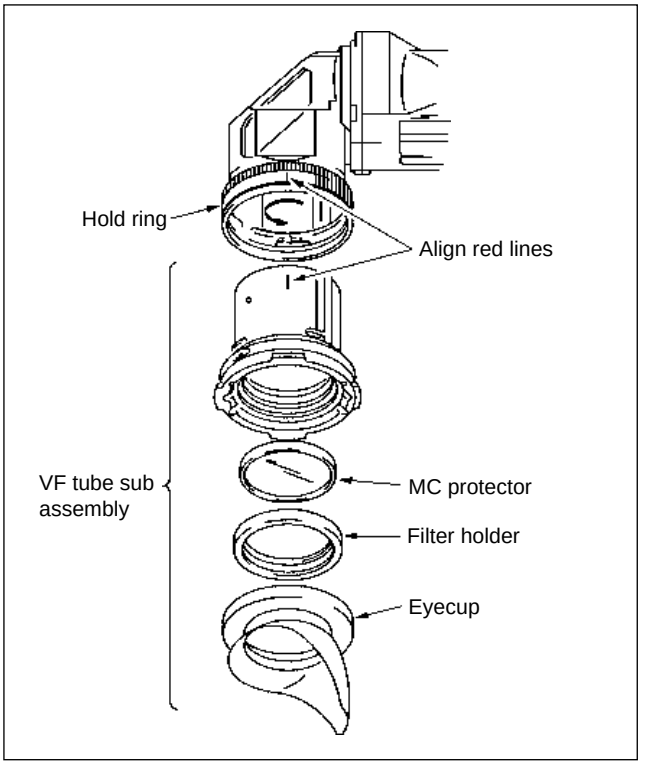
2-6-1. Cleaning of Viewfinder

By extracting VF tube sub assy, lens and MC protector can be easily cleaned. And also dust on the CRT surface or mirror can be easily cleaned off.

1. Turn the hold ring to the left and extract the VF tube sub assy.
2. Detach the eyecup.
3. Remove the MC protector with a commercially available camera lens cleaner. Blow off dust with a blower carefully so as not to flaw the mirror.
5. After the cleaning is completed, install by reversing the preceding steps. Align red lines of the VF tube and VF tube sub assy when inserting, and turn the hold ring to the right until it locks.

Notes

- Do not use any type of solvent, such as alcohol, benzine or thinner to remove stains.
- Be sure to attach the eyecup to the VF, or the MC protector may come off.
- To protect the viewfinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.



2-6-2. Cares After Using at Special Environment

It is recommended to check the following items after gathering the news at seaside, dust area or spa.

1. Clean off sand and other dust in the unit carefully.
2. Do not allow salt in seawater or sulfur in spa to contact a not-painted surface of the cabinet. They may cause to corrode. Clean with alcohol immediately if contacted.
3. Clean the connection surface of connectors.
4. Carry out the common operation check and check that the unit has not an abnormal sound or operation.

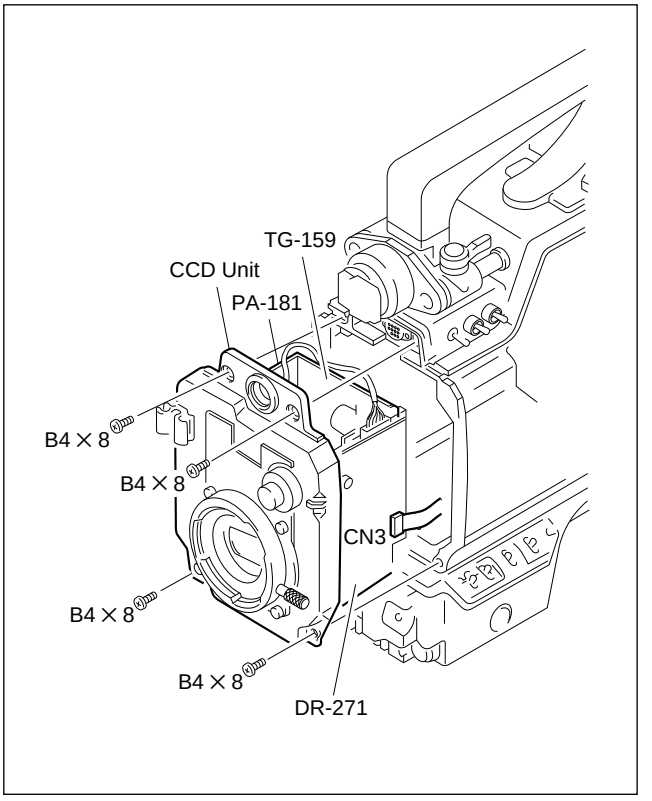
2-7. Replacement of External Connectors

2-7-1. VF Connector

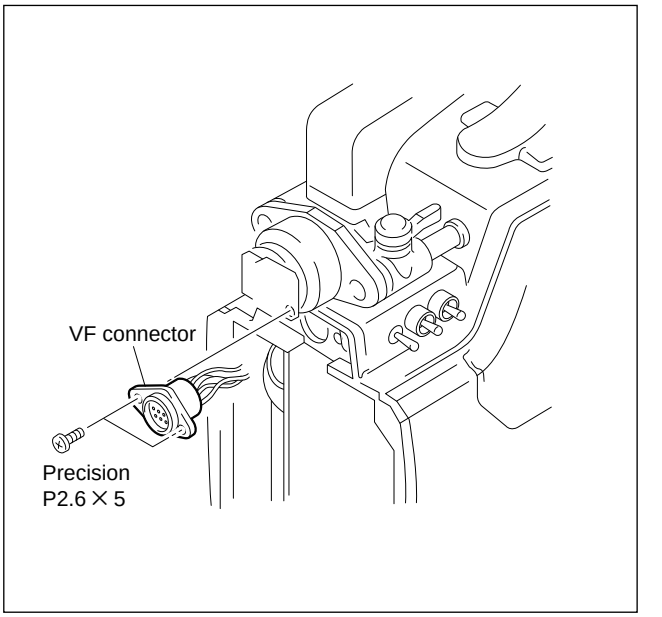
1. Remove the four screws and remove the CCD unit.
2. Disconnect the three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board of the CCD unit.

Note

When disconnecting the flexible card wires, refer to "2-8. Disconnecting/Connecting of Flexible Card Wires".



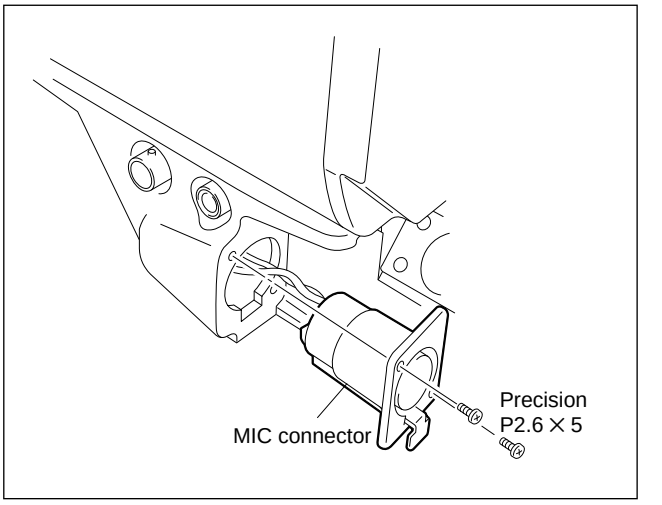
3. Remove the two screws and remove the VF connector. Then unsolder it.



4. Install a new connector in the reverse procedures of removal.

2-7-2. MIC Connector

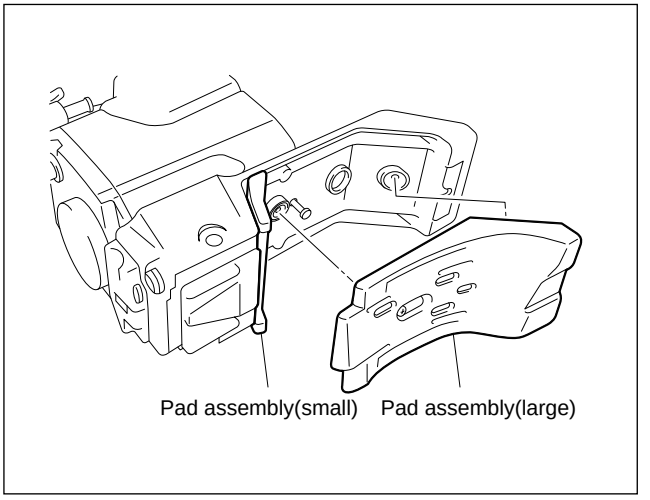
1. Remove the two screws and remove the MIC connector.
   Then unsolder it.



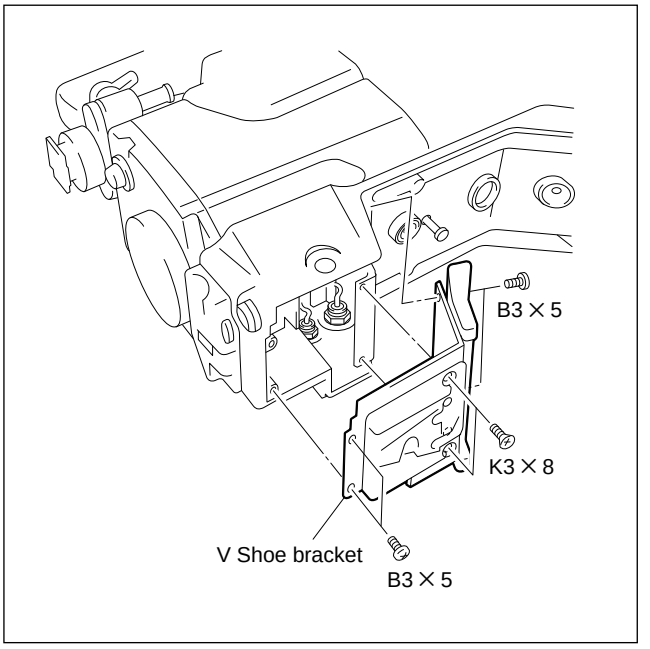
2. Install a new connector in the reverse procedures of removal.

2-7-3. TEST OUT/REMOTE Connector

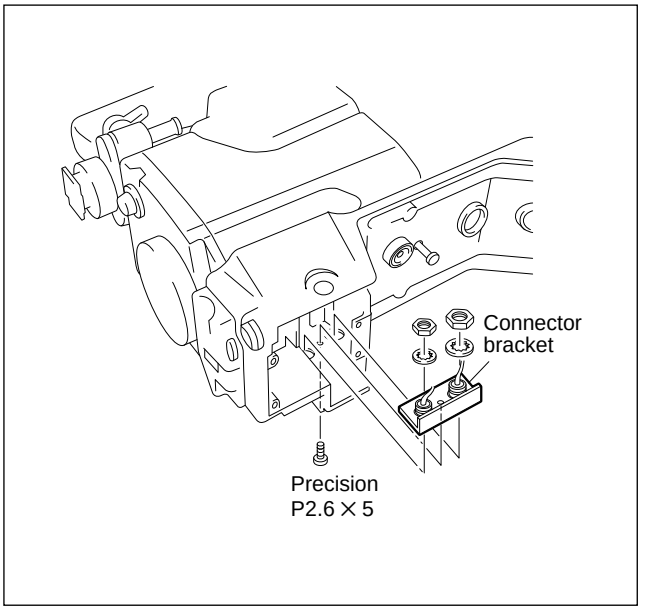
1. Remove the three screws and remove the Pad Assembly (Large).



2. Remove the seven screws and remove the V shoe bracket.



3. Remove the screw and remove the connector bracket.Unsolder the TEST OUT/REMOTE connector. Remove the each nut and remove the TEST OUT/ REMOTE connector.



4. Install a new connector in the reverse procedures of removal.

2-8. Disconnecting/Connecting of Flexible Card Wires

The flexible card wires are used between the MB-602 board and the CCD unit, the MB-602 board and the CN-1120/1121/1122/PR-211 boards. Be careful not to bend these wires. This shortens the wire life.

Disconnecting

1. Turn off the power of the camera.

Type A

(between the MB-602 board and CCD unit)

2. Lift up the portion A in the direction of the arrow and disconnect the flexible card wire.

Type B

(between the MB-602 board and CN-1120/1121/1122/PR-211 boards)

2. Slide portion B in the direction of the arrow and disconnect the flexible card wire.

Connecting

Notes

- Be careful not to insert the flexible card wires obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

Type A

(between the MB-602 board and CCD unit)

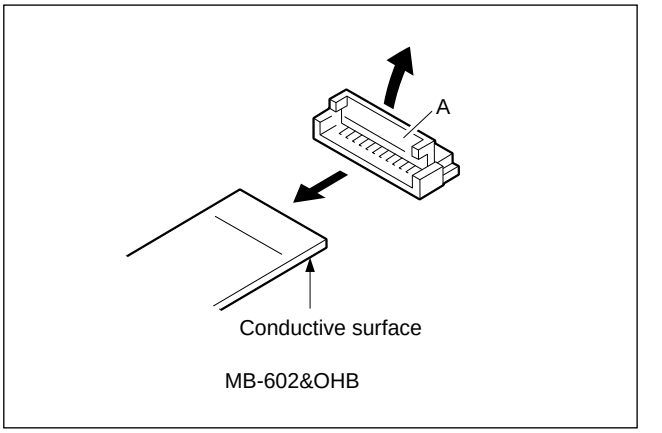
1. Lift up the portion A in the direction of the arrow. Insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Push down the portion A to secure the flexible card wire.

Type B

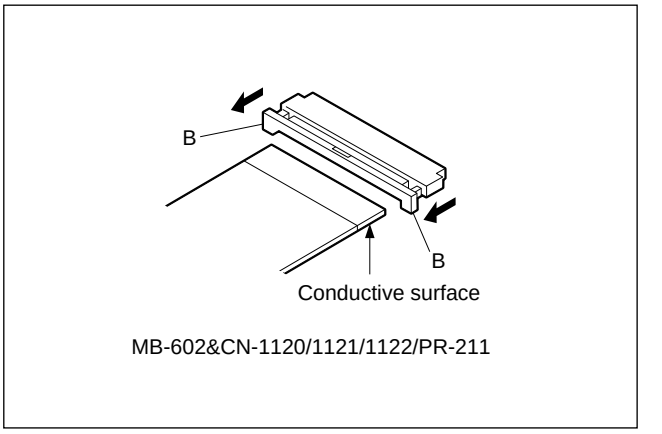
(between the MB-602 board and CN-1120/1121/1122/PR-211boards)

1. Slide portion B in the direction of the arrow and insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Slide portion B in the opposite direction of the arrow and lock each connector.

Type A



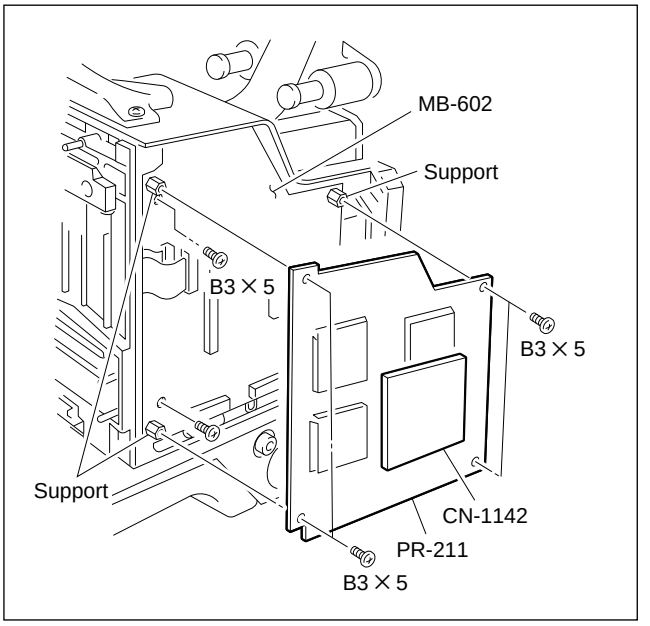
Type B



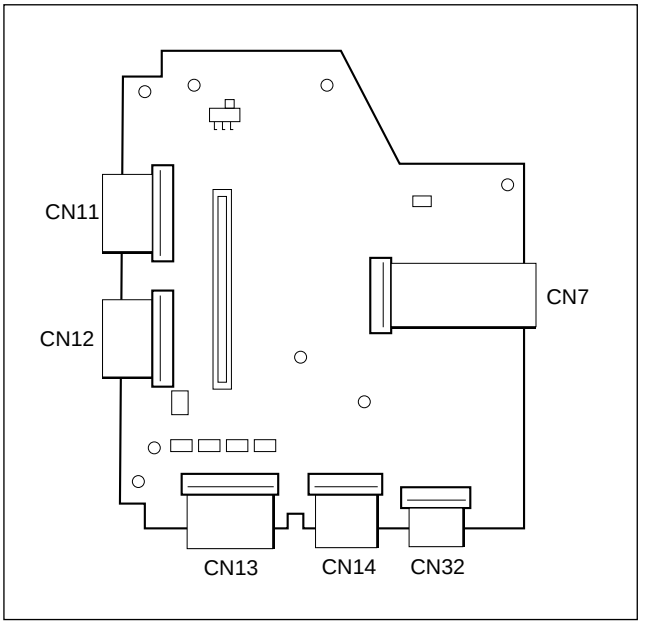
2-9. Board Replacement

2-9-1. MB-602 Board

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards.
3. Remove the four screws and remove the PR-211 board.
4. Disconnect the four connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.
5. Remove the four screws and remove the four supports. Remove the MB-602 board.



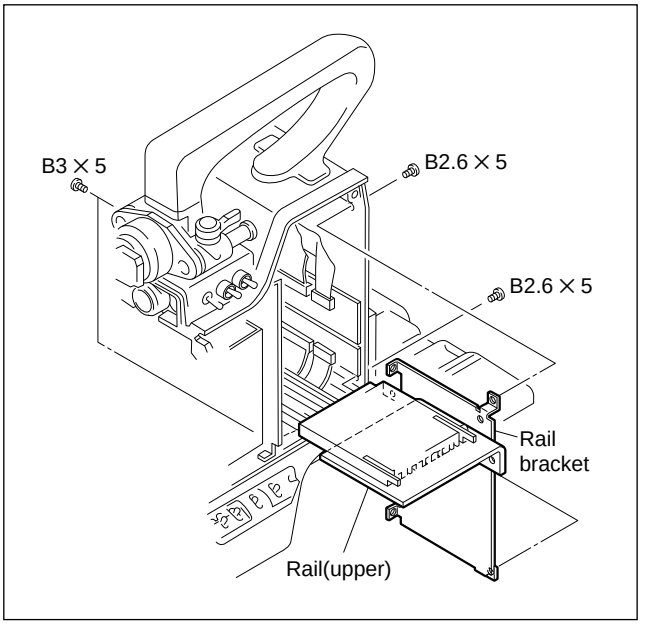
6. Disconnect the connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.



7. Install a new board in the reverse procedures of removal.

2-9-2. CN-1120/1121 Board

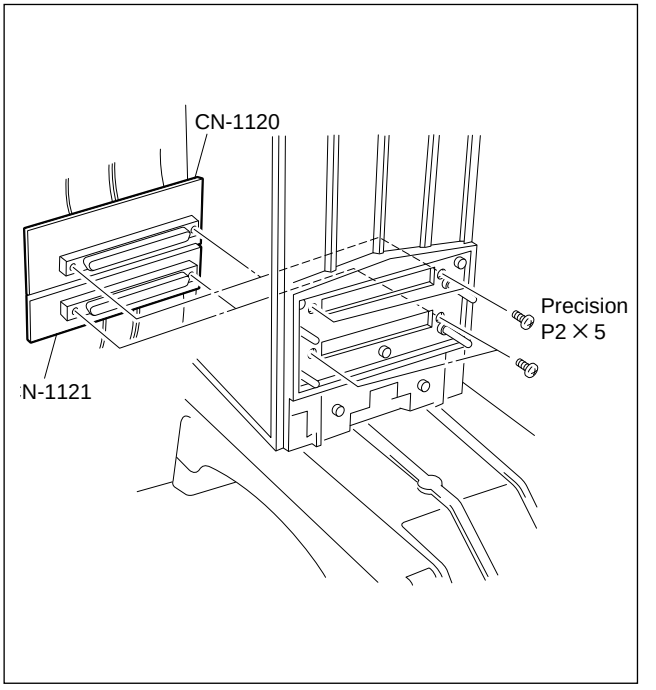
1. Remove the right side panel of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards and the four shielding plates.
3. Remove the DC/DC convertor unit.
   (Refer to “2-11. Replacement of DC/DC Convertor Unit”.)
4. Remove the rail(upper).
5. Remove the four screws and remove the rail bracket.



6. Remove the two screws and remove the CN-1120/1121 board.
7. Disconnect the connector.

   Note

   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.

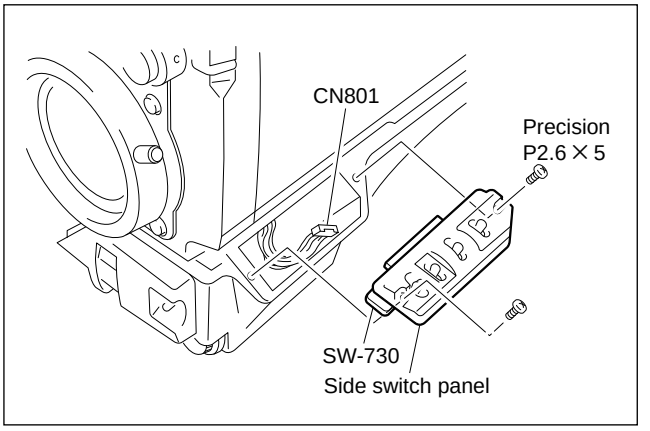


8. Install a new board in the reverse procedures of removal.

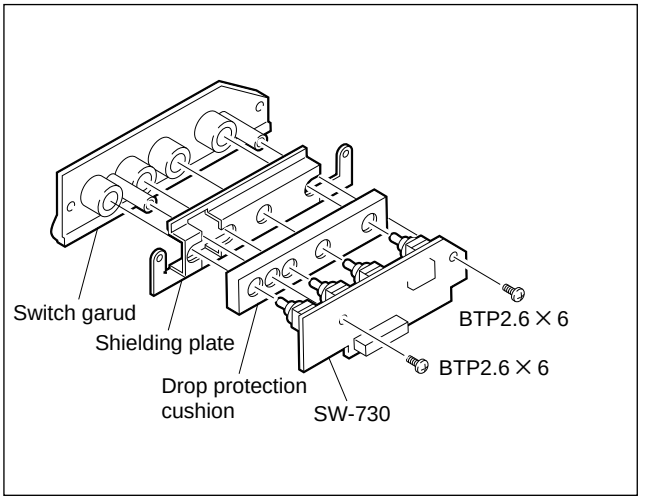
2-10. Replacement of Function Switches

2-10-1. Side Switch Panel Block

1. Remove the two screws and remove the side switch panel.
2. Disconnect the connector CN801 on the SW-730 board.



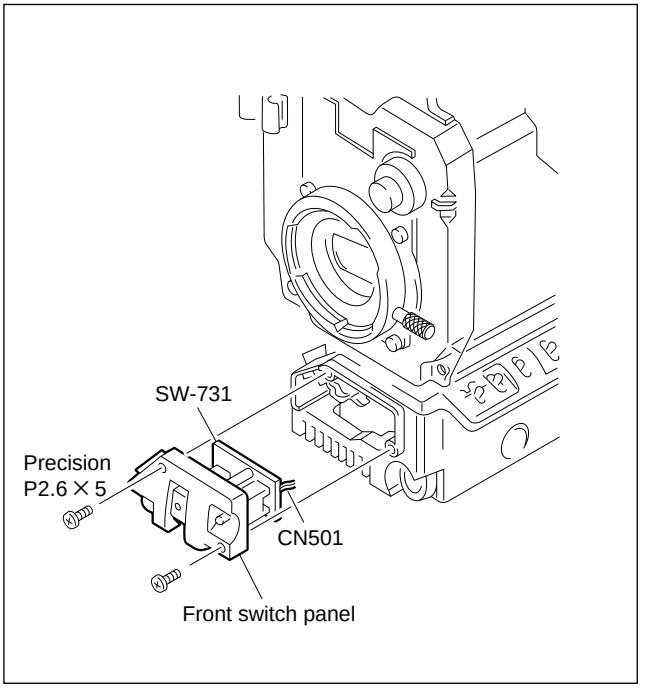
3. Remove the two screws.Remove the SW-730 board, shielding plate and drop protection cushion.
4. Unsolder the terminals and remove the switch to be replaced.



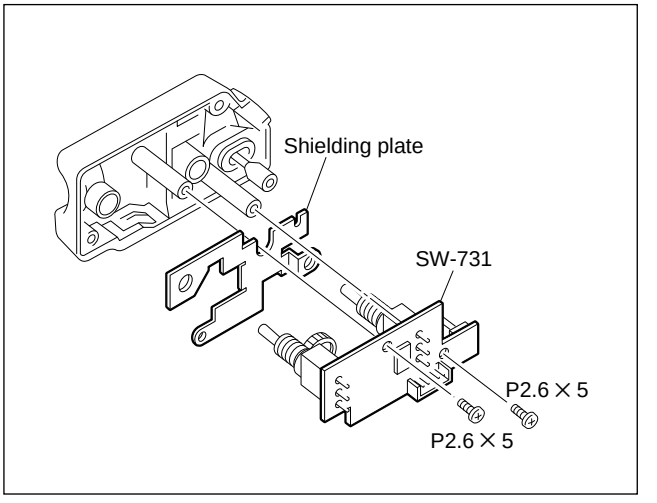
5. Install a new switch in the reverse procedures of removal.

2-10-2. Front Switch Panel Block

1. Remove the two screws and remove the front switch panel.
2. Disconnect the connector CN501 on the SW-731 board.



3. Remove the two screws.Remove the SW-731 board, knob packing, VR knob and shielding plate.
4. Unsolder the terminals and remove the switch to be replaced.



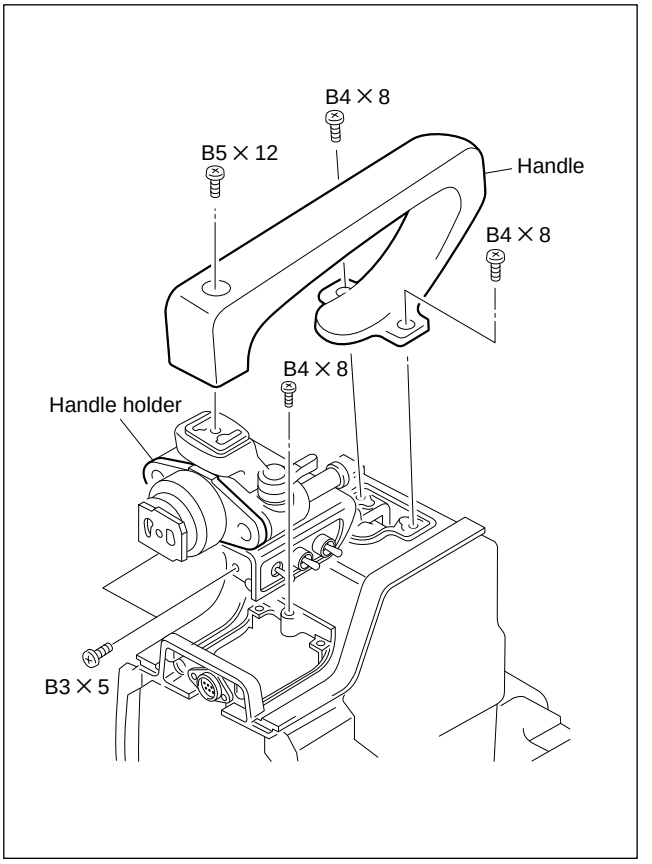
5. Install a new switch in the reverse procedures of removal.

2-10-3. VF DISP Switch

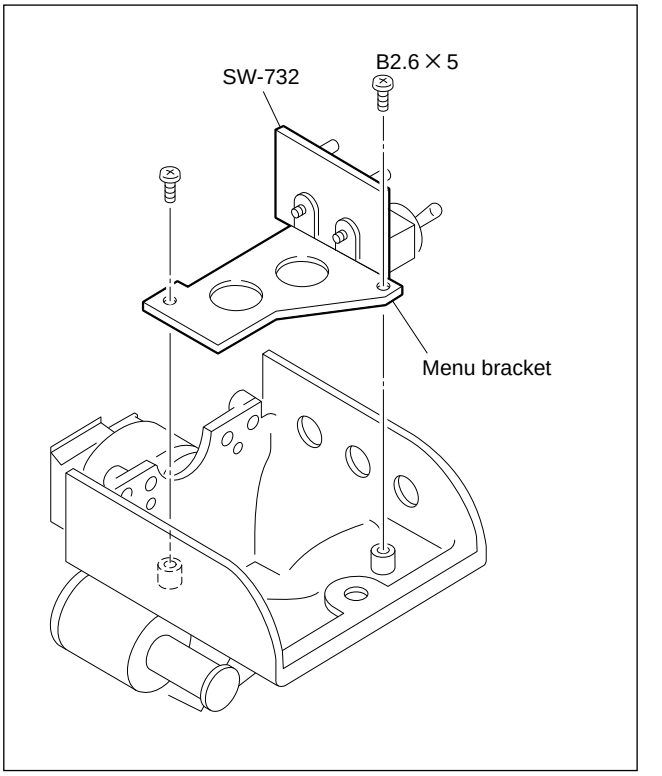
1. Remove the four screws and remove the CCD unit referring to “2-7-1. VF Connector”.
2. Disconnect three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board.

   Note

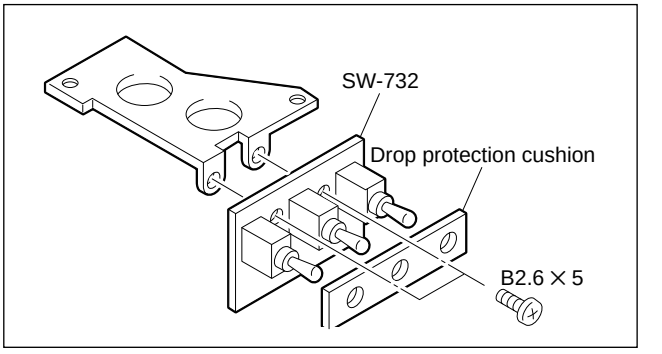
   When disconnecting the connectors, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires” and “2-7-1. VF Connector”.
3. Remove the three screws and remove the handle.
4. Remove the three screws and remove the handle holder.



5. Remove the two screws and remove the menu bracket.



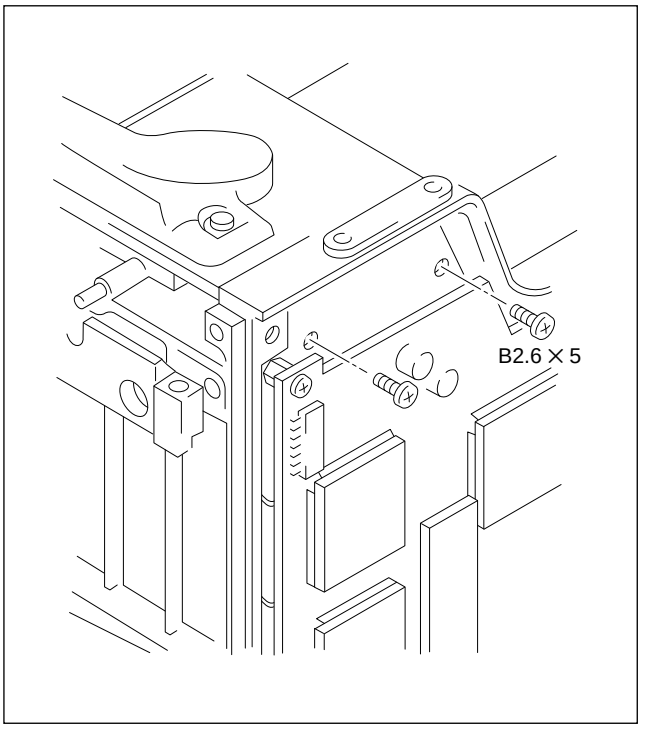
6. Remove the two screws and remove the SW-732 board and the drop protection cushion.
7. Unsolder the terminals and remove the switch to be replaced.



8. Install a new switch in the reverse procedures of removal.

2-11. Replacement of DC/DC Convertor Unit

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Remove the two screws on the left side of the camera shown in the figure.

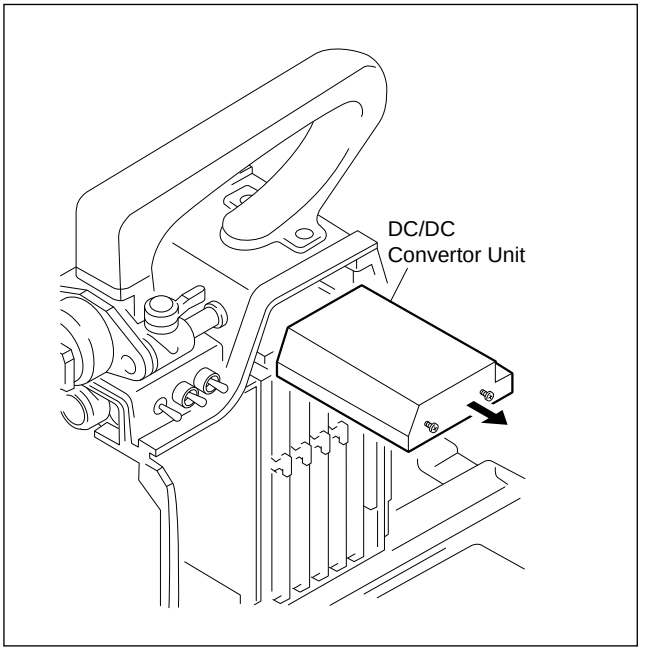


3. Thread the two screws that were removed in Step 2, into the holes of the DC/DC convertor unit three turns.

Note

Never turn the two screws more than three turns.

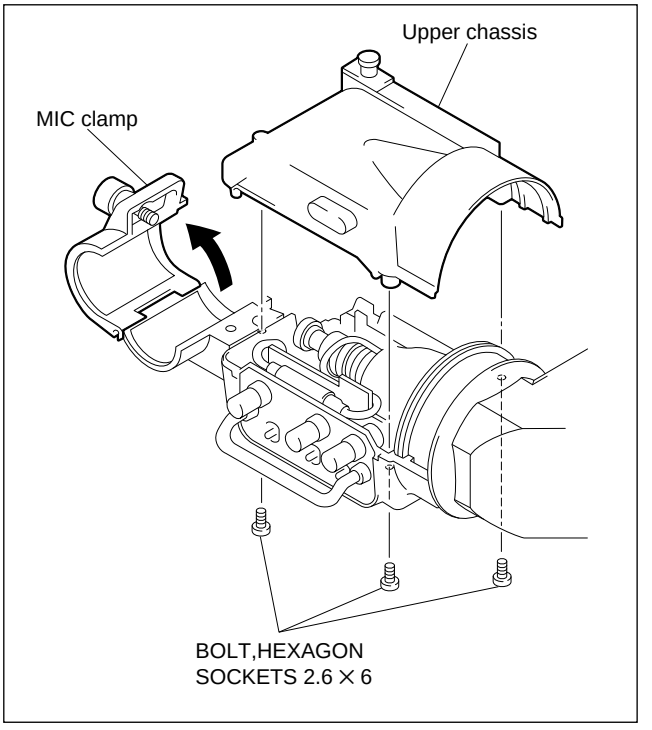
4. Hold the two screws with hands and remove the DC/DC convertor unit.



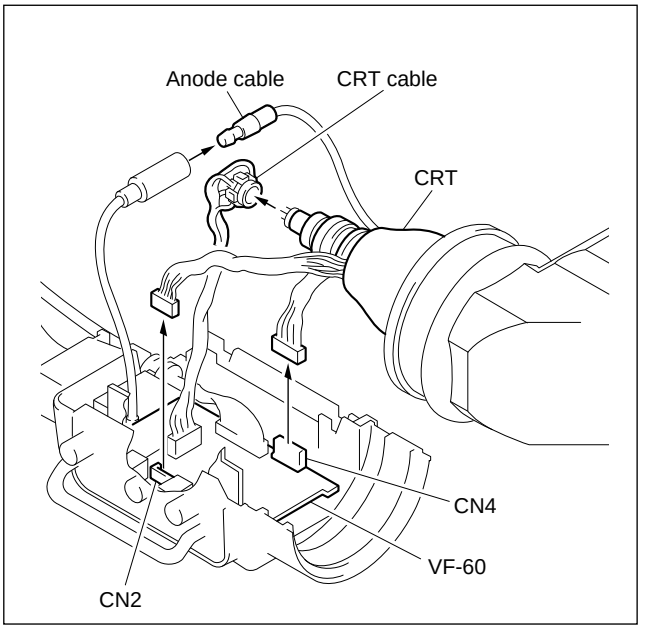
5. Install a new DC/DC convertor unit pushing with hands.
   Secure it to the MB-602 board with the two screws that were removed in Step 2.

2-12. Replacement of CRT on Viewfinder

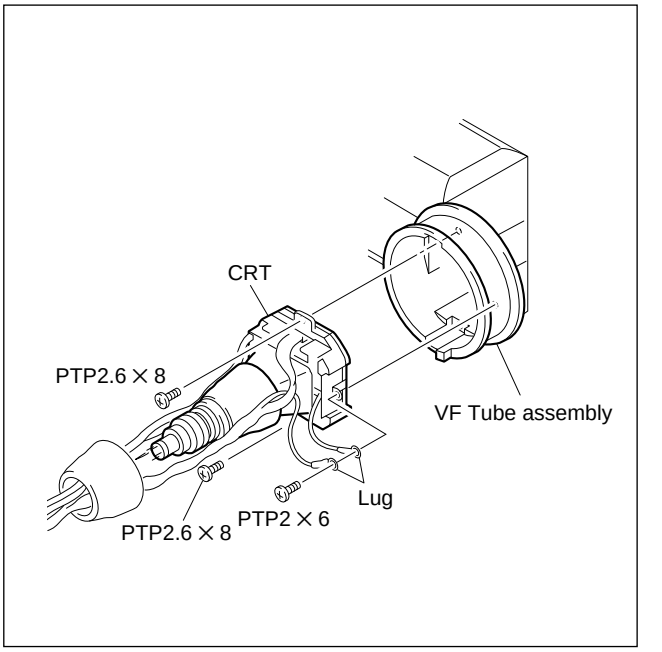
1. Loosen the screw of the MIC clamp and open the MIC clamp.
2. Remove the three screws and remove the upper chassis.



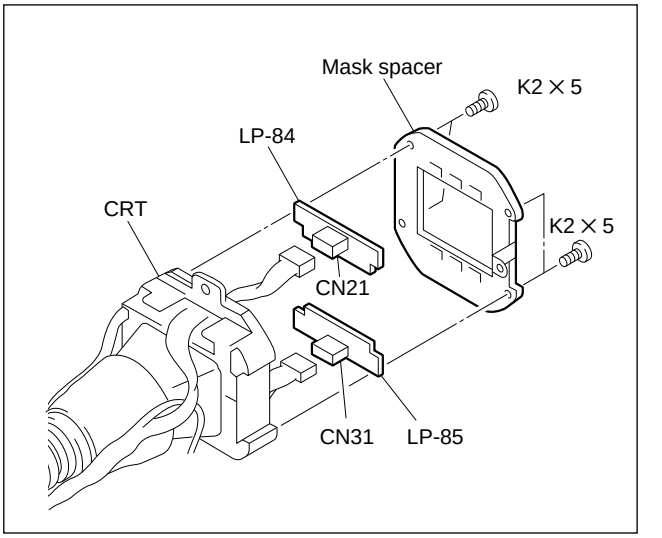
3. Disconnect the three connectors CN2, CN4 and anode cable of the VF-60 board.
4. Remove the CRT socket from the CRT.



5. Remove the three screws and remove the CRT from the VF tube assembly.
6. Remove the CRT tube from the CRT.



7. Remove the four screws and remove the mask spacer.
8. Disconnect the connectors CN21 on LP-84 board and CN31 on LP-85 board.



9. Install a new CRT in the reverse procedures of removal.

Note

When installing the upper chassis, take care not to clamp the harness between upper and lower chassis.

Section 3
Setup Menu

3-1. Setup Menu

The Setup menu is used to select settings of camera operation, select items to be displayed on the view-finder screen, and select the way the items are displayed.
It is also used for adjustment. The menu appears on the viewfinder screen.
By changing a setting through this menu, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

• Configuration of the Setup Menu

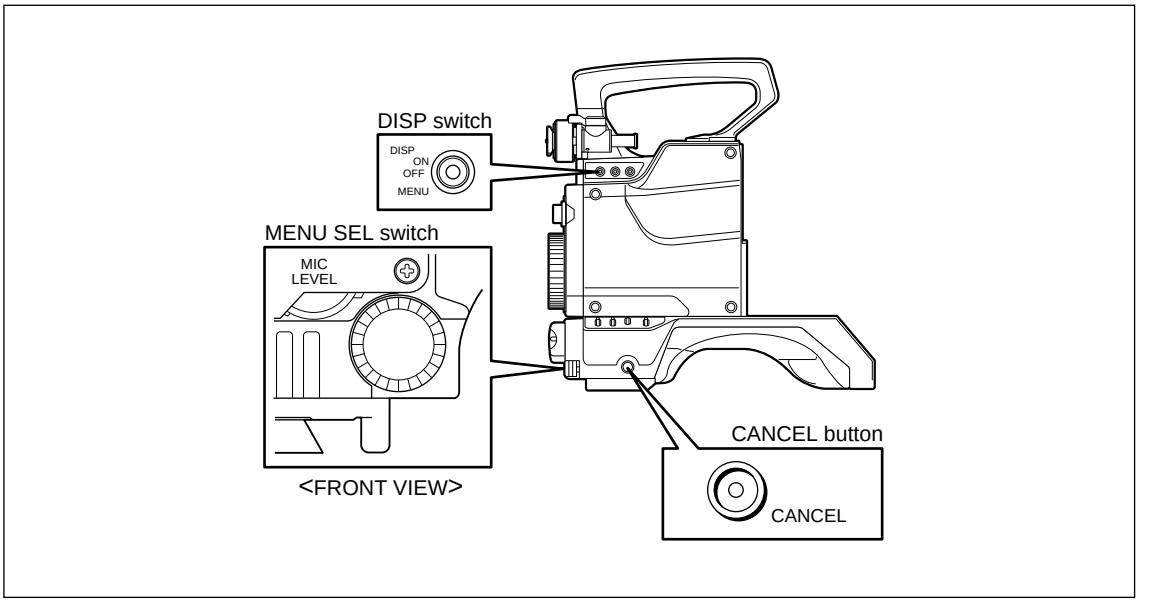
The setup menu consists of the following menus
- Operation menu
- Paint menu
- Maintenance menu
- Reference menu
- Triming menu
- System config menu

Operation and Paint menus are normally accessible. To display the other menus, switch setting of the AT-95 board is required. For details, refer to Section 1-4. “Function of Internal Switches—AT-95 board”

• Equipment required

CCD Unit OHB-450/550 series
Camera Adaptor CA-550/550P
Supply power from a camera control unit CCU-700/700P, AC adaptor AC-550/550CE or VTR.

• Switches and Button



DISP switch

ON : Displays characters and messages indicating the video camera settings and operation status.
OFF : No character or marker display appears on the viewfinder screen.
MENU : The setup menu appears on the viewfinder screen.

MENU SEL switch

Selects the menu item or setting value displayed on the viewfinder screen.

CANCEL button

Cancels the contents of a menu setting, or returns to the page select mode or TOP menu.

Note

The TOP menu screen indicates the entire configuration of menu items.
To display the TOP menu, set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch.

- **Basic Operation**

1. Displaying the menu
   To display the Operation menu, set the DISP switch to MENU.
   To display the other menus than the Operation menu, first of all, the TOP menu shall be displayed.
   To display the TOP menu, set the DISP switch to MENU while holding down the MENU SEL switch. Then turn the MENU SEL switch to move the cursor to a menu item which you want and press the MENU SEL switch.
2. To shift the page, turn the MENU SEL switch with a page scroll bar displayed at the top-right of the screen until the desired page is displayed and press the MENU SEL switch.
   The menu enters the item select mode and the page scroll bar disappears.
3. To shift the item, turn the MENU SEL switch until the → cursor points the item to be set and press the MENU SEL switch.
4. To change the value, turn the MENU SEL switch. You can change the values quickly by turning the MENU SEL switch fast. You can make very fine adjustments by turning the switch slowly. By pressing the MENU SEL switch, the setting is entered.
5 The menu page is returned to the item select mode or page select mode every time the CANCEL button is pressed.
6. To exit from the setup menu, set the DISP switch to OFF.

- **ROM version**
  Contents in the menu and factory settings may differ from the descriptions in this manual depending on the version of ROM on the AT-95 board.

3-1-1. Operation Menu

This menu contains items contained for changing camera settings to suit shooting conditions during normal camera operations.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VF DISPLAY	ZOOM	[ON], OFF	Turns on and off the indications of zoom position and lens extender.
	SHUTTER	[ON], OFF	Turns on and off the indications of shutter speed and mode.
	IRIS	[ON], OFF	Turns the iris setting indication on and off.
	AUDIO	[ON], OFF	Turns the audio level indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	TAPE	[ON], OFF	Turns the tape-remaining indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	ZEBRA	ON, OFF	Turns the zebra indication on and off. (Corresponds to the ZEBRA switch of VF connected to the camera.)
	MESSAGE	[ON], OFF	Turns on and off the indication of message in changing each setting of filter, white balance memory, gain value, DCC(auto knee) and shutter speed. The indication is displayed within three seconds in the center of the viewfinder screen.
	MODE	CHG, [USR]	CHG : The indications of the optical filter, white balance memory and gain value are displayed only when they differ from the standard settings (FILTER:1B, WHITE:A, GAIN:0dB) USR : The indications are displayed corresponding to the settings on the VF DISPLAY page.
	FILTER	*, [ON], OFF	Turns the optical filter indication on and off.
	WHITE	*, [ON], OFF	Turns the white balance memory indication on and off.
	GAIN	*, [ON], OFF	Turns the gain value indication on and off.
MARKER	CENTER	[ON], OFF	Turns the center marker indication on and off.
	SAFETY ZONE	80%, [90%] , OFF	Turns the safety zone marker indication on and off and selects the area indicated by that marker.
	BOX CURSOR	ON, [OFF]	Turns the box cursor indication on and off.
	BOX H POS	-99 to 99 ([0])	Shifts horizontally the location of the box cursor on the screen.
	BOX V POS	-99 to 99 ([0])	Shifts vertically the location of the box cursor on the screen.
	BOX WIDTH	00 to 99 ([41])	Sets the width of the box cursor.
	BOX HEIGHT	00 to 99 ([10])	Sets the height of the box cursor.
MASTER GAIN	LOW	-3,[0], 3, 6, 9, 12, 18, 24, 30 dB	Selects the gain value for each gain switch position (LOW, MIDDLE, HIGH)
	MID	-3, 0, 3, 6, [9], 12, 18, 24, 30dB	
	HIGH	-3, 0, 3, 6, 9, 12, [18], 24, 30dB	

Page	Item	Settings	Contents
WIDE SCREEN	16:9/4:3 MODE	[16:9], 4:3	Selects the aspect ratio for the video signal output.
(For OHB-550WS /550WSP)	VF ASPECT	[AUTO], 4:3	Selects the aspect ratio for the viewfinder indication. AUTO : Automatically selects according to the aspect ratio selected by 16:9/4:3 MODE on the WIDE SCREEN page. 4:3 : Selects 4:3 regardless of the 16:9/4:3 MODE setting.
	4:3 SAFETY	ON, [OFF]	Turns on and off the indication of the frame showing the 4:3 area in the 16:9 mode.
	16:9 ID ON VF	ON, [OFF]	Turns on and off the 16:9 indication in the 16:9 mode on the viewfinder screen. (This setting is valid only when the DISP switch is set to on or off.)
	16:9 ID ON BARS	ON, [OFF]	Selects whether the 16:9 indication is displayed on the internal color-bar in the16:9 mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
MON OUT	BNC TEST OUT	[VBS], RM, VF Y	Selects a video signal to be output at TEST OUT connector. VBS : Color composite signal RM : The same as a signal ouput to RM-P9 Y : Y(monochrome) signal
	RM/MON CHAR	[ON], OFF	Selects whether character signals displayed on the viewfinder screen are mixed with the VBS signal to be output to RM-P9, or not. Turning on is convenient to operate the setup menu by RM-P9.
	VBS LOCK	ON, [OFF]	Used to prevent misoperation by ENC/RGB switch. ON : ENC signal is output at TEST OUT connector regardless of ENC/RGB switch setting. OFF : A signal selected by ENC/RGB switch is output.
	VF VIDEO MODE	[Y], MIX, NAM	Selects a video signal to be output to the viewfinder. Y : Y=0.3R+0.59G+0.11B; The same as a camera output signal MIX : Y=0.33R+0.33G+0.33B NAM : Selects one of the R, G, and B signal that is maximum in level.
	[RGB]-G	ON, [OFF]	Sets signals selectable by RGB switch. ON : R-G, B-G OFF : R, G, B
AUTO IRIS AUTO KNEE (DCC)	IRIS OVERRIDE	-99 to 99 ([0])	Sets the reference value for automatic iris adjustment. -99 (further closed) ↔ 99 (further opened)
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
	AUTO KNEE POINT	-99 to 99 ([XX])	Sets the point on which the knee function starts to have effect in the auto-knee mode.
	AUTO KNEE SLOPE	-99 to 99 ([XX])	Sets the volume of the effect of the knee function in the auto-knee mode.
STAND ALONE	H PHASE	-99 to 99 ([XX])	Sets the horizontal phase of the camera in the genlock mode.
	SC PHASE	0 to 360([XX])	Sets the subcarrier phase of the camera in the genlock mode.
	CABLE COMP	ON, [OFF]	Turns on and off the cable compensation circuit for the external sync signal in the genlock mode.
	SNG BARS	ON, [OFF]	Turns the color-bar signal for SNG on and off.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the MASTER BLACK level.
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	CF PULSE	[ON], OFF	Turns on and off the color framing pulse supplied to the VTR.
	SKIN DETAIL	ON, [OFF]	Turns the skin tone detail function on and off.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)

Page	Item	Settings	Contents
AUTO SETUP	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output.
DIAGNOSIS	OHB	[OK], NG	Displays a state of communication for control data between the OHB block and CPU on AT board.
	PR	[OK], NG	Displays a state of communication for control data between the PR board and CPU on AT board.
	VA	[OK], NG	Displays a state of communication for control data between the VA board and CPU on AT board.
	AT	[OK], NG	Displays a state of communication for control data between the CPU and memory on AT board.
	SG	[OK], NG	Displays a state of communication for control data between the SG board and CPU on AT board.
	DA	[OK], NG	Displays a state of communication for control data between DA board and CPU on AT board.
	IF	[OK], NG	Displays a state of communication for control data between IF board and CPU on AT board.
	MD	[OK], NG	Displays a self-diagnosis result of MD board (of camera adaptor).
	AU	[OK], NG	Displays a self-diagnosis result of AU board (of camera adaptor).
	TR	[OK], NG	Displays a self-diagnosis result of TR board (of camera adaptor).
CAMERA ID	ID: □□□□□□□		Sets a camera ID of up to ten alphanumerics, symbols, and spaces.
	ID ON BARS	ON, [OFF]	Selects whether the camera ID is mixed with a camera output signal only in the color-bar mode, or not.

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
1. Lens is automatically closed and the black balance is automatically adjusted.
2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

Note

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

3-1-2. Paint Menu

The Paint menu is used for white and other paint adjustments items. To activate the Paint menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VIDEO LEVEL	WHITE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B gain level.
	BLACK R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master black level.
	FLARE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B flare level.
	GAMMA R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master gamma correction curve.
	FLARE	[ON], OFF	Turns the flare correction circuit on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : outputs the sawtooth waveform test signal 2 : outputs 3-step waveform test signal OFF : no test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the VIDEO LEVEL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL1	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding the detail signal.
	LEVEL	–99 to 99 ([0])	Adjusts the master level for the detail signal.
	LIMITTER	–99 to 99 ([0])	Adjusts the clipping level against the maximum detail level.
	CRISPENING	–99 to 99 ([0])	Adjusts the level at which the detail signal is crispened.
	LEVEL DEP	–99 to 99 ([0])	Adjusts the level to control the detail signal used at lower signal level.
	LEVEL DEP	[ON], OFF	Turns the level depend function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the DETAIL 1 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL2	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding detail signal.
	H/V RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H and V detail signal.
	FREQUENCY	–99 to 99 ([0])	Adjusts the boost frequency for H detail signal.
	MIX RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H detail signal used before and after the gamma compensation circuit.
	W.LIMITTER	–99 to 99 ([0])	Adjust the clipping level adainst the higher detail signal at the maximum level.
	B.LIMITTER	–99 to 99 ([0])	Adjusts the clippping level against the lower detail signal at the minimum level.
	COMB	–99 to 99 ([0])	Sets the effect volume of the comb filter 99 (Causes less cross colors.) ↔ –99 (Yields clear pictures, but causes more cross colors.) * For a PAL model, this function has the effect on not every object but a specified object.
	KNEE APRT.	ON, [OFF]	Turns the knee aperture function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL2 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
SKIN DETAIL	SKIN DETAIL	ON, [OFF]	Turns the skin detail function on and off.
	LEVEL	–99 to 99 ([0])	Adjusts the level of the skin detail.
	PHASE	100° to 170°([0])	Adjusts the hue for the skin detail function.
	WIDTH	0° to 90° ([0])	Adjusts the color width for the skin detail function.
	SATURATION	–99 to 99 ([0])	Adjusts the color saturation of the skin detail function.
	GATE	ON, [OFF]	Turns the area display of the skin detail function in the viewfinder screen.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Sets the range of skin detail hue function automatically. (Does not function at preset.)
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the SKIN DETAIL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
GAMMA	GAMMA, R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B and master gamma level.
	COARSE	0.40, [0.45], 0.50	Selects the gamma value in steps.
	GAMMA	[ON], OFF	Turns the gamma value on and off.
	BLACK GAMMA	–99 to 99 ([0])	Adjusts the black gamma (master). (Note: A noise appears on the screen during operation.)
	BLACK GAMMA	ON, [OFF]	Turns the black gamma function on and off. (Note: A noise appears on the screen during operation.)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Resets all settings on the GAMMA page to the factry settings. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
KNEE/W.CLIP	POINT	–99 to 99 ([0])	Adjusts the knee point level when the function is OFF.
	SLOPE	–99 to 99 ([0])	Adjusts the knee slope level when the function is OFF.
	KNEE	[ON], OFF	Turns the knee function on and off.
	AUTO KNEE	ON, [OFF]	Turns the auto knee function on and off.
	KNEE MAX	ON, [OFF]	Turns on and off the knee max function which changes the slope to completely collapsed form.
	WHITE CLIP	–99 to 99 ([0])	Adjusts the white clip level.
	WHITE CLIP	[ON],OFF	Turn the white clip function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the KNEE/W.CLIP page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
MATRIX	R-G, R-B	–99 to 99 (0)	Compensates the user's matrix (sets an optional value as the constant for R-G, R-B, G-R, G-B, B-R, and B-G).
	G-R, G-B	–99 to 99 (0)	
	B-R, B-G	–99 to 99 (0)	
	MATRIX	ON, OFF	Turns the matrix compensation on and off.
	USER[a]	ON, OFF	Turns the user's matrix compensation on and off.
	PRESET[a]	ON, OFF	Turns on and off only the preset matrix compensation (fixed constant compensation).
	TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step form test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the MATRIX page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
SCENE FILE	1	Storing and recalling a scene file (painting data corresponding to a shot scene)	
	2	**Storing a scene file**	
	3	1 Turn MENU SEL switch to move the → cursor to "FILE STORE," then press MENU SEL switch. "FILE STORE" flashes on the viewfinder screen.	
	4		
	5	2 Select the file number (1 to 5) to be stored to.	
	FILE STORE	(If data is already stored at the selected location, the new data replaces the current data.) **Recalling a scene file** Turn MENU SEL switch to move the → cursor to the file number whose data is to be recalled, then press MENU SEL switch. • When MENU SEL switch is pressed, the scene file data replaces the current settings. • When the scene file is recalled, an asterisk appears next to the number.	
	STANDARD	Returns the current amount of paint adjustments and switch setting to their reference value stored as a reference file.	

a) When both USER and PRESET are set to ON, the matrix constant compensation is total value of the USER and PRESET matrix.

3-1-3. Maintenance Menu

The Maintenance menu is used for encoder output level and other adjustments items necessary for camera's maintenance. The Maintenance menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required.
For details, refer to Section 1-4. "Function of Internal Switches—AT-95 board".
To activate the Maintenance menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Item	Settings	Contents
VBS	SYNC LEVEL	-99 to 99 (XX)	Adjusts the sync level of camera's encoder output signal.
	Y LEVEL	-99 to 99 (XX)	Adjusts the Y level of camera's encoder output signal.
	BURST LEVEL	-99 to 99 (XX)	Adjusts the burst level of camera's encoder output signal.
	CHROMA LEVEL	-99 to 99 (XX)	Adjusts the chroma level of camera's encoder output signal.
	Q/V LEVEL	-99 to 99 (XX)	Adjusts the Q (or V) level of camera's encoder output signal.
	SET UP	-99 to 99 (XX)	Adjusts the sync level of camera's encoder output signal. (This setting is valid only for NTSC.)
	BF PHASE	-99 to 99 (XX)	Adjusts the burst phase of camera's encoder output signal.
	SC-H PHASE	-99 to 99 (XX)	Adjusts the SC-H phase of camera's encoder output signal.
	V BLANKING	19,20,21H	Adjusts the V blanking width of camera's encoder output signal. (This setting is valid only for NTSC.) In connection with CCU, the width is fixed to 19H. * For a PAL model, the width is fixed to 25H at all times.
WHITE SHADING	V SAW R/G/B/M	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, B or master white shading.
	V PARA R/G/B	-99 to 99 (XX)	Adjusts the volume of V.PARA compensation for the R, G, or B white shading.
	H SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of H.SAW compensation for the R, G, or B white shading.
	H PARA R/G/B	-99 to 99 (XX)	Adjusts the volume of H.PARA compensation for the R, G, or B white shading.
	WHITE R/G/B	-99 to 99 (XX)	Adjusts the R, G, or B white level.
	V MOD	ON, OFF	Turns the V modulation shading on and off.
	V MOD R/G/B/M	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, B or master modulation shading of the lens and prism.[b]
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the WHITE SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)
BLACK SHADING	V SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, or B black shading.
	H SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of H.SAW compensation for the R, G, or B black shading.
	BLK SET R/G/B	-99 to 99 (XX)	Adjusts the volume of BLACK SET compensation for the R, G, or B.
	BLACK R/G/B/M	-99 to 99 (XX)	Adjusts the R, G, B or master black level.
	MASTER GAIN	-3,0,3,6,9,12,18, 24,30 dB (X)	Selects the master gain value.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the BLACK SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)

b) When the master modulation shading is adjusted, the V. SAW component for the R and B V-modulation shadings of the prism is simultaneously compensated.

Page	Item	Settings	Contents
AUTO SET UP	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)
	COLOR MATCH	Press MENU SEL switch to execute.	Starts to automatically perform the COLOR MATCH adjustment to match in color between two or more cameras. (Does not function at present.)
	WHITE SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the white shading. (Does not function at present.)
	BLACK SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the black shading. d)
DATE/TIME	DD/MM/YY HH:MM:SS		Adjusts a built-in timer. (HH;hour/MM;minute only)
	DATE ON BARS	ON, [OFF]	Selects whether the date characters are mixed with a camera output signal in the color-bar mode, or not.
	TIME ON BARS	ON, [OFF]	Selects whether the time characters are mixed with a camera output signal in the color-bar mode, or not.
OTHERS	S/N MEASURE	ON, [OFF]	ON : Set to ON in mesuring the S/N ratio. And settings of the DETAIL, CHROMA, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MOD MEASURE	ON, [OFF]	ON : Set to ON in mesuring the modulation depth. And settings of the DETAIL, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the master black in measuring the S/N ratio and modulation depth.
	DETAIL	[ON], OFF	
	CHROMA	[ON], OFF	
	GAMMA	[ON], OFF	
	MATRIX	[ON], OFF	
	FLARE	[ON], OFF	

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
   1. Lens is automatically closed and the black balance is automatically adjusted.
   2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

   Note

   This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
   The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

d) Before first using the camera with the OHB-450/451/550/550WS (or their PAL version) installed, or After replacing the CCD unit, be sure to execute the automatic black shading adjustment.

3-1-4. Reference Menu

The Reference menu stores the reference values used for automatic setup adjustment and the standard settings of the switches as the reference files. And the menu can clear the current reference files. The Reference menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-4. “Function of Internal Switches—AT-95 board”. To activate the Reference menu, first display the TOP menu.

Notes

1. Executing the FILE STORE on the REFERENCE FILE page registers settings of items, which have been set through the Paint, Maintenance and System config menus just before the file store, as the reference values.
2. When changed numbers of items are returned to the reference values stored as the reference files, recall the standard file using an MSU/RCP or the setup menu.

Page	Item	Settings	Contents
REFERENCE FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the reference files. (Temporarily clears the current reference files[e].)
LENS FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a lens to be used as the lens files. The standard values are stored at the factory. (Does not function at present.)

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-5. Triming Menu

The Triming menu stores the adjustment data in replacing parts as the triming files. And the menu can clear the current adjustment values. The Triming menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-4. “Function of Internal Switches—AT-95 board”. To activate the Triming menu, first display the TOP menu.

Note

Executing the FILE STORE on the TRIMING FILE page registers settings of items, which have been set through the Maintenance and System config menus just before the file store, as the reference values.

Page	Item	Settings	Contents
TRIMING FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the triming files and returns to the factory-set values. (Temporarily clears the current triming files[e].)
OHB FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a CCD unit to be used as the OHB files. The standard values are stored at the factory.

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-6. System Config Menu

The System config menu is used for adjustments items necessary to replace a printed circuit board or some parts of the camera. The System config menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-4. “Function of Internal Switches—AT-95 board”. To activate the System config menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting. XX or XXX represents two or three digits in hexadecimal.)

Page	Item	Settings	Contents
DATE/TIME	YY/MM/DD HH:MM:SS		Adjusts the built-in calender and timer.
	RESET	Turn MENU SEL switch to execute.	Resets hour (HH), minute (MM) and second (SS) of the timer.
Y/CHROMA	SC FREQ	XXX ([XX])	Adjusts the camera’s subcarrier frequency.
	Y SYNC	XXX ([XX])	Adjusts the sync level of camera’s Y output signal.
	Y SETUP	XXX ([XX])	Adjusts the setup level of camera’s Y output signal.
	Y VIDEO	XXX ([XX])	Adjusts the Y level of camera’s Y output signal.
	TEST SETUP	XXX ([XX])	Adjusts the setup level of camera’s encoder output signal.
	BURST LVL	XXX ([XX])	Adjusts the burst level of camera’s encoder output signal.
	CHROMA LVL	XXX ([XX])	Adjusts the chroma level of camera’s encoder output signal.
	Q/V LEVEL	XXX ([XX])	Adjusts the Q(V) level of camera’s encoder output signal.
	SC-H PHASE	XXX ([XX])	Adjusts the SC-H phase of camera’s encoder output signal.
	REG LVL	XXX ([XX])	Adjusts the level of the R, G and B output signals.
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the Y/CHROMA page.
PR/VR/TEST	PR ADG R/G/B	XXX ([XX])	Adjusts the reference level of the AD converter for R/G/B signals on the PR board.
	VA MOD R/G/B	XXX ([XX])	Adjusts the R, G or B modulation balance for the VA board.
	G CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for G signal on the PR board. (Note: In replacing OHB, readjustment is required to set the maximum value of the modulation depth.)
	R/B CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for R/B signals on the PR board. (Note: In replacing OHB, readjustment is required to set the minimum level of a pseudo signal.)
	M.BLACK	XXX ([XX])	Adjusts the master black signal.
	TEST2 HI	XXX ([XX])	Adjusts the high level of the TEST2 (3-STEP) signal on the VA board.
	TEST2 MID	XXX ([XX])	Adjusts the middle level of the TEST2 (3-STEP) signal on the VA board.
	TEST CLIP	XXX ([XX])	Adjusts the clip level of the TEST1 (sawtooth) signal on the VA board.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PR/VR/TEST page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
PRE KNEE/ZEBRA	PREKNEE1 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 1 level on the VA board.
(Continued)	PREKNEE2 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 2 level on the VA board.
	APERTURE	XXX ([XX])	Adjusts the aperture compensation signal level.

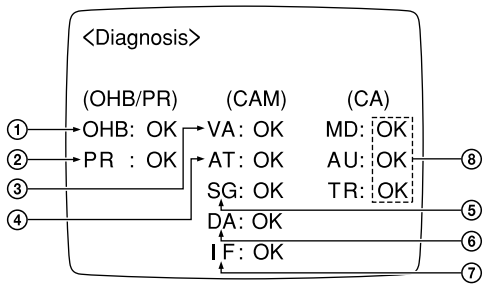
Page	Item	Settings	Contents
PRE KNEE/ZEBRA	WHITE CLIP	XXX ([XX])	Adjusts the white clip level.
	WHITE CLIP	[ON], OFF	Turns the white clip function on and off.
	ZEBRA1 LEVEL,WIDE	XXX ([XX])	Sets the center value and range for the zebra 1 signal detection.
	ZEBRA2 LEVEL	XXX ([XX])	Sets the detection value for the zebra 2 signal.
	Z.DISP	1,2, [1&2]	Selects a zebra signal to be displayed on the viewfinder. 1: Zebra 1 signal 2: Zebra 2 signal 1&2: Both zebra 1 and 2 signals are displayed at the same time.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PREKNEE/ ZEBRA page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
VTR/CCU	VTR R-Y	XXX ([XX])	Adjusts the R-Y color-difference signal level.
	VTR B-Y	XXX ([XX])	Adjusts the B-Y color-difference signal level.
	CCU Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the Y signal.
	CCU R-Y SYNC	XXX ([XX])	Adjusts the level of the sync pulse to be mixed with the R-Y signal.
	CCU B-Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the B-Y signal.
	RGB OFFSET	XXX ([XX])	Adjusts the G signal level.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the VTR/CCU page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the VTR/CCU page.
IRIS	LEVEL	-99 to 99 ([XX])	Adjusts the auto-iris level.
	APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
OTHERS	FILTER,WHT MEM	[ON], OFF	ON: A total of 8 settings of the white balance value can be saved in conbination with the CC filter and WHITE BAL switch settings. OFF: One white balance value can be saved for the WHITE BAL switch setting A or B, for a total of 2 settings.
	NTSC ENC	[WIDE], NRW	Sets the band width of the Q signal for the NTSC color encoder.
	ROTARY	[STD], RVS	Selects the mode of MENU SEL switch (as turned counterclockwise when viewed from the front.) STD: Cursor moves downwards and a numeric value increases. RVS: Cursor moves upwards and a numeric value decreases.
	OWN CALL	R, [F&R], OFF	Selects whether one or two TALLY lamps are lit corresponding to the CALL button of camera adaptor pressed, or not. Or selects which TALLY lamp is lit when the CALL button is pressed. (This setting is valid in connection with CCU. When the camera is used alone, it is always set to OFF.) R: Rear TALLY lamp is lit. R&F: Rear and front TALLY lamps are lit. OFF: No TALLY lamp is lit corresponding to the CALL button.
	CENTER H POS	XXX ([XX])	Shifts horizontally the location of the center marker on the screen.
	CENTER V POS	XXX ([XX])	Shifts vertically the location of the center marker on the screen.
	LENS VTR S/S	TALK, [RET2]	Selects the mode of VTR S/S SW of the lens and camera. TALK: VTR S/S SW of lens functions as INCOM TALK SW (momentary) and that of the camra as RET2 SW. RET2: VTR S/S SW of lens functions as RET2 SW and that of the camera as INCOM TALK SW.
	VF ? DISPLAY	[ON], OFF	Turns on and off the indication of ? mark at the top-right of the VF screen with the DISP switch set to ON when the self-diagnosis result is NG (no good)and so on.

3-2. Self-Diagnosis

The BVP-550/550P has a diagnosis mode used for self-diagnosis of every plug-in board and the OHB. The diagnosis page is displayed on the viewfinder screen.

- Operation
  Select “Diagnosis” page of the Operation menu referring to Section 3-1.

- Viewfinder Screen



- Display Descriptions

Marks	Board/Block	Judging Point for NG
①	OHB(CCD UNIT)	Error in communication with IC18, IC19/TG-159
②	PR-211	Error in communication with IC49
③	VA-163	Error in communication with IC26
④	AT-95	Error in communication with IC46
⑤	SG-234	Error in communication with IC21
⑥	DA-88	Error in communication with IC10
⑦	IF-510	Error in communication with IC155

Refer to CA-550/550P maintenance manual for descriptions on columns of CA.

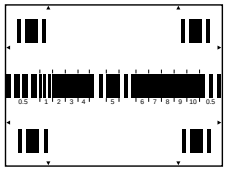
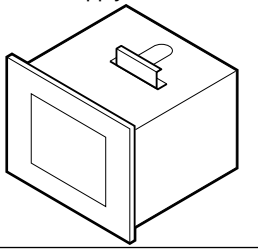
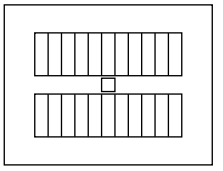
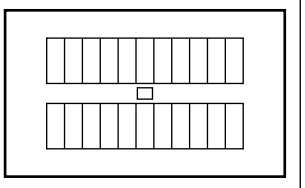
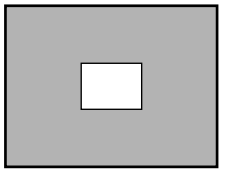
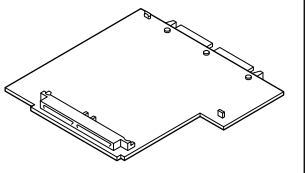
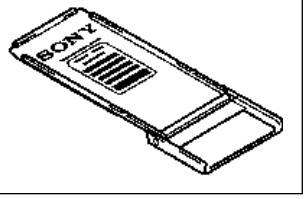
Note

When other equipment than the CA-550/550P is connected to the camera, or when the CA-550/550P is connected to the camera but is not connected to the CCU, the columns ⑧ will display “– –”.

Section 4
Electrical Alignment

4-1. Preparation

4-1-1. Equipment Required

Multiburst Chart	Pattern box PTB-500
Sony P/N: J-6026-110-A 	**Sony P/N: J-6029-140-B** • Light source for test chart Power supply AC90 to 240V 
Grayscale Chart	**Grayscale Chart (16:9)**
Sony P/N: J-6026-130-B 	**Sony P/N: J-6394-080-A** 
White Window Chart	**Extension board EX-464 (option)**
Make a square hole at the center of a black sheet of paper. 	**Sony P/N: J-6395-040-A** For BVP-550/550P plug-in boards 
VF extension harness	**Extension board BKP-7900 (option)**
Sony P/N: J-6395-050-A	For CCU-700/700P plug-in boards 

Equipment

- Digital voltmeter
- Oscilloscope (band width: 150 MHz or more)
- Vectorscope (conform to SETUP 0)
- Waveform monitor
- B/W monitor (Horizontal resolution: 700 lines or more)
- Color monitor
- Video signal generator
  (Tektronix 1410 or equivalent for NTSC)
  (Tektronix 1411 or equivalent for PAL)
- Frequency counter
- Spectrum analyzer
- Audio generator
- DC power supply

Peripheral Equipment

- Camera control unit CCU-700/700P/700A/700AP
- Master setup unit MSU-700
- CCD unit OHB-450/550 series
- Camera adaptor CA-550/550P

4-1-2. Notes on Adjustment

When performing the adjustment, read throughly the following comments.

1. The calibration of all measuring equipment should be completed.
2. Camera control unit and CCD unit alignments should be also completed.
3. “4-1-4. Initial Setting” should be completed.
4. Turn off the power before extending the plug-in board using the extension board.
5. When using the camera as 16:9 mode together with the OHB-550WS/550WSP, use the specified grayscale chart (J-6394-080-A).
6. Paste a black colored velvets (around 3 × 3 cm) to both sides of the full white portion in the center of the grayscale chart.
   (For more details, consult your Sony service represen tative.)
7. When connectting MSU-700 to BVP-550/550P, use MSU-700 for various settings, because the switches on the side panel of the camera become invalid.
8. Setup menu consists of the following menus.
   - Operation
   - Paint
   - Maintenance
   - Reference
   - Triming file
   - System config

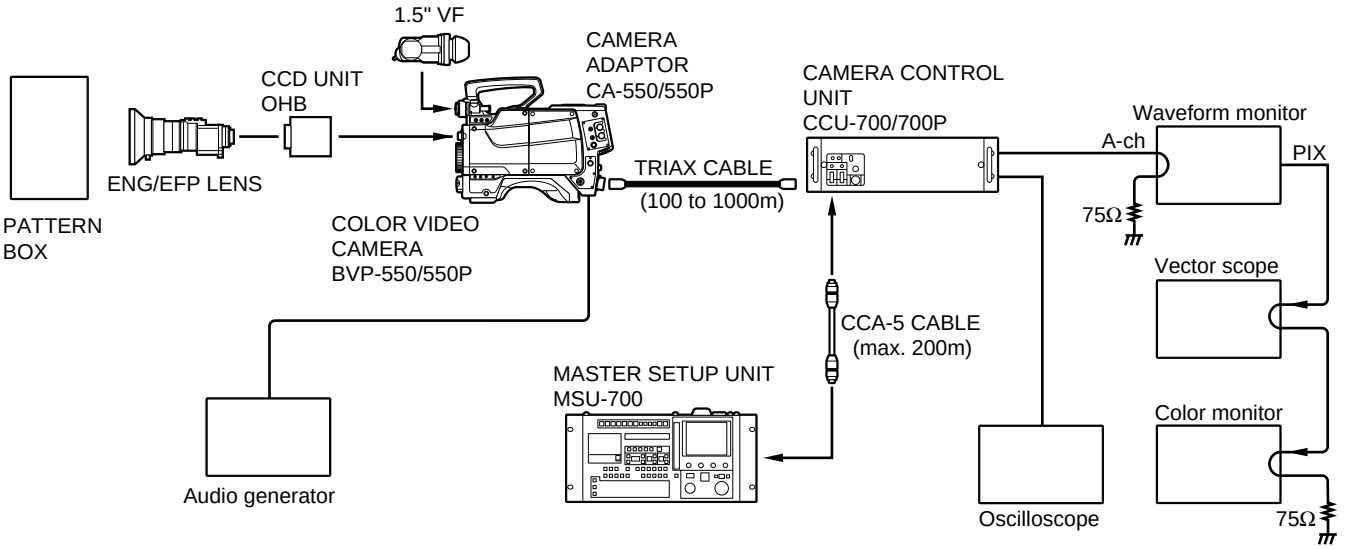
   To activate each menu, first display the TOP menu.
9. In this manual, describes the setup menu operation as follows.

   Title of the selected page (top right corner display)

   For reference:
   When Paint →Skin Detail is selected:
   MENU : Paint
   PAGE : Skin Detail (P4)

10. How to change the setting values
    To enter or cancel the setting value of items, which can be changed by turning the MENU SEL switch, proceed as follows.
    To enter the setting value; Press the MENU SEL switch.
    To cancel the setting value;
    Before pressing the MENU SEL switch, press the CANCEL button. The original setting is restored.
    After pressing the MENU SEL switch, the setting can not be canceled.

4-1-3. Connections



4-1-4. Initial Setting

Displaying Setup Menu

The setup menus from the Operation menu to System config menu are used in BVP-550/550P adjustment. Perform the following setting to display all of the setup menu.

Preparations:

- AT-95 board
  S1-1 → ON
  S1-2 → OFF
  S1-3 → ON
  S1-4 → OFF
- CAMERA SAVE/STBY switch → STBY

Operation Procedures:

1. DISP switch → OFF
2. POWER switch → ON
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).

Setup menu:

- Execute the Scene File Standard.
  MENU : Paint
  PAGE : Scene File (P8)
  ITEM : Standard
  Press the MENU SEL switch (on the front panel) to execute the Scene File Standard.
- Set each item through the setup menu as follows. (Refer to the Operation Manual to operate the setup menu.)
  MENU : Operation
  PAGE : Gain Sw (?3)
  ITEM : Low → 0 dB
  ITEM : Middle → 9 dB
  ITEM : High → 18 dB
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
  PAGE : Detail 1 (P2)
  ITEM : Detail → On
  PAGE : Skin Detail (P4)
  ITEM : Skin Detail → Off
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
  ITEM : White Clip → On
  PAGE : Matrix (P7)
  ITEM : Matrix → Off

Side Panel:

VTR SAVE/STBY switch → STBY
GAIN switch → L (0 dB)
OUTPUT/DCC switch → CAM/OFF
WHITE BAL switch → PRST

Front Panel:

SHUTTER switch → OFF

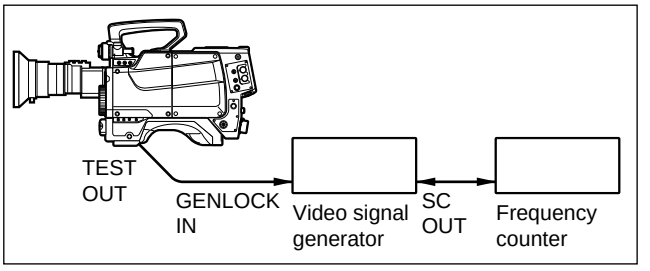
4-2. Adjustment for Installation of OHB

4-2-1. VCO CONT Frequency Confirmation

Notes:

- Perform this confirmation only when the CCD unit is installed.
- Warm up the camera for about 10 minutes before performing this confirmation.

Preparation : RGB/ENC switch (on the side panel)→ENC
Equipment : Frequency counter, Video signal generator
Test point : TEST OUT connector
Specifications: 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specification is not satisfied, perform the following adjustment.

1. Set the menu as follows and adjust the frequency by turning the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC Freq
   Specifications: 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

4-2-2. VA Gain Adjustment

Notes:

- Use the reflective chart (reflection ratio: 89.9 %) in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx.
- Never change the setting of the following trimmer capacitors.
  These capacitors are extremely difficult to adjust in the field.
  VA-163 board: ⊘CT200, ⊘CT300, ⊘CT400

Equipment : Waveform monitor
Object : White window chart

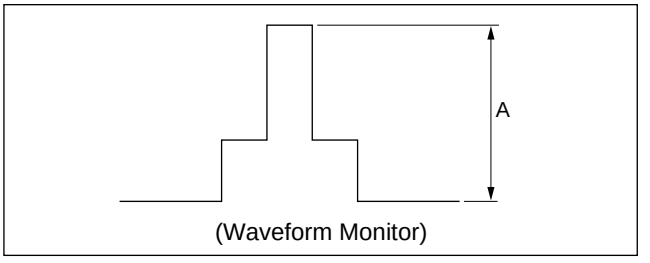
Preparations:

Connect the waveform monitor to the TEST OUT connector.
WHITE BAL switch (on the side panel) → PRST

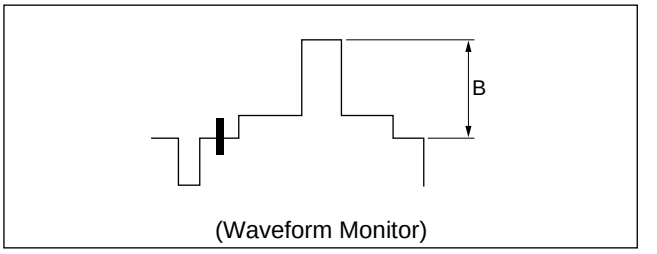
Adjustment procedures

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

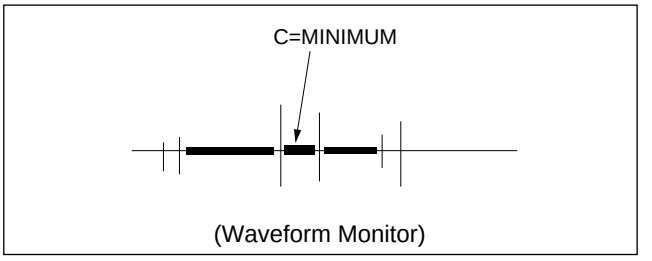
1. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK
2. Set the RGB/ENC switch (on the side panel) to RGB.
   Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU.
4. Confirm the output level of the TEST waveform.
   Set the menu as follows and adjust the level by turning the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Setup (?8)
   ITEM : Test→2
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)

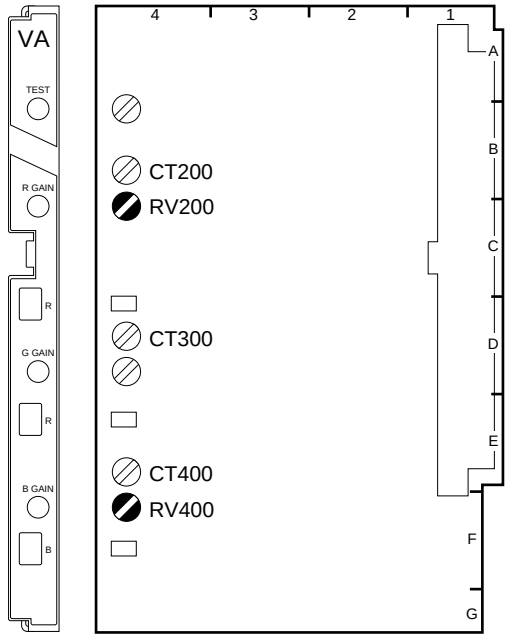


5. Set the menu as follows.
   MENU : Operation
   PAGE : Auto Setup (?8)
   ITEM : Test → Off
6. Set the RGB/ENC switch (on the side panel) to ENC.
7. Shoot the white window chart so that the chart is aligned with the underscanned monitor frame.
8. Adjust the iris control of the lens to satisfy the white level B.
   Specifications: B = 100 ±2 IRE (for NTSC)
   B = 700 ±14 mV (for PAL)



9. Switch the waveform monitor to CHROMA mode.
10. Perform adjustment.
    Adjustment point:
    ◓ RV200/VA-163 (C4)
    ◓ RV400/VA-163 (F4)
    Specifications: C=Minimum





VA-163(COMPONENT SIDE)

4-2-3. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

Connect the waveform monitor to the TEST OUT connector.
RGB/ENC switch (on the side panel) → ENC

Test point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment procedures:

1. Set the DISP switch (on the side panel) to MENU.
2. Set the menu as follows and execute the auto black shading.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
   - Press the MENU SEL switch (on the front panel) to execute the automatic black shading adjustment.
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

• Manual Black Shading Adjustment (For reference)

Note:

• Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

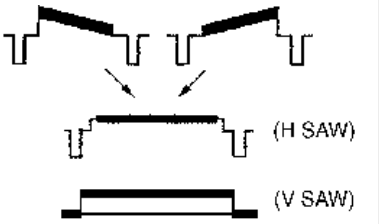
Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment procedures:

1. Set the waveform monitor as follows.
   • LUM mode
   • VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 35 mV for PAL by turning the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
4. If the shading is monitored, makes the waveform flat referring to the following table.
5. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

6. After adjustments are completed, set the switches as follows.
   ENC/RGB switch (on the side panel) → ENC
   GAIN switch (on the side panel) → L (0 dB)

4-2-4. White Shading Adjustment

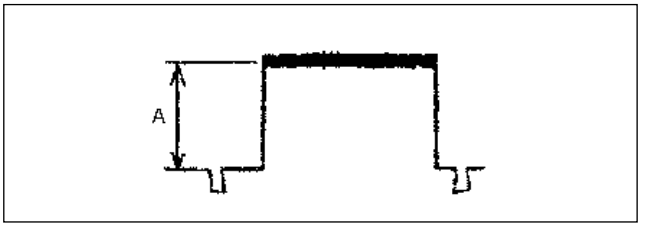
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Full white pattern

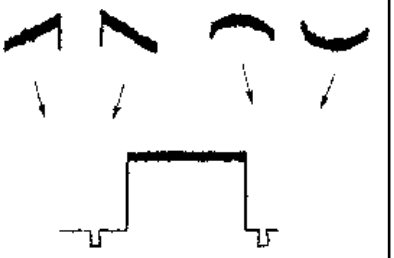
Preparations:

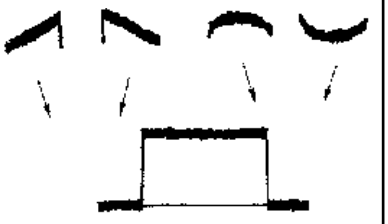
Connect the waveform monitor to the TEST OUT connector.
ENC/RGB (on the side panel)→ENC
Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee → Off
Zoom of the lens : Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
Adjust the iris control of the lens to satisfy the white level A.
Iris of the lens : A = 80 ±5 IRE (for NTSC)
A = 560 ±14 mV (for PAL)



Adjustmnet procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. If the white shading is monitored, makes the waveform flat referring to the following tables.
4. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

5. Set the menu as follows.
   MENU : Reference
   PAGE : Reference file (R1)
   ITEM : File Store
   Execute the Reference File Store.
   Press the MENU SEL switch (on the front panel).
6. After adjustments are completed, set the switch and menu as follows.
   ENC/RGB switch (on the side panel) → ENC
   Menu setting:

4-2-5. Master Black Adjustment

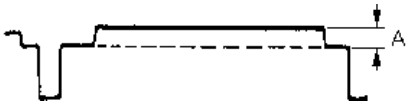
Equipment : Waveform monitor
Test point : TEST OUT connector
Iris of the lens: CLOSE

Preparations:

Connect the waveform monitor to the TEST OUT connector.

Adjustment procedures:

1. Set the RGB/ENC switch (on the side panel) to RGB.
   Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the black level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black (M)
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 35 ±7 mV (for PAL)



(Waveform Monitor)

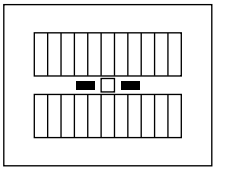
3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Perform the Auto Black Bal adjustment.
   AUTO W/B BAL switch (on the front panel) → BLK

4-2-6. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → G
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

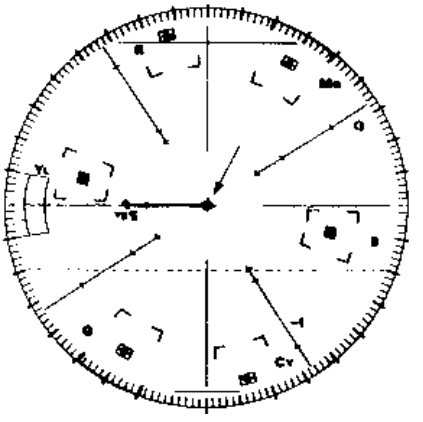
Adjustmnet procedures:

1. Set the RGB/ENC switch (on the side panel) to ENC.
2. Set the menu as follows, and adjust the gamma correction for (M) by turning the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma (M)
   Specifications: B = 60 ±2 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)

(Waveform Monitor)

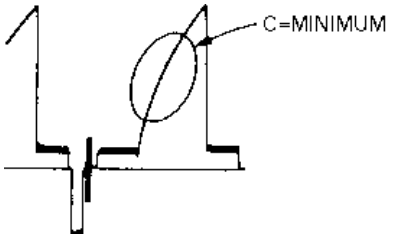
3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→1
4. Gamma (R) Adjustment
   Set the menu as follows, and adjust the gamma correction for (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (R)
   Specifications: Center the dot on the vectorscope.
5. Gamma (B) Adjustment
   Set the menu as follows, and adjust the gamma correction for (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (B)
   Specifications: Center the dot on the vectorscope.

6. Repeat the steps 4 and 5 alternately, until the beam spot is minimized on the vectorscope.



(Vector scope)

7. Confirm that the carrier leakage does not observed at portion C on the waveform monitor.
   Specifications: C = Minimum



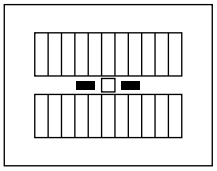
(Waveform Monitor)

8. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→Off

4-2-7. Flare Adjustment

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

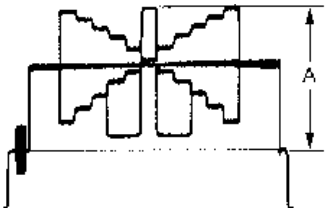
Preparations:
Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

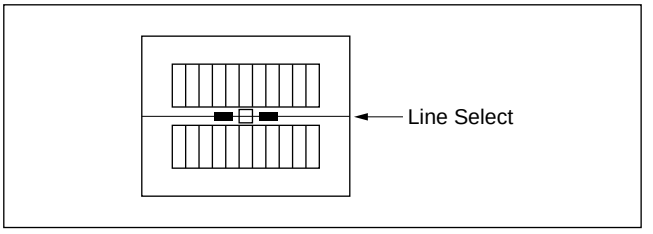
RGB/ENC switch (on the side panel) → ENC
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



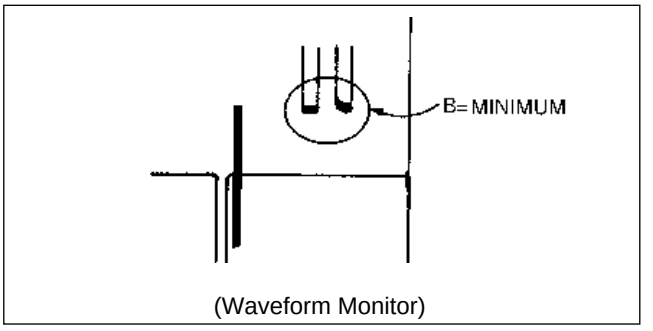
(Waveform Monitor)

Adjustmnet procedures:

1. Perform the Auto White Bal adjustment.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



4. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (G)
5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
6. Flare (R) Adjustment
   Set the menu as follows, and adjust the Flare (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (R)
   Specifications: Minimize the carrier leakage.
7. Flare (B) Adjustment
   Set the menu as follows, and adjust the Flare (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (B)
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

8. Repeat the steps 6 and 7 alternately, until the carrier leakage is minimized.
9. WHITE BAL switch (on the side panel) → PRST

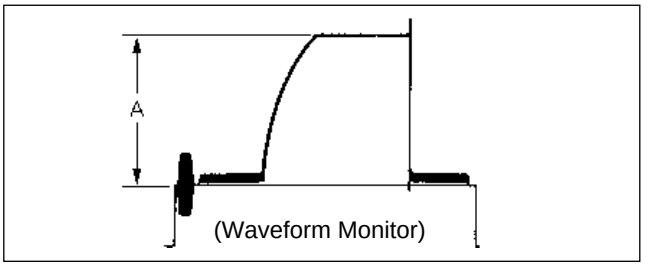
4-2-8. Knee and White Clip Adjustment

Note:
Perform this adjustment on the customer's preferences, if necessary.
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → CAM/ON
RGB/ENC switch (on the side panel) → ENC
WHITE BAL switch (on the side panel) → PRST
GAIN switch (on the side panel) → M(9 dB)

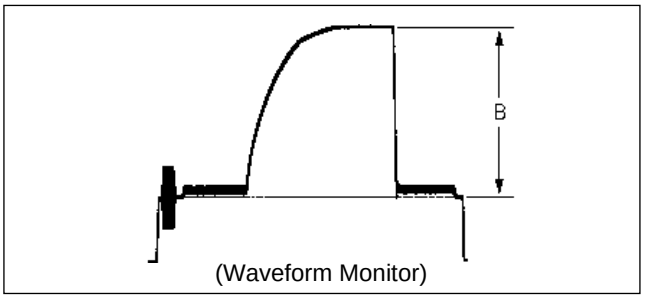
Adjustmnet procedures:

1. Knee Point Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test→1
   ITEM : White Clip→Off
   ITEM : Knee Max→On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



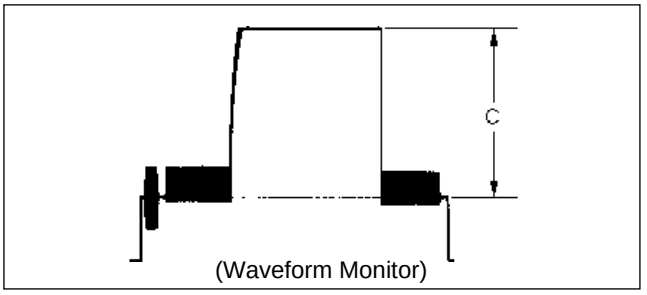
(Waveform Monitor)

2. Knee Slope Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max→Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



(Waveform Monitor)

3. Set the GAIN switch (on the side panel) → H (18 dB).
4. White Clip Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip On/Off→On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



(Waveform Monitor)

5. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test→Off
   ITEM : Knee→Off
6. Set the GAIN switch (on the side panel) → L (0 dB).

Note:

The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

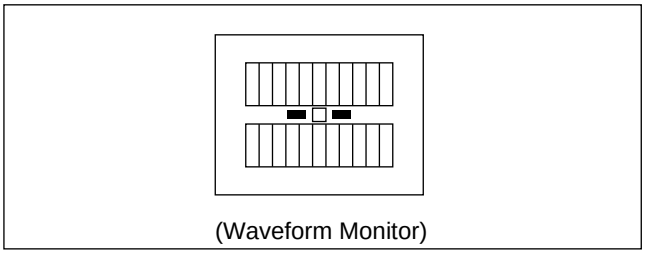
	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	107/750	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-2-9. Crispening Adjustment

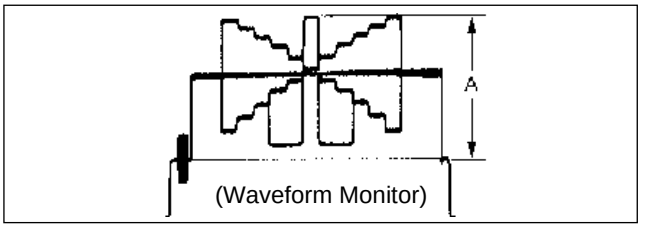
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart
Preparations:
Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.


(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF
RGB/ENC switch (on the side panel) → ENC
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



(Waveform Monitor)

Adjustment procedures

1. Adjust the iris control of the lens to satisfy the white level A under the grayscale chart shooting.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)
2. Set the DISP switch (on the side panel) to MENU.
3. Set the menu as follows, and adjust the crispening by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1(P2)
   ITEM : Crispening
   Turn the MENU SEL switch (on the front panel) once to –99, and turn slowly for increment until the noise at the black level of the waveform is just decreased, or turn the MENU SEL switch so that the crispening level is an appropriate value.

4-2-10. Level Dependent Adjustment

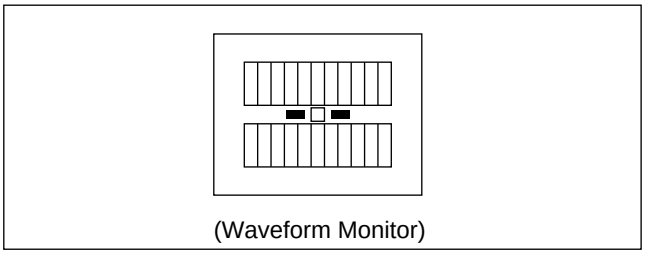
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



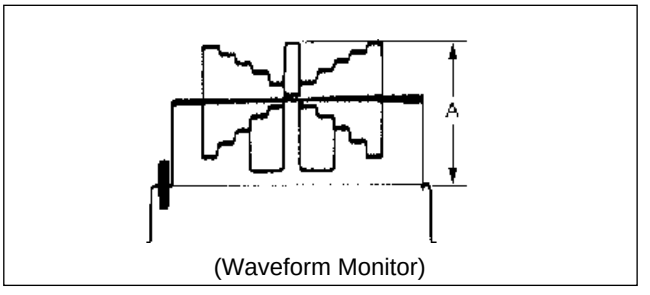
(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → ENC
Set the menu as follows.
MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail→On
ITEM : Level Dep.→On

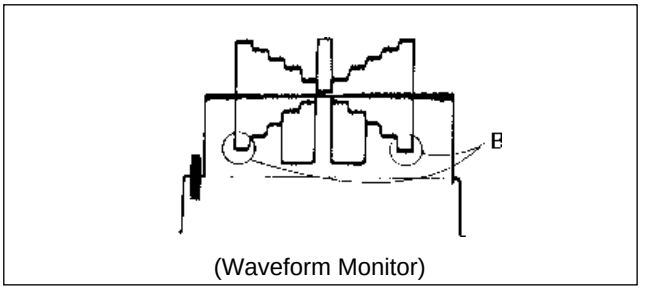
Adjustment procedures:

1. Adjust the iris of the lens to satisfy the white level A.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level Dep.
   Specifications: Turn the MENU SEL switch (on the front panel) once to –99, and slowly turn it for increment until spikes at portion B are just decreased.



(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-11. Detail Frequency Adjustment

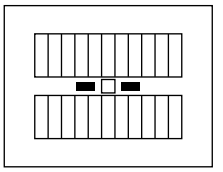
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



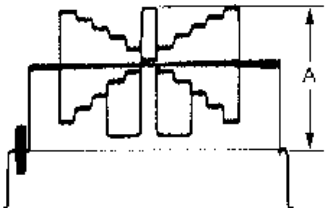
(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → ENC
Set the menu as follows.
MENU : Paint
PAGE : Detail 2 (P3)
ITEM : Detail→On

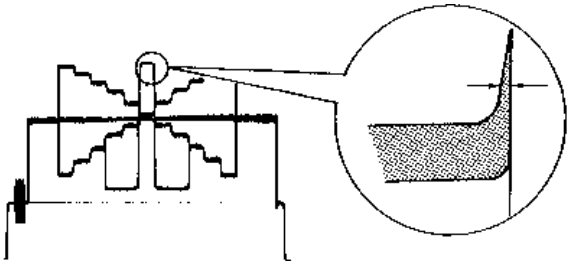
Adjustment procedures:

1. Adjust the iris control of the lens to satisfy the white level A.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

2. Make a selection of line at the center white portion of the grayscale chart.
3. Set the menu as follows.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : Frequency
   Specifications: Adjust the edge width at each end of the center white portion to the desired width by turning the MENU SEL switch.



(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-12. H/V Ratio Adjustment

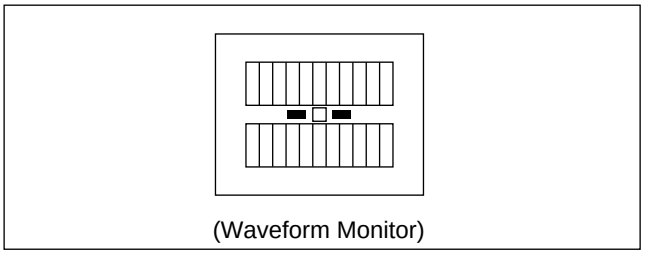
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



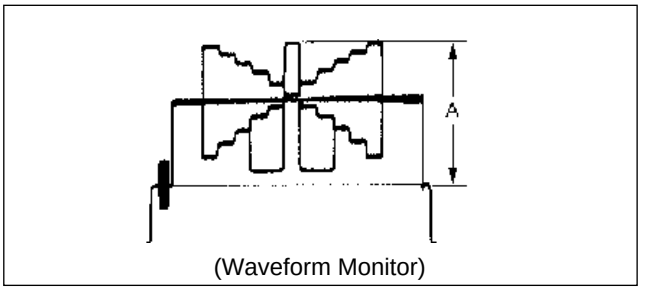
(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → ENC
Set the menu as follows.
MENU : Paint
PAGE : Detail 2 (P3)
ITEM : Detail→On

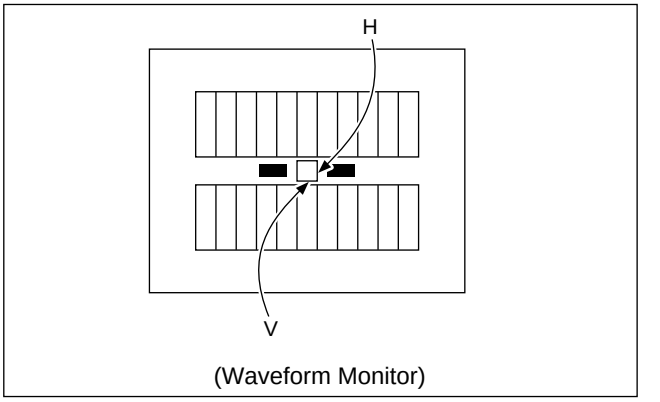
Adjustment procedures:

1. Adjust the iris control of the lens to satisfy the white level A.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the H/V Ratio by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : H/V Ratio
   Specifications: Adjust the ratio between the H and V detail amounts (white) to be added is 1 : 1.



(Waveform Monitor)

4-2-13. Detail Level Adjustment

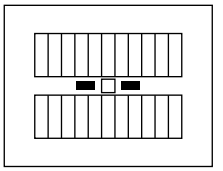
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
RGB/ENC switch (on the side panel) → ENC
Set the menu as follows.
MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail→On



(Waveform Monitor)

Adjustment procedures:

1. Adjust the iris control of the lens to satisfy the white level A.
   Specifications: A = 80 ±2 IRE (for NTSC)
   A = 560 ±14 mV (for PAL)

(Waveform Monitor)

2. Set the menu as follows, and adjust the signal level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level
   Adjust the detail signal level to be added to each step in the grayscale chart for the desired level.

4-2-14. Detail Clip Adjustment

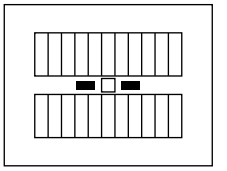
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



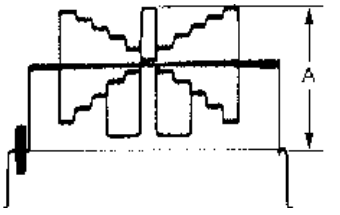
(Waveform Monitor)

RGB/ENC switch (on the side panel) → ENC
Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

Set the menu as follows.
MENU : Paint
PAGE : Detail 2 (P3)
ITEM : Detail→On

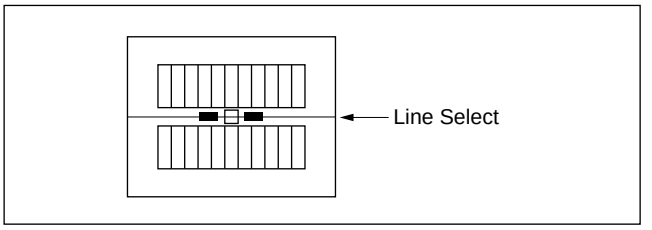
Adjustment procedures:

1. Adjust the iris control of the lens to satisfy the white level A.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)

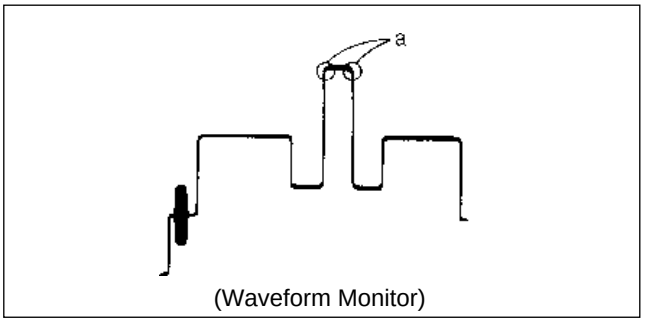


(Waveform Monitor)

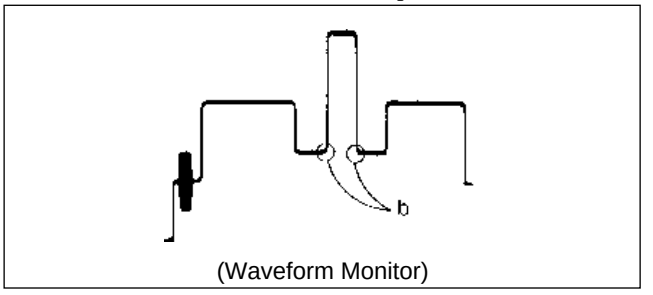
2. Make a selection of line at the center white portion of the grayscale chart.



3. White Limitter Adjustment
   Set the menu as follows, and set the clip level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : W.Limitter
   Specifications: Adjust the edges of portion (a) to the desired clip level.



4. Black Limitter Adjustment
   Set the menu as follows, and set the clip level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : B.Limitter
   Specifications: Adjust the edges of portion (b) to the desired clip level.



4-2-15. Skin Tone Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

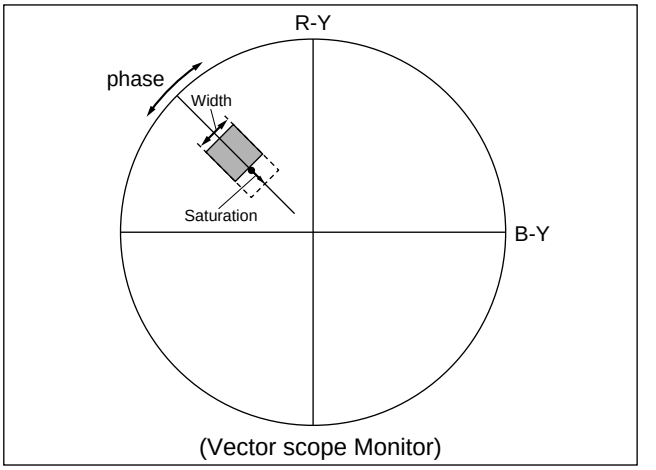
Equipment : Color monitor, Viewfinder or Vectorscope

Preparations:

Connect the vectorscope to the TEST OUT connector.
Shoot a person's face.
Set the menu as follows.
MENU : Paint
PAGE : Skin Detail (P4)
ITEM : Skin Detail→On

Adjustment procedures:

1. Set the menu as follows.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Gate→On
2. Set the menu as follows, and adjust the amount of the skin detail signal to the desired level according to the following menus by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Phase: Hue
   ITEM : Saturation: Component in the saturation direction
   ITEM : Width: Component in the hue direction
   (The effective area of the skin detail signal appears in a zebra pattern on the viewfinder screen. Set the desired level.)



3. Set the menu as follows.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Gate→Off

4-2-16. Zebra Adjustment

Note:

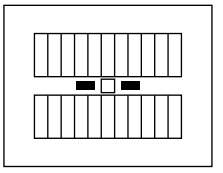
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

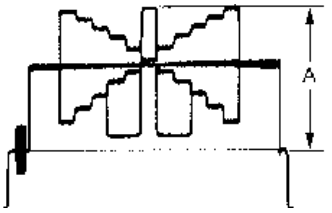
RGB/ENC switch (on the side panel) → ENC
Zebra switch (on the viewfinder) → ON



(Waveform Monitor)

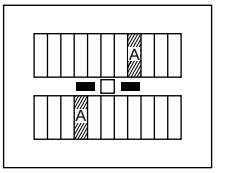
Adjustment procedures:

1. Adjust the iris control of the lens to satisfy the white level A.
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



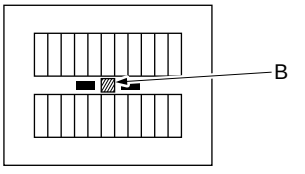
(Waveform Monitor)

2. Set the menu as follows, and adjust by turning the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp→1
   Adjustment Pont:
   ITEM : Zebra1 (level)
   Specifications: Adjust that the stripes appear at the center of the portions A on the viewfinder screen.
   (The area of the stripes can be changed by ITEM: Zebla 1 (Wide).)



(Waveform Monitor)

3. Set the menu as follows, and adjust it by turning the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp→2
   Adjustment Pont:
   ITEM : Zebra2 (level)
   Specifications: Adjust that the stripes appear at the center of the portions B on the viewfinder screen.
   (The area of the stripes can be changed by ITEM: Zebla 2 (Wide).)



(Waveform Monitor)

4. Set the Zebra switch (on the viewfinder) to OFF.

4-2-17. Automatic Iris Adjustment

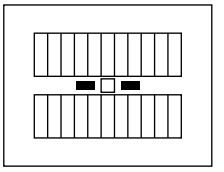
Note:

- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
RGB/ENC switch (on the side panel) → ENC
AUTO/MANU switch (on the lens) → AUTO



(Waveform Monitor)

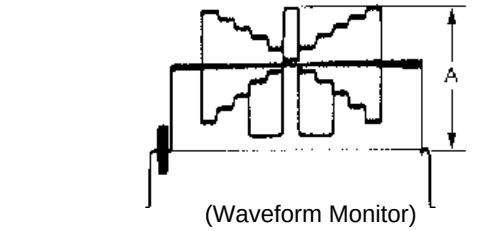
Adjustment procedures:

1. APL Ratio Adjustment
   Set the menu as follows, and adjust it by turning the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : APL Ratio
   Specifications: Adjust the automatic iris operation mode depending on the application.

Note:

Automatic iris operation mode setting can be done from the average level to peak-to-peak level of the video signal.
99 → average level
–99 → peak-to-peak level

2. Auto Iris Level Adjustment
   Set the menu as follows.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : Iris Override → OFF
   Adjustment Point:
   MENU : System config
   PAGE : Iris (S6)
   ITEM : LEVEL
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

4-2-18. File Store

Note:

- Be sure to perform this item after any one of the adjustments of sections 4-2-1. through 4-2-17. is performed.
- Reference File Store

1. Set the menu as follows.
   MENU : Reference
   PAGE : Reference File (R1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel) to perform the reference file store.

- Triming File Store

1. Set the menu as follows.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel) to perform the triming file store.

4-2-19. Menu Settings After Finishing Adjustment

Set the menu as follows.
MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail → ON
PAGE : Gamma
ITEM : Gamma → ON
PAGE : Knee/W.Clip (P6)
ITEM : Knee → ON

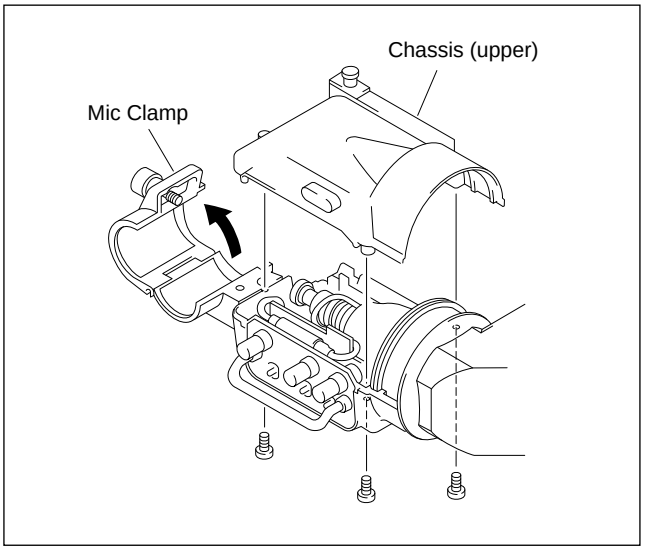
4-3. Viewfinder System Adjustment

Notes:

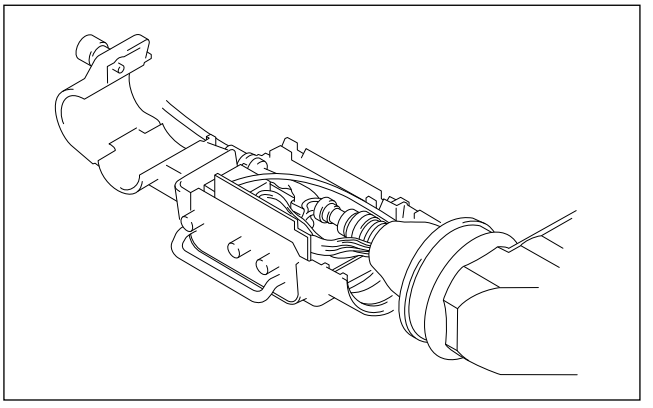
- This adjustment should be performed after the camera is adjusted completely.

Preparations:

1. Turn off the main power switch (on the side panel) before performing adjustment.
2. Remove the viewfinder from the camera, then remove the chassis (upper).



3. Connect the viewfinder to the camera using the VF extension harness (J-6395-050-A).



4. Turn on the main power switch.

4-3-1. Vertical Hold Adjustment

Equipment : Frequency counter

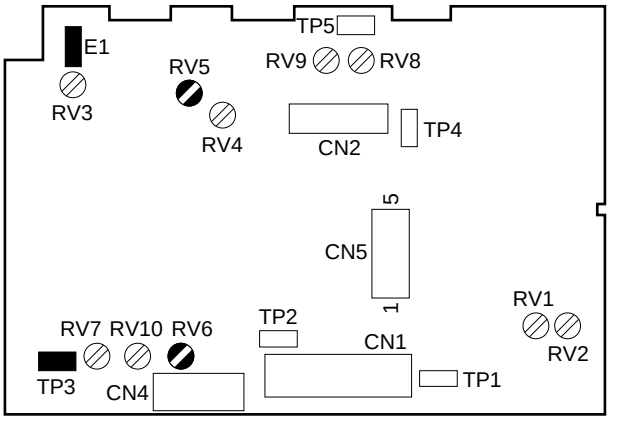
Preparations:

Extend the IF-510 board of BVP-550/550P with EX-464 extension board.
Disconnect the RET IN connector on CCU-700/700P.
Short between 45-pin and 92-pin on the EX-464 board using a shorting clip.
Set ⊘RV6 (V SIZE)/VF-60 board to the mechanical center position.
(When ⊘RV6 is marked, it should not be turned.)

Adjustment procedures

Test point : TP3/VF-60
GND : E1/VF-60
Adjustment point : ⊘RV5 (V HOLD)/VF-60
Specifications : 48.0 ±0.5 Hz (for NTSC)
38.0 ±0.5 Hz (for PAL)

After adjustment is completed, disconnect the shorting clip on the EX-464.
Connect the IF-510 board to the camera.



VF-60 BOARD (A SIDE)

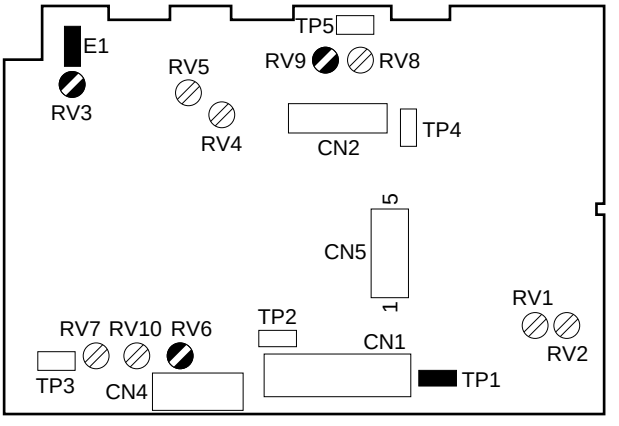
4-3-2. Horizontal Hold Adjustment

Equipment : Frequency counter

Preparations:
Extend the IF-510 board of BVP-550/550P with EX-464 extension board.
Disconnect the RET IN connector on CCU-700/700P.
Short between 45-pin and 92-pin on the EX-464 board using a shorting clip.
Set ⊘RV6 (V SIZE)/VF-60 board to the mechanical center position.
(When ⊘RV6 is marked, it should not be turned.)

Adjustment procedures
Test point : TP1/VF-60
GND : E1/VF-60
Adjustment point : ⊘RV3 (H HOLD)/VF-60
Specifications : 15.73 ±0.05 kHz (for NTSC)
15.63 ±0.05 kHz (for PAL)

After adjustment is completed, disconnect the shorting clip on the EX-464.
Connect the IF-510 board to the camera.



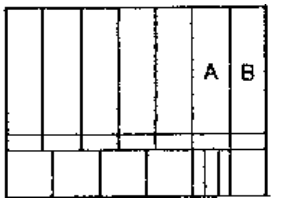
VF-60 BOARD (A SIDE)

4-3-3. Bright Set Adjustment

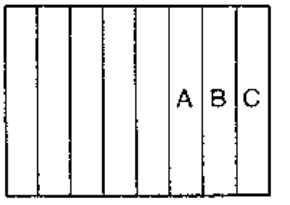
Preparations:
OUTPUT/DCC switch (on the side panel of BVP-550/550P) → BARS/OFF
BRIGHT control (on the viewfinder) → Fully turn counter-clockwise
CONTRAST control (on the viewfinder) → Fully turn clockwise

Measurement point : viewfinder
Adjustment point : ⊘RV9 (SUB BRIGHT)/VF-60
Specifications

For NTSC model
Spec.: Adjust ⊘RV9/VF-60 so that portions A and B on the viewfinder screen can be barely discriminated.



For PAL model
Spec.: Adjust ⊘RV9/VF-60 so that portions A and B on the viewfinder screen can be barely discriminated, and portions B and C cannot be discriminated.



4-3-4. Focus Adjustment

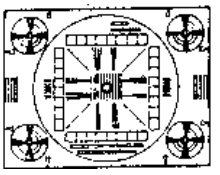
Note:

- This adjustment, “4-3-5. Heater Voltage Adjustment” and “4-3-6. Picture Frame Adjustment” affect each other. Therefore, repeat these three adjustments until these specifications are satisfied.

Equipment : Waveform monitor
Object : Resolution chart

Preparations:

Shoot the resolution chart so that the chart frame is aligned with the underscanned monitor frame.



(Viewfinder Monitor)

Adjust the iris of the lens so that the output level at VIDEO OUT connector satisfies the level A.
A = 70 ±2 IRE (for NTSC)
A = 490 ±14 mV (for PAL)
BRIGHT control (on the viewfinder) → mechanical center
CONTRAST control (on the viewfinder) → mechanical center

Adjustment procedures:

Measurement point : viewfinder
Adjustment point : ⊘RV2 (ANODE SET)/VF-60
Specifications : Turn ⊘RV2 fully counterclockwise, and slowly turn it clockwise to adjust the best focus position.

Note:

After adjustment is completed, confirm that the focus operation can be performed irrespective of its BRIGHT and CONTRAST controls setting.

4-3-5. Heater Voltage Adjustment

Note:

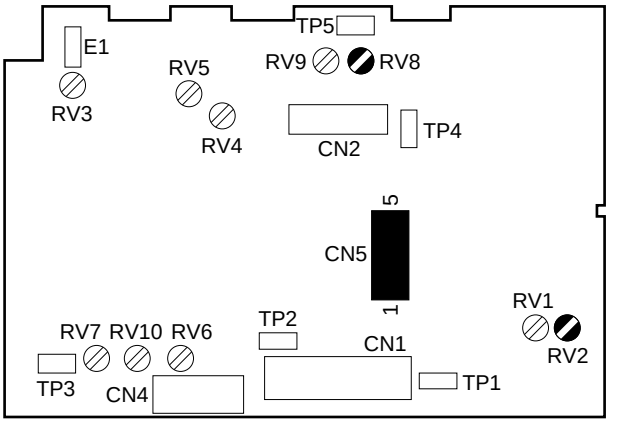
- This adjustment, “4-3-4. Focus Adjustment” and “4-3-6. Picture Frame Adjustment” affect each other. Therefore, repeat these three adjustments until these specifications are satisfied.

Equipment : Digital voltmeter

Preparations:

BRIGHT control (on the viewfinder) → mechanical center
CONTRAST control (on the viewfinder) → mechanical center
PEAKING control (on the viewfinder) → mechanical center

Test point : CN5-4pin/VF-60 board
CN5-5pin/VF-60 board
Adjustment point : ⊘RV8 (HEATER)/VF-60
Specifications : 700 ±10 mV dc



VF-60 BOARD (A SIDE)

4-3-6. Picture Frame Adjustment

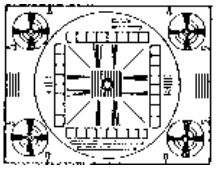
Note:

- This adjustment, “4-3-4. Focus Adjustment” and “4-3-5. Heater Voltage Adjustment” affect each other. Therefore, repeat these three adjustments until these specifications are satisfied.

Equipment : Oscilloscope
Object : Resolution chart

Preparations:

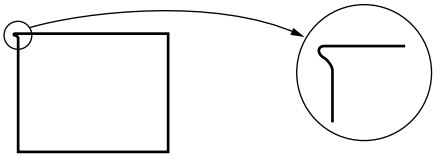
BRIGHT control (on the viewfinder) → mechanical center
CONTRAST control (on the viewfinder) → mechanical center
PEAKING control (on the viewfinder) → mechanical center
Shoot the resolution chart so that the chart frame is aligned with the underscanned monitor frame.



(Viewfinder Monitor)

Adjustment procedures:

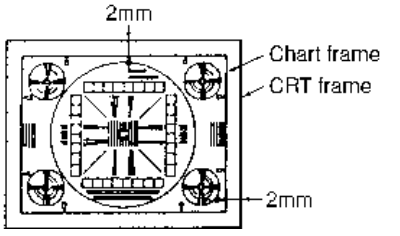
Step 1.
Measurement point : viewfinder
Adjustment point : ⊘RV3 (H HOLD)/VF-60
Specifications : If the upper left corner of the picture is distorted, makes right angle.



(Waveform Monitor)

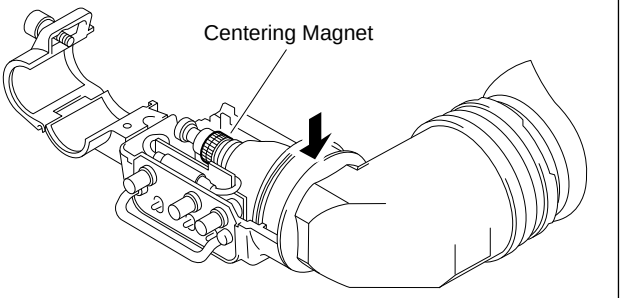
Step 2.
Measurement point : Viewfinder
Adjustment point : ⊘RV7 (V LIN)/VF-60
Specifications : Minimize the distortion of the four circles at the corners of the resolution chart.

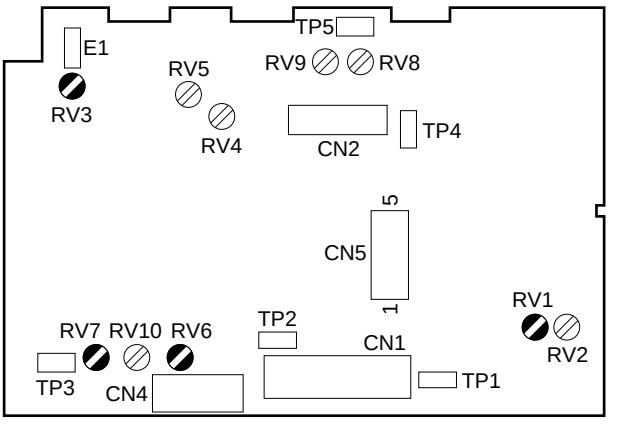
Step 3.
Measurement point : Viewfinder
Adjustment point : ⊘RV1 (H SIZE)/VF-60
⊘RV6 (V SIZE)/VF-60
⊘Centering magnet
Specifications : Adjust ⊘RV1 (H SIZE) and ⊘RV6 (V SIZE) so that the position of the resolution chart are as shown below.
Turn the centering magnet only when the left and lower corners cannot be adjusted.



(Viewfinder Monitor)

Step 4.
Place the VF tube to the lower chassis as shown below, and confirm that the picture is in the center of the viewfinder in the normal installing position.



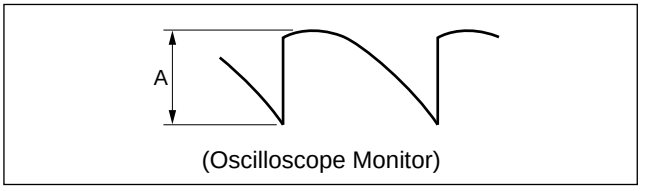


VF-60 BOARD (A SIDE)

Step 5.

Test point : TP3/VF-60 board
GND : E1/VF-60 board

Measure and memorize the value A shown in the figure below.

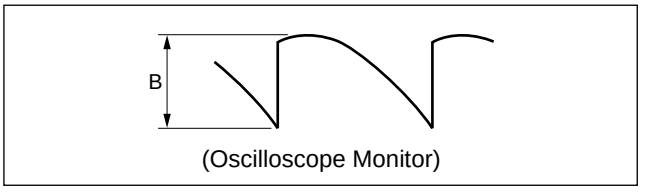


Step 6.

Extend the AT-95 board of BVP-550/550P using EX-464 extension board, and short between 76-pin and 100-pin on the EX-464 board using a shorting clip. (Turn into 16:9 mode.)

Step 7.

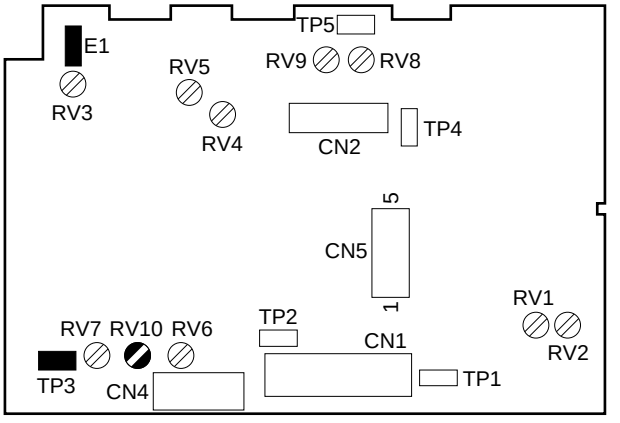
Test point : TP3/VF-60 board
GND : E1/VF-60 board
Adjustment point : ◓RV10 (V SIZE (WIDE))/VF-60
Specifications : Measure the value B, and adjust the ratio to A : B = 4 : 3.



Note:

When the centering magnet is turned, paint-lock it again.

After these adjustments are completed, disconnect the shorting clip, and connect the IF-510 board to the camera.



VF-60 BOARD (A SIDE)

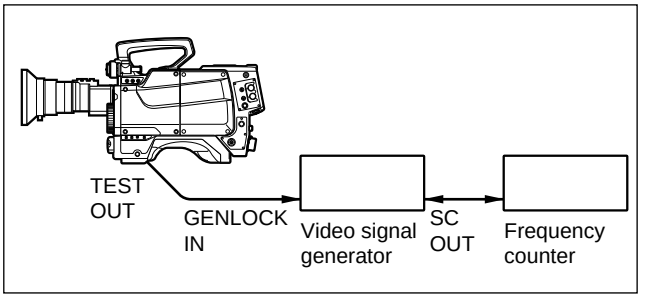
4-4. Overall Electrical Alignment

Notes:
If the adjustments in this section are suspended or the power is turned off to extend a printed circuit board and so on, be sure to execute the FILE STORE before turning off. (Refer to Section 4-4-23 “File Store”)

4-4-1. VCO CONT Frequency Adjustment

Note:
- Warm up the camera for about 10 minutes before this confirmation.

Preparations:
RGB/ENC switch (on the side panel) → ENC
Equipment : Frequency counter,
Video signal generator
Test point : SC out connector/
Video signal generator
Specifications : 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specifications are not satisfied, perform the following adjustment.

1. Set the menu as follows and adjust the frequency by turning the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC Freq
   Specifications : 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

- OHB File Store

2. Set the menu as follows.
   MENU : Triming file
   PAGE : OHB File (T2)
   ITEM : File Store

Press the MENU SEL switch (on the front panel) to perform the triming file store.

4-4-2. VTR Y Adjustment

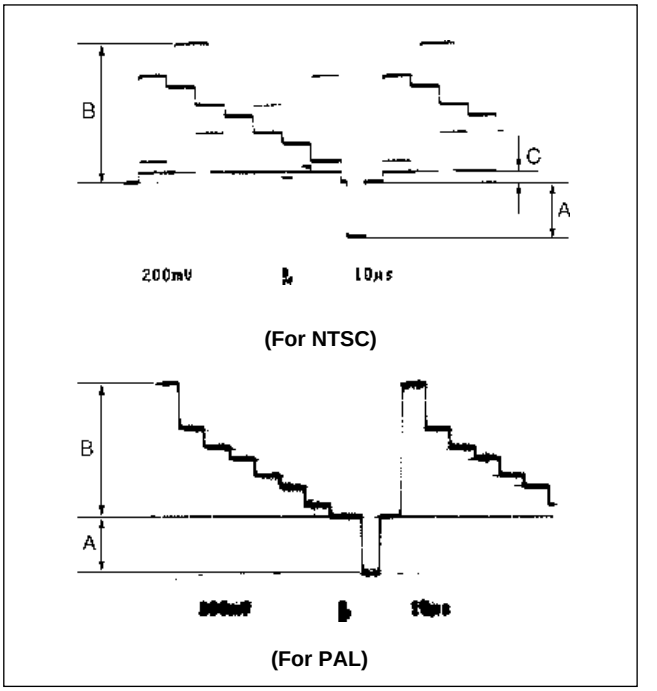
Equipment : Oscilloscope
Test point : TP3 (D4)/DA-88

Preparations:
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC
WHITE BAL switch (on the side panel)→PRST
Connect the Oscilloscope to the TP3 (D4) (GND:E1 (F4))/ DA-88 Board.

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SYNC
   Specifications: A = 286 ±2 mV (for NTSC)
   A = 300 ±2 mV (for PAL)

2. **Menu setting** : (NTSC only)
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SETUP
   Specifications: C = 53.5 ±2 mV

3. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y VIDEO
   Specifications: B = 714 ±7 mV (for NTSC)
   B = 700 ±7 mV (for PAL)



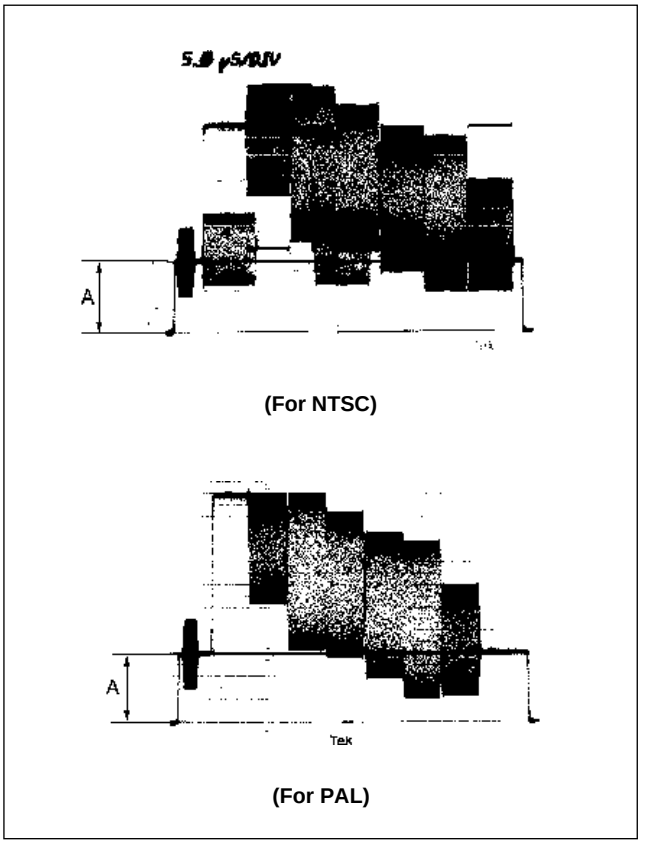
4-4-3. Test out Adjustment

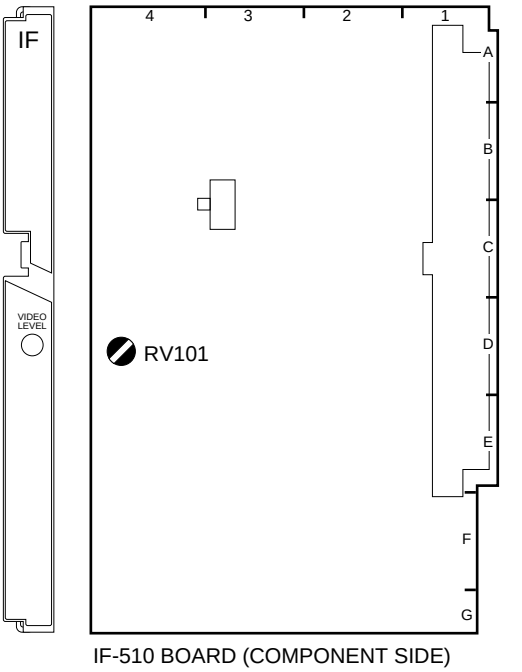
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

Adjustment procedures:
1. **Adjustment point** : ⊘RV101 (D4)/IF-510
   Specifications : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)

2. **Menu setting**: (NTSC only)
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : TEST SETUP
   Specifications : B = 7.5 ±1 IRE





IF-510 BOARD (COMPONENT SIDE)

4-4-4. Chroma Adjustment

Equipment : Waveform monitor, Vectorscope
Test point : TEST OUT connector

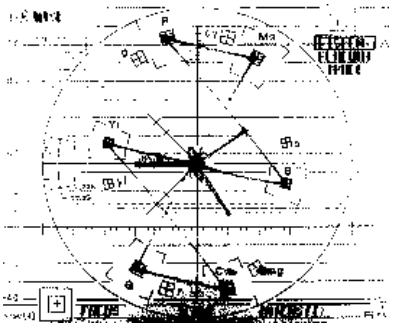
Preparations:

Connect the vectorscope to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

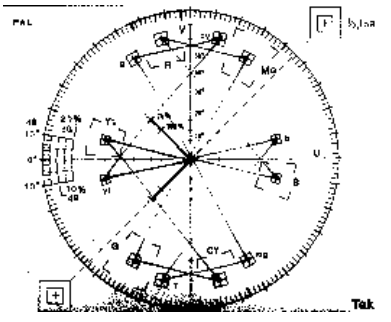
Adjustment procedures:

1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : CHROMA LVL
   Specifications: Place the beam spots inside the corresponding frames on the vectorscope.

2. Connect the waveform monitor to the TEST OUT connector.



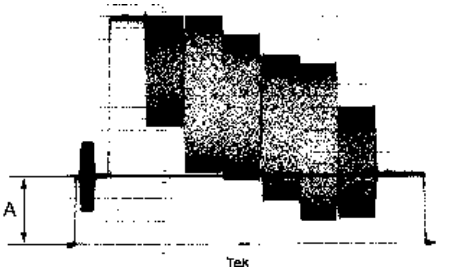
(For NTSC)



(For PAL)

3. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : BURST LVL
   Specifications: A = 40 ±1 IRE (for NTSC)
   A = 300 ±5 mV (for PAL)

(For NTSC)



(For PAL)

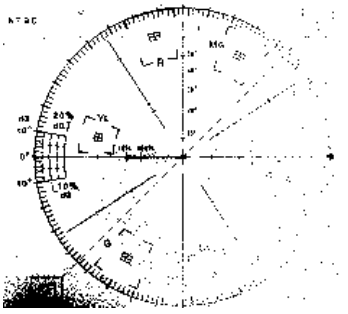
4-4-5. INT SC Phase Adjustment

Notes:
This adjustment precedures are stated below assuming that where the Tektronix 1750 (for BVP-550) or1751 (for BVP-550P) is used.
If any other measuring instrument is used, follow the instructions given in the operation manual attached to it.

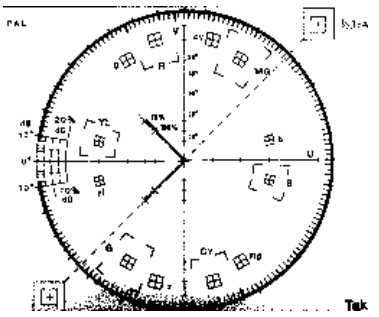
Equipment : SC-H Phase measuring instrument
Test point : TEST OUT connector

Preparations:
Connect the SC-H Phase measuring instrument to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC-H Phase
   Specifications: Position the luminous line of the burst (SC) and the beam spot of H as shown in the figure.



(For NTSC)



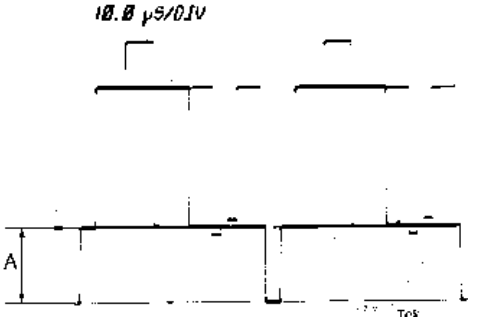
(For PAL)

4-4-6. REG Level Adjustment

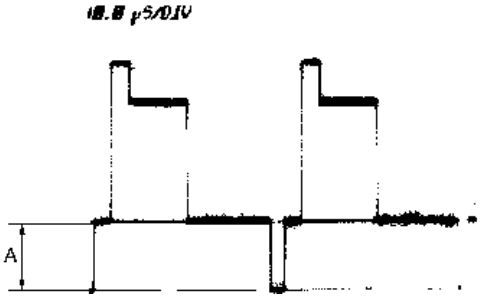
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → RGB
R/B/B switch (on the side panel) → G

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : REG LVL
   Specifications:
   SYNC LEVEL : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)



(For NTSC)



(For PAL)

4-4-7. TEST1 Adjustment

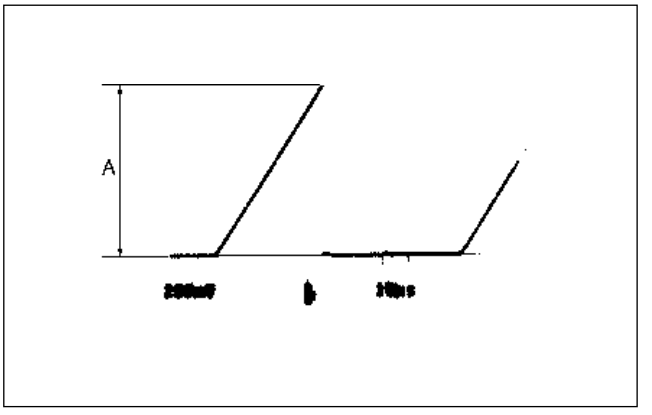
Equipment : Oscilloscope
Test points : TP50,52,54/Extension board extending VA-163

Preparations:

1. Extend VA-163 board with EX-464 board.
2. WHITE BAL switch (on the side panel)→PRST
3. Select the TEST SAW signal
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→1

Adjustment procedures:

1. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
2. G-ch signal adjustment
   Adjustment point : ⊘RV50 (B4)/VA-163
   Specifications : A = 880 ±2 mV



3. R-ch signal confirmation
   Connect the oscilloscope to the TP54 (GND:GND (A))/Extension board extending VA-163.
   Specifications: A = 880 ±40 mV

4. B-ch signal confirmation
   Connect the oscilloscope to the TP50 (GND:GND (A))/Extension board extending VA-163.
   Specifications: A = 880 ±40 mV

4-4-8. TEST2 Adjustment

Equipment : Oscilloscope
Test point : TP52/Extension board extending VA-163

Preparations:

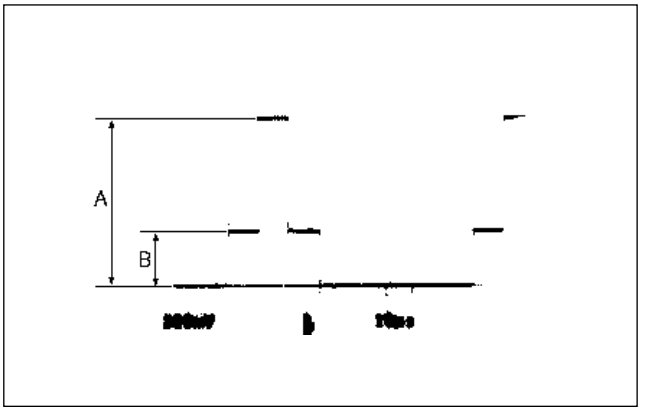
1. Extend VA-163 board with EX-464 board.
2. Select the TEST SAW signal
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→2

Adjustment procedures:

1. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.

2. TEST2 HIGH Level adjustment
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 HI
   Specifications: A = 880 ±5 mV

3. TEST2 MID Level adjustment
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 MID
   Specifications: B = 283 ±5 mV



4-4-9. A/D Clock Phase Adjustment

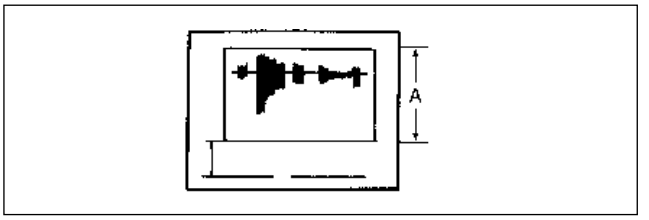
Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Multiburst chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the multiburst chart so that the chart frame is aligned with the underscaned monitor frame with the zoom control.
Pan so that the 9 MHz portion of the multiburst chart is positioned at the center of the monitor screen.
OUTPUT/DCC switch (on the side panel) → CAM/OFF
RGB/ENC switch (on the side panel) → ENC

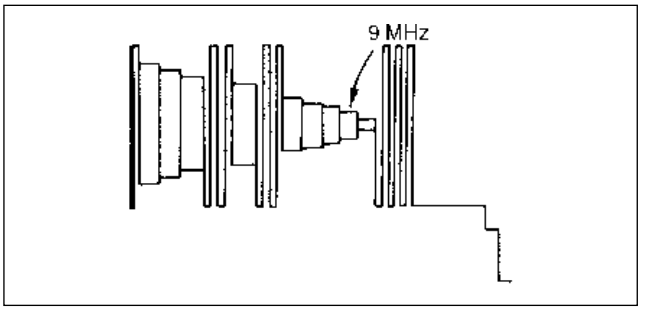
Adjustment procedures:

1. Adjust the iris control of the lens.
   A = 90 ± 2 IRE (for NTSC)
   A = 630 ± 10 mV (for PAL)



2. Clock Phase [G]
   Menu setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : G Clock
   Specifications: Maximize the 9 MHz signal portion.

3. Clock Phase [R/B]
   Menu setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : R/B Clock
   Specifications: Adjust the 9 MHz signal portion nearly horizontally.



4-4-10. VA Gain Adjustment

Notes:

- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminouse intensity of the chart to 2000 lx.
- Never change the setting of the following trimmer capacitors.
  These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

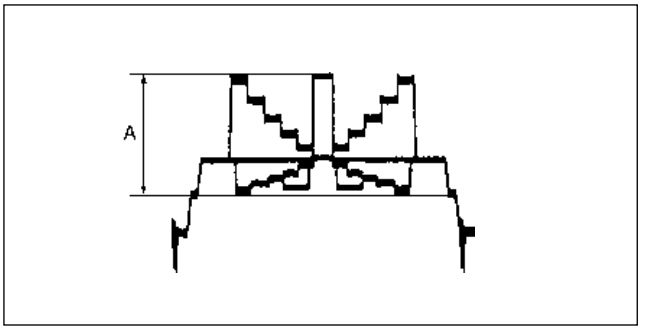
Equipment : Waveform monitor
Object : Grayscale chart

Preparations:

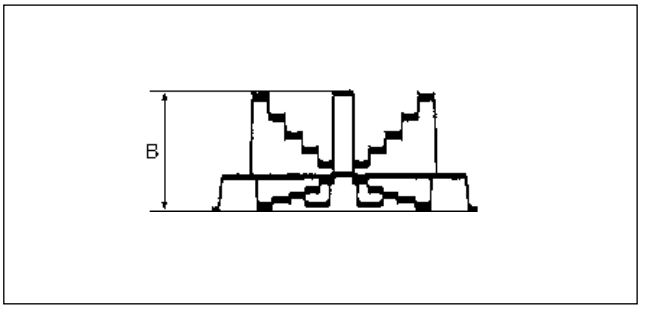
WHITE BAL switch (on the side panel)→PRST
GAIN switch (on the side panel)→L (0 dB)
Extend VA-163 board with EX-464 board.

Adjustment procedures:

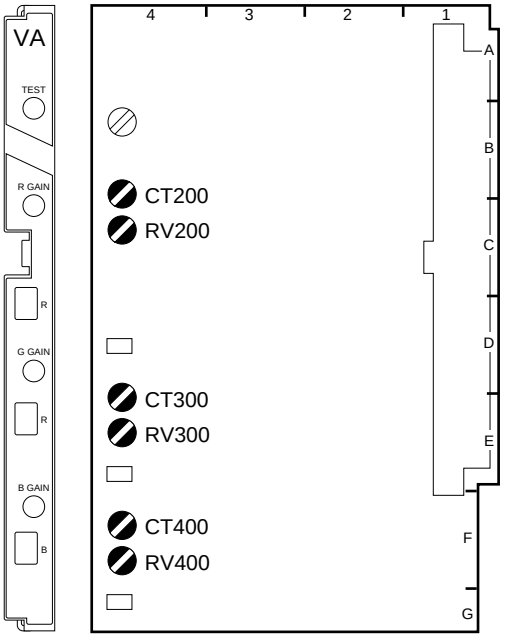
1. **MENU setting**:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee→Off
2. Adjust automatically the black balance.
   AUTO W/B BAL switch (on the front panel)→BLK
3. Connect the oscilloscope to the TP74 (GND:TP73)/ Extension board extending VA-163.
   Specifications: Adjust the iris control of the lens.
   A = 125 mV



4. Connect the oscilloscope to the TP54 (GND:TP53)/ Extension board extending VA-163.
   Adjustment point : ⊘RV200 (C4)/VA-163
   Specifications : B = 880 ±5 mV



5. Connect the oscilloscope to the TP72 (GND:TP71)/ Extension board extending VA-163.
   Specifications : Adjust the iris control of the lens.
   A = 125 mV
6. Connect the oscilloscope to the TP52 (GND:TP51)/ Extension board extending VA-163.
   Adjustment point : ⊘RV300 (D4)/VA-163
   Specifications : B = 880 ±5 mV
7. Connect the oscilloscope to the TP70 (GND:TP69)/ Extension board extending VA-163.
   Specifications : Adjust the iris control of the lens.
   A = 125 mV
8. Connect the oscilloscope to the TP50 (GND:TP49)/ Extension board extending VA-163.
   Adjustment point : ⊘RV400 (F4)/VA-163
   Specifications : B = 880 ±5 mV



VA-163 BOARD (COMPONENT SIDE)

4-4-11. VA MOD Adjustment

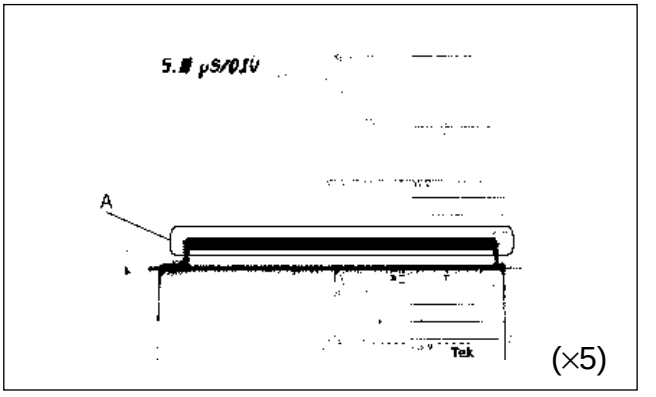
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → L (0 dB)
Iris of the lens : CLOSE
RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → R

Adjustment procedures:

1. VA MOD [R] Adjustment
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [R]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [R] varies from 99 to –99.



2. VA MOD [G] Adjustment
   R/G/B switch (on the side panel) → G
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [G] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [G]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [G] varies from 99 to –99.

3. VA MOD [B] Adjustment
   R/G/B switch (on the side panel) → B
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [B] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [B]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [B] varies from 99 to –99.

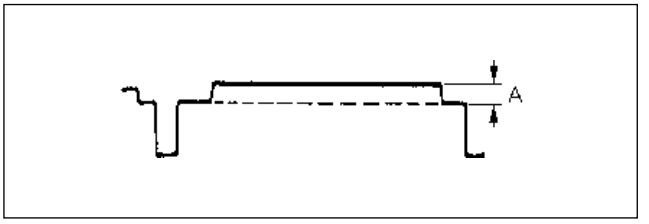
4. **MENU setting**:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 0
   ITEM : H Saw [G] → 0
   ITEM : H Saw [B] → 0

4-4-12. Master Black Adjustment

Equipment : Waveform monitor
Test point : TEST OUT connector
Iris of the lens : CLOSE

Preparations:
Connect the waveform monitor to the TEST OUT connector.

Adjustment procedures:
1. Set the RGB/ENC switch (on the side panel) to RGB.
   Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the black level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black (M)
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 35 ±7 mV (for PAL)



3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust automatically the black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

4-4-13. A/D Gain Adjustment

Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → L (0 dB)
RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → G

MENU Setting:

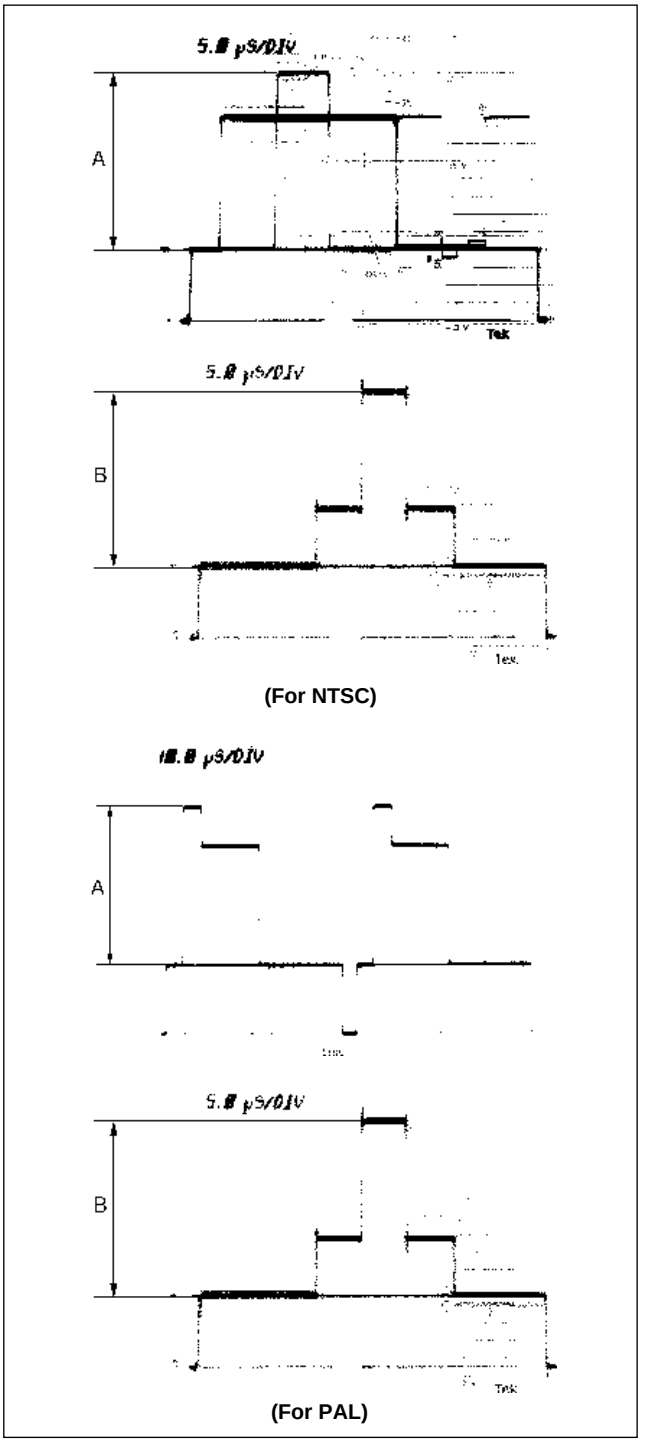
MENU :	Paint
PAGE :	Detail1 (P2)
ITEM :	Detail→Off
PAGE :	Gamma (P5)
ITEM :	Gammma→Off
PAGE :	Knee/W.Clip (P6)
ITEM :	Knee→Off
ITEM :	White Clip→Off
MENU :	System config
PAGE :	PR/VA/TEST (S3)
ITEM :	TEST→2

Test point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment procedures:

• A/D Gain [G] Adjustment

1. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [G]
   Specifications: The white level shall not be changed even if the OUTPUT/DCC switch (on the side panel) is changed over between CAM and BARS.
   A = B

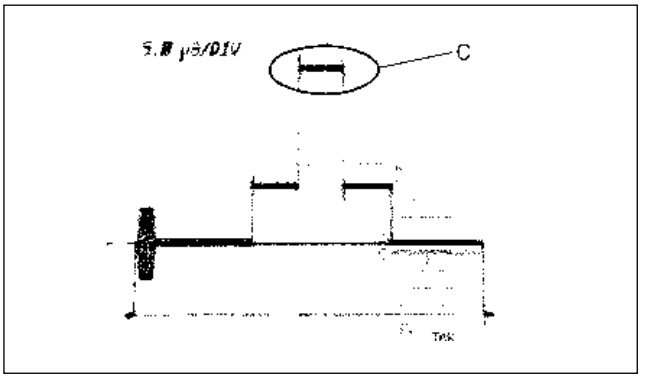


• A/D Gain [R] Adjustment

2. R/G/B switch (on the side panelüj→ ENC
3. OUTPUT/DCC switch (on the side panel) → CAM/OFF
4. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [R]
   Specifications: Minimize the carrier leakage.
   C = Minimum

• A/D Gain [B] Adjustment

5. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [B]
   Specifications: Minimize the carrier leakage.
   C = Minimum



6. Repeat the steps 4 and 5 alternately until the specifications are satisfied.

7. **MENU Setting**:
   MENU : Paint
   PAGE : Detail1 (P2)
   ITEM : Detail→On
   PAGE : Gamma (P5)
   ITEM : Gammma→On
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip→On
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→Off

4-4-14. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again following the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

Connect the waveform monitor to the TEST OUT connector.
RGB/ENC switch (on the side panel) → ENC

Test point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment procedures:

1. Set the DISP switch (on the side panel) to MENU.
2. Set the menu as follows and execute the auto black shading by pressing the MENU SEL switch (on the front panel).
   MENU : Maintenance
   PAGE : Auto Setup (M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again following this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

• Manual Black Shading Adjustment (For reference)

Note:

• Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

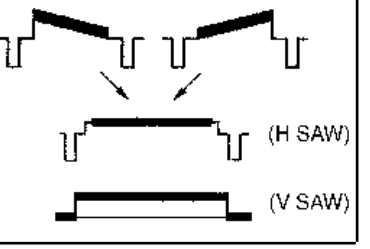
Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment procedures:

1. Set the waveform monitor as follows.
   • LUM mode
   • VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 35 mV for PAL by turning the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
4. If the shading is monitored, makes the waveform flat following the table.
5. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

6. After adjustments are completed, set the switches as follows.
   ENC/RGB switch (on the side panel) → ENC
   GAIN switch (on the side panel) → L (0 dB)

4-4-15. White Shading Adjustment

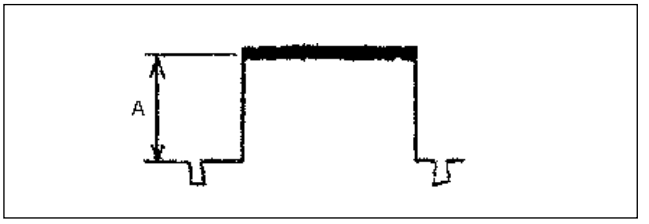
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Full white pattern

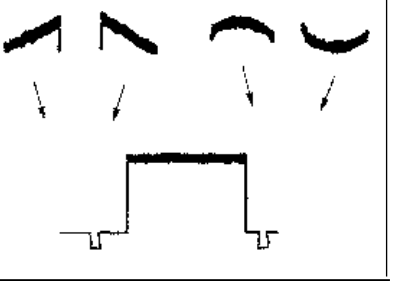
Preparations:

Connect the waveform monitor to the TEST OUT connector.
ENC/RGB (on the side panel)→ENC
Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee → Off
Zoom of the lens : Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
Iris of the lens : Adjust the iris control of the lens to satisfy the white level A.
A = 80 ±5 IRE (for NTSC)
A = 560 ±14 mV (for PAL)



Adjustmnet procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
2. Set the ENC/RGB switch (on the side panel) to R.G.B. Set the R/G/B switch (on the side panel) to G.
3. If the white shading is monitored, makes the waveform flat following the tables.
4. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

5. Set the menu as follows.
   MENU : Reference
   PAGE : Reference file (R1)
   ITEM : File Store
   Execute the Reference File Store by pressing the MENU SEL switch (on the front panel).
6. After adjustments are completed, set the switch as follows.
   ENC/RGB switch (on the side panel) → ENC

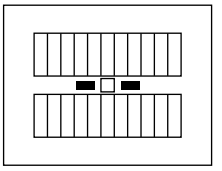
4-4-16. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.

- Adjust automatically the white balance.
  Set the WHT BAL switch (on the side panel) to A
  Set the AUTO W/B BAL switch (on the front panl) to WHT



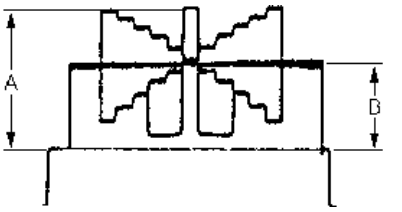
(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → G
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

Adjustmnet procedures:

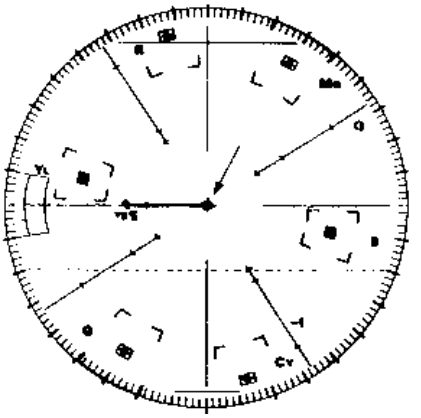
1. Set the RGB/ENC switch (on the side panel) to ENC.
2. Set the menu as follows, and adjust the gamma correction for (M) by turning the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma (M)
   Specifications: B = 60 ±2 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)



(Waveform Monitor)

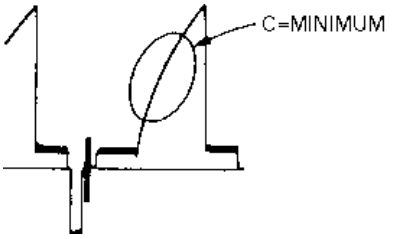
3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→1
4. Gamma (R) Adjustment
   Set the menu as follows, and adjust the gamma correction for (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (R)
   Specifications: Center the beam spot on the vectorscope.
5. Gamma (B) Adjustment
   Set the menu as follows, and adjust the gamma correction for (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (B)
   Specifications: Center the beam spoe on the vectorscope.

6. Repeat the steps 4 and 5 alternately, until the beam spot is minimized on the vectorscope.



(Vector scope)

7. Confirm that the carrier leakage does not monitored at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

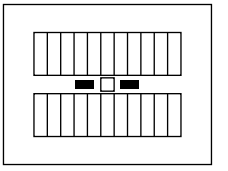
8. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→Off

9. WHITE BAL switch (on the side panel) → PRST

4-4-17. Flare Adjustment

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

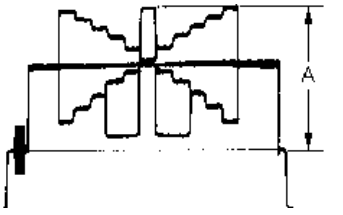
Preparations:
Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

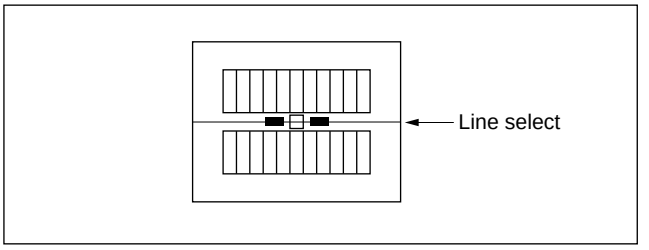
RGB/ENC switch (on the side panel) → ENC
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



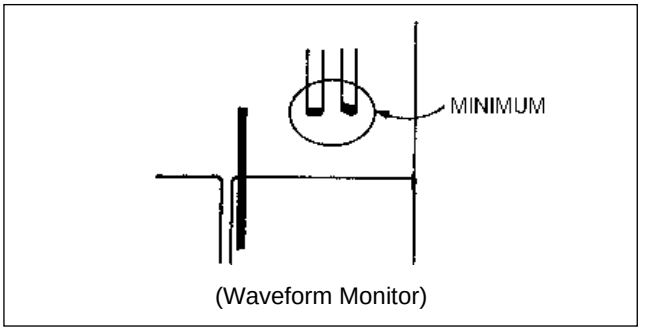
(Waveform Monitor)

Adjustmnet procedures:

1. Adjust the automatically the white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Select the 15 lines in the center of the monitor screen by using the 15 LINE SELECT on the waveform monitor.



4. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (G)
5. Confirm that the level at portion B does not fluctuate even if the flare is turned ON or OFF. If fluctuates, turn Flare ON and adjust by Flare (G).
6. Flare (R) Adjustment
   Set the menu as follows, and adjust the Flare (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (R)
   Specifications: Minimize the carrier leakage.
7. Flare (B) Adjustment
   Set the menu as follows, and adjust the Flare (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (B)
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

8. Repeat the steps 6 and 7 alternately, until the carrier leakage is minimized.
9. WHITE BAL switch (on the side panel) → PRST

4-4-18. Pre Knee Adjustment

Equipment : Oscilloscope

Preparations:

Extend VA-163 board with an EX-464 board.

Test points : TP50,52,54/Extension board extending VA-163

Iris of the lens : CLOSE

Adjustment procedures:

1. **MENU Setting**:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → On
2. Set the RGB/ENC switch (on the side panel) to ENC.
3. Set the GAIN switch (on the side panel) to M (9 dB).
4. Set the WHITE BAL switch (on the side panel) to PRST.
5. Set the menu as follows.
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : TEST → 2

• Pre knee1 [G] Adjustement

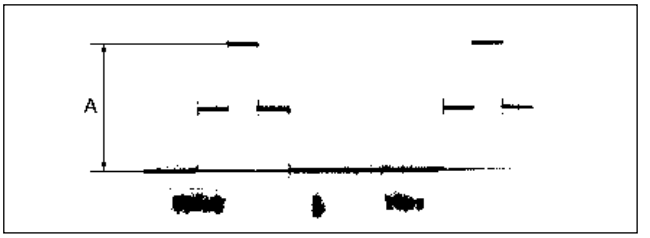
6. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
7. **MENU Setting**:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[G]
   Specifications:A = 1.68 ±0.02 V p-p

• Pre knee1 [R] Adjustement

8. Connect the oscilloscope to the TP54 (GND:GND (A))/Extension board extending VA-163.
9. **MENU Setting**:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[R]
   Specifications: A = 1.68 ±0.05 V p-p

• Pre knee1 [B] Adjustement

10. Connect the oscilloscope to the TP50 (GND:GND (A))/Extension board extending VA-163.
11. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[B]
    Specifications: A = 1.68 ±0.05 V p-p



12. Pre knee2 Adjustment
    MENU Setting:
    MENU : Operation
    PAGE : Gain SW (?3)
    ITEM : Middle → 12 dB

• Pre knee2 [G] Adjustment

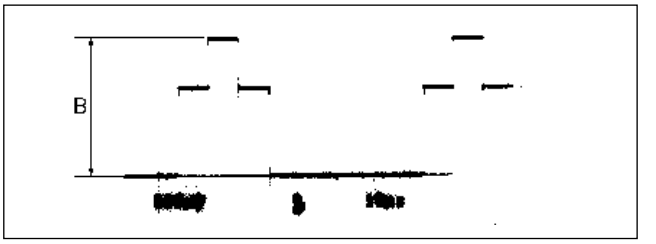
13. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
14. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[G]
    Specifications:B = 1.80 ±0.02 V p-p

• Pre knee2 [R] Adjustment

15. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
16. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications:B = 1.80 ±0.05 V p-p

• Pre knee2 [B] Adjustment

17. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
18. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications : B = 1.80 ±0.05 V p-p



19. **MENU Setting**:
    MENU : Operation
    PAGE : Gain SW (?3)
    ITEM : Middle → 9 dB
20. Set the GAIN switch (on the side panel) to L (0 dB).

4-4-19. Knee and White Clip Adjustment

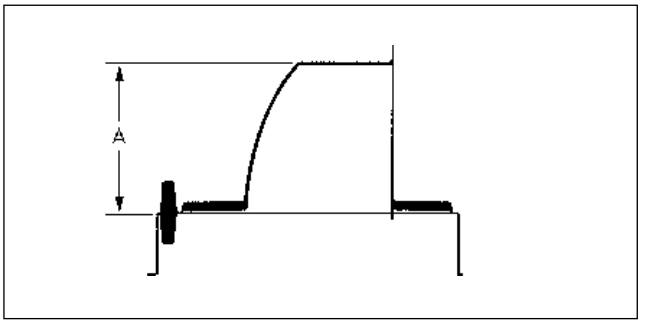
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:

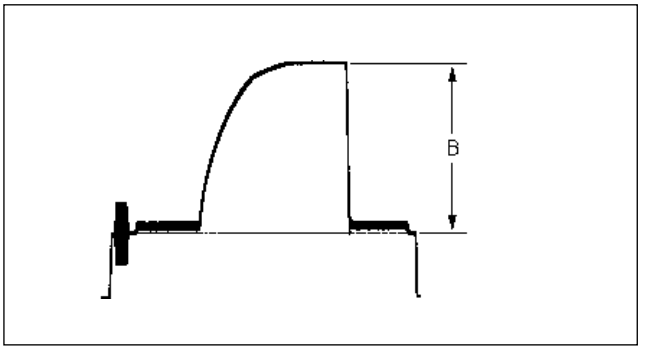
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → CAM/ON
RGB/ENC switch (on the side panel) → ENC
WHITE BAL switch (on the side panel) → PRST
GAIN switch (on the side panel) → M (9dB)

Adjustment procedures:

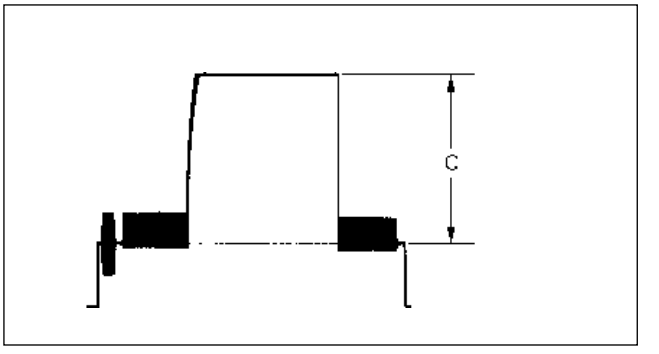
1. Knee Point Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test →1
   ITEM : White Clip →Off
   ITEM : Knee Max →On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



2. Knee Slope Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max →Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



3. Set the GAIN switch (on the side panel) →H (18 dB).
4. Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip →On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



5. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test →Off
6. Set the GAIN switch (on the side panel) →L (0 dB).

Note:

The values used in the above adjustments are under the conditions when the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	107/750	107/750	107/750
White clip	109/763	107/749	105/735	103/721

- As for the detail adjustments, refer to Sections 4-2-9 to 4-2-17. Adjust according to the customer's preferences.

4-4-20. VTR R-Y/B-Y Adjustment

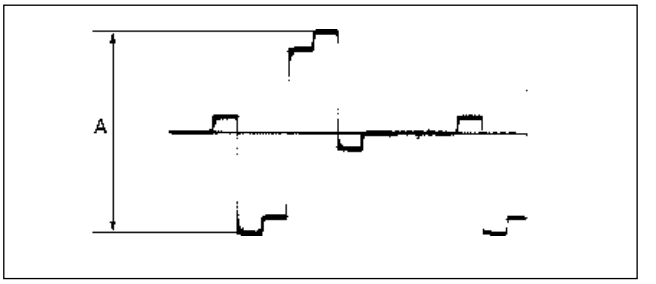
Equipment : Oscilloscope
Test points : TP4,TP5/DA-88

Preparations:

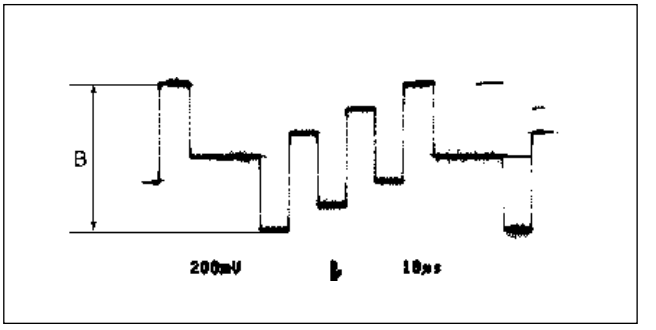
OUTPUT/DCC switch (on the side panel) → BARS

Adjustment procedures:

1. Connect the oscilloscope to the TP4 (E4) (GND:E1 (F4))/DA-88 Board.
2. VTR R-Y Adjustment
   Adjustment point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR R-Y
   Specifications: A = 700 ±5 mV (for NTSC)
   : A = 525 ±5 mV (for PAL)



3. Connect the oscilloscope to the TP5 (F4) (GND:E1 (F4))/DA-88 Board.
4. VTR B-Y Adjustment
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR B-Y
   Specifications: B = 700 ±5 mV (for NTSC)
   : B = 525 ±5 mV (for PAL)



5. **MENU Setting**:
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store
   Press the MENU SEL switch (on the front panel) to execute the triming file store.

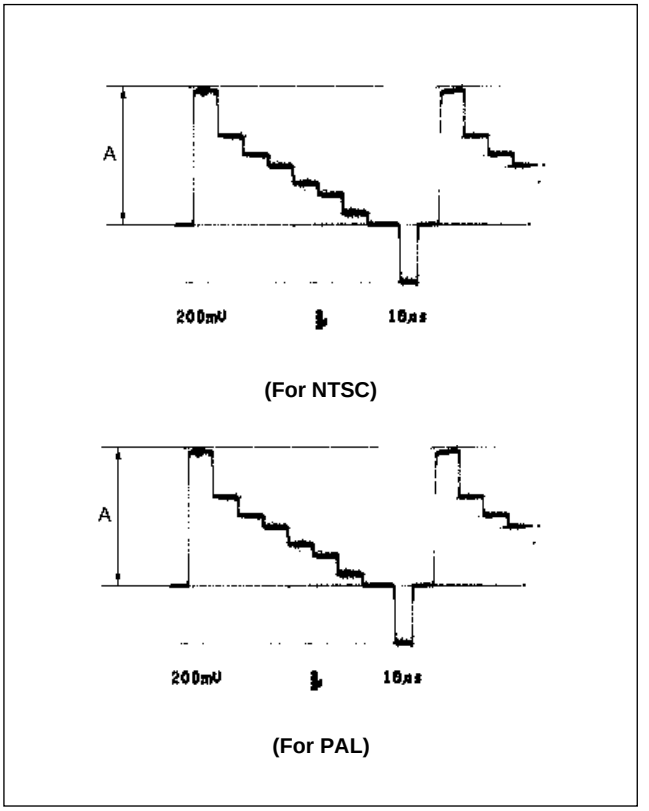
4-4-21. CCU Y/R-Y/B-Y Adjustment

Equipment : Oscilloscope
Test points : TP3,TP4,TP5/DA-88

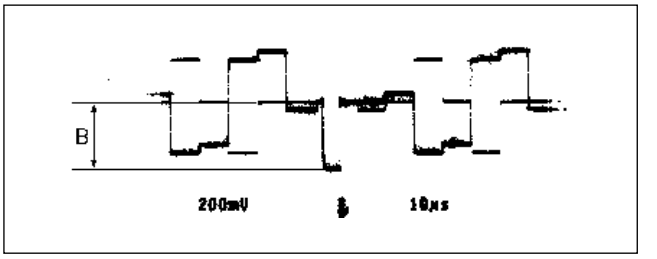
Preparations:
Connect the CCU to the camera.

MENU Setting:
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB →On

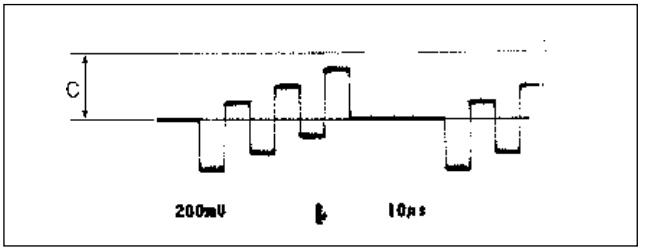
Adjustment procedures:
• CCU Y Sample adjustment
1. Connect the oscilloscope to the TP3 (D4) (GND:E1 (F4))/DA-88 Board.
2. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU Y SAMP
   Specifications: A = 700 ±2 mV

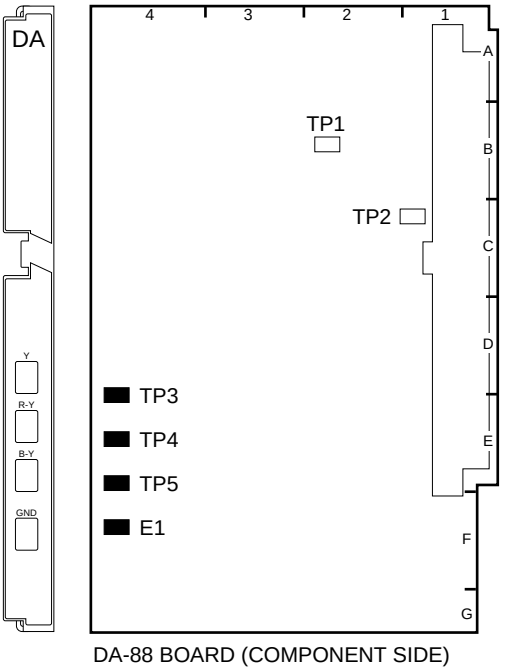


• CCU R-Y Sync adjustment
3. Connect the oscilloscope to the TP4 (E4) (GND:E1 (F4))/DA-88 Board.
4. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU R-Y SYNC
   Specifications: B = 350 ±2 mV



• CCU B-Y Sample adjustment
5. Connect the oscilloscope to the TP5 (F4) (GND:E1 (F4))/DA-88 Board.
6. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU B-Y SYNC
   Specifications: C = 350 ±2 mV





DA-88 BOARD (COMPONENT SIDE)

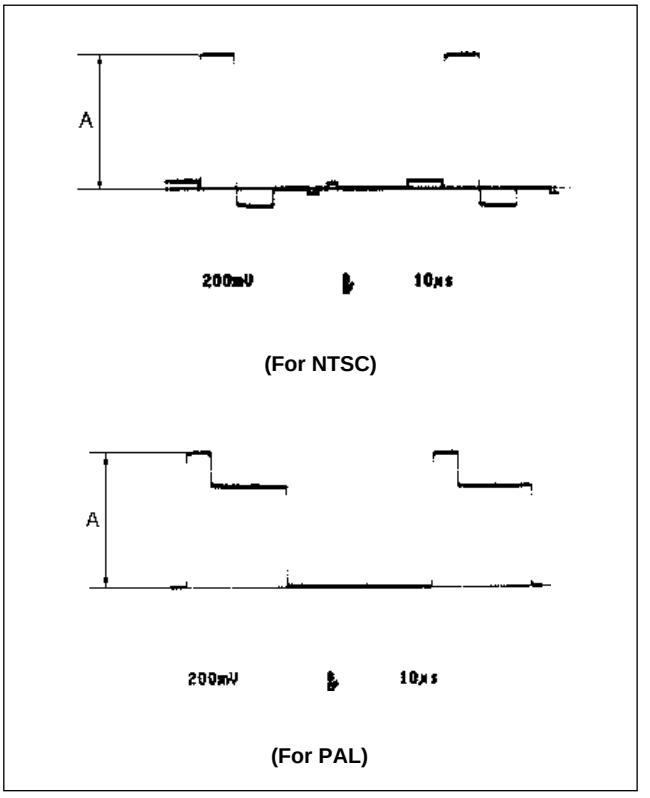
4-4-22. RGB Adjustment

Equipment : Oscilloscope
Test points : TP59,TP61,TP63/Extension board extending IF-510.

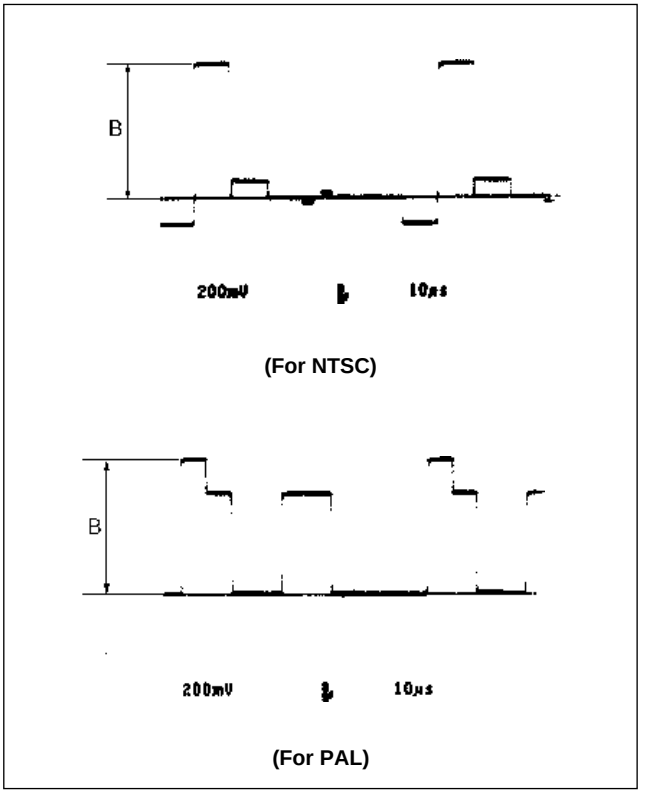
Preparations:
Extend IF-510 board with EX-464 board.

MENU Setting:
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB→On

Adjustment procedures:
• G-ch Video adjustment
1. Connect the oscilloscope to the TP61 (GND:GND (A))/Extension board extending IF-510.
2. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : RGB OFFSET
   Specifications: A = 700 ±5 mV

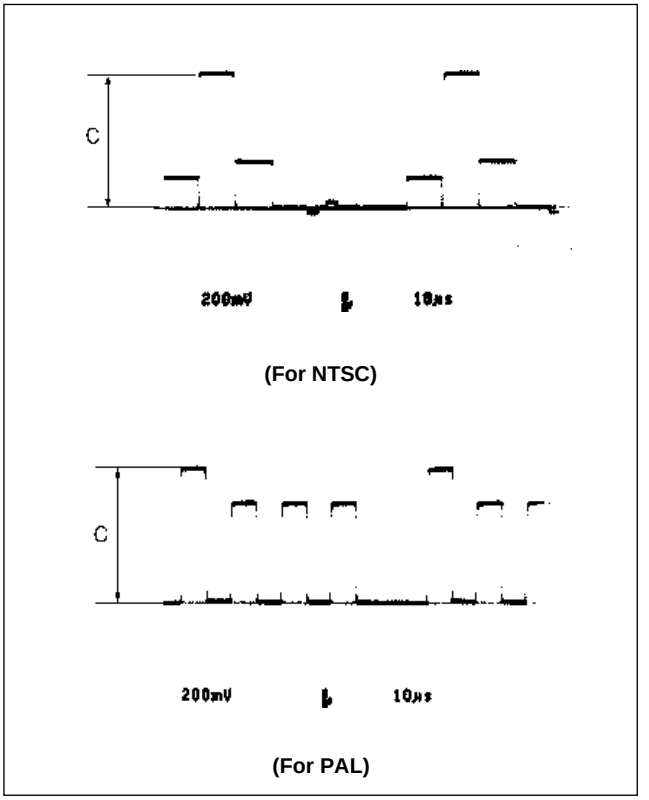


• R-ch Video confirmation
3. Connect the oscilloscope to the TP63 (GND:GND (A))/Extension board extending IF-510.
   Specifications:B = 700 ±7 mV



• R-ch Video confirmation

4. Connect the oscilloscope to the TP59 (GND:GND (A))/Extension board extending IF-510.
   Specifications: C = 700 ±7 mV



4-4-23. File Store

Note:

• Be sure to perform this item after any of the adjustments of sections 4-4-1 through 4-4-22 is performed.

• Reference File Store

1. Set the menu as follows.
   MENU : Reference
   PAGE : Referrence File (R1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel)to execute the reference file store.

• Triming File Store

1. Set the menu as follows.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel)to execute the reference file store.

4-4-24. Menu Setting After Finishing Adjustment

Set the menu as follows.
MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail →ON
PAGE : Gamma (P5)
ITEM : Gamma →ON
PAGE : Knee/W.Clip (P6)
ITEM : Knee →ON

Section 5
Spare Parts

5-1. Notes on Repair Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

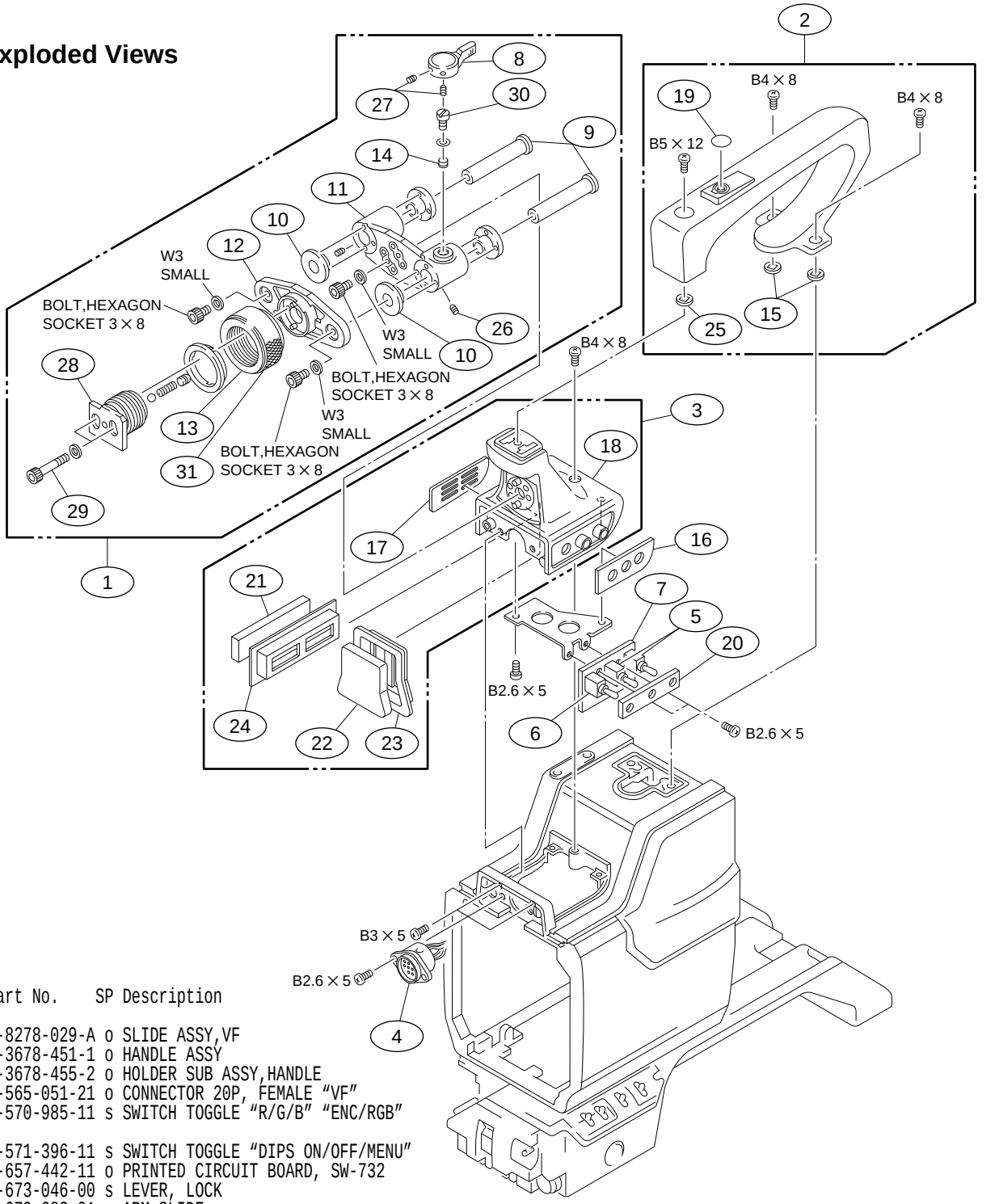
The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

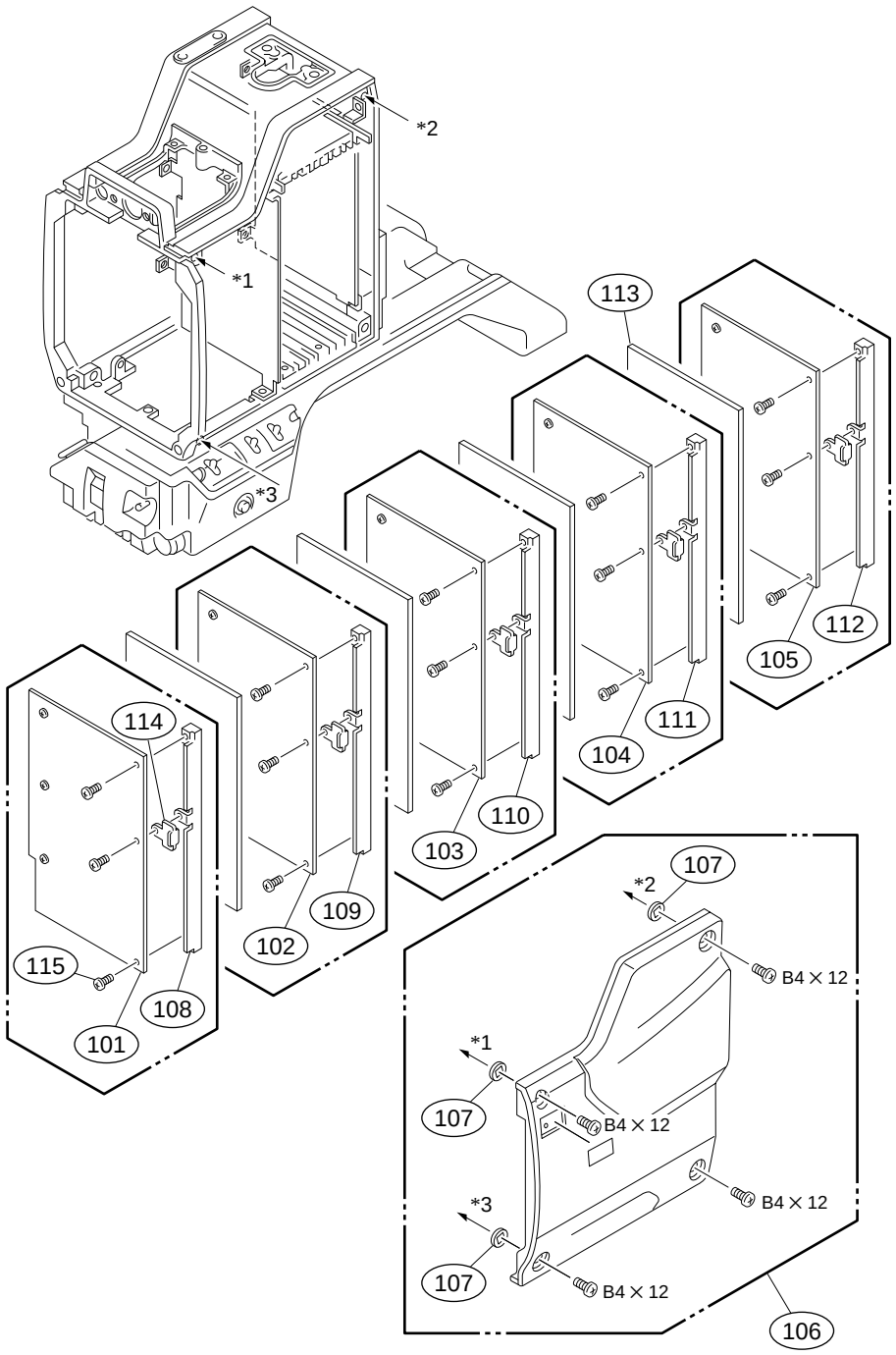
5. Destination Representation

The part indicated “For UCJ/CE” in the spare parts list is used in the unit written below.
For UCJ : The part is used in a unit for Japan, U.S.A. and Canada.
For CE : The part is used in a unit for regions except the above countries.

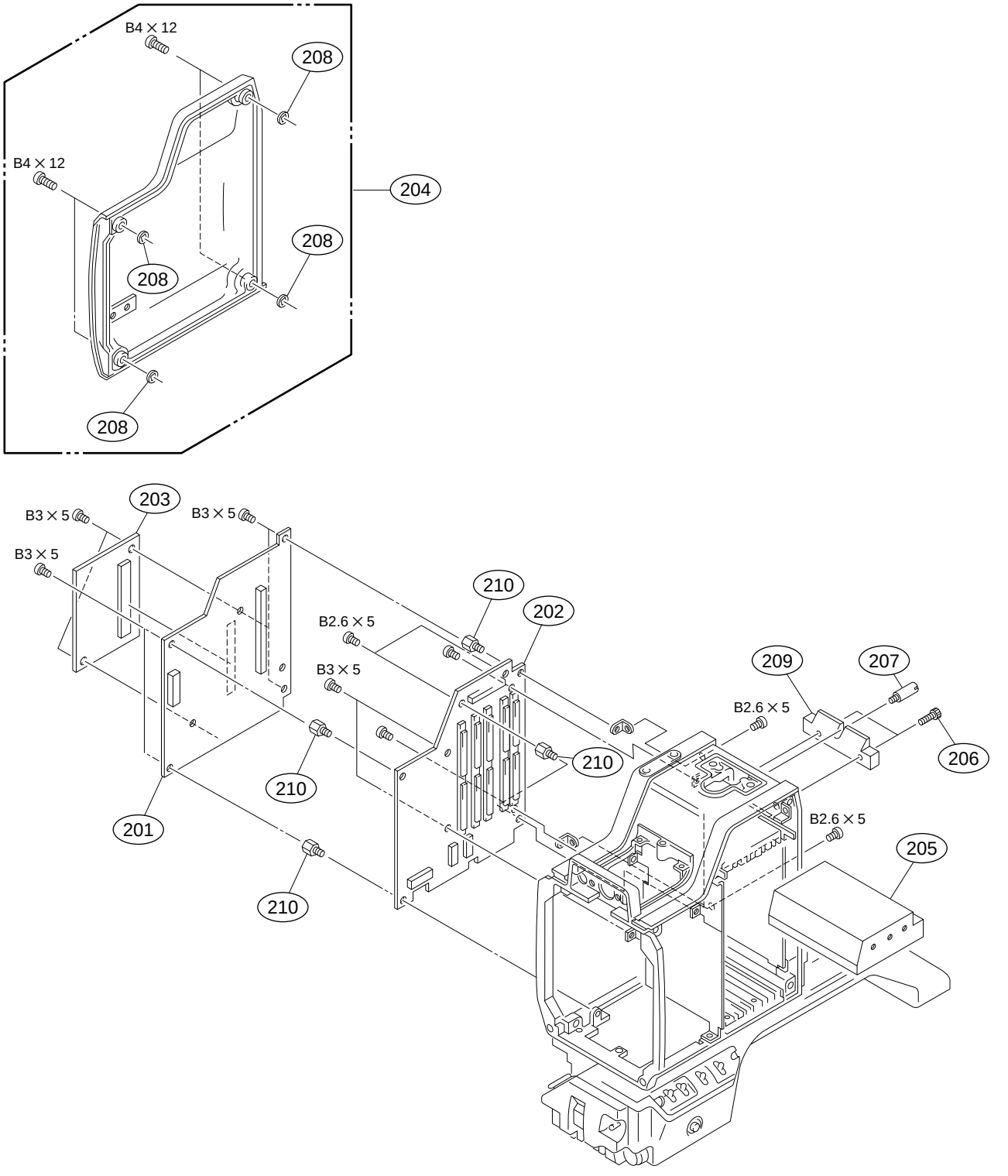
5-2. Exploded Views



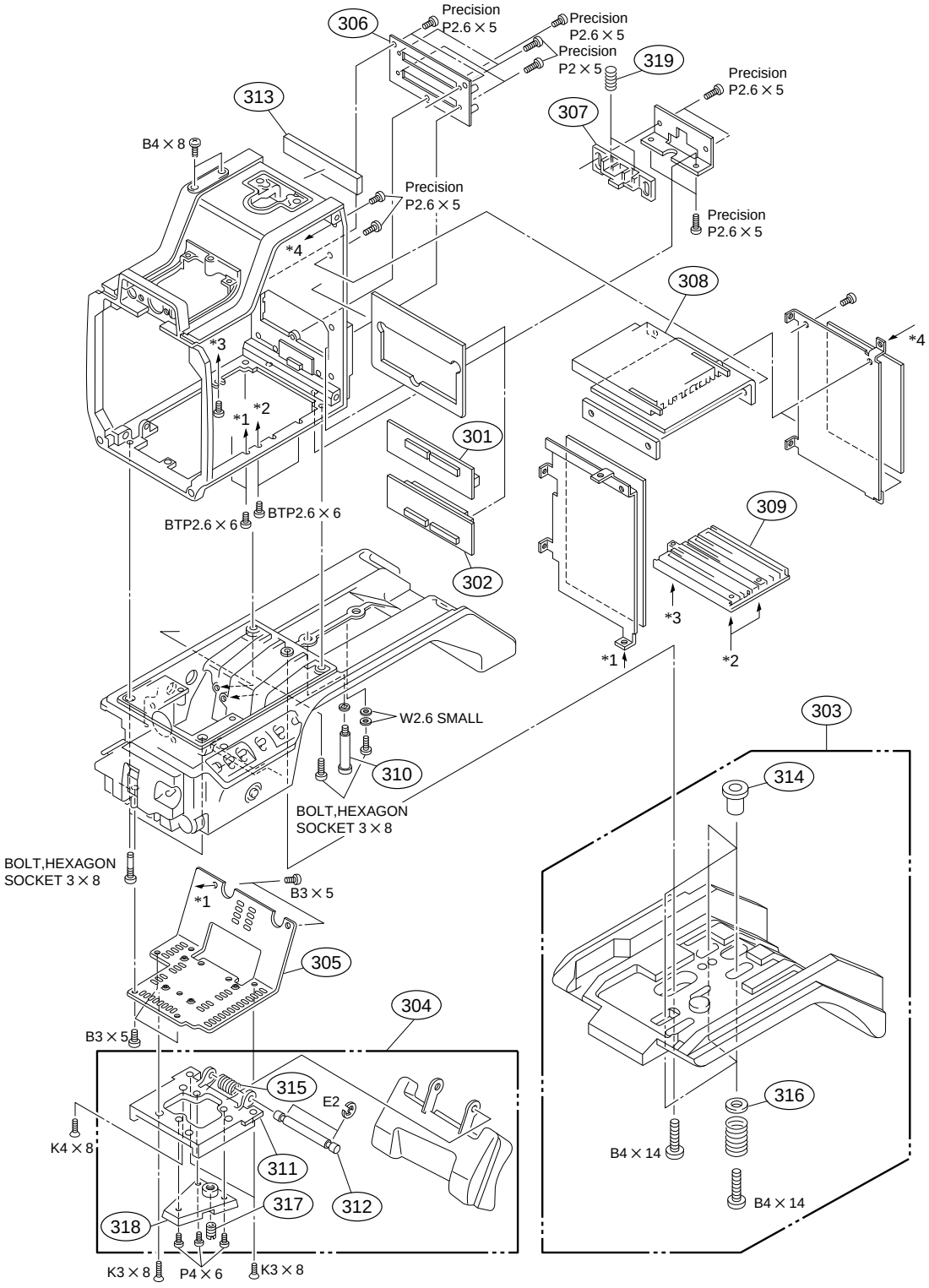
No.	Part No.	SP	Description
1	A-8278-029-A	o	SLIDE ASSY,VF
2	X-3678-451-1	o	HANDLE ASSY
3	X-3678-455-2	o	HOLDER SUB ASSY,HANDLE
4	1-565-051-21	o	CONNECTOR 20P, FEMALE "VF"
5	1-570-985-11	s	SWITCH TOGGLE "R/G/B" "ENC/RGB"
6	1-571-396-11	s	SWITCH TOGGLE "DIPS ON/OFF/MENU"
7	1-657-442-11	o	PRINTED CIRCUIT BOARD, SW-732
8	3-673-046-00	s	LEVER, LOCK
9	3-679-683-01	o	ARM,SLIDE
10	3-679-684-01	o	REST,ARM
11	3-679-685-01	o	TABEL,FIXED,VF SLIDE
12	3-679-686-01	o	TABEL,FIXED,VF SHOE
13	3-679-698-01	o	RING(C),LOCK
14	3-679-702-01	o	CUSION,STOPPER
15	3-687-116-01	o	WASHER(4), STOPPER
16	3-692-112-01	o	PLATE,MENU
17	3-692-150-01	o	SHEET,DROP PROTECTION
18	3-692-165-01	o	HOLDER,HANDOLE
19	3-692-649-01	s	SHEET, BLIND
20	3-693-984-01	s	CUSSHION, DROP PROTECTION (3)
21	3-694-196-01	s	SHEET, DUST PROTECTION (S)
22	3-694-197-01	o	SHEET, DUST PROTECTION (F)
23	3-694-198-01	s	RETAINER, DROP PROTECTION (F)
24	3-694-199-01	s	RETAINER DROP, PROTECTION (S)
25	3-701-442-21	s	WASHER, 4.5
26	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
27	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
28	3-710-039-03	s	SHOE, SLIDE
29	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
30	3-711-794-01	o	PIN, STOPPER
31	3-720-919-01	o	RUBBER, LOCK RING



No.	Part No.	SP	Description
101	A-8269-359-A	o	MOUNTED CIRCUIT BOARD, VA-163
102	A-8269-360-A	o	MOUNTED CIRCUIT BOARD, AT-95
103	A-8269-361-A	o	MOUNTED CIRCUIT BOARD, SG-234
104	A-8269-362-A	o	MOUNTED CIRCUIT BOARD, DA-88
105	A-8269-363-A	o	MOUNTED CIRCUIT BOARD, IF-510
106	X-3678-450-1	o	PANEL ASSY, RIGHT
107	3-687-116-01	o	WASHER (4), STOPPER
108	3-692-125-02	o	PANEL,VA-163 PC BOARD
109	3-692-126-02	o	PANEL,AT-95 PC BOARD
110	3-692-127-02	o	PANEL,SG-234 PC BOARD
111	3-692-128-02	o	PANEL,DA-88 PC BOARD
112	3-692-129-02	o	PANEL,IF-510 PC BOARD
113	3-692-642-01	o	SHEET,SHIELD
114	3-724-753-01	o	RING
115	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)

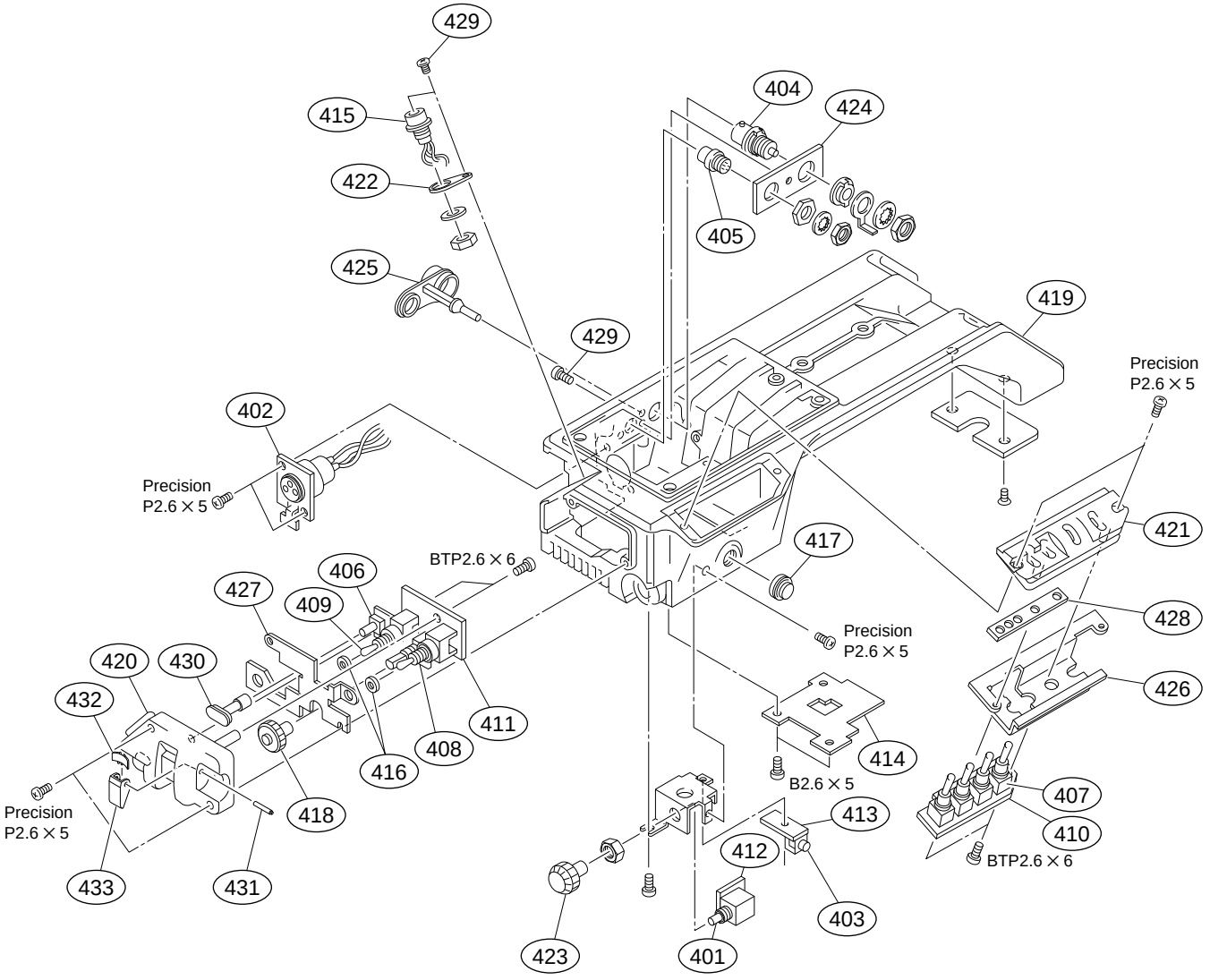


No.	Part No.	SP	Description
201	A-8269-357-A	o	MOUNTED CIRCUIT BOARD, PR-211
202	A-8269-358-A	o	MOUNTED CIRCUIT BOARD, MB-602
203	A-8269-381-A	o	MOUNTED CIRCUIT BOARD, CN-1142
204	X-3678-452-1	o	PANEL ASSY, LEFT
205	⚠ 1-473-314-11	s	CONVERTER, D.C-D.C
206	2-623-773-11	s	BOLT (M3X8), STAINLESS
207	3-168-296-01	s	PIN, ID
208	3-687-116-01	o	WASHER (4), STOPPER
209	3-692-113-01	o	WEDGE,HANGER
210	4-924-260-01	o	BOSS (D)



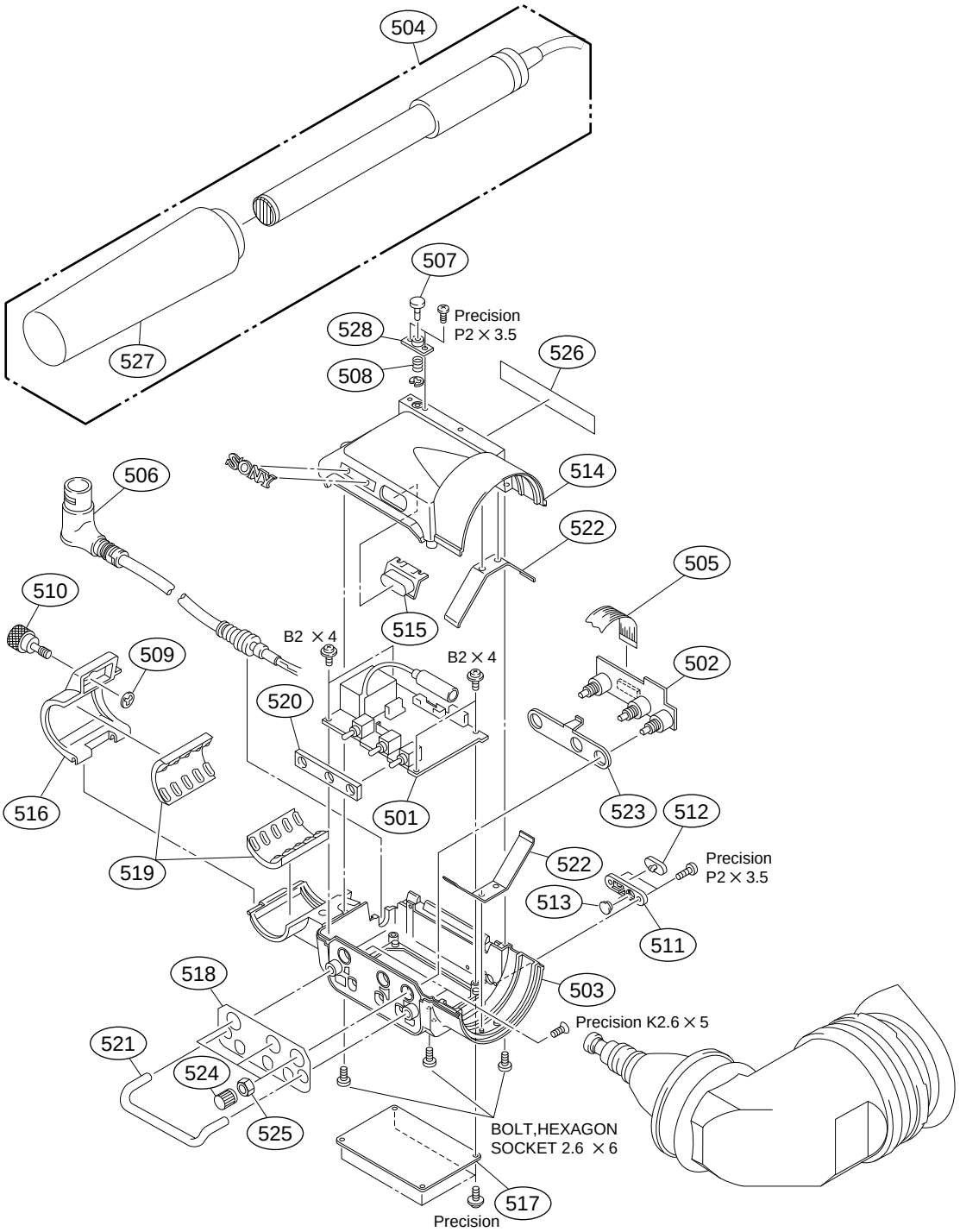
No.	Part No.	SP	Description
301	A-8269-369-A	o	MOUNTED PCB, CN-1120
302	A-8269-370-A	o	MOUNTED PCB, CN-1121
303	A-8278-237-A	s	PAD ASSY (LARGE)
304	A-8278-238-A	s	PAD ASSY (SMALL)
305	3-692-102-01	o	BRACKET V SHOE
306	3-692-114-01	o	PLATE,CONNECTOR(136P)
307	3-692-115-01	o	SHOE,LOCK
308	3-692-117-01	o	RAIL
309	3-692-119-01	o	RAIL,CAM
310	3-692-641-03	o	ROD,LOCK
311	3-692-643-02	o	BASE,V SHOE
312	3-692-645-01	o	ROD,ROTARY
313	3-692-646-01	o	SHEET,DUST PROTECTION (PS)
314	3-692-647-01	o	SPACER,PAD
315	3-693-973-01	s	SPRING, TORSION (SMALL)
316	3-701-444-21	s	WASHER, 6
317	3-742-011-01	s	SCREW, 1/4, 3/8 CONVERSION
318	3-742-015-01	o	WEDGE (B), MOUNTING
319	4-864-521-01	s	SPRING (PC BOARD GROUND)

BOTTOM BLOCK

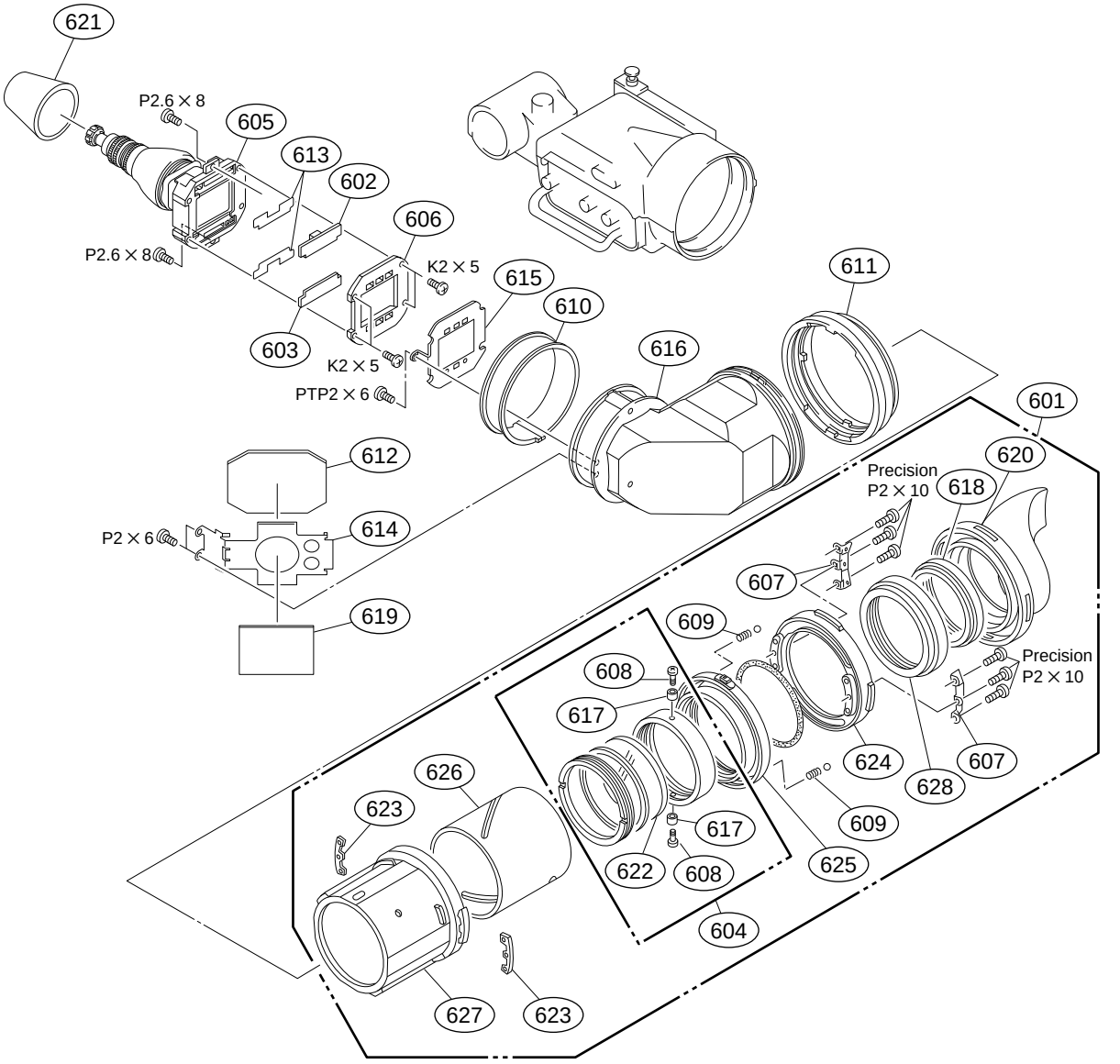


No.	Part No.	SP	Description
401	1-473-315-11	s	ENCODER ROTARY "MENU SEL"
402	1-509-184-31	s	CONNECTOR 3P, FEMALE "MIC"
403	1-554-088-00	s	SWITCH, TACTILE "CANCEL"
404	1-561-781-11	s	CONNECTOR, BNC "TEST OUT"
405	1-562-222-41	s	CONNECTOR 6P, FEMALE "REMOTE"
406	1-570-282-21	s	SWITCH KEY BOARD "VTR START"
407	1-571-415-11	s	SWITCH TOGGLE "CAMERA/VTR" "GAIN" "OUTPUT" WHITE BAL"
408	1-571-416-11	s	SWITCH TOGGLE "AUTO W/B BAL"
409	1-571-679-11	s	SWITCH TOGGLE "SHUTTER"
410	1-657-443-01	o	PRINTED CIRCUIT BOARD, SW-730
411	1-657-444-12	o	PRINTED CIRCUIT BOARD, SW-731
412	1-657-445-11	o	PRINTED CIRCUIT BOARD, SW-733
413	1-657-446-11	o	PRINTED CIRCUIT BOARD, SW-742
414	1-657-447-12	o	PRINTED CIRCUIT BOARD, CN-1122
415	1-695-841-12	s	CONNECTOR 12P, FEMALE "LENS"
416	3-312-823-00	s	PACKING, KNOB

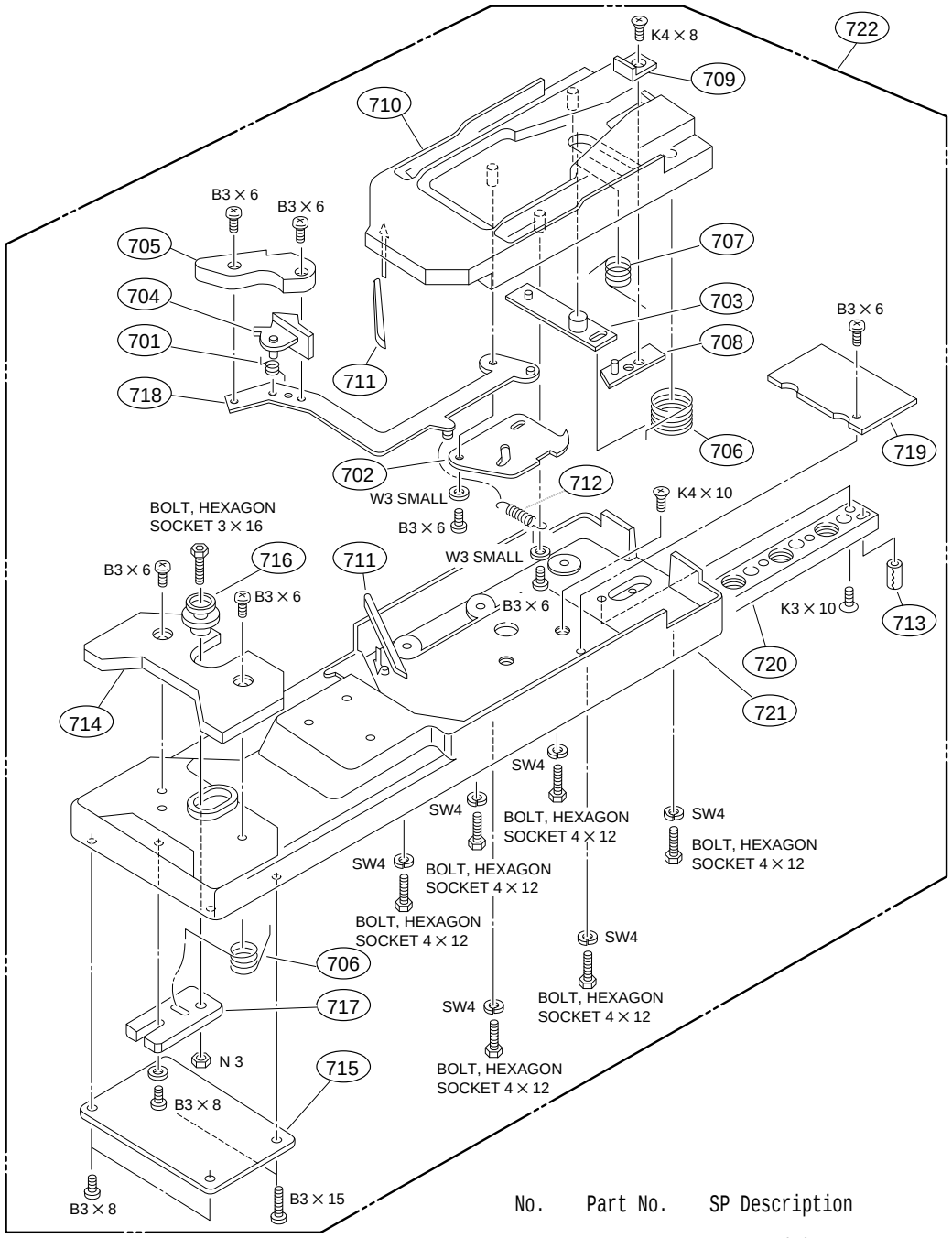
No.	Part No.	SP	Description
417	3-676-244-11	s	COVER, SW
418	3-679-679-03	s	KNOB,VR(AUDIO)
419	3-692-106-01	o	BASE,SHOULDER
420	3-692-107-02	o	COVER,FRONT SWITCH
421	3-692-108-01	o	GUARD,SWITCH
422	3-692-110-01	o	BRACKET,CONNECTOR
423	3-692-111-01	s	KNOB,RE "MIC LEVEL"
424	3-692-149-01	o	BRACKET,CONNECTOR(TEST OUT)
425	3-692-644-02	o	CAP,CONNECTOR
426	3-693-974-01	o	PLATE, SHIELD (SIDE)
427	3-693-976-01	o	PLATE, SHUTTER (FRONT)
428	3-693-983-01	o	CUSSHION, DROP PROTECTION (2)
429	3-694-181-01	s	TYPE1, AROCK PRECISION +P2.6
430	3-729-069-01	s	BUTTON, VTR START
431	3-742-065-01	o	SHAFT, SHUTTER
432	3-742-066-01	o	SPRING, SHUTTER
433	3-742-067-04	o	LID, SHUTTER



No.	Part No.	SP	Description
501	A-8269-387-A	o	MOUNTED CIRCUIT BOARD, VF-60
502	A-8269-388-A	o	MOUNTED CIRCUIT BOARD, VR-199
503	X-3678-435-1	o	CHASSIS,BOTTOM ASSY
504	1-542-232-12	o	MICROPHONE (SUPPLIED ACCESSORY)
505	1-775-771-11	o	FLEXIBLE CARD WIRE (14 CORE)
506	1-952-420-21	s	HARNESS (VF CABLE 3)
507	2-277-457-00	s	KNOB, STOPPER
508	2-277-466-01	s	SPRING, COMPRESSION
509	3-165-904-01	s	WASHER, SCREW STOPPER
510	3-657-657-00	s	SCREW (M5)
511	3-679-693-01	o	BASE,SLIDE
512	3-679-694-01	o	COVER,SLIDE
513	3-679-695-01	o	COVER,TALLY
514	3-692-131-01	o	CHASSIS,UPPER
515	3-692-132-01	o	COVER,TALLY
516	3-692-134-01	o	MIC CLAMP
517	3-692-135-01	o	LID,COVER
518	3-692-137-01	o	LABEL,VF
519	3-692-138-01	s	MIC CUSHION,RUBBER
520	3-692-145-01	o	CUSSHION,DRROP PROTECCTION
521	3-692-147-01	o	GUARD BAR
522	3-692-148-02	o	LEAF SPRING
523	3-692-151-01	o	PLATE, GROUND
524	3-692-154-01	s	KNOB, VF
525	3-693-327-01	s	NUT, M6
526	3-693-978-01	o	SHEET, LUBRICATION
527	3-708-875-01	s	SCREEN, WIND (SUPPLIED ACCESSORY)
528	3-710-008-02	s	HOUSING, STOPPER



No.	Part No.	SP	Description
601	A-7612-389-B	s	TUBE SUB ASSY, VF
602	A-8269-389-A	o	MOUNTED CIRCUIT BOARD, LP-84
603	A-8269-390-A	o	MOUNTED CIRCUIT BOARD, LP-85
604	X-3722-436-1	o	LENS ASSY
605	⚠ 1-251-386-11	s	1.5" CRT ASSY
606	3-176-022-03	o	SPACER (B), MASK
607	3-176-414-01	o	RETAINER, RING
608	3-335-207-01	s	SHAFT, MOTOR
609	3-573-150-00	o	SPRING, COMPRESSION
610	3-692-133-01	o	RING,VF
611	3-692-136-01	o	FIXED RING
612	3-692-139-01	o	MIRROR(2)
613	3-692-144-01	o	SPACER,LP
614	3-692-146-01	o	HOLDER,MIRROR(2)
615	3-692-155-01	o	PLATE,DISPLAY
616	3-692-166-01	o	VF TUBU(3)
617	3-722-485-01	o	ROLLER, SLIDE
618	3-723-069-02	o	PROTECTOR, MC
619	3-723-073-01	o	CUSHION, MIRROR
620	3-723-079-01	s	EYE CUP
621	3-725-220-02	o	TUBE (A), CRT
622	3-725-276-01	s	LUPE, VF
623	3-742-038-01	o	NUT (2), PLATE
624	3-742-052-03	o	HOLDER, EYE CUP
625	3-742-053-02	o	RING
626	3-742-054-01	o	TUBE
627	3-742-060-01	o	HOLDER, RING
628	3-742-075-01	o	HOLDER, FILTER



No.	Part No.	SP	Description
701	2-381-631-01	o	SPRING
702	2-381-632-01	o	ARM, LOCKER
703	2-381-633-01	o	SOLENOID
704	2-381-635-01	o	LEVER, LOCK
705	2-381-636-01	o	KNOB
706	2-381-637-01	o	SPRING
707	2-381-638-01	o	SPRING
708	2-381-640-01	o	DOG
709	2-381-641-01	o	COLLAR
710	2-381-642-02	o	MOUNT
711	2-381-648-01	o	INSULATOR, KNOB
712	2-381-652-01	o	SPRING, TENSION
713	2-381-654-01	s	PIN, SPRING
714	3-678-704-00	o	SPACER
715	3-720-906-01	o	LID (S), REAR
716	3-720-907-01	o	PIN (S), REAR
717	3-720-908-01	o	TABLE (S), PIN, REAR
718	3-720-909-01	o	KNOB, CRANK
719	3-720-910-01	o	SHEET, SLIDE
720	3-720-911-01	o	BASE, TRIPOD FITTING SCREW
721	3-720-912-01	o	FRAME (S)
722	OPTIONAL ACCESSORY: TRIPOD ADAPTOR VCT-14		
	7-623-210-22	s	SW 4,TYPE 2
	7-626-314-01	s	PIN, SPRING 2X5
	7-682-249-04	s	SCREW +K 3X10
	7-682-262-04	s	SCREW +K 4X10
	7-682-263-04	s	SCREW +K 4X12
	7-682-547-09	s	SCREW +B 3X6
	7-682-548-09	s	SCREW +B 3X8
	7-683-408-04	s	BOLT,HEXAGON SOCKET 3X16
	7-683-421-04	s	BOLT,HEXAGON SOCKET 4X12
	7-684-023-04	s	NUT 3, TYPE 2
	7-688-003-11	s	WASHER 3, MIDDLE

No.	Part No.	SP	Description
	7-621-770-87	s	SCREW +B 2.6X5
	7-623-208-22	o	SW 3,TYPE 2
	7-623-505-01	s	LUG, 2
	7-624-104-04	s	STOP RING 2.0, TYPE -E
	7-624-105-04	s	STOP RING 2.3, TYPE -E
	7-624-200-01	s	NUT, PUSH 1.5
	7-627-452-38	s	SCREW,PRECISION +K 2X5
	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
	7-627-553-78	s	SCREW,PRECISION +P 2X10
	7-627-554-18	s	SCREW,PRECISION +P 2X3.5 TYPE1
	7-627-556-57	s	PRECISION SCREW +P 2.6X5 TYPE1
	7-627-556-58	s	SCREW +P 2.6X5
	7-671-158-01	s	BALL, STAINLESS (2.5 DIA)
	7-682-160-09	s	SCREW +P 4X6
	7-682-247-04	s	SCREW +K 3X6
	7-682-248-09	s	SCREW +K 3X8
	7-682-261-09	s	SCREW +K 4X8
	7-682-545-04	s	SCREW +B 3X4
	7-682-546-04	s	SCREW +B 3X5
	7-682-546-09	s	SCREW +B 3X5
	7-682-561-09	s	SCREW +B 4X8
	7-682-563-09	s	SCREW +B 4X12
	7-682-564-09	s	SCREW +B 4X14
	7-682-576-09	s	SCREW +B 5X12
	7-683-404-04	s	BOLT,HEXAGON SOCKET 3X8
	7-683-405-04	s	BOLT,HEXAGON SOCKET 3X10
	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
	7-685-104-19	s	SCREW +P 2X6 TYPE2 NON-SLIT
	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT
	7-685-533-19	s	SCREW +BTP 2.6X6 TYPE2 N-S
	7-688-002-02	s	W2.6, SHALL
	7-688-003-02	s	W 3, SMALL

5-3. Electrical Parts List

5-3-1. Parts List for Camera

AT-95 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-360-A	o	MOUNTED CIRCUIT BOARD, AT-95
1pc	3-692-126-02	o	PANEL,AT-95 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
BT1	1-550-104-32	s	HOLDER, BATTERY
C1	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C2	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-104-905-11	s	DOUBLE LAYERS, 0.22F 5.5V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C32	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C35	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C41	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C42	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-164-156-11	s	CERAMIC 0.1uF 25V
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C67	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C68	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C71	1-131-360-00	s	TANTALUM 15uF 10% 10V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
CNI36	1-540-197-11	o	SOCKET, IC
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-820-41	s	DIODE 1SS302
D3	8-719-974-76	s	DIODE HSM107S
D4	8-719-974-76	s	DIODE HSM107S
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-974-76	s	DIODE HSM107S
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-974-76	s	DIODE HSM107S
D10	8-719-974-76	s	DIODE HSM107S
D11	8-719-974-76	s	DIODE HSM107S
D12	8-719-974-76	s	DIODE HSM107S
D13	8-719-974-76	s	DIODE HSM107S
D15	8-719-974-76	s	DIODE HSM107S
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D18	8-719-820-41	s	DIODE 1SS302
D19	8-719-820-41	s	DIODE 1SS302
D20	8-719-820-41	s	DIODE 1SS302
D21	8-719-820-41	s	DIODE 1SS302
D22	8-719-820-41	s	DIODE 1SS302
IC1	8-759-252-59	s	IC MAX202CSE
IC2	8-759-242-78	s	IC TC7W02F
IC3	8-759-186-51	s	IC TC74VHC157FS(EL)
IC4	8-759-076-06	s	IC TL064CPW
IC5	8-759-076-06	s	IC TL064CPW
IC6	8-759-637-07	s	IC M62021FP
IC7	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-076-06	s	IC TL064CPW
IC11	8-759-711-50	s	IC NJU7022M
IC12	8-759-711-50	s	IC NJU7022M
IC13	8-759-059-50	s	IC MB88351PFV
IC14	8-759-082-57	s	IC TC7W04FU
IC15	8-759-083-94	s	IC TC7W74FU
IC17	8-759-058-64	s	IC TC7S32FU(TE85R)
IC18	8-759-271-84	s	IC TC7SH02FU
IC19	8-759-271-86	s	IC TC7SH04FU
IC20	8-759-196-96	s	IC TC7SH08FU-TE85R

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC21	8-759-271-84	s	IC TC7SH02FU
IC22	8-759-196-97	s	IC TC7SH32FU-TE85R
IC23	8-759-186-31	s	IC TC74VHC20F
IC24	8-759-079-70	s	IC TC74VHC138FS(EL)
IC25	8-759-065-20	s	IC RTC-4553B
IC26	8-752-337-91	s	IC CXK58257ATM-70LL
IC27	8-759-154-60	s	IC UPD71055GB-10-3B4
IC28	8-759-154-60	s	IC UPD71055GB-10-3B4
IC29	8-759-149-10	s	IC UPD4702G
IC30	8-759-271-84	s	IC TC7SH02FU
IC31	8-759-196-97	s	IC TC7SH32FU-TE85R
IC32	8-759-242-78	s	IC TC7W02F
IC33	8-759-186-53	s	IC TC74VHC163F
IC34	8-759-186-53	s	IC TC74VHC163F
IC35	8-759-277-99	s	IC CXD8889R
IC36	8-759-176-87	o	IC M27V201-200L6
IC37	8-759-196-96	s	IC TC7SH08FU-TE85R
IC38	8-759-182-95	s	IC HD151015T
IC39	8-759-079-85	s	IC TC74VHC244FS(EL)
IC40	8-759-079-61	s	IC TC74VHC74FS(EL)
IC41	8-759-195-81	s	IC TC7S86FU
IC42	8-759-186-53	s	IC TC74VHC163F
IC43	8-759-082-57	s	IC TC7W04FU
IC44	8-759-186-53	s	IC TC74VHC163F
IC45	8-759-083-94	s	IC TC7W74FU
IC46	8-759-165-37	s	IC X24164SIC7000
IC47	8-759-078-75	s	IC UPD6453GT-610
IC48	8-759-276-00	s	IC TC7W139FU(TE12R)
L1	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L2	1-410-377-31	s	INDUCTOR CHIP 4.7uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-920-48	s	TRANSISTOR IMH2
Q4	8-729-925-47	s	TRANSISTOR IMB2
Q5	8-729-920-48	s	TRANSISTOR IMH2
Q6	8-729-920-48	s	TRANSISTOR IMH2
R1	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R4	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R5	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R17	1-216-858-11	s	METAL, CHIP 1.2M 5% 1/16W
R18	1-218-723-11	s	METAL 20K 0.50% 1/16W
R19	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R22	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R23	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R26	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R29	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R30	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R31	1-218-720-11	s	METAL 15K 0.50% 1/16W
R32	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R33	1-216-862-11	s	METAL 2.7M 5% 1/16W
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R36	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R37	1-216-863-11	s	METAL 3.3M 5% 1/16W
R38	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-716-11	s	METAL 10K 0.50% 1/16W
R41	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R42	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R43	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R44	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R45	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R49	1-218-716-11	s	METAL 10K 0.50% 1/16W
R50	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R54	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R55	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R59	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R60	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R61	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R62	1-218-752-11	s	METAL 330K 0.50% 1/16W
R63	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R64	1-218-750-11	s	METAL 270K 0.50% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R71	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R72	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R77	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-218-866-11	s	CHIP, METAL 6.2K 0.50% 1/16W
R83	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R84	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R85	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R86	1-216-797-11	s	METAL, CHIP 10 5% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R87	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R88	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R89	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R90	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R91	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R92	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R93	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R94	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R95	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R96	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R97	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R98	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R99	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R103	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R104	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R107	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R108	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R109	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R114	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R115	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R118	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R119	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R120	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R127	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R128	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R129	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R130	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R131	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R132	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R133	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R134	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R135	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R136	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R137	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R138	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R139	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R140	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R141	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R142	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R143	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R144	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R145	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R146	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R147	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R150	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R151	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R152	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R153	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R154	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R155	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R160	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R161	1-216-862-11	s	METAL 2.7M 5% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R163	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R164	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R165	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
RV1	1-237-035-11	s	RES, ADJ METAL 5K
S1	1-692-270-21	s	SWITCH, SLIDE

CN-1120 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-369-A	o	MOUNTED CIRCUIT BOARD, CN-1120
C1	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C2	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C3	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C4	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C5	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C6	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
CN201	1-569-532-11	s	HOUSING, 30P
CN202	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-825-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-825-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-825-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-825-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-825-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-825-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-825-11	s	FILTER, CHIP EMI
FL19	1-239-825-11	s	FILTER, CHIP EMI
FL20	1-239-825-11	s	FILTER, CHIP EMI
FL21	1-239-825-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-825-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-825-11	s	FILTER, CHIP EMI
FL28	1-239-825-11	s	FILTER, CHIP EMI
FL29	1-239-825-11	s	FILTER, CHIP EMI
FL30	1-239-825-11	s	FILTER, CHIP EMI
FL31	1-239-825-11	s	FILTER, CHIP EMI
FL32	1-239-825-11	s	FILTER, CHIP EMI
FL33	1-239-825-11	s	FILTER, CHIP EMI
FL34	1-239-825-11	s	FILTER, CHIP EMI
FL35	1-239-825-11	s	FILTER, CHIP EMI
FL36	1-239-825-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-825-11	s	FILTER, CHIP EMI
FL40	1-239-719-11	s	FILTER, CHIP EMI
FL41	1-239-719-11	s	FILTER, CHIP EMI
FL42	1-239-719-11	s	FILTER, CHIP EMI
FL43	1-239-825-11	s	FILTER, CHIP EMI
FL44	1-239-825-11	s	FILTER, CHIP EMI

CN-1121 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-370-A	o	MOUNTED CIRCUIT BOAAD, CN-1121
CN101	1-569-531-11	s	HOUSING, 20P
CN102	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-719-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-719-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-719-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-719-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-719-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-719-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-719-11	s	FILTER, CHIP EMI
FL19	1-239-719-11	s	FILTER, CHIP EMI
FL20	1-239-719-11	s	FILTER, CHIP EMI
FL21	1-239-719-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-719-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-719-11	s	FILTER, CHIP EMI
FL28	1-239-719-11	s	FILTER, CHIP EMI
FL30	1-239-719-11	s	FILTER, CHIP EMI
FL31	1-239-719-11	s	FILTER, CHIP EMI
FL32	1-239-719-11	s	FILTER, CHIP EMI
FL33	1-239-719-11	s	FILTER, CHIP EMI
FL34	1-239-719-11	s	FILTER, CHIP EMI
FL35	1-239-719-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-719-11	s	FILTER, CHIP EMI
R1	1-216-295-11	s	CHIP, CONDUCTOR 0
R2	1-216-295-11	s	CHIP, CONDUCTOR 0

CN-1122 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-447-12	o	PRINTED CIRCUIT BOARD, CN-1122
C1	1-128-592-11	s	ELECT 0.33uF 20% 50V
C2	1-128-592-11	s	ELECT 0.33uF 20% 50V
C5	1-126-968-11	s	CHIP, ELECT 100uF 20% 50V
CN401	1-569-629-11	s	HOUSING, 24P
CN402	1-695-890-21	o	PIN, CONNECTOR (PC BOARD) 12P
CN405	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
CN406	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
CN407	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
R1	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R2	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R3	1-215-421-00	s	METAL 1K 1% 1/6W

CN-1142 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-381-A	o	MOUNTED CIRCUIT BOARD, CN-1142
1pc	7-682-545-04	s	SCREW +B 3X4
3pcs	2-280-622-01	o	SUPPORT (M3), HEXAGON
3pcs	7-682-545-04	s	SCREW +B 3X4
C1	1-128-393-11	s	ELECT 100uF 20% 10V
C2	1-128-393-11	s	ELECT 100uF 20% 10V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C11	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-164-156-11	s	CERAMIC 0.1uF 25V
C14	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C15	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C18	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C19	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C26	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C35	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C40	1-164-156-11	s	CERAMIC 0.1uF 25V
C41	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C51	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C56	1-164-156-11	s	CERAMIC 0.1uF 25V
C57	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C59	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C65	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C67	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C70	1-164-156-11	s	CERAMIC 0.1uF 25V
C71	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C76	1-164-156-11	s	CERAMIC 0.1uF 25V
C77	1-164-156-11	s	CERAMIC 0.1uF 25V
C78	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C79	1-164-156-11	s	CERAMIC 0.1uF 25V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
C81	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C89	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C90	1-164-156-11	s	CERAMIC 0.1uF 25V
C91	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-164-156-11	s	CERAMIC 0.1uF 25V
C94	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C102	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C103	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C104	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C105	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C106	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C110	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C111	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C112	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C113	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C114	1-164-156-11	s	CERAMIC 0.1uF 25V
C115	1-164-156-11	s	CERAMIC 0.1uF 25V
C116	1-164-156-11	s	CERAMIC 0.1uF 25V
C117	1-164-156-11	s	CERAMIC 0.1uF 25V
C118	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C119	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C120	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C121	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C122	1-164-156-11	s	CERAMIC 0.1uF 25V
C123	1-164-156-11	s	CERAMIC 0.1uF 25V
C124	1-164-156-11	s	CERAMIC 0.1uF 25V
C125	1-164-156-11	s	CERAMIC 0.1uF 25V
C126	1-135-156-21	s	TANTALUM, CHIP 6.8uF 10% 6.3V
C127	1-164-156-11	s	CERAMIC 0.1uF 25V
C128	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C129	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C130	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C131	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C132	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C133	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C134	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C135	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C136	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C137	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C138	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C139	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C140	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C141	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C142	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C143	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C144	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C145	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C146	1-164-156-11	s	CERAMIC 0.1uF 25V
C147	1-164-156-11	s	CERAMIC 0.1uF 25V
C148	1-164-156-11	s	CERAMIC 0.1uF 25V
C149	1-164-156-11	s	CERAMIC 0.1uF 25V
C150	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C151	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C152	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C153	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C154	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C156	1-164-156-11	s	CERAMIC 0.1uF 25V
C157	1-164-156-11	s	CERAMIC 0.1uF 25V
C158	1-164-156-11	s	CERAMIC 0.1uF 25V
C159	1-164-156-11	s	CERAMIC 0.1uF 25V
C160	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C161	1-164-156-11	s	CERAMIC 0.1uF 25V
C167	1-164-156-11	s	CERAMIC 0.1uF 25V
C168	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C170	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C171	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C172	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C173	1-164-156-11	s	CERAMIC 0.1uF 25V
C174	1-164-156-11	s	CERAMIC 0.1uF 25V
C175	1-164-156-11	s	CERAMIC 0.1uF 25V
C176	1-164-156-11	s	CERAMIC 0.1uF 25V
C177	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C178	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C179	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C180	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C181	1-164-156-11	s	CERAMIC 0.1uF 25V
C182	1-164-156-11	s	CERAMIC 0.1uF 25V
C183	1-164-156-11	s	CERAMIC 0.1uF 25V
C184	1-164-156-11	s	CERAMIC 0.1uF 25V
C185	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C186	1-164-156-11	s	CERAMIC 0.1uF 25V
C187	1-164-156-11	s	CERAMIC 0.1uF 25V
C188	1-164-156-11	s	CERAMIC 0.1uF 25V
C189	1-164-156-11	s	CERAMIC 0.1uF 25V
C190	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C191	1-164-156-11	s	CERAMIC 0.1uF 25V
C192	1-164-156-11	s	CERAMIC 0.1uF 25V
C193	1-164-156-11	s	CERAMIC 0.1uF 25V
C194	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C196	1-164-156-11	s	CERAMIC 0.1uF 25V
C197	1-164-156-11	s	CERAMIC 0.1uF 25V
C198	1-164-156-11	s	CERAMIC 0.1uF 25V
C199	1-164-156-11	s	CERAMIC 0.1uF 25V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C202	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C206	1-164-156-11	s	CERAMIC 0.1uF 25V
C207	1-107-689-21	s	TANTAL 1uF 20% 35V
C208	1-165-128-11	s	CERAMIC 0.22uF 16V
C209	1-164-156-11	s	CERAMIC 0.1uF 25V
C210	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C211	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C212	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C215	1-164-156-11	s	CERAMIC 0.1uF 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-164-156-11	s	CERAMIC 0.1uF 25V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C221	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C223	1-164-156-11	s	CERAMIC 0.1uF 25V
C224	1-164-156-11	s	CERAMIC 0.1uF 25V
C228	1-164-156-11	s	CERAMIC 0.1uF 25V
C230	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C232	1-164-156-11	s	CERAMIC 0.1uF 25V
C233	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C236	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C237	1-164-156-11	s	CERAMIC 0.1uF 25V
C311	1-164-156-11	s	CERAMIC 0.1uF 25V
CN2	1-569-629-11	s	HOUSING, 24P
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D6	8-719-820-41	s	DIODE 1SS302
D7	8-719-027-95	s	DIODE HSM88WK
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
D11	8-719-029-63	s	DIODE RD4.3UH-T1
FL1	1-239-755-11	s	FILTER, LOW PASS
FL2	1-239-755-11	s	FILTER, LOW PASS
FL3	1-239-755-11	s	FILTER, LOW PASS
IC1	8-759-076-06	s	IC TL064CPW
IC2	8-752-358-04	s	IC CXD2310R
IC3	8-759-173-16	s	IC TL062CPW
IC4	8-752-358-04	s	IC CXD2310R
IC5	8-759-173-16	s	IC TL062CPW
IC6	8-752-358-04	s	IC CXD2310R
IC7	8-759-173-16	s	IC TL062CPW
IC10	8-759-058-62	s	IC TC7S08FU(TE85R)
IC11	8-759-058-64	s	IC TC7S32FU(TE85R)
IC12	8-759-237-79	s	IC TC74HC595AF(EL)
IC13	8-759-996-82	s	IC MSM82C55A-2GS

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Ref. No. or Q'ty	Part No.	SP	Description
IC14	8-759-635-27	s	IC M62352GP
IC15	8-759-058-58	s	IC TC7S04FU(TE85R)
IC16	8-759-050-50	s	IC SN74HCT04APW-E05
IC17	8-759-079-49	s	IC TC74VHC04FS(EL)
IC18	8-759-079-60	s	IC TC74VHC32FS(EL)
IC19	8-759-079-46	s	IC TC74VHC00FS(EL)
IC20	8-759-079-70	s	IC TC74VHC138FS(EL)
IC21	8-759-079-49	s	IC TC74VHC04FS(EL)
IC22	8-759-186-31	s	IC TC74VHC20F
IC23	8-759-079-61	s	IC TC74VHC74FS(EL)
IC24	8-759-079-49	s	IC TC74VHC04FS(EL)
IC27	8-759-173-15	s	IC STK10C68-5S35
IC28	8-759-182-95	s	IC HD151015T
IC29	8-759-359-65	s	IC TL084CPW-E05
IC30	8-759-359-65	s	IC TL084CPW-E05
IC31	8-759-076-06	s	IC TL064CPW
IC32	8-752-360-44	s	IC CXK1203AR
IC33	8-752-360-44	s	IC CXK1203AR
IC34	8-759-186-26	s	IC TC74VHC02F
IC35	8-752-360-44	s	IC CXK1203AR
IC36	8-752-360-44	s	IC CXK1203AR
IC37	8-759-079-49	s	IC TC74VHC04FS(EL)
IC39	8-752-334-64	s	IC CXD1171M
IC40	8-759-164-94	s	IC TLC0820ACDW-ELL2000
IC41	8-759-082-61	s	IC TC4W53FU
IC42	8-759-049-86	s	IC SN74HCT244APW-E20
IC43	8-759-080-02	s	IC TC74VHC541FS(EL)
IC44	8-759-079-49	s	IC TC74VHC04FS(EL)
IC45	8-752-363-60	s	IC CXD2307R-T4
IC46	8-759-632-39	s	IC M51958A-T1
IC47	8-759-632-39	s	IC M51958A-T1
IC49	8-759-086-42	s	IC X24C02S-3.0-C7000
IC50	8-759-173-16	s	IC TL062CPW
IC53	8-759-079-46	s	IC TC74VHC00FS(EL)
L1	1-424-643-11	s	COIL, CHOKE 10UH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L5	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L6	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L7	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L8	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L9	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L11	1-410-385-11	s	INDUCTOR, CHIP 22uH
L13	1-410-385-11	s	INDUCTOR, CHIP 22uH
L15	1-410-385-11	s	INDUCTOR, CHIP 22uH
L16	1-410-385-11	s	INDUCTOR, CHIP 22uH
L17	1-410-373-31	s	INDUCTOR CHIP 2.2uH
L18	1-410-369-11	s	INDUCTOR CHIP 1UH
L19	1-410-369-11	s	INDUCTOR CHIP 1UH
L20	1-410-381-11	s	INDUCTOR CHIP 10uH
L21	1-410-369-11	s	INDUCTOR CHIP 1UH
L22	1-410-369-11	s	INDUCTOR CHIP 1UH
L23	1-410-369-11	s	INDUCTOR CHIP 1UH
L24	1-410-369-11	s	INDUCTOR CHIP 1UH
L25	1-410-385-11	s	INDUCTOR, CHIP 22uH
L26	1-410-385-11	s	INDUCTOR, CHIP 22uH
L27	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L28	1-410-737-31	s	INDUCTOR CHIP 0.47UH

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Ref. No. or Q'ty	Part No.	SP	Description
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q19	8-729-117-32	s	TRANSISTOR 2SC4177
Q20	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q21	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-122-63	s	TRANSISTOR 2SA1226
Q24	8-729-122-63	s	TRANSISTOR 2SA1226
Q25	8-729-920-48	s	TRANSISTOR IMH2
Q26	8-729-014-93	s	TRANSISTOR 2SB1440S-TX
R3	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R4	1-218-723-11	s	METAL 20K 0.50% 1/16W
R5	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R9	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R10	1-218-723-11	s	METAL 20K 0.50% 1/16W
R11	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R12	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R13	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R14	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R15	1-218-723-11	s	METAL 20K 0.50% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R18	1-218-723-11	s	METAL 20K 0.50% 1/16W
R19	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R22	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R23	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R26	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R27	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R28	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R29	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R30	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R31	1-218-723-11	s	METAL 20K 0.50% 1/16W
R32	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R33	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R34	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R37	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R38	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R41	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R42	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R43	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R44	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R45	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R46	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R47	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R48	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R49	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R52	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R53	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R56	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R57	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R58	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R59	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R62	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R63	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R64	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R69	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R70	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R71	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R72	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R74	1-218-716-11	s	METAL 10K 0.50% 1/16W
R78	1-218-740-11	s	METAL 100K 0.50% 1/16W
R79	1-218-740-11	s	METAL 100K 0.50% 1/16W
R80	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R81	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R82	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R83	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R84	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R85	1-211-987-11	s	CHIP, METAL 56 0.50% 1/16W
R87	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R88	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R89	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R91	1-218-740-11	s	METAL 100K 0.50% 1/16W
R92	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R93	1-218-740-11	s	METAL 100K 0.50% 1/16W
R94	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R95	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R96	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R97	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R98	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R99	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R102	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R104	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R105	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R106	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R108	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R109	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R110	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R111	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R113	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R114	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R115	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R116	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R118	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R119	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R120	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R121	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R124	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R125	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R126	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R127	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R129	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R130	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R131	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R132	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R134	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R135	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R136	1-218-716-11	s	METAL 10K 0.50% 1/16W
R137	1-218-723-11	s	METAL 20K 0.50% 1/16W
R138	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R139	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R140	1-218-716-11	s	METAL 10K 0.50% 1/16W
R141	1-218-716-11	s	METAL 10K 0.50% 1/16W
R142	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R143	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R144	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R145	1-218-716-11	s	METAL 10K 0.50% 1/16W
R146	1-218-723-11	s	METAL 20K 0.50% 1/16W
R147	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R148	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R149	1-218-716-11	s	METAL 10K 0.50% 1/16W
R150	1-218-716-11	s	METAL 10K 0.50% 1/16W
R151	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R152	1-218-716-11	s	METAL 10K 0.50% 1/16W
R153	1-218-723-11	s	METAL 20K 0.50% 1/16W
R154	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R155	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R156	1-218-716-11	s	METAL 10K 0.50% 1/16W
R157	1-218-716-11	s	METAL 10K 0.50% 1/16W
R158	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R159	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R160	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R163	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R164	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R165	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R166	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R167	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R168	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R169	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R170	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R171	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R172	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R173	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R174	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R175	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R176	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R178	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R179	1-216-017-00	s	CHIP, METAL 47 5% 1/10W
R180	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R181	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R182	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R183	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R184	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R185	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R186	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R187	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R190	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R191	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R195	1-218-676-11	s	METAL 220 0.50% 1/16W
R197	1-218-676-11	s	METAL 220 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R198	1-218-676-11	s	METAL 220 0.50% 1/16W
R201	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R202	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R203	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R204	1-218-883-11	s	METAL 33K 0.50% 1/16W
R205	1-218-883-11	s	METAL 33K 0.50% 1/16W
R206	1-218-883-11	s	METAL 33K 0.50% 1/16W
R207	1-218-883-11	s	METAL 33K 0.50% 1/16W
R208	1-218-883-11	s	METAL 33K 0.50% 1/16W
R209	1-218-883-11	s	METAL 33K 0.50% 1/16W
R210	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R211	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R212	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R213	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R214	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R215	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R216	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R217	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R218	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R219	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R220	1-216-017-00	s	CHIP, METAL 47 5% 1/10W
R221	1-216-017-00	s	CHIP, METAL 47 5% 1/10W
R222	1-216-017-00	s	CHIP, METAL 47 5% 1/10W
R223	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R224	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R226	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R228	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R229	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R230	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R231	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R233	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R234	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R235	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R236	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R237	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R238	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R239	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R240	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R241	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R242	1-218-707-11	s	CHIP, METAL 4.3K 0.50% 1/16W
R243	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R244	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R245	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R246	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R247	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R248	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R249	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R250	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R251	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R252	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R253	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R254	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R257	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R258	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R259	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R260	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R361	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R363	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W

(CN-1142 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-236-907-11	s	RESISTOR BLOCK, CHIP 100KX4
RB6	1-239-306-11	s	RESISTOR BLOCK, CHIP 10KX8
RB7	1-239-790-12	s	RESISTOR, NETWORK, CHIP 5K
RB8	1-239-790-12	s	RESISTOR, NETWORK, CHIP 5K
RB9	1-239-790-12	s	RESISTOR, NETWORK, CHIP 5K
RB10	1-239-791-12	s	RESISTOR, NETWORK, CHIP 5K
RB11	1-239-791-12	s	RESISTOR, NETWORK, CHIP 5K
RB12	1-239-791-12	s	RESISTOR, NETWORK, CHIP 5K
RB13	1-239-790-12	s	RESISTOR, NETWORK, CHIP 5K
RB14	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB15	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB16	1-239-306-11	s	RESISTOR BLOCK, CHIP 10KX8
RB17	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB18	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB19	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB20	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB21	1-236-907-11	s	RESISTOR BLOCK, CHIP 100KX4
RB22	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB23	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB24	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB25	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB26	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB27	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB28	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB29	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB48	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB49	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB50	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB51	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)

DA-88 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-362-A	o	MOUNTED CIRCUIT BOARD, DA-88
1pc	3-692-128-02	o	PANEL,DA-88 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C2	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C9	1-165-176-11	s	CERAMIC, CHIP 0.047uF 10% 16V
C10	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C17	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C21	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C27	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C28	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C46	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C49	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C50	1-164-156-11	s	CERAMIC 0.1uF 25V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C55	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-315-11	s	CERAMIC 470PF 5% 50V
C61	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C64	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C65	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C66	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C67	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C71	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C77	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C81	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C84	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C85	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C87	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C88	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C89	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C90	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C100	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C101	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C102	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C103	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C104	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C105	1-164-315-11	s	CERAMIC 470PF 5% 50V
C106	1-164-156-11	s	CERAMIC 0.1uF 25V
C107	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C109	1-164-156-11	s	CERAMIC 0.1uF 25V
C110	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C113	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C114	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C115	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C118	1-164-156-11	s	CERAMIC 0.1uF 25V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-164-156-11	s	CERAMIC 0.1uF 25V
C121	1-164-156-11	s	CERAMIC 0.1uF 25V
C122	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C123	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C124	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C125	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C126	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C127	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C128	1-164-156-11	s	CERAMIC 0.1uF 25V
C129	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C132	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C133	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C134	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C136	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C137	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C138	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C140	1-164-156-11	s	CERAMIC 0.1uF 25V
C141	1-164-156-11	s	CERAMIC 0.1uF 25V
C142	1-164-156-11	s	CERAMIC 0.1uF 25V
C143	1-164-156-11	s	CERAMIC 0.1uF 25V
C144	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C145	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C146	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C147	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C148	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C149	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C154	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C155	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C166	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C167	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C170	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C171	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C172	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C203	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C206	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C207	1-164-156-11	s	CERAMIC 0.1uF 25V
C208	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C209	1-164-156-11	s	CERAMIC 0.1uF 25V
C210	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C211	1-164-156-11	s	CERAMIC 0.1uF 25V
C213	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C214	1-164-156-11	s	CERAMIC 0.1uF 25V
C215	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C225	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C226	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C228	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C229	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C230	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C231	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C500	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1

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Ref. No. or Q'ty	Part No.	SP	Description
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-820-41	s	DIODE 1SS302
D7	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-820-41	s	DIODE 1SS302
D13	8-719-820-41	s	DIODE 1SS302
D14	8-719-820-41	s	DIODE 1SS302
D15	8-719-820-41	s	DIODE 1SS302
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D24	8-719-820-41	s	DIODE 1SS302
D25	8-719-820-41	s	DIODE 1SS302
D26	8-719-820-41	s	DIODE 1SS302
D100	8-719-820-41	s	DIODE 1SS302
D101	8-719-820-41	s	DIODE 1SS302
D102	8-719-820-41	s	DIODE 1SS302
FL1	1-239-754-11	s	FILTER, LOW PASS
FL2	1-239-753-11	s	FILTER, LOW PASS
FL3	1-233-240-21	s	FILTER, LOW PASS
FL4	1-239-753-11	s	FILTER, LOW PASS
FL5	1-233-240-21	s	FILTER, LOW PASS
FL6	1-239-754-11	s	FILTER, LOW PASS
FL7	1-239-754-11	s	FILTER, LOW PASS
FL8	1-239-754-11	s	FILTER, LOW PASS
IC1	8-759-066-68	s	IC REF-03GS
IC2	8-759-076-06	s	IC TL064CPW
IC3	8-759-632-39	s	IC M51958A-T1
IC4	8-752-360-44	s	IC CXK1203AR
IC5	8-752-360-44	s	IC CXK1203AR
IC6	8-752-360-44	s	IC CXK1203AR
IC7	8-752-363-60	s	IC CXD2307R-T4
IC8	8-759-079-46	s	IC TC74VHC00FS(EL)
IC9	8-759-058-54	s	IC TC7S00FU(TE85R)
IC10	8-759-086-42	s	IC X24C02S-3.0-C7000
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-058-62	s	IC TC7S08FU(TE85R)
IC13	8-759-237-79	s	IC TC74HC595AF(EL)
IC14	8-759-064-36	s	IC MB88346BPFV
IC15	8-759-082-61	s	IC TC4W53FU
IC16	8-759-981-48	s	IC TL082M
IC17	8-759-082-61	s	IC TC4W53FU
IC18	8-759-082-61	s	IC TC4W53FU
IC19	8-759-079-85	s	IC TC74VHC244FS(EL)
IC20	8-759-082-61	s	IC TC4W53FU
IC23	8-759-359-65	s	IC TL084CPW-E05
IC24	8-759-082-61	s	IC TC4W53FU
IC25	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC26	8-759-066-59	s	IC TC74HC4053AFS
IC27	8-759-359-65	s	IC TL084CPW-E05
IC28	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC29	8-759-082-61	s	IC TC4W53FU
IC34	8-759-271-86	s	IC TC7SH04FU
IC35	8-759-180-08	s	IC TC74HC4538AFS
IC36	8-759-237-79	s	IC TC74HC595AF(EL)
IC37	8-759-082-59	s	IC TC7W32FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC100	8-759-058-62	s	IC TC7S08FU(TE85R)
IC101	8-759-058-58	s	IC TC7S04FU(TE85R)
IC102	8-759-082-59	s	IC TC7W32FU
IC103	8-759-058-64	s	IC TC7S32FU(TE85R)
IC104	8-759-058-54	s	IC TC7S00FU(TE85R)
IC105	8-759-058-64	s	IC TC7S32FU(TE85R)
IC106	8-759-058-62	s	IC TC7S08FU(TE85R)
IC107	8-759-196-96	s	IC TC7SH08FU-TE85R
IC108	8-759-058-54	s	IC TC7S00FU(TE85R)
IC109	8-759-058-62	s	IC TC7S08FU(TE85R)
IC110	8-759-058-58	s	IC TC7S04FU(TE85R)
JR1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
L1	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L5	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L6	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L7	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L8	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
L10	1-410-385-11	s	INDUCTOR, CHIP 22uH
L11	1-410-385-11	s	INDUCTOR, CHIP 22uH
L12	1-410-392-11	s	INDUCTOR, CHIP 82uH
L13	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L14	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L15	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L16	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L17	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L18	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L19	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L20	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L21	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L22	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L23	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L24	1-410-389-31	s	INDUCTOR CHIP 47uH
L25	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q12	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q19	8-729-403-32	s	TRANSISTOR XN6534
Q20	8-729-920-48	s	TRANSISTOR IMH2

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Ref. No. or Q'ty	Part No.	SP	Description
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q27	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q28	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q29	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q30	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q32	8-729-122-63	s	TRANSISTOR 2SA1226
Q33	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q34	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-403-32	s	TRANSISTOR XN6534
Q44	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q45	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q46	8-729-920-48	s	TRANSISTOR IMH2
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q49	8-729-122-63	s	TRANSISTOR 2SA1226
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-122-63	s	TRANSISTOR 2SA1226
Q54	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q59	8-729-403-32	s	TRANSISTOR XN6534
Q63	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q67	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q68	8-729-122-63	s	TRANSISTOR 2SA1226
Q69	8-729-122-63	s	TRANSISTOR 2SA1226
Q70	8-729-117-32	s	TRANSISTOR 2SC4177
Q71	8-729-122-63	s	TRANSISTOR 2SA1226
Q72	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q73	8-729-122-63	s	TRANSISTOR 2SA1226
Q75	8-729-403-32	s	TRANSISTOR XN6534
Q79	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-122-63	s	TRANSISTOR 2SA1226
Q88	8-729-122-63	s	TRANSISTOR 2SA1226
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-122-63	s	TRANSISTOR 2SA1226
Q91	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q92	8-729-122-63	s	TRANSISTOR 2SA1226
Q94	8-729-403-32	s	TRANSISTOR XN6534
Q98	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-403-32	s	TRANSISTOR XN6534
Q101	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-403-32	s	TRANSISTOR XN6534
Q104	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q105	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q106	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q107	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q108	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q109	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q110	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q111	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q112	8-729-102-08	s	TRANSISTOR 2SC2223-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q113	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q114	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q115	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q117	8-729-122-63	s	TRANSISTOR 2SA1226
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R4	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R5	1-218-723-11	s	METAL 20K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R9	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R12	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-218-676-11	s	METAL 220 0.50% 1/16W
R18	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R19	1-218-676-11	s	METAL 220 0.50% 1/16W
R20	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R21	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R22	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R23	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R24	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R25	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R26	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R33	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R34	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R35	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R36	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R37	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R38	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R39	1-218-676-11	s	METAL 220 0.50% 1/16W
R40	1-218-676-11	s	METAL 220 0.50% 1/16W
R41	1-218-676-11	s	METAL 220 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R44	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R45	1-218-883-11	s	METAL 33K 0.50% 1/16W
R46	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R47	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R48	1-218-883-11	s	METAL 33K 0.50% 1/16W
R49	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R50	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R51	1-218-883-11	s	METAL 33K 0.50% 1/16W
R52	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R53	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R57	1-218-676-11	s	METAL 220 0.50% 1/16W
R58	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R59	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R60	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R61	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R62	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R65	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R66	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R67	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R70	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R71	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R72	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R75	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R76	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R77	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R78	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R79	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R82	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R85	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R87	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R88	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R89	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R90	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R93	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R94	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R95	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R96	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R97	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R98	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R99	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R100	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R101	1-218-720-11	s	METAL 15K 0.50% 1/16W
R102	1-218-716-11	s	METAL 10K 0.50% 1/16W
R103	1-218-725-11	s	METAL 24K 0.50% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R107	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R108	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R113	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R114	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R115	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R116	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R117	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R118	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R119	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R120	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R121	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R122	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R123	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R124	1-216-805-11	s	METAL, CHIP 47 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R127	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R128	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R129	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R130	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R131	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R137	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R142	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R145	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R146	1-218-676-11	s	METAL 220 0.50% 1/16W
R147	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R148	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R149	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R150	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R151	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R152	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R153	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R154	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R155	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R158	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R159	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R160	1-218-676-11	s	METAL 220 0.50% 1/16W
R161	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R162	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R163	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R164	1-218-672-11	s	METAL 150 0.50% 1/16W
R165	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R166	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R167	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R168	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R169	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R170	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R171	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R172	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R173	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R174	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R175	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R177	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R178	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R184	1-218-828-11	s	METAL 160 0.50% 1/16W
R185	1-218-648-11	s	METAL 15 0.50% 1/16W
R186	1-218-661-11	s	CHIP, METAL 51 0.50% 1/16W
R187	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R188	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R190	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R191	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R192	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R193	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R194	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R195	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R196	1-218-720-11	s	METAL 15K 0.50% 1/16W
R197	1-218-740-11	s	METAL 100K 0.50% 1/16W
R198	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R199	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R202	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R205	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R206	1-218-732-11	s	METAL 47K 0.50% 1/16W
R207	1-218-725-11	s	METAL 24K 0.50% 1/16W
R208	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R209	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R210	1-218-676-11	s	METAL 220 0.50% 1/16W
R211	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R212	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R215	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R216	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R217	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R218	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R219	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R220	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R221	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R222	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R223	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R224	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R225	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R226	1-218-672-11	s	METAL 150 0.50% 1/16W
R227	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R228	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R229	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R231	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R232	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R233	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R234	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R235	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R236	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R239	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R240	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R241	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R242	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R243	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R244	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R246	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R247	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R248	1-218-732-11	s	METAL 47K 0.50% 1/16W
R249	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R252	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R253	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R254	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R255	1-218-716-11	s	METAL 10K 0.50% 1/16W
R256	1-218-725-11	s	METAL 24K 0.50% 1/16W
R257	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R258	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R259	1-218-676-11	s	METAL 220 0.50% 1/16W
R260	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R261	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R262	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R263	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R264	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R265	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R266	1-218-705-11	s	METAL 3.6K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R267	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R268	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R269	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R270	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R271	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R273	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R274	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R275	1-218-672-11	s	METAL 150 0.50% 1/16W
R276	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R277	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R278	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-218-672-11	s	METAL 150 0.50% 1/16W
R281	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R282	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R283	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R284	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R285	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R288	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R289	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R290	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R293	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R294	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R295	1-218-732-11	s	METAL 47K 0.50% 1/16W
R300	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R301	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R302	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R303	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R304	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R305	1-218-725-11	s	METAL 24K 0.50% 1/16W
R306	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R307	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R308	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R309	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R310	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R311	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R312	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R313	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R314	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R315	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R316	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R317	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R318	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R320	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R321	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R322	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R323	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R324	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R325	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R326	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R327	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R328	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R330	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R331	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R332	1-218-883-11	s	METAL 33K 0.50% 1/16W
R333	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R334	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R335	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R336	1-218-727-11	s	METAL 30K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R337	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R357	1-218-680-11	s	METAL 330 0.50% 1/16W
R358	1-218-672-11	s	METAL 150 0.50% 1/16W
R361	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R362	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R363	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R364	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R365	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R366	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R367	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R368	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R369	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R370	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R371	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R372	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R373	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R374	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R375	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R376	1-218-727-11	s	METAL 30K 0.50% 1/16W
R378	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R379	1-218-727-11	s	METAL 30K 0.50% 1/16W
R380	1-218-655-91	s	CHIP, METAL 30 0.50% 1/16W
RB1	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB2	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB3	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB4	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB5	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB6	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K
RB7	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K

IF-510 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-363-A	o	MOUNTED CIRCUIT BOARD, IF-510
1pc	3-692-129-02	o	PANEL,IF-510 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C10	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C11	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-208-11	s	TANTAL 1uF 20% 10V
C14	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C21	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-135-208-11	s	TANTAL 1uF 20% 10V
C24	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C31	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-208-11	s	TANTAL 1uF 20% 10V
C34	1-104-911-11	s	TANTALUM, CHIP 33uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-164-156-11	s	CERAMIC 0.1uF 25V
C103	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C104	1-104-914-11	s	TANTAL 22uF 20% 16V
C105	1-104-914-11	s	TANTAL 22uF 20% 16V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C152	1-164-156-11	s	CERAMIC 0.1uF 25V
C153	1-164-156-11	s	CERAMIC 0.1uF 25V
C154	1-164-156-11	s	CERAMIC 0.1uF 25V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-164-156-11	s	CERAMIC 0.1uF 25V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C206	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-104-914-11	s	TANTAL 22uF 20% 16V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C224	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C225	1-104-914-11	s	TANTAL 22uF 20% 16V
C226	1-164-156-11	s	CERAMIC 0.1uF 25V
C250	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C252	1-163-097-00	s	CERAMIC 15PF 5% 50V
C253	1-163-135-00	s	CERAMIC 560PF 5% 50V
C254	1-102-965-00	s	CERAMIC 39PF 5% 50V
C300	1-164-156-11	s	CERAMIC 0.1uF 25V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-164-156-11	s	CERAMIC 0.1uF 25V
C308	1-164-156-11	s	CERAMIC 0.1uF 25V
C309	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C311	1-164-156-11	s	CERAMIC 0.1uF 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C313	1-104-914-11	s	TANTAL 22uF 20% 16V
C315	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C322	1-164-156-11	s	CERAMIC 0.1uF 25V
C350	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C351	1-164-156-11	s	CERAMIC 0.1uF 25V
C352	1-164-156-11	s	CERAMIC 0.1uF 25V
C353	1-164-156-11	s	CERAMIC 0.1uF 25V
C400	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C401	1-104-914-11	s	TANTAL 22uF 20% 16V
C402	1-104-914-11	s	TANTAL 22uF 20% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-164-156-11	s	CERAMIC 0.1uF 25V
C405	1-104-914-11	s	TANTAL 22uF 20% 16V
C406	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C407	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C408	1-104-914-11	s	TANTAL 22uF 20% 16V
C409	1-104-914-11	s	TANTAL 22uF 20% 16V
C410	1-164-156-11	s	CERAMIC 0.1uF 25V
C411	1-164-156-11	s	CERAMIC 0.1uF 25V
C412	1-104-914-11	s	TANTAL 22uF 20% 16V
C413	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C414	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C415	1-104-914-11	s	TANTAL 22uF 20% 16V
C416	1-104-914-11	s	TANTAL 22uF 20% 16V
C417	1-164-156-11	s	CERAMIC 0.1uF 25V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-104-914-11	s	TANTAL 22uF 20% 16V
C420	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C421	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C422	1-164-156-11	s	CERAMIC 0.1uF 25V
C502	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C503	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C504	1-104-914-11	s	TANTAL 22uF 20% 16V
C505	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C508	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C509	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C510	1-104-914-11	s	TANTAL 22uF 20% 16V
C511	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C513	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C514	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C515	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C516	1-104-914-11	s	TANTAL 22uF 20% 16V
C517	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C518	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C519	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C520	1-104-914-11	s	TANTAL 22uF 20% 16V
C521	1-104-914-11	s	TANTAL 22uF 20% 16V
C522	1-164-156-11	s	CERAMIC 0.1uF 25V
C524	1-164-156-11	s	CERAMIC 0.1uF 25V
C525	1-164-156-11	s	CERAMIC 0.1uF 25V
C601	1-164-156-11	s	CERAMIC 0.1uF 25V
C602	1-164-156-11	s	CERAMIC 0.1uF 25V
C603	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C604	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C605	1-104-914-11	s	TANTAL 22uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C606	1-104-914-11	s	TANTAL 22uF 20% 16V
C621	1-164-156-11	s	CERAMIC 0.1uF 25V
C622	1-164-156-11	s	CERAMIC 0.1uF 25V
C623	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C624	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C625	1-104-914-11	s	TANTAL 22uF 20% 16V
C626	1-104-914-11	s	TANTAL 22uF 20% 16V
C641	1-164-156-11	s	CERAMIC 0.1uF 25V
C642	1-164-156-11	s	CERAMIC 0.1uF 25V
C643	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C644	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C645	1-104-914-11	s	TANTAL 22uF 20% 16V
C646	1-104-914-11	s	TANTAL 22uF 20% 16V
C701	1-164-156-11	s	CERAMIC 0.1uF 25V
C702	1-164-156-11	s	CERAMIC 0.1uF 25V
C703	1-164-156-11	s	CERAMIC 0.1uF 25V
C704	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C707	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
D11	8-719-029-63	s	DIODE RD4.3UH-T1
D21	8-719-029-63	s	DIODE RD4.3UH-T1
D31	8-719-029-57	s	DIODE RD2.4UH-T1
D101	8-719-820-41	s	DIODE 1SS302
D250	8-719-948-47	s	DIODE HSM88AS
D400	8-719-820-41	s	DIODE 1SS302
D401	8-719-820-41	s	DIODE 1SS302
D402	8-719-820-41	s	DIODE 1SS302
D500	8-719-820-41	s	DIODE 1SS302
IC12	8-759-076-06	s	IC TL064CPW
IC101	8-759-082-61	s	IC TC4W53FU
IC151	8-759-925-76	s	IC SN74HC08ANS
IC152	8-759-082-55	s	IC TC7W00FU
IC153	8-759-237-79	s	IC TC74HC595AF(EL)
IC154	8-759-082-58	s	IC TC7W08FU
IC155	8-759-086-42	s	IC X24C02S-3.0-C7000
IC200	8-759-082-61	s	IC TC4W53FU
IC201	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC202	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC206	8-759-054-61	s	IC CLC505AJE
IC301	8-759-254-49	s	IC EL4581CS-TE2
IC302	8-759-925-90	s	IC SN74HC74ANS
IC303	8-759-925-90	s	IC SN74HC74ANS
IC304	8-759-082-59	s	IC TC7W32FU
IC305	8-759-925-90	s	IC SN74HC74ANS
IC306	8-759-082-57	s	IC TC7W04FU
IC307	8-759-082-58	s	IC TC7W08FU
IC308	8-759-058-62	s	IC TC7S08FU(TE85R)
IC309	8-759-082-59	s	IC TC7W32FU
IC310	8-759-082-58	s	IC TC7W08FU
IC322	8-759-032-01	s	IC MC74HC00AF
IC351	8-759-925-90	s	IC SN74HC74ANS
IC352	8-759-058-58	s	IC TC7S04FU(TE85R)
IC400	8-759-082-61	s	IC TC4W53FU
IC404	8-759-209-57	s	IC TC4S69F
IC410	8-759-082-61	s	IC TC4W53FU
IC420	8-759-082-61	s	IC TC4W53FU
IC500	8-759-066-59	s	IC TC74HC4053AFS
IC501	8-759-981-48	s	IC TL082M

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Ref. No. or Q'ty	Part No.	SP	Description
IC502	8-759-082-58	s	IC TC7W08FU
IC601	8-759-054-61	s	IC CLC505AJE
IC621	8-759-054-61	s	IC CLC505AJE
IC641	8-759-054-61	s	IC CLC505AJE
IC701	8-759-988-13	s	IC LM393PS
IC702	8-759-195-81	s	IC TC7S86FU
L1	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L150	1-410-369-11	s	INDUCTOR CHIP 1UH
L201	1-410-369-11	s	INDUCTOR CHIP 1UH
L202	1-410-369-11	s	INDUCTOR CHIP 1UH
L203	1-410-369-11	s	INDUCTOR CHIP 1UH
L301	1-410-369-11	s	INDUCTOR CHIP 1UH
L400	1-410-369-11	s	INDUCTOR CHIP 1UH
L401	1-410-369-11	s	INDUCTOR CHIP 1UH
L402	1-410-369-11	s	INDUCTOR CHIP 1UH
L500	1-410-369-11	s	INDUCTOR CHIP 1UH
L501	1-410-369-11	s	INDUCTOR CHIP 1UH
L502	1-410-369-11	s	INDUCTOR CHIP 1UH
L601	1-410-369-11	s	INDUCTOR CHIP 1UH
L602	1-410-369-11	s	INDUCTOR CHIP 1UH
L603	1-410-369-11	s	INDUCTOR CHIP 1UH
L700	1-410-369-11	s	INDUCTOR CHIP 1UH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q20	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q30	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q101	8-729-122-63	s	TRANSISTOR 2SA1226
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-122-63	s	TRANSISTOR 2SA1226
Q109	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q110	8-729-117-32	s	TRANSISTOR 2SC4177
Q205	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q206	8-729-117-32	s	TRANSISTOR 2SC4177
Q207	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q210	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q211	8-729-117-32	s	TRANSISTOR 2SC4177
Q250	8-729-117-32	s	TRANSISTOR 2SC4177
Q251	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q271	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q272	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q273	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q352	8-729-920-48	s	TRANSISTOR IMH2
Q353	8-729-920-48	s	TRANSISTOR IMH2
Q354	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q401	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q402	8-729-117-32	s	TRANSISTOR 2SC4177
Q403	8-729-026-32	s	TRANSISTOR XP6534
Q404	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q405	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q406	8-729-117-32	s	TRANSISTOR 2SC4177
Q410	8-729-026-32	s	TRANSISTOR XP6534
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-16	s	TRANSISTOR 2SA1611-M6

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Ref. No. or Q'ty	Part No.	SP	Description
Q413	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q414	8-729-117-32	s	TRANSISTOR 2SC4177
Q420	8-729-026-32	s	TRANSISTOR XP6534
Q421	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q422	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q423	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q424	8-729-117-32	s	TRANSISTOR 2SC4177
Q430	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q431	8-729-117-32	s	TRANSISTOR 2SC4177
Q500	8-729-026-32	s	TRANSISTOR XP6534
Q501	8-729-122-63	s	TRANSISTOR 2SA1226
Q502	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q503	8-729-026-32	s	TRANSISTOR XP6534
Q504	8-729-122-63	s	TRANSISTOR 2SA1226
Q505	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q506	8-729-026-32	s	TRANSISTOR XP6534
Q507	8-729-122-63	s	TRANSISTOR 2SA1226
Q508	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q509	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q510	8-729-117-32	s	TRANSISTOR 2SC4177
Q701	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q702	8-729-800-37	s	TRANSISTOR 2SD1048-X7
Q703	8-729-141-48	s	TRANSISTOR 2SB624-BV345
R1	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R2	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R8	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R9	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R10	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R23	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R24	1-218-723-11	s	METAL 20K 0.50% 1/16W
R25	1-218-723-11	s	METAL 20K 0.50% 1/16W
R33	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R34	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R35	1-218-723-11	s	METAL 20K 0.50% 1/16W
R100	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R103	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R104	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R105	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R110	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R111	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R151	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R152	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R153	1-218-740-11	s	METAL 100K 0.50% 1/16W
R154	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R155	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R156	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R198	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R199	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R202	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R203	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R204	1-218-704-11	s	METAL 3.3K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R205	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R206	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R207	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R208	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R209	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R210	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R211	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R212	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R213	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R214	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R221	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R222	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R224	1-211-981-11	s	CHIP, METAL 33 0.50% 1/16W
R225	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R226	1-218-688-11	s	METAL 680 0.50% 1/16W
R227	1-218-883-11	s	METAL 33K 0.50% 1/16W
R228	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R229	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R230	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R253	1-218-883-11	s	METAL 33K 0.50% 1/16W
R254	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R256	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R257	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R258	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R259	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R260	1-216-295-11	s	CHIP, CONDUCTOR 0
R263	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R264	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R271	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R272	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R273	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R274	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R275	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R276	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R277	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R278	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R279	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R310	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R311	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R315	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R320	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R321	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R322	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R323	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R324	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R325	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R326	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R327	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R328	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R329	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R351	1-218-716-11	s	METAL 10K 0.50% 1/16W
R352	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R353	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R354	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R361	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R400	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W

(IF-510 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R401	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R402	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R403	1-218-836-11	s	CHIP, METAL 360 0.50% 1/16W
R404	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R405	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R406	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R407	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R408	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R409	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R410	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R411	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R412	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R413	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R414	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R415	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R416	1-218-672-11	s	METAL 150 0.50% 1/16W
R417	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R418	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R419	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R420	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R421	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R422	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R423	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R424	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R425	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R426	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R427	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R428	1-218-672-11	s	METAL 150 0.50% 1/16W
R429	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R430	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R431	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R432	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R433	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R434	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R435	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R436	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R437	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R438	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R439	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R440	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R441	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R442	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R443	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R444	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R445	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R446	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R447	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R448	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R500	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R501	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R502	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R503	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R504	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R505	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R506	1-218-671-11	s	CHIP, METAL 130 0.50% 1/16W
R507	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R508	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R509	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R510	1-218-698-11	s	METAL 1.8K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R511	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R512	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R513	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R514	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R515	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R516	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R517	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R518	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R519	1-218-650-11	s	METAL, CHIP 18 0.50% 1/16
R520	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R521	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R522	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R523	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R524	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R525	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R526	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R527	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R528	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R529	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R530	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R531	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R532	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R533	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R534	1-211-992-11	s	CHIP,METAL 91 0.50% 1/16W
R535	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R536	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R537	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R538	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R539	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R540	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R541	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R542	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R543	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R544	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R545	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R546	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R547	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R548	1-218-716-11	s	METAL 10K 0.50% 1/16W
R549	1-218-740-11	s	METAL 100K 0.50% 1/16W
R550	1-218-740-11	s	METAL 100K 0.50% 1/16W
R551	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R552	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R553	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R554	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R555	1-218-716-11	s	METAL 10K 0.50% 1/16W
R601	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R602	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R603	1-218-670-11	s	METAL 120 0.50% 1/16W
R604	1-218-680-11	s	METAL 330 0.50% 1/16W
R605	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R606	1-218-883-11	s	METAL 33K 0.50% 1/16W
R607	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R621	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R622	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R623	1-218-648-11	s	METAL 15 0.50% 1/16W
R624	1-218-680-11	s	METAL 330 0.50% 1/16W
R625	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R626	1-218-883-11	s	METAL 33K 0.50% 1/16W
R627	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R641	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R642	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R643	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R644	1-218-680-11	s	METAL 330 0.50% 1/16W
R645	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R646	1-218-883-11	s	METAL 33K 0.50% 1/16W
R647	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R701	1-218-732-11	s	METAL 47K 0.50% 1/16W
R702	1-218-720-11	s	METAL 15K 0.50% 1/16W
R703	1-218-720-11	s	METAL 15K 0.50% 1/16W
R704	1-218-725-11	s	METAL 24K 0.50% 1/16W
R705	1-218-732-11	s	METAL 47K 0.50% 1/16W
R706	1-218-732-11	s	METAL 47K 0.50% 1/16W
R707	1-218-883-11	s	METAL 33K 0.50% 1/16W
R708	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R709	1-216-631-11	s	METAL 150 0.50% 1/10W
R710	1-216-631-11	s	METAL 150 0.50% 1/10W
R711	1-216-631-11	s	METAL 150 0.50% 1/10W
R712	1-216-631-11	s	METAL 150 0.50% 1/10W
R713	1-216-631-11	s	METAL 150 0.50% 1/10W
R714	1-216-631-11	s	METAL 150 0.50% 1/10W
R715	1-218-727-11	s	METAL 30K 0.50% 1/16W
R716	1-218-716-11	s	METAL 10K 0.50% 1/16W
R717	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R718	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R719	1-218-716-11	s	METAL 10K 0.50% 1/16W
R721	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R722	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
RV101	1-241-260-11	s	METAL, ADJ 500
S1	1-572-272-11	s	SWITCH, SLIDE

MB-602 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-358-A	o	MOUNTED CIRCUIT BOARD, MB-602
15pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-164-156-11	s	CERAMIC 0.1uF 25V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
CN7	1-569-629-11	s	HOUSING, 24P
CN11	1-569-532-11	s	HOUSING, 30P
CN12	1-569-532-11	s	HOUSING, 30P
CN13	1-569-532-11	s	HOUSING, 30P
CN14	1-569-531-11	s	HOUSING, 20P
CN15	1-764-088-11	o	PIN, CONNECTOR (PC BOARD) 3P
CN21	1-764-093-21	o	PIN, CONNECTOR (PC BOARD) 8P
CN22	1-774-260-11	o	CONNECTOR, FFC (ZIF) 20P
CN23	1-774-261-21	o	CONNECTOR, FFC (ZIF) 24P
CN31	1-750-934-21	o	PIN, CONNECTOR 20P
CN32	1-764-097-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN41	1-569-629-11	s	HOUSING, 24P
CN42	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
CN51	1-770-580-11	o	SOCKET, CONNECTOR(PCB-PCB) 26P
D1	8-719-042-14	s	DIODE DE5LC20U-TA2
IC1	8-759-080-02	s	IC TC74VHC541FS(EL)
IC2	8-759-080-02	s	IC TC74VHC541FS(EL)
IC3	8-759-080-02	s	IC TC74VHC541FS(EL)
IC4	8-759-080-02	s	IC TC74VHC541FS(EL)
IC5	8-759-086-42	s	IC X24C02S-3.0-C7000
Q1	8-729-119-61	s	TRANSISTOR 2SA811A-C15
Q2	8-729-271-32	s	TRANSISTOR 2SC2713-L
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

(MB-602 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R7	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R8	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R11	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB6	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB7	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB8	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
S1	1-572-272-11	s	SWITCH, SLIDE

PR-211 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-357-A	o	MOUNTED CIRCUIT BOARD, PR-211

SG-234 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-361-A	o	MOUNTED CIRCUIT BOARD, SG-234
1pc	3-692-127-02	o	PANEL,SG-234 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C2	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C3	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C9	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C10	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C28	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-164-156-11	s	CERAMIC 0.1uF 25V
C34	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C35	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C39	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C41	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C45	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C46	1-164-346-11	s	CERAMIC 1uF 16V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C51	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C52	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-165-128-11	s	CERAMIC 0.22uF 16V
C57	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C64	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
C68	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C71	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C72	1-135-217-21	s	TANTAL 15uF 20% 6.3
C73	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C77	1-164-156-11	s	CERAMIC 0.1uF 25V
C78	1-164-156-11	s	CERAMIC 0.1uF 25V
C79	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C80	1-164-315-11	s	CERAMIC 470PF 5% 50V
C81	1-128-391-11	s	ELECT 330uF 20% 6.3V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-164-156-11	s	CERAMIC 0.1uF 25V
C85	1-164-156-11	s	CERAMIC 0.1uF 25V
C87	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C88	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C89	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C90	1-164-156-11	s	CERAMIC 0.1uF 25V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-164-156-11	s	CERAMIC 0.1uF 25V
C94	1-164-156-11	s	CERAMIC 0.1uF 25V
C95	1-135-178-11	s	TANTALUM CHIP 1.5uF 20% 20V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-164-156-11	s	CERAMIC 0.1uF 25V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-948-47	s	DIODE HSM88AS
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-404-35	s	DIODE MA141WK
D7	8-719-404-35	s	DIODE MA141WK
D8	8-719-041-68	s	DIODE RD3.3UH-T1
D10	8-719-948-47	s	DIODE HSM88AS
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-948-47	s	DIODE HSM88AS
D13	8-719-948-47	s	DIODE HSM88AS
D14	8-719-948-47	s	DIODE HSM88AS
D200	8-719-820-41	s	DIODE 1SS302
D201	8-719-948-47	s	DIODE HSM88AS
FL1	1-239-756-11	s	FILTER, LOW PASS
IC3	8-759-076-06	s	IC TL064CPW
IC5	8-759-254-49	s	IC EL4581CS-TE2
IC8	8-759-082-57	s	IC TC7W04FU
IC11	8-759-082-58	s	IC TC7W08FU
IC12	8-759-064-36	s	IC MB88346BPFV
IC13	8-759-066-59	s	IC TC74HC4053AFS
IC16	8-752-360-44	s	IC CXK1203AR
IC17	8-759-082-61	s	IC TC4W53FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC18	8-759-632-39	s	IC M51958A-T1
IC20	8-759-058-62	s	IC TC7S08FU(TE85R)
IC21	8-759-086-42	s	IC X24C02S-3.0-C7000
IC22	8-759-271-86	s	IC TC7SH04FU
IC25	8-759-079-85	s	IC TC74VHC244FS(EL)
IC30	8-759-079-85	s	IC TC74VHC244FS(EL)
IC31	8-759-271-86	s	IC TC7SH04FU
IC32	8-759-076-06	s	IC TL064CPW
IC33	8-759-066-59	s	IC TC74HC4053AFS
IC34	8-759-184-64	s	IC TC4W66FU
IC35	8-759-049-86	s	IC SN74HCT244APW-E20
IC36	8-759-180-08	s	IC TC74HC4538AFS
IC37	8-759-082-58	s	IC TC7W08FU
IC38	8-759-083-94	s	IC TC7W74FU
IC39	8-759-195-81	s	IC TC7S86FU
IC40	8-759-082-60	s	IC TC7S66FU
IC41	8-759-082-61	s	IC TC4W53FU
IC42	8-759-049-86	s	IC SN74HCT244APW-E20
IC43	8-759-058-54	s	IC TC7S00FU(TE85R)
IC44	8-759-082-61	s	IC TC4W53FU
IC45	8-759-271-86	s	IC TC7SH04FU
IC46	8-759-082-61	s	IC TC4W53FU
IC47	8-759-082-61	s	IC TC4W53FU
IC48	8-759-173-16	s	IC TL062CPW
IC200	8-759-079-61	s	IC TC74VHC74FS(EL)
IC201	8-759-058-58	s	IC TC7S04FU(TE85R)
IC202	8-759-058-64	s	IC TC7S32FU(TE85R)
IC203	8-759-058-62	s	IC TC7S08FU(TE85R)
IC204	8-759-082-61	s	IC TC4W53FU
IC206	8-759-173-16	s	IC TL062CPW
IC207	8-759-058-55	s	IC TC7S02FU-TE85L
L1	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47UH
L5	1-410-385-11	s	INDUCTOR, CHIP 22uH
L6	1-410-385-11	s	INDUCTOR, CHIP 22uH
L7	1-410-385-11	s	INDUCTOR, CHIP 22uH
L8	1-410-385-11	s	INDUCTOR, CHIP 22uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q4	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q5	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-403-29	s	TRANSISTOR XN6435
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q16	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-920-48	s	TRANSISTOR IMH2
Q20	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q21	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q22	8-729-029-14	s	TRANSISTOR DTC144EUA-T106

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Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q24	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q25	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q26	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q200	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q201	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q202	8-729-216-22	s	TRANSISTOR 2SA1162
Q203	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q204	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q205	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-218-716-11	s	METAL 10K 0.50% 1/16W
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R5	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R7	1-218-723-11	s	METAL 20K 0.50% 1/16W
R8	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R9	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R10	1-218-723-11	s	METAL 20K 0.50% 1/16W
R11	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R17	1-218-720-11	s	METAL 15K 0.50% 1/16W
R18	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R21	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R22	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R23	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R28	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R29	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W
R31	1-218-716-11	s	METAL 10K 0.50% 1/16W
R32	1-218-720-11	s	METAL 15K 0.50% 1/16W
R33	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R34	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R35	1-218-732-11	s	METAL 47K 0.50% 1/16W
R36	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R37	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R38	1-218-716-11	s	METAL 10K 0.50% 1/16W
R39	1-218-736-11	s	METAL 68K 0.50% 1/16W
R40	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R41	1-218-716-11	s	METAL 10K 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-740-11	s	METAL 100K 0.50% 1/16W
R44	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R46	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-720-11	s	METAL 15K 0.50% 1/16W
R49	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R50	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R54	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R55	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R56	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R57	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R58	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R59	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-218-833-11	s	CHIP, METAL 270 0.50% 1/16W
R62	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R65	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R66	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R67	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R68	1-218-716-11	s	METAL 10K 0.50% 1/16W
R69	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R71	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R77	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R78	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R79	1-218-716-11	s	METAL 10K 0.50% 1/16W
R80	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R83	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R84	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R85	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R86	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R90	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R92	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R95	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R96	1-218-716-11	s	METAL 10K 0.50% 1/16W
R97	1-218-716-11	s	METAL 10K 0.50% 1/16W
R98	1-218-716-11	s	METAL 10K 0.50% 1/16W
R99	1-218-883-11	s	METAL 33K 0.50% 1/16W
R100	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R101	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R102	1-218-740-11	s	METAL 100K 0.50% 1/16W
R103	1-218-732-11	s	METAL 47K 0.50% 1/16W
R104	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R105	1-218-716-11	s	METAL 10K 0.50% 1/16W
R106	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R107	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-732-11	s	METAL 47K 0.50% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R113	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R114	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R115	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R116	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R117	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R119	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R121	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R122	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R126	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R127	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R128	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R129	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R130	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R131	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R132	1-218-732-11	s	METAL 47K 0.50% 1/16W
R133	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R134	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R135	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R136	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R137	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R138	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R139	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R140	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R141	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R144	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R145	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R146	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R150	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R151	1-218-732-11	s	METAL 47K 0.50% 1/16W
R152	1-218-732-11	s	METAL 47K 0.50% 1/16W
R153	1-218-732-11	s	METAL 47K 0.50% 1/16W
R154	1-218-732-11	s	METAL 47K 0.50% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R202	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R203	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R204	1-218-716-11	s	METAL 10K 0.50% 1/16W
R205	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R206	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R207	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R208	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R209	1-218-716-11	s	METAL 10K 0.50% 1/16W
R210	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R211	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB10	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)

SW-730 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-443-11	o	PRINTED CIRCUIT BOARD, SW-730
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
CN801	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
D1	8-719-106-43	s	DIODE RD9.1M-B1
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R13	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R14	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R15	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
S1	1-571-415-11	s	SWITCH, TOGGLE
S2	1-571-415-11	s	SWITCH, TOGGLE
S3	1-571-415-11	s	SWITCH, TOGGLE
S4	1-571-415-11	s	SWITCH, TOGGLE

SW-731 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-444-12	o	PRINTED CIRCUIT BOARD, SW-731
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
CN501	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R9	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R10	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RV1	1-223-686-11	s	RES, VAR, CARBON 5K/5K
S1	1-571-416-11	s	SWITCH, TOGGLE
S2	1-571-679-11	s	SWITCH, TOGGLE
S3	1-570-282-21	s	SWITCH, KEY BOARD

SW-732 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-442-11	o	PRINTED CIRCUIT BOARD, SW-732
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
CN301	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R8	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-570-985-11	s	SWITCH, TOGGLE
S3	1-571-396-11	s	SWITCH, TOGGLE

SW-733 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-445-11	o	PRINTED CIRCUIT BOARD, SW-733
CN701	1-764-079-21	s	PIN, CONNECTOR (PC BOARD) 4P
S1	1-473-315-11	s	ENCODER, ROTARY

SW-742 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-446-11	o	PRINTED CIRCUIT BOARD, SW-742
CN601	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
S1	1-554-088-00	s	SWITCH, TACTILE

VA-163 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-359-A	o	MOUNTED CIRCUIT BOARD, VA-163
1pc	3-692-125-02	o	PANEL,VA-163 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-135-217-21	s	TANTAL 15uF 20% 6.3
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-126-391-11	s	ELECT 47uF 20% 6.3V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C15	1-135-125-21	s	TANTAL 33uF 20% 10V
C16	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C17	1-126-391-11	s	ELECT 47uF 20% 6.3V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C20	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-217-11	s	CERAMIC 150PF 5% 50V
C27	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C47	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C51	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C52	1-104-559-11	s	FILM, CHIP 0.047uF 5% 16V
C53	1-164-315-11	s	CERAMIC 470PF 5% 50V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C65	1-135-217-21	s	TANTAL 15uF 20% 6.3
C66	1-135-217-21	s	TANTAL 15uF 20% 6.3
C67	1-135-217-21	s	TANTAL 15uF 20% 6.3
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-135-217-21	s	TANTAL 15uF 20% 6.3
C70	1-135-217-21	s	TANTAL 15uF 20% 6.3
C71	1-135-217-21	s	TANTAL 15uF 20% 6.3
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C124	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C125	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C200	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C207	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C208	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C209	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C211	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C212	1-164-156-11	s	CERAMIC 0.1uF 25V
C214	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C215	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-164-156-11	s	CERAMIC 0.1uF 25V
C224	1-104-608-11	s	ELECT 33uF 20% 6.3V
C225	1-135-217-21	s	TANTAL 15uF 20% 6.3
C226	1-135-217-21	s	TANTAL 15uF 20% 6.3
C227	1-164-156-11	s	CERAMIC 0.1uF 25V
C228	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C229	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C230	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C231	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C232	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C233	1-164-156-11	s	CERAMIC 0.1uF 25V
C234	1-164-156-11	s	CERAMIC 0.1uF 25V
C235	1-164-156-11	s	CERAMIC 0.1uF 25V
C236	1-164-156-11	s	CERAMIC 0.1uF 25V
C237	1-164-156-11	s	CERAMIC 0.1uF 25V
C238	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C239	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C240	1-162-924-11	s	CERAMIC 56PF 5% 50V
C242	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C243	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C259	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C300	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C302	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C304	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C305	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C308	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C309	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C311	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C314	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C315	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C316	1-164-156-11	s	CERAMIC 0.1uF 25V
C317	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C318	1-164-156-11	s	CERAMIC 0.1uF 25V
C319	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C323	1-164-156-11	s	CERAMIC 0.1uF 25V
C324	1-104-608-11	s	ELECT 33uF 20% 6.3V
C325	1-135-217-21	s	TANTAL 15uF 20% 6.3
C326	1-135-217-21	s	TANTAL 15uF 20% 6.3
C327	1-164-156-11	s	CERAMIC 0.1uF 25V
C328	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C329	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C330	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C331	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C332	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C333	1-164-156-11	s	CERAMIC 0.1uF 25V
C334	1-164-156-11	s	CERAMIC 0.1uF 25V
C335	1-164-156-11	s	CERAMIC 0.1uF 25V
C336	1-164-156-11	s	CERAMIC 0.1uF 25V
C337	1-164-156-11	s	CERAMIC 0.1uF 25V
C338	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C339	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C340	1-162-924-11	s	CERAMIC 56PF 5% 50V
C342	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C343	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C359	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C400	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C401	1-164-156-11	s	CERAMIC 0.1uF 25V
C402	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C405	1-164-156-11	s	CERAMIC 0.1uF 25V
C407	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C408	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C409	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C411	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C412	1-164-156-11	s	CERAMIC 0.1uF 25V
C414	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C415	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C416	1-164-156-11	s	CERAMIC 0.1uF 25V
C417	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-164-156-11	s	CERAMIC 0.1uF 25V
C420	1-164-156-11	s	CERAMIC 0.1uF 25V
C421	1-164-156-11	s	CERAMIC 0.1uF 25V
C423	1-164-156-11	s	CERAMIC 0.1uF 25V
C424	1-104-608-11	s	ELECT 33uF 20% 6.3V
C425	1-135-217-21	s	TANTAL 15uF 20% 6.3
C426	1-135-217-21	s	TANTAL 15uF 20% 6.3
C427	1-164-156-11	s	CERAMIC 0.1uF 25V
C428	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C429	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C430	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C431	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C432	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C433	1-164-156-11	s	CERAMIC 0.1uF 25V
C434	1-164-156-11	s	CERAMIC 0.1uF 25V
C435	1-164-156-11	s	CERAMIC 0.1uF 25V
C436	1-164-156-11	s	CERAMIC 0.1uF 25V
C437	1-164-156-11	s	CERAMIC 0.1uF 25V
C438	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C439	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C440	1-162-924-11	s	CERAMIC 56PF 5% 50V
C442	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C443	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C459	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
CT200	1-141-311-11	s	CAP, VAR, TRIMMER
CT300	1-141-311-11	s	CAP, VAR, TRIMMER
CT400	1-141-311-11	s	CAP, VAR, TRIMMER
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
FL200	1-402-639-11	s	FILTER, TRAP
FL300	1-402-639-11	s	FILTER, TRAP
FL400	1-402-639-11	s	FILTER, TRAP
IC1	8-759-076-06	s	IC TL064CPW
IC3	8-759-066-68	s	IC REF-03GS
IC5	8-759-180-08	s	IC TC74HC4538AFS
IC6	8-759-359-68	s	IC TL074CPW-E05
IC7	8-759-058-64	s	IC TC7S32FU(TE85R)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-085-67	s	IC LM339NS
IC10	8-759-058-58	s	IC TC7S04FU(TE85R)
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-359-68	s	IC TL074CPW-E05
IC13	8-759-082-60	s	IC TC7S66FU
IC14	8-759-082-60	s	IC TC7S66FU
IC15	8-759-076-06	s	IC TL064CPW
IC16	8-759-326-65	s	IC MP7670AS-TE2
IC17	8-759-066-59	s	IC TC74HC4053AFS
IC18	8-759-326-65	s	IC MP7670AS-TE2
IC19	8-759-359-68	s	IC TL074CPW-E05
IC20	8-759-237-79	s	IC TC74HC595AF(EL)
IC21	8-759-064-36	s	IC MB88346BPFV
IC22	8-759-066-59	s	IC TC74HC4053AFS
IC23	8-759-049-60	s	IC SN74HC08APW-E05
IC24	8-759-059-50	s	IC MB88351PFV
IC25	8-759-058-58	s	IC TC7S04FU(TE85R)
IC26	8-759-086-42	s	IC X24C02S-3.0-C7000
IC27	8-759-058-62	s	IC TC7S08FU(TE85R)
IC200	8-759-076-06	s	IC TL064CPW
IC201	8-759-082-61	s	IC TC4W53FU
IC202	8-752-068-64	s	IC CXA1486Q-TH
IC203	8-759-082-61	s	IC TC4W53FU
IC204	8-759-058-62	s	IC TC7S08FU(TE85R)

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Ref. No. or Q'ty	Part No.	SP	Description
IC300	8-759-076-06	s	IC TL064CPW
IC301	8-759-082-61	s	IC TC4W53FU
IC302	8-752-068-64	s	IC CXA1486Q-TH
IC303	8-759-082-61	s	IC TC4W53FU
IC304	8-759-058-62	s	IC TC7S08FU(TE85R)
IC400	8-759-076-06	s	IC TL064CPW
IC401	8-759-082-61	s	IC TC4W53FU
IC402	8-752-068-64	s	IC CXA1486Q-TH
IC403	8-759-082-61	s	IC TC4W53FU
IC404	8-759-058-62	s	IC TC7S08FU(TE85R)
L1	1-410-385-11	s	INDUCTOR, CHIP 22uH
L2	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-820-86	s	TRANSISTOR 2SB1121-ST
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q7	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q10	8-729-402-78	s	TRANSISTOR XN6401
Q11	8-729-402-19	s	TRANSISTOR XN6501
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-402-78	s	TRANSISTOR XN6401
Q200	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q201	8-729-175-73	s	TRANSISTOR 2SC2757
Q202	8-729-122-63	s	TRANSISTOR 2SA1226
Q203	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q204	8-729-122-63	s	TRANSISTOR 2SA1226
Q205	8-729-122-63	s	TRANSISTOR 2SA1226
Q206	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q207	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q210	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q211	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q212	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q213	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q214	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q215	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q216	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q217	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q218	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q219	8-729-402-19	s	TRANSISTOR XN6501
Q220	8-729-402-19	s	TRANSISTOR XN6501
Q300	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q301	8-729-175-73	s	TRANSISTOR 2SC2757
Q302	8-729-122-63	s	TRANSISTOR 2SA1226
Q303	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q304	8-729-122-63	s	TRANSISTOR 2SA1226
Q305	8-729-122-63	s	TRANSISTOR 2SA1226
Q306	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q307	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q308	8-729-117-32	s	TRANSISTOR 2SC4177
Q309	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q310	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q311	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q312	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q313	8-729-117-73	s	TRANSISTOR 2SC4178-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q314	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q315	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q316	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q317	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q318	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q319	8-729-402-19	s	TRANSISTOR XN6501
Q320	8-729-402-19	s	TRANSISTOR XN6501
Q400	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q401	8-729-175-73	s	TRANSISTOR 2SC2757
Q402	8-729-122-63	s	TRANSISTOR 2SA1226
Q403	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q404	8-729-122-63	s	TRANSISTOR 2SA1226
Q405	8-729-122-63	s	TRANSISTOR 2SA1226
Q406	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q407	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q408	8-729-117-32	s	TRANSISTOR 2SC4177
Q409	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q410	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q413	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q414	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q415	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q416	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q417	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q418	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q419	8-729-402-19	s	TRANSISTOR XN6501
Q420	8-729-402-19	s	TRANSISTOR XN6501
R1	1-218-723-11	s	METAL 20K 0.50% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-732-11	s	METAL 47K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-218-716-11	s	METAL 10K 0.50% 1/16W
R8	1-218-716-11	s	METAL 10K 0.50% 1/16W
R9	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-716-11	s	METAL 10K 0.50% 1/16W
R12	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R14	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R15	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R21	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R22	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R23	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R28	1-218-716-11	s	METAL 10K 0.50% 1/16W
R29	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R31	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R35	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R36	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R37	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R38	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R39	1-216-857-11	s	CHIP, METAL 1M 5% 1/16W
R40	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R41	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R42	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R43	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R44	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R45	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R46	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R47	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R49	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R50	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-716-11	s	METAL 10K 0.50% 1/16W
R53	1-218-723-11	s	METAL 20K 0.50% 1/16W
R54	1-218-716-11	s	METAL 10K 0.50% 1/16W
R55	1-218-723-11	s	METAL 20K 0.50% 1/16W
R56	1-218-901-11	s	CHIP, METAL 180K 0.50% 1/16W
R57	1-218-732-11	s	METAL 47K 0.50% 1/16W
R58	1-218-716-11	s	METAL 10K 0.50% 1/16W
R59	1-218-732-11	s	METAL 47K 0.50% 1/16W
R60	1-218-732-11	s	METAL 47K 0.50% 1/16W
R61	1-208-854-11	s	CHIP,METAL 1M 0.50% 1/10W
R62	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R63	1-218-883-11	s	METAL 33K 0.50% 1/16W
R64	1-218-883-11	s	METAL 33K 0.50% 1/16W
R65	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R66	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R67	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R70	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R71	1-218-883-11	s	METAL 33K 0.50% 1/16W
R72	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R73	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R74	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R75	1-218-883-11	s	METAL 33K 0.50% 1/16W
R76	1-218-883-11	s	METAL 33K 0.50% 1/16W
R77	1-218-883-11	s	METAL 33K 0.50% 1/16W
R78	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R79	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R82	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R83	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R84	1-218-883-11	s	METAL 33K 0.50% 1/16W
R85	1-218-883-11	s	METAL 33K 0.50% 1/16W
R86	1-218-883-11	s	METAL 33K 0.50% 1/16W
R87	1-218-883-11	s	METAL 33K 0.50% 1/16W
R88	1-218-883-11	s	METAL 33K 0.50% 1/16W
R89	1-218-883-11	s	METAL 33K 0.50% 1/16W
R90	1-218-883-11	s	METAL 33K 0.50% 1/16W
R91	1-218-716-11	s	METAL 10K 0.50% 1/16W
R92	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R93	1-218-716-11	s	METAL 10K 0.50% 1/16W
R94	1-218-732-11	s	METAL 47K 0.50% 1/16W
R95	1-218-732-11	s	METAL 47K 0.50% 1/16W
R96	1-218-732-11	s	METAL 47K 0.50% 1/16W
R97	1-218-732-11	s	METAL 47K 0.50% 1/16W
R98	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R99	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R100	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R101	1-218-723-11	s	METAL 20K 0.50% 1/16W
R102	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R103	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R104	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R109	1-218-716-11	s	METAL 10K 0.50% 1/16W
R110	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R111	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R112	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R113	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R114	1-218-723-11	s	METAL 20K 0.50% 1/16W
R115	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R116	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R117	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R118	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R120	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-218-723-11	s	METAL 20K 0.50% 1/16W
R202	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R203	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R204	1-218-727-11	s	METAL 30K 0.50% 1/16W
R205	1-218-732-11	s	METAL 47K 0.50% 1/16W
R206	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R207	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R208	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R209	1-218-723-11	s	METAL 20K 0.50% 1/16W
R210	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R211	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R212	1-218-680-11	s	METAL 330 0.50% 1/16W
R213	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R214	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R215	1-218-680-11	s	METAL 330 0.50% 1/16W
R216	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R217	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R218	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R219	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R220	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R222	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R223	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R224	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R225	1-218-883-11	s	METAL 33K 0.50% 1/16W
R226	1-218-716-11	s	METAL 10K 0.50% 1/16W
R227	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R228	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R229	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R230	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R231	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R232	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R233	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R234	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R235	1-218-672-11	s	METAL 150 0.50% 1/16W
R236	1-218-732-11	s	METAL 47K 0.50% 1/16W
R237	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R238	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R239	1-218-723-11	s	METAL 20K 0.50% 1/16W
R240	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R241	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R242	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R243	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R244	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R245	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R246	1-218-716-11	s	METAL 10K 0.50% 1/16W
R247	1-218-723-11	s	METAL 20K 0.50% 1/16W
R248	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R249	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R250	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-716-11	s	METAL 10K 0.50% 1/16W
R253	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R254	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R255	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R256	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R257	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R258	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R259	1-218-723-11	s	METAL 20K 0.50% 1/16W
R260	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R261	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R262	1-218-727-11	s	METAL 30K 0.50% 1/16W
R263	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R264	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R265	1-218-723-11	s	METAL 20K 0.50% 1/16W
R266	1-218-716-11	s	METAL 10K 0.50% 1/16W
R267	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R268	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R269	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R270	1-218-883-11	s	METAL 33K 0.50% 1/16W
R271	1-218-740-11	s	METAL 100K 0.50% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R280	1-218-883-11	s	METAL 33K 0.50% 1/16W
R281	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R300	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R301	1-218-723-11	s	METAL 20K 0.50% 1/16W
R302	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R303	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R304	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R305	1-218-727-11	s	METAL 30K 0.50% 1/16W
R306	1-218-732-11	s	METAL 47K 0.50% 1/16W
R307	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R308	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R309	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R310	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R311	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R312	1-218-680-11	s	METAL 330 0.50% 1/16W
R313	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R314	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R315	1-218-680-11	s	METAL 330 0.50% 1/16W
R316	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R317	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R318	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R319	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R320	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R322	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R323	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R324	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R325	1-218-883-11	s	METAL 33K 0.50% 1/16W
R326	1-218-716-11	s	METAL 10K 0.50% 1/16W
R327	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R328	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R329	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R330	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R331	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R332	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R333	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R334	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R335	1-218-672-11	s	METAL 150 0.50% 1/16W
R336	1-218-732-11	s	METAL 47K 0.50% 1/16W
R337	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R338	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R339	1-218-723-11	s	METAL 20K 0.50% 1/16W
R340	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R341	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R342	1-218-716-11	s	METAL 10K 0.50% 1/16W
R343	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R344	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R345	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R346	1-218-750-11	s	METAL 270K 0.50% 1/16W
R347	1-218-723-11	s	METAL 20K 0.50% 1/16W
R348	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R349	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R350	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R351	1-218-740-11	s	METAL 100K 0.50% 1/16W
R352	1-218-716-11	s	METAL 10K 0.50% 1/16W
R353	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R354	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R355	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R356	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R357	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R358	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R359	1-218-723-11	s	METAL 20K 0.50% 1/16W
R360	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R361	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R362	1-218-727-11	s	METAL 30K 0.50% 1/16W
R363	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R364	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R365	1-218-723-11	s	METAL 20K 0.50% 1/16W
R366	1-218-716-11	s	METAL 10K 0.50% 1/16W
R367	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R368	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R369	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R370	1-218-883-11	s	METAL 33K 0.50% 1/16W
R371	1-218-740-11	s	METAL 100K 0.50% 1/16W
R372	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R380	1-218-883-11	s	METAL 33K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R381	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R400	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R401	1-218-723-11	s	METAL 20K 0.50% 1/16W
R402	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R403	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R404	1-218-727-11	s	METAL 30K 0.50% 1/16W
R405	1-218-732-11	s	METAL 47K 0.50% 1/16W
R406	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R407	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R408	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R409	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R410	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R411	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R412	1-218-680-11	s	METAL 330 0.50% 1/16W
R413	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R414	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R415	1-218-680-11	s	METAL 330 0.50% 1/16W
R416	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R417	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R418	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R419	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R420	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R422	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R423	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R424	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R425	1-218-883-11	s	METAL 33K 0.50% 1/16W
R426	1-218-716-11	s	METAL 10K 0.50% 1/16W
R427	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R428	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R429	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R430	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R431	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R432	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R433	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R434	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R435	1-218-672-11	s	METAL 150 0.50% 1/16W
R436	1-218-732-11	s	METAL 47K 0.50% 1/16W
R437	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R438	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R439	1-218-723-11	s	METAL 20K 0.50% 1/16W
R440	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R441	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R442	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R443	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R444	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R445	1-218-740-11	s	METAL 100K 0.50% 1/16W
R446	1-218-723-11	s	METAL 20K 0.50% 1/16W
R447	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R448	1-218-716-11	s	METAL 10K 0.50% 1/16W
R449	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R450	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R451	1-218-740-11	s	METAL 100K 0.50% 1/16W
R452	1-218-716-11	s	METAL 10K 0.50% 1/16W
R453	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R454	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R455	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R456	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R457	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R458	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R459	1-218-723-11	s	METAL 20K 0.50% 1/16W
R460	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R461	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R462	1-218-727-11	s	METAL 30K 0.50% 1/16W
R463	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R464	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R465	1-218-723-11	s	METAL 20K 0.50% 1/16W
R466	1-218-716-11	s	METAL 10K 0.50% 1/16W
R467	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R468	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R469	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R470	1-218-883-11	s	METAL 33K 0.50% 1/16W
R471	1-218-740-11	s	METAL 100K 0.50% 1/16W
R472	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R480	1-218-883-11	s	METAL 33K 0.50% 1/16W
R481	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
RV50	1-241-263-11	s	RES, ADJ, METALT 5K
RV200	1-241-260-11	s	METAL, ADJ 500
RV300	1-241-260-11	s	METAL, ADJ 500
RV400	1-241-260-11	s	METAL, ADJ 500

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
⚠	1-473-314-11	s	CONVERTER, D.C-D.C
	1-775-774-11	o	FLEXIBLE CARD WIRE (20 CORE) (CN-1121 TO MB-602)
	1-775-775-11	o	FLEXIBLE CARD WIRE (24 CORE) (CN-1122 TO MB-602)
	1-775-776-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-775-777-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1121 TO MB-602)
	1-775-778-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-775-779-11	s	FLEXIBLE CARD WIRE (20 CORE) (MB-602 TO CCD UNIT)
	1-775-780-11	s	FLEXIBLE CARD WIRE (24 CORE) (MB-602 TO CCD UNIT)
	1-955-080-12	o	HARNESS (VF)
	1-955-086-12	o	HARNESS (PA)
CN101	1-952-420-21	s	HARNESS (VF CABLE 3)
CN901	1-561-781-11	s	CONNECTOR BNC "TEST OUT"
CN902	1-562-222-41	s	CONNECTOR 6P FEMALE "REMOTE"
CN903	1-565-051-21	o	CONNECTOR, 20P FEMAL "VF"
CN904	1-695-841-12	s	CONNECTOR 12P FEMALE "LENS"
CN905	1-509-184-31	s	CONNECTOR 3P MALE "MIC"
CN1F(to VF-60 BOARD)			
	1-580-585-11	o	HOUSING, 18P
	1-580-599-11	o	CONTACT, FEMALE AWG26-30

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN2F(to PA-181 BOARD of CCD UNIT)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN15F(to MB602 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN21F(to MB-602 BOARD)			
	1-764-196-11	o	HOUSING, 8P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN31F(to MB-602 BOARD)			
	1-580-586-11	o	HOUSING, 20P
	1-573-176-11	o	CONTACT, FEMALE AWG22-26
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN32F(to MB-602 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN42F(to MB-602 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN301F(to SW-732 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN402F(to CN1122 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN405F(to CN1122 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN406F(to CN1122 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN407F(to MB602 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN501F(to SW731 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN601F(to SW742 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN701F(to SW733 BOARD)			
	1-764-194-11	o	HOUSING, 4P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN801F(to SW730 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30

5-3-2. Parts List for View Finder

LP-84 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-389-A	o	MOUNTED CIRCUIT BOARD, LP-84
CN21	1-566-759-11	o	PIN, CONNECTOR (PC BOARD) 4P
D1	8-719-026-39	s	DIODE CL-150UR-CD-T
D2	8-719-026-39	s	DIODE CL-150UR-CD-T
D3	8-719-987-43	s	DIODE CL-150PG-CD

LP-85 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-390-A	o	MOUNTED CIRCUIT BOARD, LP-85
CN31	1-566-759-11	o	PIN, CONNECTOR (PC BOARD) 4P
D1	8-719-026-16	s	DIODE CL-150D-CD-T
D2	8-719-026-39	s	DIODE CL-150UR-CD-T
D3	8-719-026-16	s	DIODE CL-150D-CD-T

VF-60 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-387-A	o	MOUNTED CIRCUIT BOARD, VF-60
C1	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C2	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C3	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C4	1-104-911-11	s	TANTALUM, CHIP 33uF 20% 10V
C5	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C6	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C7	1-163-249-11	s	CERAMIC, CHIP 82PF 5% 50V
C8	1-107-686-11	s	CHIP, TANTALUM 4.7uF 20% 16V
C9	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C10	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C11	⚠ 1-136-480-11	s	FILM 0.0015MF 5% 100
C12	1-136-683-11	s	FILM 0.0056uF 5% 100V
C13	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C14	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C15	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C16	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C17	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C18	1-104-823-11	s	TANTALUM, CHIP 47uF 20% 16V
C19	1-164-350-11	s	CERAMIC 470PF 10% 1KV
C20	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C21	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C22	1-128-405-11	s	ELECT 22uF 20% 50V
C23	1-162-957-11	s	CERAMIC 220PF 5% 50V
C24	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C25	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C26	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C27	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C28	1-107-689-21	s	TANTAL 1uF 20% 35V
C29	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C30	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C31	1-135-091-91	s	CHIP, TANTALUM 1uF 20% 16V
C32	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C33	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C35	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C36	1-162-957-11	s	CERAMIC 220PF 5% 50V
C37	1-128-397-21	s	ELECT 100uF 20% 16V
C38	1-128-394-11	s	ELECT 220uF 20% 10V
C39	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-107-689-21	s	TANTAL 1uF 20% 35V
C41	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C42	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C43	1-162-969-11	s	CERAMIC 0.0068uF 10% 25V
C44	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C45	1-104-547-11	s	FILM 0.0047uF 5% 16V
C46	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C47	1-107-689-21	s	TANTAL 1uF 20% 35V
C48	1-163-017-00	s	CERAMIC 0.0047uF 10% 50V
C49	1-104-912-11	s	CHIP,TANTALUM 3.3uF 20% 16V
C50	1-164-156-11	s	CERAMIC 0.1uF 25V
C51	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
CN1	1-580-538-11	o	PIN, CONNECTOR (PC BOARD) 18P
CN2	1-764-080-21	s	PIN, CONNECTOR (PC BOARD) 8P
CN3	1-569-529-21	o	HOUSING, 14P

(VF-60 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN4	1-564-004-11	o	PIN, CONNECTOR 5P
CN5	1-506-470-11	s	PIN, CONNECTOR 5P
D1	8-719-404-35	s	DIODE MA141WK
D2	8-719-900-95	s	DIODE V09G
D3	8-719-820-41	s	DIODE 1SS302
D4	8-719-901-19	s	DIODE V11N
D5	8-719-900-95	s	DIODE V09G
D6	8-719-404-35	s	DIODE MA141WK
D7	8-719-404-35	s	DIODE MA141WK
D8	8-719-029-68	s	DIODE RD6.2UJN-T1
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-404-35	s	DIODE MA141WK
D11	8-719-404-35	s	DIODE MA141WK
D12	8-719-989-53	s	DIODE CL-200HR-C-TSL
DL1	1-411-383-11	s	DELAY LINE 80 nS
IC1	⚠ 8-759-300-28	s	IC HA11423MP
IC2	8-759-100-94	s	IC UPC358G2
IC3	8-759-209-57	s	IC TC4S69F
IC4	8-759-209-54	s	IC TC4S01F
L2	⚠ 1-459-899-11	s	COIL, HORIZONTAL LINEARITY
L3	1-410-380-31	s	INDUCTOR CHIP 8.2uH
Q1	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q2	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q3	8-729-117-32	s	TRANSISTOR 2SC4177
Q4	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q5	8-729-403-29	s	TRANSISTOR XN6435
Q6	8-729-024-56	s	TRANSISTOR 2SA1808
Q7	8-729-422-44	s	TRANSISTOR 2SK663
Q8	8-729-403-32	s	TRANSISTOR XN6534
Q9	8-729-105-37	s	TRANSISTOR 2SC3360-N16
Q10	8-729-105-37	s	TRANSISTOR 2SC3360-N16
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q13	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q14	8-729-119-00	s	TRANSISTOR 2SK612
Q15	8-729-119-00	s	TRANSISTOR 2SK612
Q16	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q19	8-729-117-32	s	TRANSISTOR 2SC4177
Q20	8-729-117-32	s	TRANSISTOR 2SC4177
Q21	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q22	8-729-422-12	s	TRANSISTOR 2SK664
R1	1-216-671-11	s	CHIP, METAL 6.8K 0.50% 1/10W
R2	1-216-309-00	s	CHIP, METAL 5.6 5% 1/10W
R3	1-216-627-11	s	CHIP, METAL 100 0.50% 1/10W
R4	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R5	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R6	1-208-774-11	s	CHIP, METAL 470 0.50% 1/10W
R7	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R8	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R9	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R10	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R11	1-218-680-11	s	METAL 330 0.50% 1/16W
R12	1-216-611-11	s	CHIP, METAL 22 0.50% 1/10W
R13	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W

(VF-60 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R14	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R15	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R16	1-208-774-11	s	CHIP, METAL 470 0.50% 1/10W
R17	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R18	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R19	1-218-680-11	s	METAL 330 0.50% 1/16W
R20	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R21	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R22	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R23	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R24	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R25	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R26	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R27	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R28	1-216-619-11	s	CHIP, METAL 47 0.50% 1/10W
R29	1-208-812-11	s	CHIP, METAL 18K 0.50% 1/10W
R30	1-208-824-11	s	CHIP, METAL 56K 0.50% 1/10W
R31	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R32	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R33	1-216-655-11	s	CHIP, METAL 1.5K 0.50% 1/10W
R34	1-208-800-11	s	CHIP, METAL 5.6K 0.50% 1/10W
R35	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R36	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R37	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R38	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R39	1-216-633-11	s	CHIP, METAL 180 0.50% 1/10W
R40	1-208-822-11	s	CHIP, METAL 47K 0.50% 1/10W
R41	1-216-609-11	s	CHIP, METAL 18 0.50% 1/10W
R42	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R43	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R44	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R45	1-218-740-11	s	METAL 100K 0.50% 1/16W
R46	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R47	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R48	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R49	1-216-655-11	s	CHIP, METAL 1.5K 0.50% 1/10W
R50	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R51	1-208-812-11	s	CHIP, METAL 18K 0.50% 1/10W
R52	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R53	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R54	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R55	1-216-699-11	s	CHIP, METAL 100K 0.50% 1/10W
R56	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R57	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R58	1-208-854-11	s	CHIP,METAL 1M 0.50% 1/10W
R59	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R60	1-216-699-11	s	CHIP, METAL 100K 0.50% 1/10W
R61	1-216-133-00	s	CHIP, METAL 3.3M 5% 1/10W
R62	1-218-716-11	s	METAL 10K 0.50% 1/16W
R63	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R64	1-218-768-11	s	METAL 470K 0.50% 1/10W
R65	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R66	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R67	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R68	1-218-648-11	s	METAL 15 0.50% 1/16W
R69	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R70	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R71	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R72	1-216-627-11	s	CHIP, METAL 100 0.50% 1/10W

(VF-60 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R73	1-216-629-11	s	CHIP, METAL 120 0.50% 1/10W
R74	⚠ 1-218-883-11	s	METAL 33K 0.50% 1/16W
R75	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R76	1-218-716-11	s	METAL 10K 0.50% 1/16W
R77	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R78	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R80	1-216-295-11	s	CHIP, CONDUCTOR 0
R81	1-218-716-11	s	METAL 10K 0.50% 1/16W
R82	1-216-793-11	s	METAL 4.7 5% 1/16W
R83	1-218-716-11	s	METAL 10K 0.50% 1/16W
R84	1-218-773-11	s	CHIP, METAL 750K 0.50% 1/10W
R85	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R86	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R87	1-218-732-11	s	METAL 47K 0.50% 1/16W
R88	1-218-736-11	s	METAL 68K 0.50% 1/16W
R89	1-218-732-11	s	METAL 47K 0.50% 1/16W
R90	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R91	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R92	1-218-883-11	s	METAL 33K 0.50% 1/16W
R93	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R94	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R95	1-218-740-11	s	METAL 100K 0.50% 1/16W
R96	⚠ 1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R97	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R98	1-218-740-11	s	METAL 100K 0.50% 1/16W
R99	1-218-684-11	s	CHIP, METAL 470 0.50% 1/16W
R100	1-218-684-11	s	CHIP, METAL 470 0.50% 1/16W
R101	1-208-822-11	s	CHIP, METAL 47K 0.50% 1/10W
R102	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R103	1-218-752-11	s	METAL 330K 0.50% 1/16W
R104	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R105	1-218-883-11	s	METAL 33K 0.50% 1/16W
R106	1-218-716-11	s	METAL 10K 0.50% 1/16W
RV1	1-241-832-21	s	RES, ADJ, METAL 5K
RV2	1-241-829-21	s	RES, ADJ, METAL 1K
RV3	1-241-832-21	s	RES, ADJ, METAL 5K
RV4	1-241-838-11	s	RES, ADJ, METAL 500K
RV5	1-241-832-21	s	RES, ADJ, METAL 5K
RV6	1-241-828-21	s	RES, ADJ, METAL 500
RV7	1-241-828-21	s	RES, ADJ, METAL 500
RV8	1-241-825-11	s	RES, ADJ, METAL 50
RV9	1-241-741-11	s	RES, ADJ METAL 50K
RV10	1-241-828-21	s	RES, ADJ, METAL 500
S1	1-762-488-11	s	SWITCH, TOGGLE
S2	1-762-020-11	s	SWITCH, TOGGLE
S3	1-762-489-11	s	SWITCH, TOGGLE
T1	⚠ 1-439-419-12	s	TRANSFORMER, FLYBACK
VDR1	1-806-497-00	s	VARISTOR ERZ-C05DK220

VR-199 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-388-A	o	MOUNTED CIRCUIT BOARD, VR-199
1pc	3-692-151-01	o	PLATE,GROUND
C1	1-104-823-11	s	TANTALUM, CHIP 47uF 20% 16V
C2	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C3	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C4	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C5	1-107-686-11	s	CHIP, TANTALUM 4.7uF 20% 16V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-163-038-00	s	CHIP, CERAMIC 0.1uF 25V
C8	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
CN11	1-569-529-21	o	HOUSING, 14P
D1	8-719-989-53	s	DIODE CL-200HR-C-TSL
D2	8-719-989-53	s	DIODE CL-200HR-C-TSL
IC1	8-759-939-53	s	IC BA225F-T2
Q1	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q2	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q3	8-729-402-19	s	TRANSISTOR XN6501
Q4	8-729-402-19	s	TRANSISTOR XN6501
R1	1-216-615-11	s	METAL 33 0.50% 1/10W
R2	1-216-645-11	s	METAL 560 0.50% 1/10W
R3	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R4	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R5	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R6	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R7	1-218-772-11	s	METAL 680K 0.50% 1/10W
R8	1-208-822-11	s	CHIP, METAL 47K 0.50% 1/10W
R9	1-208-824-11	s	CHIP, METAL 56K 0.50% 1/10W
R10	1-216-295-11	s	CHIP, CONDUCTOR 0
R11	1-208-822-11	s	CHIP, METAL 47K 0.50% 1/10W
R13	1-208-814-11	s	CHIP, METAL 22K 0.50% 1/10W
R14	1-208-774-11	s	CHIP, METAL 470 0.50% 1/10W
R15	1-208-822-11	s	CHIP, METAL 47K 0.50% 1/10W
R16	1-216-645-11	s	METAL 560 0.50% 1/10W
RV1	1-238-293-11	s	CARBON, VAR 10K
RV2	1-238-290-11	s	CARBON, VAR 1K
RV3	1-238-296-11	s	CARBON, VAR 10K

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
	⚠ 1-251-386-11	s	CRT ASSY, 1.5"
	1-775-771-11	o	FLEXIBLE CARD WIRE (14 CORE) (VF-60 TO VR-199)
CN2F(to VF-60 BOARD)			
	1-764-196-11	o	HOUSING, 8P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN21F(to LP-84 BOARD)			
	1-569-619-11	o	HOUSING, CONNECTOR 4P
	1-565-977-11	s	CONTACT, FEMALE AWG 28-32
CN31F(to LP-85 BOARD)			
	1-569-619-11	o	HOUSING, CONNECTOR 4P
	1-565-977-11	s	CONTACT, FEMALE AWG 28-32

5-4. Supplied Accessories

SUPPLIED ACCESSORIES			
Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-542-233-12	o	MICROPHONE
1pc	3-179-882-01	o	SPACER, MICROPHONE

5-5. Optional Fixtures

TOOLS AND FIXTURES		
Part No.	SP	Description
J-6026-110-A	o	MULTI-BURST CHART
J-6026-130-B	o	GRAYSCALE CHART
J-6029-140-B	o	PATTERN BOX PTB-500
J-6394-080-A	o	GRAYSCALE CHART (16:9)
J-6395-040-A	o	EXTENSION BOARD, EX-464

Section 6
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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TC74VHC32FS (EL) 6-24
TC74VHC541FS (EL) 6-24
TC74VHC74F 6-19
TC74VHC74FS (EL) 6-19
TC7S00FU 6-21
TC7S02FU 6-21
TC7S04FU 6-21
TC7S08FU 6-22
TC7S32FU 6-21
TC7S66FU 6-24
TC7S86FU 6-21
TC7SH02FU 6-21
TC7SH04FU 6-21
TC7SH08FU 6-22
TC7SH32FU 6-21
TC7W00FU 6-24
TC7W02F 6-24
TC7W04FU 6-24
TC7W08FU 6-24
TC7W139FU 6-25
TC7W32FU 6-25
TC7W74FU 6-25
TL062CPW 6-25
TL064CPW 6-25
TL074CPW 6-25
TL082M 6-25
TL084CPW 6-25
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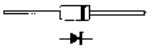
TLC272CPW 6-26
TLC27L2CPS 6-26

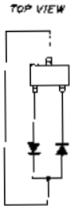
UPC358G2 6-12
UPC393G2 6-12
UPD4702G 6-26
UPD6453GT-610 6-27
UPD71055GB-10-3B4 6-28

X24164S1 6-28
X24C02S-3. 0 6-28

DIODE



1S1588



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1SS302
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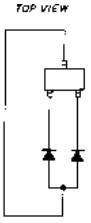
HSM88AS



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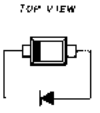

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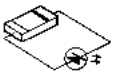
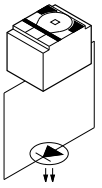
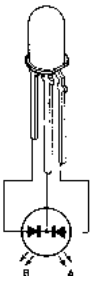


CL-150D-CD;ORANGE
CL-150PG-CD;GREEN
CL-150UR-CD;RED

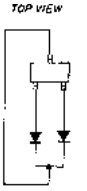


CL-200HR;RED

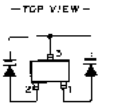
DE5LC20U



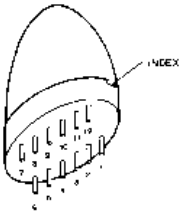
GL-5ED5;A=RED,B=YEL GRN



HSM88WK
MA141WK



KV1470



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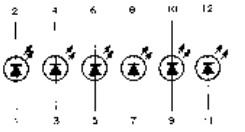
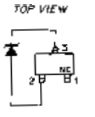
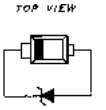
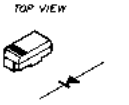




RD ? ?M-B
RD ? ?MB
RD ? ?M-B ?



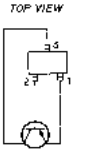
RD ? ?UH
RD ? ?UJN



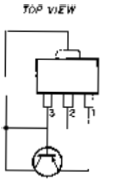
SC802-04

V09C
V09G
V11 ?

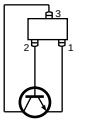
TRANSISTOR



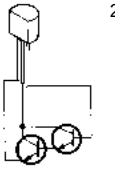
2SA1162G
2SA1226
2SA1610
2SA1611
2SA1688
2SA1808
2SA811A
2SB1440S
2SB624



2SB1115A
2SB1121
2SB798



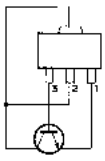
2SC1623
2SC2223
2SC2712
2SC2713
2SC2714Y
2SC2757
2SC2758
2SC3115
2SC3360
2SC4177
2SC4177-L6
2SC4178
2SC4184
2SC4215
2SD1048
2SD596
2SD596-DV5



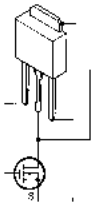
2SD1111

Others

TOP VIEW

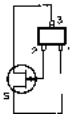


2SD1615A
2SD1623



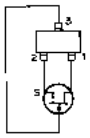
2SK612

TOP VIEW

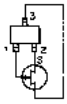


2SK663

TOP VIEW

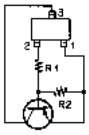


2SK852-X2
2SK853



2SK664

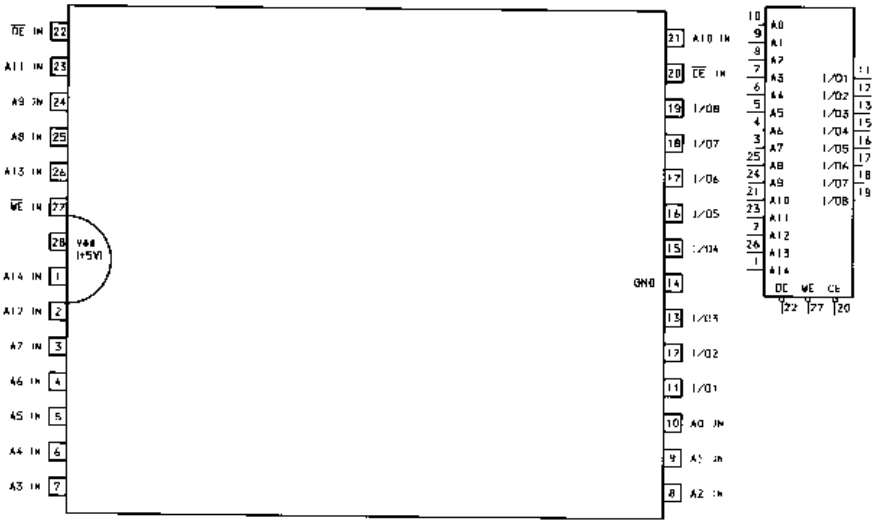
TOP VIEW



DTA143XKA(R1=4.7K R2=10K)
DTA144EE(R1=47K, R2=47K)
DTA144EUA(R1=47K, R2=47K)

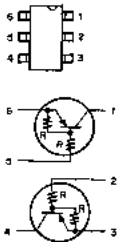
CXK58257ATM-70LL(SONY)(ACCESS TIME=70ns)FLAT PACKAGE

C-MOS 256K(32768x8)-BIT STATIC RAM
– TOP VIEW –



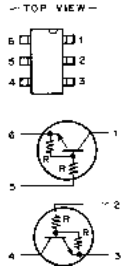
DTC143XKA(R1=4.7K, R2=10K)
DTC144EE(R1=47K, R2=47K)
DTC144EK(R1=47K, R2=47K)
DTC144EKA(R1=47K, R2=47K)
DTC144EUA(R1=47K, R2=47K)

— TOP VIEW —



IMB2(R=47K)

— TOP VIEW —

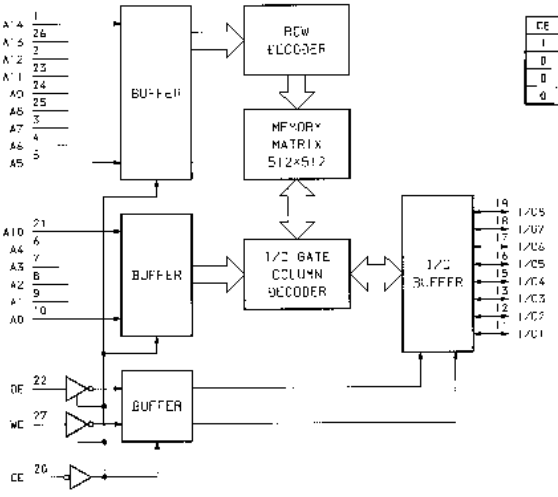


IMH2(R=47K)

A0-A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
I/O1 I/O8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

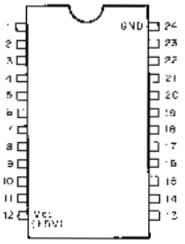
CE	OE	WE	MODE	I/O TERMINAL
H	X	X	NOT SELECT	HIGH IMPEDANCE
L	H	H	OUTPUT DISABLE	HIGH IMPEDANCE
L	L	H	READ	OUTPUT DATA
L	X	L	WRITE	INPUT DATA

H : HIGH LEVEL
L : LOW LEVEL
X : DON'T CARE

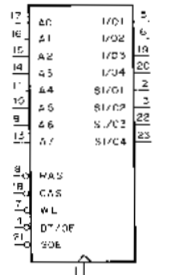


HM53461JP-12(HITACHI)(ACCESS TIME=120ns)PLCC

C-MOS 64K WORDx4 BIT MULTI PORT RAM
– TOP VIEW –



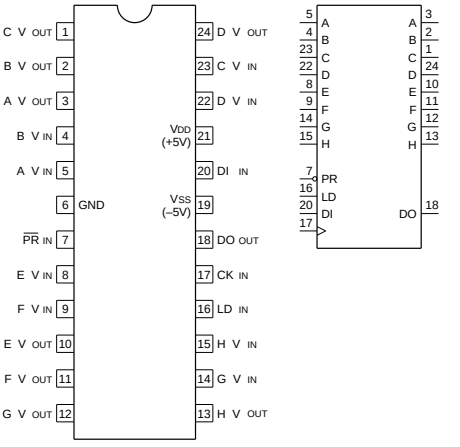
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1		SC	13		A7
2	I/O	SI/O1	14		A6
3	I/O	SI/O2	15		A5
4		DT/OE	16		A4
5	I/O	I/O1	17	I	A0
6	I/O	I/O2	18	–	CAS
7	–	WE	19	I/O	I/O3
8	–	RAS	20	I/O	I/O4
9		A3	21	–	SOE
10		A2	22	I/O	SI/O3
11		A1	23	I/O	SI/O4
12	–	Vcc	24	–	GND



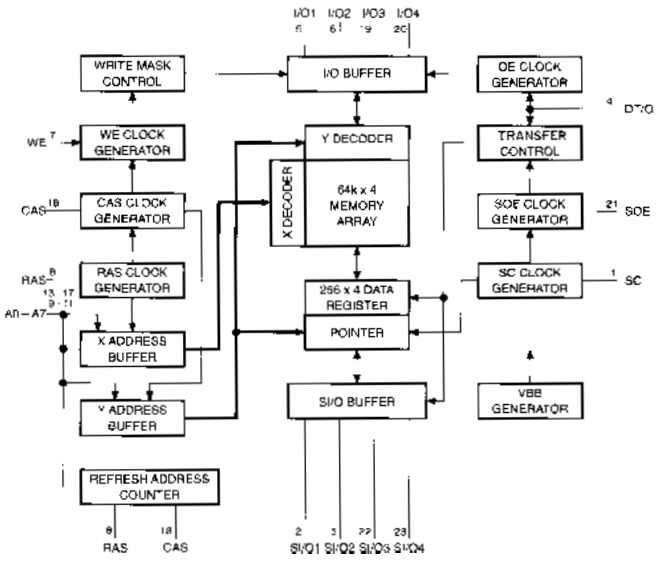
A0 – A7 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE INPUT
DT/OE ; DATA TRANSMISSION/OUTPUT ENABLE INPUT
I/O1 – I/O4 ; RAM PORT DATA INPUT/OUTPUT
RAS ; ROW ADDRESS STROBE INPUT
SC ; SERIAL CLOCK INPUT
SI/O1 – SI/O4 ; SAM PORT DATA INPUT/OUTPUT
SOE ; SAM PORT ENABLE INPUT/OUTPUT
WE ; WRITE ENABLE INPUT

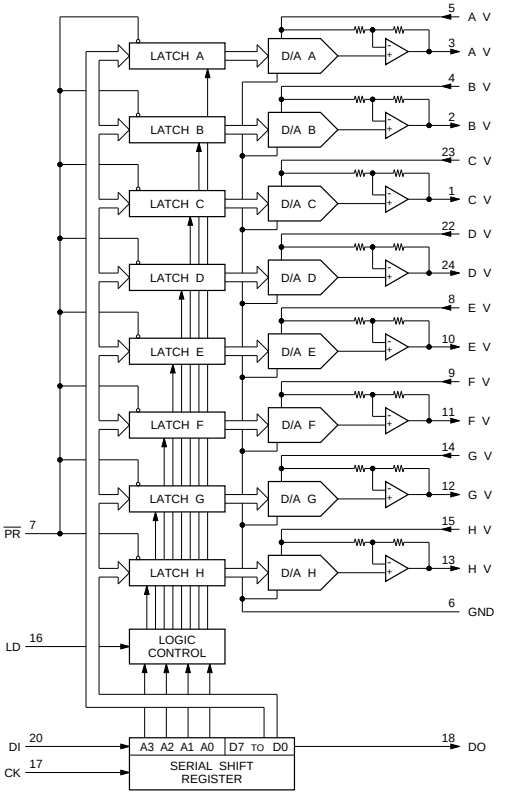
MP7670AS(MICRO POWER SYSTEMS)FLAT PACKAGE

C-MOS 8-BIT 8HANNEL D/A CONVERTER
– TOP VIEW –



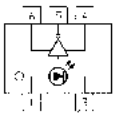
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT
LD ; DATA LOAD CONTROL INPUT
PR ; PRESET INPUT



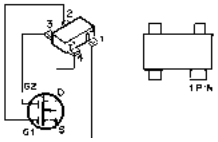


PC410(SHARP)FLAT PACKAGE

OPIC-OUTPUT PHOTO COUPLER
– TOP VIEW –

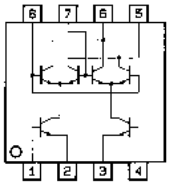


SGM2016M



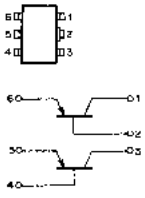
UPA101G(NEC)FLAT PACKAGE

TRANSISTOR ARRAY
– TOP VIEW –



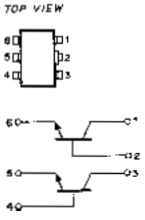
TOP VIEW

XN6401
XN6435



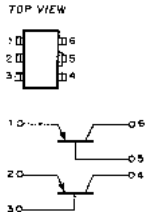
TOP VIEW

XN6501
XN6534



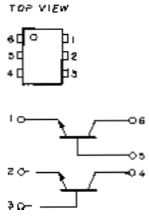
TOP VIEW

XP6435



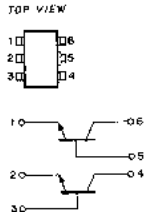
TOP VIEW

XP6501



TOP VIEW

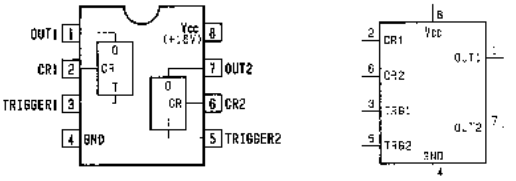
XP6534



IC

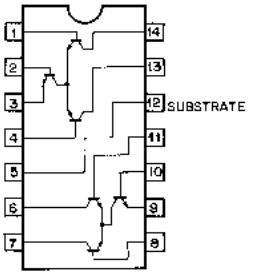
BA225F(ROHM)

CR TIMER
– TOP VIEW –



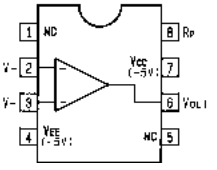
CA3102M(RCA)FLAT PACKAGE

HIGH FREQ.DIFFERNTIAL AMPLIFIER
– TOP VIEW –



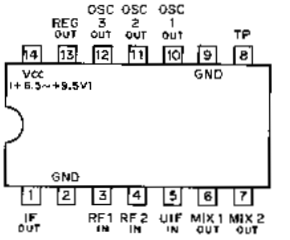
CLC505AJE(COMLINEAR)FLAT PACKAGE

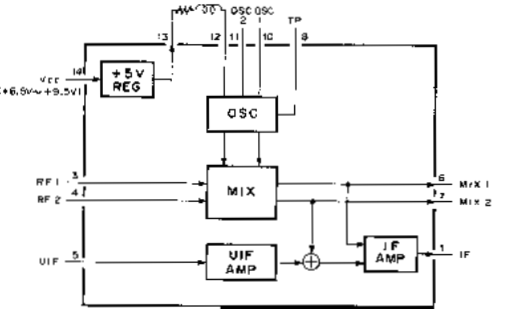
OPERATIONAL AMPLIFIER
– TOP VIEW –



CXA1165M(SONY)FLAT PACKAGE

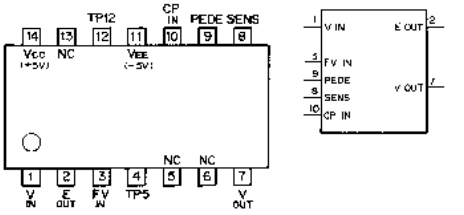
CATV VHF TUNER
– TOP VIEW –



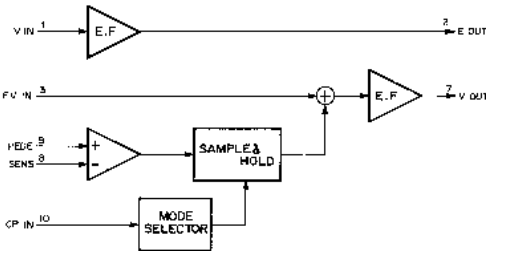


CXA1432M(SONY)FLAT PACKAGE

VIDEO SIGNAL CLAMPER
– TOP VIEW –

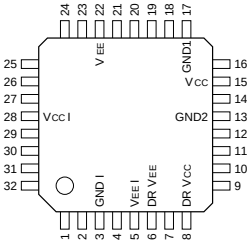


CP IN	; CLAMP PULSE INPUT
E OUT	; BUFFER AMP OUTPUT
FV IN	; FLOATING VIDEO SIGNAL INPUT
PEDE	; CLAMP LEVEL DC INPUT
SENS	; CLAMP POINT SIGNAL INPUT
TP5, TP12	; FOR TEST
V IN	; VIDEO SIGNAL INPUT
V OUT	; VIDEO SIGNAL OUTPUT



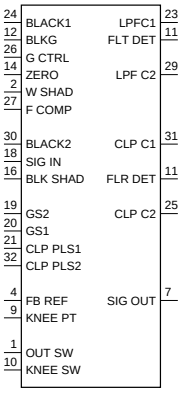
CXA1486Q (SONY)

VIDEO AMPLIFIER FOR VIDEO CAMERA
– TOP VIEW –



VCC, VCC I, DR VCC, = (+5V)
VEE, VEE I, DR VEE, = (-2.5 to -5.5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	OUT SW	17	–	GND1
2	I	W SHAD	18	I	SIG IN
3	–	GND I	19	I	GS2
4	I	FB REF	20	I	GS1
5	–	VEE I	21	I	CLP PLS1
6	–	DR VEE	22	–	VEE
7	O	SIG OUT	23	O	LPF C1
8	–	DR VCC	24	I	BLACK1
9	I	KNEE PT	25	O	CLP C2
10	I	KNEE SW	26	I	G CTRL
11	O	FLR DET	27	I	F COMP
12	I	BLKG	28	–	VCC I
13	–	GND2	29	O	LPF C2
14	I	ZERO	30	I	BLACK2
15	–	VCC	31	O	CLP C1
16	I	BLK SHAD	32	I	CLP PLS2

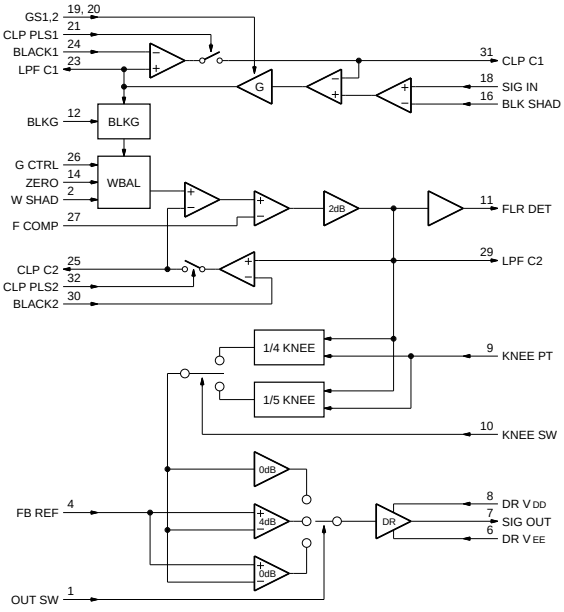


INPUT

BLACK1, 2	; FOR CLAMP DC COMPENSATION
BLKG	; BLANKING SIGNAL
BLK SHAD	; BLACK SHADING CORRECTION SIGNAL
CLP PLS1, 2	; CLAMP PULSE
F COMP	; FLARE COMPENSATION SIGNAL
FB REF	; OUTPUT 2 INVERT AMPLIFY DC ADJUST
G CTRL	; WHITE BALANCE GAIN CONTROL
GS1, 2	; GAIN SELECT
KNEE PT	; KNEE POINT
KNEE SW	; 1/4, 1/5 KNEE SELECT (4.5V=1/4 KNEE, 0V=1/5 KNEE)
OUT SW	; OUTPUT 3 AMPLIFY SELECT
SIG IN	; SIGNAL INPUT
W SHAD	; WHITE SHADING SIGNAL
ZERO	; VARIABLE GAIN AMPLIFY ZERO POINT ADJUST

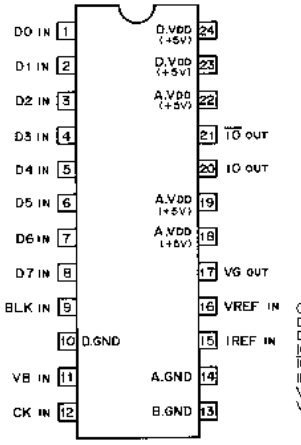
OUTPUT

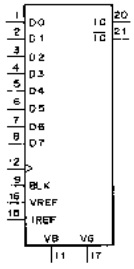
CLP C1, C2	; FOR CLAMP CAPACITANCE
FLR DET	; FLARE DETECT
LPF C1, C2	; CONNECT CAPACITANCE FOR LPF
SIG OUT	; SIGNAL OUTPUT



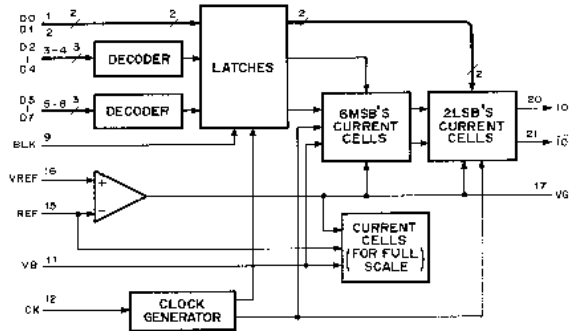
CXD1171M(SONY)FLAT PACKAGE

C-MOS 8-BIT D/A CONVERTER
– TOP VIEW –



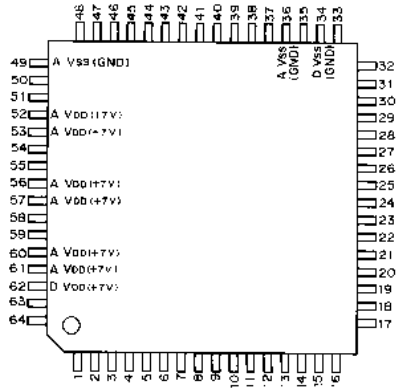


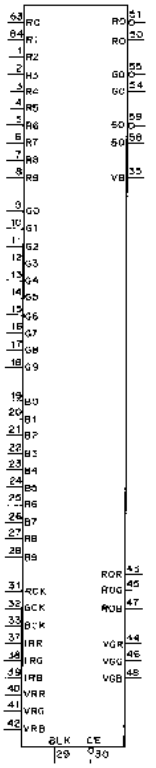
CK : CLOCK INPUT
BLK : BLANKING PULSE INPUT
D0 – 7 : DIGITAL DATA INPUT
IO : CURRENT OUTPUT
$\overline{IO}$: INVERT CURRENT OUTPUT
IREF : CURRENT REFERENCE INPUT
VB, VG : FOR CAPACITOR
VREF : VOLTAGE REFERENCE INPUT



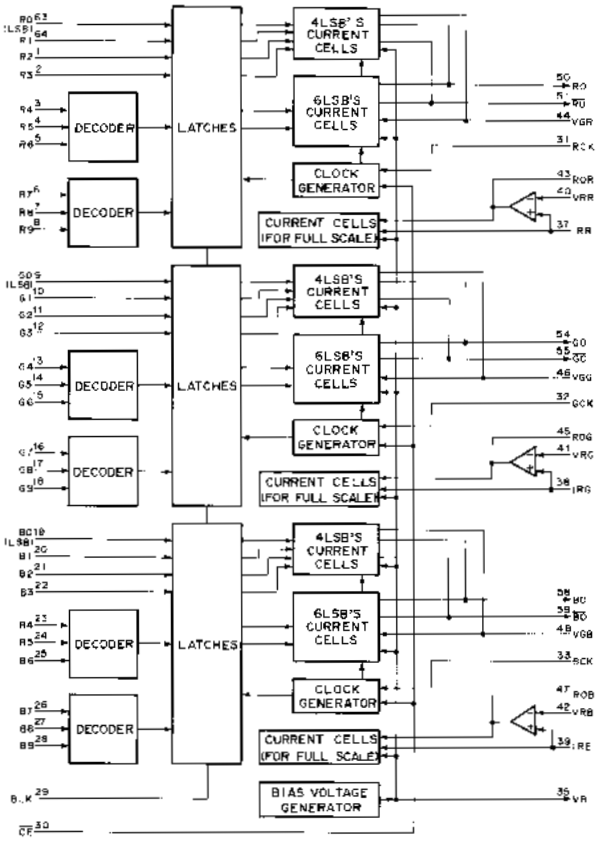
CXD2307R(SONY)FLAT PACKAGE

C-MOS 10-BIT 50MSPS RGB 3CHANNEL D/A CONVERTER
– TOP VIEW –



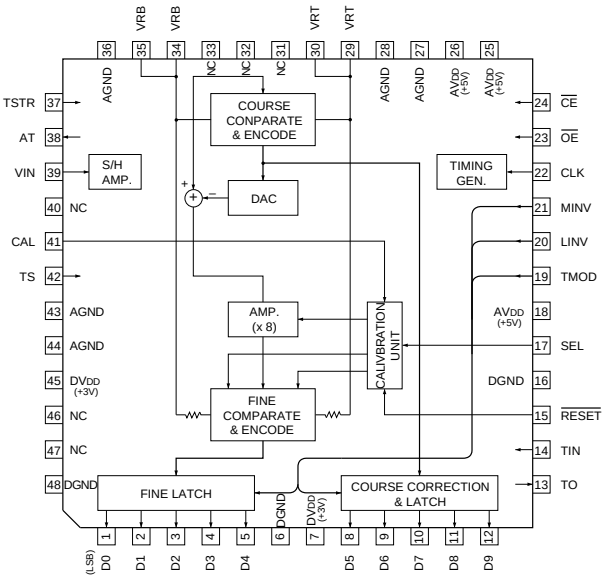


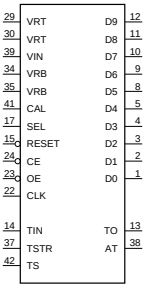
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	R5	17	I	G8	33		DCK
2	I	R6	18	I	G9	34	-	DVSS
3	I	R7	19	I	B0	35	O	VB
4	I	R8	20	I	B1	36	-	AVSS
5	I	R9	21	I	B2	37	-	AVDD
6	I	G0	22	I	B3	38	I	RR
7	I	G1	23	I	B4	39	O	VRR
8	I	G2	24	I	B5	40	-	AVSS
9	I	DCLKIN	25	I	B6	41	I	VRG
10	I	G3	26	I	B7	42	I	VRB
11	I	G4	27	I	B8	43	O	ROR
12	I	G5	28	I	B9	44	I	VGR
13	I	G6	29	I	BLK	45	O	ROG
14	I	G7	30	I	CE	46	I	VGG
15	I	G8	31	I	RCK	47	O	ROB
16	I	G9	32	I	GCK	48	I	VGB
						49	-	AVSS
						50	O	RO
						51	O	RO
						52	-	AVDD
						53	O	GO
						54	O	GO
						55	-	AVSS
						56	O	BO
						57	O	BO
						58	-	AVDD
						59	-	AVDD
						60	-	AVSS
						61	-	AVSS
						62	-	AVDD
						63	-	AVDD
						64	-	AVSS



CXD2310R(SONY)

C-MOS 10-BIT 20MSPS VIDEO A/D CONVERTER
– TOP VIEW –



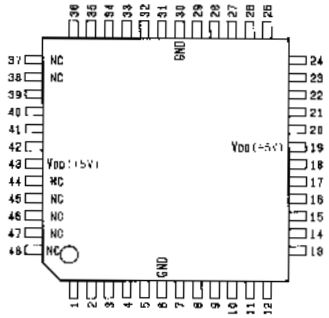


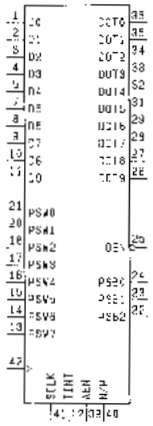
INPUT
CAL ; CALIBRATION PULSE INPUT
CE ; CHIP ENABLE
CLK ; CLOCK
LINV ; OUTPUT (D0-D8) INVERSION
MINV ; OUTPUT (D9) INVERSION
OE ; DIGITAL DATA OUTPUT ENABLE
RESET ; CALIBRATION CIRCUIT RESET
SEL ; OUTPUT DATA (D5-D9) SELECT FOR CALIBRATION (4-CLOCK) HIGH; THROUGH OUTPUT, LOW; DATA FIXED AS WITH D0-D4
TIN ; TEST SIGNAL INPUT
TMOD ; TEST MODE
TS ; TEST SIGNAL INPUT
TSTR ; TEST SIGNAL INPUT
VRB ; REFERENCE BOTTOM VOLTAGE
VRT ; REFERENCE TOP VOLTAGE

OUTPUT
AT ; TEST SIGNAL OUTPUT
D0-D9 ; DIGIRAL DATA OUTPUT
TO ; TEST PIN

CXK1203AR(SONY)FLAT PACKAGE

C-MOS DIGITAL LINE MEMORY
– TOP VIEW –

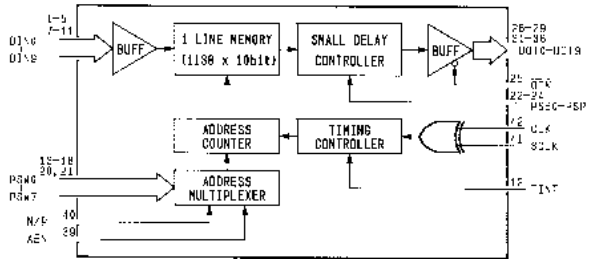




(VDD = +5V)

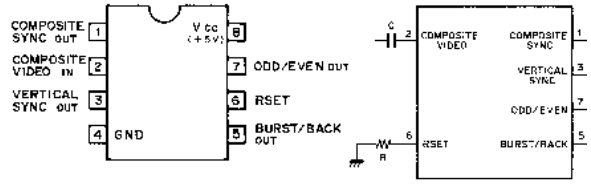
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	DI0	13	I	PSW7	25	I	OEN	37	–	N.C
2	I	DI1	14	I	PSW6	26	O	DOT9	38	–	N.C
3	I	DI2	15	I	PSW5	27	O	DOT8	39	I	AEN
4	I	DI3	16	I	PSW4	28	O	DOT7	40	I	N/P
5	I	DI4	17	I	PSW3	29	O	DOT6	41	I	SCLK
6	–	GND	18	I	PSW2	30	–	GND	42	I	CLK
7	I	DI5	19	–	VDD	31	O	DOT5	43	–	VDD
8	I	DI6	20	I	PSW1	32	O	DOT4	44	–	N.C
9	I	DI7	21	I	PSW0	33	O	DOT3	45	–	N.C
10	I	DI8	22	I	PSB2	34	O	DOT2	46	–	N.C
11	I	DI9	23	I	PSB1	35	O	DOT1	47	–	N.C
12	I	TINT	24	I	PSB0	36	O	DOT0	48	–	N.C

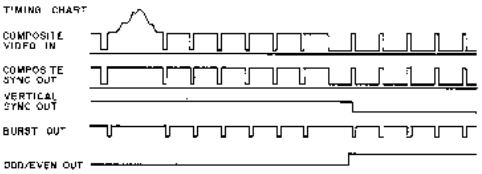
```
AEN         ;LINE MEMORY SELECT
CLK         ;CLOCK
DIN0-DIN9   ;VIDEO DATA INPUT
DOT0-DOT9   ;VIDEO DATA OUTPUT
N/P         ;NTSC/PAL/SECAM SELECT
OEN         ;OUTPUT ENABLE
PSB0-PSB2   ;DELAY STEP SELECT(1 BITxN)
PSW0-PSW7   ;DELAY STEP SELECT(8 BITxN)
SCLK        ;CLOCK EDGE SELECT
TINT        ;TEST
```



EL4581CS(ELT)FLAT PACKAGE

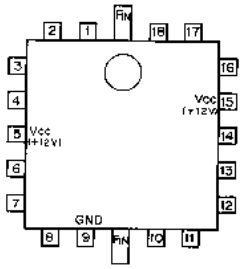
VIDEO SYNC SEPARATOR
– TOP VIEW –

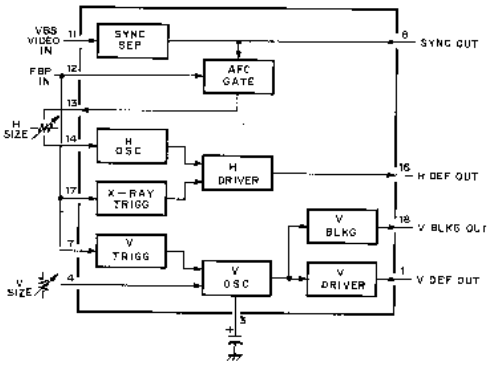




HA11423MP(HITACHI)FLAT PACKAGE

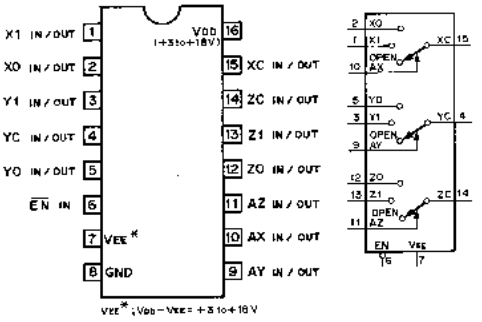
TV H/V SYNC SIGNAL PROCESSOR
– TOP VIEW –





HD14053BFP(HITACHI)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/
DEMULTIPLEXERS
– TOP VIEW –

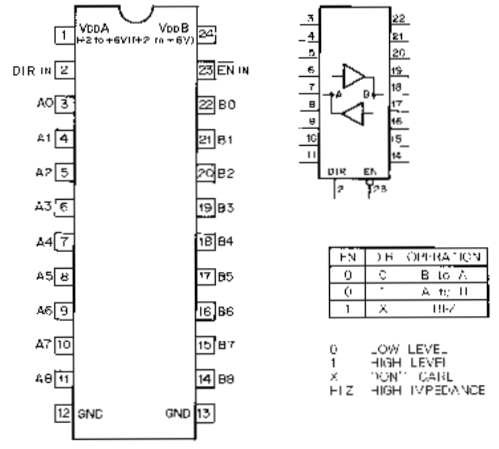


CONT. INPUTS		ON
EN	A (X, Y, Z)	CHANNEL
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

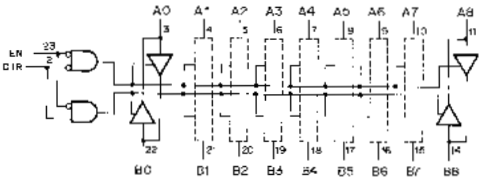
HD151015T(HITACHI)FLAT PACKAGE

C-MOS 9-BIT LEVEL SHIFTER/TRANSCEIVER WITH 3-STATE OUTPUTS
– TOP VIEW –



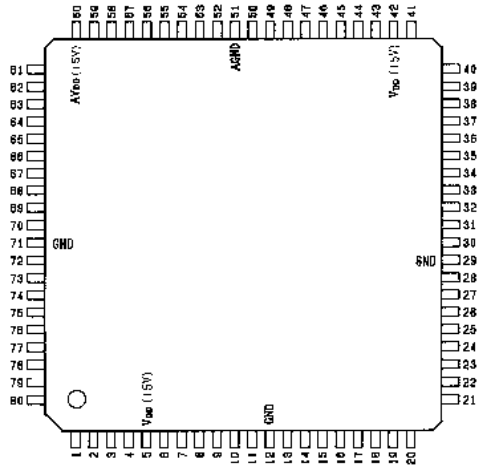
EN	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

0 LOW LEVEL
1 HIGH LEVEL
X DON'T CARE
HI-Z HIGH IMPEDANCE



HD6475328F10(HITACHI)

C-MOS 16-BIT MICROPROCESSOR
– TOP VIEW –



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/W	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/DS	29	–	GND	56	I/O	P84/AN4
3	I/O	P23/RD	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/WR	31	I/O	P51/A9	58	I/O	P86/AN6
5	–	Vcc	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	–	AVcc
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTCA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	STBY	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	RES	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	–	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	–	Vcc	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	–	Vss
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/Φ
19	I/O	P36/D6	46	I/O	P73/FTI3/TMHI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/BACK
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/BREQ
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/WAIT
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/IRQ0
24	I/O	P43/A3	51	–	AGND	78	I/O	P12/IRQ1
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/AS
27	I/O	P46/A6	54	I/O	P82/AN2			

INPUT

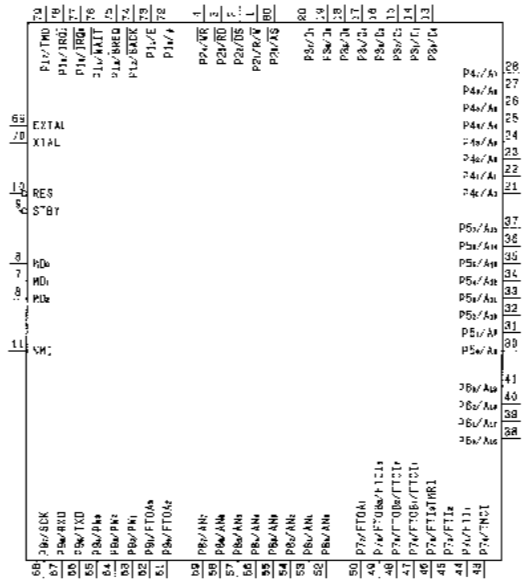
AN0 – AN7	: ANALOG INPUT
BREQ	: BUS REQUEST
EXTAL	: CONNECTED TO CRYSTAL OSCILLATOR
FTCI1 – FTCI3	: FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1 – FTI3	: FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1	: INTERRUPTION REQUEST 0 AND 1
MD0 – MD2	: MODE SETTING
NMI	: NON MASKABLE INTERRUPTION
P80 – P87	: PORT 8
RES	: RESET
RXD	: RECEIVE DATA
STBY	: STANDBY
TMCI	: 8-BIT TIMER CLOCK INPUT
TMRI	: 8-BIT TIMER COUNTER RESET INPUT
WAIT	: WAIT
XTAL	: CONNECTED TO CRYSTAL OSCILLATOR

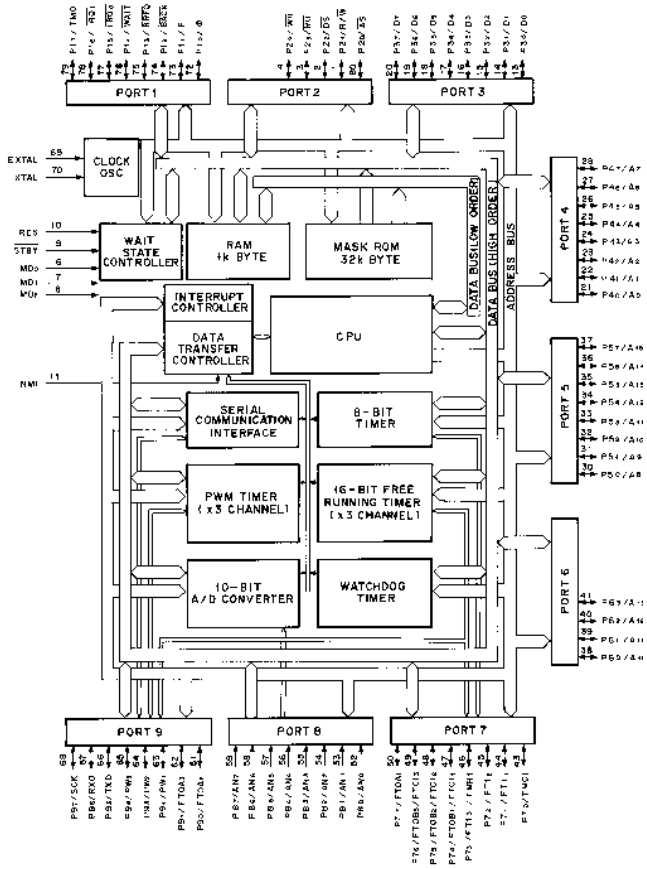
OUTPUT

A0 – A19	: ADDRESS BUS
AS	: ADDRESS STROBE
BACK	: BUS REQUEST ACKNOWLEDGE
DS	: DATA STROBE
E	: ENABLE CLOCK
FTOA1 – FTOA3	: FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1 – FTOB3	: FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1 – PW3	: PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	: READ/WRITE
RD	: READ
TMO	: 8-BIT TIMER OUTPUT
TXD	: SEND DATA
WR	: WRITE
Φ	: SYSTEM CLOCK

INPUT/OUTPUT

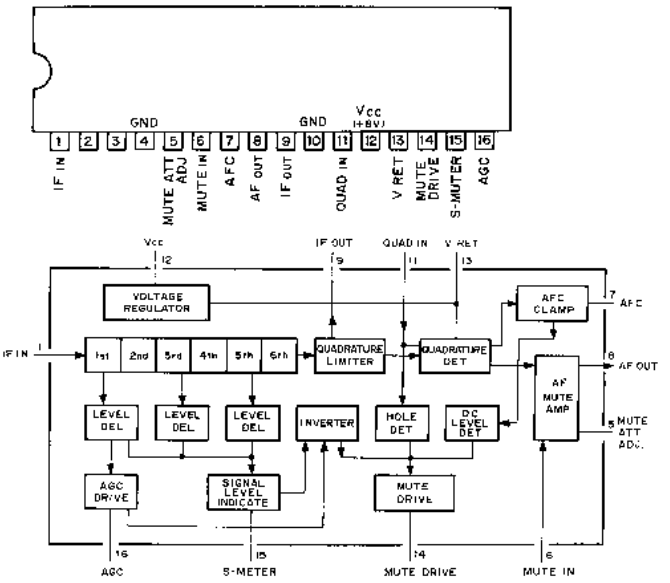
D0 – D7	: DATA BUS
P10 – P17	: PORT 1
P20 – P24	: PORT 2
P30 – P37	: PORT 3
P40 – P47	: PORT 4
P50 – P57	: PORT 5
P60 – P63	: PORT 6
P70 – P77	: PORT 7
P90 – P97	: PORT 9
SCK	: SERIAL CLOCK INPUT/OUTPUT





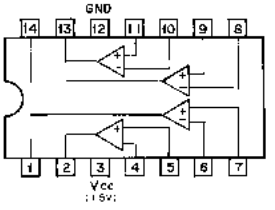
LA1140(SANYO)

IF AMP,LIMITTER,DETECTOR,MUTING,+ FM CS



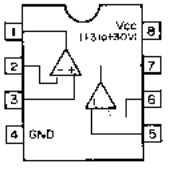
LM339NS(TI)FLAT PACKAGE
LM339PW(TI)FLAT PACKAGE

QUAD COMPARATORS
– TOP VIEW –



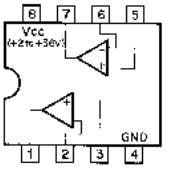
LM358PS(TI)FLAT PACKAGE
UPC358G2(NEC)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
– TOP VIEW –



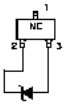
LM393PS(TI)FLAT PACKAGE
UPC393G2(NEC)FLAT PACKAGE

DUAL VOLTAGE COMPARATORS
– TOP VIEW –



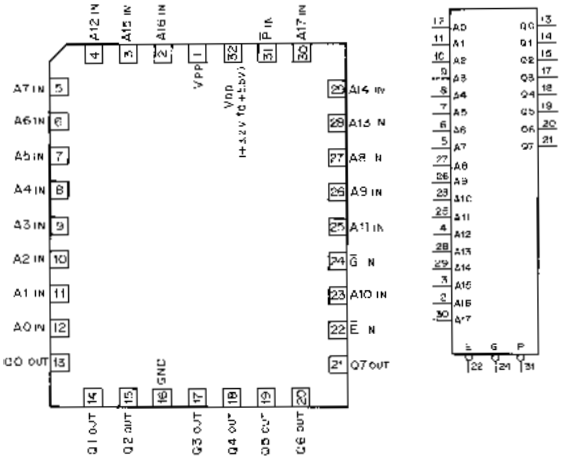
LM4040BIM3X(NS)

PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE
– TOP VIEW –



M27V201-200L6(SGS)CHIP CARRIER

C-MOS 2M(256X8)-BIT UV ERASABLE PROM AND OTP ROM
– TOP VIEW –



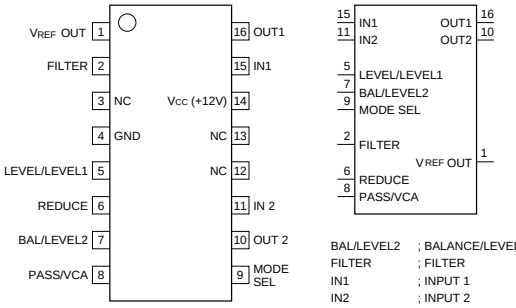
A0 – A17 ; ADDRESS INPUTS
Q0 – Q7 ; DATA OUTPUTS
E ; CHIP ENABLE INPUT
G ; OUTPUT ENABLE INPUT
P ; PROGRAM INPUT
VPP ; PROGRAM SUPPLY (12.75V)

MODE	E	G	P	A9	VPP	Q0 Q7
READ	0	0	X	X	X	DATA OUT
OUTPUT DISABLE	0	1	X	X	X	HI-Z
PROGRAM	0	1	L	X	VPP	DATA IN
VERIFY	0	0	1	X	VPP	DATA OUT
PROGRAM INHIBIT	1	X	X	X	VPP	HI-Z
STANDBY	1	X	X	X	X	HI-Z
ELECTRONIC SIGNATURE	0	0	1	VH	VCC	CODES

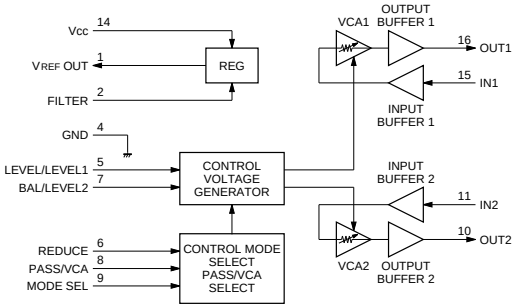
0 ; INPUT LOW VOLTAGE
1 ; INPUT HIGH VOLTAGE
X ; DON'T CARE
VH ; 12 V ± 0.5 V
HI-Z ; HIGH IMPEDANCE

M51132FP(MITSUBISHI)FLAT PACKAGE

2-CHANNEL ELECTRONIC LEVEL CONTROL
– TOP VIEW –

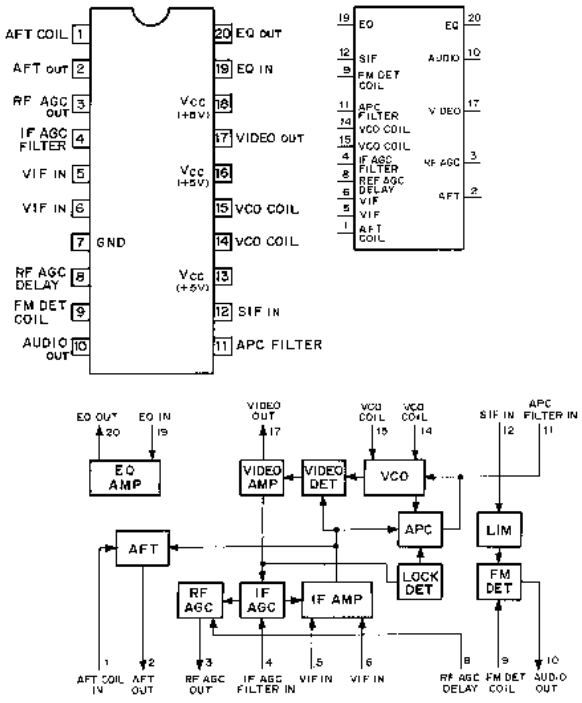


BAL/LEVEL2	; BALANCE/LEVEL2 CONTROL
FILTER	; FILTER
IN1	; INPUT 1
IN2	; INPUT 2
MODE SEL	; MODE SELECT
OUT1	; OUTPUT 1
OUT2	; OUTPUT 2
PASS/VCA	; PASS/VCA CONTROL SWITCH
REDUCE	; SWITCHING NOISE REDUCE
LEVEL/LEVEL1	; LEVEL/LEVEL1 CONTROL
VREF OUT	; REFERENCE VOLTAGE OUTPUT



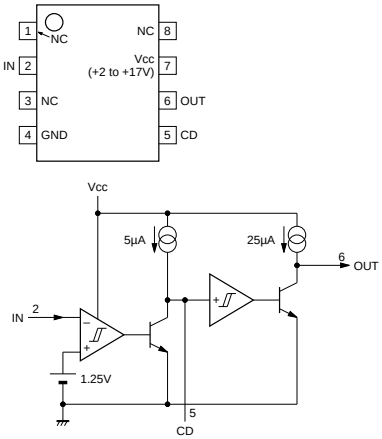
M52313SP(MITSUBISHI)

PLL VIF/SIF
– TOP VIEW –



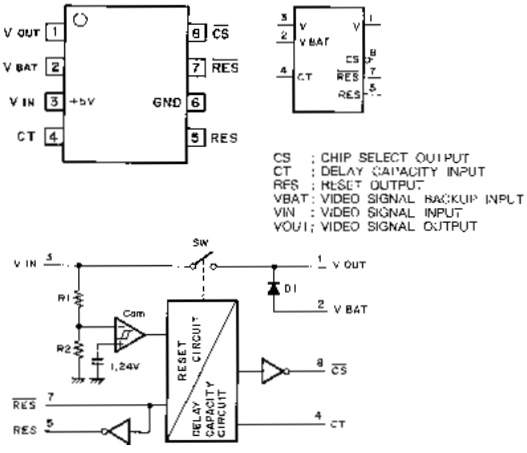
M51958A(MITSUBISHI)FLAT PACKAGE

VOLTAGE DETECT DELAY
– TOP VIEW –



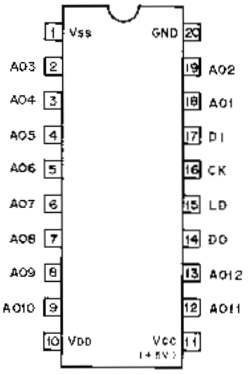
M62021FP(MITSUBISHI)FLAT PACKAGE

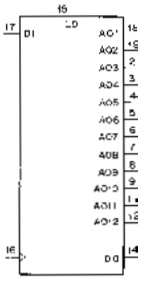
SELECTION SW BUILT-IN SYSTEM RESET
– TOP VIEW –



M62352GP(MITSUBISHI)FLAT PACKAGE

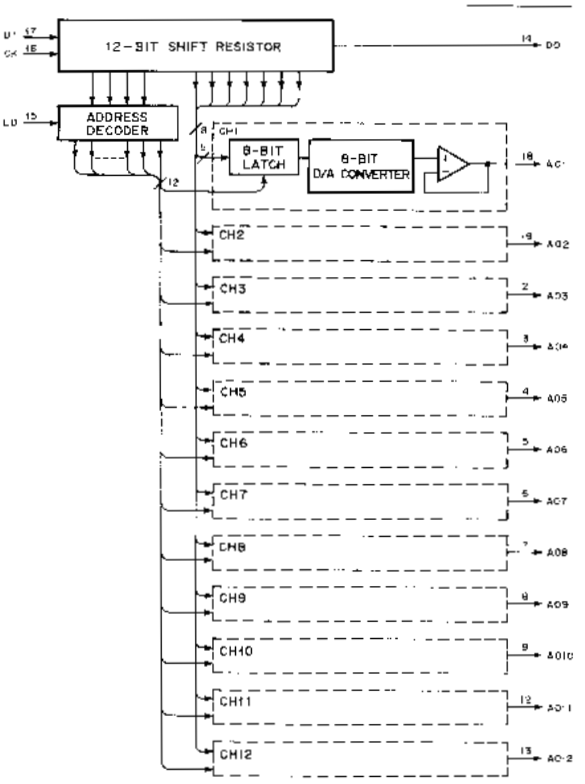
C-MOS 8-BITx12 CHANNEL D/A CONVERTER (WITH BUFFER OPERATIONAL AMPLIFIER)
– TOP VIEW –





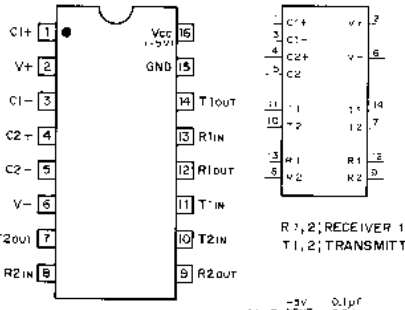
AO1 – AO12 : 8-BIT D/A OUTPUT
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT

NOTE :
3.5V ≤ Vdd ≤ Vcc
– 3.5V ≤ Vss ≤ Vcc

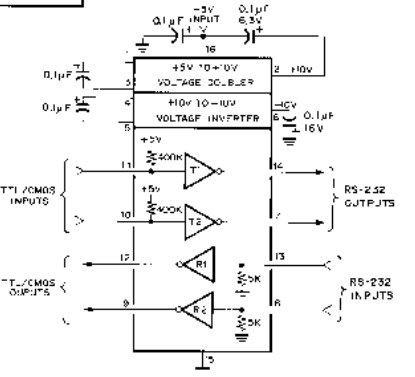


MAX202CSE(MAXIM)

RS-232 TRANSMITTER/RECEIVER
– TOP VIEW –

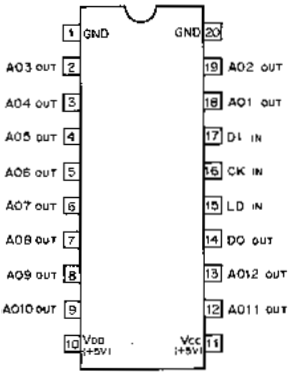


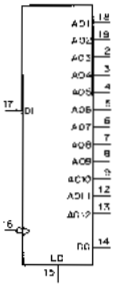
R1,2 ; RECEIVER 1,2
T1,2 ; TRANSMITTER 1,2



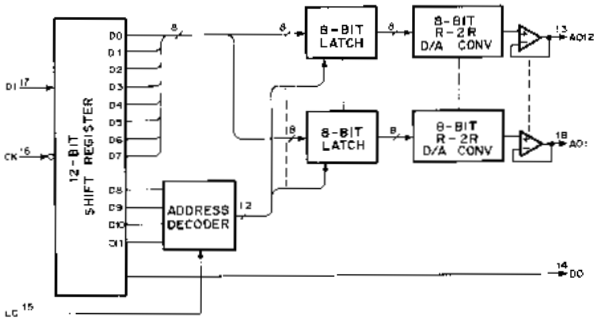
MB88346BPFV(FUJITSU)FLAT PACKAGE(SMALL)

C-MOS 8-BIT D/A CONVERTER
– TOP VIEW –



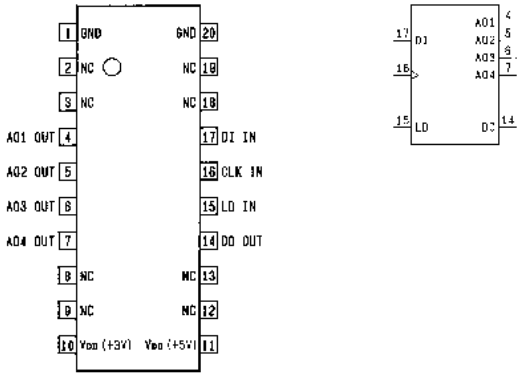


AO1 – AO12 ; 8-BIT D/A OUTPUTS
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT
LD ; DATA LOAD CONTROL INPUT (H : LOAD)



MB88351PFV(FUJITSU)FLAT PACKAGE

C-MOS 12-BIT D/A CONVERTER WITH OPERATIONAL AMPLIFIER
– TOP VIEW –

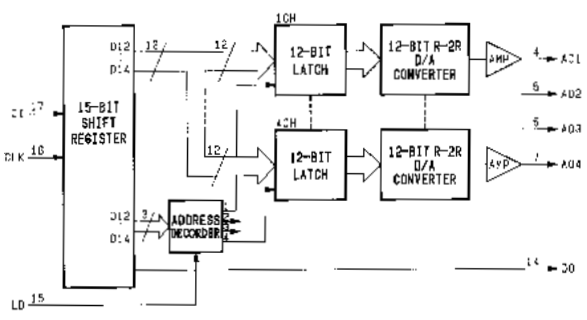


INPUT
CLK ; SHIFT CLOCK
DI ; SERIAL DATA
LD ; DECODER AND D/A REGISTER TO LOAD

OUTPUT
AO1 – AO4 ; ANALOG DATA
DO ; MSB BIT DATA IN 15 BIT SHIFT REGISTER

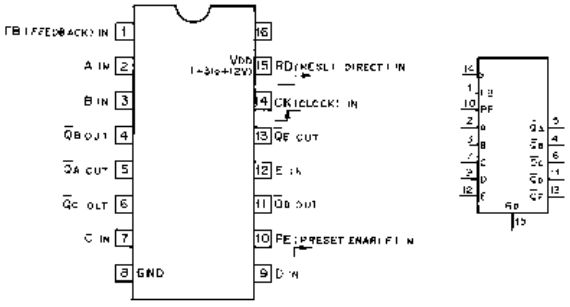
D12	D13	D14	ADDRESS SELECT
0	0	0	DON'T CARE
0	0	1	AO1 SELECT
0	1	0	AO2 SELECT
0	1	1	AO3 SELECT
1	0	0	AO4 SELECT
1	0	1	DON'T CARE
1	1	0	DON'T CARE
1	1	1	DON'T CARE

0 ; LOW LEVEL
1 ; HIGH LEVEL



MC14018BF(MOTOROL)FLAT PACKAGE

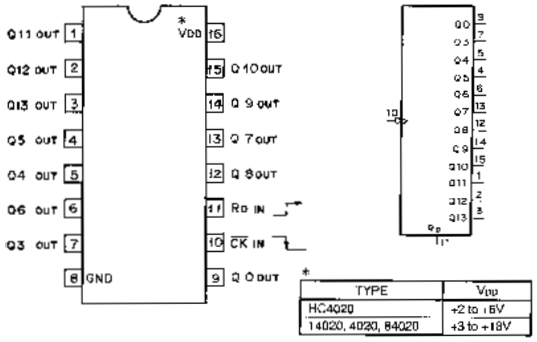
C-MOS PRESETTABLE DIVIDE-BY-N COUNTER
– TOP VIEW –



DIVIDE BY	CONNECT TO FB INPUT	VIA	RESULTS FROM EACH $\overline{Q}$ OUTPUT
10	$\overline{Q}_E$	DIRECT	5 COUNTS HIGH, 5 COUNTS LOW
9	$\overline{Q}_D$, $\overline{Q}_E$	AND GATE	5 COUNTS HIGH, 4 COUNTS LOW
8	$\overline{Q}_D$	DIRECT	4 COUNTS HIGH, 4 COUNTS LOW
7	$\overline{Q}_C$, $\overline{Q}_D$	AND GATE	4 COUNTS HIGH, 3 COUNTS LOW
6	$\overline{Q}_C$	DIRECT	3 COUNTS HIGH, 3 COUNTS LOW
5	$\overline{Q}_B$, $\overline{Q}_C$	AND GATE	3 COUNTS HIGH, 2 COUNTS LOW
4	$\overline{Q}_B$	DIRECT	2 COUNTS HIGH, 2 COUNTS LOW
3	$\overline{Q}_A$, $\overline{Q}_B$	AND GATE	2 COUNTS HIGH, 1 COUNTS LOW
2	$\overline{Q}_A$	DIRECT	1 COUNTS HIGH, 1 COUNTS LOW

MC14020BF(MOTOROLA)FLAT PACKAGE

C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER
– TOP VIEW –



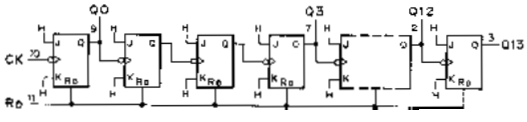
TYPE	VDD
HC4020	+2 to +6V
14020, 4020, 84020	+3 to +18V

COUNT		BINARY OUTPUTS											
		Q13	Q12	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q0
0	0000	0	0	0	0	0	0	0	0	0	0	0	0
1	0001	0	0	0	0	0	0	0	0	0	0	0	1
2	0002	0	0	0	0	0	0	0	0	0	0	1	0
3	0003	0	0	0	0	0	0	0	0	0	0	1	1
4	0004	0	0	0	0	0	0	0	0	0	1	0	0
16380	4FFC	1	1	1	1	1	1	1	1	1	1	1	0
16381	4FFD	1	1	1	1	1	1	1	1	1	1	1	1
16382	4FFE	1	1	1	1	1	1	1	1	1	1	1	0
16383	4FFF	1	1	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

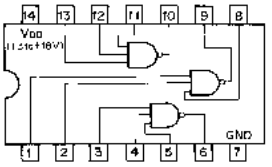
0 ; LOW LEVEL
1 ; HIGH LEVEL

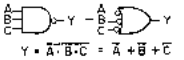
RD	Q13-Q0
1	ALL LOW
0	COUNT



MC14023BF(MOTOROLA)FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
– TOP VIEW –



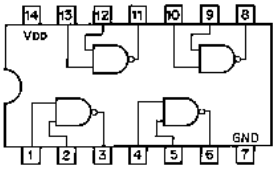


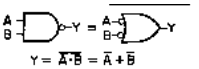
A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC74HC00AF(MOTOROLA)FLAT PACKAGE
TC74HC00AF(TOSHIBA)FLAT PACKAGE
TC74VHC00FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT NAND GATES
– TOP VIEW –





A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

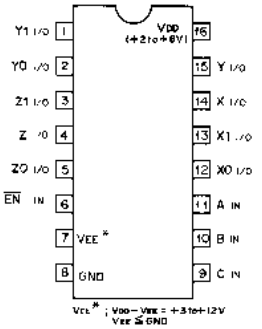
0 ; LOW LEVEL
1 ; HIGH LEVEL

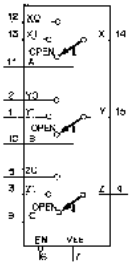
NOTE :

TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N 74ACT00 TYPE	+5V +4.5 to +5.5V
OTHER TYPES	+2 to +6V

MC74HC4053F(MOTOROLA)FLAT PACKAGE
TC74HC4053AFS(TOSHIBA)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –



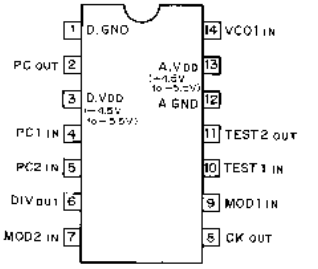


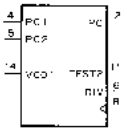
CONTROL INPUTS				ON CHANNEL		
EN	SELECT					
	C	B	A			
0	0	0	0	Z0	Y0	X0
0	0	0	1	Z0	Y0	X1
0	0	1	0	Z0	Y1	X0
0	0	1	1	Z0	Y1	X1
0	1	0	0	Z1	Y0	X0
0	1	0	1	Z1	Y0	X1
0	1	1	0	Z1	Y1	X0
0	1	1	1	Z1	Y1	X1
1	X	X	X	OPEN		

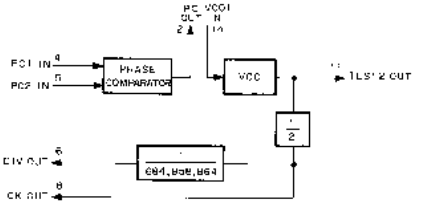
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MN6790S(MATSUSHITA)

C-MOS CLOCK GENERATOR
– TOP VIEW –





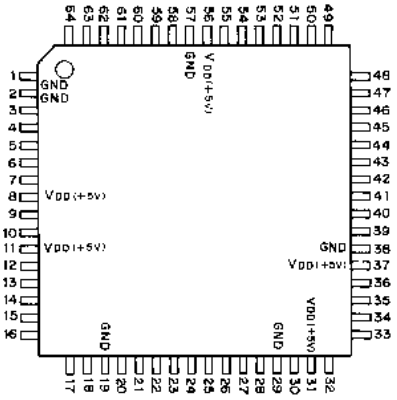


MOD1	MOD2	FREQUENCY RATIO	VCO	VCO1
0	0	1/684	OSCILLATION	
0	1	1/668		
1	0	1/664		
1	1	—	STANDSTILL	CK – DIV = _

0 ; LOW LEVEL
1 ; HIGH LEVEL

MN8232A(MATSUSHITA)

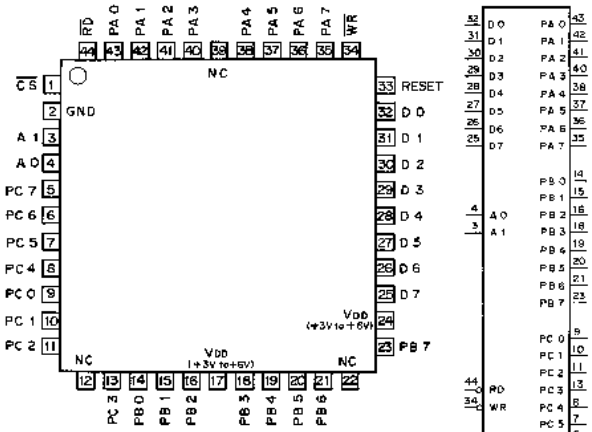
PICTURE IN PICTURE/PICTURE OUT PICTURE CONTROLLER
– TOP VIEW –



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	–	GND	17	O	RY	33	O	YS	49	O	RAS
2	–	GND	18	O	BY	34	I	HP	50	O	WE
3	–	VRB	19	–	GND	35	O	PPC	51	O	DT
4	I	TEST0	20	I	RST	36	I	PVC	52	O	SC
5	I	Y	21	I	SCL	37	–	V_{DD}	53	I	LLV1
6	I	RY	22	O	SDA	38	–	GND	54		LLV0
7	I	BY	23	I	VPD	39	O	A0	55		DI3
8		V_{DD}	24	I	VCO	40	O	A1	56	–	V_{DD}
9		VAT	25	I	CKCN1	41	O	A2	57		GND
10		TEST1	26	I	CVC	42	O	A3	58		DI2
11		V_{DD}	27	O	CPC	43	O	A4	59		DI1
12		IREF	28	I	HC	44	O	A5	60		DI0
13	I	VRFF	29	–	GND	45	O	A6	61	I/O	DO3
14	O	Y	30	I	IREFVC	46	O	A7	62	I/O	DO2
15	I	COMP	31	–	V_{DD}	47	O	A8	63	I/O	DO1
16	I	VIB	32	O	CLAMP	48	O	CAS	64	I/O	DO0

MSM82C55A-2GS(OKI)FLAT PACKAGE

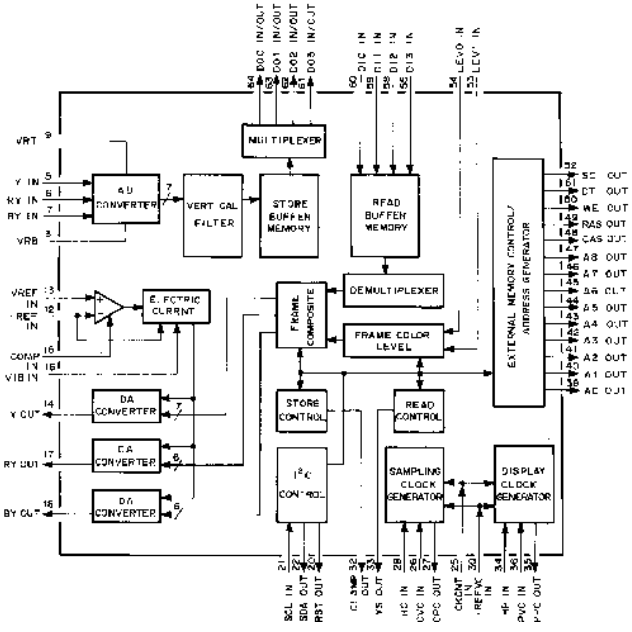
C-MOS PROGRAMMABLE PERIPHERAL INTERFACE
– TOP VIEW –

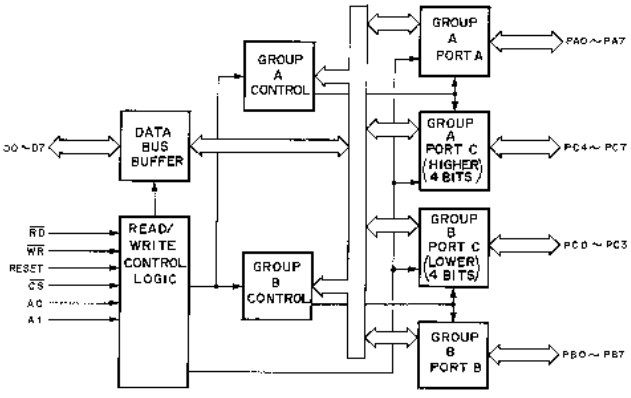


A1	A0	$\overline{CS}$	$\overline{WR}$	$\overline{RD}$	OPERATION
0	0	0	1	0	PORT A → DATA BUS
0	1	0	1	0	PORT B → DATA BUS
1	0	0	1	0	PORT C → DATA BUS
1	1	0	1	0	NO OPERATION
0	0	0	0	1	DATA BUS → PORT A
0	1	0	0	1	DATA BUS → PORT B
1	0	0	0	1	DATA BAS → PORT C
1	1	0	0	1	DATA BUS → CONTROL REGISTER
X	X	1	X	X	HIGH IMPEDANCE

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

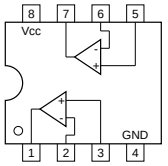
A0, A1 ; PORT SELECT ADDRESS
$\overline{CS}$; CHIP SELECT
D0~7 ; DATA BUS
PA0~7 ; PORT A IN/OUT
PB0~7 ; PORT B IN/OUT
PC0~7 ; PORT C IN/OUT
$\overline{RD}$; READ
$\overline{WR}$; WRITE





NJM3414AM(SNM)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –

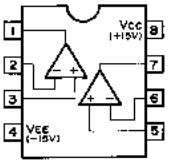


NOTE:

TYPE	Vcc
TA75358P	+12V
NJM3414M RC3414M	+15V
M5223FP	+36V

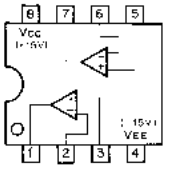
NJM4556AM-A(NEC)FLAT PACKAGE

OPERATIONAL AMPLIFIER\(WIDE BAND, DECOMPENSATED)
– TOP VIEW –



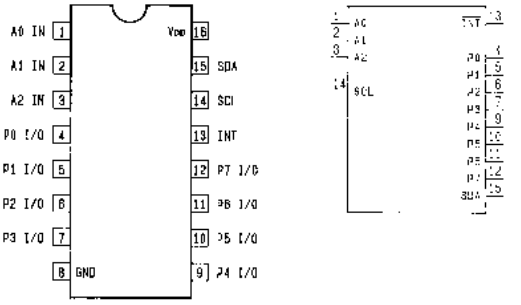
NJM4558V(JRC)FLAT PACKAGE
NJU7022M(JRC)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –



PCF8574AT(PHILIPS)
PCF8574T(PHILIPS)

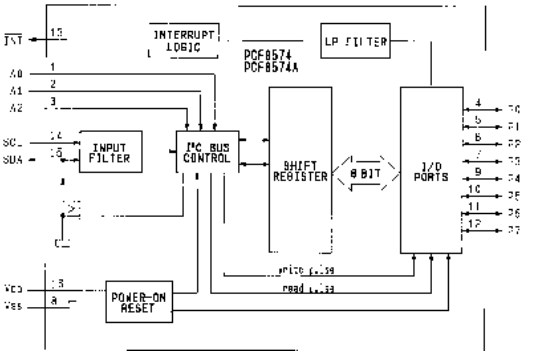
C-MOS REMOTE 8-BIT I/O EXPANDER
– TOP VIEW –



INPUT
A0~A2 ; ADDRESS INPUT
SCL ; SYSTEM CLOCK LINE

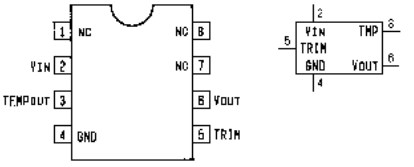
OUTPUT
INT ; INTERRUPT OUTPUT
SDA ; SERIAL DATA LINE

INPUT/OUTPUT
P0~P7 ; 8 BITS QUASI-BIDIRECTIONAL I/O PORT



REF-03GS(PMI)

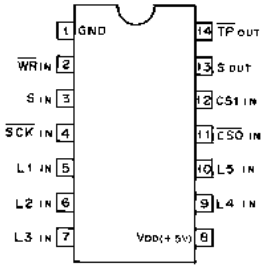
REFERENCE/TEMPERATURE TRANSDUCER
– TOP VIEW –

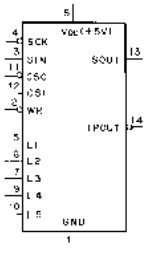


VIN ; INPUT VOLTAGE(+4.5Vto+33V)
TEMPOUT ; TEMPERATURE TRANSDUCER VOLTAGE OUTPUT
TRIMIN ; OUTPUT SIGNAL TRIMMING
VOUT ; OUTPUT VOLTAGE(+2.5V)

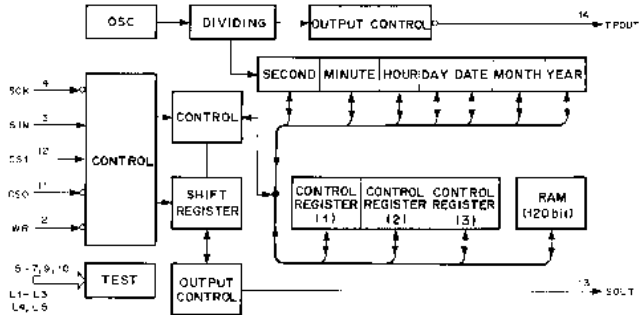
RTC4553B(EPSON)

C-MOS REAL TIME CLOCK
– TOP VIEW –



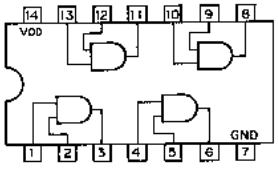


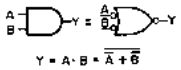
INPUT
CS : CHIP SELECT (L : ACCESS ENABLE, H : SOUT HIGH Z)
CS : POWER DOWN DETECTION
L1 – L5 : TEST IN
SCK : SERIAL SYNC SIGNAL
SIN : SERIAL ADDRESS/DATA
WR : WRITING SELECT (L : WRITING, H : READING)
OUTPUT
SOUT : SERIAL ADDRESS/DATA
TPOUT : REFERENCE SIGNAL



SN74HC08ANS(TI)FLAT PACKAGE
SN74HC08APW(TI)FLAT PACKAGE
TC74VHC08FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT AND GATES
– TOP VIEW –





A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

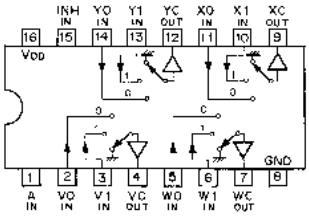
0 ; LOW LEVEL
1 ; HIGH LEVEL

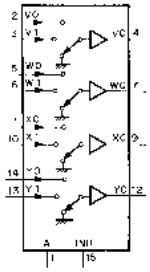
NOTE :

TYPE	V_{DD}
TC74AC08 TYPE MC74AC108M	+ 2 to + 5.5V
TC40H	+ 2 to + 8V
OTHER TYPES	+ 2 to + 6v

SN74HC157APW(TI)FLAT PACKAGE
TC74VHC157FS(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
– TOP VIEW –





NOTE :

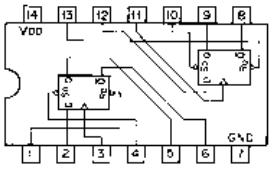
TYPE	V_{DD}
74AC ~ /74FCT	– 5V
TC74AC157P TC74AC157	– 2 to – 5.5V
TC40H	+ 2 to – 8V
OTHER TYPES	+ 2 to – 6V

CONT. IN		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

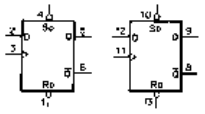
SN74HC74ANS(TI)FLAT PACKAGE
TC74VHC74F(TOSHIBA)FLAT PACKAGE
TC74VHC74FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
– TOP VIEW –



INPUTS				OUTPUTS	
$\overline{S}_D$	$\overline{R}_D$	CK	D	Qn+1	$\overline{Q}_{n+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Q_n	$\overline{Q}_n$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

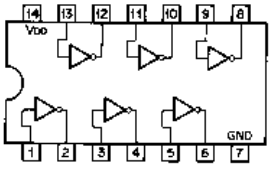


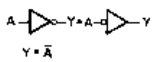
NOTE :

TYPE	V_{DD}
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

SN74HCT04APW(TOSHIBA)FLAT PACKAGE
TC74VHC04FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS HEX INVERTERS
– TOP VIEW –





A	Y
0	1
1	0

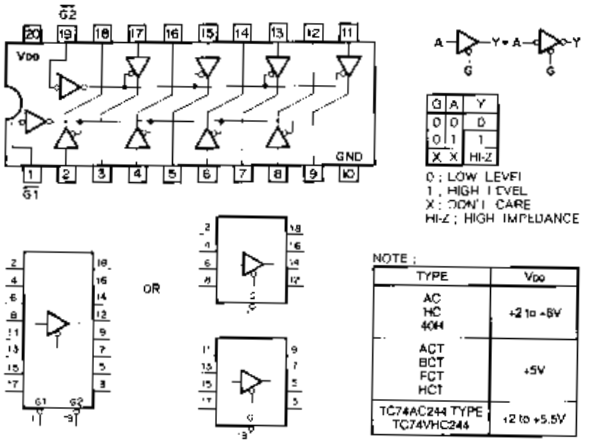
0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE :

TYPE	V_{DD}
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

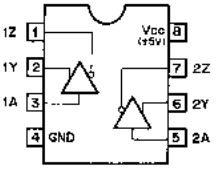
SN74HCT244APW-E05(TI)FLAT PACKAGE
TC74VHC244FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
– TOP VIEW –



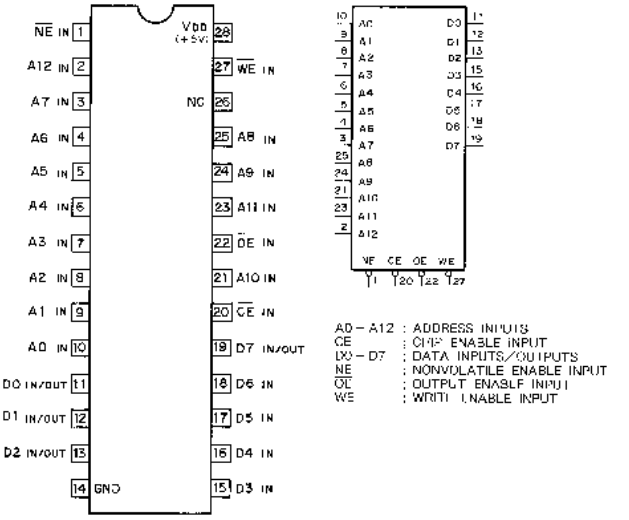
SN75158PS(TI)

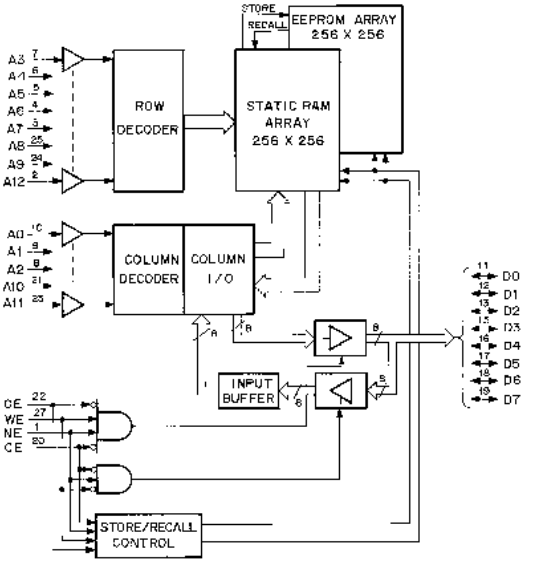
DUAL DIFFERENTIAL LINE DRIVE
– TOP VIEW –



STK10C68-5S35(SIMTEK)FLAT PACKAGE

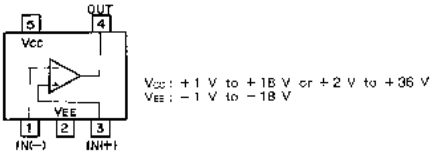
C-MOS 8KX8-BIT NONVOLATILE STATIC RAM
– TOP VIEW –





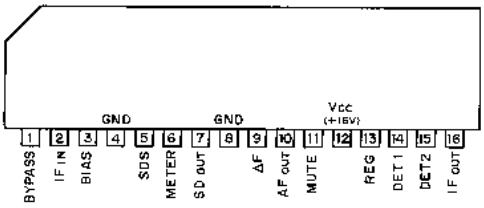
TA75S393F(TOSHIBA)

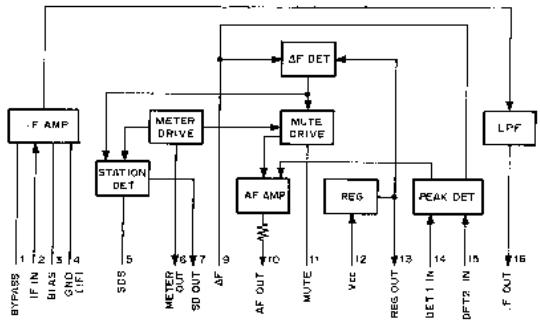
SINGLE COMPARATOR
– TOP VIEW –



TA8129Z(TOSHIBA)

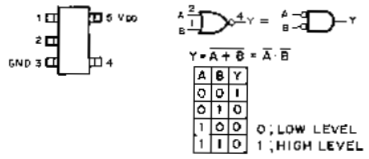
FM IF SYSTEM (DIFFERENTIAL PEAK DETECT)
– TOP VIEW –





TC4S01F(TOSHIBA)CHIP PACKAGE
TC7S02FU(TOSHIBA)CHIP PACKAGE
TC7SH02FU(TOSHIBA)CHIP PACKAGE

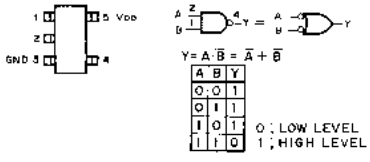
C-MOS 2-INPUT NOR GATE
– TOP VIEW –



TYPE	VDD
4S01F	+ 3 to + 18V
7S02F 7S02FU 7SH02FU	+ 2 to + 6V

TC4S11F(TOSHIBA)CHIP PACKAGE
TC7S00FU(TOSHIBA)CHIP PACKAGE

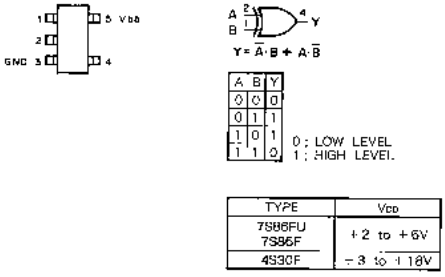
C-MOS 2-INPUT NAND GATE
– TOP VIEW –



TYPE	VDD
7S00F 7S00FU	+ 2 to + 6V
4S11F 4SU11F	+ 3 to + 18V
7SH00FU	+ 2 to + 5.5V

TC4S30F(TOSHIBA)CHIP PACKAGE
TC7S86FU(TOSHIBA)CHIP PACKAGE

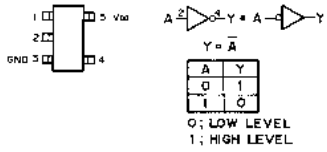
C-MOS 2-INPUT EXCLUSIVE OR GATE
– TOP VIEW –



TYPE	VDD
7S86FU 7S86F	+ 2 to + 6V
4S30F	+ 3 to + 18V

TC4S69F(TOSHIBA)CHIP PACKAGE
TC4SU69F(TOSHIBA)CHIP PACKAGE
TC7S04FU(TOSHIBA)CHIP PACKAGE
TC7SH04FU(TOSHIBA)CHIP PACKAGE

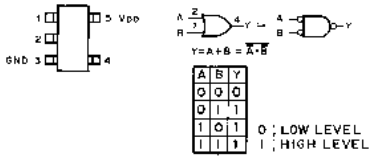
C-MOS INVERTER
– TOP VIEW –



TYPE	VDD
7S04F 7SU04F	+ 2 to + 6V
4S69F 4SU69F	+ 3 to + 18V
7SH04FU	+ 2 to + 5.5V

TC4S71F(TOSHIBA)CHIP PACKAGE
TC7S32FU(TOSHIBA)CHIP PACKAGE
TC7SH32FU(TOSHIBA)CHIP PACKAGE

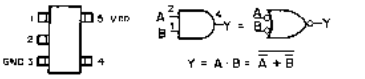
C-MOS 2-INPUT OR GATE
– TOP VIEW –



TYPE	VDD
7S32F 7S32FU	+ 2 to + 6V
4S71F	+ 3 to + 18V
7SH32FU	+ 2 to + 5.5V

TC4S81F(TOSHIBA)CHIP PACKAGE
TC7S08FU(TOSHIBA)CHIP PACKAGE
TC7SH08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE
– TOP VIEW –



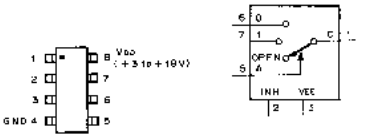
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S08F 7S08FU	+ 2 to + 6V
4S81F 14S81F	+ 3 to + 18V
7SH08FU	+ 2 to + 5.5V

TC4W53FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –

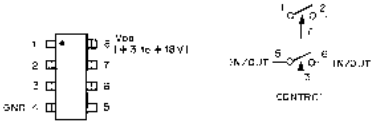


CONT. INPUT		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	OPEN

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

TC4W66FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL BILATERAL SWITCH
– TOP VIEW –

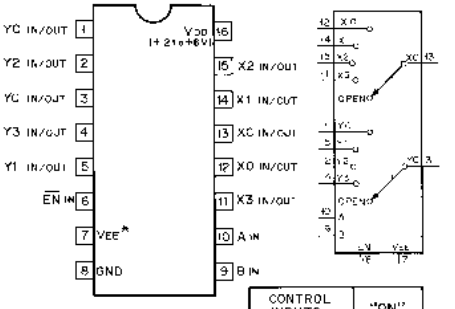


CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74HC4052AFS(EL)(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –



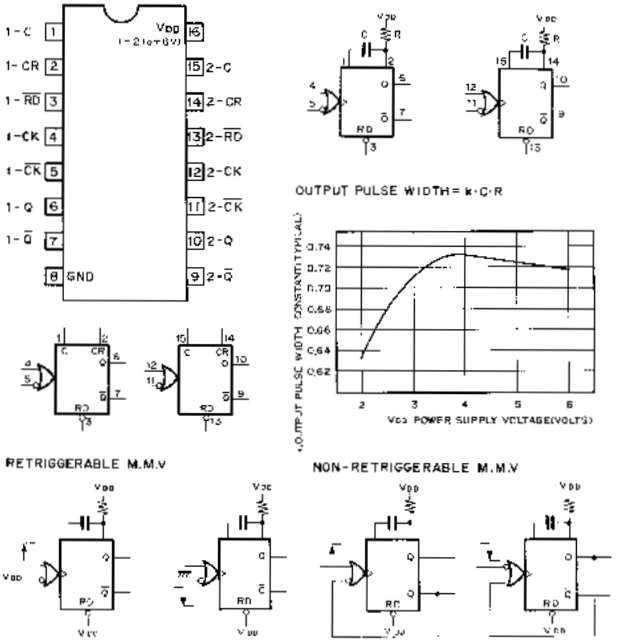
VEE* ; VDD – VEE = 3 to 12 V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

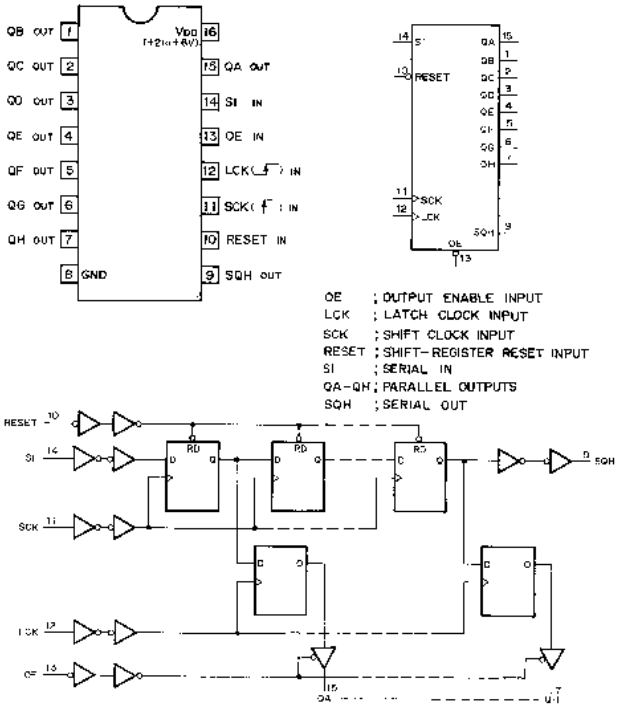
TC74HC4538AFS(TOSHIBA)FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
– TOP VIEW –



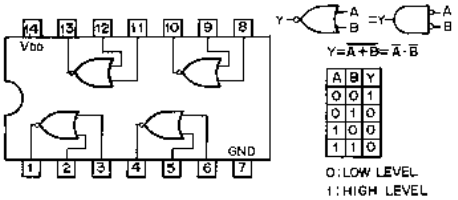
TC74HC595AF(TOSHIBA)FLAT PACKAGE

C-MOS 8-BIT SERIAL-INPUT/SERIAL- OR PARALLEL-OUTPUT\SHIFT REGISTER WITH LATCHED 3-STATE OUTPUT
– TOP VIEW –



TC74VHC02F(TOSHIBA)FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES
– TOP VIEW –



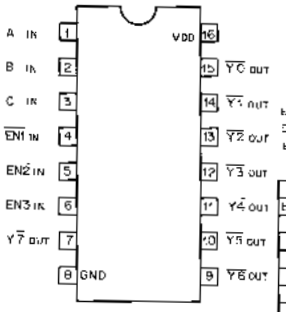
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

NOTE :

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V

TC74VHC138FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER
– TOP VIEW –



INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

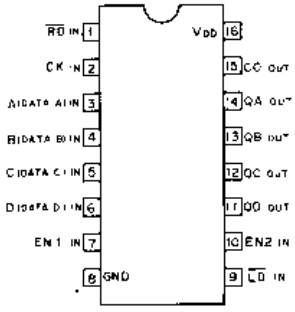
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

NOTE :

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

TC74VHC163F(TOSHIBA)FLAT PACKAGE

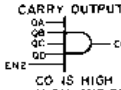
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"



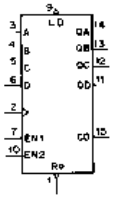
CC IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

NOTE :

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V

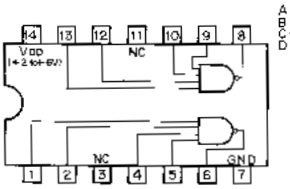
COUNT SEQUENCE

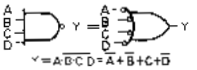
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1



TC74VHC20F(TOSHIBA)FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
– TOP VIEW –





A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
:	:	:	:	:
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

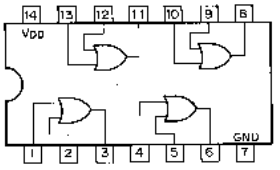
0 ; LOW LEVEL
1 ; HIGH LEVEL

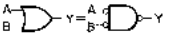
NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC32FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT OR GATES
– TOP VIEW –





A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

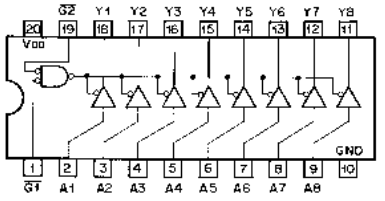
0:LOW LEVEL
1:HIGH LEVEL

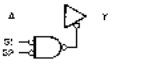
NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC541FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

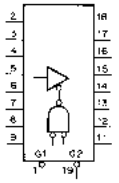
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
– TOP VIEW –





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

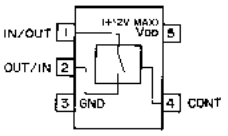


NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V
ABT/ACT/BCT/HCT/VHCT	+5V

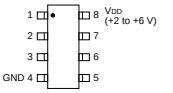
TC7S66FU(TOSHIBA)

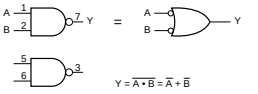
C-MOS ANALOG SWITCH
– TOP VIEW –



TC7W00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –



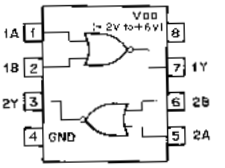


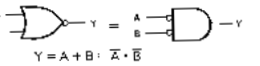
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC7W02F(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE
– TOP VIEW –



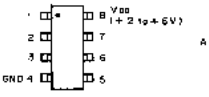


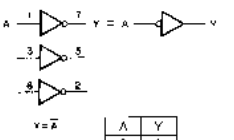
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W04FU(TOSHIBA)CHIP PACKAGE

C-MOS HEX INVERTERS
– TOP VIEW –



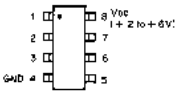


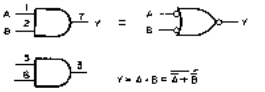
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W08FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL 2-INPUT AND GATE
– TOP VIEW –



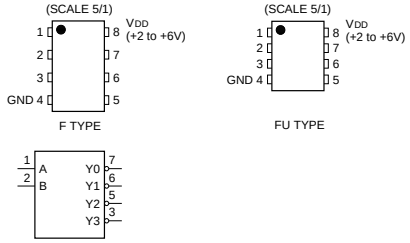


A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W139FU(TOSHIBA)CHIP PACKAGE

C-MOS 2 to 4 LINE DECODER WITH ENABLE
– TOP VIEW –

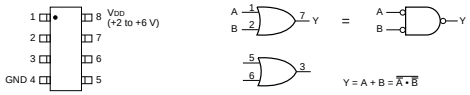


INPUTS		OUTPUTS				SELECTED OUTPUT
SELECT						
B	A	$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	
0	0	0	1	1	1	$\overline{Y0}$
0	1	1	0	1	1	$\overline{Y1}$
1	0	1	1	0	1	$\overline{Y2}$
1	1	1	1	1	0	$\overline{Y3}$

0 ; LOW LEVL
1 ; HIGH LEVEL

TC7W32FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL 2-INPUT OR GATE
– TOP VIEW –

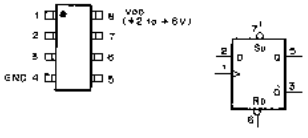


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC7W74FU(TOSHIBA)CHIP PACKAGE

C-MOS D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
– TOP VIEW –

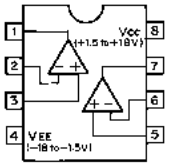


INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	↓	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

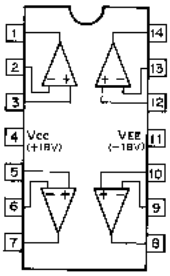
TL062CPW(TI)FLAT PACKAGE
TL082M(TI)

OPERATIONAL AMPLIFIER\(J FET INPUT)
– TOP VIEW –



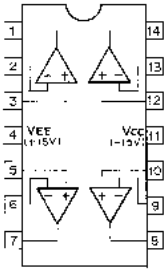
TL064CPW(TI)

OPERATIONAL AMPLIFIER\(J FET INPUT)
– TOP VIEW –



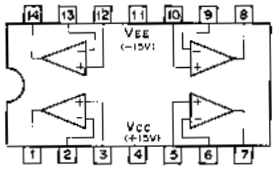
TL074CPW(TI)

OPERATIONAL AMPLIFIER\(LOW-NOISE, JFET-INPUT)
– TOP VIEW –



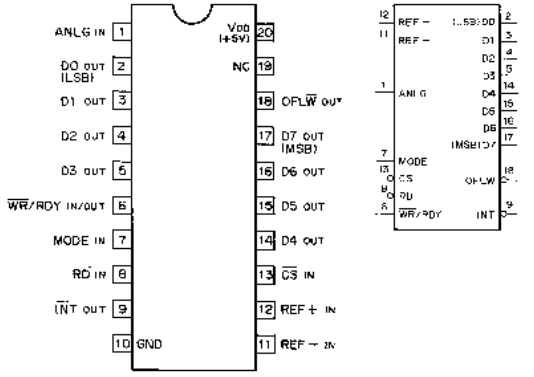
TL084CPW(TI)

OPERATIONAL AMPLIFIER\(J FET INPUT)
– TOP VIEW –



TLC0820ACDW(TI)FLAT PACKAGE

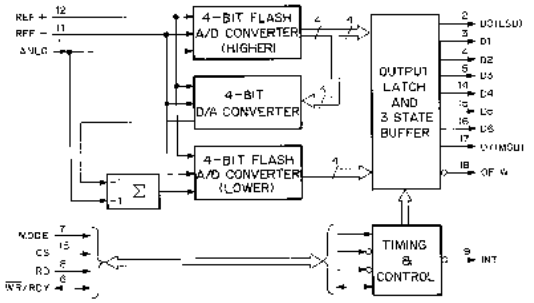
C-MOS 8-BIT SEMIFLASH TYPE A/D CONVERTER
– TOP VIEW –



INPUT
ANLG ; ANALOG SIGNAL
CS ; CHIP SELECT
MODE ; MODE
RD ; READ
REF +, REF – ; REFERENCE VOLTAGE +, –

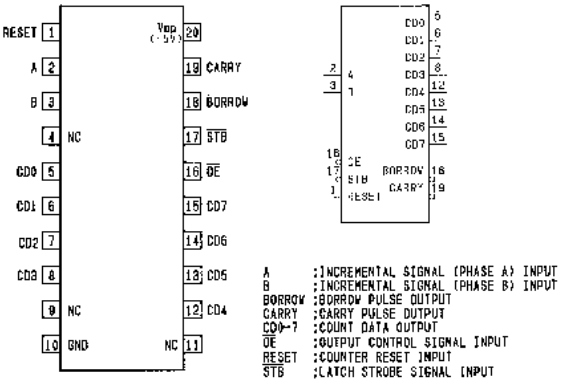
OUTPUT
D0 – D7 ; DIGITAL SIGNAL
INT ; INTERRUPT
OFLW ; OVERFLOW

INPUT/OUTPUT
WR/RDY ; L : WRITE/H : READY

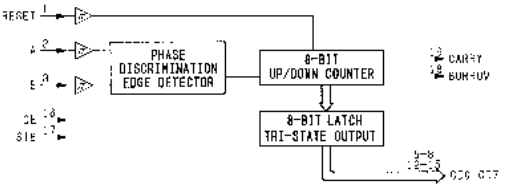


UPD4702G(NEC)

C-MOS INCREMENTAL ENCODER 8BIT UP DOWN COUNTER
– TOP VIEW –

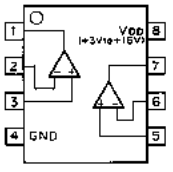


A ;INCREMENTAL SIGNAL (PHASE A) INPUT
B ;INCREMENTAL SIGNAL (PHASE B) INPUT
BORROW ;BORROW PULSE OUTPUT
CARRY ;CARRY PULSE OUTPUT
CD0–7 ;COUNT DATA OUTPUT
OE ;OUTPUT CONTROL SIGNAL INPUT
RESET ;COUNTER RESET INPUT
STB ;LATCH STROBE SIGNAL INPUT



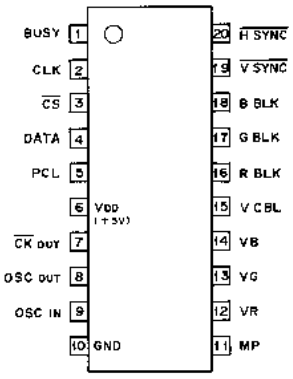
TLC272CP
TLC272CPW(TI)
TLC27L2CPS(TI)FLAT PACKAGE

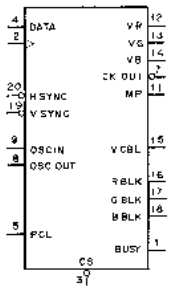
OPERATIONAL AMPLIFIER
– TOP VIEW –



UPD6453GT-610(NEC)FLAT PACKAGE

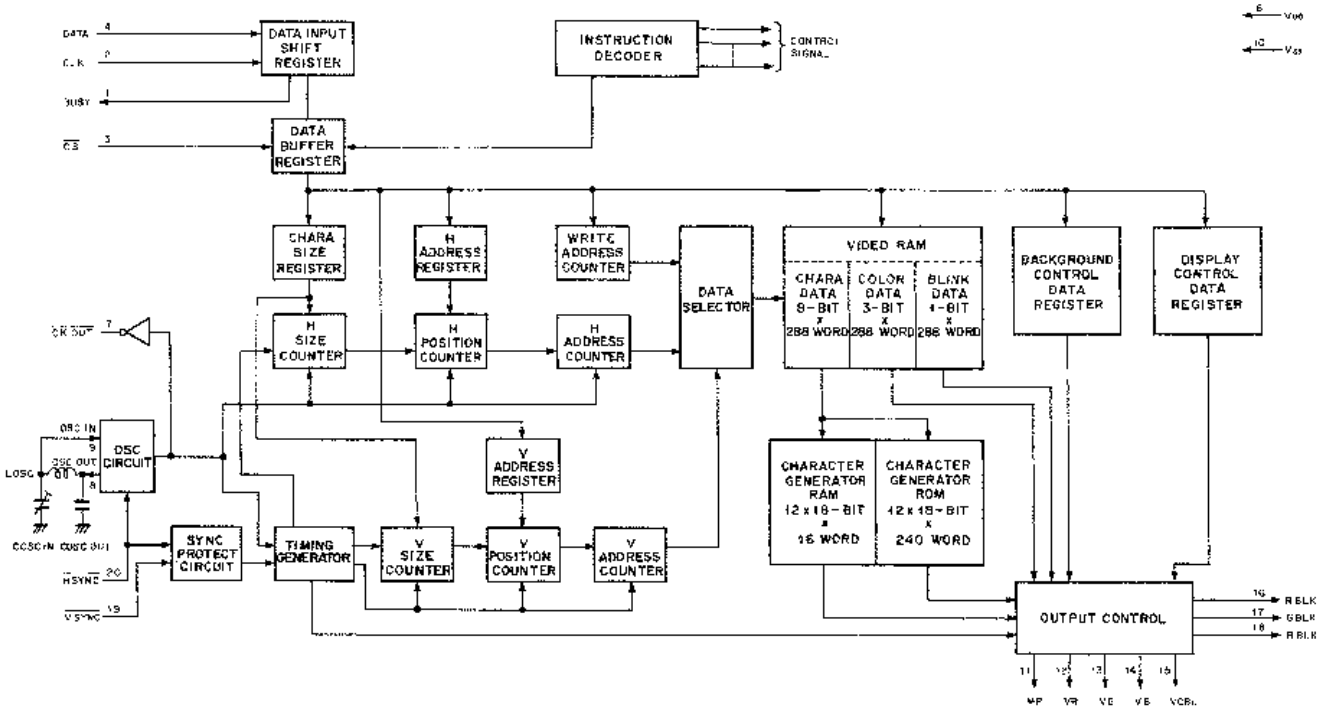
C-MOS ON-SCREEN CHARACTER DISPLAY
– TOP VIEW –





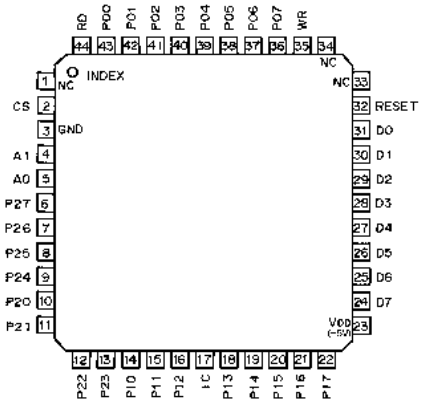
INPUT
CLK : CLOCK
$\overline{CS}$: CHIP SELECT
DATA : SERIAL DATA
$\overline{H\ SYNC}$: HORIZONTAL SYNC
OSC IN : OSCILLATOR IN
$\overline{PCL}$: POWER ON CLEAR
$\overline{V\ SYNC}$: VERTICAL SYNC

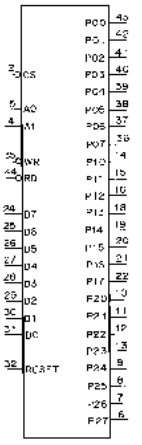
OUTPUT
B_{BLK}, R_{BLK}, G_{BLK} : B, R, G, BLANKING
BUSY : BUSY OUT
CK OUT : CLOCK
MP : MASK PULSE
OSC OUT : OSCILLATOR OUT
V_R, V_G, V_B : R, G, B, CHARACTER DATA
V_{CBL} : VIDEO CUT BLANKING



UPD71055GB-10-3B4(NEC)FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
– TOP VIEW –

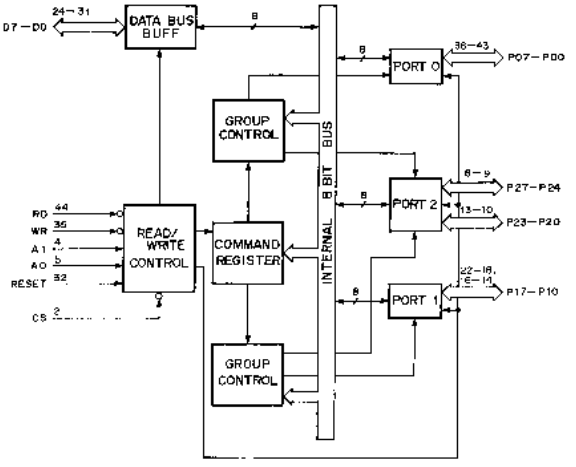




A1, A0 : ADDRESS
CS : CHIP SELECT
D7 D0 : DATA BUS
P07 – P00 : PORT 0
P17 – P10 : PORT 1
P27 · P20 : PORT 2
RD : READ STROBE
WR : WRITE STROBE
IC : INTERNALLY CONNECTED

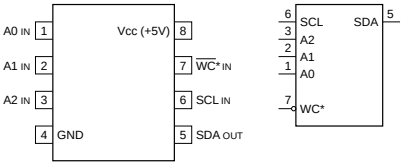
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PROT0 → DATA BUS	INPUT
0	0	1	0	1	PROT 1 → DATA BUS	INPUT
0	0	1	1	0	PROT 2 → DATA BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA BUS → PROT0	OUTPUT
0	1	0	0	1	DATA BUS → PROT1	OUTPUT
0	1	0	1	0	DATA BUS → PROT 2	OUTPUT
0	1	0	1	1	DATA BUS → COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

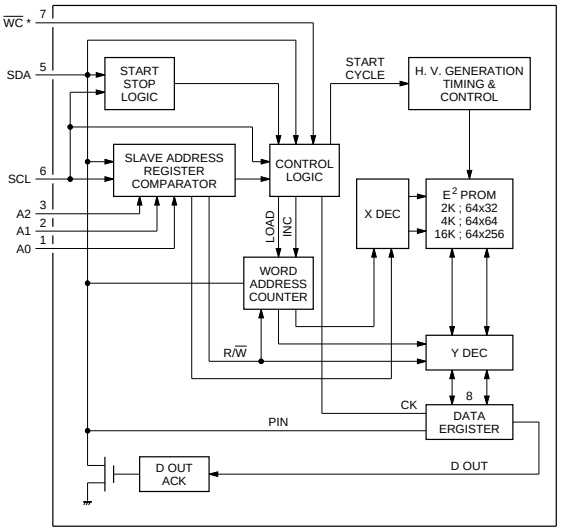
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



X24164SI(XICOR)(16K BIT)FLAT PACKAGE
X24C02S-3.0(XICOR)(2K BIT)FLAT PACKAGE

C-MOS SERIAL EEPROM
– TOP VIEW –

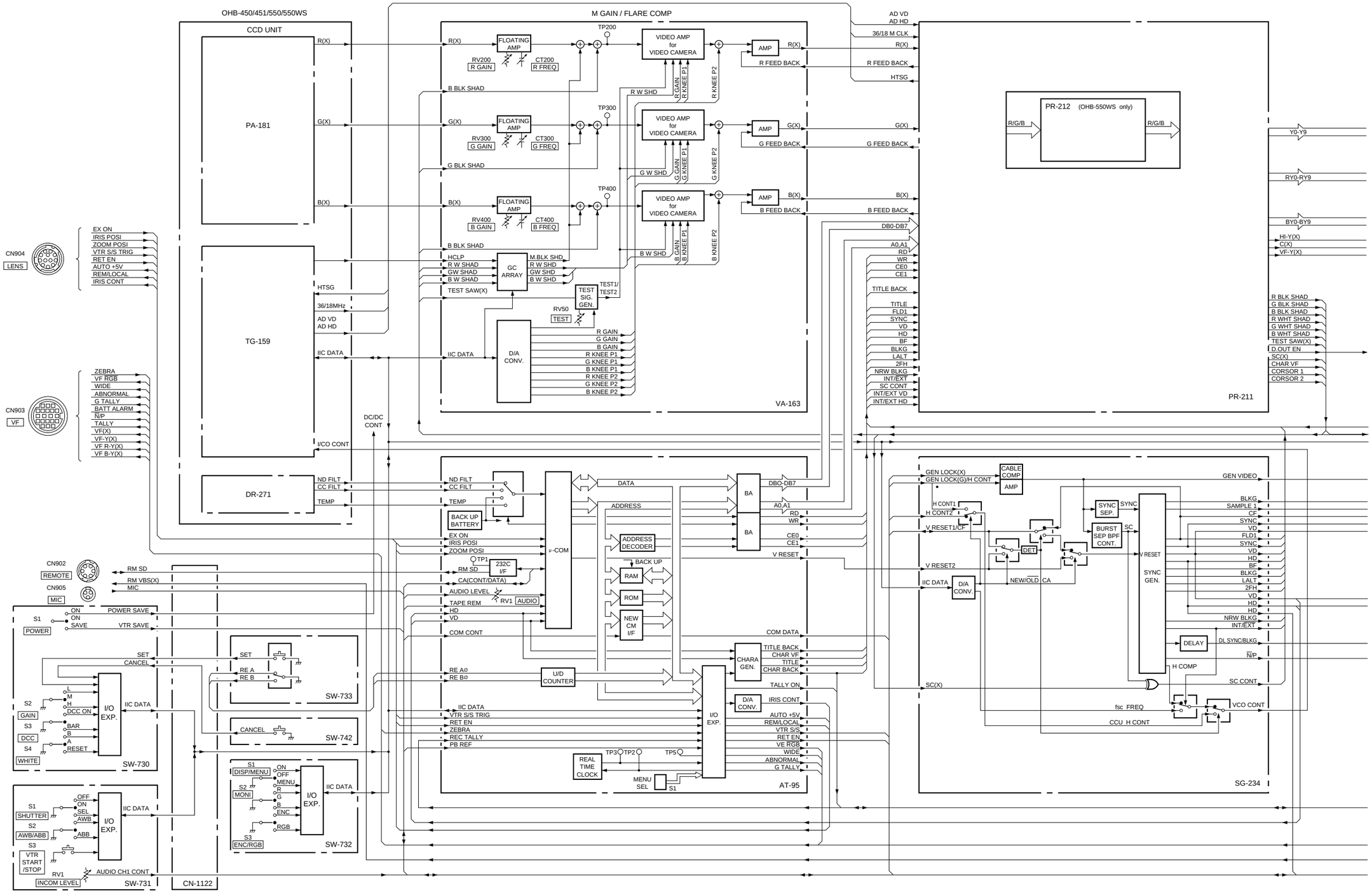


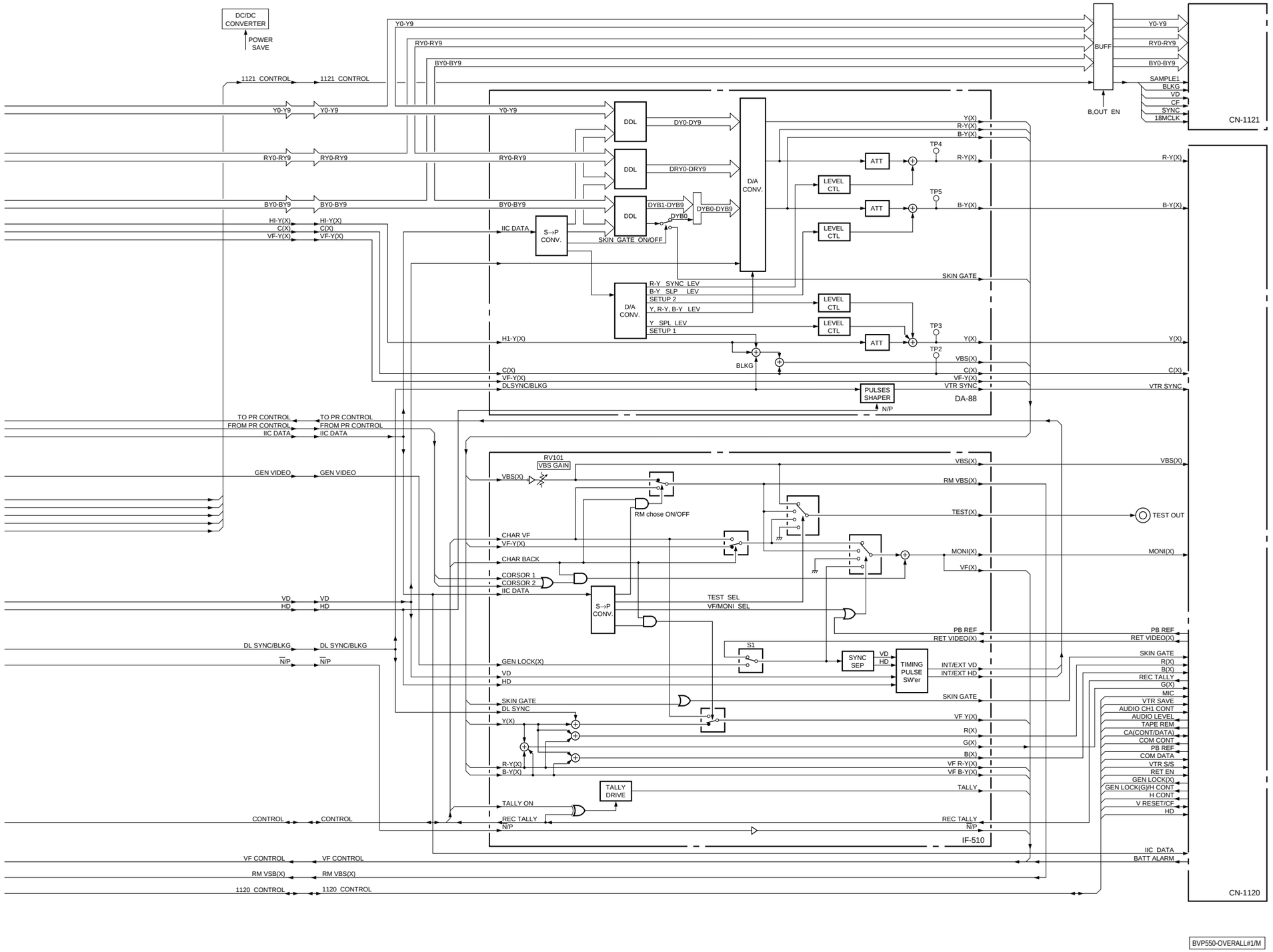


NOTE : * TEST (at X24164SIC7000)

Section 7
Block Diagrams

OVERALL BLOCK

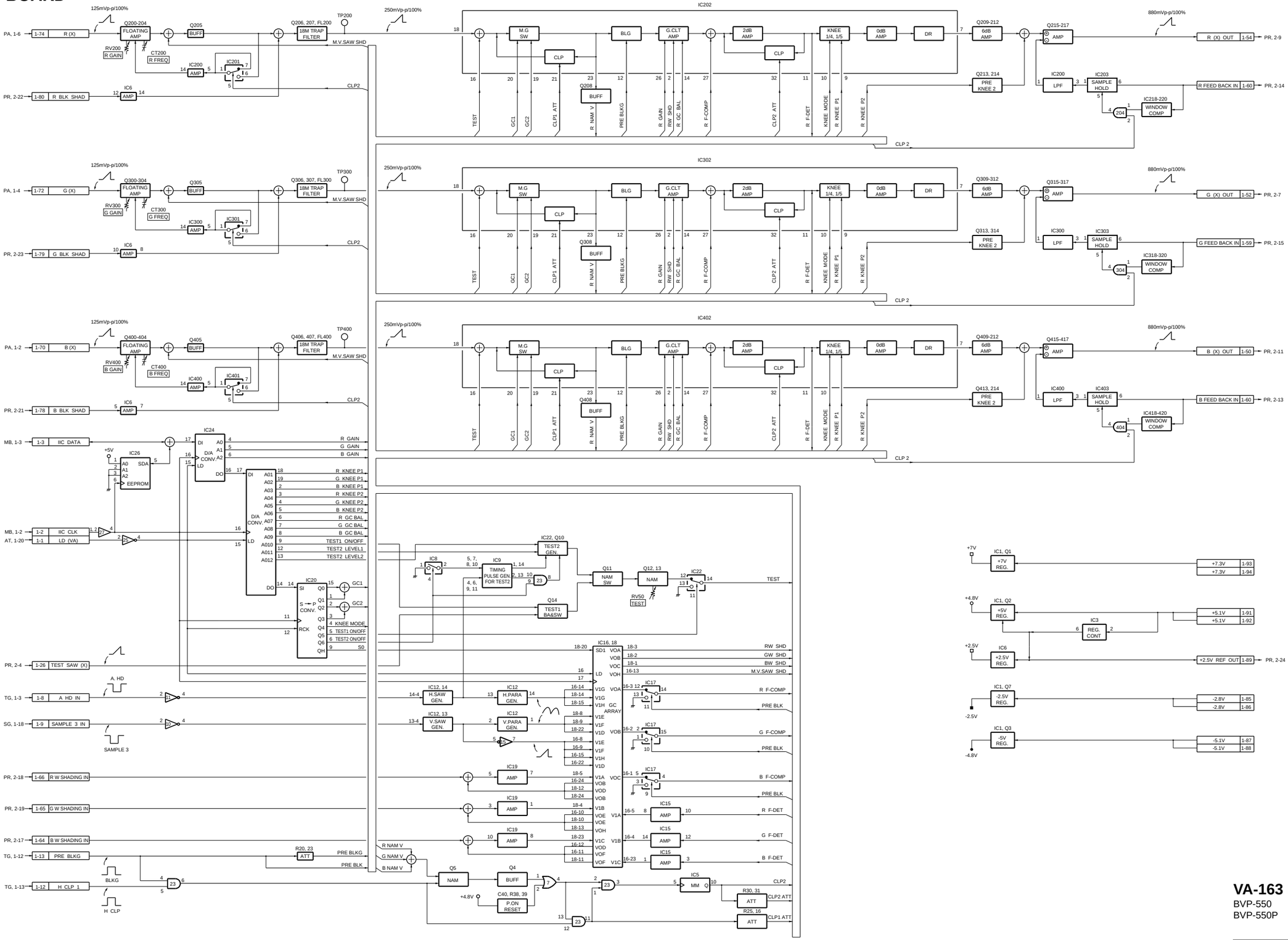




OVERALL BLOCK
BVP-550
BVP-550P

BVP550-OVERALL#1/M

VA-163 BOARD

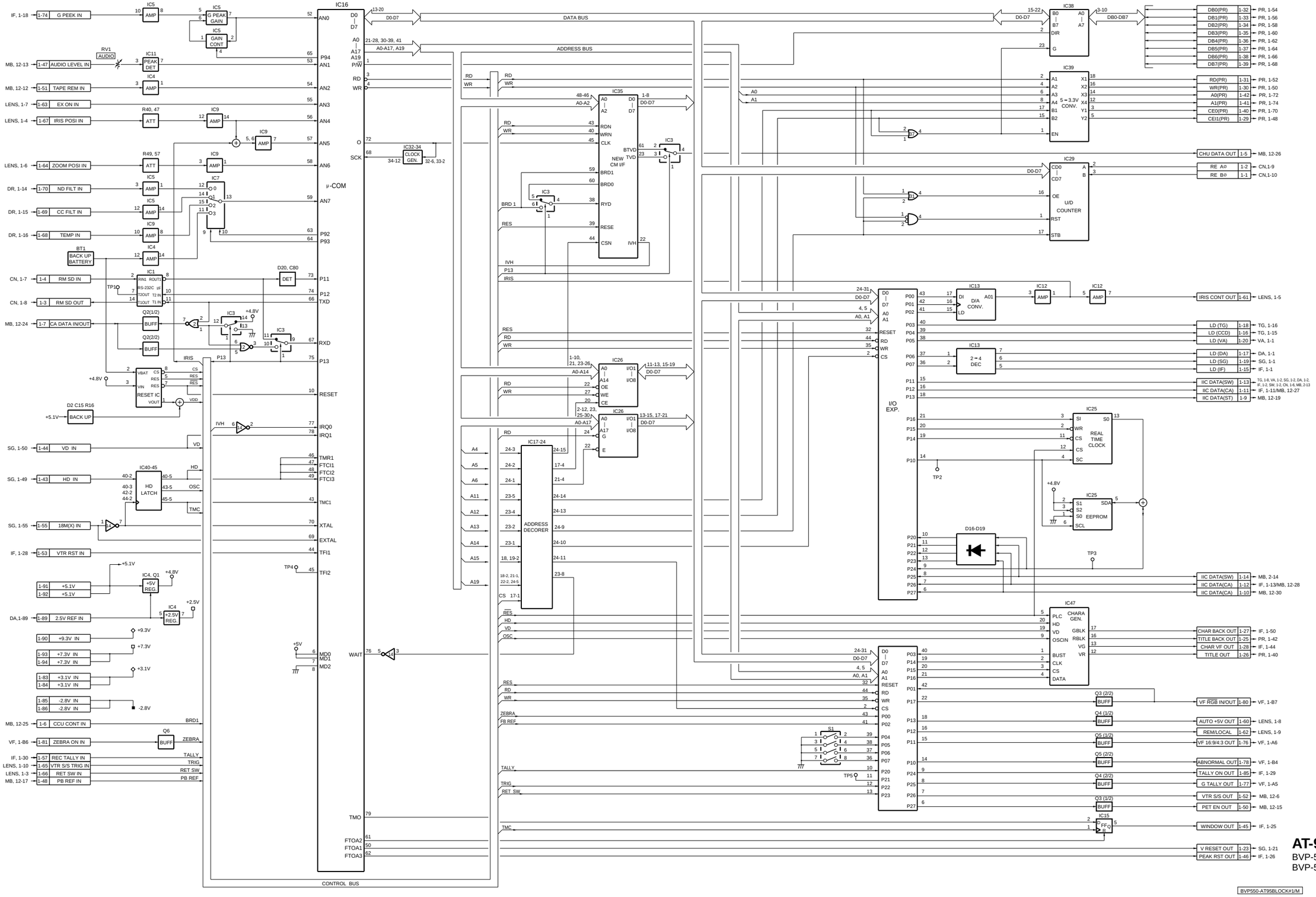


VA-163 BLOCK

BVP-550
BVP-550P

BVP550-VA163BLOCK#1/M

AT-95 BOARD

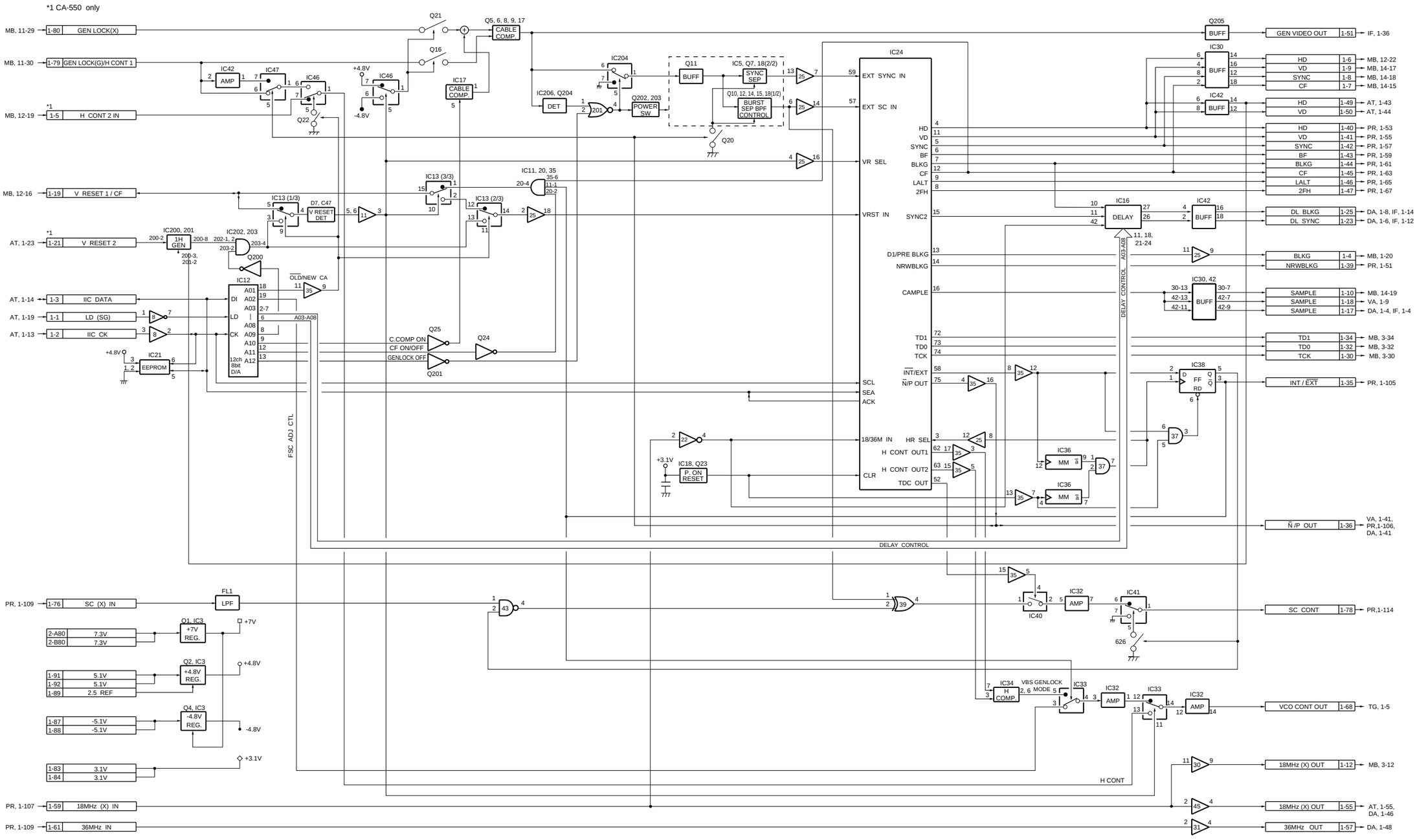


AT-95 BLOCK

BVP-550
BVP-550P

BVP550-AT95BLOCK#1/M

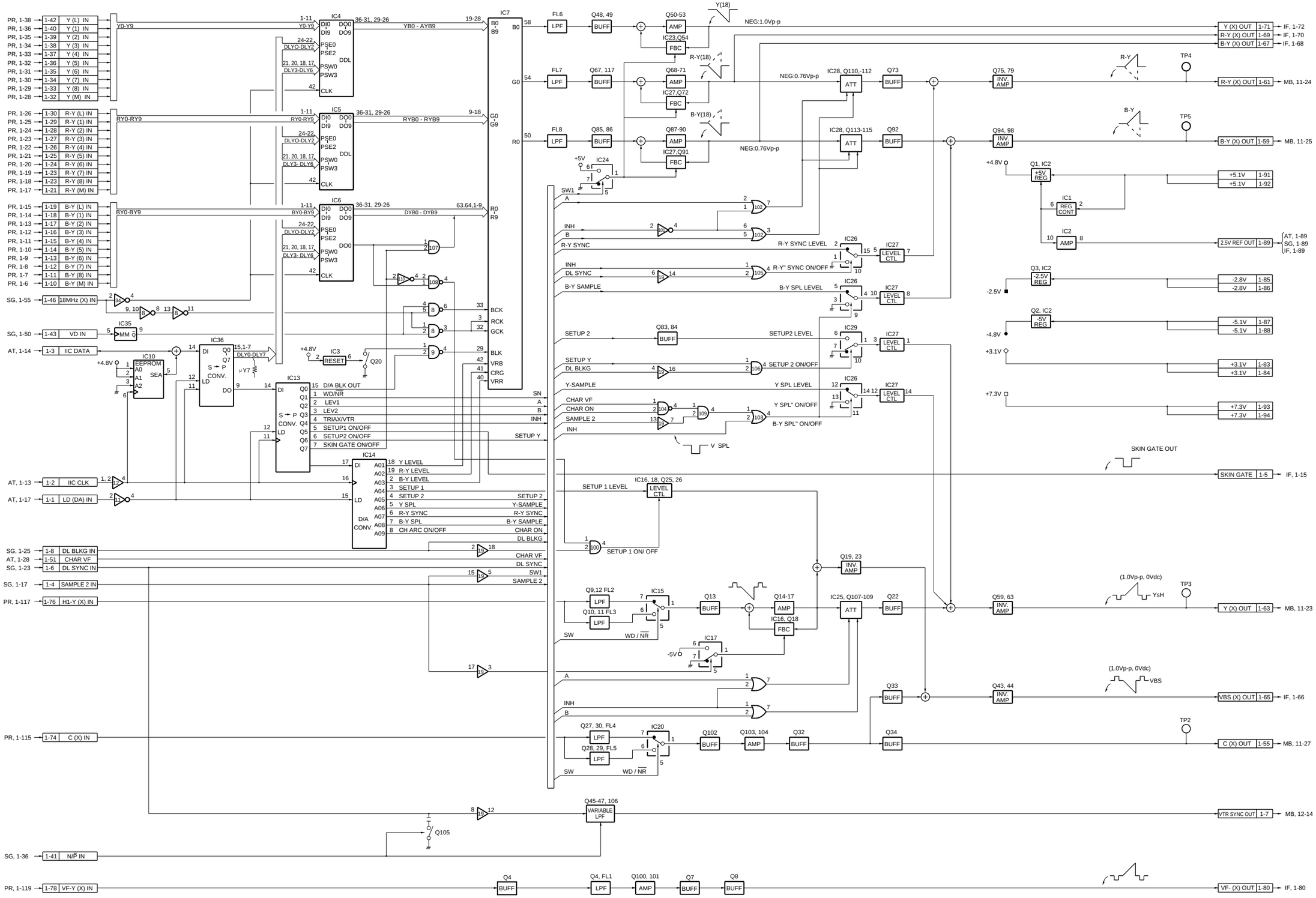
SG-234 BOARD



SG-234 BLOCK
BVP-550
BVP-550P

BVP550-SG234BLOCK#1/M

DA-88 BOARD

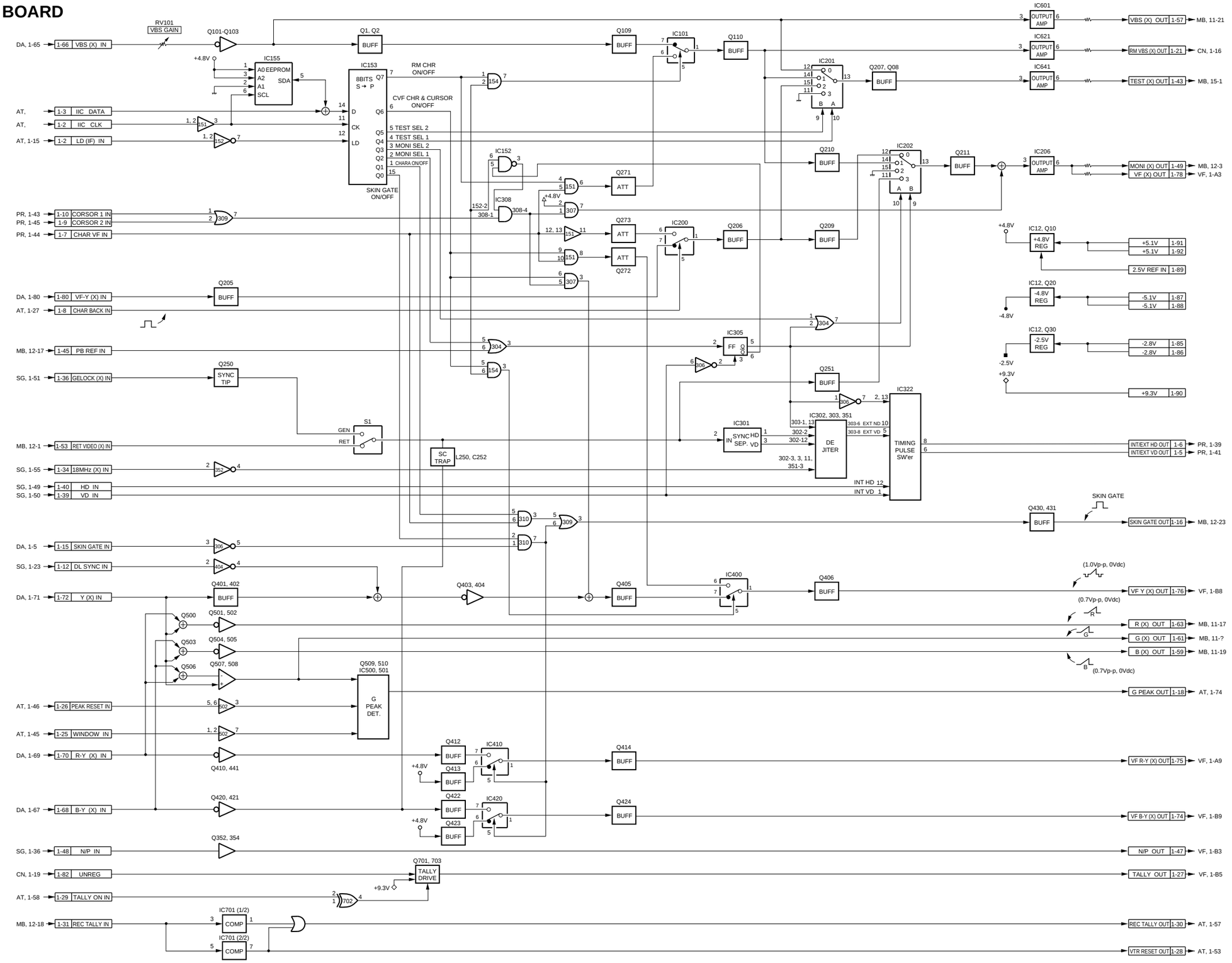


DA-88 BLOCK

BVP-550
BVP-550P

BVP550-DA88BLOCK#1/M

IF-510 BOARD

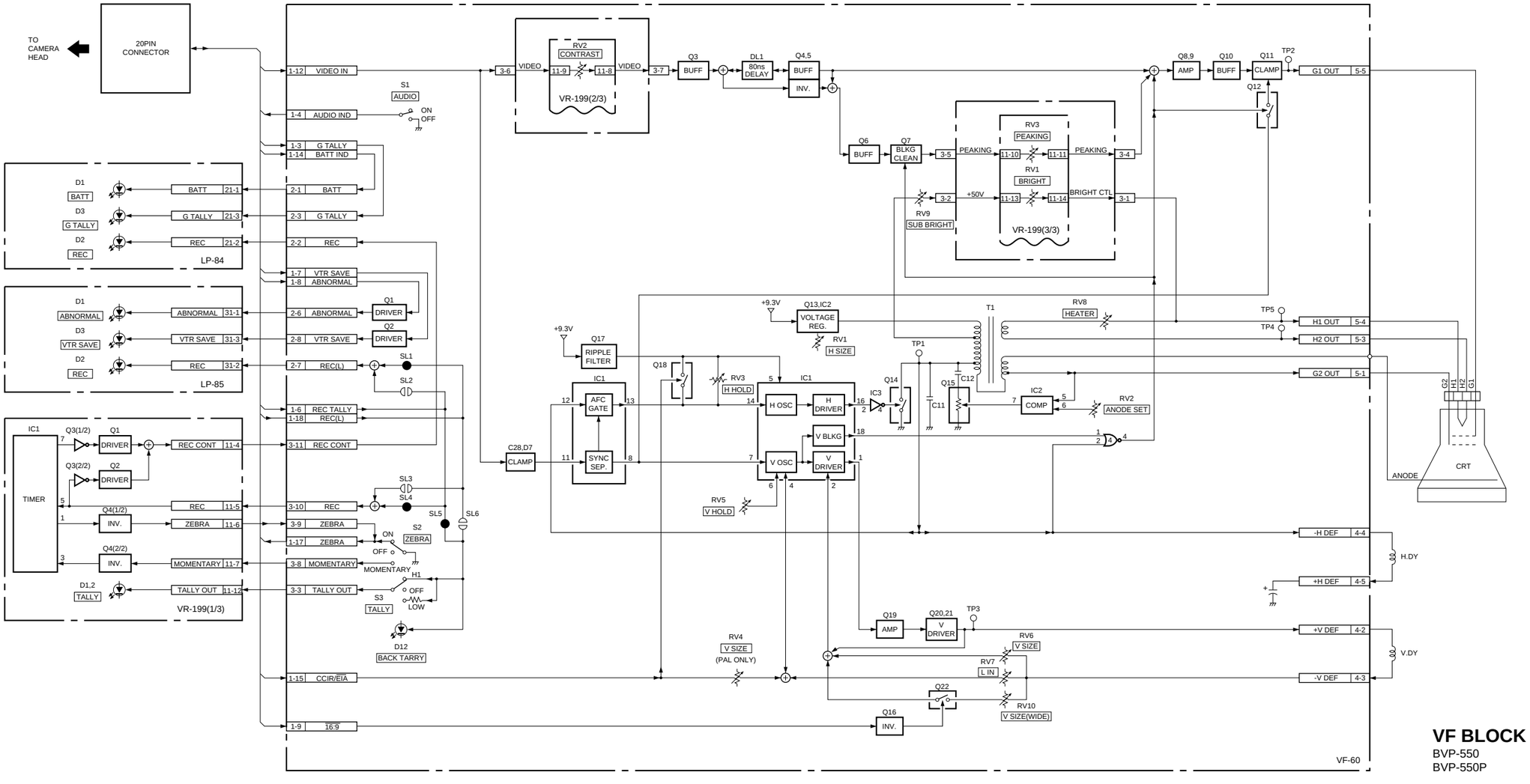


IF-510 BLOCK

BVP-550
BVP-550P

BVP550-IF510BLOCK#1/M

VF BLOCK

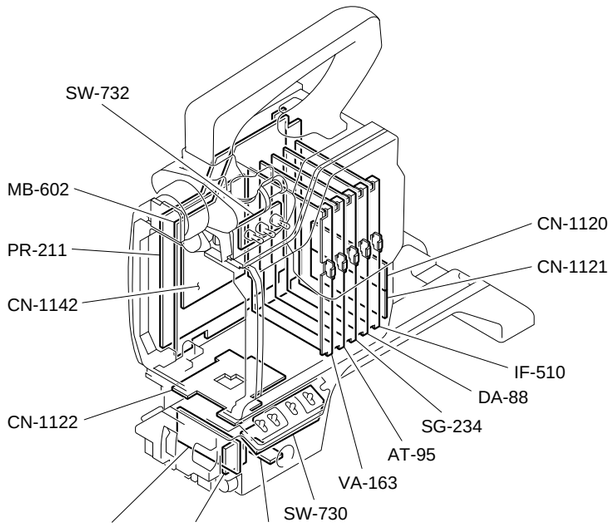


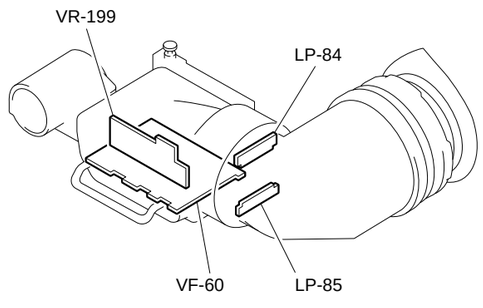
VF BLOCK
BVP-550
BVP-550P

BVP550-VIEW FINDER BLOCK#1/M

Section 8
Schematic Diagrams

LOCATION OF PRINTED CIRCUIT BOARDS





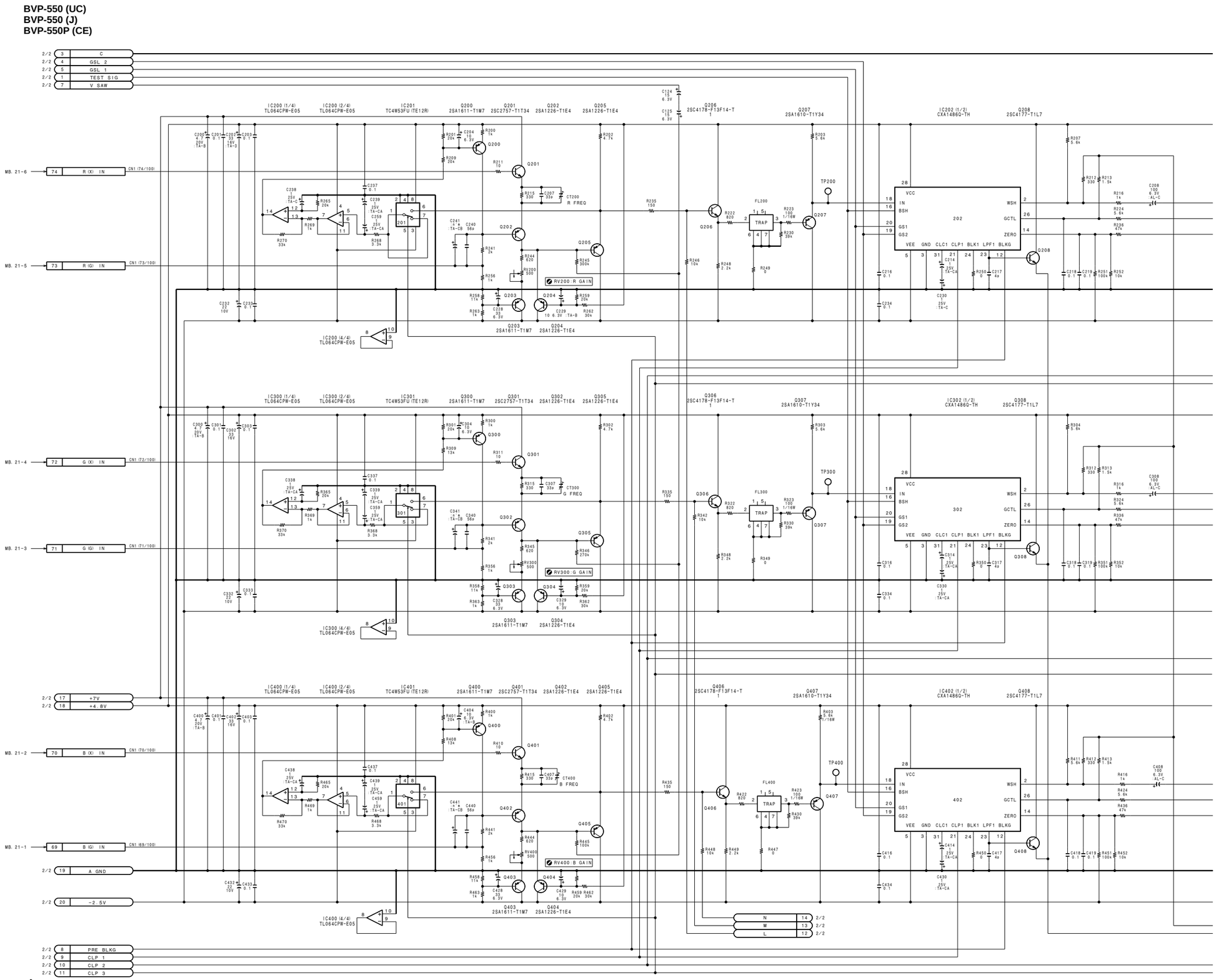
VA-163 BOARD

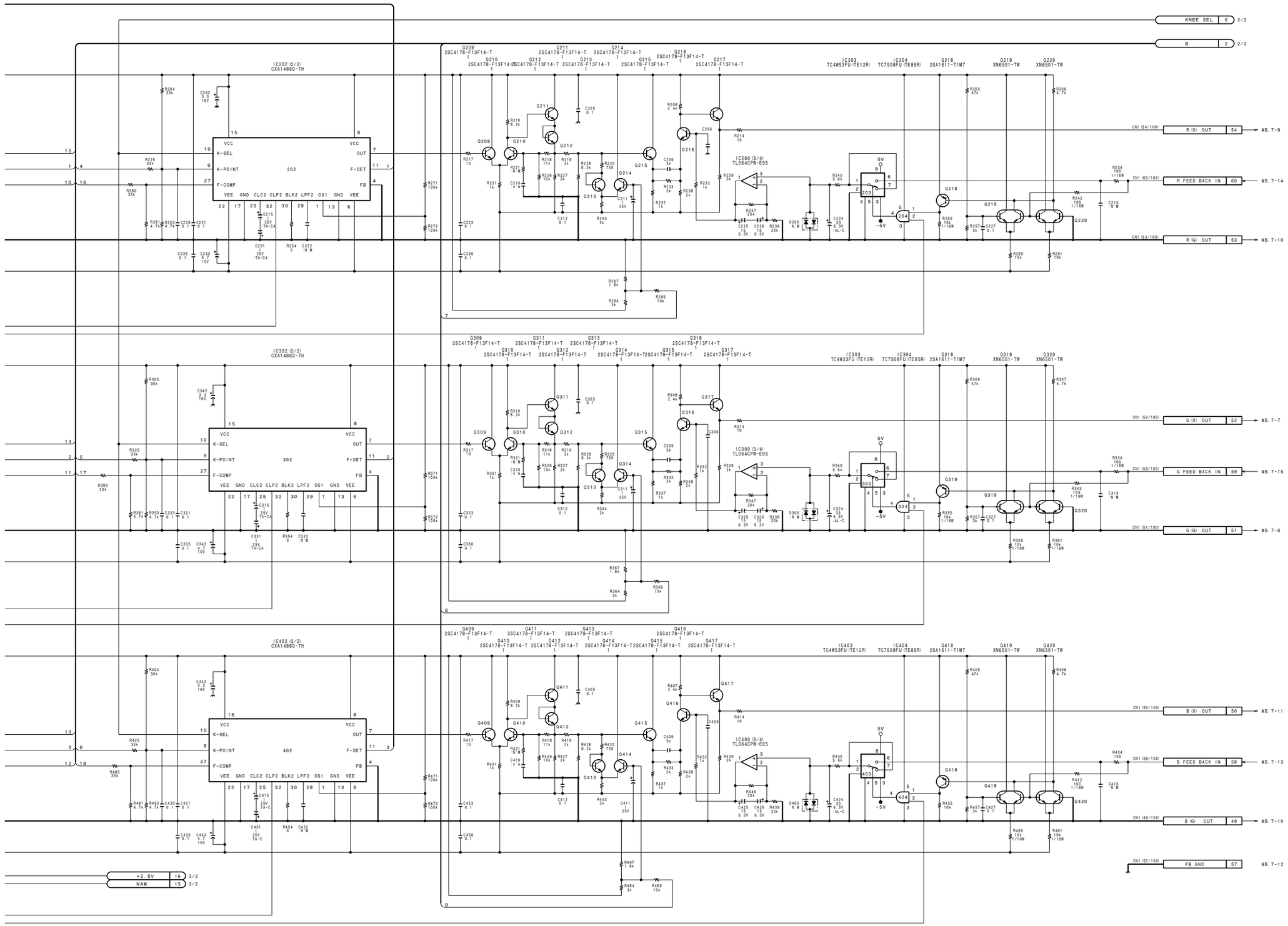
VA-163 (1-657-438-11)

*: B SIDE

	CN1	C-1	
	CT200	B-4	
	CT300	D-4	
	CT400	F-4	
*	D1	A-3	
*	D2	A-2	
*	D3	A-2	
*	D4	A-3	
*	D5	B-3	
	D7	B-3	
*	D8	F-3	
*	D9	F-3	
*	D10	F-3	
	FL200	C-3	
	FL300	D-3	
	FL400	E-3	
	IC1	A-3	
	IC3	B-2	
	IC5	B-3	
	IC6	B-2	
*	IC7	B-3	
*	IC8	F-4	
	IC9	F-4	
	IC10	F-2	
	IC11	F-2	
	IC12	F-2	
	IC13	F-2	
	IC14	F-2	
	IC15	F-3	
	IC16	G-3	
*	IC17	G-3	
	IC18	G-2	
*	IC19	G-3	
	IC20	G-2	
	IC21	G-1	
	IC22	B-4	
	IC23	B-3	
	IC24	G-1	
	IC25	F-1	
	IC26	F-1	
	IC27	F-1	
	IC200	C-4	
*	IC201	C-3	
	IC202	C-2	
*	IC203	B-2	
*	IC204	B-1	
	IC300	D-4	
*	IC301	D-3	
	IC302	D-2	
*	IC303	C-2	
*	IC304	C-1	
	IC400	E-4	
*	IC401	E-3	
	IC402	E-2	
*	IC403	D-2	
*	IC404	E-1	
	L1	A-2	
	L2	A-3	
*	Q1	A-2	
*	Q2	A-2	
*	Q3	A-3	
	Q4	B-3	
	Q5	A-3	
*	Q7	A-3	
	Q10	A-4	
	Q11	A-4	
	Q12	A-4	
	Q13	A-4	
	Q14	A-4	
*	Q200	B-4	
*	Q201	B-4	
*	Q202	C-4	
*	Q203	C-4	
*	Q204	C-4	
*	Q205	C-3	
	Q206	B-3	
*	Q207	C-3	
*	Q208	C-3	
	Q209	B-2	
	Q210	C-2	
	Q211	B-2	
	Q212	C-2	
*	Q213	C-1	
	Q214	C-1	
*	Q215	C-2	
	Q216	C-2	
	Q217	C-1	
*	Q218	B-1	
	Q219	C-1	
	Q220	C-1	
*	Q300	C-4	
*	Q301	C-4	
*	Q302	D-4	
*	Q303	D-4	
*	Q304	D-4	
*	Q305	D-3	
	Q306	D-3	
	Q307	D-3	
*	Q308	D-3	
	Q309	D-2	
	Q310	D-2	
	Q311	D-2	
	Q312	D-2	
*	Q313	D-1	
*	Q314	D-1	
*	Q315	D-2	
	Q316	D-2	
	Q317	D-1	
*	Q318	C-1	
	Q319	D-1	
	Q320	D-1	
*	Q400	D-4	
*	Q401	E-4	
*	Q402	E-4	
*	Q403	F-4	
*	Q404	E-4	
*	Q405	E-3	
	Q406	E-3	
*	Q407	E-3	
*	Q408	E-3	
	Q409	E-2	
	Q410	E-2	
	Q411	E-2	
	Q412	E-2	
*	Q413	E-1	
*	Q414	E-1	
*	Q415	E-2	
	Q416	E-2	
	Q417	E-1	
*	Q418	E-1	
	Q419	E-1	
	Q420	E-1	
	RV50	B-4	
	RV200	C-4	
	RV300	D-4	
	RV400	F-4	
	TP200	D-4	
	TP300	E-4	
	TP400	F-4	

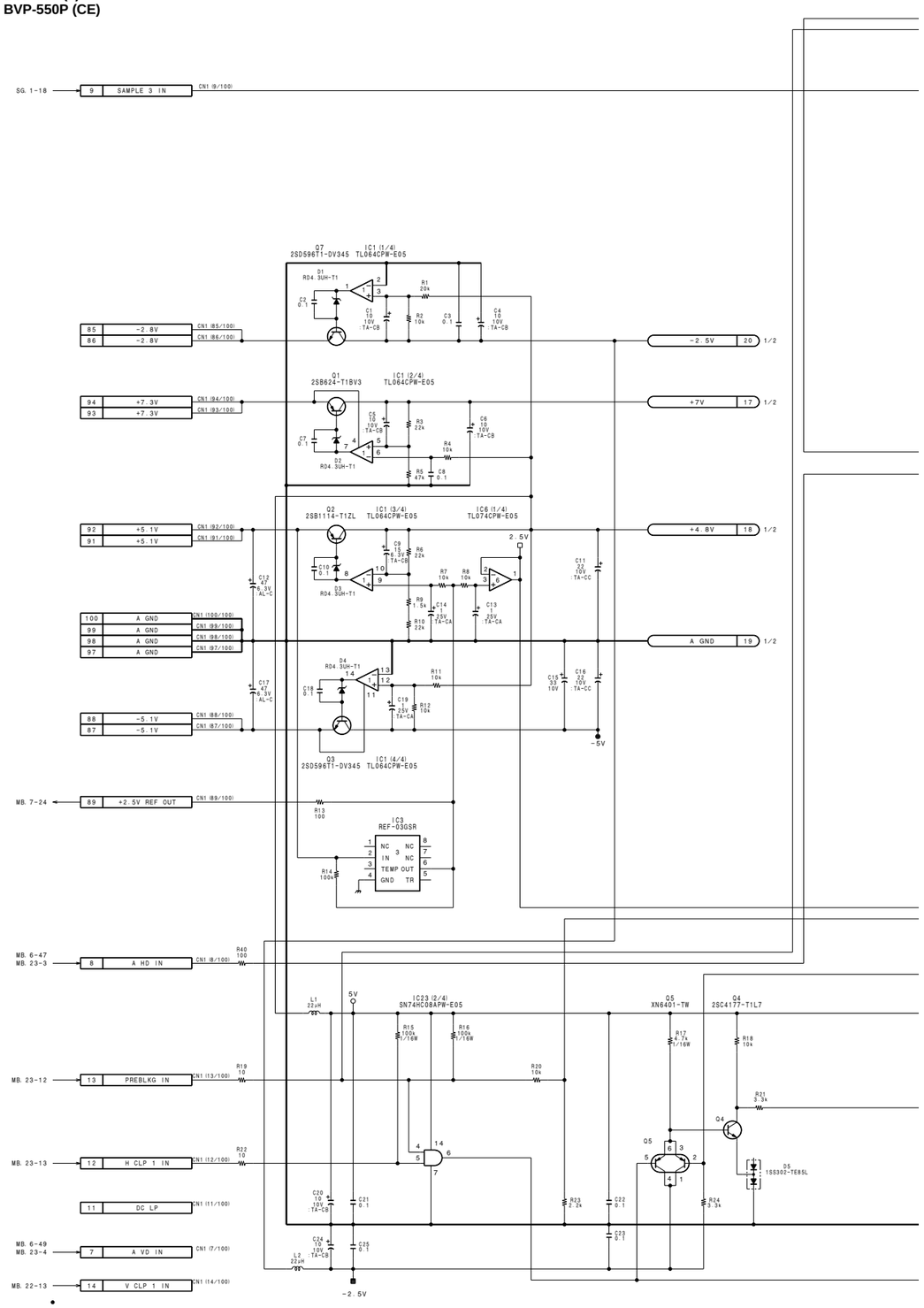
BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

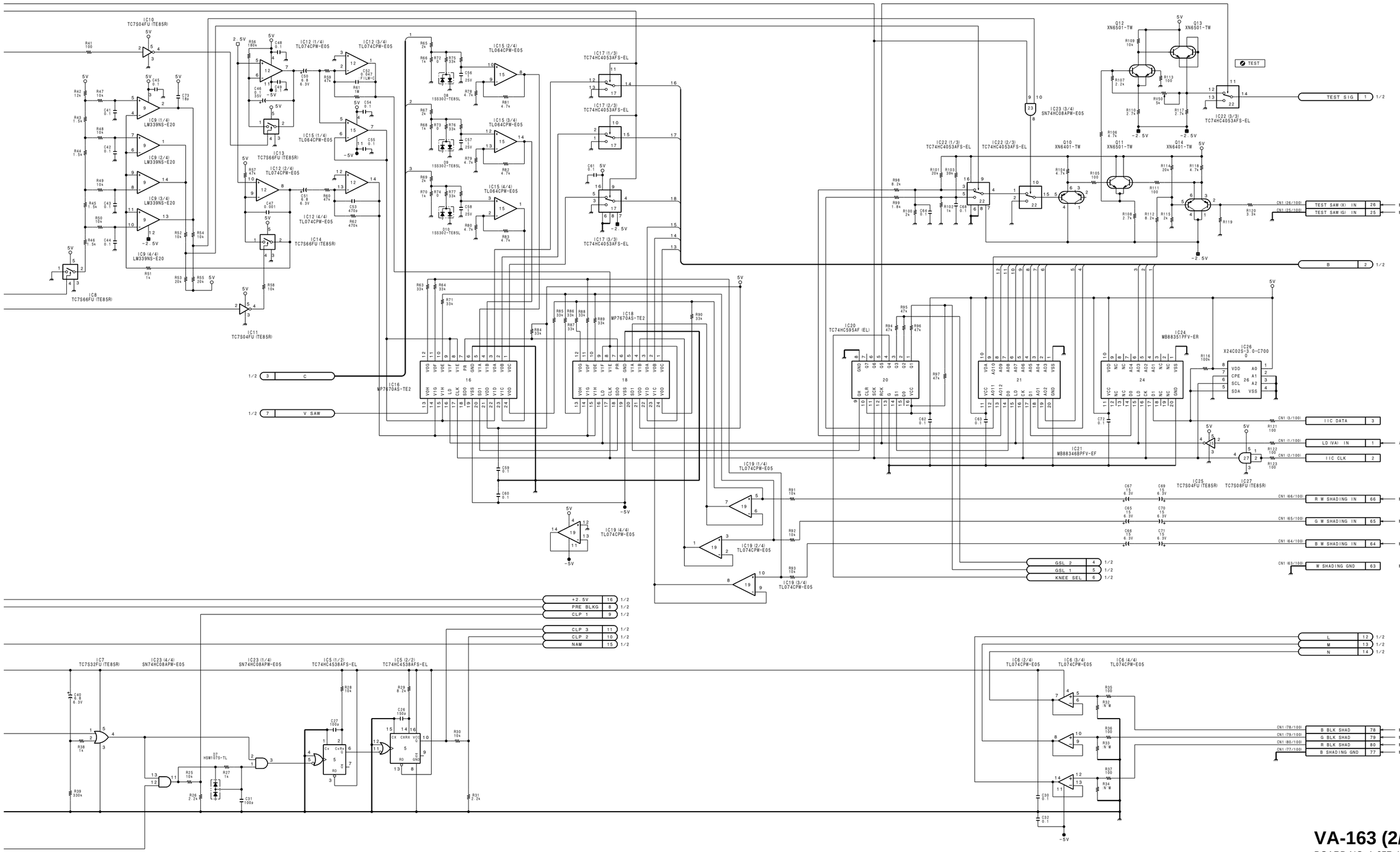




VA-163 (1/2)
BOARD NO. 1-657-438-11
LOT NO. 504-
B-¥BVP550-VA163-12

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)





VA-163 (2/2)

BOARD NO. 1-657-438-11
LOT NO. 504-
B-¥BVP550-VA163-12

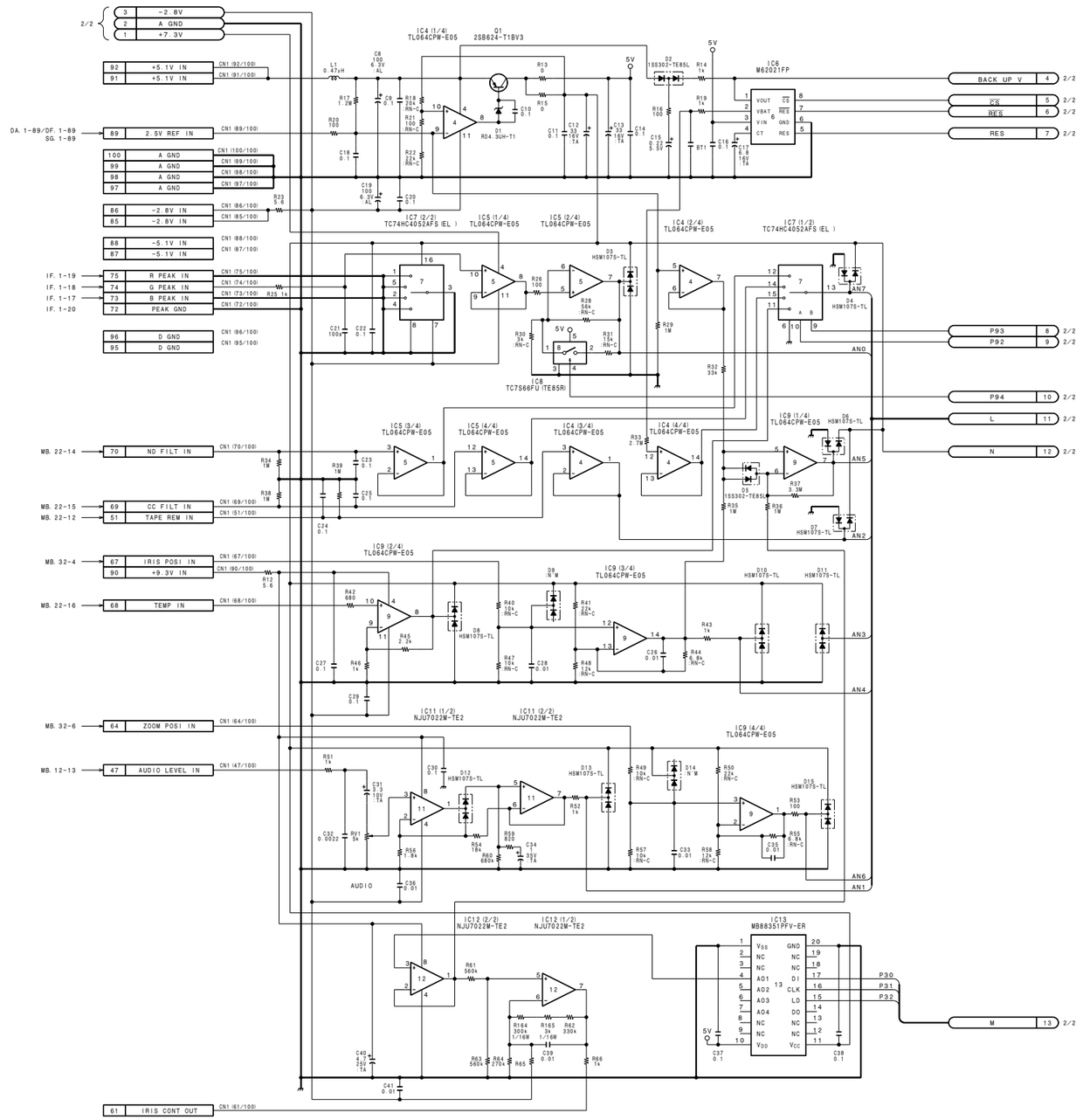
AT-95 BOARD

AT-95 (1-657-448-11)

*: B SIDE

	BT1	B-4
	CNI36	F-2
	CN1	C-1
	D1	A-2
	D2	B-4
*	D3	A-2
*	D4	A-2
*	D5	A-3
*	D6	B-3
*	D7	B-3
*	D8	A-3
*	D10	A-3
*	D11	A-3
*	D12	A-4
*	D13	B-4
*	D15	B-3
*	D16	G-4
*	D17	G-4
*	D18	G-4
*	D19	G-4
*	D20	G-1
*	D21	C-2
*	D22	G-3
	IC1	F-1
*	IC2	G-2
*	IC3	G-1
*	IC4	A-2
*	IC5	B-2
*	IC6	B-4
*	IC7	B-2
*	IC8	A-2
*	IC9	B-3
*	IC11	B-4
*	IC12	C-2
*	IC13	B-2
*	IC14	C-3
*	IC15	D-4
	IC16	D-2
*	IC17	D-4
*	IC18	D-4
*	IC19	D-4
*	IC20	D-4
*	IC21	D-4
*	IC22	D-4
*	IC23	E-3
*	IC24	E-3
	IC25	D-4
*	IC26	E-2
	IC27	E-4
	IC28	F-4
*	IC29	G-3
*	IC30	G-2
*	IC31	F-2
*	IC32	B-2
	IC33	B-2
	IC34	C-2
	IC35	C-4
*	IC37	E-4
	IC38	C-3
*	IC39	E-4
*	IC40	D-2
*	IC41	C-3
*	IC42	D-3
*	IC43	D-3
*	IC44	D-3
*	IC45	D-2
*	IC46	G-4
	IC47	E-2
*	IC48	G-2
	L1	B-1
	L2	F-1
	Q1	A-2
*	Q2	F-2
*	Q3	B-1
*	Q4	C-1
*	Q5	B-1
*	Q6	B-1
	RV1	C-3
	S1	E-3

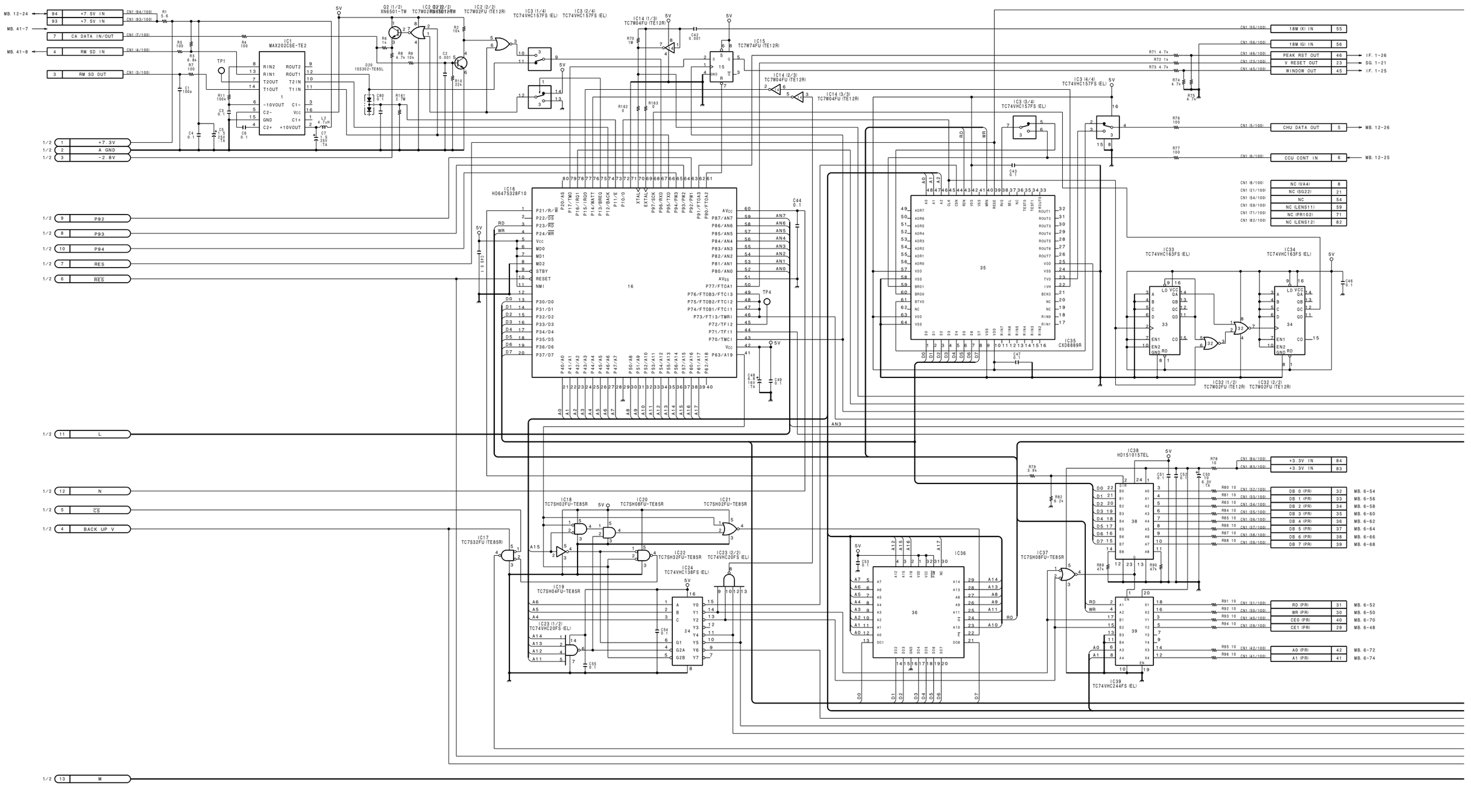
BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

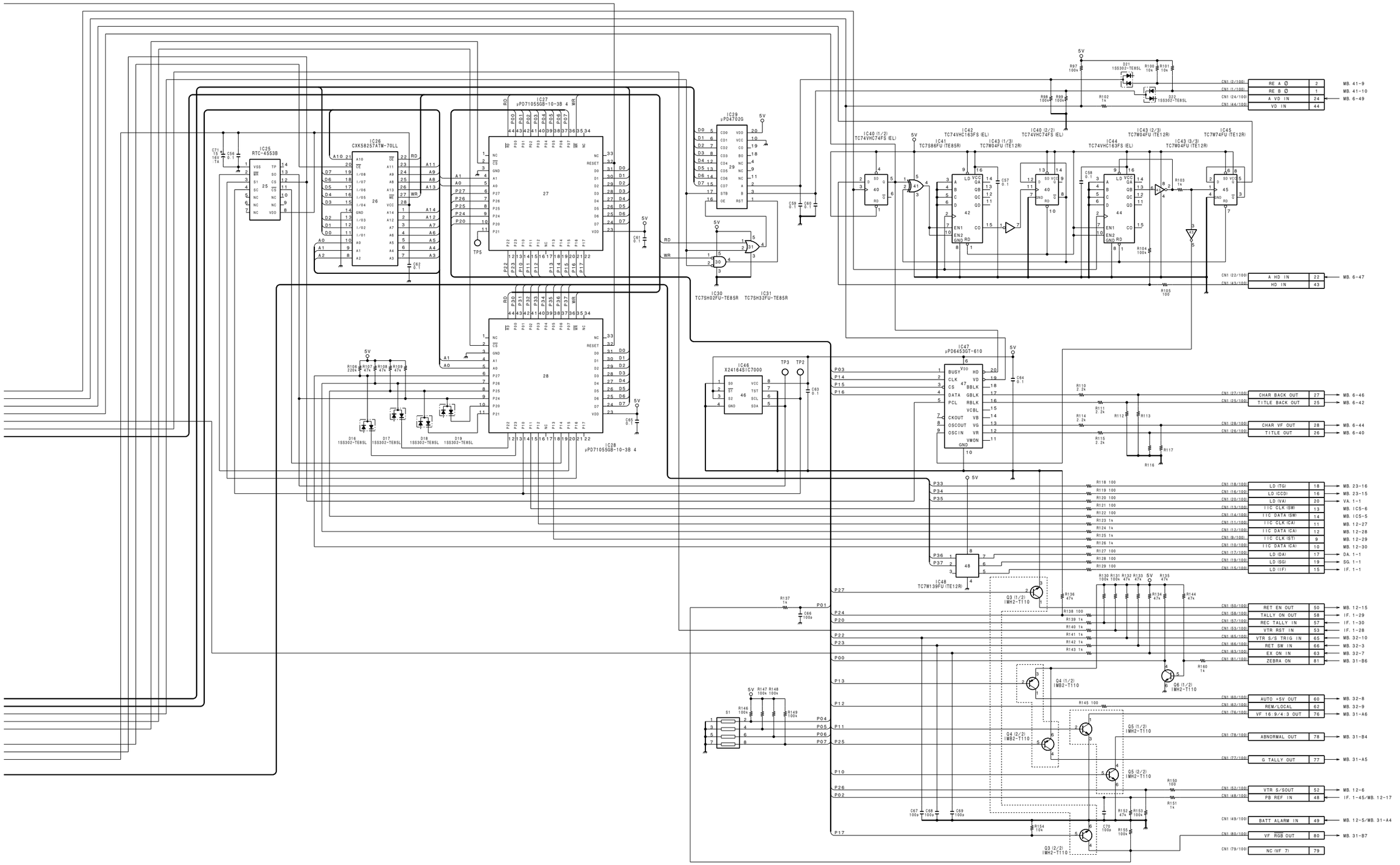


AT-95 (1/2)

BOARD NO. 1-657-448-11
LOT NO. 504-
B-¥BVP550-AT95-12

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)





AT-95 (2/2)

BOARD NO. 1-657-448-11
LOT NO. 504-
B-¥BVP550-AT-95-12

BVP-550
BVP-550P

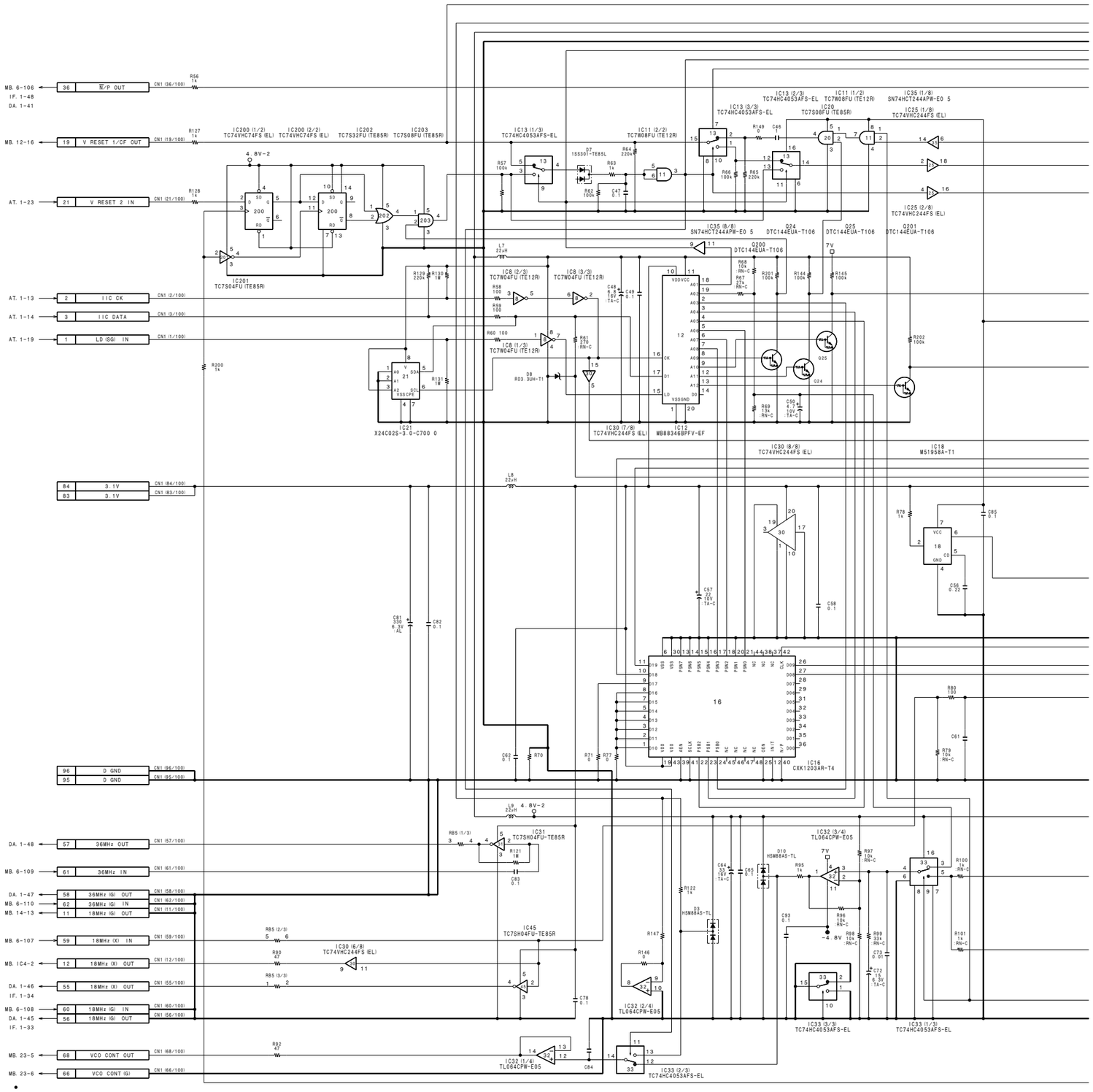
SG-234 BOARD

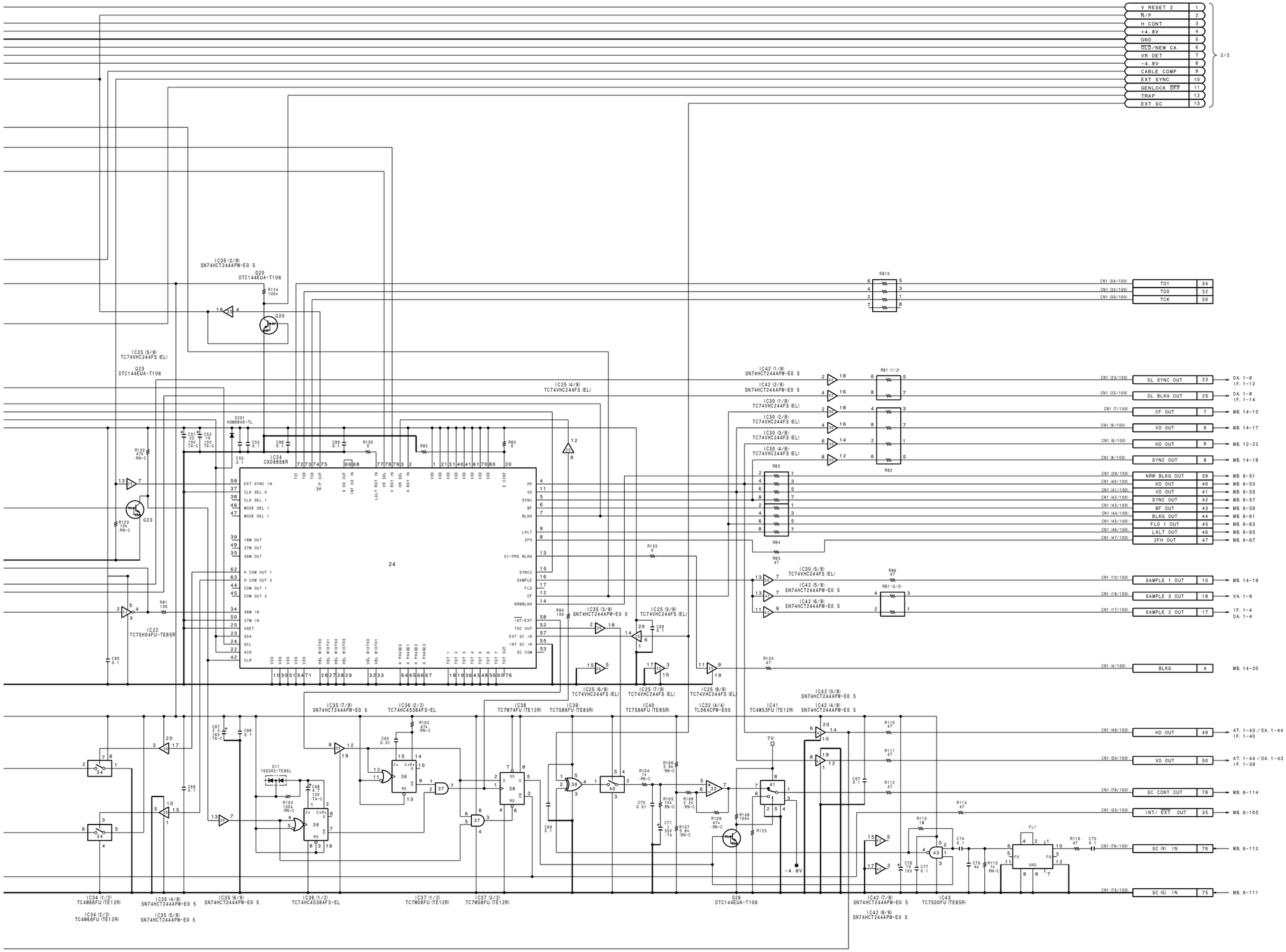
SG-234 (1-657-449-11)

*: B SIDE

CN1	C-1	* Q20	D-4
		* Q21	A-3
D1	A-2	Q22	B-3
* D2	A-2	Q23	G-4
D3	E-2	* Q24	F-1
* D4	A-1	* Q25	F-1
D5	B-3	Q26	D-3
D6	B-4	* Q200	E-1
* D7	D-3	* Q201	F-2
D8	F-1	Q202	A-4
D10	C-2	Q203	A-4
D11	C-3	Q204	B-4
D12	A-3	* Q205	A-3
* D13	D-1		
D14	A-3	RB1	E-1
* D200	B-4	RB2	F-1
* D201	E-3	RB3	D-1
		RB4	D-1
FL1	C-2	RB5	C-1
		RB10	D-1
IC3	A-2		
IC5	B-4		
IC8	F-1		
* IC11	D-3		
IC12	F-1		
IC13	D-3		
IC16	F-2		
* IC17	A-2		
IC18	F-4		
* IC20	D-3		
* IC21	F-1		
* IC22	F-3		
IC24	F-4		
IC25	E-2		
IC30	E-2		
* IC31	C-2		
IC32	D-2		
IC33	D-3		
* IC34	D-4		
IC35	D-4		
IC36	C-4		
IC37	C-3		
IC38	D-3		
* IC39	D-3		
* IC40	C-3		
IC41	D-3		
IC42	D-2		
* IC43	C-3		
IC44	B-3		
* IC45	D-2		
IC46	A-3		
* IC47	B-3		
IC48	A-3		
* IC200	D-1		
* IC201	D-1		
* IC202	D-1		
* IC203	D-1		
* IC204	A-4		
* IC206	B-4		
IC207	B-4		
* L1	A-1		
* L2	A-1		
* L4	B-1		
* L5	B-4		
* L6	C-4		
* L7	F-1		
L8	B-2		
L9	B-2		
Q1	A-2		
* Q2	A-2		
* Q4	B-2		
Q5	A-4		
Q6	A-4		
* Q7	B-4		
Q8	A-4		
* Q9	A-4		
Q10	C-4		
* Q11	A-4		
* Q12	C-3		
* Q14	C-3		
Q15	C-4		
* Q16	A-3		
Q17	A-3		
* Q18	C-4		

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

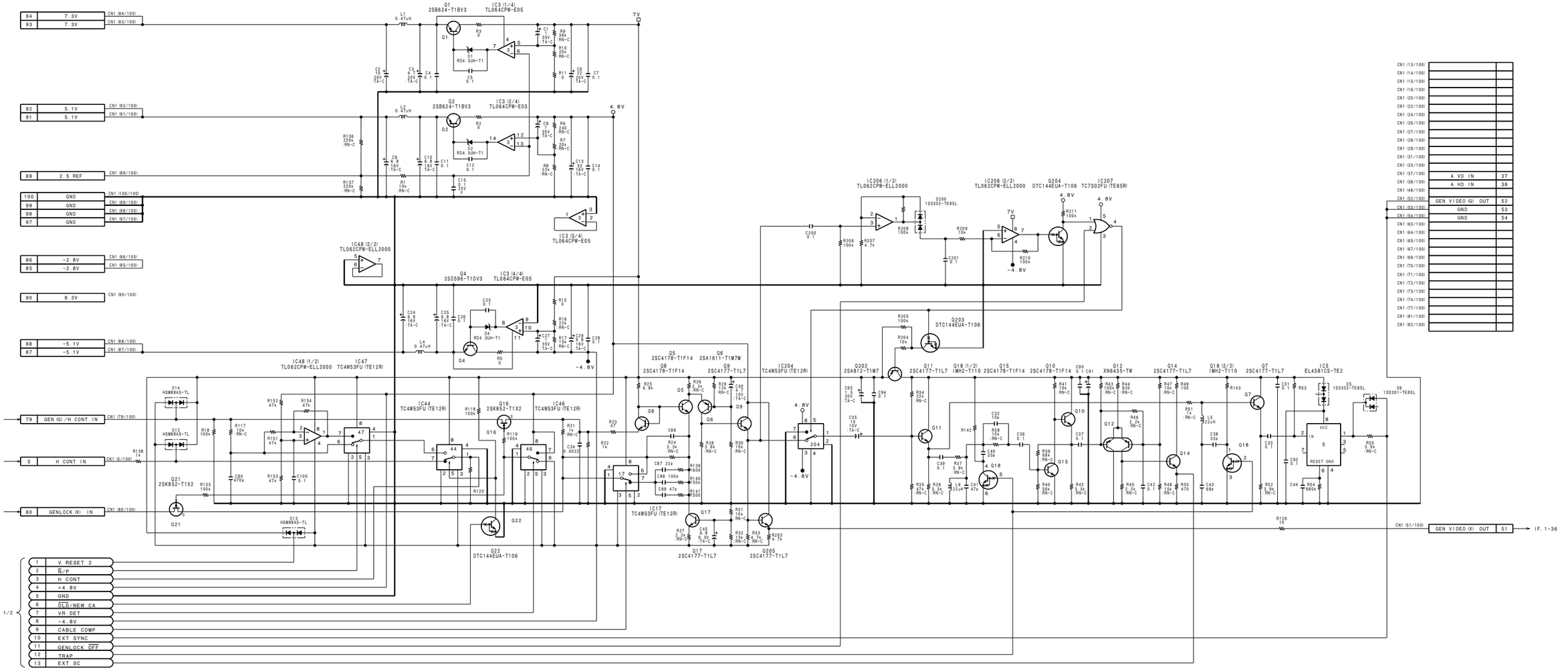




SG-234 (1/2)

BOARD NO. 1-657-449-11
LOT NO. 504-
B-¥BVP550-SG-234-12

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)



SG-234 (2/2)

BOARD NO. 1-657-449-11
LOT NO. 504-
B-¥BVP550-SG-234-12

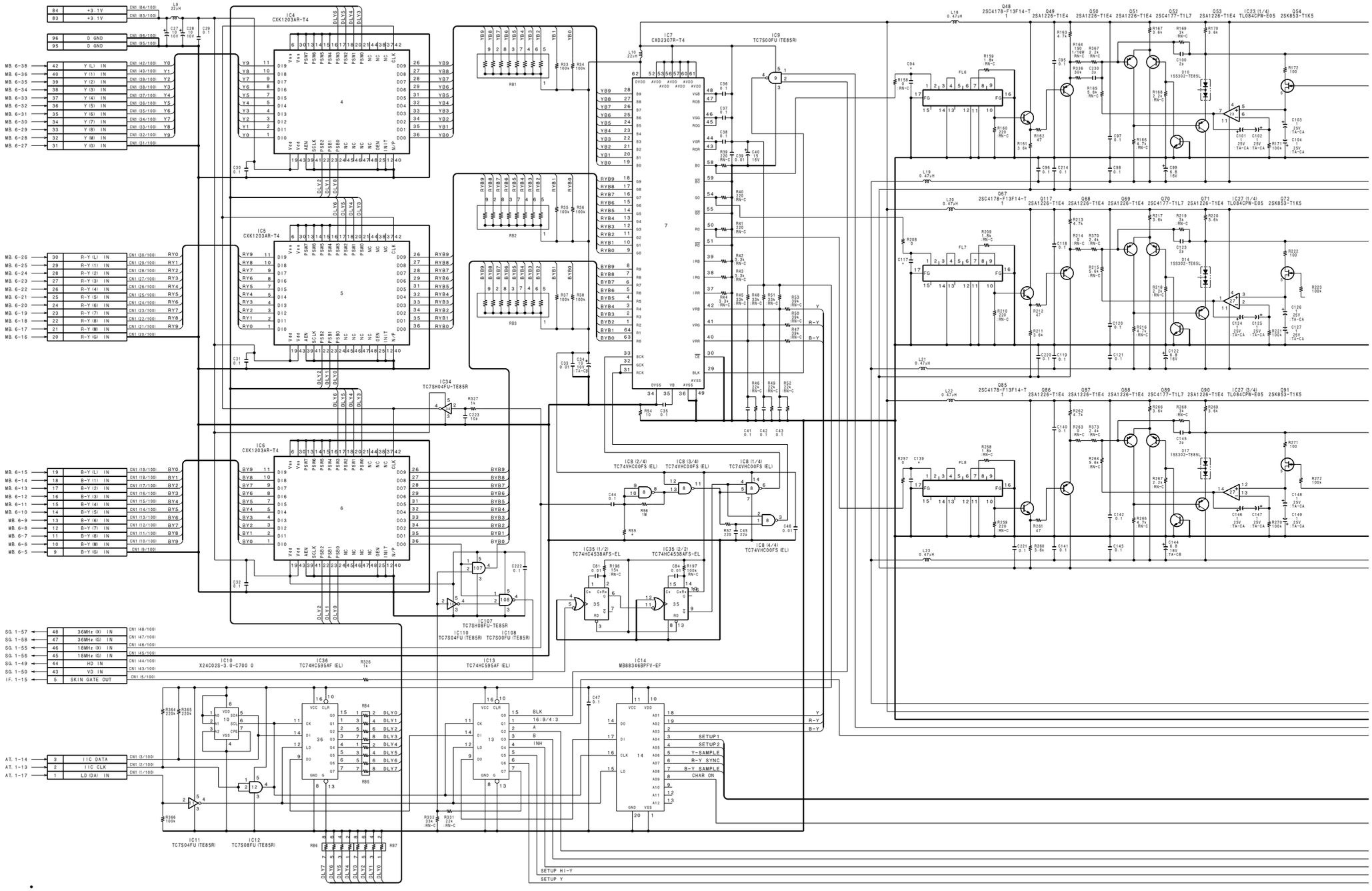
DA-88 BOARD

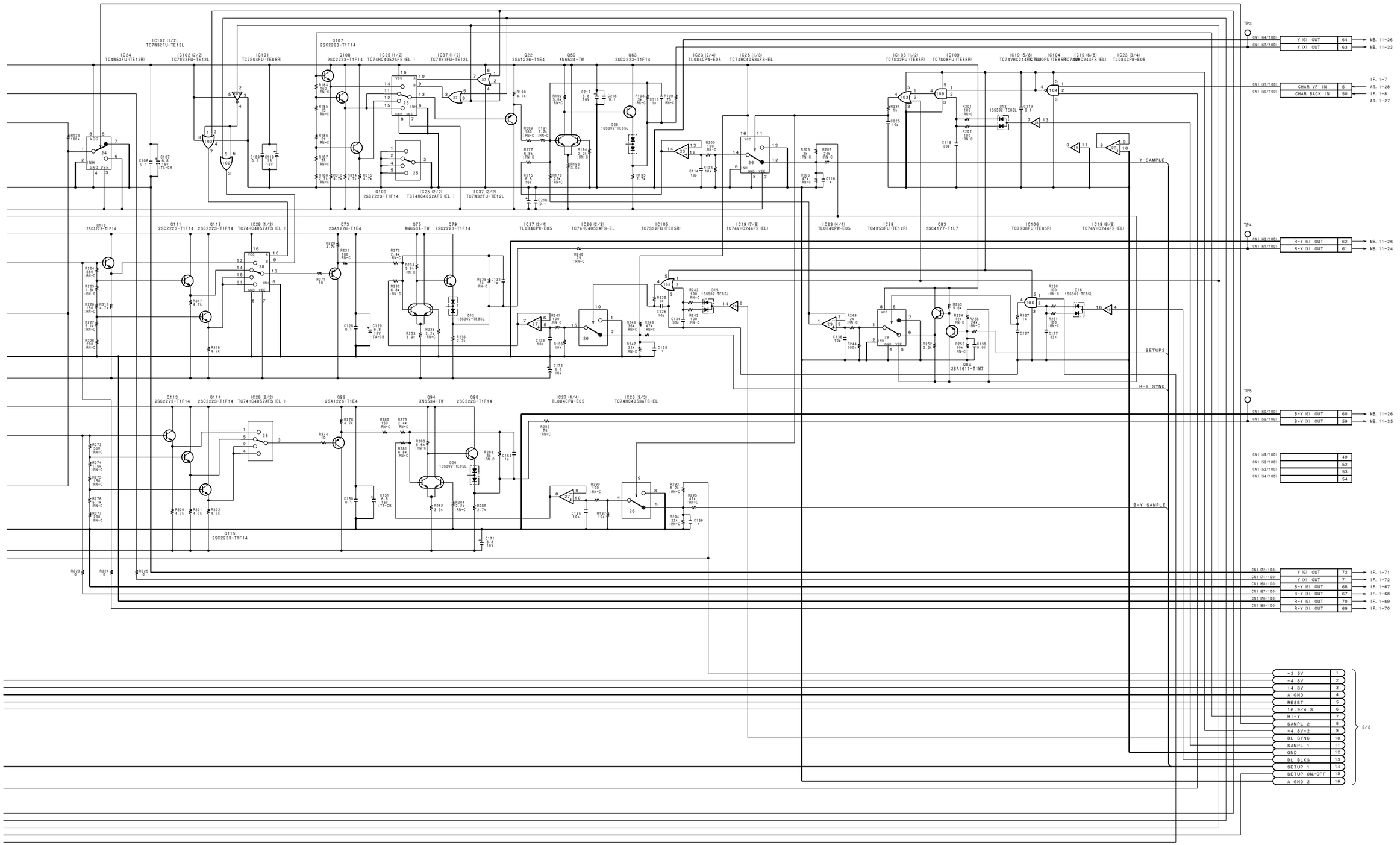
DA-88 (1-657-450-11)

*: B SIDE

	CN1	C-1		L6	B-2	*	Q103	C-2
				L7	A-3	*	Q104	C-3
*	D1	A-2		L8	A-3		Q105	G-2
*	D2	B-1		L9	B-1	*	Q106	G-1
*	D3	B-1		L10	D-2	*	Q107	B-3
*	D5	A-4		L11	F-1	*	Q108	C-3
*	D6	G-2		L12	G-1	*	Q109	C-3
	D7	F-2		L13	G-3	*	Q110	E-4
*	D9	C-1		L14	A-3	*	Q111	E-4
*	D10	D-3		L15	B-3	*	Q112	E-4
*	D11	G-2		L16	B-2	*	Q113	F-4
	D12	E-4		L17	B-2	*	Q114	G-4
	D13	G-2		L18	D-4	*	Q115	G-4
*	D14	E-3		L19	D-4		Q117	D-3
	D15	G-2	*	L20	E-4			
	D16	G-2	*	L21	E-4	*	RB1	D-2
*	D17	G-3	*	L22	F-4	*	RB2	E-2
	D24	B-3		L23	G-4	*	RB3	E-2
	D25	C-4		L24	G-1		RB4	F-2
	D26	G-4		L25	F-1		RB5	F-1
*	D100	A-3				*	RB6	F-2
*	D101	C-2	*	Q1	A-2	*	RB7	F-2
*	D102	G-2		Q2	A-2			
				Q3	B-2		TP1	B-2
	E1	F-4	*	Q4	A-3		TP2	C-1
			*	Q7	A-3		TP3	D-4
	FL1	A-4	*	Q8	A-3		TP4	E-4
	FL2	A-3	*	Q9	A-3		TP5	F-4
	FL3	B-3	*	Q10	A-2			
	FL4	B-2	*	Q11	B-3			
	FL5	C-2	*	Q12	A-4			
	FL6	D-3	*	Q13	B-4			
	FL7	E-3		Q14	B-4			
	FL8	F-3		Q15	A-4			
			*	Q16	A-4			
*	IC1	A-1		Q17	B-4			
*	IC2	B-1	*	Q18	B-4			
*	IC3	A-2	*	Q19	B-3			
*	IC4	D-1	*	Q20	A-2			
*	IC5	E-1	*	Q22	C-3			
*	IC6	E-1		Q23	B-3			
*	IC7	D-2	*	Q25	C-4			
*	IC8	D-1	*	Q26	B-4			
	IC9	E-2	*	Q27	B-2			
*	IC10	E-1	*	Q28	B-1			
	IC11	F-1	*	Q29	C-2			
	IC12	F-1	*	Q30	B-2			
*	IC13	E-2	*	Q32	C-2			
	IC14	F-2	*	Q33	C-2			
*	IC15	B-3	*	Q34	C-2			
	IC16	B-4		Q43	C-2			
*	IC17	B-4		Q44	C-1			
*	IC18	C-4	*	Q45	F-1			
	IC19	G-2	*	Q46	G-1			
*	IC20	C-2	*	Q47	G-1			
	IC23	C-3	*	Q48	D-4			
*	IC24	D-4	*	Q49	D-3			
	IC25	C-3	*	Q50	D-4			
	IC26	C-4	*	Q51	D-4			
	IC27	E-3	*	Q52	D-4			
	IC28	F-4	*	Q53	D-4			
	IC29	C-4	*	Q54	D-4			
	IC34	D-1		Q59	C-4			
*	IC35	E-1		Q63	C-4			
*	IC36	F-2	*	Q67	D-3			
*	IC37	C-3	*	Q68	E-3			
	IC100	F-2	*	Q69	E-3			
	IC101	C-3	*	Q70	E-3			
	IC102	C-3	*	Q71	E-3			
	IC103	G-2		Q72	E-3			
*	IC104	G-2	*	Q73	E-4			
	IC105	G-2		Q75	E-4			
	IC106	G-2		Q79	E-4			
	IC107	E-2	*	Q83	C-4			
	IC108	E-2	*	Q84	C-4			
	IC109	G-2	*	Q85	F-3			
	IC110	E-2		Q86	F-3			
			*	Q87	G-3			
*	JR1	B-4	*	Q88	G-3			
*	JR2	A-4	*	Q89	G-3			
*	JR3	C-2	*	Q90	G-3			
*	JR4	B-3		Q91	G-3			
			*	Q92	F-4			
	L1	A-1		Q94	G-4			
	L2	A-2		Q98	G-4			
	L3	A-1	*	Q100	A-4			
	L4	A-2	*	Q101	A-4			
	L5	B-1	*	Q102	C-2			

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

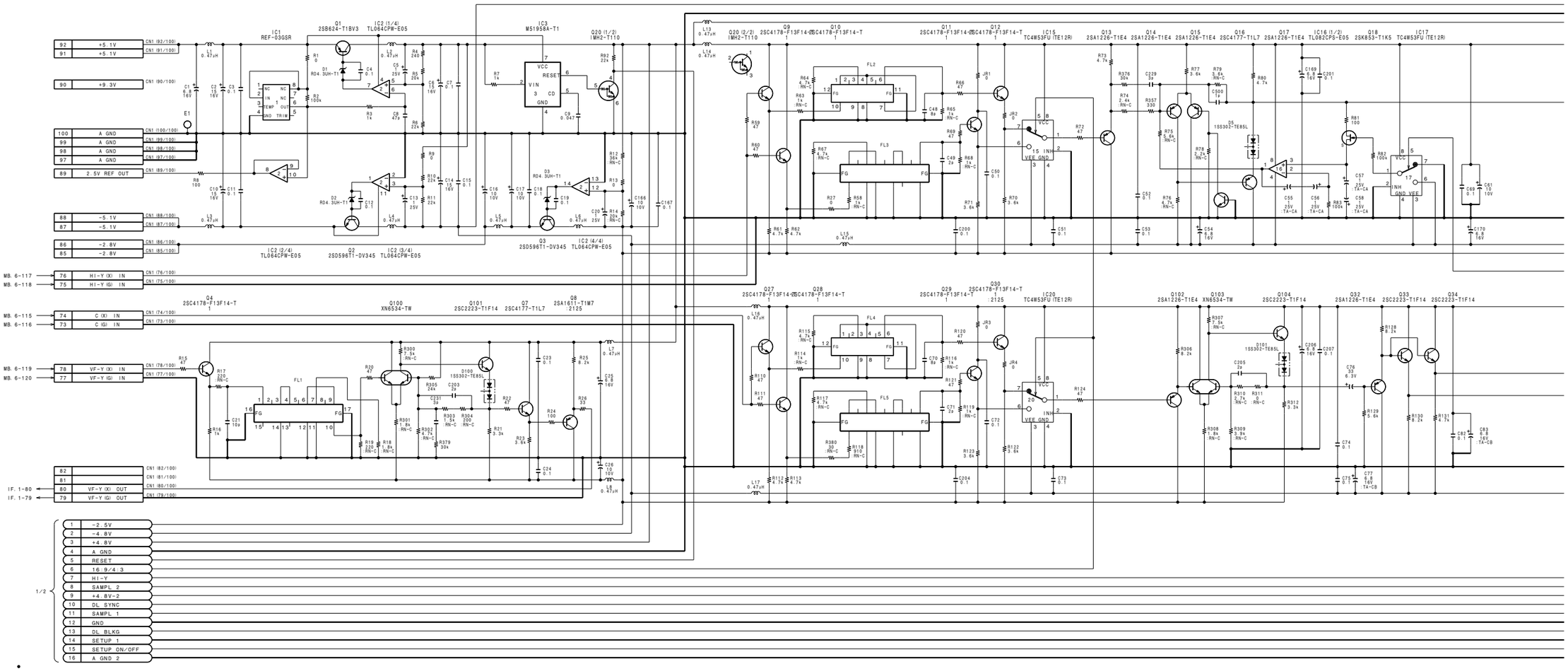


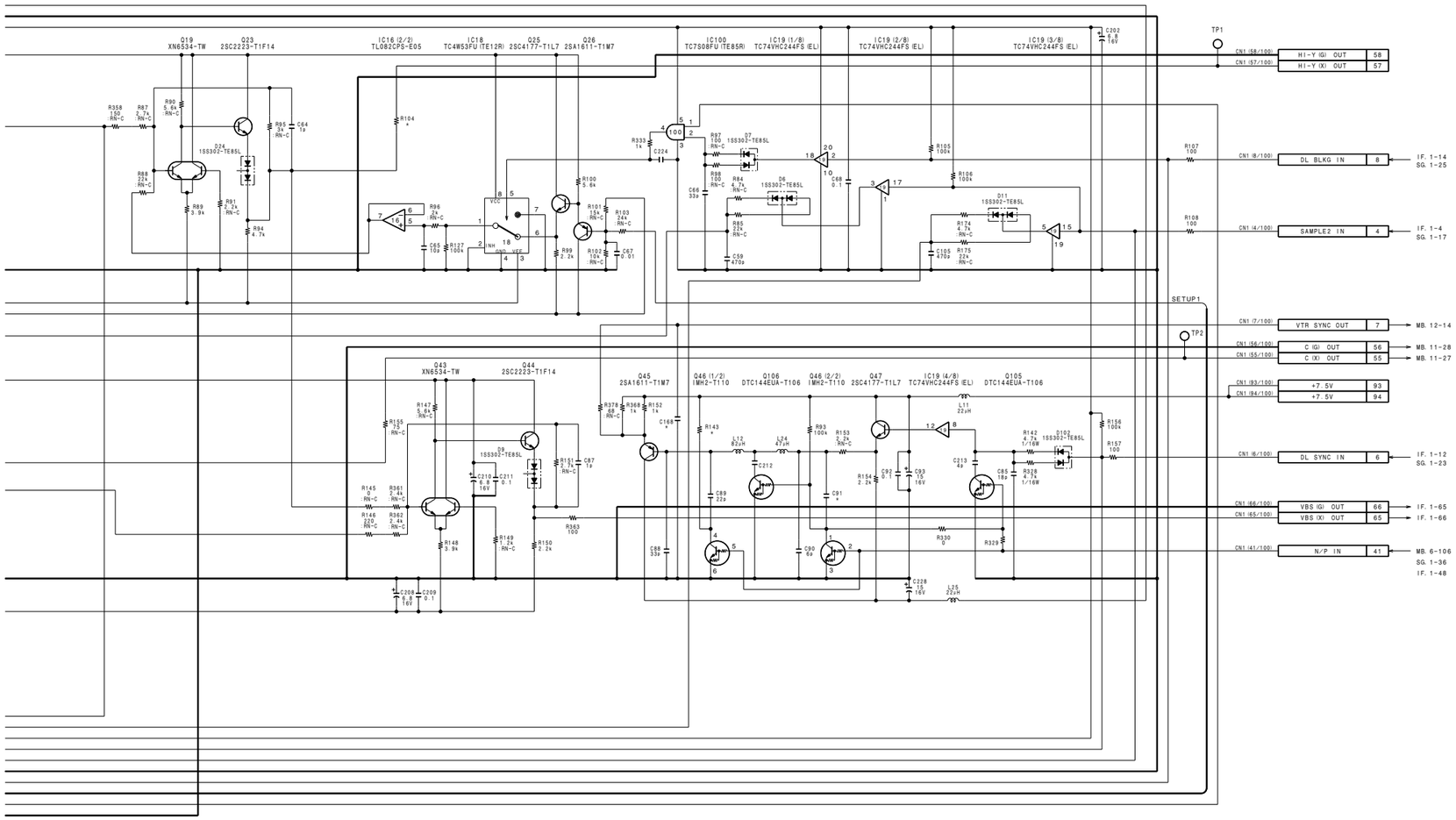


DA-88 (1/2)

BOARD NO. 1-657-450-11
LOT NO. 504-
B-¥BVP550-DA88-12

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)





DA-88 (2/2)

BOARD NO. 1-657-450-11
LOT NO. 504-
B-¥BVP550-DA88-12

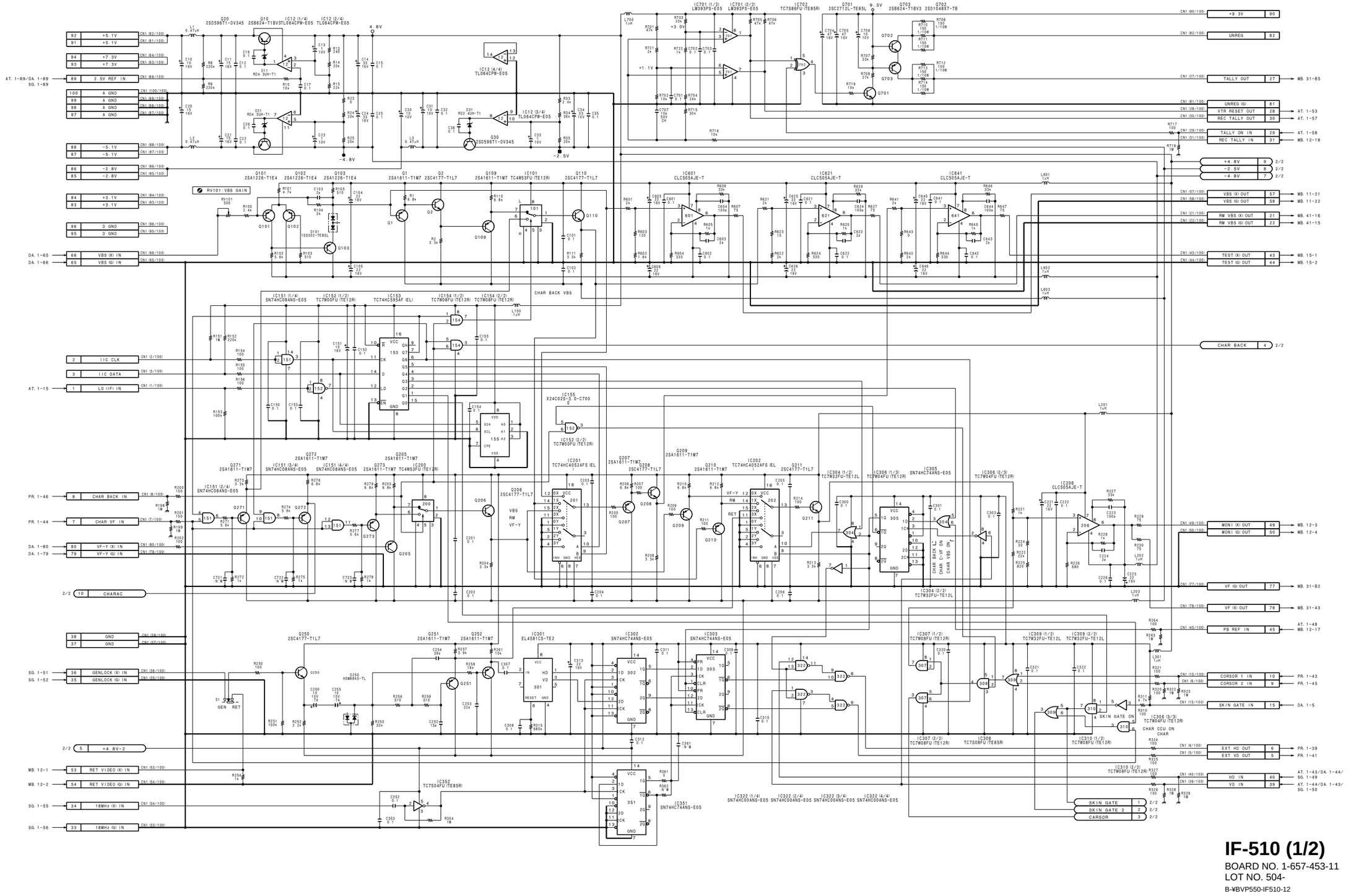
IF-510 BOARD

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

IF-510 (1-657-453-11)

*: B SIDE

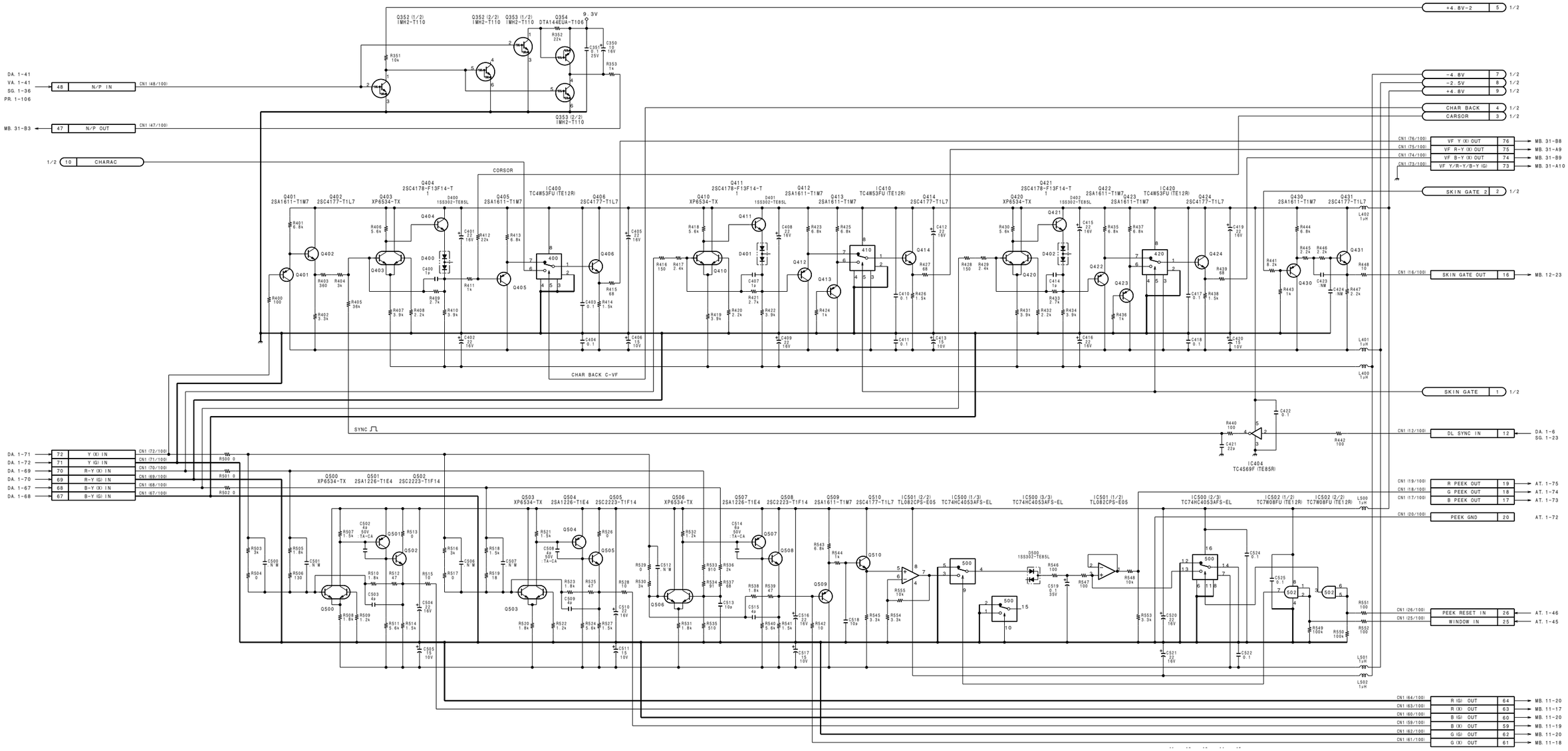
CN1	C-1	* Q251	B-3
		* Q271	C-4
* D11	A-2	* Q272	C-4
* D21	A-2	* Q273	C-3
* D31	B-2	* Q352	G-3
* D101	D-3	* Q353	F-3
* D250	B-3	* Q354	G-3
* D400	C-2	* Q401	B-2
* D401	C-3	* Q402	B-3
* D402	D-3	* Q403	C-2
* D500	E-2	* Q404	C-3
		* Q405	C-3
* IC12	A-2	* Q406	B-3
* IC101	D-4	* Q410	C-2
IC151	F-4	* Q411	C-3
* IC152	F-3	* Q412	C-3
* IC153	F-3	* Q413	C-3
* IC154	F-3	* Q414	C-3
IC155	G-4	* Q420	D-2
IC200	B-4	* Q421	D-3
* IC201	B-4	* Q422	D-3
* IC202	A-4	* Q423	D-3
* IC206	A-3	* Q424	D-3
* IC301	G-2	Q430	C-3
* IC302	F-2	Q431	C-4
IC303	F-2	* Q500	C-2
* IC304	G-2	* Q501	B-2
IC305	F-3	* Q502	B-2
* IC306	F-1	* Q503	C-2
* IC307	G-2	* Q504	C-2
* IC308	G-1	* Q505	C-2
IC309	G-1	* Q506	D-2
* IC310	G-1	* Q507	D-2
IC322	F-1	* Q508	D-2
* IC351	F-2	Q509	E-2
* IC352	F-2	Q510	E-1
IC400	C-3	* Q701	A-3
* IC404	C-4	* Q702	A-3
IC410	C-3	* Q703	A-3
IC420	D-3		
* IC500	E-1	RV101	D-4
* IC501	C-1		
* IC502	D-1	S1	C-3
* IC601	E-3		
* IC621	E-2		
* IC641	E-2		
IC701	A-3		
IC702	A-2		
L1	A-1		
L2	A-1		
L3	B-1		
L150	E-4		
L201	A-3		
L202	A-3		
L203	A-4		
L250	B-3		
L301	F-2		
L400	D-2		
L401	D-3		
L402	C-3		
L500	D-2		
L501	C-1		
L502	D-1		
L601	D-4		
L602	E-3		
L603	D-3		
L700	A-2		
* Q1	E-4		
* Q2	E-4		
* Q10	A-2		
* Q20	A-2		
* Q30	B-2		
Q101	D-4		
Q102	D-4		
Q103	D-4		
* Q109	E-4		
* Q110	D-3		
* Q205	B-4		
Q206	B-4		
Q207	B-4		
Q208	B-4		
Q209	A-4		
Q210	A-4		
Q211	A-4		
* Q250	B-4		



IF-510 (1/2)

BOARD NO. 1-657-453-11
LOT NO. 504-
B-¥BVP550-IF510-12

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)

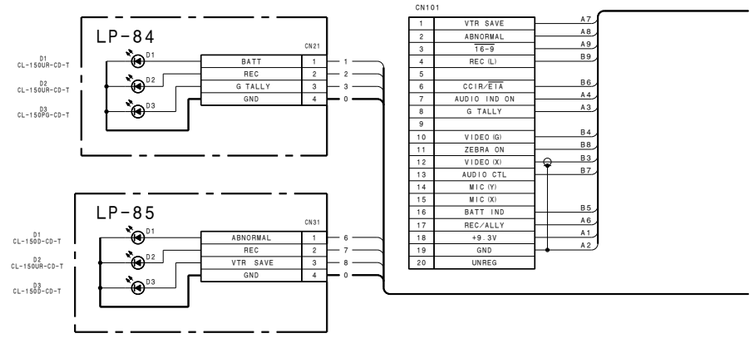


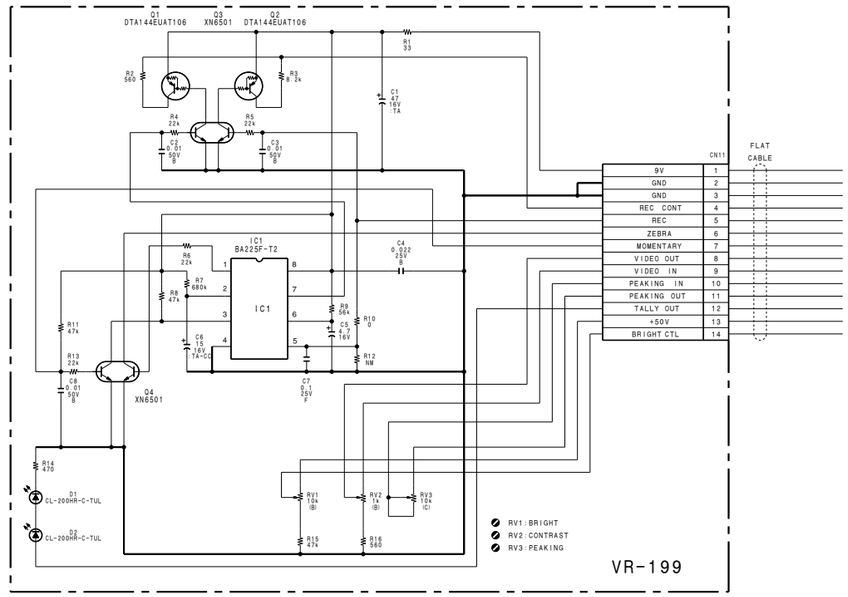
IF-510 (2/2)

BOARD NO. 1-657-453-11
LOT NO. 504-
B-¥BVP550-IF510-12

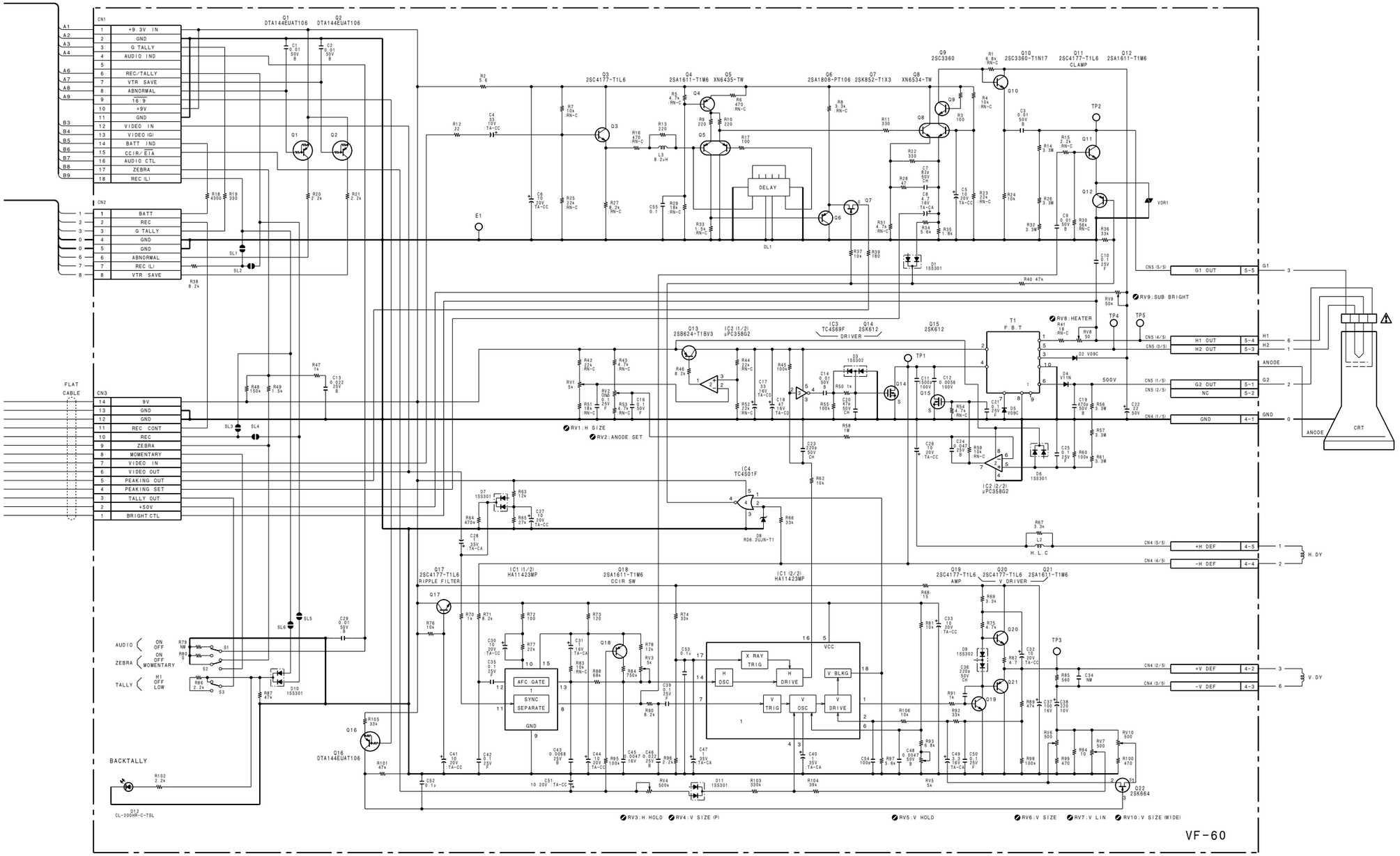
VIEW FINDER VF-60 VR-199 LP-84/85

VIEW FINDER





8-20



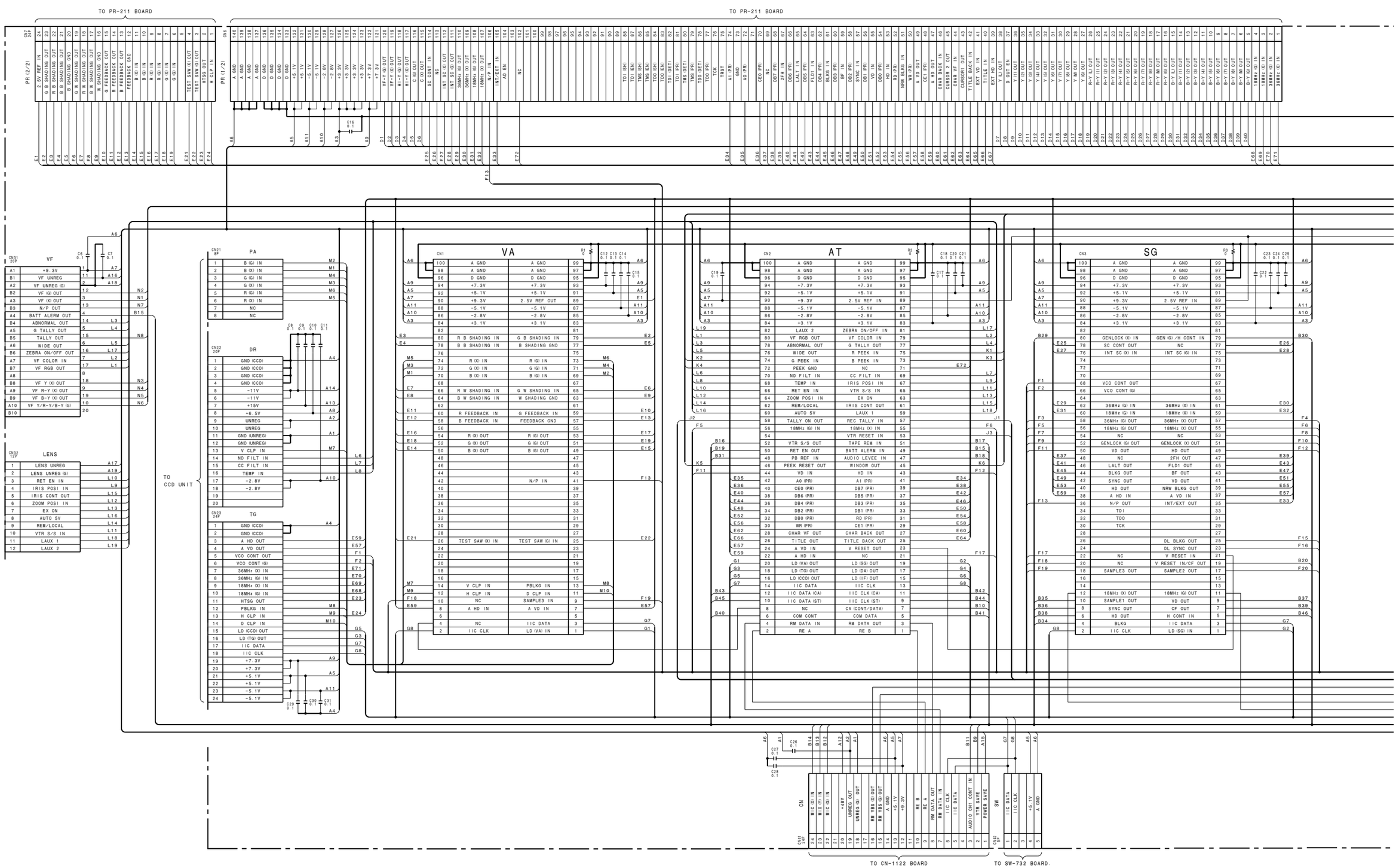
VIEW FINDER

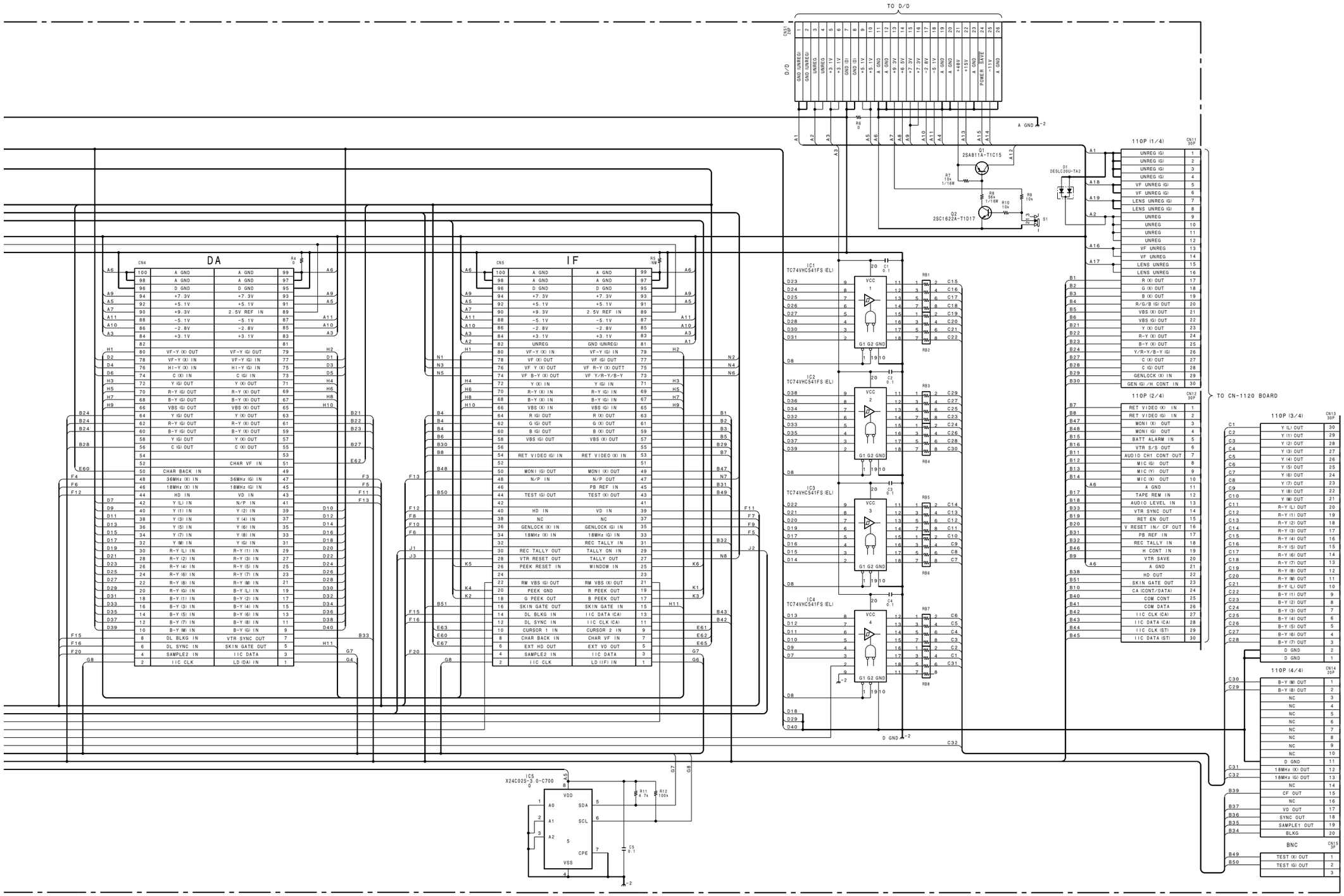
VF-60
VR-199
LP-84/85

A-¥BVP550-VIEW FINDER/M
B-¥BVP550-LP84/M
B-¥BVP550-LP85/M
B-¥BVP550-VF60/M
B-¥BVP550-VR199/M

MB-602 BOARD

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)





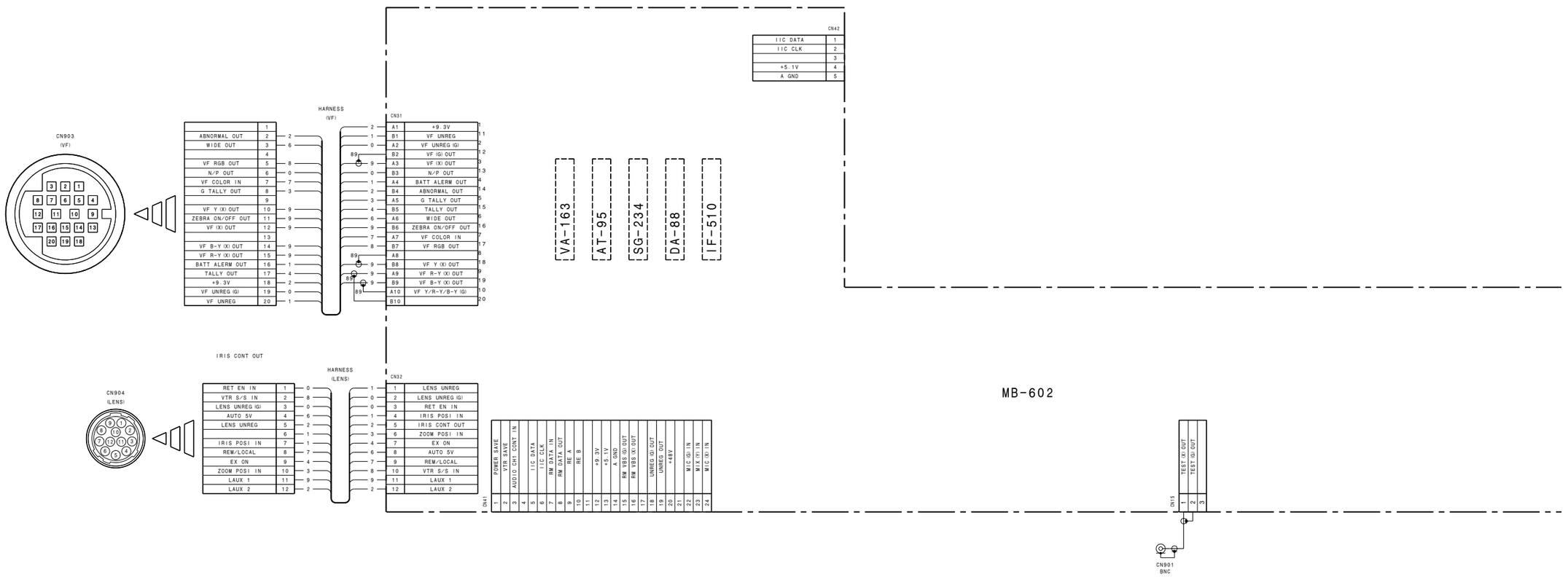
MB-602

BOARD NO. 1-657-437-11
LOT NO. 904-
B-¥BVP550-MB602-11

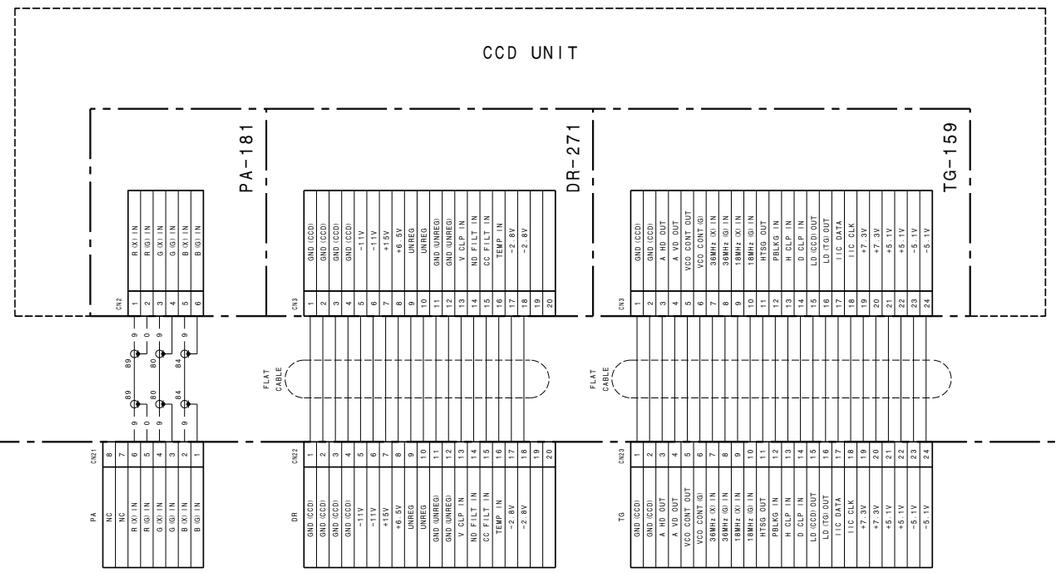
FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

FRAME WIRING

BVP-550 (UC)
BVP-550 (J)
BVP-550P (CE)



FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742



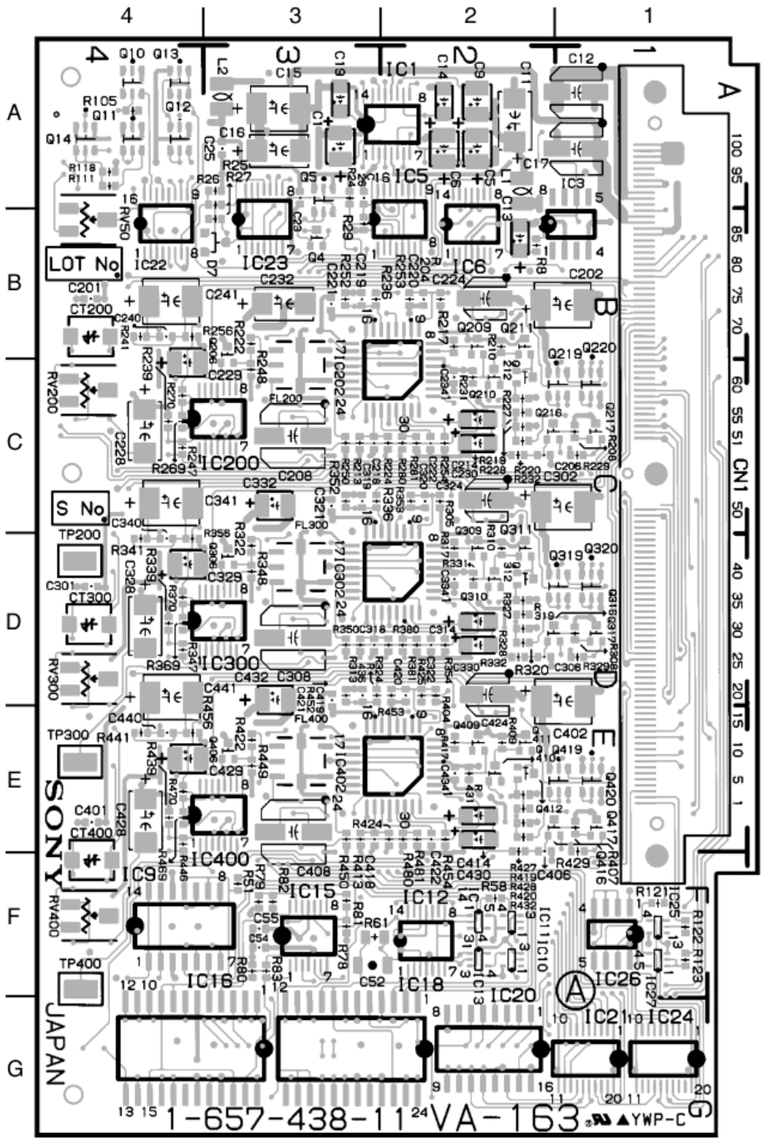
FRAME WIRING
CN-1120/1121/1122/1142
SW-730/731/732/733/742

B-¥BVP550-FRAME-11

8-25

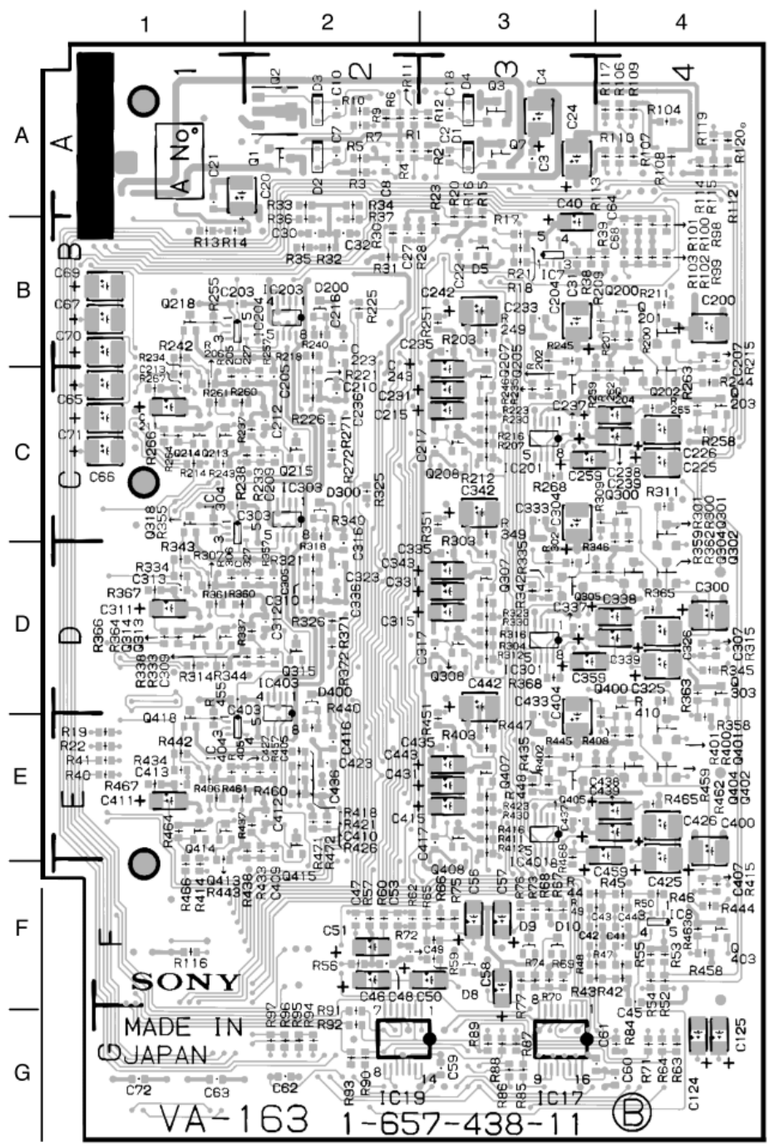
Section 9
Board Layouts

VA-163 BOARD



VA-163 - A SIDE -

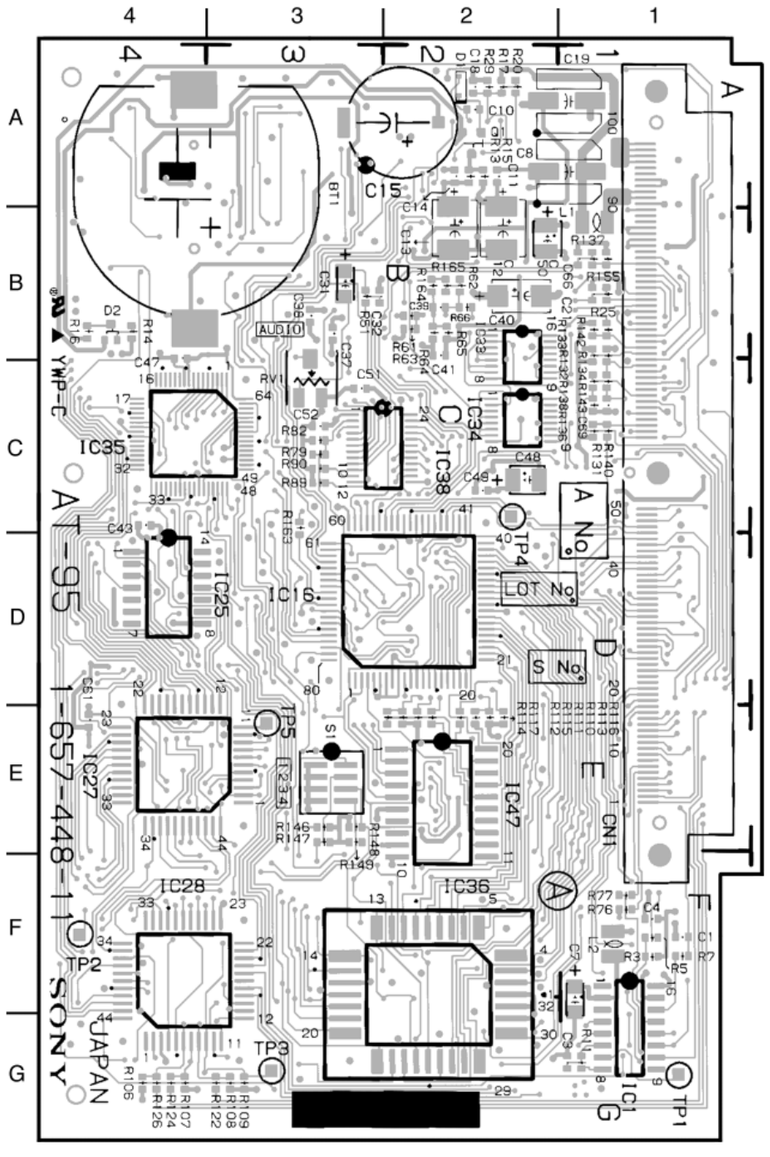
1-657-438-11



VA-163 - B SIDE -

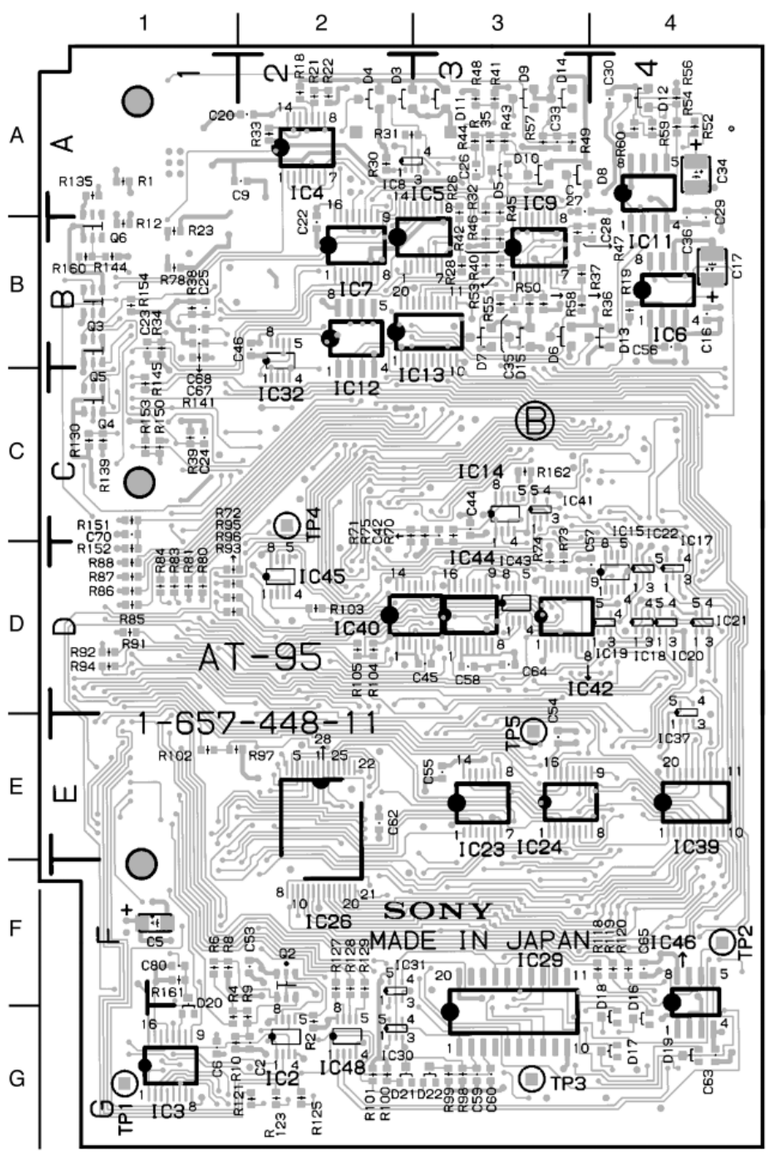
1-657-438-11

AT-95 BOARD



AT-95 - A SIDE -

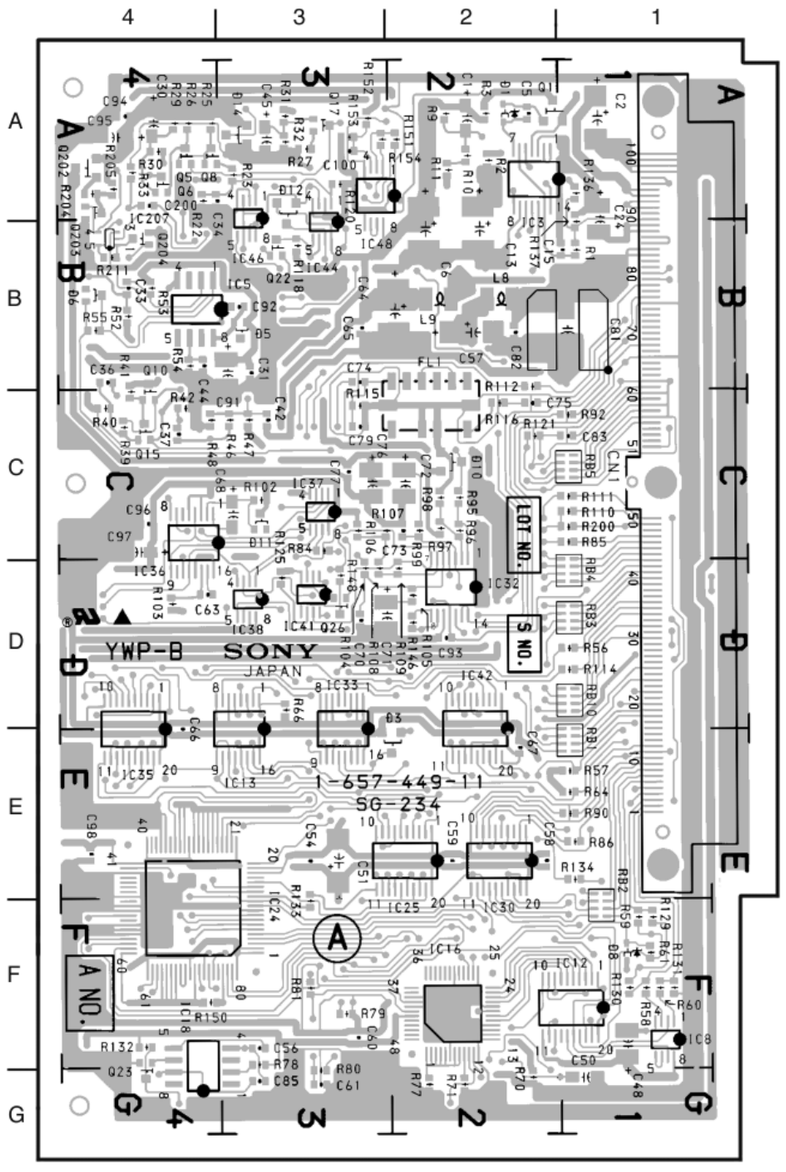
1-657-448-11



AT-95 - B SIDE -

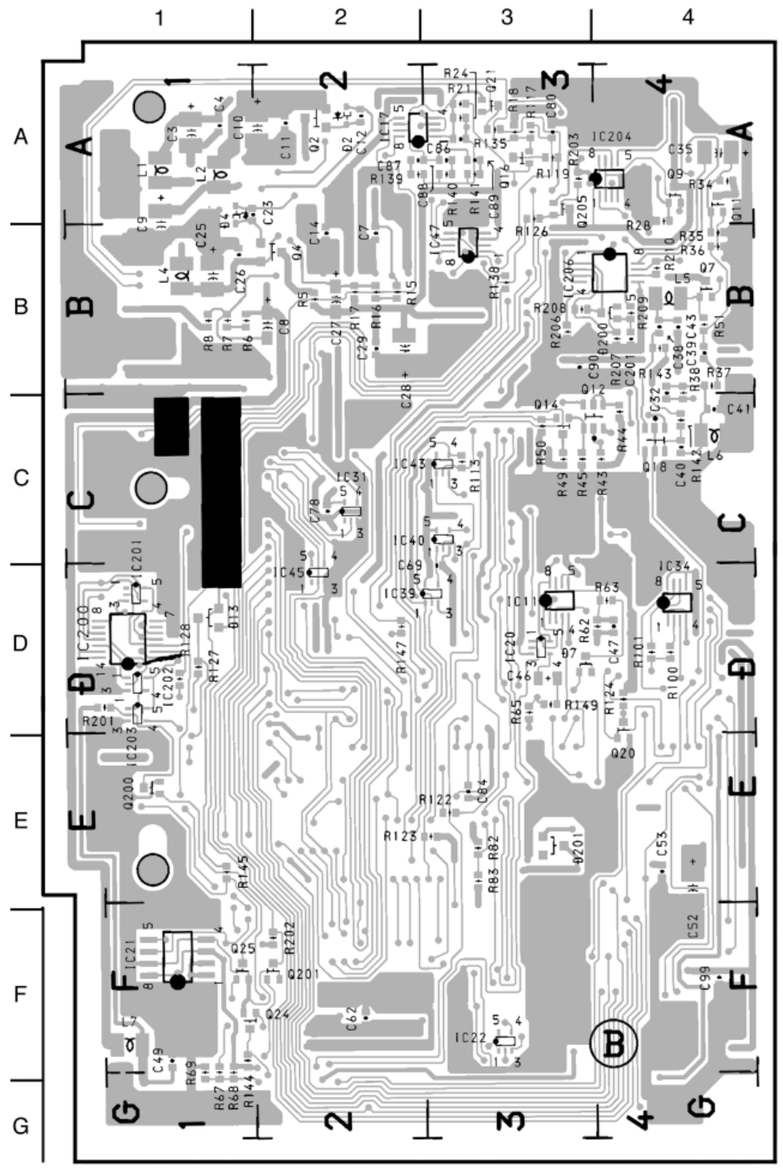
1-657-448-11

SG-234 BOARD



SG-234 - A SIDE -

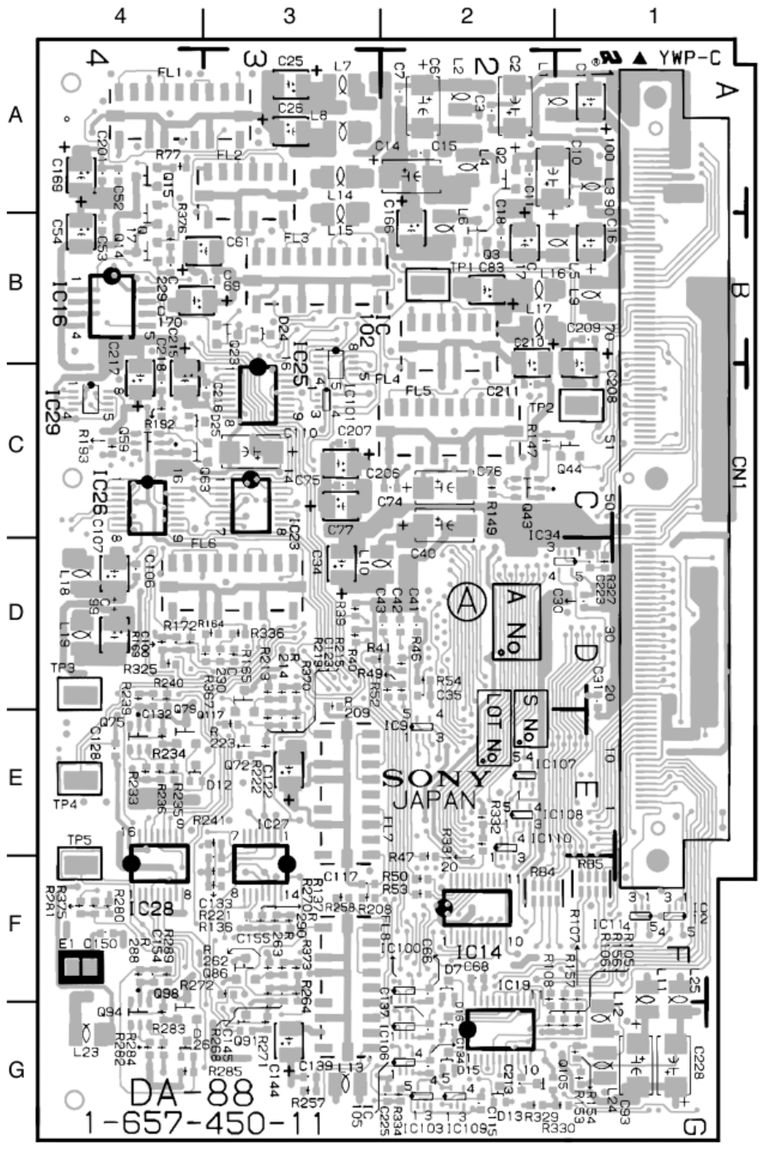
1-657-449-11



SG-234 - B SIDE -

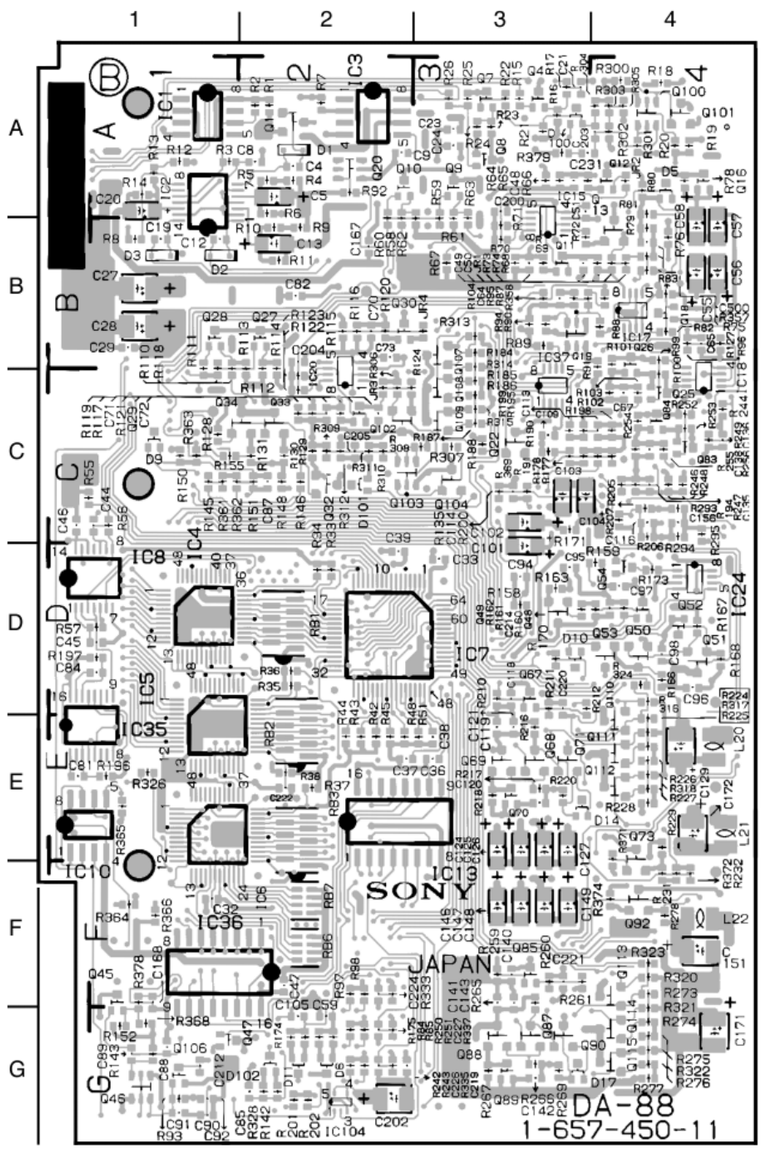
1-657-449-11

DA-88 BOARD



DA-88 - A SIDE -

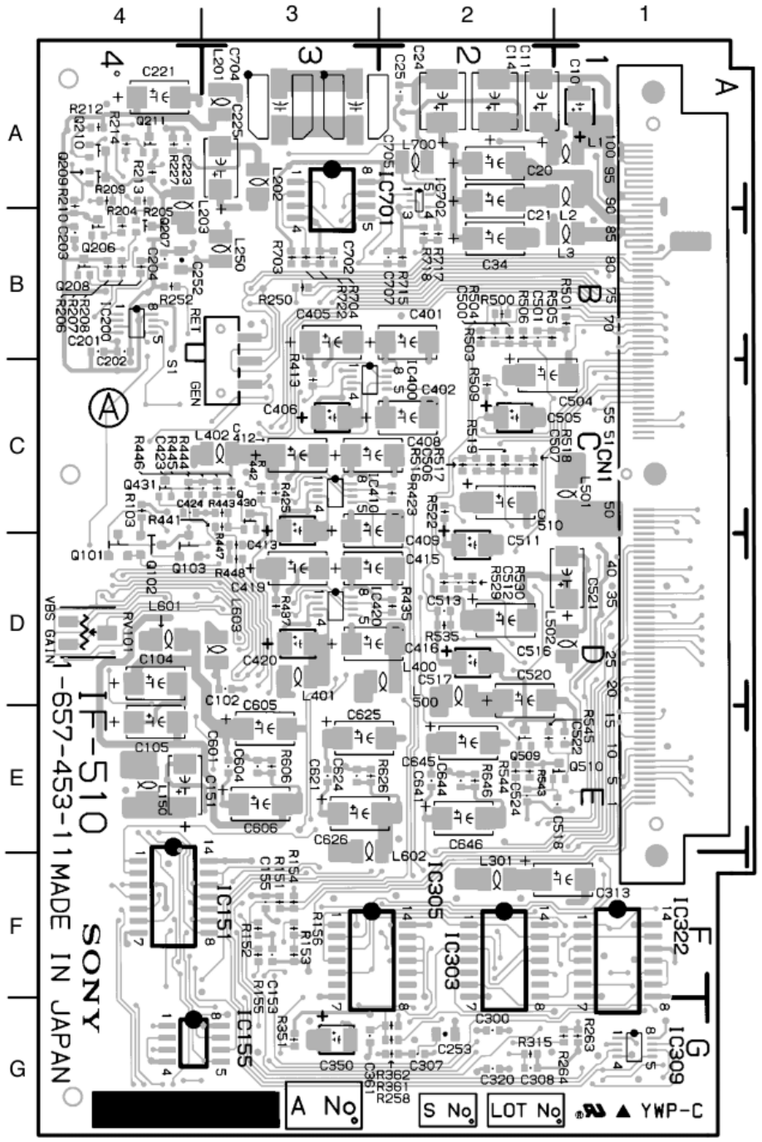
1-657-450-11



DA-88 - B SIDE -

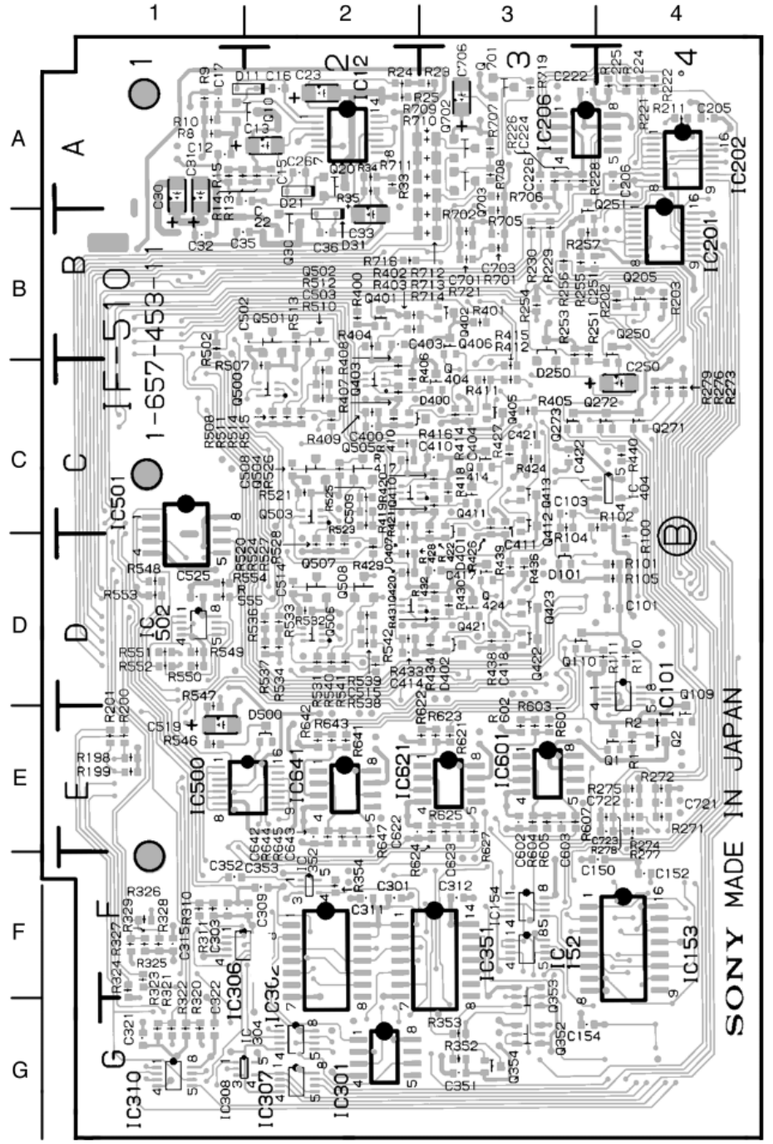
1-657-450-11

IF-510 BOARD



IF-510 - A SIDE -

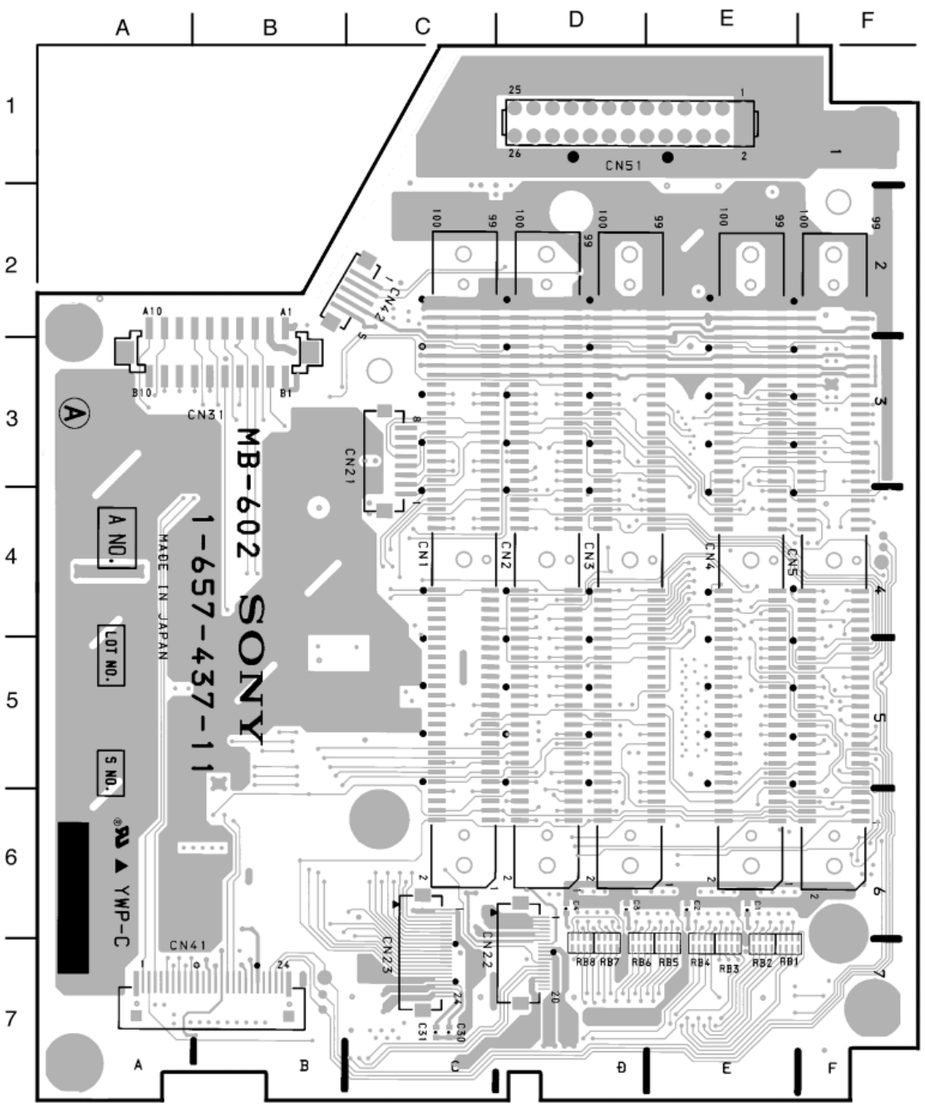
1-657-453-11



IF-510 - B SIDE -

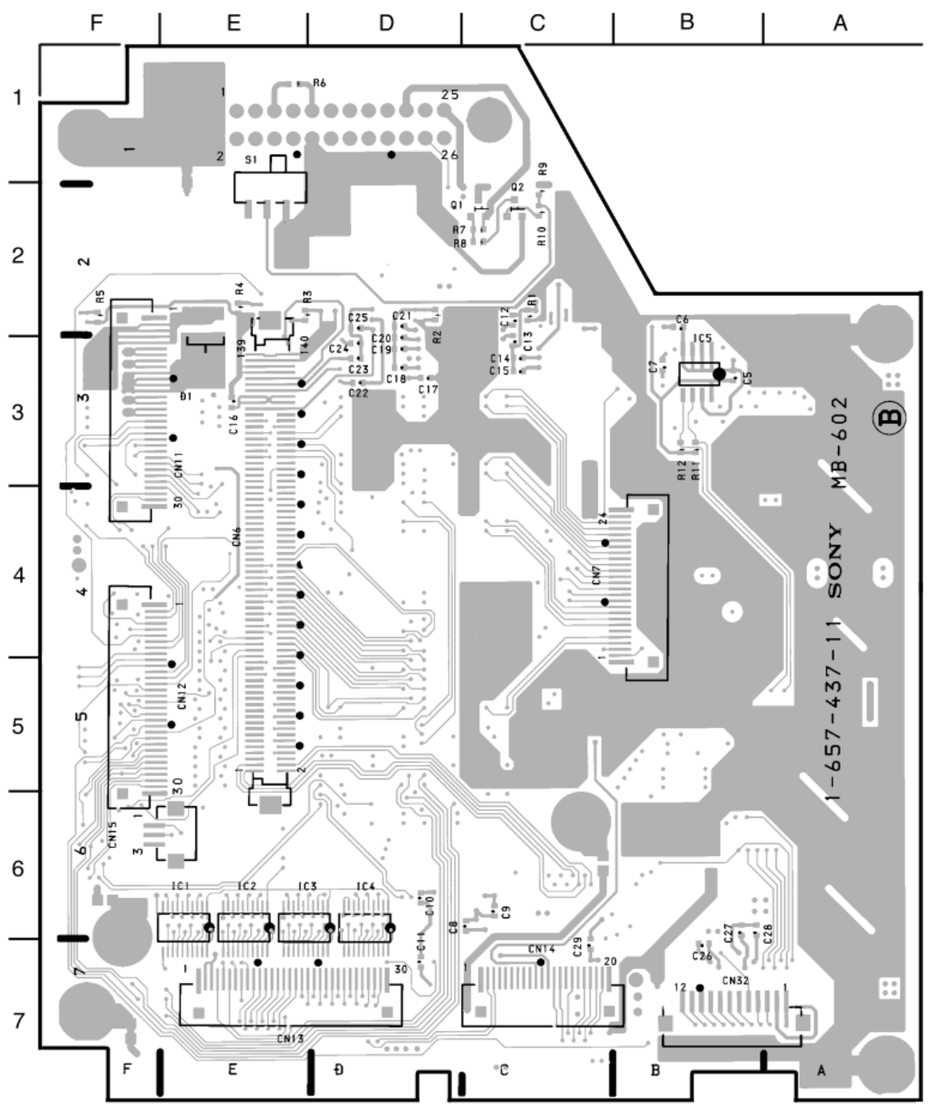
1-657-453-11

MB-602 BOARD



MB-602 - A SIDE -

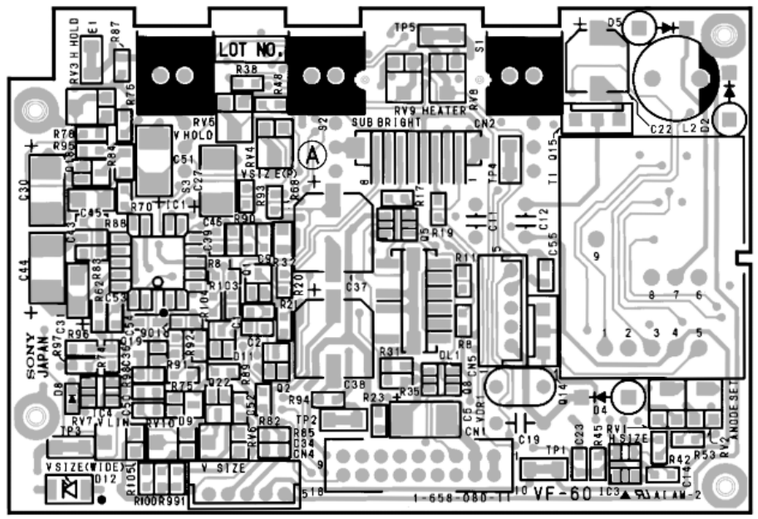
1-657-437-11



MB-602 - B SIDE -

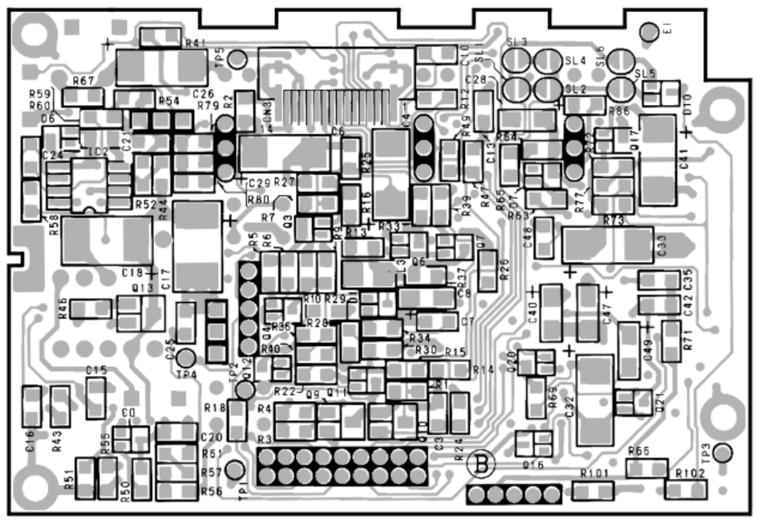
1-657-437-11

VF-60 BOARD



VF-60 - A SIDE -

1-658-080-11



VF-60 - B SIDE -

1-658-080-11

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BVP-550P (CE) J,E
3-189-412-01

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Broadcast Products Company

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SONY

COLOR VIDEO CAMERA

BVP-550

Digital 1000

MAINTENANCE MANUAL

1st Edition

Serial No. 50001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Color Video Camera BVP-550.
This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1. Installation

Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2. Service Overview

Describes information about board locations, circuit description, replacement of part and notes on services.

Section 3. Setup menu

Describes information about setup menu and self-diagnosis mode.

Section 4. Electrical Alignment

Describes electrical adjustment.

Section 5. Spare Parts

Describes parts list, exploded views, supplied accessories and fixtures list used in the unit.

Section 6. Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 7. Block Diagrams

Describes overall block diagram and the block diagrams for every circuit board.

Section 8. Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 9. Board Layouts

Describes board layouts for every circuit board.

Relative manuals

Besides this maintenance manual the following manuals are available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

- **System manual (Not supplied with this unit)**
  This manual is necessary for connection and operation of this unit and other peripheral equipments.
  If this manual is required, please contact Sony service organization

Section 1
Installation

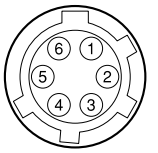
1-1. Connectors and Cables

1-1-1. Connector Input/Output Signals

Output Signal

- TEST OUT
  BNC 75 Ω 1.0 Vp-p

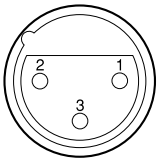
REMOTE (6P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	SERIAL DATA IN	Serial data for camera control
2	SERIAL DATA OUT	
3	UNREG (G)	
4	VBS (X) OUT	VBS 1 Vp-p, Zo = 75 Ω
5	VBS (G) OUT	
6	UNREG OUT	+10.5 V to +17 V

MIC IN (3P FEMALE)

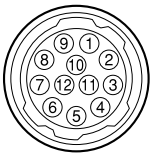


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	MIC IN (G)	–60 dBu High impedance balanced
2	MIC IN (X)	
3	MIC IN (Y)	

(0 dBu=0.775 Vrms)

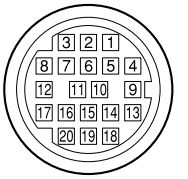
LENS (12P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	RET VIDEO ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
2	RET 2 ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
3	GND	GND for UNREG
4	AUTO +5 V OUT	AUTO: +5 V MANU: 0 V or OPEN
5	IRIS CONT OUT	+3.4 V (F16) to +6.2 V (F2.8)
6	UNREG OUT	+10.5 V to +17 V
7	IRIS POSITION IN	+3.4 V (F16) to +6.2 V (F2.8)
8	AUTO/MANU OUT	AUTO IRIS: 0 V MANUAL IRIS: +5 V
9	EXTENDER ON/OFF IN	EX 2 ON: 0 V EX 0.8 ON: +1.8 V OFF: +4.8 V
10	ZOOM POSITION IN	WIDE: 2 V TELE: 7 V
11	NC	No connection
12	NC	No connection

VF (20P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	NC	No connection
2	ABNORMAL IND OUT	H: Indicator lights L: Indicator goes out
3	16:9 MODE OUT	H: NORMAL (4:3) L: WIDE (16:9)
4	NC	No connection
5	COMP/VBS SW IN/OUT	*Note1
6	CCIR/EIA OUT	H:CCIR, L:EIA
7	NC	No connection
8	G TALLY OUT	H: Indicator lights L: Indicator goes out
9	NC	No connection
10	Y (X) OUT	1 Vp-p, VF:Zi = 1 kΩ
11	ZEBRA $\overline{\text{ON}}$ IN	H: OFF, L:ON
12	VF VIDEO OUT (X)	1.0 Vp-p, VF:Zi = 1 kΩ
13	NC	No connection
14	B-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
15	R-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
16	BATT IND OUT	H: Indicator lights L: Indicator goes out
17	TALLY IND OUT	H: Indicator lights L: Indicator goes out
18	+9.3 V (VF) OUT	REG +9.3 V
19	GND	GND
20	UNREG OUT	+10.5 V to 17 V

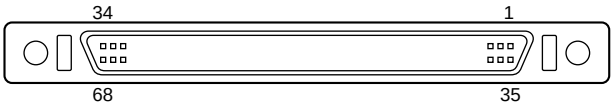
Note1: Specification of COMP/VBS SW Signal

When powering on, the microcomputer of the camera identifies a viewfinder in use by detecting the voltage at pin 5.

H: Color VF, L: B/W VF

- In use of B/W VF
  Voltage control of pin 5 is disabled during operation. Switching between the return video signal and monochrome signal for the viewfinder is done by the camera and selected signal is output at pin 12 to the viewfinder.
- In use of Color VF
  By controlling the voltage at pin 5 during operation, switching between the decoded return video signal and the camera component signal is done in the viewfinder.
  H: Camera, L: Return video

ANALOG CA (68P FEMALE)



(EXTERNAL VIEW)

*: In connection with CCU, **: In connection with VTR

No.	SIGNAL	SPECIFICATIONS
1	UNREG GND	GND for UNREG
2	UNREG GND	GND for UNREG
3	VF UNREG GND	GND for VF UNREG
4	LENS UNREG GND	GND for LENS UNREG
5	UNREG IN	10.5 V to 17 V
6	UNREG IN	10.5 V to 17 V
7	VF UNREG IN	10.5 V to 17 V
8	LENS UNREG IN	10.5 V to 17 V
9	R OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
10	B OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
11	VBS OUT (G)	GND for VBS VIDEO
12	Y OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
13	B-Y OUT (X)	700 mVp-p, with sample 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
14	NC	No connection
15	C OUT (X)	SC for S connector
16	VBS GENLOCK IN (X)	1.0 Vp-p ±6 dB
17	RET VIDEO IN (G)	GND for RET VIDEO
18	MONITOR VIDEO OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
19	BATTERY ALARM IN	Zi = 300 Ω *Note 2
20	NC	No connection
21	AUDIO CH1 CONT OUT	0 V (0 dB) to 7 V (–50 dB or less)
22	MIC 1 OUT (Y)	Zo ≤ 600 Ω, –60 dBu balanced
23	NC	No connection
24	SKIN TONE GATE OUT	1.0 Vp-p
25	TAPE REM IN	*Note 4
26	VTR SYNC OUT	+5.0 Vp-p Negative pulse, Zo ≤ 100 Ω
27	RET EN OUT	ENABLE; 0 V, DISABLE; +5 V or OPEN
28	PB REF IN	PB; +4.5 V, CAM; 0 V or OPEN
29	H CONT IN	0 V to 5 V, Analog
30	ANALOG GND	
31	DIGITAL HD OUT	3 Vp-p for Digital
32	COM CONT IN	5 Vp-p
33	IIC CLOCK OUT (CA)	5 Vp-p
34	IIC CLOCK OUT (ST)	5 Vp-p

No.	SIGNAL	SPECIFICATIONS
35	UNREG GND	GND for UNREG
36	UNREG GND	GND for UNREG
37	VF UNREG GND	GND for VF UNREG
38	LENS UNREG GND	GND for LENS UNREG
39	UNREG IN	10.5 V to 17 V
40	UNREG IN	10.5 V to 17 V
41	VF UNREG IN	10.5 V to 17 V
42	LENS UNREG IN	10.5 V to 17 V
43	G OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
44	R/G/B GND	GND for R/G/B VIDEO
45	VBS OUT (X)	1.0 Vp-p ±10%, Zo = 75 Ω
46	R-Y OUT (X)	700 mVp-p, with sync 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
47	Y/R-Y/B-Y GND	GND for Y/R-Y/B-Y
48	NC	No connection
49	C OUT (G)	GND for C
50	VBS GENLOCK IN (G)	GND for GENLOCK/H CONT IN
51	RET VIDEO IN (X)	1.0 Vp-p, Zi = 1 kΩ
52	MONITOR VIDEO OUT (G)	GND for MONITOR VIDEO
53	VTR START/STOP OUT	Zo ≤ 10 kΩ
54	NC	No connection
55	MIC 1 OUT (G)	GND for CAM MIC
56	MIC 1 OUT (X)	Zo ≤ 600 Ω, –60 dBu balanced
57	NC	No connection
58	NC	No connection
59	AUDIO LEVEL IN	Zi ≥ 1 kΩ (–15 dBu at 0 VU)
60	NC	No connection
61	V RESET IN/CF OUT	V Reset;0 V to +5 V, CF; 0 V to –5 V
62	REC TALLY IN	ON; +5 V, OFF; +2.5 V or 0 V, Zi ≥ 20 kΩ *Note 3
63	VTR SAVE OUT	SAVE; +4.5 V, STANDBY; 0 V, Zo ≤ 10 kΩ
64	GND	
65	SD IN/OUT	Serial data for camera control
66	COM DATA OUT	5 Vp-p
67	IIC DATA IN/OUT (CA)	5 Vp-p, 4700 Ω, Pull up
68	IIC DATA IN/OUT (ST)	5 Vp-p, 4700 Ω, Pull up

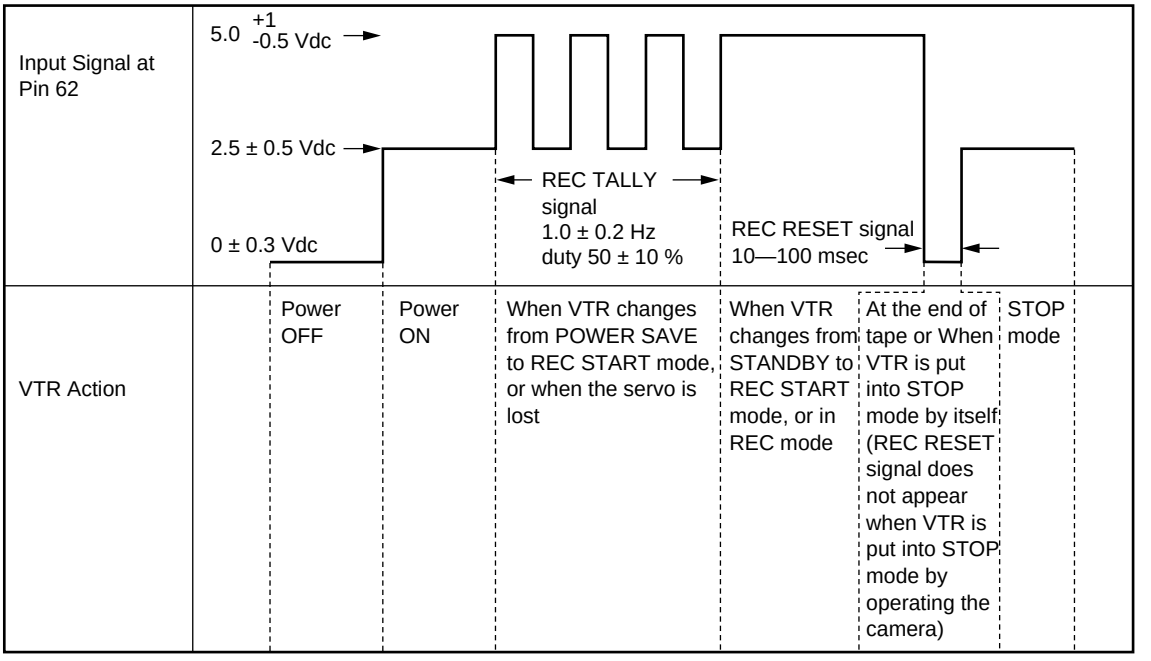
(0 dBu=0.775 Vrms)

Note 2 : Specifications of BATT ALARM Signal

VTR has a battery voltage detection and waring signal generation circuits and it sends the signal shown below to the camera.

Battery Terminal Voltage (VTR internal battery)	12.0—11.1 Vdc	11.1—10.8 Vdc	10.8 Vdc—
Input Signal at Pin 19	0 V	1.0 ± 0.2 Hz duty 50 ± 10 %	2—3 Vdc across 300 Ω
LED on Viewfinder	Stays out	Blinks at 1 Hz	Lights up

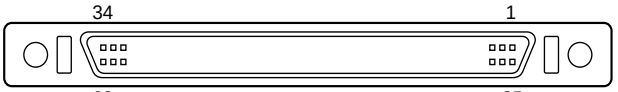
Note 3 : Specifications of REC TALLY Signal



Note 4 : Specifications of TAPE REM Signal

Tape Remaining (VTR)		Input Signal at Pin 25	Remark
TAPE1	**TAPE2**		
+5 V	+5 V	+3.4 V	
+5 V	0 V	+3.1 V	G TALLY lamp lights at +3.1 V
0 V	+5 V	+2.2 V	
0 V	0 V	0 V	

DIGITAL CA (68P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	Y (L) OUT	
2	Y (2) OUT	
3	Y (4) OUT	3.3 Vp-p
4	Y (6) OUT	
5	Y (8) OUT	
6	R-Y (L) OUT	
7	R-Y (2) OUT	
8	R-Y (4) OUT	3.3 Vp-p
9	R-Y (6) OUT	
10	R-Y (8) OUT	
11	B-Y (L) OUT	
12	B-Y (2) OUT	
13	B-Y (4) OUT	3.3 Vp-p
14	B-Y (6) OUT	
15	B-Y (8) OUT	
16	DIGITAL GND	GND for DIGITAL
17	DIGITAL BLANKING OUT	3.3 Vp-p
18	DIGITAL SYNC OUT	3.3 Vp-p
19	NC	No connection
20	NC	No connection
21	NC	No connection
22	NC	No connection
23	NC	No connection
24	NC	No connection
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	NC	No connection
29	NC	No connection
30	NC	No connection
31	NC	No connection
32	NC	No connection
33	NC	No connection
34	18 MHz OUT (G)	GND for 18 MHz

No.	SIGNAL	SPECIFICATIONS
35	Y (1) OUT	
36	Y (3) OUT	
37	Y (5) OUT	3.3 Vp-p
38	Y (7) OUT	
39	Y (M) OUT	
40	R-Y (1) OUT	
41	R-Y (3) OUT	
42	R-Y (5) OUT	3.3 Vp-p
43	R-Y (7) OUT	
44	R-Y (M) OUT	
45	B-Y (1) OUT	
46	B-Y (3) OUT	
47	B-Y (5) OUT	3.3 Vp-p
48	B-Y (7) OUT	
49	B-Y (M) OUT	
50	DIGITAL GND	GND for DIGITAL
51	DIGITAL SAMPLE OUT	3.3 Vp-p
52	DIGITAL VD OUT	3.3 Vp-p
53	DIGITAL CF OUT	3.3 Vp-p
54	NC	No connection
55	NC	No connection
56	NC	No connection
57	NC	No connection
58	NC	No connection
59	NC	No connection
60	NC	No connection
61	NC	No connection
62	NC	No connection
63	NC	No connection
64	NC	No connection
65	NC	No connection
66	NC	No connection
67	NC	No connection
68	18 MHz OUT (X)	3.3 Vp-p

1-1-2. Connection Connector

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Connection Connectors/Cables
TEST OUT (BNC)	1-560-069-11 Plug, BNC or B-B Cable assembly (cable length 1.5 m, option)
REMOTE (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
MIC IN (3P FEMALE)	1-508-084-00 XLR, 3P Male or CANNON XLR-3-12C equivalent

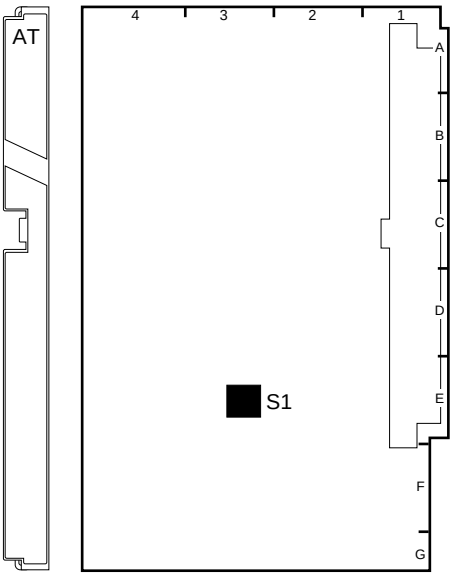
1-2. Installaton Conditions

Operating Temparature : –20°C to +45°C
Storage Temparature : –20°C to +50°C
Humidity : No condence

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temparature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric fields
  A place subjected to direct sunlight or strong light

1-3. Function of Internal Switches

AT-95 Board



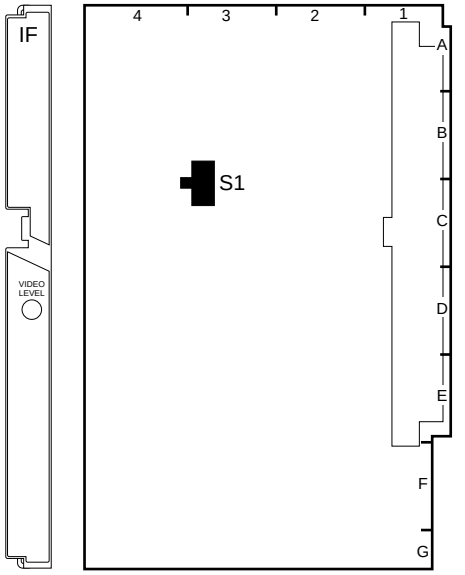
S1 : Setup menu select switch (S1-1 to S1-4)
Setup menu indicated on the viewfinder can be selected in combination of switches S1-1 to S1-4.

( ) in parentheses: Factory-set positions

				Setup Menu					
S1-1	S1-2	S1-3	S1-4	Operation	Paint	Maintenance	Reference	Triming	Config
OFF	OFF	OFF	OFF	YES	NO	NO	NO	NO	NO
(ON)	(OFF)	(OFF)	(OFF)	YES	YES	NO	NO	NO	NO
OFF	ON	OFF	OFF	YES	YES	YES	NO	NO	NO
ON	ON	OFF	OFF	YES	YES	YES	YES	NO	NO
OFF	OFF	ON	OFF	YES	YES	YES	YES	YES	NO
ON	OFF	ON	OFF	YES	YES	YES	YES	YES	YES

For details on the setup menu, refer to Section 3.

IF-510 Board



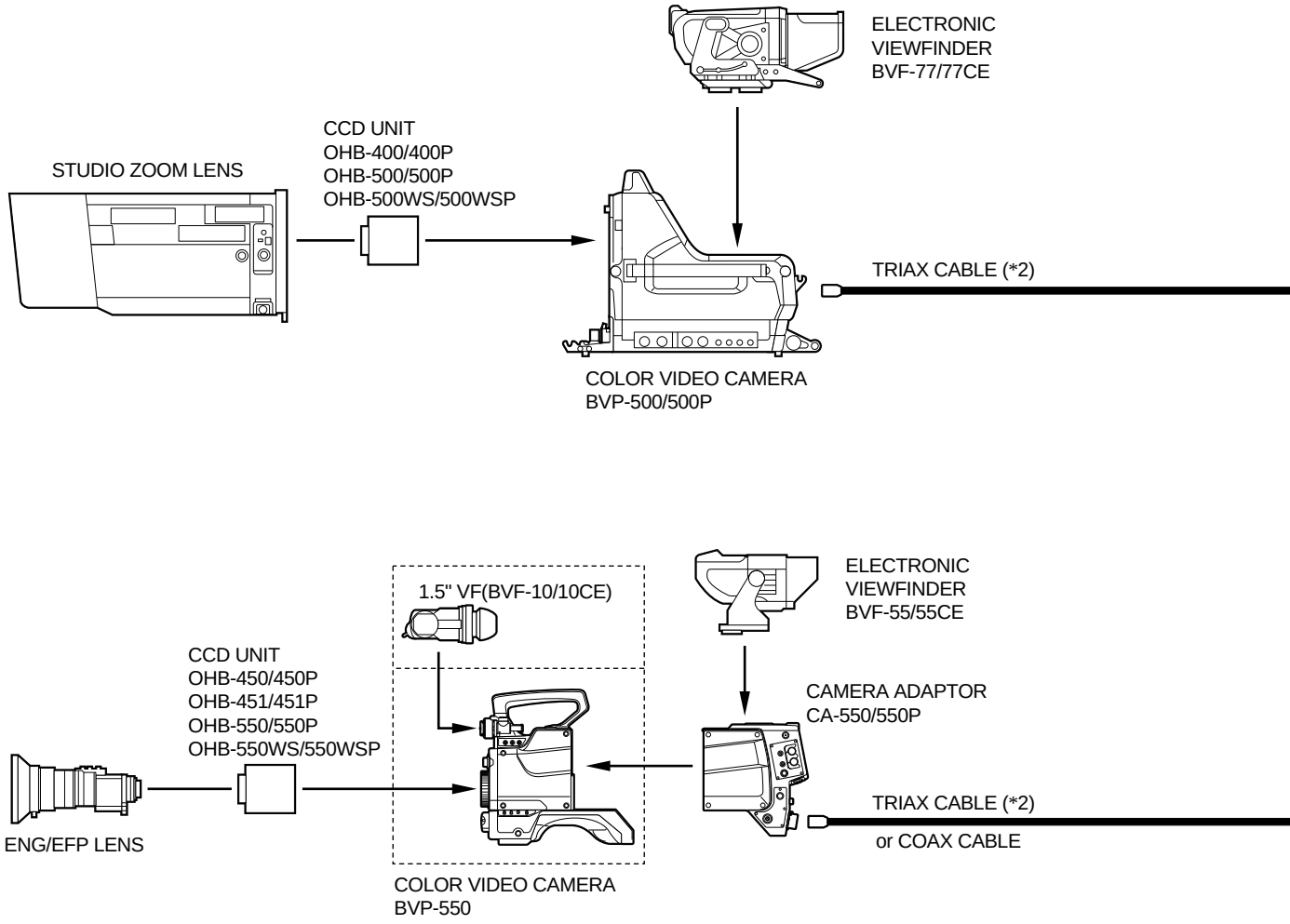
S1 : VF connector signal select switch
Selects an output signal at VF connector.
RET: Return video signal from CCU
GEN: Reference signal for external synchronization which is input at GENLOCK IN connector of CA
Factory-set position: RET

MB-602 Board

In setting a switch on MB-602 board, open the left side panel.

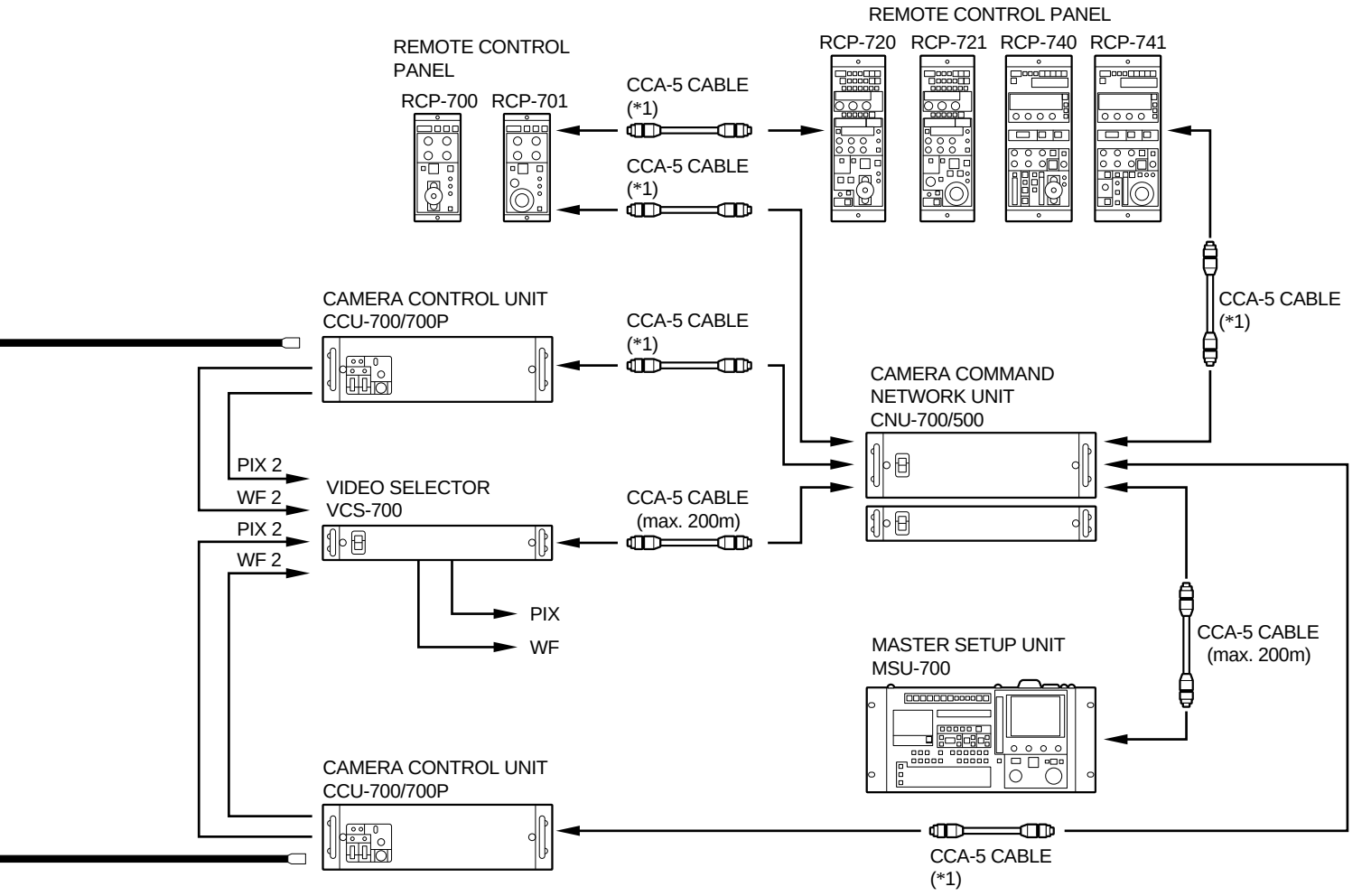
S1 : PHANTOM POWER switch
Turn on when connecting the PHANTOM +48 V microphone to MIC connector.
Factory-set position: ON

1-4. Instance of Sytem Configuration

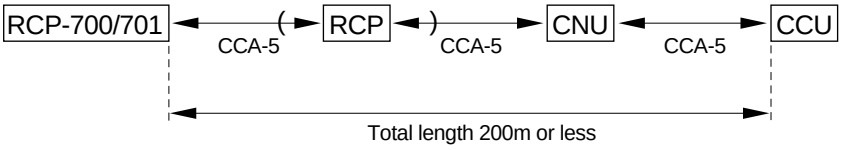


OTHER OPTIONAL ACCESSORIES

For BVP-500/500P	STANDALONE UNIT BKP-5910/5910P
	SCRIPT HOLDER BKP-7911/7912
For BVP-550	ELECTRET CONDENSER MICROPHONE ECM-MS5
	MICROPHONE C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION CRS-3P
	CARRYING CASE LC-303SFT
For CA-550/550P	TELEPROMPTER UNIT BKP-5971

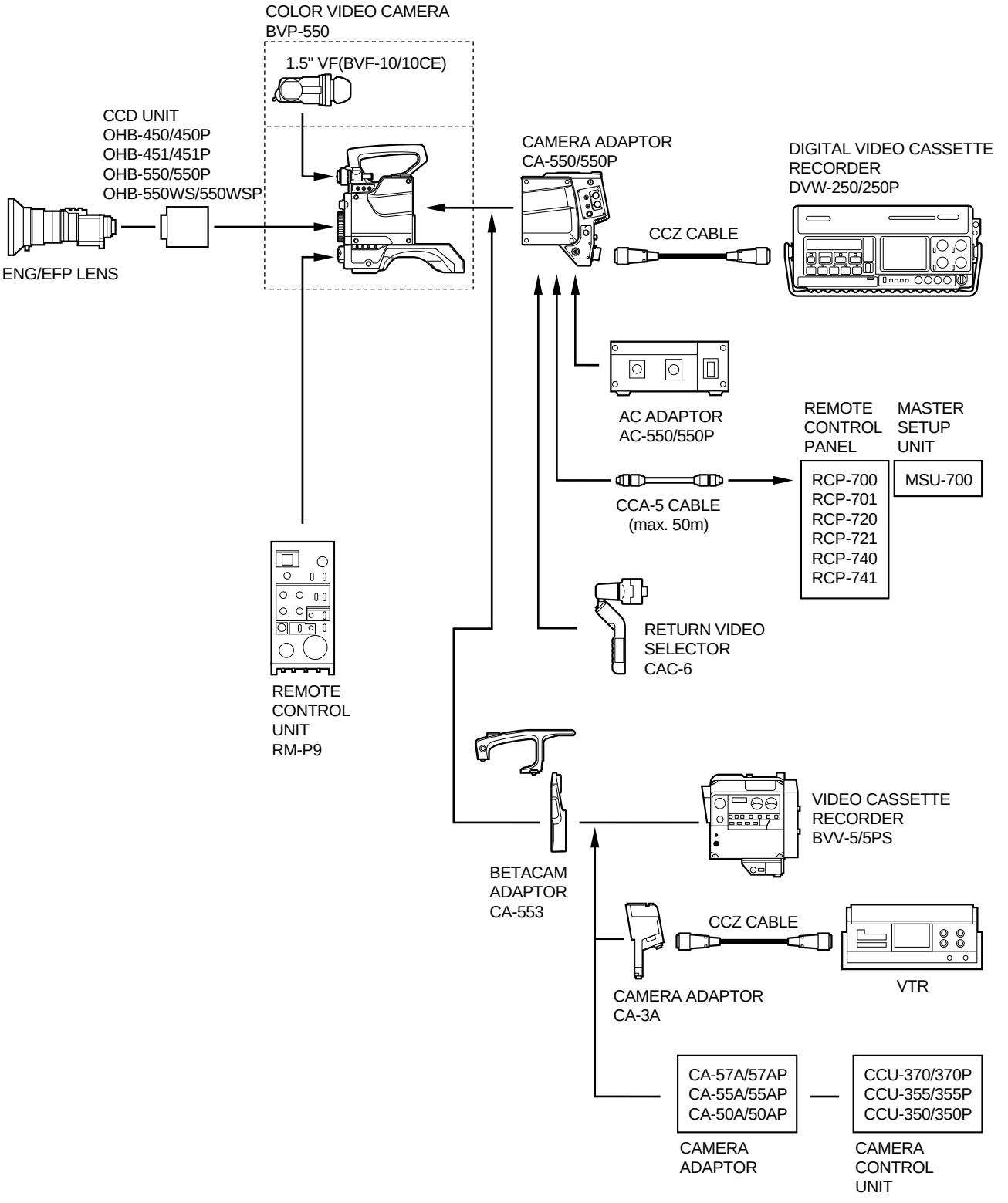


*1: CCA-5 CABLE LENGTH



*2: TRIAX CABLE LENGTH

Diameter	Maximum length
8.5 mm	1000 m
14.5 mm	2000 m


COLOR VIDEO CAMERA
BVP-550
1.5" VF(BVF-10/10CE)
CCD UNIT
OHB-450/450P
OHB-451/451P
OHB-550/550P
OHB-550WS/550WSP
ENG/EFP LENS
CAMERA ADAPTOR
CA-550/550P
DIGITAL VIDEO CASSETTE
RECORDER
DVW-250/250P
CCZ CABLE
AC ADAPTOR
AC-550/550P
REMOTE
CONTROL
PANEL
MASTER
SETUP
UNIT
RCP-700
RCP-701
RCP-720
RCP-721
RCP-740
RCP-741
MSU-700
CCA-5 CABLE
(max. 50m)
REMOTE
CONTROL
UNIT
RM-P9
RETURN VIDEO
SELECTOR
CAC-6
VIDEO CASSETTE
RECORDER
BVV-5/5PS
BETACAM
ADAPTOR
CA-553
CCZ CABLE
VTR
CAMERA ADAPTOR
CA-3A
CA-57A/57AP
CA-55A/55AP
CA-50A/50AP
CAMERA
ADAPTOR
CCU-370/370P
CCU-355/355P
CCU-350/350P
CAMERA
CONTROL
UNIT

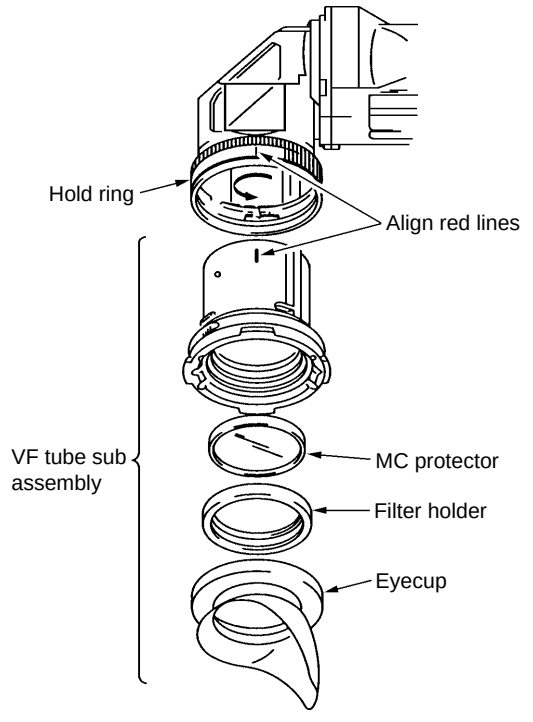
1-5. Optional Accessories for Viewfinder

The following accessories are available separately for the supplied viewfinder. Please order as necessary.

- VF Rotation Bracket BKW-401
  By fitting the BKW-401 to the camera, you can rotate the viewfinder out of the way so that your right leg does not hit the viewfinder while you are carrying the camera.

- Fog-proof Filter (Sony Part No. 1-547-341-11)
  Use in place of the MC protector shown in the figure.

- Lens Assembly for Aged Eye
  (Sony Part No. A-8262-537-A)
- Lens Assembly for Low Power
  (Sony Part No. A-8262-538-A)
- Lens Assembly (Standard magnification with special compensation for aberration)
  (Sony Part No. A-8267-737-A)
- High Performance (3X) Lens Assembly
  (Sony Part No. A-8314-798-A)
  Use in place of the VF tube sub assembly shown in the figure.



* To protect the viefinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.

Section 2
Service Overview

2-1. Notes on Service

2-1-1. Note on Replacement of Parts

Every component electrical part mounted on the PR-211 and CN-1142 boards cannot be replaced. And also a 68-pin connector on the CN-1120/1121 board cannot be. If there is any defective part, replace the mounted circuit board itself.
The PR-211 board is provided with a termination board CN-1142 on it. The CN-1142 board is necessary when the PR-212 board of OHB-550WS/550WSP is not installed. Unless the PR-212 board is installed, be sure to connect the CN-1142 board to the PR-211 board.

2-1-2. Description of EEPROM Data

The table below gives the holding data of EEPROM on every printed circuit board.

Board	Ref. No.	Holding data
VA-163	IC26	VA-163 adjustment data
AT-95	IC46	Triming/Reference files
SG-234	IC21	SG-234 adjustment data
DA-88	IC10	DA-88 adjustment data
IF-510	IC155	IF-510 adjustment data
MB-602	IC5	Model name, Serial number of the unit

Note

The IC listed above cannot be replaced because it is the EEPROM that is holding data inherent in the board. The part number listed in Section 5 “Spare Parts” is for an EEPROM which is not programmed. If replacement is needed, consult your Sony representatives.

2-1-3. Extension Boards

The extension boards and harness are available separately for check or adjustment of some printed circuit boards.

Extension Board/Harness	Sony P/N	To be extended
EX-464	J-6395-040-A	VA-163 AT-95 SG-234 DA-88 IF-510 Plug-in boards for CA

2-1-4. Notes on Repair Parts

1. WARNING

Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

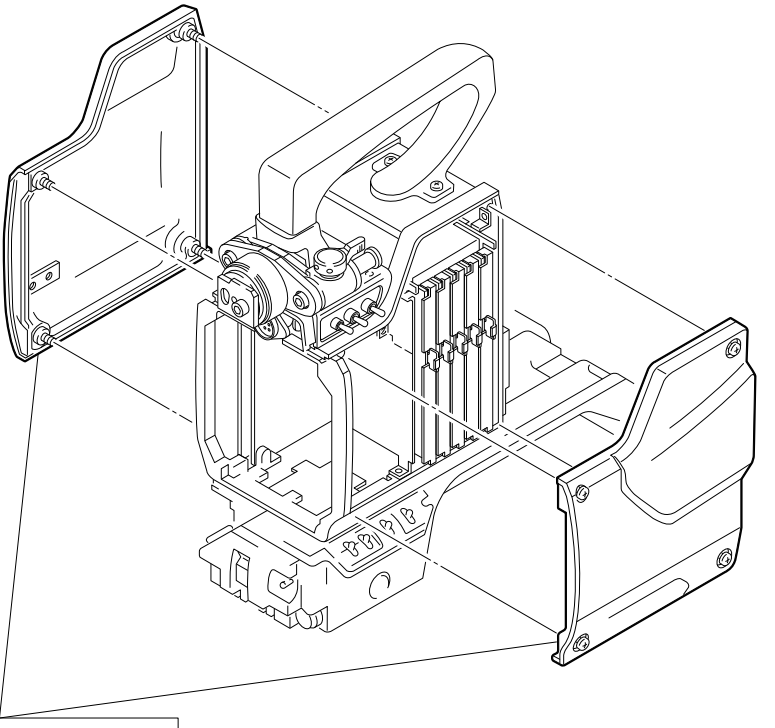
Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

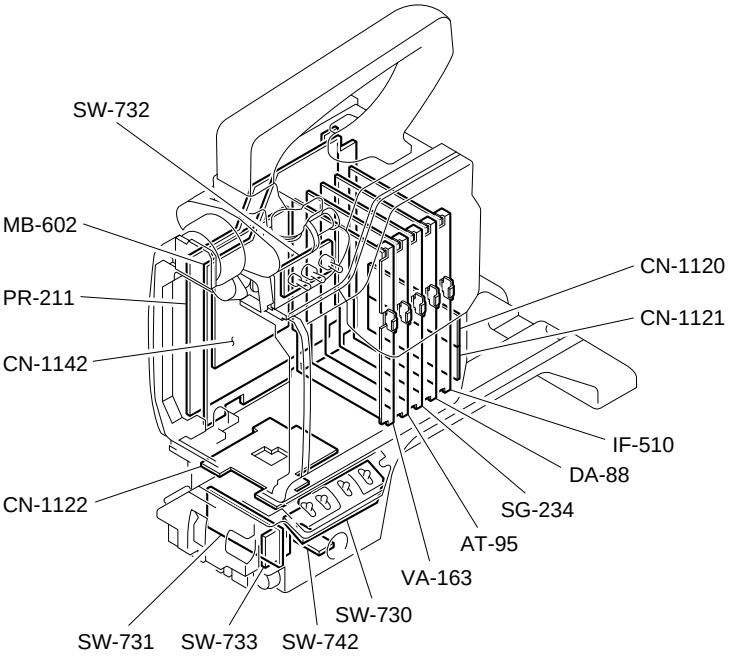
Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

2-2. Removal of Cabinet



To remove the both side panels
Loosen the four screws respectively.

2-3. Location of Printed Circuit Boards



2-4. Circuit Description

Circuit description for the BVP-550 and CCD unit OHB-450/451/550/550W series (available separately) is described here. The BVP-550 is called as BVP, and OHB-450/451/550/550W series is called as OHB in this section.

(1) CCD Drive System (OHB)

TG-159 board

The TG-159 outputs the pulses for driving the CCD to the DR-271 board and outputs the pulses for sampling the CCD output to the PA-181 board.
The driving pulses are synchronized with the HD and VD pulses input from the BVP and are output.
Pulses are generated from the VCO clock (36 MHz) of the board. The clocks for the digital processing circuit (36 MHz, 18 MHz)are also output to the BVP.
CCD V-sub voltage, white shading data and so on are also stored in the EEPROM of the TG-159 board.

DR-271 board

The DR-271 board converts the pulses from the TG-159 board to directly drive the CCD. The converted pulses are transmitted to the CCD via the BI-91(R)/91(G)/91(B) board respectively. The board also has a circuit which makes +29 V from +15 V for the V-sub voltage. Furthermore, the board also has an interface circuit for the optical filter.

BI-91(R)/91(G)/91(B) boards

The CCDs are mounted on the BI-91(R)/91(G) /91(B) boards. These boards supply the driving pulses and control voltages to the CCD.
The signals output from the CCD are sent to the PA-181 board via the emitter follower.

PA-181 board

The PA-181 board extracts video signals from the CCD signals output from the BI-91(R) /91(G)/91(B) boards by a correlated double sampling circuit, and amplifies the R and G signals by one time, and the B signal by three times. The resultant signals are output to the VA-163 board of the BVP.

DR-302 board (OHB-451/451P only)

The DR-302 is a driving board for one optical filter disk, which motor-drives a filter selected by the RCP or MSU. The DR-302 board consists of a motor-drive circuit, and a servo circuit comprised of a selected filter detection and filter position voltage generation circuits.

(2) Video Signal System

VA-163 board

The VA-163 board amplifies the video signals output from the OHB and performs the following processings:

- Black shading correction
- Gain-up control
- Blanking cleaning
- White shading correction
- Feedback clamping
- White balancing
- Flare compensation, and
- Pre-knee

In addition, it also switches between the video signals, TEST SAW(TEST1) signal and 3-STEP TEST(TEST2) signal.

PR-211 board

The PR-211 board converts the analog R, G, and B video signals into digital signals with an A/D converter having sampling/holding functions.
It generates clocks required for the A/D conversion and the digital processings from the clocks generated by the OHB.
In addition, the PR-211 board adds a linear matrix and detail signals to the analog-to-digital-converted R, G and B signals.
It performs the processings such as pedestal control, gamma correction, knee correction and white clipping for the signals. It also performs the followings.

- Generates an internal color-bar signal and switches between this signal and the main line signals.
- Creates detail and aperture signals from digital R and G signals.
- Creates a skin tone singal.
- Detects signals for an auto iris, flare compensation, DCC, and auto white/black balancings.
- Detects black/white shadings, generates a waveform to compensate them and outputs the wavefoem to the VA-163 board.
- Detects black levels and outputs the feedback clamp voltage to the VA-163 board.
- Generates TEST SAW waveforms and output them to the VA-163 board.

- Generates a 27-MHz clock signal required for the VTR control.

The video signals that has thus been digital-processed, are then converted to Y, R-Y and B-Y signals. Some signals are output to the DA-88 board and the others are output via the MB board as a digital video signal output at the same time. The Y/C signals are generated from the Y, R-Y and B-Y signals with a color encoder IC on the PR-211 board. These signals, that were sampled at 36-MHz rate and quantized by 10 bits, are digital-to-analog converted. And the resultants are then output to the DA-88 board as a monochrome signal for VF, wide-band luminance signal, or modulated chroma signal. The monochrome signal for VF has a zebra signal for level indication, and character signal and center marker signal on it.

DA-88 board

The monochrome signal for VF (VF Y) sent from the PR-211 board goes through a lowpass filter and is output to the MB-602 board. The wide-band luminance signal Hi-Ys is output via a lowpass filter to the IF-510 board. The modulated chroma signal C goes through a black clamp circuit and lowpass filter and is added to the Hi-Ys. The resultant is output to the IF-510 board as a VBS signal.
The Y, R-Y and B-Y signals, that are input from the PR-211 board as the digital video signals, are aligned in phase with video signals in another channels by a digital delay line. The resultant is digital-to-analog converted and is then output via a lowpass filter to the IF-510 board. On the other hand, an analog component signal is generated in combination with the above-mentioned Hi-Ys signal, R-Y and B-Y signals. The analog component signal is controlled, on the level adjustment and reference signal addition, by the AT-95 board according to equipment connected to the camera (VTR or CCU). The analog component signal is output to external equipment via the 68P interface connector .

IF-510 board

Input signals at the IF-510 board are as follows;
Signals from the DA-88 board: VF Y, VBS, Y, R-Y and B-Y
Signals from external equipment: Reference signal for external synchronization, Return video signal
By combination with these signals, the IF-510 board outputs the following signals.

- VBS OUT signal
  Output via a buffer amplifier to external equipment.
- VBS OUT signal for RM
  Output to an interface connector for a remote control unit RM-P9. Using the setup menu, a character signal to confirm the menu setting can be mixed to this signal.
- TEST OUT signal
  With the signal select switch at the right top of the camera, the above-mentioned VBS or the VF Y signal can be selected as a TEST OUT signal output at the TEST OUT connector.
- VF OUT/MONI OUT signal
  The same signal is output as the VF OUT signal and the MONI OUT signal. One of the VF Y, VBS, or return video or reference signal selected by S1 on the IF-510 board, is selected. The selected signal is mixed with a center marker and safety-zone pulse, and is then output. The VF OUT signal is output at the VF connector and the MONI OUT signal is output at the 68P interface connector.
- R/G/B output signals
  The Y, R-Y and B-Y signals are converted to the R, G and B signals by a matrix circuit. The converted signals are output at the 68P interface connector.
- Y/R-Y/B-Y output signals for VF
  These signals are for a color viewfinder. A character signal and SKIN GATE signal are mixed with the above-mentioned Y, R-Y and B-Y signals. The resultants are output to the VF.
  In addition, the IF-510 board is equipped with the following circuits.
- HD/VD external sync circuit
  When displaying the return video or reference signal on the viewfinder screen, it is necessary to synchronize the cursor signal with those signals. And a sync signal is separated from those signals to generate the external HD and VD signals, and the resultant is sent to the cursor signal generation circuit on the PR-211 board.
- Peak-detects the G signal and outputs to the AT-95 board.
- Transmits the SKIN GATE signal from DA-88 board to the CCU via the 68P interface connector.

(3) Auto system

AT-95 board

The AT-95 board consists of a microcomputer which controls the camera according to the instructions stored in a ROM. Operations of the board are listed below;

- Analyzes instructions of the function switches, video system detection data and analog data.
- Outputs various control signals and compensation signals to the boards.
- Outputs status information and self-diagnosis infomation as character data from the character generator.
- Incorporates the interface function with the RM-P9 or the CCU-700/700P.

(4) Pulse system

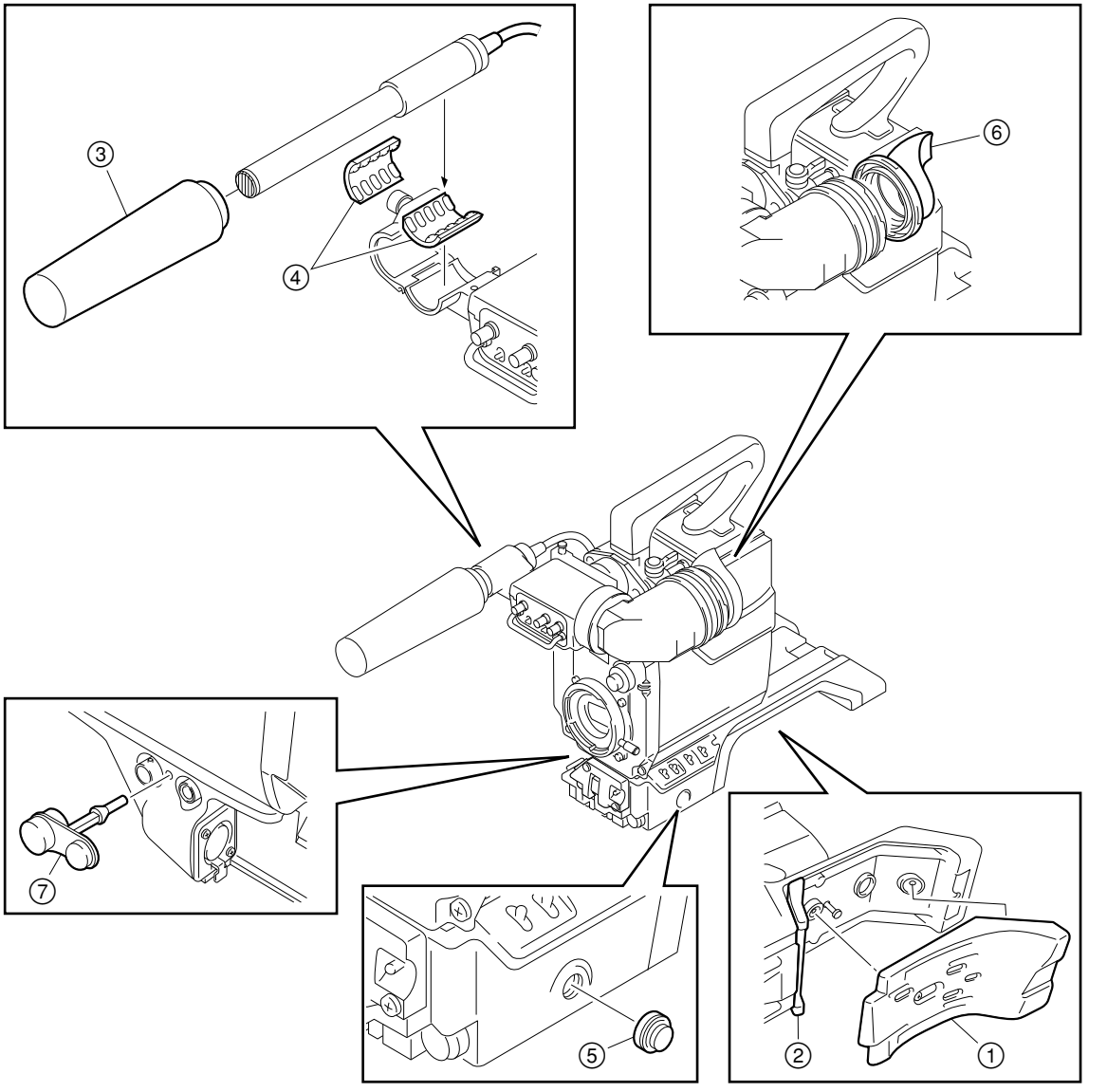
SG-234 board

The SG-234 board has a sync signal generator which generates various sync signals for the camera. The sync signals are generated from the clock pulse input from the OHB via the PR-211 board. They are output to the board of the camera, OHB and the camera adaptor (CA) respectively. This generator has two modes to synchronize with a reference signal input for external synchronization. One is a VBS input mode when the camera is used alone and the other is V RESET/H CONT mode when the CCU is connected to the camera. Input channels of the V RESET and H CONT signals differ depending on the type of CA in connection with the camera.

2-5. Periodic Replacement Part

Parts listed below are periodic replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N	Remarks
①	PAD ASSY (LARGE)	A-8278-237-A	
②	PAD ASSY (SMALL)	A-8278-238-A	
③	WIND SCREEN	3-708-875-0X	Supplied with VF
④	MIC CUSHION, RUBBER	3-692-138-0X	Supplied with VF
⑤	COVER, SW	3-676-244-1X	
⑥	EYE CUP	3-723-079-0X	Supplied with VF
⑦	CAP, CONNECTOR	3-692-914-1X	



2-6. Cleaning

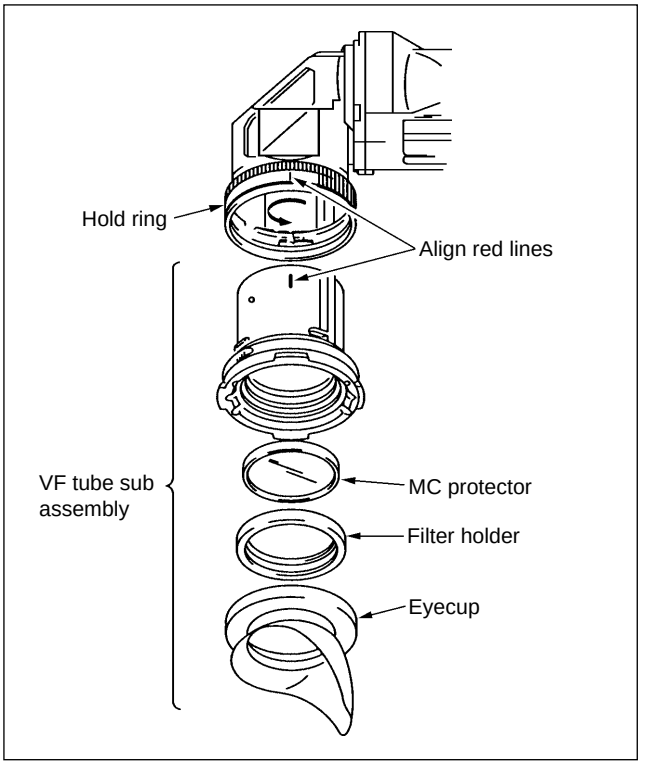
2-6-1. Cleaning of Viewfinder (Option)

By extracting VF tube sub assy, lens and MC protector can be easily cleaned. And also dust on the CRT surface or mirror can be easily cleaned off.

1. Turn the hold ring to the left and extract the VF tube sub assy.
2. Detach the eyecup.
3. Remove the MC protector with a commercially available camera lens cleaner. Blow off dust with a blower carefully so as not to flaw the mirror.
5. After the cleaning is completed, install by reversing the preceding steps. Align red lines of the VF tube and VF tube sub assy when inserting, and turn the hold ring to the right until it locks.

Notes

- Do not use any type of solvent, such as alcohol, benzine or thinner to remove stains.
- Be sure to attach the eyecup to the VF, or the MC protector may come off.
- To protect the viewfinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.



2-6-2. Cares After Using at Special Environment

It is recommended to check the following items after gathering the news at seaside, dust area or spa.

1. Clean off sand and other dust in the unit carefully.
2. Do not allow salt in seawater or sulfur in spa to contact a not-painted surface of the cabinet. They may cause to corrode. Clean with alcohol immediately if contacted.
3. Clean the connection surface of connectors.
4. Carry out the common operation check and check that the unit has not an abnormal sound or operation.

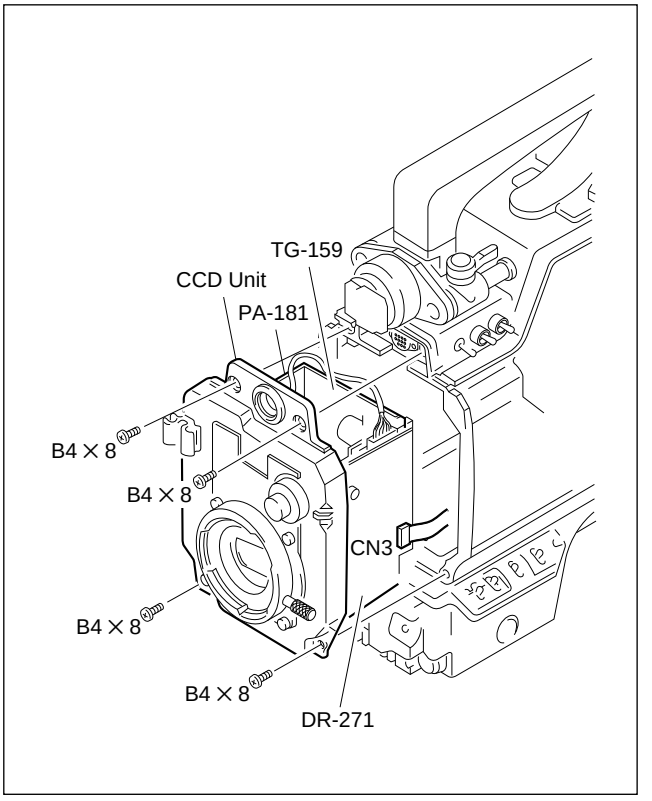
2-7. Replacement of External Connectors

2-7-1. VF Connector

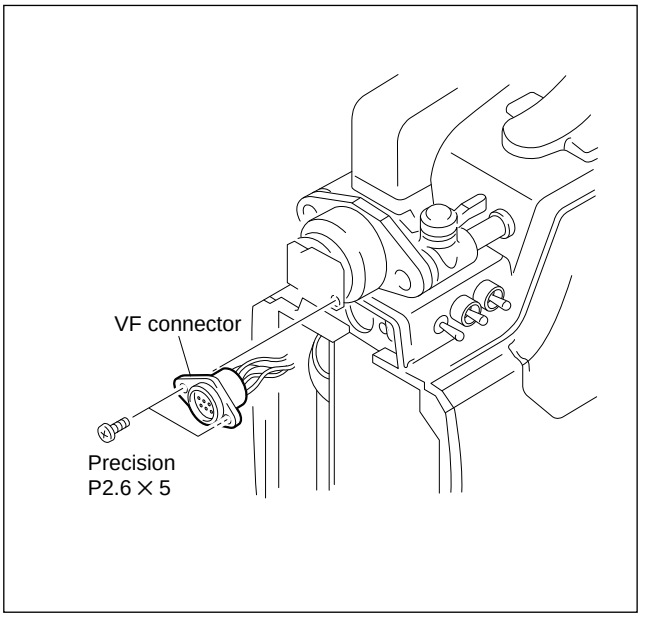
1. Remove the four screws and remove the CCD unit.
2. Disconnect the three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board of the CCD unit.

Note

When disconnecting the flexible card wires, refer to "2-8. Disconnecting/Connecting of Flexible Card Wires".



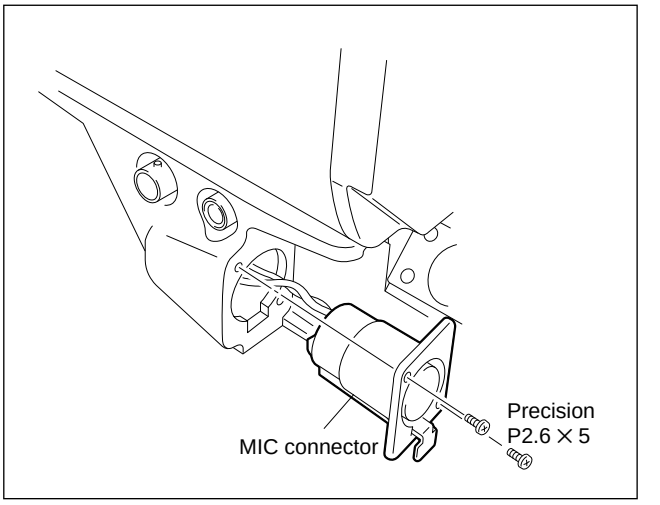
3. Remove the two screws and remove the VF connector. Then unsolder it.



4. Install a new connector in the reverse procedures of removal.

2-7-2. MIC Connector

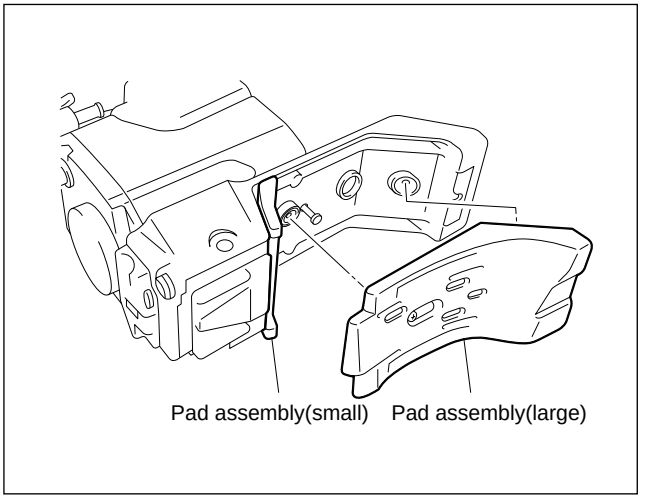
1. Remove the two screws and remove the MIC connector.
   Then unsolder it.



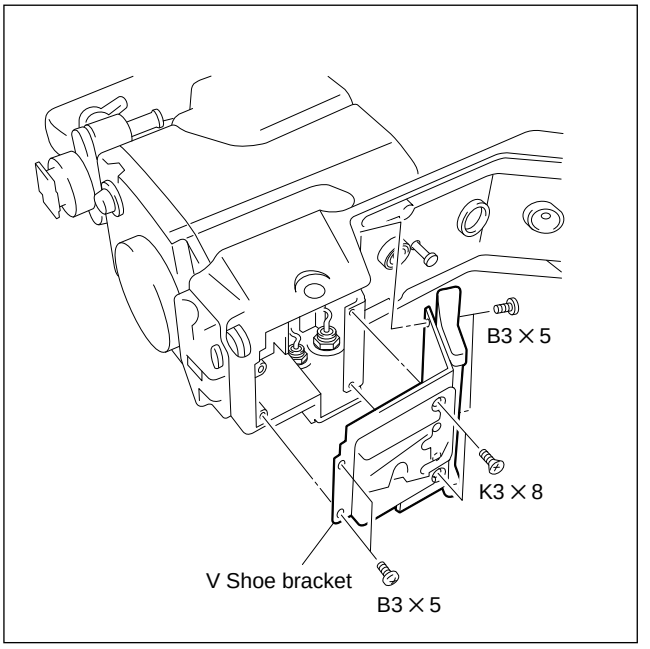
2. Install a new connector in the reverse procedures of removal.

2-7-3. TEST OUT/REMOTE Connector

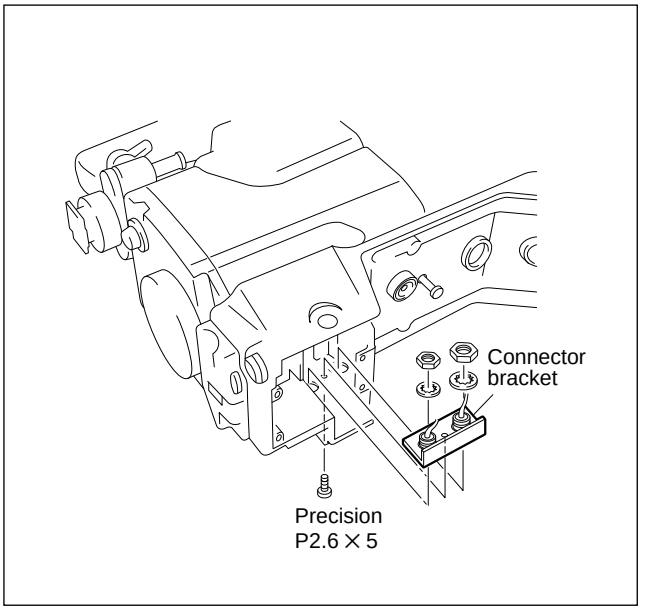
1. Remove the three screws and remove the Pad Assembly (Large).



2. Remove the seven screws and remove the V shoe bracket.



3. Remove the screw and remove the connector bracket.Unsolder the TEST OUT/REMOTE connector. Remove the each nut and remove the TEST OUT/ REMOTE connector.



4. Install a new connector in the reverse procedures of removal.

2-8. Disconnecting/Connecting of Flexible Card Wires

The flexible card wires are used between the MB-602 board and the CCD unit, the MB-602 board and the CN-1120/1121/1122/PR-211 boards. Be careful not to bend these wires. This shortens the wire life.

Disconnecting

1. Turn off the power of the camera.

Type A

(between the MB-602 board and CCD unit)

2. Lift up the portion A in the direction of the arrow and disconnect the flexible card wire.

Type B

(between the MB-602 board and CN-1120/1121/1122/PR-211 boards)

2. Slide portion B in the direction of the arrow and disconnect the flexible card wire.

Connecting

Notes

- Be careful not to insert the flexible card wires obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

Type A

(between the MB-602 board and CCD unit)

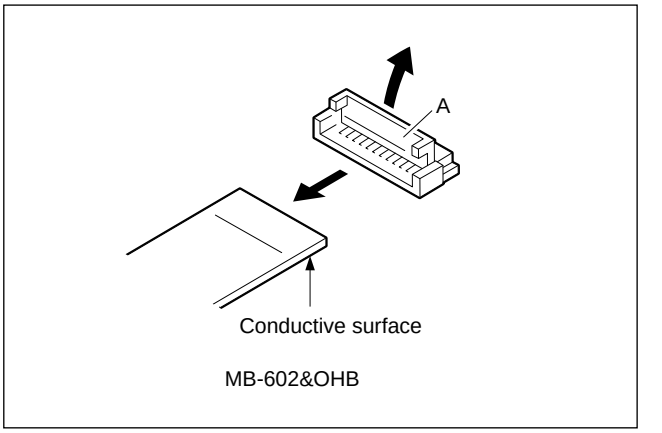
1. Lift up the portion A in the direction of the arrow. Insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Push down the portion A to secure the flexible card wire.

Type B

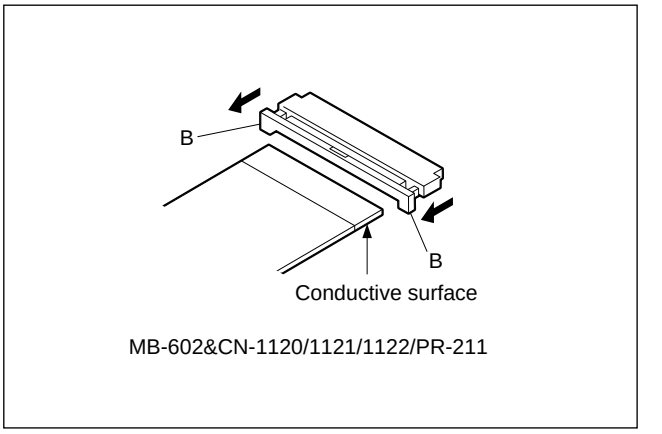
(between the MB-602 board and CN-1120/1121/1122/PR-211boards)

1. Slide portion B in the direction of the arrow and insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Slide portion B in the opposite direction of the arrow and lock each connector.

Type A



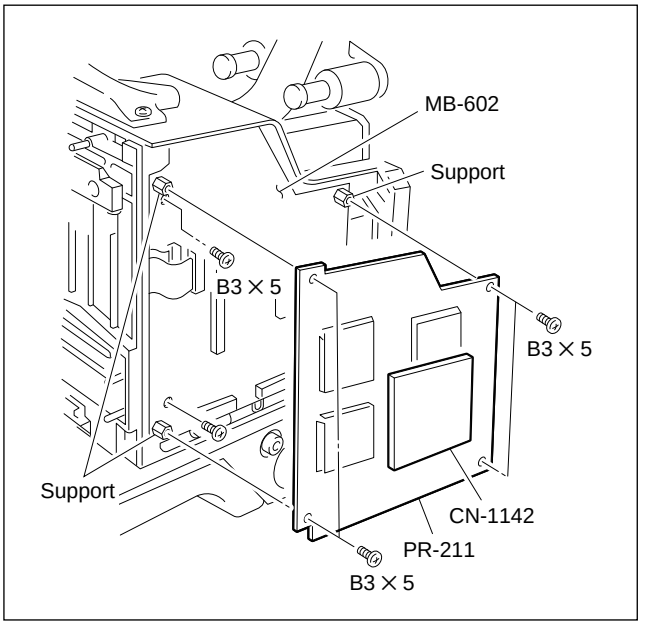
Type B



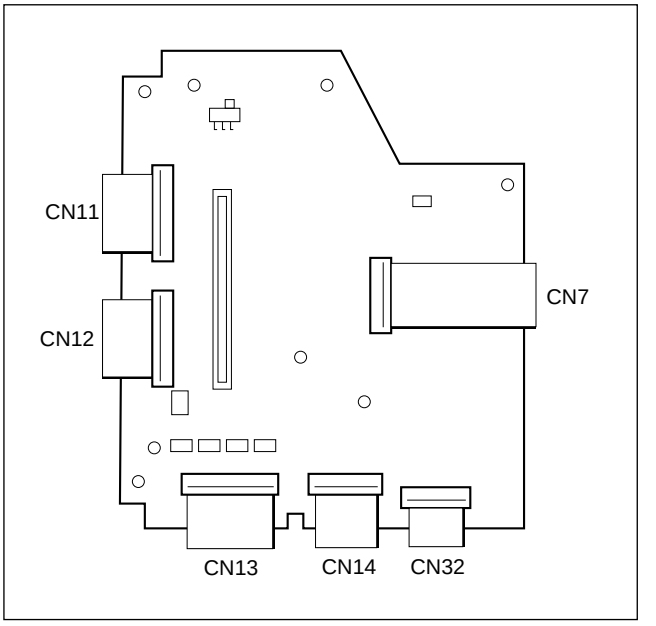
2-9. Board Replacement

2-9-1. MB-602 Board

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards.
3. Remove the four screws and remove the PR-211 board.
4. Disconnect the four connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.
5. Remove the four screws and remove the four supports. Remove the MB-602 board.



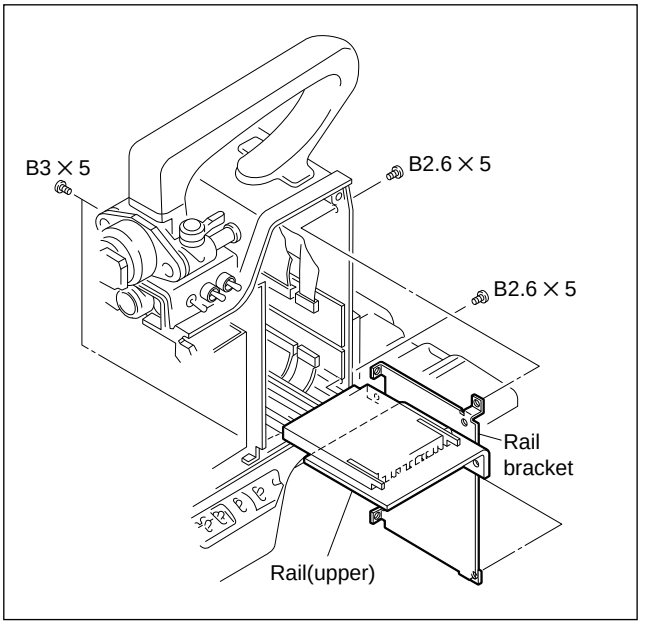
6. Disconnect the connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.



7. Install a new board in the reverse procedures of removal.

2-9-2. CN-1120/1121 Board

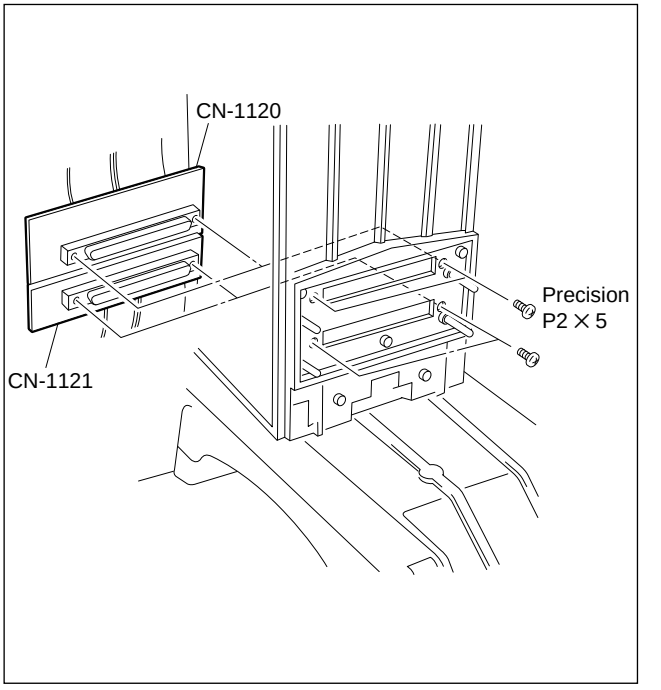
1. Remove the right side panel of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards and the four shielding plates.
3. Remove the DC/DC convertor unit.
   (Refer to “2-11. Replacement of DC/DC Convertor Unit”.)
4. Remove the rail(upper).
5. Remove the four screws and remove the rail bracket.



6. Remove the two screws and remove the CN-1120/1121 board.
7. Disconnect the connector.

   Note

   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.

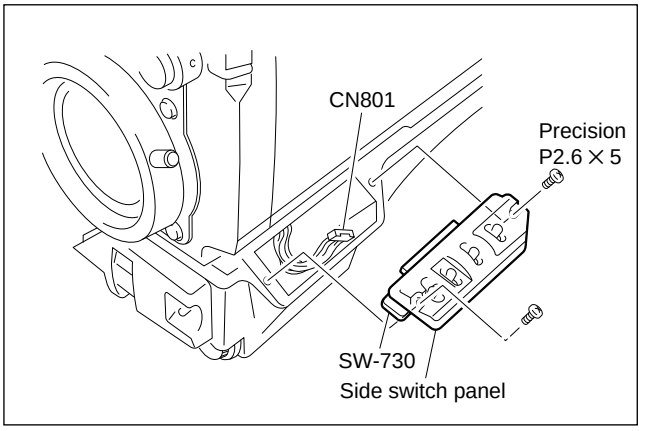


8. Install a new board in the reverse procedures of removal.

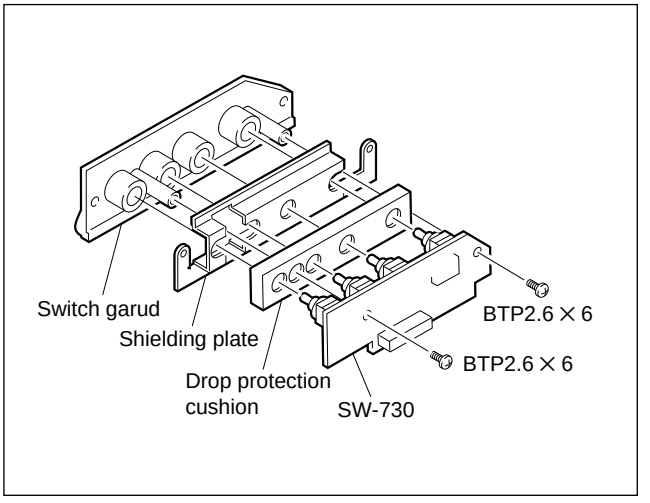
2-10. Replacement of Function Switches

2-10-1. Side Switch Panel Block

1. Remove the two screws and remove the side switch panel.
2. Disconnect the connector CN801 on the SW-730 board.



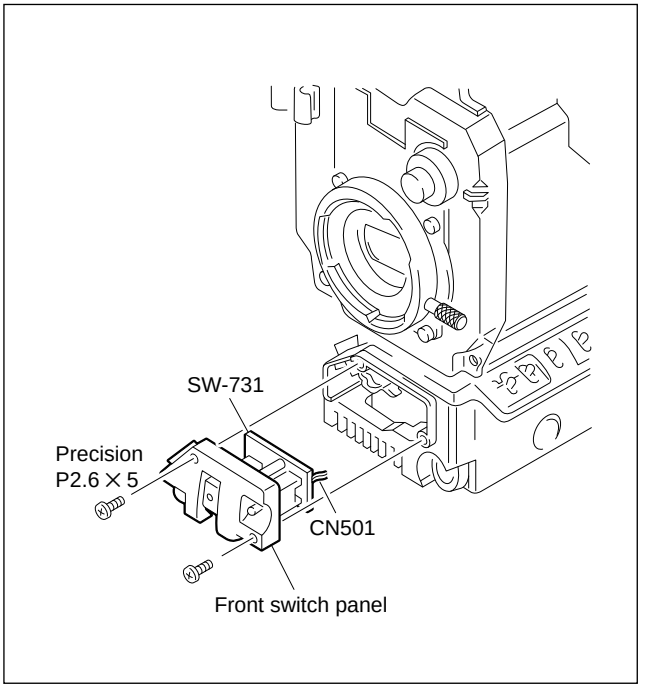
3. Remove the two screws.Remove the SW-730 board, shielding plate and drop protection cushion.
4. Unsolder the terminals and remove the switch to be replaced.



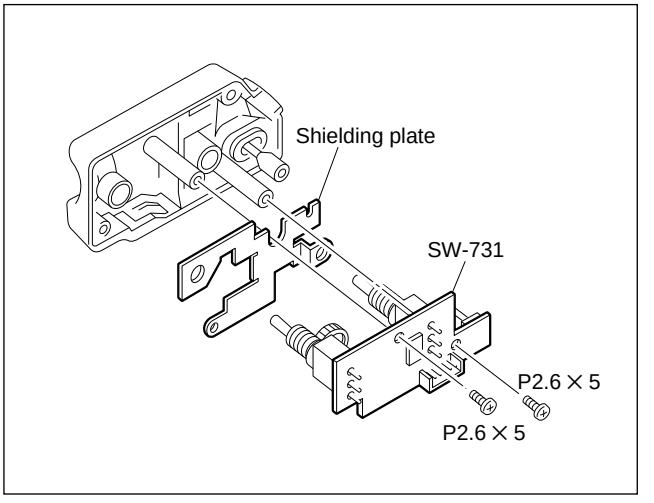
5. Install a new switch in the reverse procedures of removal.

2-10-2. Front Switch Panel Block

1. Remove the two screws and remove the front switch panel.
2. Disconnect the connector CN501 on the SW-731 board.



3. Remove the two screws.Remove the SW-731 board, knob packing, VR knob and shielding plate.
4. Unsolder the terminals and remove the switch to be replaced.



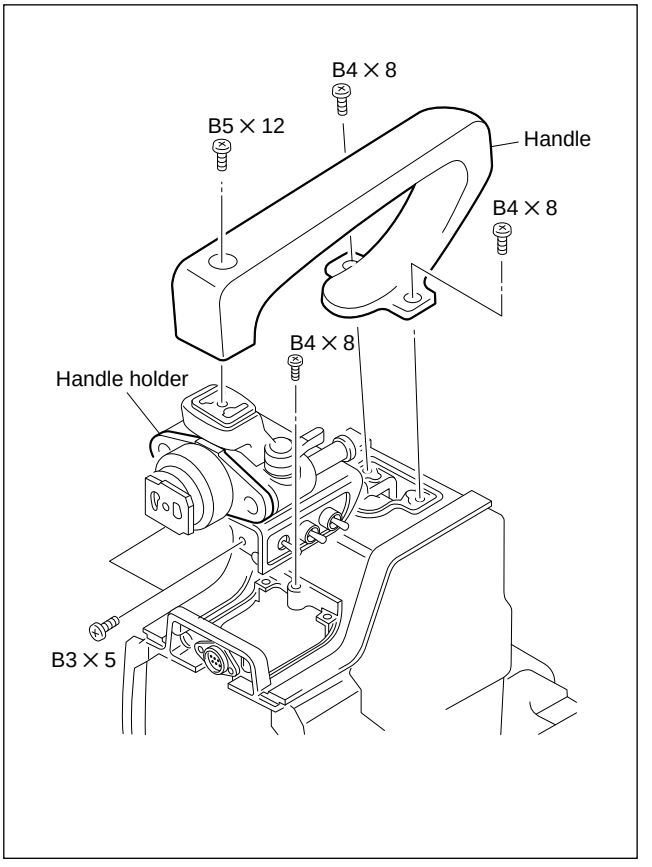
5. Install a new switch in the reverse procedures of removal.

2-10-3. VF DISP Switch

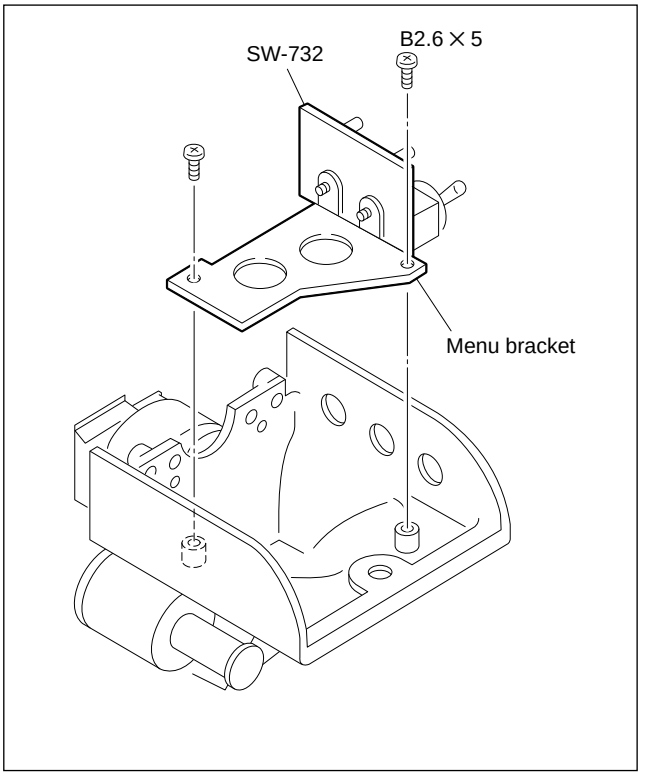
1. Remove the four screws and remove the CCD unit referring to “2-7-1. VF Connector”.
2. Disconnect three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board.

   Note

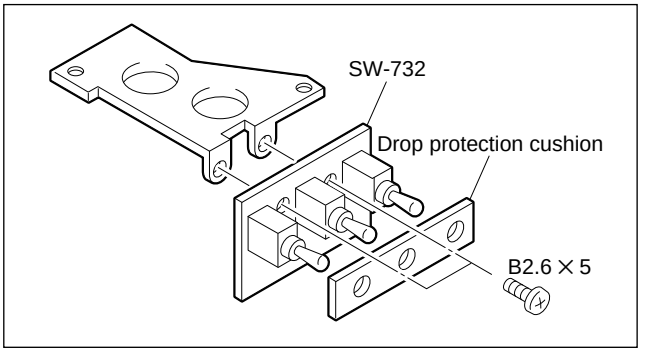
   When disconnecting the connectors, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires” and “2-7-1. VF Connector”.
3. Remove the three screws and remove the handle.
4. Remove the three screws and remove the handle holder.



5. Remove the two screws and remove the menu bracket.



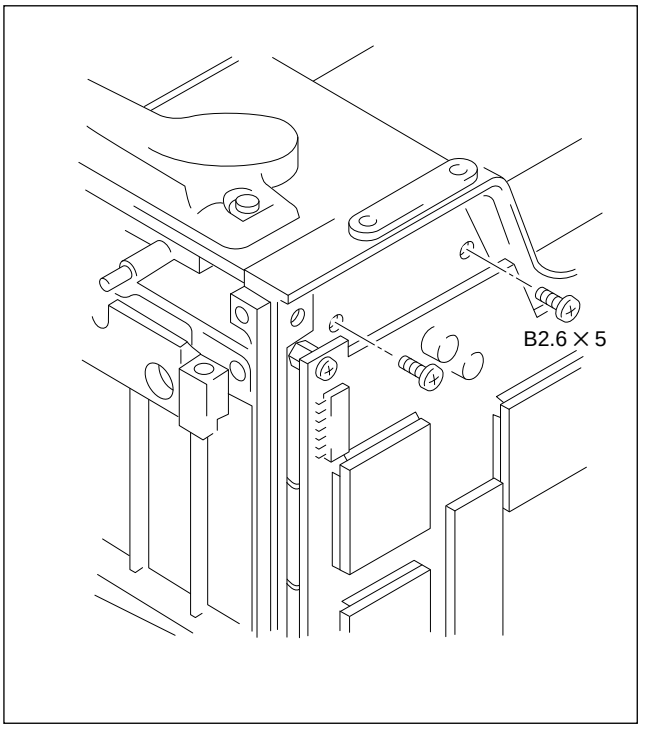
6. Remove the two screws and remove the SW-732 board and the drop protection cushion.
7. Unsolder the terminals and remove the switch to be replaced.



8. Install a new switch in the reverse procedures of removal.

2-11. Replacement of DC/DC Convertor Unit

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Remove the two screws on the left side of the camera shown in the figure.

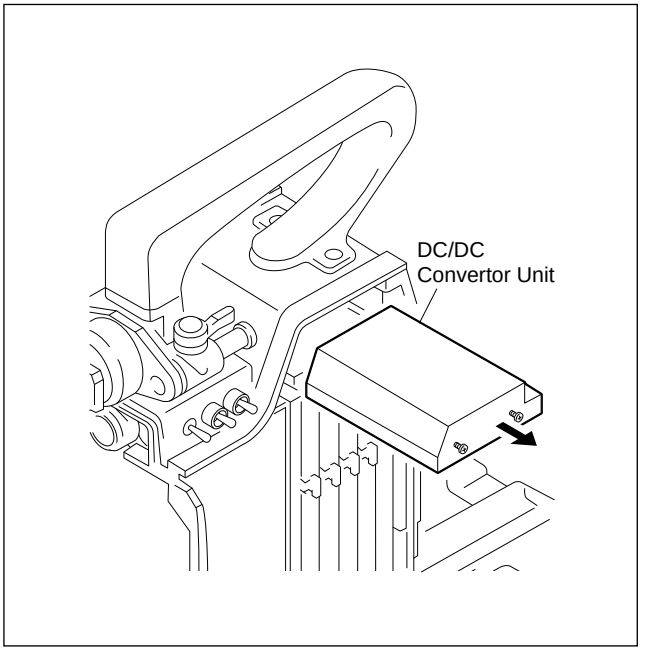


3. Thread the two screws that were removed in Step 2, into the holes of the DC/DC convertor unit three turns.

Note

Never turn the two screws more than three turns.

4. Hold the two screws with hands and remove the DC/DC convertor unit.



5. Install a new DC/DC convertor unit pushing with hands.
   Secure it to the MB-602 board with the two screws that were removed in Step 2.

Section 3
Setup Menu

3-1. Setup Menu

The Setup menu is used to select settings of camera operation, select items to be displayed on the viewfinder screen, and select the way the items are displayed.
It is also used for adjustment. The menu appears on the viewfinder screen.
By changing a setting through this menu, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

• Configuration of the Setup Menu

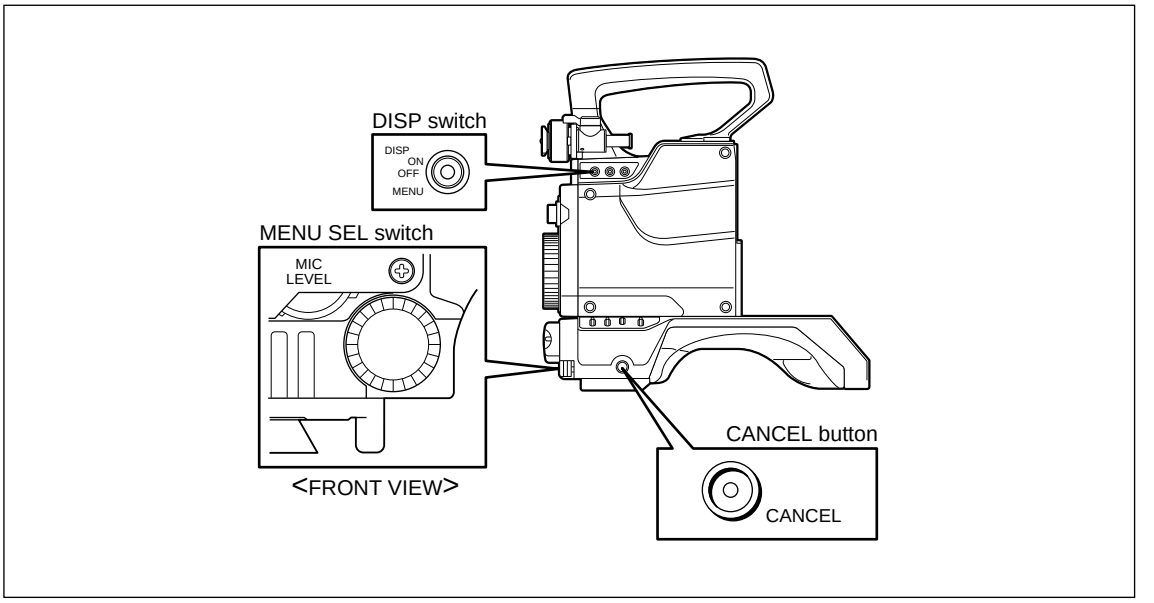
The setup menu consists of the following menus
- Operation menu
- Paint menu
- Maintenance menu
- Reference menu
- Triming menu
- System config menu

Operation and Paint menus are normally accessible. To display the other menus, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”

• Equipment required

CCD Unit OHB-450/550 series
Camera Adaptor CA-550/550P
Supply power from a camera control unit CCU-700/700P, AC adaptor AC-550/550CE or VTR.

• Switches and Button



DISP switch

ON : Displays characters and messages indicating the video camera settings and operation status.
OFF : No character or marker display appears on the viewfinder screen.
MENU : The setup menu appears on the viewfinder screen.

MENU SEL switch

Selects the menu item or setting value displayed on the viewfinder screen.

CANCEL button

Cancels the contents of a menu setting, or returns to the page select mode or TOP menu.

Note

The TOP menu screen indicates the entire configuration of menu items.
To display the TOP menu, set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch.

- **Basic Operation**

1. Displaying the menu
   To display the Operation menu, set the DISP switch to MENU.
   To display the other menus than the Operation menu, first of all, the TOP menu shall be displayed.
   To display the TOP menu, set the DISP switch to MENU while holding down the MENU SEL switch. Then turn the MENU SEL switch to move the cursor to a menu item which you want and press the MENU SEL switch.
2. To shift the page, turn the MENU SEL switch with a page scroll bar displayed at the top-right of the screen until the desired page is displayed and press the MENU SEL switch.
   The menu enters the item select mode and the page scroll bar disappears.
3. To shift the item, turn the MENU SEL switch until the → cursor points the item to be set and press the MENU SEL switch.
4. To change the value, turn the MENU SEL switch. You can change the values quickly by turning the MENU SEL switch fast. You can make very fine adjustments by turning the switch slowly. By pressing the MENU SEL switch, the setting is entered.
5 The menu page is returned to the item select mode or page select mode every time the CANCEL button is pressed.
6. To exit from the setup menu, set the DISP switch to OFF.

- **ROM version**
  Contents in the menu and factory settings may differ from the descriptions in this manual depending on the version of ROM on the AT-95 board.

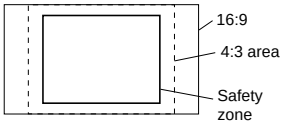
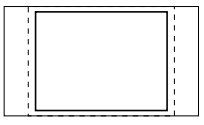
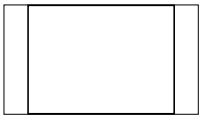
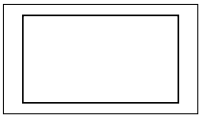
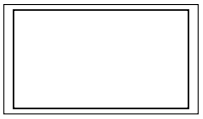
3-1-1. Operation Menu

This menu contains items contained for changing camera settings to suit shooting conditions during normal camera operations.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VF DISPLAY	ZOOM	[ON], OFF	Turns on and off the indications of zoom position and lens extender.
	SHUTTER	[ON], OFF	Turns on and off the indications of shutter speed and mode.
	IRIS	[ON], OFF	Turns the iris setting indication on and off.
	AUDIO	[ON], OFF	Turns the audio level indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	TAPE	[ON], OFF	Turns the tape-remaining indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	ZEBRA	ON, OFF	Turns the zebra indication on and off. (Corresponds to the ZEBRA switch of VF connected to the camera.)
	MESSAGE	[ON], OFF	Turns on and off the indication of message in changing each setting of filter, white balance memory, gain value, DCC(auto knee) and shutter speed. The indication is displayed within three seconds in the center of the viewfinder screen.
	MODE	CHG, [USR]	CHG : The indications of the optical filter, white balance memory and gain value are displayed only when they differ from the standard settings (FILTER:1B, WHITE:A, GAIN:0dB) USR : The indications are displayed corresponding to the settings on the VF DISPLAY page.
	FILTER	*, [ON], OFF	Turns the optical filter indication on and off.
	WHITE	*, [ON], OFF	Turns the white balance memory indication on and off.
	GAIN	*, [ON], OFF	Turns the gain value indication on and off.
MARKER	CENTER	[ON], OFF	Turns the center marker indication on and off.
	SAFETY ZONE	80%, [90%] , OFF	Turns the safety zone marker indication on and off and selects the area indicated by that marker. f)
	BOX CURSOR	ON, [OFF]	Turns the box cursor indication on and off.
	BOX H POS	-99 to 99 ([0])	Shifts horizontally the location of the box cursor on the screen.
	BOX V POS	-99 to 99 ([0])	Shifts vertically the location of the box cursor on the screen.
	BOX WIDTH	00 to 99 ([41])	Sets the width of the box cursor.
	BOX HEIGHT	00 to 99 ([10])	Sets the height of the box cursor.

f) In the 16:9 mode, the following kinds of safety zone marker can be selected in combination of the settings of “SAFETY ZONE” and “4:3 SAFETY”.

		SAFETY ZONE		
		80%	90%	OFF
4:3 SAFETY	ON			
	OFF			Not indicated

Page	Item	Settings	Contents
GAIN SW	LOW	-3, [0], 3, 6, 9, 12, 18, 24, 30 dB	Selects the gain value for each gain switch position. (LOW, MIDDLE, HIGH)
	MID	-3, 0, 3, 6, [9], 12, 18, 24, 30dB	
	HIGH	-3, 0, 3, 6, 9, 12, [18], 24, 30dB	
WIDE SCREEN (For OHB-550WS /550WSP)	16:9/4:3 MODE	[16:9], 4:3	Selects the aspect ratio for the video signal output. (This setting is valid only when the camera is used alone.) * Corresponds the CCU's setting when the CCU is connected.
	VF ASPECT	[AUTO], 4:3	Selects the aspect ratio for the viewfinder indication. AUTO : Automatically selects according to the aspect ratio selected by 16:9/4:3 MODE on the WIDE SCREEN page. 4:3 : Selects 4:3 regardless of the 16:9/4:3 MODE setting.
	4:3 SAFETY	ON, [OFF]	Selects whether the safety zone marker showing the 4:3 area is indicated in the 16:9 mode, or not. [1]
	16:9 ID ON VF	ON, [OFF]	Turns on and off the 16:9 indication in the 16:9 mode on the viewfinder screen. (This setting is valid only when the DISP switch is set to on or off.)
	16:9 ID ON BARS	ON, [OFF]	Selects whether the 16:9 indication is displayed on the internal color-bar in the16:9 mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
MON OUT	BNC TEST OUT	[VBS], RM, VF Y	Selects a video signal to be output at TEST OUT connector. VBS : Color composite signal RM : The same as a signal ouput to RM-P9 Y : Y(monochrome) signal
	RM/MON CHAR	[ON], OFF	Selects whether character signals displayed on the viewfinder screen are mixed with the VBS signal to be output to RM-P9, or not. Turning on is convenient to operate the setup menu by RM-P9.
	VBS LOCK	ON, [OFF]	Used to prevent misoperation by ENC/RGB switch. ON : ENC signal is output at TEST OUT connector regardless of ENC/ RGB switch setting. OFF : A signal selected by ENC/RGB switch is output.
	VF VIDEO MODE	[Y], MIX, NAM	Selects a video signal to be output to the viewfinder. Y : Y=0.3R+0.59G+0.11B; The same as a camera output signal MIX : Y=0.33R+0.33G+0.33B NAM : Selects one of the R, G, and B signal that is maximum in level.
	[RGB]-G	ON, [OFF]	Sets signals selectable by RGB switch. ON : R-G, B-G OFF : R, G, B
AUTO IRIS AUTO KNEE (DCC)	IRIS OVERRIDE	-99 to 99 ([0])	Sets the reference value for automatic iris adjustment. -99 (further closed) ↔ 99 (further opened)
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
	AUTO KNEE POINT	-99 to 99 ([XX])	Sets the point on which the knee function starts to have effect in the auto-knee mode.
	AUTO KNEE SLOPE	-99 to 99 ([XX])	Sets the volume of the effect of the knee function in the auto-knee mode.

Page	Item	Settings	Contents
STAND ALONE	H PHASE	-99 to 99 ([XX])	Sets the horizontal phase of the camera in the genlock mode.
	SC PHASE	0 to 360([XX])	Sets the subcarrier phase of the camera in the genlock mode.
	CABLE COMP	ON, [OFF]	Turns on and off the cable compensation circuit for the external sync signal in the genlock mode.
	SNG BARS	ON, [OFF]	Turns the color-bar signal for SNG on and off.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the MASTER BLACK level.
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	CF PULSE	[ON], OFF	Turns on and off the color framing pulse supplied to the VTR.
	SKIN DETAIL	ON, [OFF]	Turns the skin tone detail function on and off.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)
AUTO SETUP	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output.
DIAGNOSIS	OHB	[OK], NG	Displays a state of communication for control data between the OHB block and CPU on AT board.
	PR	[OK], NG	Displays a state of communication for control data between the PR board and CPU on AT board.
	VA	[OK], NG	Displays a state of communication for control data between the VA board and CPU on AT board.
	AT	[OK], NG	Displays a state of communication for control data between the CPU and memory on AT board.
	SG	[OK], NG	Displays a state of communication for control data between the SG board and CPU on AT board.
	DA	[OK], NG	Displays a state of communication for control data between DA board and CPU on AT board.
	IF	[OK], NG	Displays a state of communication for control data between IF board and CPU on AT board.
	MD	[OK], NG	Displays a self-diagnosis result of MD board (of camera adaptor).
	AU	[OK], NG	Displays a self-diagnosis result of AU board (of camera adaptor).
	TR	[OK], NG	Displays a self-diagnosis result of TR board (of camera adaptor).
CAMERA ID	ID: [ ][ ][ ][ ][ ][ ][ ]		Sets a camera ID of up to ten alphanumerics, symbols, and spaces.
	ID ON BARS	ON, [OFF]	Selects whether the camera ID is mixed with a camera output signal only in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
1. Lens is automatically closed and the black balance is automatically adjusted.
2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

Note

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

3-1-2. Paint Menu

The Paint menu is used for white and other paint adjustments items. To activate the Paint menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VIDEO LEVEL	WHITE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B gain level.
	BLACK R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master black level.
	FLARE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B flare level.
	GAMMA R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master gamma correction curve.
	FLARE	[ON], OFF	Turns the flare correction circuit on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the VIDEO LEVEL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL1	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding the detail signal.
	LEVEL	–99 to 99 ([0])	Adjusts the master level for the detail signal.
	LIMITTER	–99 to 99 ([0])	Adjusts the clipping level against the maximum detail level.
	CRISPENING	–99 to 99 ([0])	Adjusts the level at which the detail signal is crispened.
	LEVEL DEP	–99 to 99 ([0])	Adjusts the level to control the detail signal used at lower signal level.
	LEVEL DEP	[ON], OFF	Turns the level depend function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the DETAIL 1 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL2	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding detail signal.
	H/V RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H and V detail signal.
	FREQUENCY	–99 to 99 ([0])	Adjusts the boost frequency for H detail signal.
	MIX RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H detail signal used before and after the gamma compensation circuit.
	W.LIMITTER	–99 to 99 ([0])	Adjust the clipping level adainst the higher detail signal at the maximum level.
	B.LIMITTER	–99 to 99 ([0])	Adjusts the clippping level against the lower detail signal at the minimum level.
	COMB	–99 to 99 ([0])	Sets the effect volume of the comb filter 99 (Causes less cross colors.) ↔ –99 (Yields clear pictures, but causes more cross colors.) * For a PAL model, this function has the effect on not every object but a specified object.
	KNEE APRT.	ON, [OFF]	Turns the knee aperture function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL2 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
SKIN DETAIL	SKIN DETAIL	ON, [OFF]	Turns the skin detail function on and off.
	LEVEL	–99 to 99 ([0])	Adjusts the level of the skin detail.
	PHASE	100° to 170°([0])	Adjusts the hue for the skin detail function.
	WIDTH	0° to 90° ([0])	Adjusts the color width for the skin detail function.
	SATURATION	–99 to 99 ([0])	Adjusts the color saturation of the skin detail function.
	GATE	ON, [OFF]	Turns the area display of the skin detail function in the viewfinder screen.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Sets the range of skin detail hue function automatically. (Does not function at preset.)
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the SKIN DETAIL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
GAMMA	GAMMA, R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B and master gamma level.
	COARSE	0.40, [0.45], 0.50	Selects the gamma value in steps.
	GAMMA	[ON], OFF	Turns the gamma value on and off.
	BLACK GAMMA	–99 to 99 ([0])	Adjusts the black gamma (master). (Note: A noise appears on the screen during operation.)
	BLACK GAMMA	ON, [OFF]	Turns the black gamma function on and off. (Note: A noise appears on the screen during operation.)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Resets all settings on the GAMMA page to the factry settings. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
KNEE/W.CLIP	POINT	–99 to 99 ([0])	Adjusts the knee point level when the function is OFF.
	SLOPE	–99 to 99 ([0])	Adjusts the knee slope level when the function is OFF.
	KNEE	[ON], OFF	Turns the knee function on and off.
	AUTO KNEE	ON, [OFF]	Turns the auto knee function on and off.
	KNEE MAX	ON, [OFF]	Turns on and off the knee max function which changes the slope to completely collapsed form.
	WHITE CLIP	–99 to 99 ([0])	Adjusts the white clip level.
	WHITE CLIP	[ON],OFF	Turn the white clip function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the KNEE/W.CLIP page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
MATRIX	R-G, R-B	–99 to 99 (0)	Compensates the user's matrix (sets an optional value as the constant for R-G, R-B, G-R, G-B, B-R, and B-G).
	G-R, G-B	–99 to 99 (0)	
	B-R, B-G	–99 to 99 (0)	
	MATRIX	ON, OFF	Turns the matrix compensation on and off.
	USER[a]	ON, OFF	Turns the user's matrix compensation on and off.
	PRESET[a]	ON, OFF	Turns on and off only the preset matrix compensation (fixed constant compensation).
	TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step form test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the MATRIX page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
SCENE FILE	1	Storing and recalling a scene file (painting data corresponding to a shot scene)	
	2	**Storing a scene file**	
	3	1 Turn MENU SEL switch to move the → cursor to "FILE STORE," then press MENU SEL switch. "FILE STORE" flashes on the viewfinder screen.	
	4		
	5	2 Select the file number (1 to 5) to be stored to.	
	FILE STORE	(If data is already stored at the selected location, the new data replaces the current data.) **Recalling a scene file** Turn MENU SEL switch to move the → cursor to the file number whose data is to be recalled, then press MENU SEL switch. • When MENU SEL switch is pressed, the scene file data replaces the current settings. • When the scene file is recalled, an asterisk appears next to the number.	
	STANDARD	Returns the current amount of paint adjustments and switch setting to their reference value stored as a reference file.	

a) When both USER and PRESET are set to ON, the matrix constant compensation is total value of the USER and PRESET matrix.

3-1-3. Maintenance Menu

The Maintenance menu is used for encoder output level and other adjustments items necessary for camera's maintenance. The Maintenance menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required.
For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board".
To activate the Maintenance menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Item	Settings	Contents
VBS	SYNC LEVEL	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal.
	Y LEVEL	-99 to 99 ([XX])	Adjusts the Y level of camera's encoder output signal.
	BURST LEVEL	-99 to 99 ([XX])	Adjusts the burst level of camera's encoder output signal.
	CHROMA LEVEL	-99 to 99 ([XX])	Adjusts the chroma level of camera's encoder output signal.
	Q/V LEVEL	-99 to 99 ([XX])	Adjusts the Q (or V) level of camera's encoder output signal.
	SET UP	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal. (This setting is valid only for NTSC.)
	BF PHASE	-99 to 99 ([XX])	Adjusts the burst phase of camera's encoder output signal.
	SC-H PHASE	-99 to 99 ([XX])	Adjusts the SC-H phase of camera's encoder output signal.
	V BLANKING	19,[20],21H	Adjusts the V blanking width of camera's encoder output signal. (This setting is valid only for NTSC.) In connection with CCU, the width is fixed to 19H. * For a PAL model, the width is fixed to 25H at all times.
WHITE SHADING	V SAW R/G/B/M	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, B or master white shading.
	V PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.PARA compensation for the R, G, or B white shading.
	H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B white shading.
	H PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.PARA compensation for the R, G, or B white shading.
	WHITE R/G/B	-99 to 99 ([XX])	Adjusts the R, G, or B white level.
	V MOD R/G/B/M	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, B or master modulation shading of the lens and prism.[b]
	V MOD	ON, [OFF]	Turns the V modulation shading on and off.
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the WHITE SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)
BLACK SHADING	V SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, or B black shading.
	H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B black shading.
	BLK SET R/G/B	-99 to 99 ([XX])	Adjusts the volume of BLACK SET compensation for the R, G, or B.
	BLACK R/G/B/M	-99 to 99 ([XX])	Adjusts the R, G, B or master black level.
	MASTER GAIN	-3,0,3,6,9,12,18, 24,30 dB ([X])	Selects the master gain value.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the BLACK SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)

b) When the master modulation shading is adjusted, the V. SAW component for the R and B V-modulation shadings of the prism is simultaneously compensated.

Page	Item	Settings	Contents
AUTO SET UP	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)
	COLOR MATCH	Press MENU SEL switch to execute.	Starts to automatically perform the COLOR MATCH adjustment to match in color between two or more cameras. (Does not function at present.)
	WHITE SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the white shading. (Does not function at present.)
	BLACK SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the black shading. d)
DATE/TIME	DD/MM/YY HH:MM:SS		Adjusts a built-in timer. (HH;hour/MM;minute only)
	DATE ON BARS	ON, [OFF]	Selects whether the date characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
	TIME ON BARS	ON, [OFF]	Selects whether the time characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
OTHERS	S/N MEASURE	ON, [OFF]	ON : Set to ON in mesuring the S/N ratio. And settings of the DETAIL, CHROMA, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MOD MEASURE	ON, [OFF]	ON : Set to ON in mesuring the modulation depth. And settings of the DETAIL, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the master black in measuring the S/N ratio and modulation depth.
	DETAIL	[ON], OFF	
	CHROMA	[ON], OFF	
	GAMMA	[ON], OFF	
	MATRIX	[ON], OFF	
	FLARE	[ON], OFF	

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
   1. Lens is automatically closed and the black balance is automatically adjusted.
   2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

   Note

   This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
   The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

d) Before first using the camera with the OHB-450/451/550/550WS (or their PAL version) installed, or After replacing the CCD unit, be sure to execute the automatic black shading adjustment.

3-1-4. Reference Menu

The Reference menu stores the reference values used for automatic setup adjustment and the standard settings of the switches as the reference files. And the menu can clear the current reference files. The Reference menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the Reference menu, first display the TOP menu.

Notes

1. Executing the FILE STORE on the REFERENCE FILE page registers settings of items, which have been set through the Paint, Maintenance and System config menus just before the file store, as the reference values.
2. When changed numbers of items are returned to the reference values stored as the reference files, recall the standard file using an MSU/RCP or the setup menu.

Page	Item	Settings	Contents
REFERENCE FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the reference files. (Temporarily clears the current reference files[e)].)
LENS FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a lens to be used as the lens files. The standard values are stored at the factory. (Does not function at present.)

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-5. Triming Menu

The Triming menu stores the adjustment data in replacing parts as the triming files. And the menu can clear the current adjustment values. The Triming menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the Triming menu, first display the TOP menu.

Note

Executing the FILE STORE on the TRIMING FILE page registers settings of items, which have been set through the Maintenance and System config menus just before the file store, as the reference values.

Page	Item	Settings	Contents
TRIMING FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the triming files. (Temporarily clears the current triming files[e)].)
OHB FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a CCD unit to be used as the OHB files. The standard values are stored at the factory.

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-6. System Config Menu

The System config menu is used for adjustments items necessary to replace a printed circuit board or some parts of the camera. The System config menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the System config menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting. XX or XXX represents two or three digits in hexadecimal.)

Page	Item	Settings	Contents
DATE/TIME	YY/MM/DD HH:MM:SS		Adjusts the built-in calender and timer.
	RESET	Turn MENU SEL switch to execute.	Resets hour (HH), minute (MM) and second (SS) of the timer.
Y/CHROMA	SC FREQ	XXX ([XX])	Adjusts the camera’s subcarrier frequency.
	Y SYNC	XXX ([XX])	Adjusts the sync level of camera’s Y output signal.
	Y SETUP	XXX ([XX])	Adjusts the setup level of camera’s Y output signal.
	Y VIDEO	XXX ([XX])	Adjusts the Y level of camera’s Y output signal.
	TEST SETUP	XXX ([XX])	Adjusts the setup level of camera’s encoder output signal.
	BURST LVL	XXX ([XX])	Adjusts the burst level of camera’s encoder output signal.
	CHROMA LVL	XXX ([XX])	Adjusts the chroma level of camera’s encoder output signal.
	Q/V LEVEL	XXX ([XX])	Adjusts the Q(V) level of camera’s encoder output signal.
	SC-H PHASE	XXX ([XX])	Adjusts the SC-H phase of camera’s encoder output signal.
	REG LVL	XXX ([XX])	Adjusts the level of the R, G and B output signals.
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the Y/CHROMA page.
PR/VA/TEST	PR ADG R/G/B	XXX ([XX])	Adjusts the reference level of the AD converter for R/G/B signals on the PR board.
	VA MOD R/G/B	XXX ([XX])	Adjusts the R, G or B modulation balance for the VA board.
	G CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for G signal on the PR board. (Note: In replacing OHB, readjustment is required to set the maximum value of the modulation depth.)
	R/B CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for R/B signals on the PR board. (Note: In replacing OHB, readjustment is required to set the minimum level of a pseudo signal.)
	M.BLACK	XXX ([XX])	Adjusts the master black signal.
	TEST2 HI	XXX ([XX])	Adjusts the high level of the TEST2 (3-STEP) signal on the VA board.
	TEST2 MID	XXX ([XX])	Adjusts the middle level of the TEST2 (3-STEP) signal on the VA board.
	TEST CLIP	XXX ([XX])	Adjusts the clip level of the TEST1 (sawtooth) signal on the VA board.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PR/VR/TEST page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
PRE KNEE/ZEBRA	PREKNEE1 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 1 level on the VA board.
(Continued)	PREKNEE2 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 2 level on the VA board.
	APERTURE	XXX ([XX])	Adjusts the aperture compensation signal level.

Page	Item	Settings	Contents
PRE KNEE/ZEBRA	WHITE CLIP	XXX ([XX])	Adjusts the white clip level.
	WHITE CLIP	[ON], OFF	Turns the white clip function on and off.
	ZEBRA1 LEVEL,WIDE	XXX ([XX])	Sets the center value and range for the zebra 1 signal detection.
	ZEBRA2 LEVEL	XXX ([XX])	Sets the detection value for the zebra 2 signal.
	Z.DISP	1,2, [1&2]	Selects a zebra signal to be displayed on the viewfinder. 1: Zebra 1 signal 2: Zebra 2 signal 1&2: Both zebra 1 and 2 signals are displayed at the same time.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PREKNEE/ ZEBRA page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
VTR/CCU	VTR R-Y	XXX ([XX])	Adjusts the R-Y color-difference signal level.
	VTR B-Y	XXX ([XX])	Adjusts the B-Y color-difference signal level.
	CCU Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the Y signal.
	CCU R-Y SYNC	XXX ([XX])	Adjusts the level of the sync pulse to be mixed with the R-Y signal.
	CCU B-Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the B-Y signal.
	RGB OFFSET	XXX ([XX])	Adjusts the G signal level.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the VTR/CCU page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the VTR/CCU page.
IRIS	LEVEL	XXX ([XX])	Adjusts the auto-iris level.
	APL RATIO	XXX ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
OTHERS 1	FILTER,WHT MEM	[ON], OFF	ON: A total of 8 settings of the white balance value can be saved in conbination with the CC filter and WHITE BAL switch settings. OFF: One white balance value can be saved for the WHITE BAL switch setting A or B, for a total of 2 settings.
	NTSC ENC	[WIDE], NRW	Sets the band width of the Q signal for the NTSC color encoder.
	ROTARY	[STD], RVS	Selects the mode of MENU SEL switch (as turned counterclockwise when viewed from the front.) STD: Cursor moves downwards and a numeric value increases. RVS: Cursor moves upwards and a numeric value decreases.
	OWN CALL	R, [F&R], OFF	Selects whether one or two TALLY lamps are lit corresponding to the CALL button of camera adaptor pressed, or not. Or selects which TALLY lamp is lit when the CALL button is pressed. (This setting is valid in connection with CCU. When the camera is used alone, it is always set to OFF.) R: Rear TALLY lamp is lit. F&R: Rear and front TALLY lamps are lit. OFF: No TALLY lamp is lit corresponding to the CALL button.
	CENTER H POS	XXX ([XX])	Shifts horizontally the location of the center marker on the screen.
	CENTER V POS	XXX ([XX])	Shifts vertically the location of the center marker on the screen.
	LENS VTR S/S	TALK, [RET2]	Selects the mode of VTR S/S SW of the lens and camera. TALK: VTR S/S SW of lens functions as INCOM TALK SW (momentary) and that of the camra as RET2 SW. RET2: VTR S/S SW of lens functions as RET2 SW and that of the camera as INCOM TALK SW.
	VF ? DISPLAY	[ON], OFF	Turns on and off the indication of ? mark at the top-right of the VF screen with the DISP switch set to ON when the self-diagnosis result is NG (no good)and so on.

(Continued)

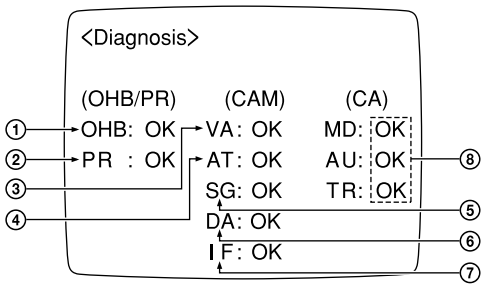
Page	Item	Settings	Contents
OTHERS 1	PinP RET RVS	[RVS1], RVS 2, OFF	Selects the indication mode of VF display in PinP mode. (Does not function in the unit.)
OTHERS 2	F TALLY RVS	[ON], OFF	Selects the operation mode of TALLY lamps corresponding to a CALL button of MSU or RCP pressed when a TALLY signal is input to the camera from CCU or VTR. ON: Rear and front TALLY lamps go out. OFF: Rear TALLY lamp alone goes out.

3-2. Self-Diagnosis

The BVP-550 has a diagnosis mode used for self-diagnosis of every plug-in board and the OHB.
The diagnosis page is displayed on the viewfinder screen.

- Operation
  Select “Diagnosis” page of the Operation menu referring to Section 3-1.

- Viewfinder Screen



- Display Descriptions

Marks	Board/Block	Judging Point for NG
①	OHB(CCD UNIT)	Error in communication with IC18, IC19/TG-159
②	PR-211	Error in communication with IC49
③	VA-163	Error in communication with IC26
④	AT-95	Error in communication with IC46
⑤	SG-234	Error in communication with IC21
⑥	DA-88	Error in communication with IC10
⑦	IF-510	Error in communication with IC155

Refer to CA-550/550P maintenance manual for descriptions on columns of CA.

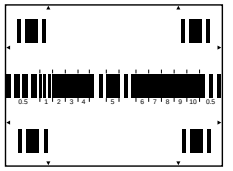
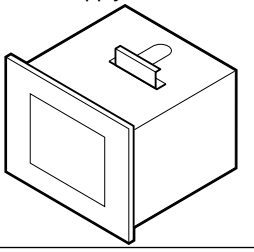
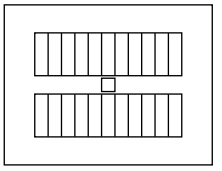
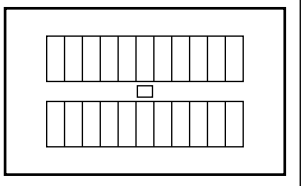
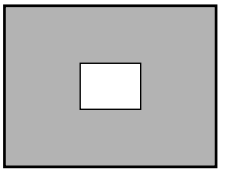
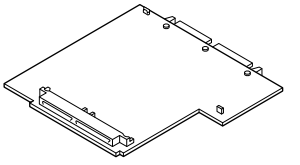
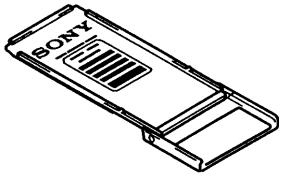
Note

When other equipment than the CA-550/550P is connected to the camera, or when the CA-550/550P is connected to the camera but is not connected to the CCU, the columns ⑧ will display “– –”.

Section 4
Electrical Alignment

4-1. Preparation

4-1-1. Equipment Required

Multiburst Chart	Pattern box PTB-500
Sony P/N: J-6026-110-A 	**Sony P/N: J-6029-140-B** • Light source for test chart Power supply AC90 to 240V 
Grayscale Chart	**Grayscale Chart (16:9)**
Sony P/N: J-6026-130-B 	**Sony P/N: J-6394-080-A** 
White Window Chart	**Extension board EX-464 (option)**
Make a square hole at the center of a black sheet of paper. 	**Sony P/N: J-6395-040-A** For BVP-550 plug-in boards 
Extension board BKP-7900 (option)	
For CCU-700/700P plug-in boards 	

Measuring Equipment

- Frequency counter
  Advantest TR5821AK or equivalent
- Oscilloscope
  Tektronix 2465 or equivalent
- Waveform monitor/Vectorscope
  Tektronix 1750 or equivalent (for NTSC)
  Tektronix 1751 or equivalent (for PAL)
- Digital voltmeter
  Advantest TR6845 or equivalent
- Video signal generator
  Tektronix 1410 or equivalent (for NTSC)
  Tektronix 1411 or equivalent (for PAL)
- Color monitor
  Sony BVM-1911/2811 or equivalent (for NTSC)
  Sony BVM-2011P/3011P or equivalent (for PAL)

Peripheral Equipment

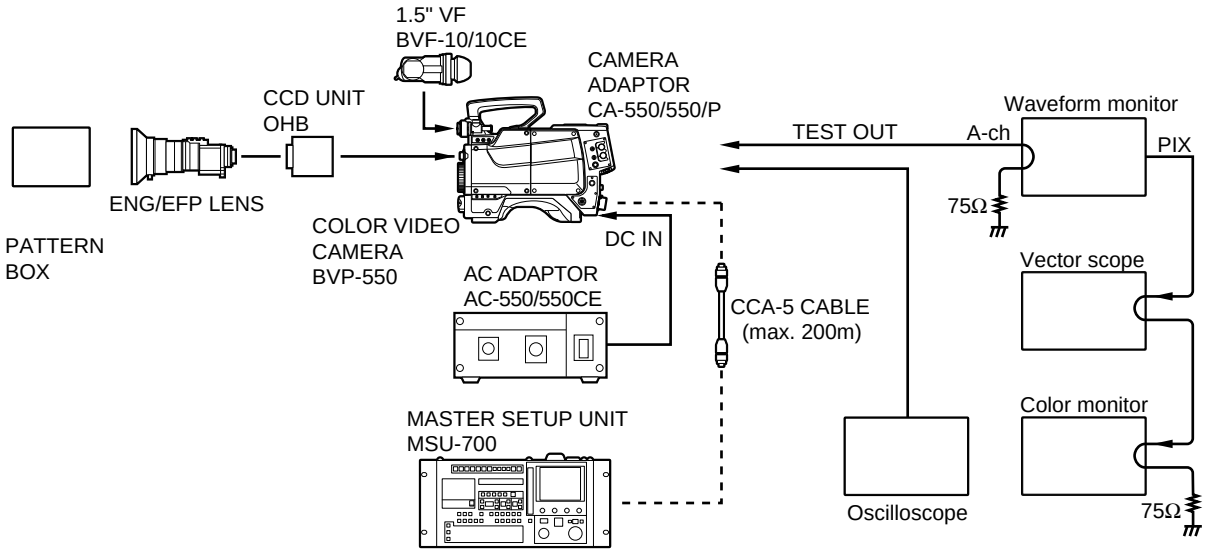
- CCD unit OHB-450/550 series
- Camera adaptor CA-550/550P
- AC adaptor AC-550/550CE
- Master setup unit MSU-700

4-1-2. Notes on Adjustment

When performing the adjustment, read throughly the following comments.

1. The calibration of all measuring equipment should be completed.
2. The alignment of OHB-450/550 series, CA-550/550P and MSU-700 should be also completed.
3. “4-1-5. Initial Setting” should be completed.
4. Turn off the power before extending the plug-in board using the extension board.
5. When using the camera as 16:9 mode together with the OHB-550WS/550WSP, use the specified grayscale chart (J-6394-080-A).
6. Paste a black colored velvets (around 3×3 cm) to both sides of the full white portion in the center of the grayscale chart.
   (For more details, consult your Sony service represen tative.)
7. When connecting MSU-700 to BVP-550, use MSU-700 for various settings, because the switches on the side panel of the camera become invalid.

4-1-3. Connections



4-1-4. Description of Setup Menu

A part of adjustments given in this section uses the setup menu. The setup menu consists of the following menus. Besides there is a TOP menu indicating the entire configuration of menu items.

- Operation
- Paint
- Maintenance
- Reference File
- Triming File
- System config

To display all of the menus, switch setting of the AT-95 board is required. And for details on the setup menu, refer to Section 3.

In this manual, describes the setup menu operation as follows.

Title of the selected page (top right corner display)

For reference:
When Paint → Skin Detail is selected:

MENU : Paint
PAGE : Skin Detail (P4)

Displaying Setup Menu

1. Set the internal switches of the AT-95 board as follows.
   S1-1 → ON
   S1-2 → OFF
   S1-3 → ON
   S1-4 → OFF
2. DISP switch (on the side panel) → OFF
3. POWER switch (on the camera adaptor) → ON
4. Set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch (on the front panel). (TOP menu will be displayed.)

Note

If the power switch is turned off once, perform the above operations again to display the setup menu (steps 2 to 4).

How to change the setting values

To enter or cancel the setting value of items, which can be changed by turning the MENU SEL switch, proceed as follows.

To enter the setting value;

Press the MENU SEL switch to ENTER.

To cancel the setting value;

Before pressing the MENU SEL switch, press the CANCEL button. The original setting is restored.
After pressing the MENU SEL switch, the setting can not be canceled.

File Store

If the adjustments in this section are suspended or the power is turned off to extend a printed circuit board and so on, be sure to execute the FILE STORE before being powered off.

4-1-5. Initial Setting

Internal Switches:

Note

When switching the following switches from a customer-set position, it is recommended to record the setting state of the customer in the table below.
After adjustment is complete, be sure to return the switches to their customer-set position.

Board	Switch	Initial setting	Customer-set position
AT-95	S1-1	ON	
	S1-2	OFF	
	S1-3	ON	
	S1-4	OFF	

Setup Menu:

MENU : Operation
- PAGE : Gain Sw (?3)
- ITEM : Low → 0 dB
- ITEM : Middle → 9 dB
- ITEM : High → 18 dB
- PAGE : Wide Screen (?4)
- ITEM : 16:9/4:3 MODE → 16:9 (For OHB-550WS/550WSP)

MENU : Paint
- PAGE : Video Level (P1)
- ITEM : Test → Off
- PAGE : Detail 1 (P2)
- ITEM : Detail → On
- PAGE : Skin Detail (P4)
- ITEM : Skin Detail → Off
- PAGE : Gamma (P5)
- ITEM : Gamma → On
- PAGE : Knee/W.Clip (P6)
- ITEM : Knee → Off
- ITEM : White Clip → Off
- PAGE : Matrix (P7)
- ITEM : Matrix → Off

Side Panel:

VTR SAVE/STBY switch → STBY
GAIN switch → L (0 dB)
OUTPUT/DCC switch → CAM/OFF
WHITE BAL switch → PRST

Front Panel:

SHUTTER switch → OFF

Filter Setting:3200 K

OHB-550/550WS series → 1B (FILTER selector)
OHB-450/451 series → 1 (FILTER selector)

Execution of Scene File Standard:

MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard
(Press the MENU SEL switch to execute.)

4-2. Adjustment for Installation of OHB

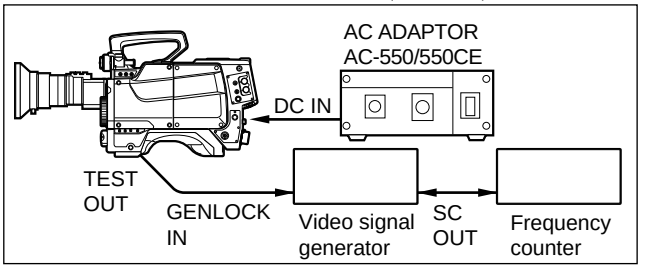
When the auto black adjustment is executed with the AUTO W/B BAL switch on the front panel for the first time after the OHB is replaced or a new OHB is installed, the black shading is automatically adjusted in succession to the auto black adjustment.
If the shading adjustment is correctly completed at that time, “4-2-3. Black Shading Adjustment” can be skipped.

4-2-1. VCO CONT Frequency Confirmation

Notes:
- Perform this confirmation only when the CCD unit is installed.
- Warm up the camera for about 10 minutes before performing this confirmation.

Preparation:
- RGB/ENC switch (on the side panel) → ENC

Equipment : Frequency counter, Video signal generator
Test Point : TEST OUT connector
Specifications: 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specification is not satisfied, perform the following adjustment.

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications: 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:
Execute the OHB file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-2-2. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:
- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

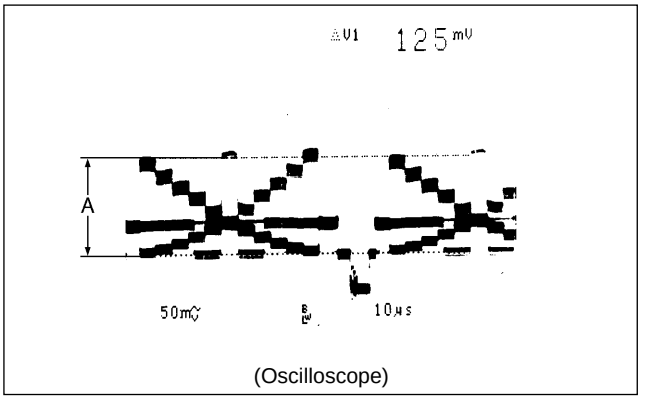
Note:
- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

Preparations:
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-2-5. Master Black Adjustment”.

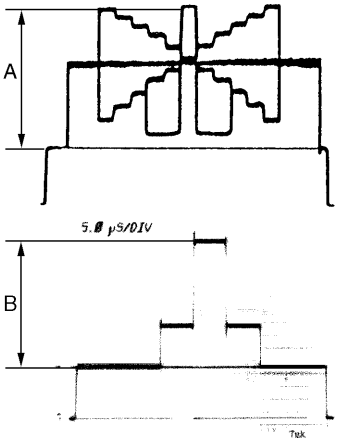
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

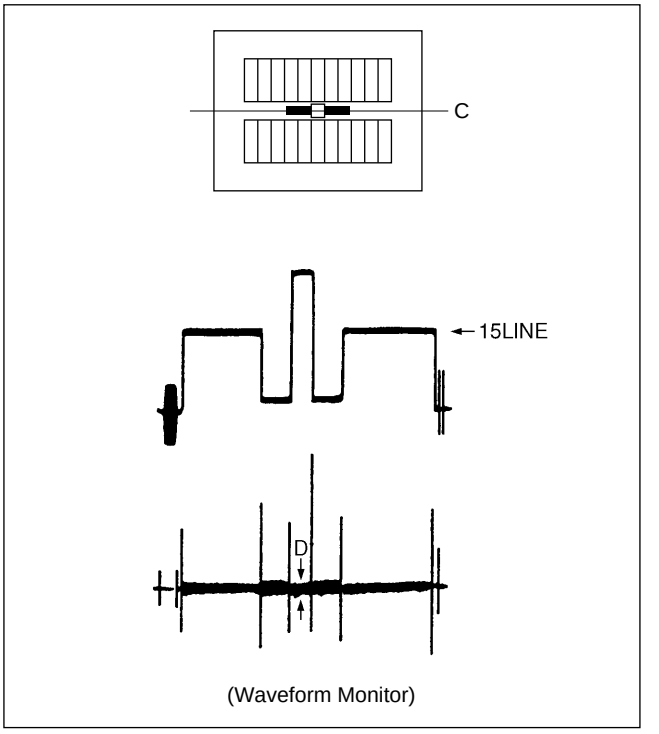
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

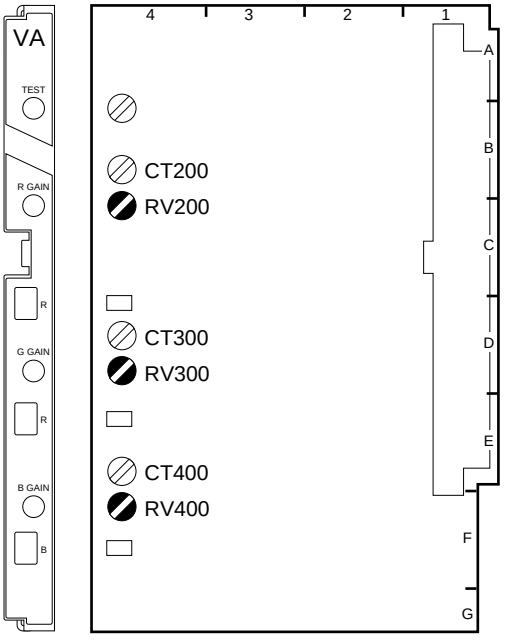


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-2-3. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

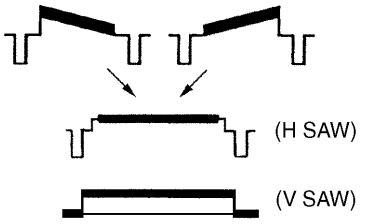
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-2-4. White Shading Adjustment

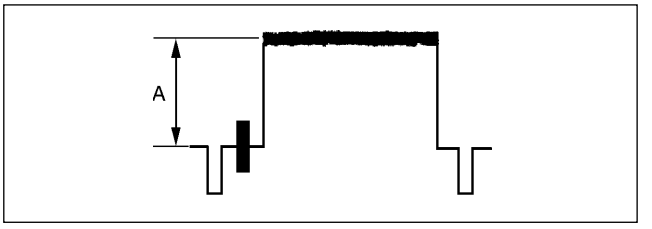
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

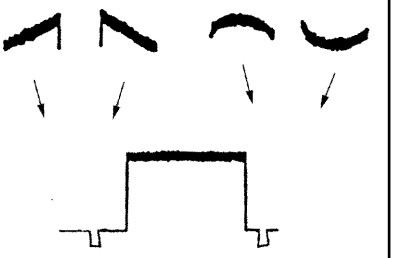
Preparations:

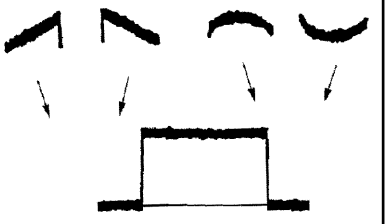
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-2-5. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

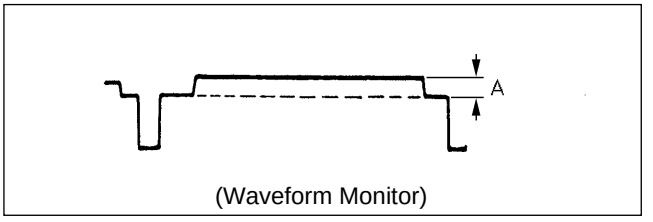
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-2-6. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

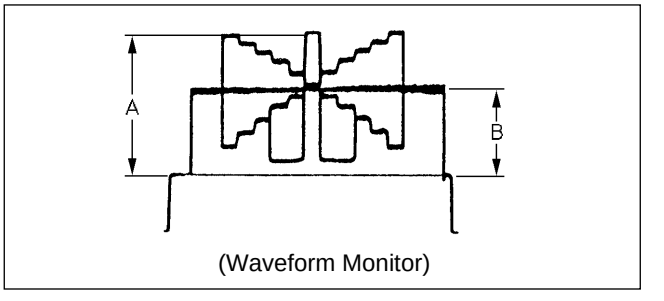
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

Adjustment Procedures:

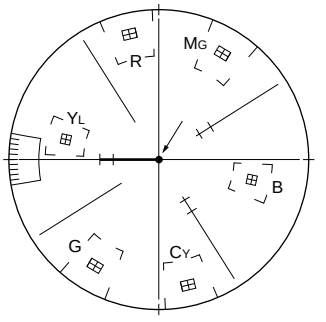
1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)



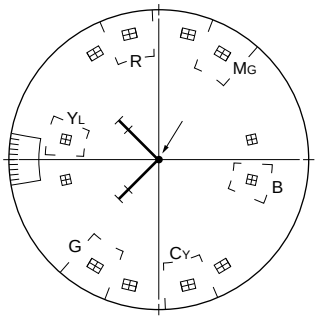
(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.

8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.



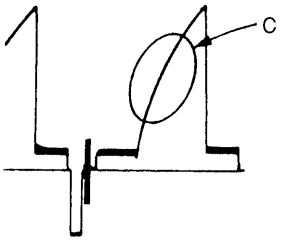
(For NTSC)



(For PAL)

(Vectorscope)

9. Confirm that the carrier leakage does not observed at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

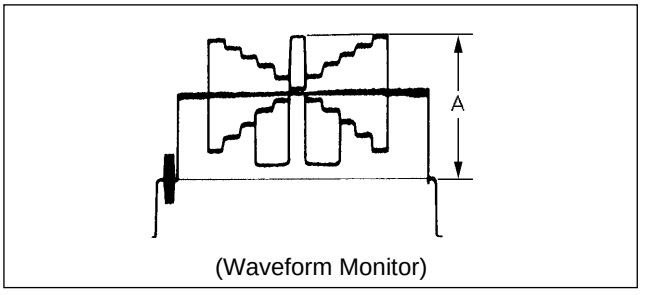
4-2-7. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

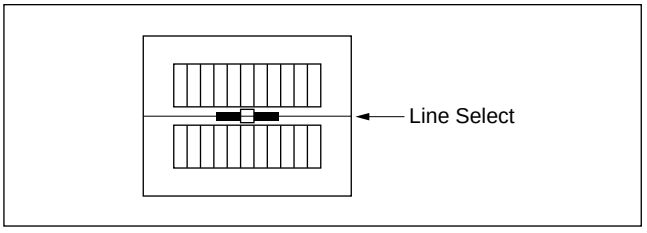
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



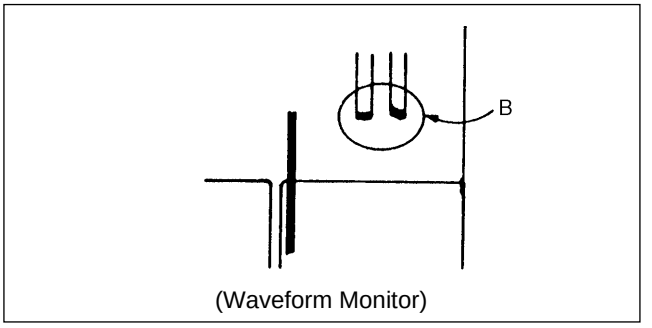
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC. Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

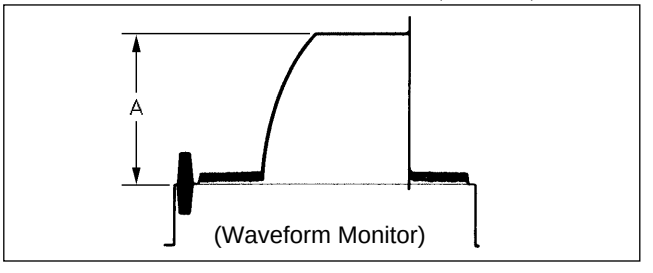
4-2-8. Knee and White Clip Adjustment

Note:
Perform this adjustment on the customer's preferences, if necessary.

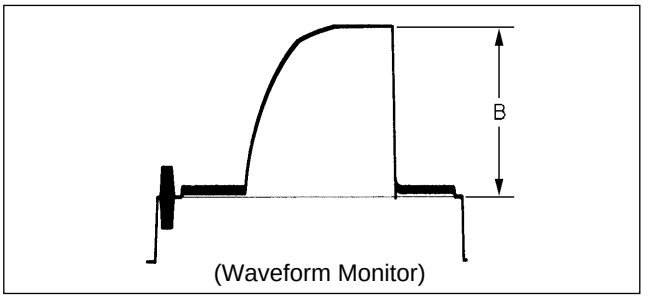
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

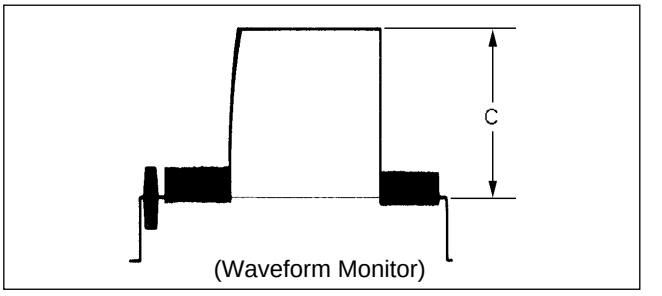
Adjustment Procedures:
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:
- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

Note:
The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-2-9. Crispening Adjustment

Note:

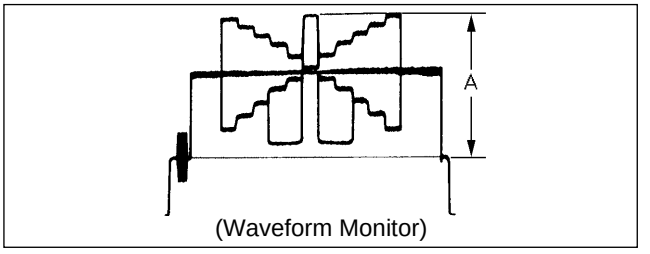
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Iris of the lens : A = 90 ±2 IRE (for NTSC)
A = 630 ±14 mV (for PAL)



(Waveform Monitor)

Adjustment Procedure:

Set the menu as follows, and adjust the crispening by using the MENU SEL switch.

MENU : Paint
PAGE : Detail 1(P2)
ITEM : Crispening
Specifications : Turn the MENU SEL switch (on the front panel) once to –99, and turn slowly for increment until the noise at the black level of the waveform is just decreased, or turn the MENU SEL switch so that the crispening level is an appropriate value.

4-2-10. Level Dependent Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

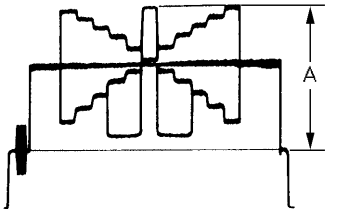
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On
  ITEM : Level Dep. → On

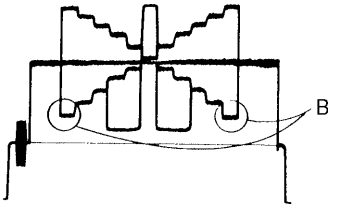
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the level dependent by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level Dep.
   Specifications: Turn the MENU SEL switch (on the front panel) once to –99, and slowly turn it for increment until spikes at portions B are just decreased.



(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-11. Detail Frequency Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

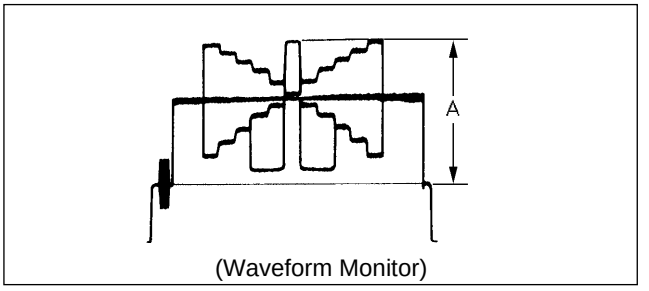
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

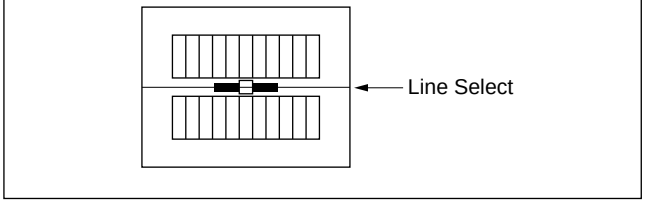
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

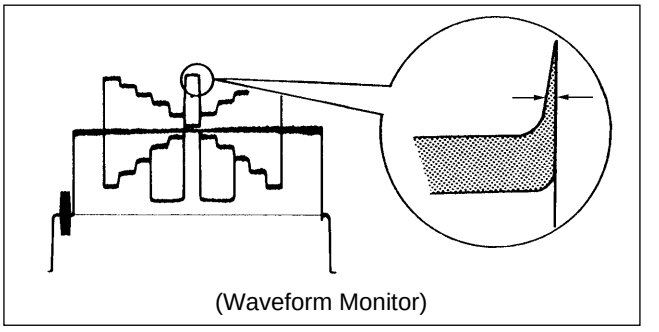


(Waveform Monitor)

2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the detail frequency by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : Frequency
   Specifications: Adjust the edge width at each end of the center white portion to the desired width.


(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-12. H/V Ratio Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

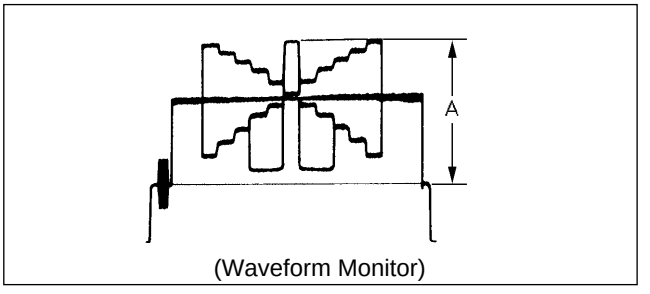
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

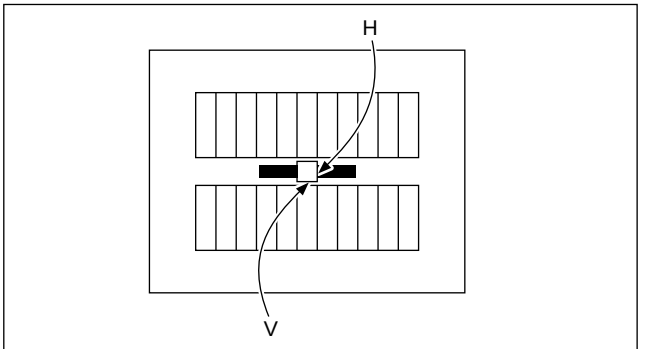
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the H/V ratio by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : H/V Ratio
   Specifications: The ratio between the H and V detail amounts (white) to be added shall be 1 : 1.



(Monitor Screen)

4-2-13. Detail Level Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

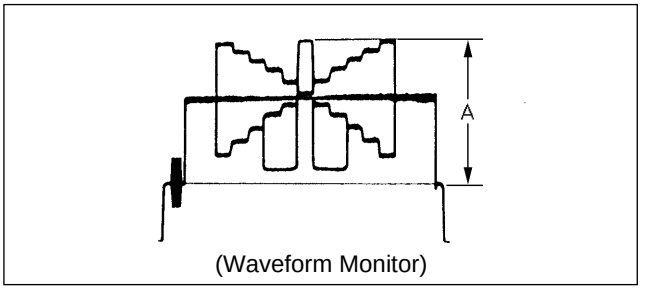
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the signal level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level
   Specifications: Adjust the detail signal level to be added to each step in the grayscale chart for the desired level.

4-2-14. Detail Clip Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

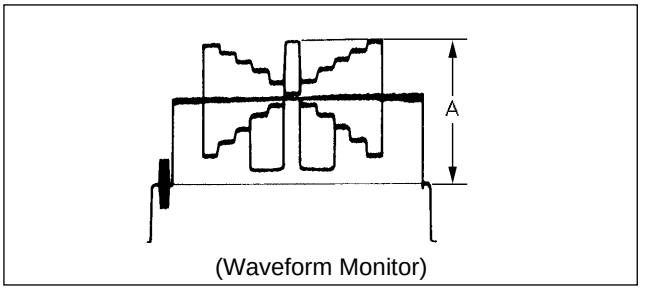
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

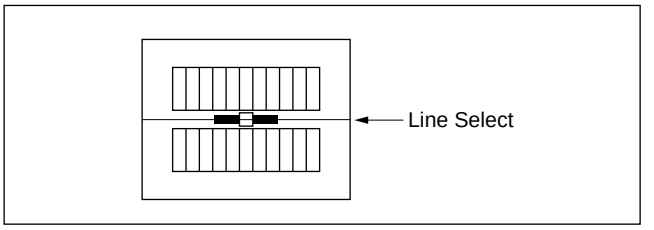
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

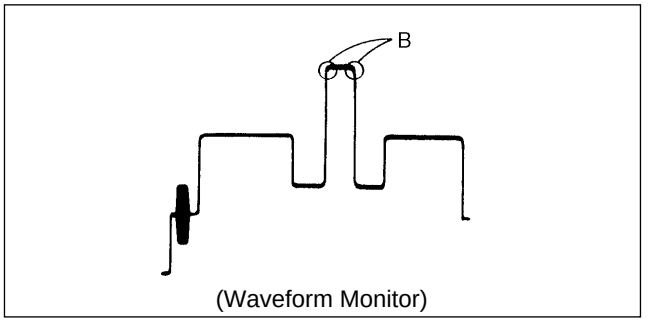


(Waveform Monitor)

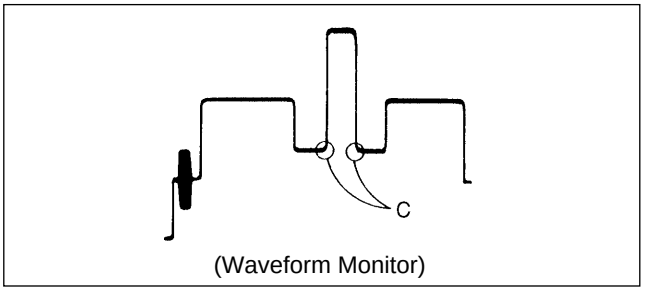
2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the white limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : W.Limitter
   Specifications: Adjust the edges of portions B to the desired clip level.



4. Set the menu as follows, and adjust the black limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : B.Limitter
   Specifications: Adjust the edges of portions C to the desired clip level.



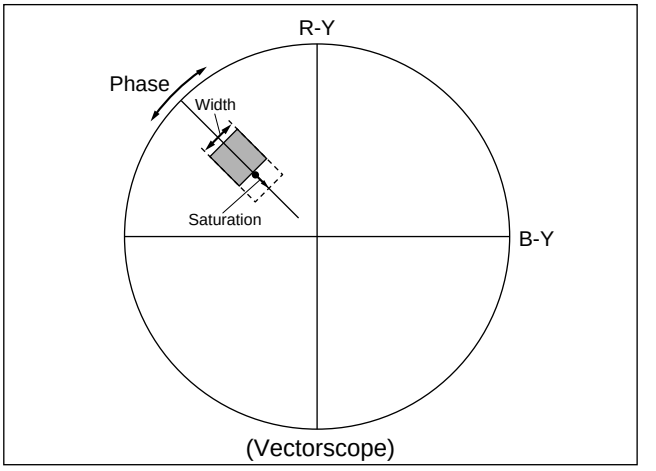
4-2-15. Skin Tone Adjustment

Note:
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Color monitor, Viewfinder or Vectorscope

Preparations:
- Connect the vectorscope to the TEST OUT connector.
- Shoot a person's face.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Skin Detail → On

Adjustment Procedures:
1. Set the menu as follows.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Gate → On
2. Set the menu as follows, and adjust the amount of the skin detail signal to the desired level according to the following items by using the MENU SEL switch.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Level (Detail level within the skin gate)
   ITEM : Phase (Hue)
   ITEM : Saturation
   (Component in the saturation direction)
   ITEM : Width (Component in the hue direction)
   (The effective area of the skin detail signal appears in a zebra pattern on the viewfinder screen. Set the desired level.)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Gate → Off

4-2-16. Zebra Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

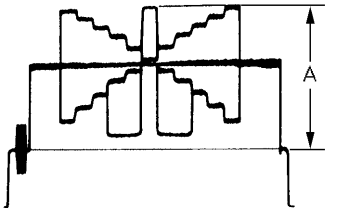
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- ZEBRA switch (on the viewfinder) → ON
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

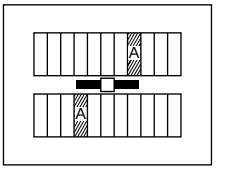
Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. **Iris of the lens**: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



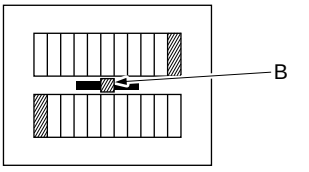
(Waveform Monitor)

3. Set the menu as follows, and adjust the zebra 1 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 1
   Adjustment Point:
   ITEM : Zebra1 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions A on the viewfinder screen.
   The area of the stripes can be changed by ITEM: Zebla 1 [RANGE].



(Monitor Screen)

4. Set the menu as follows, and adjust the zebra 2 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 2
   Adjustment Point:
   ITEM : Zebra2 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions B on the viewfinder screen.



(Monitor Screen)

Resetting after Adjustment:

- ZEBRA switch (on the viewfinder) → OFF
- WHITE BAL switch (on the side panel) → PRST

4-2-17. Auto Iris Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

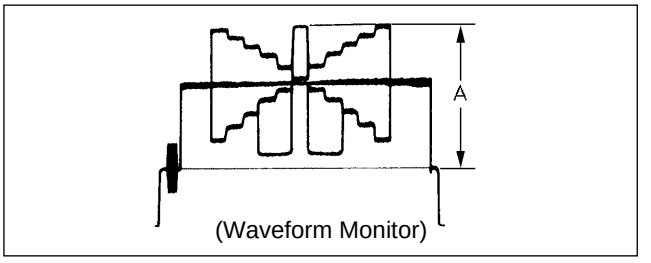
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- AUTO/MANU switch (on the lens) → AUTO
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Set the menu as follows, and adjust the APL ratio by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : APL Ratio
   Specifications: Adjust the auto-iris operation mode depending on the application.
   Note : Automatic iris operation mode setting can be done from the average level to peak-to-peak level of the video signal.
   99 → average level
   –99 → peak-to-peak level
3. Set the menu as follows, and adjust the auto-iris level by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : Iris Override → Off
   Adjustment Point:
   MENU : System config
   PAGE : Iris (S6)
   ITEM : Level
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

4-2-18. Menu Settings After Finishing Adjustment

MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On

4-2-19. File Store

Be sure to execute the file store after any one of the adjustments of Sections 4-2-1 through 4-2-17 is performed.

Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Execute the reference file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Reference File
   PAGE : Reference File (R1)
   ITEM : File Store
3. Execute the triming file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store

4-3. Overall Electrical Alignment

Before beginning this adjustment, check the initial settings referring to Section 4-1-5. When a board was replaced or repaired, preset the compensation data, proceeding as follows. If the data is preset once, be sure to carry out all steps of 4-3-1 through 4-3-23. Because presetting clears all adjustment data of video and detail system.

(1) Execute the reference file clear.
Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : Clear File

(2) Execute the scene file standard.
Press the MENU SEL switch to execute.
MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard

This section provides intructions to store the setting data on the reference or triming file in every adjustment item. This intends to prevent the data from being cleared when the unit is powered off to extend a board, and so on.
As the data is kept held unless powered off, however, more than one data can be stored at a time.
The file store may not necessarily be executed for every adjustment item.

4-3-1. VCO CONT Frequency Adjustment

Note:

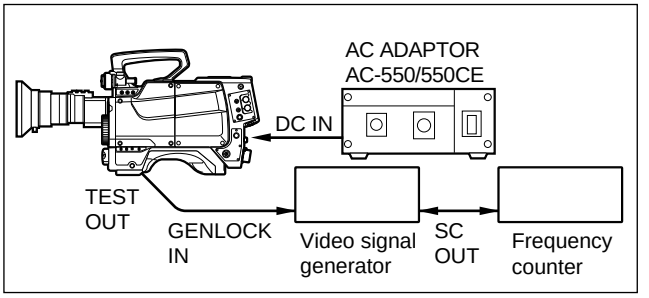
- Warm up the camera for about 10 minutes before this confirmation.

Equipment : Frequency counter,
Video signal generator

Test Point : TEST OUT connector

Preparation:

- RGB/ENC switch (on the side panel) → ENC



Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications : 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:

Execute the OHB file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-3-2. VTR Y Adjustment

Equipment : Oscilloscope
Test Point : TP3 (Y)/DA-88 panel

Preparations:

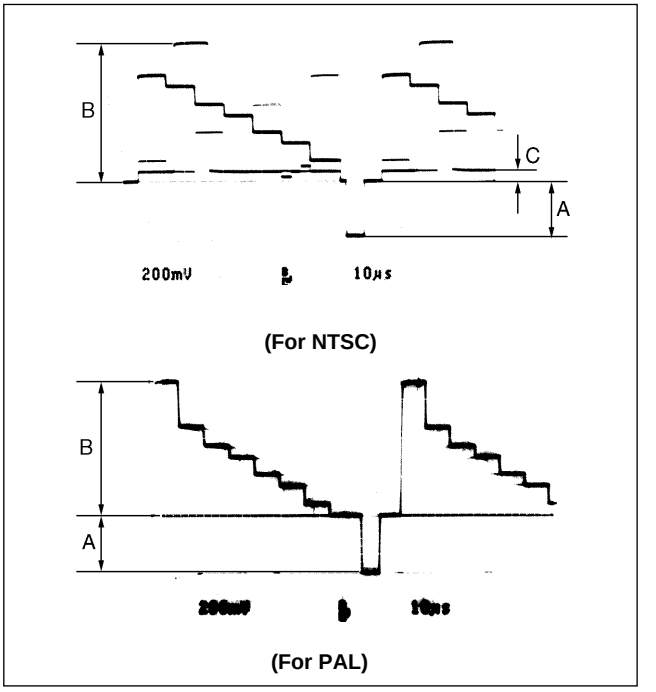
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the Y sync by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SYNC
   Specifications: A = 286 ±2 mV (for NTSC)
   A = 300 ±2 mV (for PAL)

3. (NTSC only)
   Set the menu as follows, and adjust the Y setup by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SETUP
   Specifications: C = 53.5 ±2 mV

4. Set the menu as follows, and adjust the Y video by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y Video
   Specifications: B = 714 ±7 mV (for NTSC)
   B = 700 ±7 mV (for PAL)



(20 MHz B/W LIMIT → ON)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-3. Test out Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

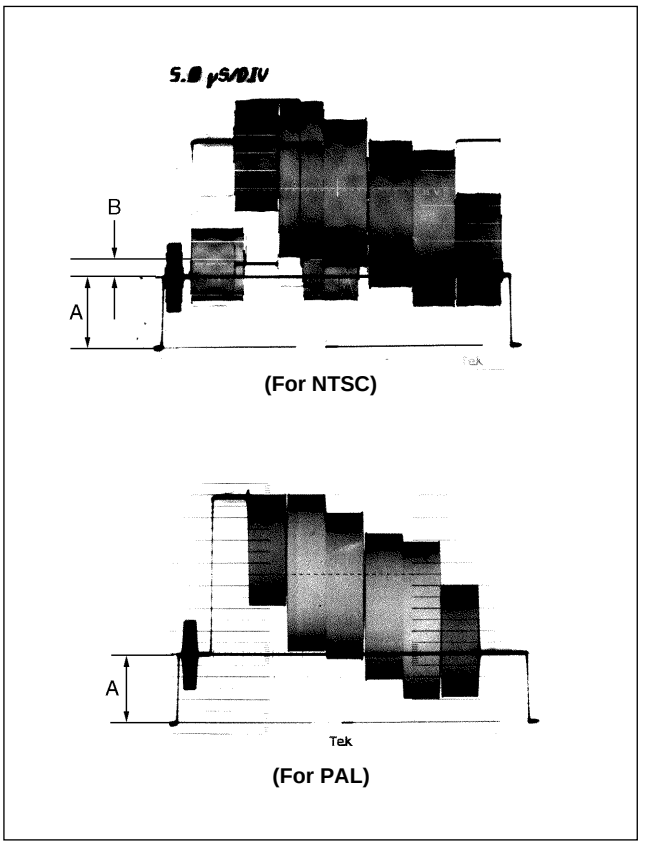
Preparations:

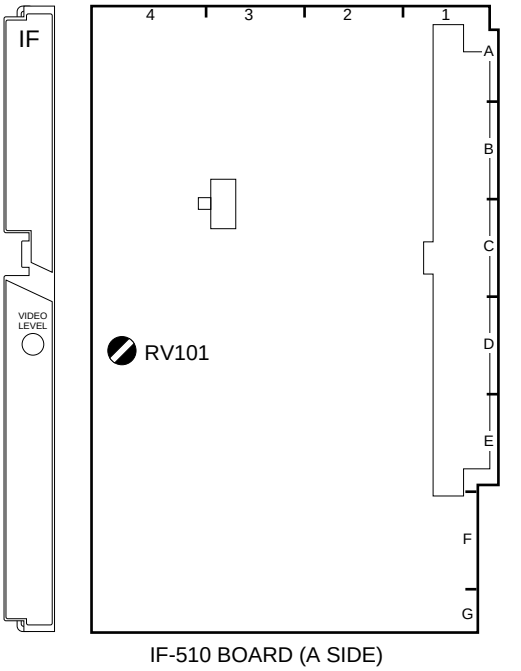
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. **Adjustment Point** : ⊘RV101 (VIDEO LEVEL)/ IF-510 panel
   Specifications : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)

2. (NTSC only)
   Set the menu as follows, and adjust the test setup by using the MENU SEL.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : TEST SETUP
   Specifications : B = 7.5 ±1 IRE
   File Store:
   Execute the file store. Press the MENU SEL switch to execute.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store





IF-510 BOARD (A SIDE)

4-3-4. Chroma Adjustment

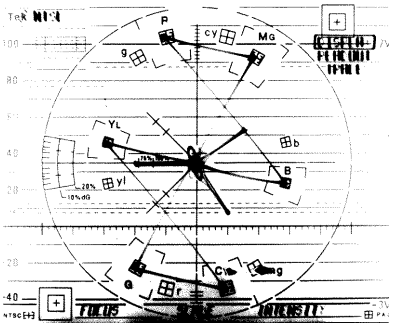
Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector

Preparations:

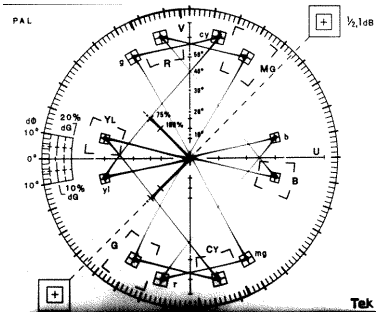
- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the chroma level and Q/V level alternately by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Chroma LVL
   ITEM : Q/V LVL
   Specifications: Place the beam spots inside the corresponding frames on the vectorscope.

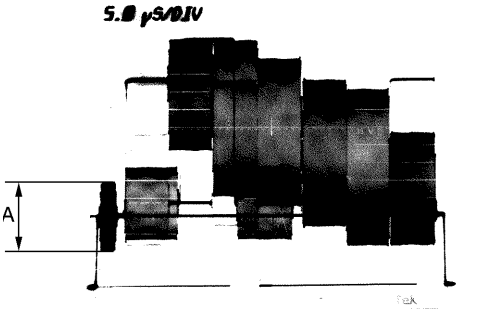


(For NTSC)

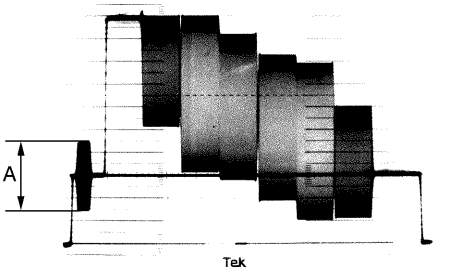


(For PAL)

3. Connect the waveform monitor to the TEST OUT connector.
4. Set the menu as follows, and adjust the burst level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Burst LVL
   Specifications: A = 40 ±1 IRE (for NTSC)
   A = 300 ±5 mV (for PAL)



(For NTSC)



(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-5. INT SC Phase Adjustment

Notes:

This adjustment precedures are stated below assuming that where the Tektronix 1750 (for NTSC) or1751 (for PAL) is used.

If any other measuring instrument is used, follow the instructions given in the operation manual attached to it.

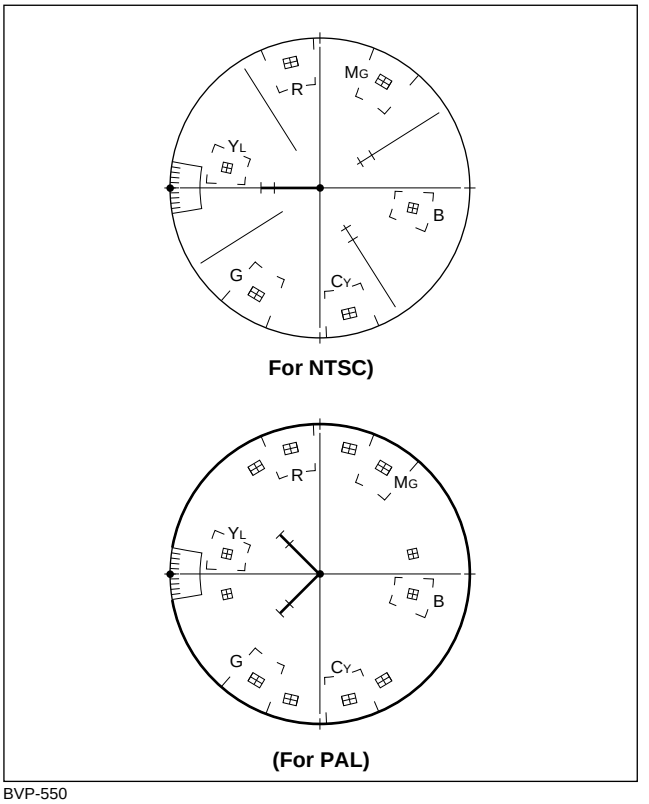
Equipment : Vectorscope (SC-H Phase measuring mode)
Test Point : TEST OUT connector

Preparations:

- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the SC-H phase by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC-H Phase
   Specifications: Position the luminous line of the burst (SC) and the beam spot of H as shown in the figure.



For NTSC)

(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-6. REG Level Adjustment

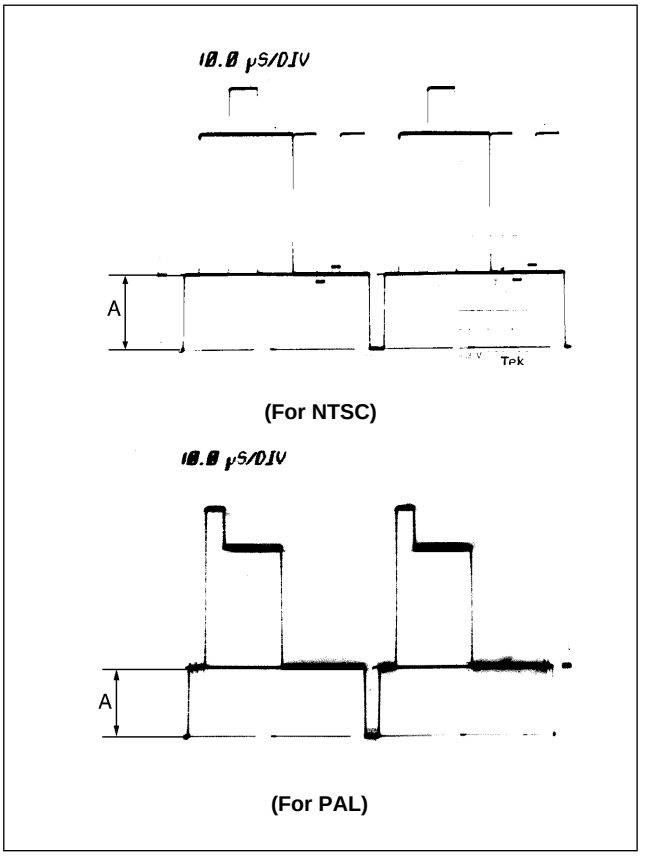
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the REG level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : REG LVL
   Specifications:
   SYNC LEVEL : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-7. TEST1 Adjustment

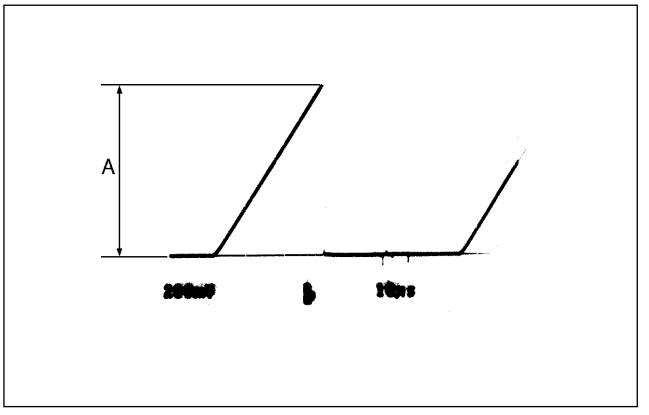
Equipment : Oscilloscope

Preparation:

- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. WHITE BAL switch (on the side panel) → PRST
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 1
4. **Test Point** : TP52 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point : ⊘RV50 (TEST)/VA-163 panel
   Specifications : A = 880 ±2 mV



5. Set the menu as follows, and adjust the white level for R by using the MENU SEL switch.
   Test Point : TP54 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [R]
   Specifications : A = 880 ±40 mV
6. Set the menu as follows, and adjust the white level for B by turning the MENU SEL switch.
   Test Point : TP50 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [B]
   Specifications : A = 880 ±40 mV

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-8. TEST2 Adjustment

Equipment : Oscilloscope
Test Point : TP52 (GND:GND (A))/
Extension board (extending VA-163)

Preparation:

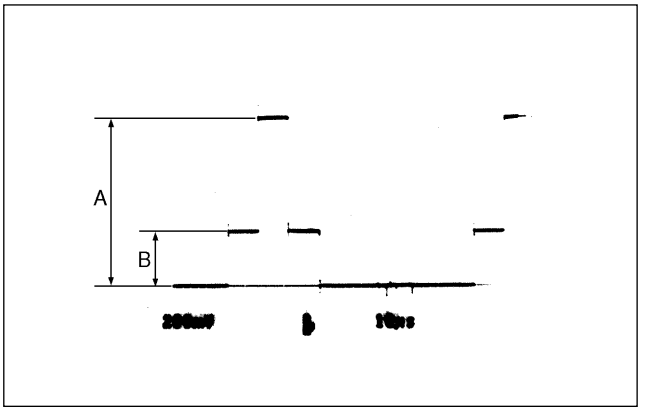
- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2

3. Set the menu as follows, and adjust the TEST2 high level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 HI
   Specifications: A = 880 ±5 mV

4. Set the menu as follows, and adjust the TEST 2 middle level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 MID
   Specifications: B = 290 ±5 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-9. A/D Gain Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

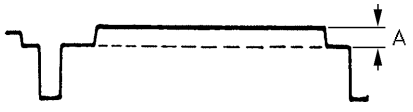
- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : Paint
  PAGE : Detail1 (P2)
  ITEM : Detail → Off
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
  ITEM : White Clip → Off

Iris of the lens : CLOSE

Adjustment Procedures:

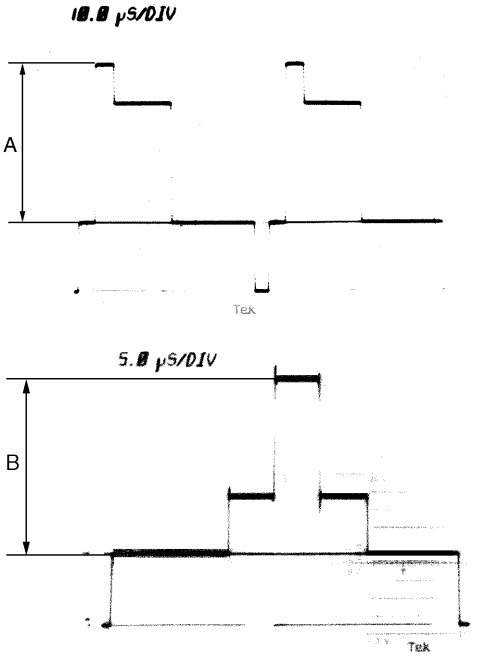
1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

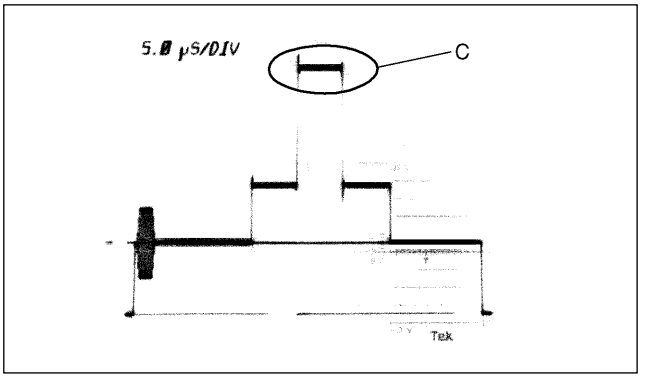
3. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK
4. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2
5. Set the menu as follows, and adjust the A/D gain for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [G]
   Specifications: The white level shall not be changed even if the OUTPUT/DCC switch (on the side panel) is changed over between CAM and BARS.
   A = B

(For NTSC)



(For PAL)

6. Set the R/G/B switch (on the side panelüj to ENC.
7. Set the OUTPUT/DCC switch (on the side panel) to CAM/OFF.
8. Set the menu as follows, and adjust the A/D gain for R by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [R]
   Specifications: Minimize the carrier leakage.
   C = Minimum
9. Set the menu as follows, and adjust the A/D gain for B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [B]
   Specifications: Minimize the carrier leakage.
   C = Minimum



10. Repeat the steps 8 and 9 alternately until the specifications are satisfied.

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-10. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:

- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

Note:

- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

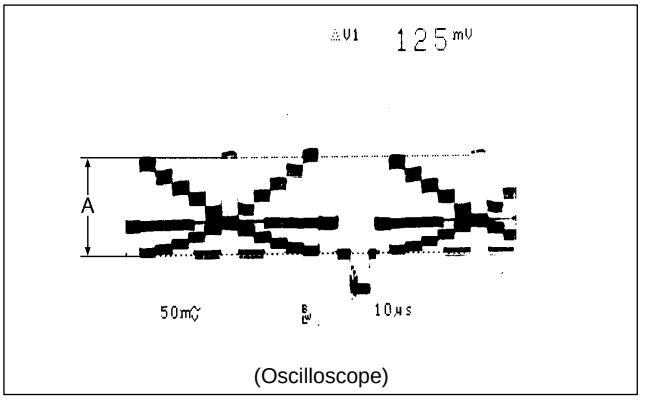
Preparations:

- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-3-14. Master Black Adjustment”.

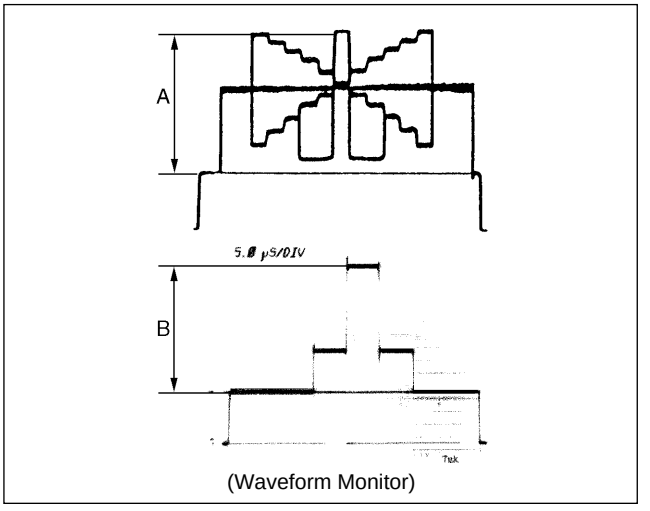
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

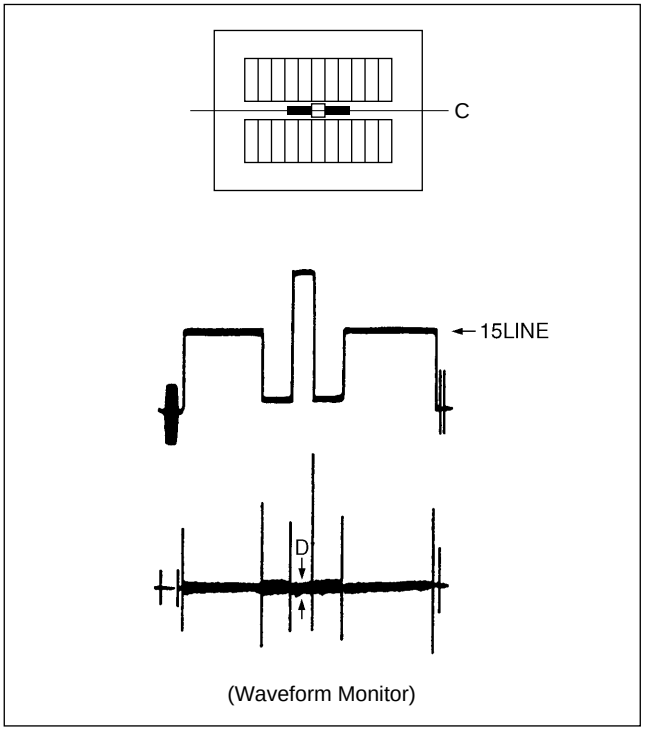
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

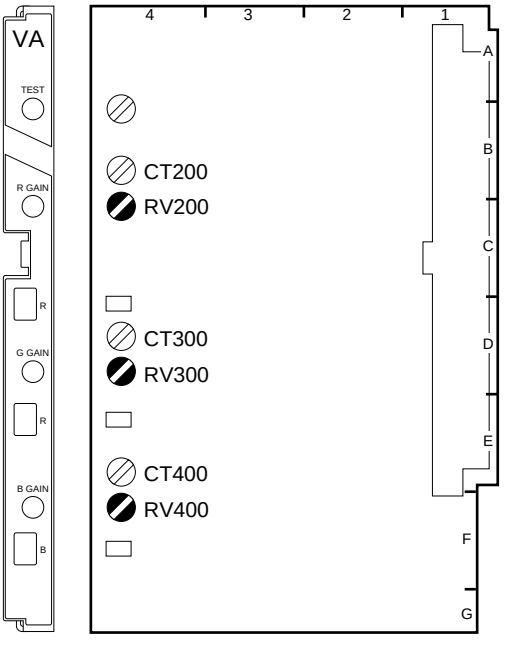


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-3-11. VA MOD Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

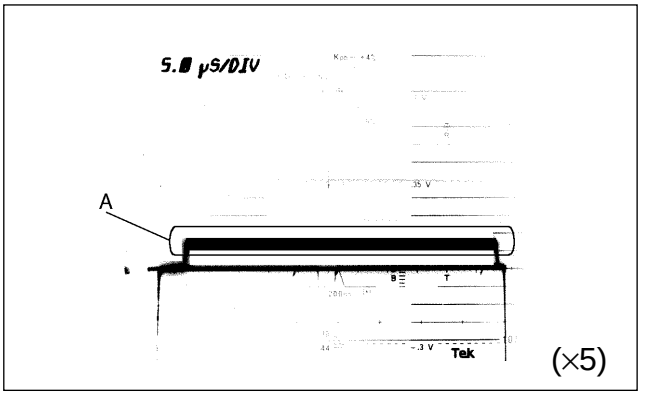
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → R

Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [R]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [R] varies from 99 to –99.



3. Set the R/G/B switch (on the side panel) to G.
4. Set the menu as follows, and adjust the V MOD for G by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [G] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [G]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [G] varies from 99 to –99.

5. Set the R/G/B switch (on the side panel) to B.
6. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [B] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [B]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [B] varies from 99 to –99.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows. Press the MENU SEL switch to execute.
  MENU : Maintenance
  PAGE : White Shading (M2)
  ITEM : Clear

4-3-12. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-4-12. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

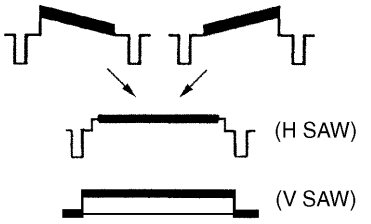
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-3-13. White Shading Adjustment

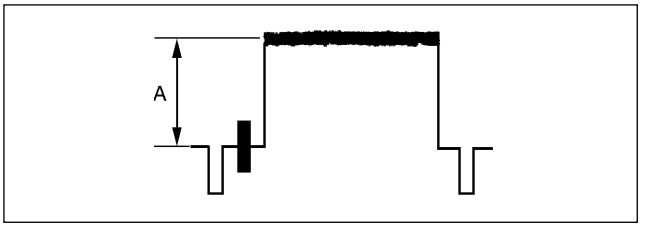
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

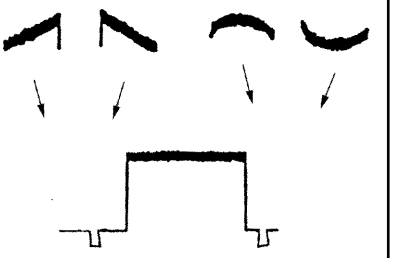
Preparations:

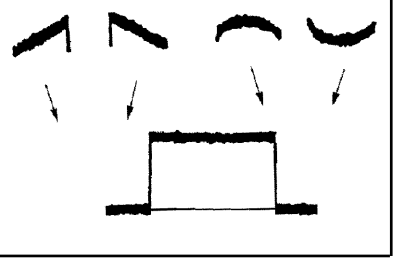
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-3-14. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

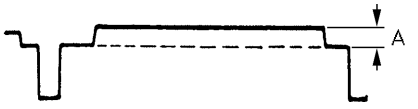
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-3-15. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

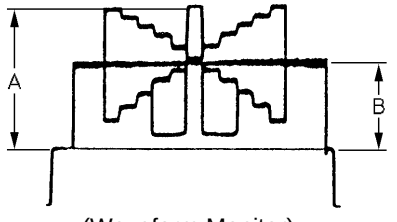
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

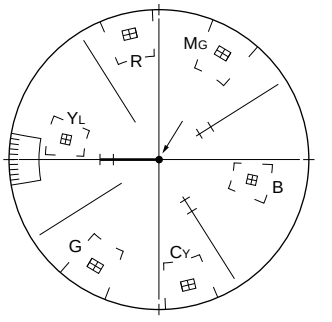
Adjustment Procedures:

1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)

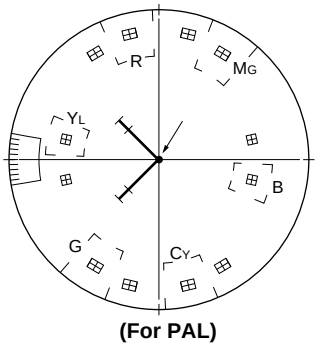


(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHT BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panl) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.
8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.

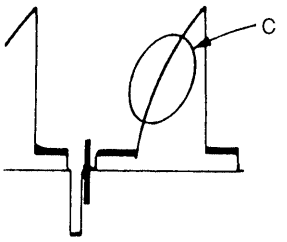


(For NTSC)



(For PAL)
(Vectorscope)

9. Confirm that the carrier leakage does not monitored at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

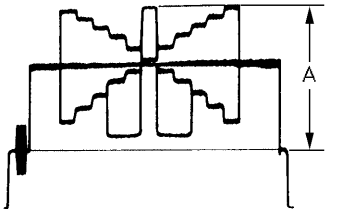
4-3-16. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

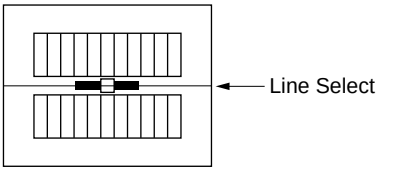
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



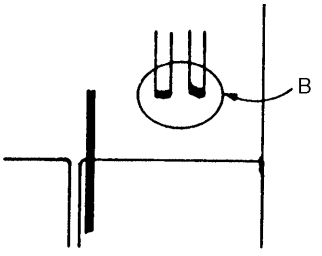
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC.
   Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:
Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:
• WHITE BAL switch (on the side panel) → PRST

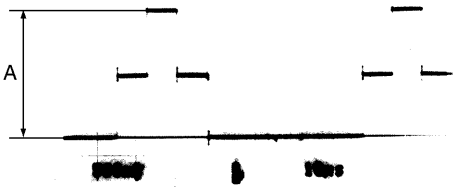
4-3-17. Pre Knee Adjustment

Equipment : Oscilloscope, Waveform monitor

Preparation:
• Extend VA-163 board with EX-464 board.

Iris of the lens : CLOSE

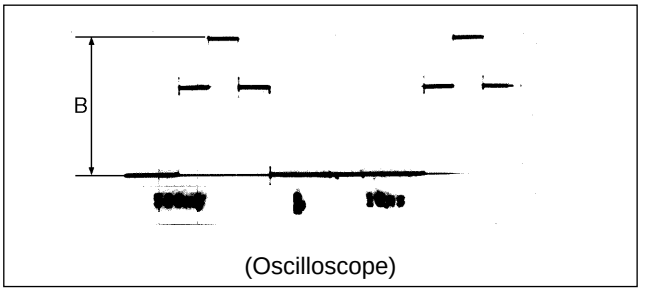
Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → On
3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Set the GAIN switch (on the side panel) to M (9 dB).
5. Set the WHITE BAL switch (on the side panel) to PRST.
6. Set the menu as follows.
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : Test → 2
7. Set the menu as follows, and adjust the pre knee 1 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[G]
   Specifications: A = 1.68 ±0.02 V p-p



(Oscilloscope)

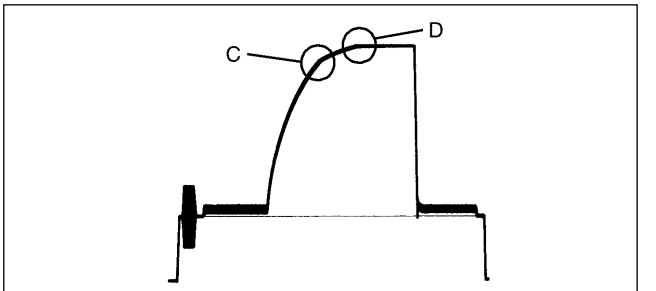
8. Set the menu as follows.
   MENU : Operation
   PAGE : Gain SW (?3)
   ITEM : Middle → 12 dB

9. Set the menu as follows, and adjust the pre knee 2 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee2[G]
   Specifications: B = 1.80 ±0.02 V p-p



(Oscilloscope)

10. Set the menu as follows.
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : Test → 1
11. Set the GAIN switch (on the side panel) to H (18dB). Set the OUTPUT/DCC switch (on the side panel) to CAM/ON.
12. Set the menu as follows, and adjust the pre knee 1 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[R]
    Specifications: Minimize the carrier leakage C.
13. Set the menu as follows, and adjust the pre knee 1 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[B]
    Specifications: Minimize the carrier leakage C.
14. Set the menu as follows, and adjust the pre knee 2 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications: Minimize the carrier leakage D.
15. Set the menu as follows, and adjust the pre knee 2 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[B]
    Specifications: Minimize the carrier leakage D.



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Operation
  PAGE : Gain SW (?3)
  ITEM : Middle → 9 dB
  MENU : System config
  PAGE : Pre Knee/Zebra (S4)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB)

4-3-18. Knee and White Clip Adjustment

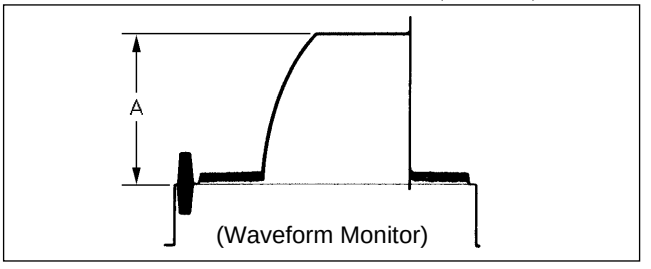
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

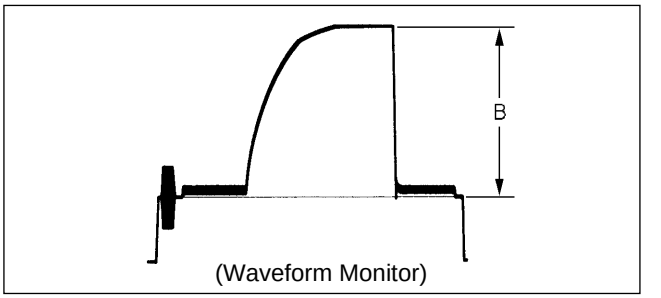
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

Adjustment Procedures:

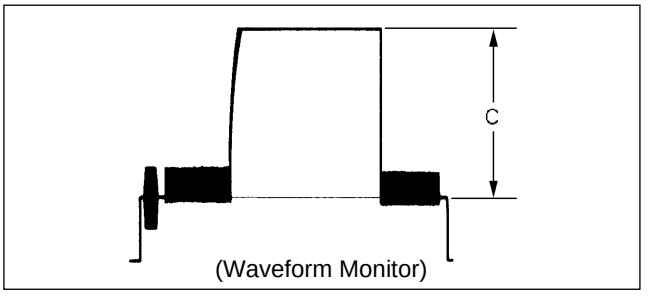
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Note:

The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).

When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-3-19. A/D Clock Phase Adjustment

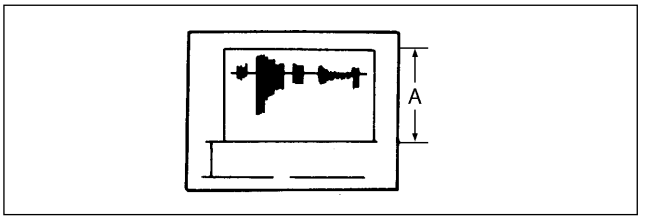
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Multiburst chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the multiburst chart so that the chart frame is aligned with the underscanned monitor frame with the zoom control.
- Pan so that the 9 MHz portion of the multiburst chart is positioned at the center of the monitor screen.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Auto Knee → On

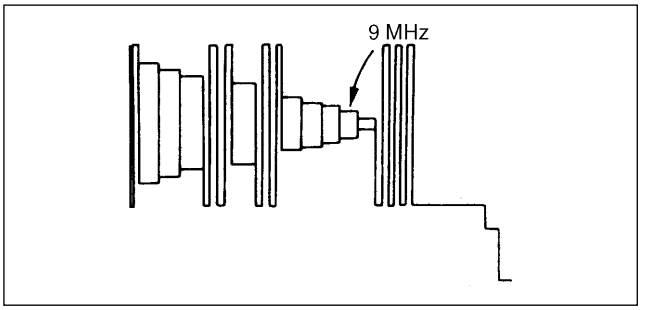
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ± 2 IRE (for NTSC)
   A = 630 ± 10 mV (for PAL)



2. Set the menu as follows, and adjust the clock phase for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : G Clock
   Specifications: Maximize the 9 MHz signal portion.

3. Set the menu as follows, and adjust the clock phase for R/B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : R/B Clock
   Specifications: Minimize the aliasing around the 9 MHz signal portion.



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-20. VTR R-Y/B-Y Adjustment

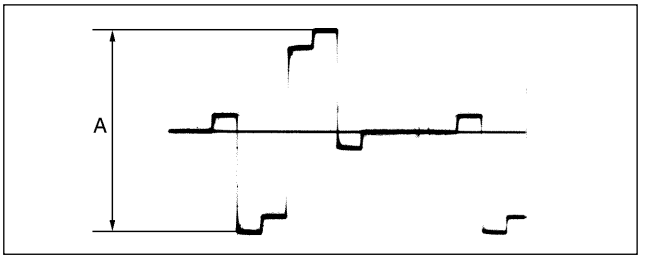
Equipment : Oscilloscope

Preparation:

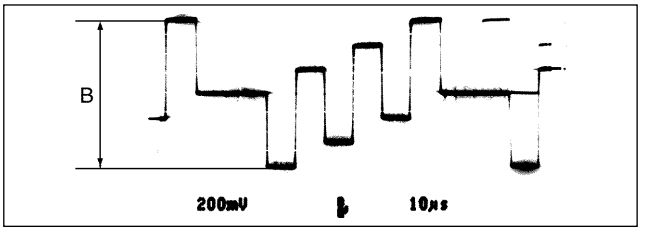
• OUTPUT/DCC switch (on the side panel) → BARS

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the VTR R-Y by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR R-Y
   Specifications: A = 700 ±5 mV (for NTSC)
   : A = 525 ±5 mV (for PAL)



3. Set the menu as follows, and adjust the VTR B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR B-Y
   Specifications: B = 700 ±5 mV (for NTSC)
   : B = 525 ±5 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-21. CCU Y/R-Y/B-Y Adjustment

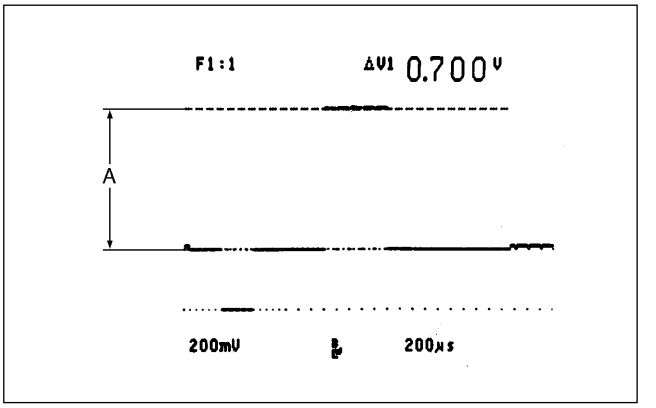
Equipment : Oscilloscope

Preparation:

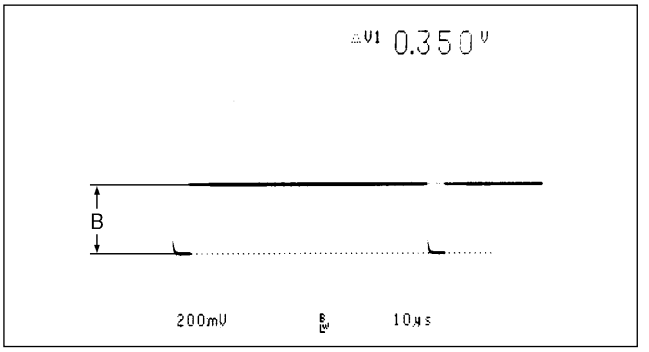
• Connect the CCU to the camera.

Adjustment Procedures:

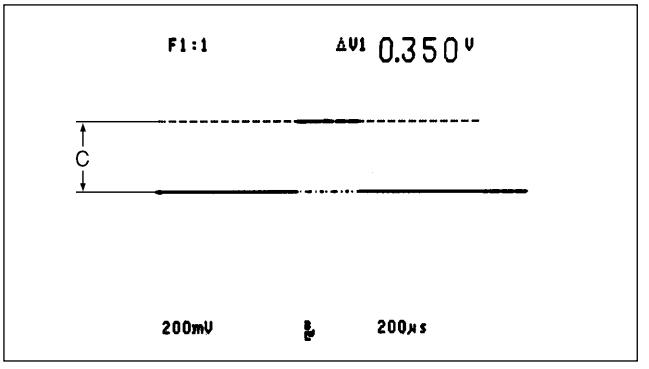
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the CCU Y sample by using the MENU SEL switch.
   Test Point : TP3 (Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU Y SAMP
   Specifications: A = 700 ±2 mV



3. Set the menu as follows, and adjust the CCU R-Y sync by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU R-Y SYNC
   Specifications: B = 350 ±2 mV



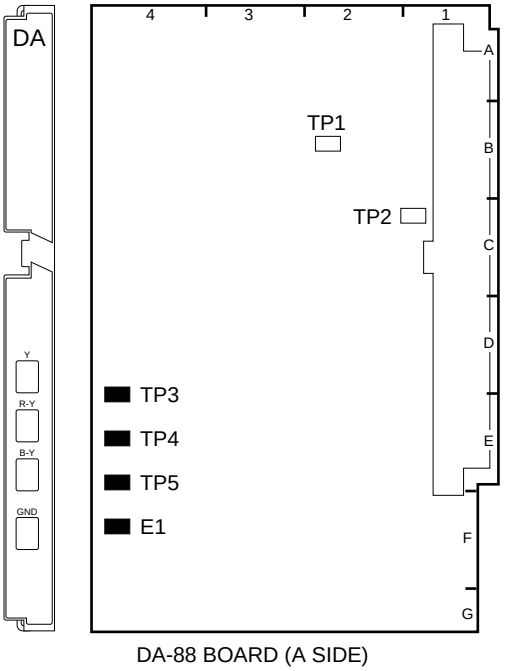
4. Set the menu as follows, and adjust the CCU B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
6. **Adjustment Point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU B-Y SAMP
   Specifications: C = 350 ±2 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store



DA-88 BOARD (A SIDE)

4-3-22. RGB Adjustment

Equipment : Oscilloscope

Preparations:

- Extend IF-510 board with EX-464 board.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : System config
  PAGE : VTR/CCU (S5)
  ITEM : CB → On

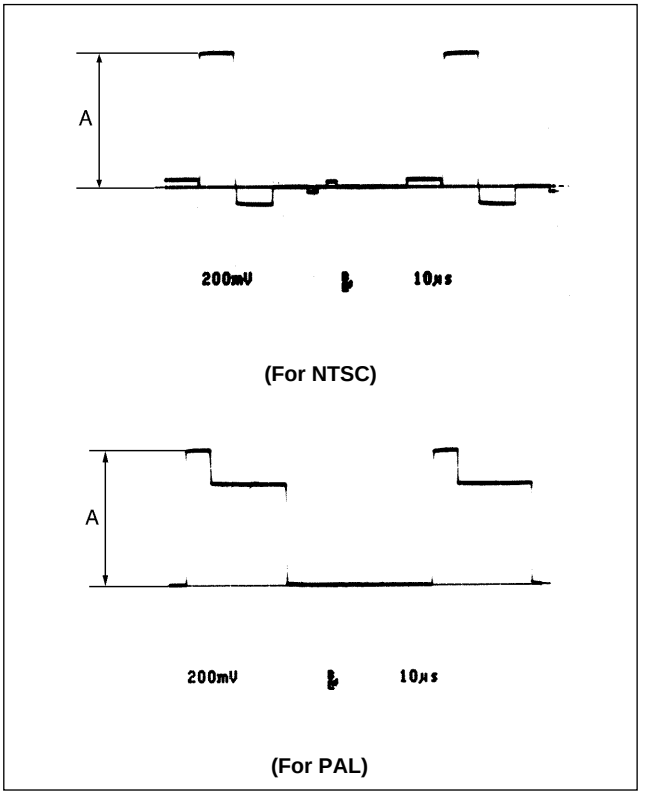
Adjustment Procedures:

1. Set the menu as follows, and adjust the G video level by using the MENU SEL switch.

   Test Point : TP61 (GND:GND (A))/
   Extension board (extending IF-510)

   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : RGB OFFSET

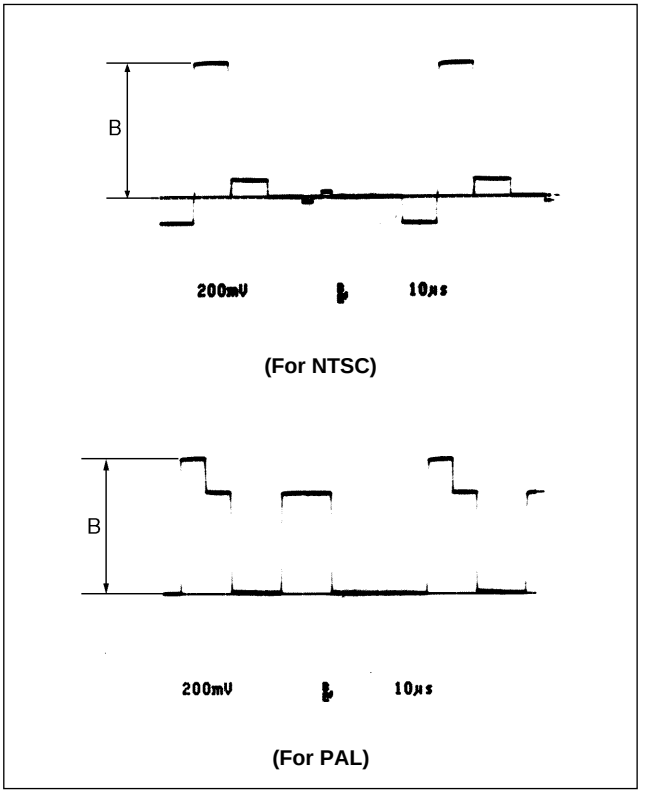
   Specifications: A = 700 ±5 mV



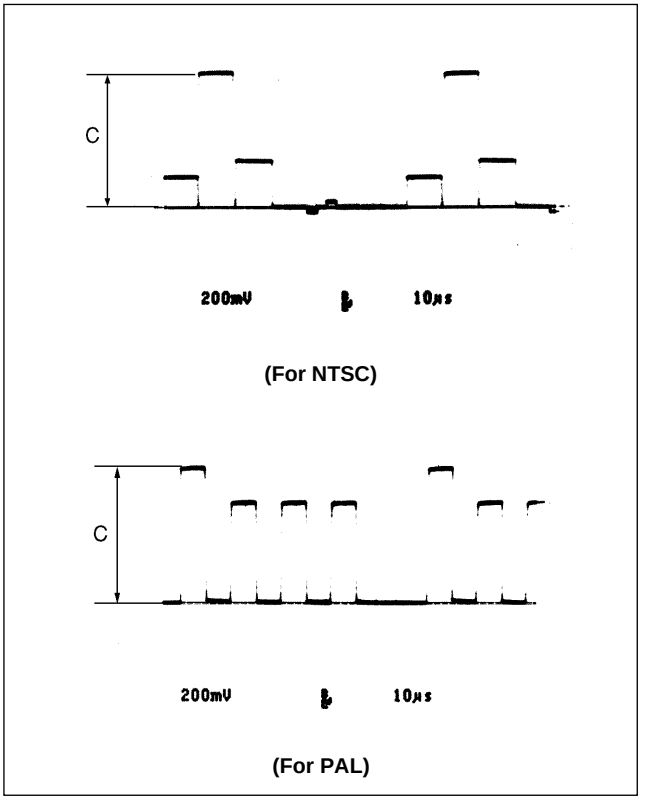
2. Confirm the R video level.

   Test Point : TP63 (GND:GND (A))/
   Extension board (extending IF-510)

   Specifications:B = 700 ±7 mV



3. Confirm the B video level.
   Test Point : TP59 (GND:GND (A))/
   Extension board (extending IF-510)
   Specifications: C = 700 ±7 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-23. Menu Setting After Finishing Adjustment

MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB→Off
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store
(Press the MENU SEL switch to execute.)

Section 5
Spare Parts

5-1. Notes on Repair Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

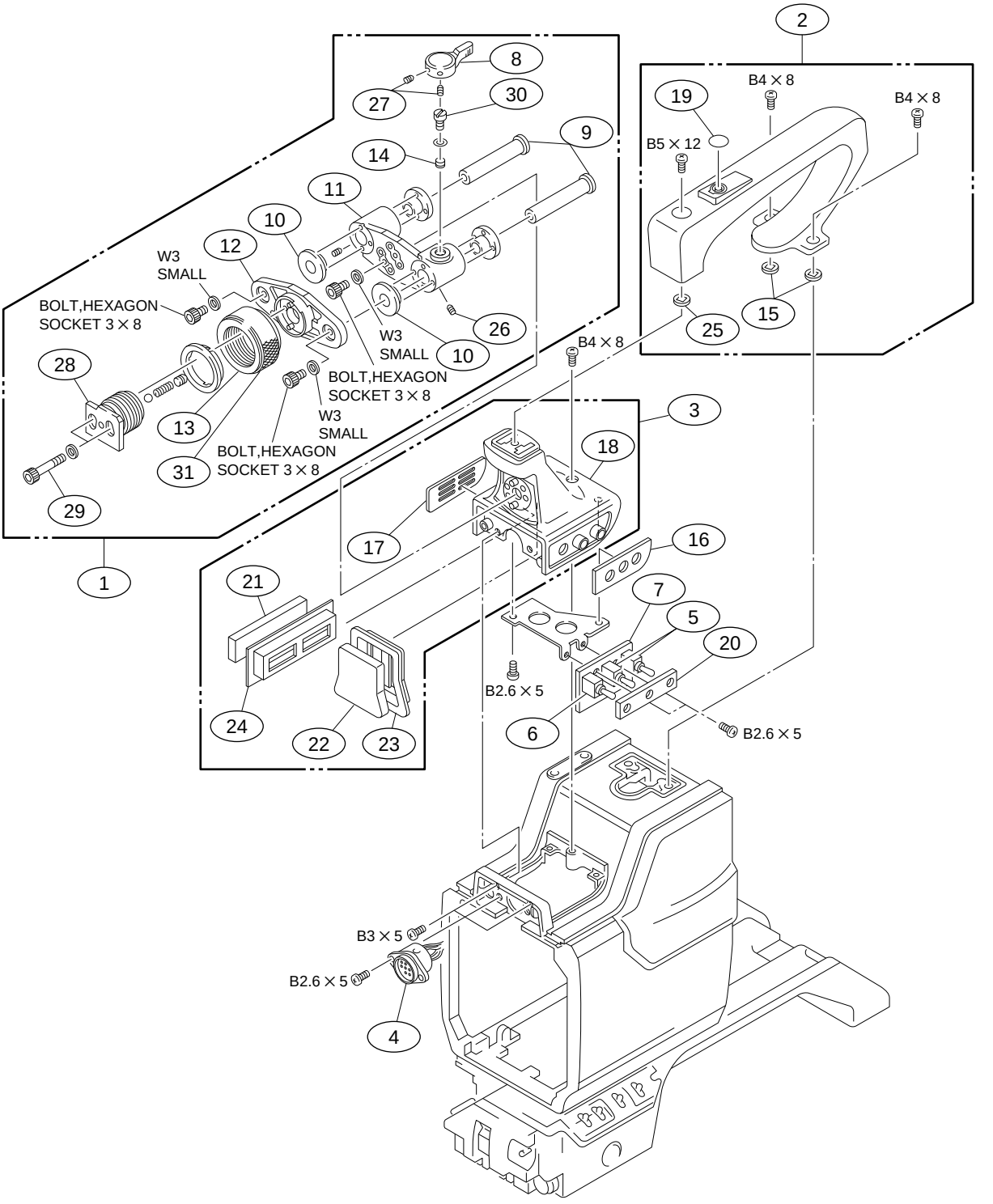
Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

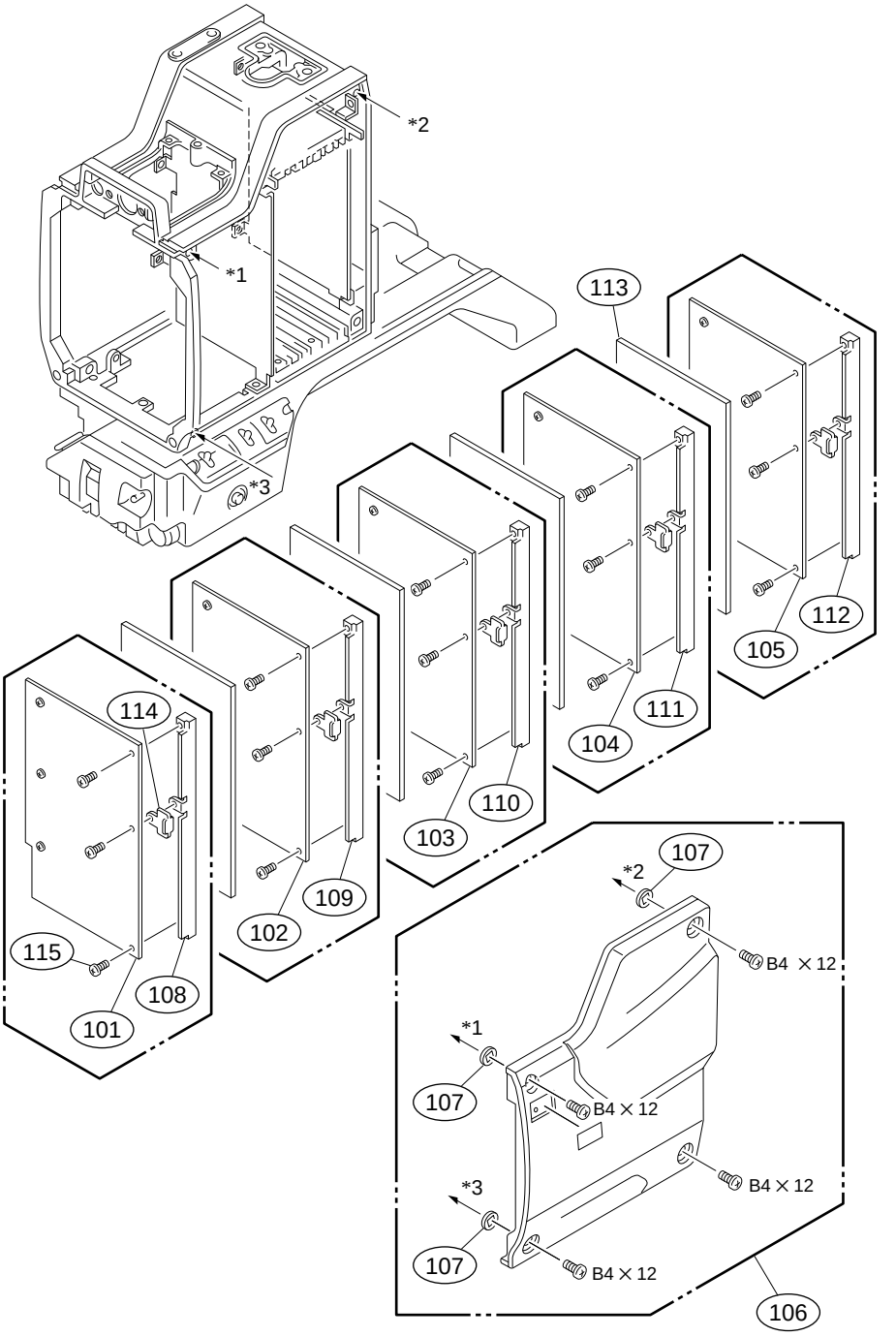
Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

5-2. Exploded Views

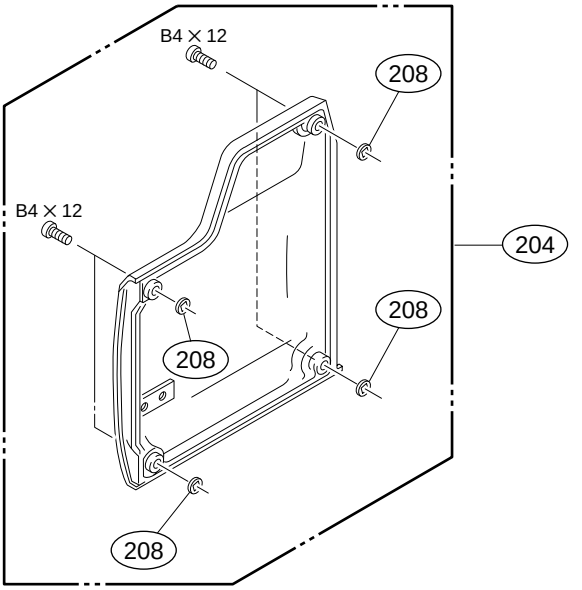


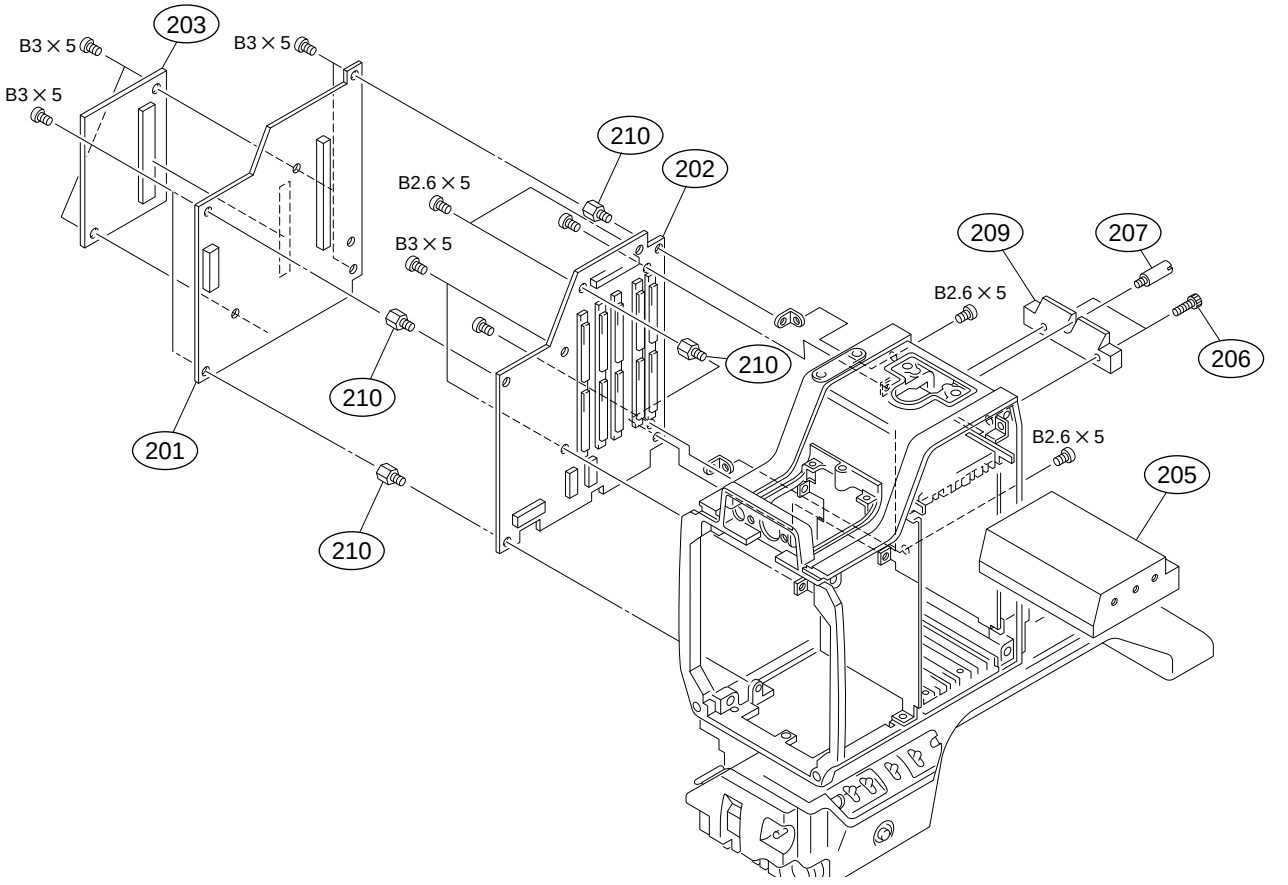
No.	Part No.	SP	Description
1	A-8278-029-A	o	SLIDE ASSY,VF
2	X-3678-451-1	o	HANDLE ASSY
3	X-3678-484-1	o	HOLDER SUB ASSY,HANDLE
4	1-565-051-21	o	CONNECTOR 20P, FEMALE “VF”
5	1-570-985-11	s	SWITCH TOGGLE “R/G/B” “ENC/RGB”
6	1-571-396-11	s	SWITCH TOGGLE “DIPS ON/OFF/MENU”
7	1-657-442-22	o	PRINTED CIRCUIT BOARD, SW-732
8	3-673-046-00	s	LEVER, LOCK
9	3-679-683-01	o	ARM,SLIDE
10	3-679-684-01	o	REST,ARM
11	3-679-685-01	o	TABEL,FIXED,VF SLIDE
12	3-679-686-01	o	TABEL,FIXED,VF SHOE
13	3-679-698-01	o	RING(C),LOCK
14	3-679-702-01	o	CUSION,STOPPER
15	3-687-116-01	o	WASHER(4), STOPPER
16	3-692-112-01	o	PLATE,MENU
17	3-692-150-01	o	SHEET,DROP PROTECTION
18	3-692-165-01	o	HOLDER,HANDOLE
19	3-692-649-01	s	SHEET, BLIND
20	3-693-984-01	s	CUSSHION, DROP PROTECTION (3)
21	3-694-196-01	s	SHEET, DUST PROTECTION (S)
22	3-694-197-01	o	SHEET, DUST PROTECTION (F)
23	3-694-198-01	s	RETAINER, DROP PROTECTION (F)
24	3-694-199-01	s	RETAINER DROP, PROTECTION (S)
25	3-701-442-21	s	WASHER, 4.5
26	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
27	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
28	3-710-039-03	s	SHOE, SLIDE
29	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
30	3-711-794-01	o	PIN, STOPPER
31	3-720-919-01	o	RUBBER, LOCK RING

RIGHT PANEL AND PLUG-IN BOARDS

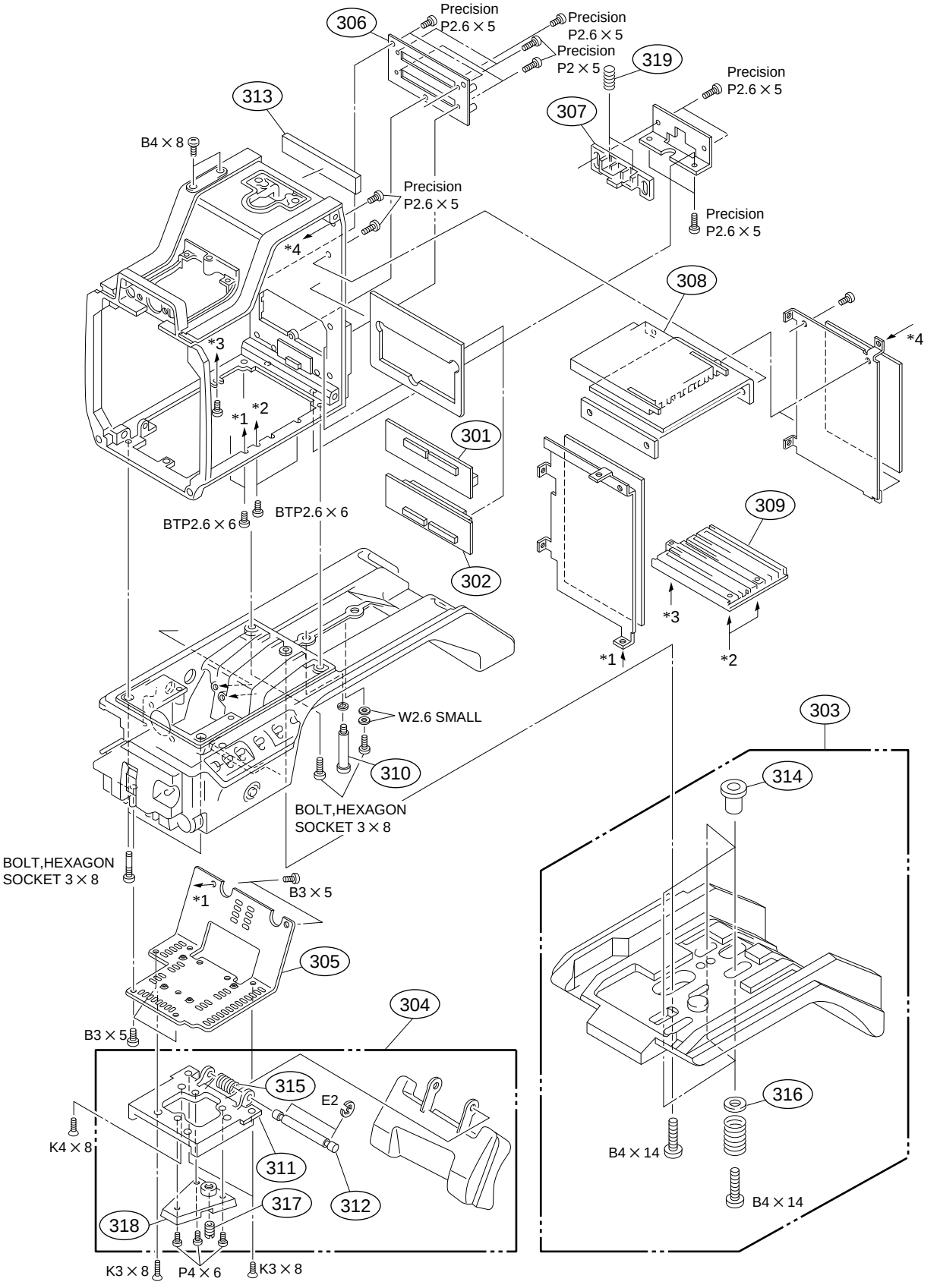


No.	Part No.	SP	Description
101	A-8272-560-A	o	MOUNTED CIRCUIT BOARD, VA-163
102	A-8272-562-A	o	MOUNTED CIRCUIT BOARD, AT-95
103	A-8272-564-A	o	MOUNTED CIRCUIT BOARD, SG-234
104	A-8272-566-A	o	MOUNTED CIRCUIT BOARD, DA-88
105	A-8272-568-A	o	MOUNTED CIRCUIT BOARD, IF-510
106	X-3678-480-1	o	PANEL ASSY, RIGHT
107	3-687-116-01	o	WASHER (4), STOPPER
108	3-692-125-02	o	PANEL,VA-163 PC BOARD
109	3-692-126-02	o	PANEL,AT-95 PC BOARD
110	3-692-127-02	o	PANEL,SG-234 PC BOARD
111	3-692-128-02	o	PANEL,DA-88 PC BOARD
112	3-692-129-02	o	PANEL,IF-510 PC BOARD
113	3-692-642-01	o	SHEET,SHIELD
114	3-724-753-01	o	RING
115	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)


B4 × 12
208
B4 × 12
204
208
208
208

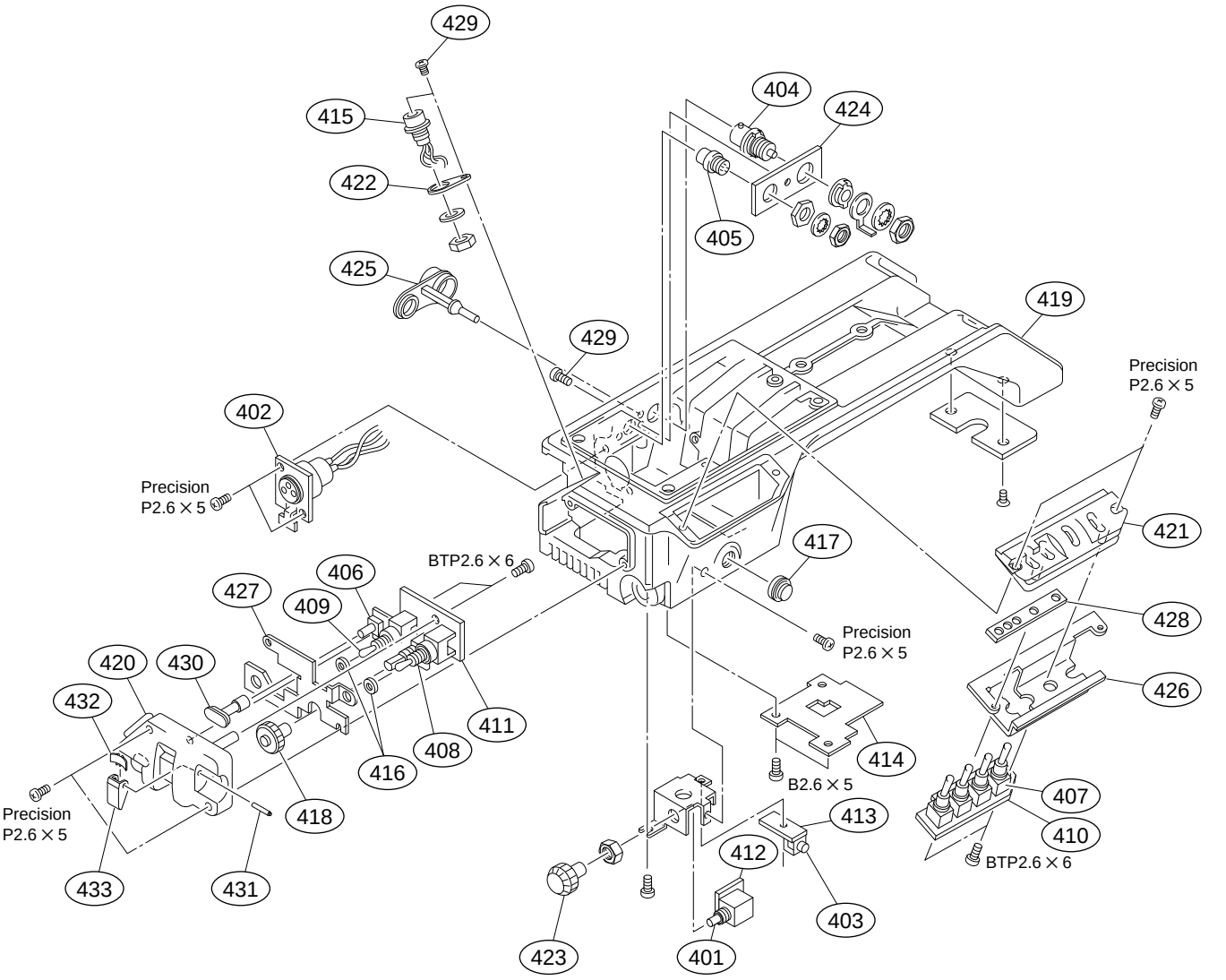

203
B3 × 5
B3 × 5
B3 × 5
210
202
B2.6 × 5
B3 × 5
209
207
B2.6 × 5
206
210
210
201
B2.6 × 5
205
210

No.	Part No.	SP	Description
201	A-8272-557-A	o	MOUNTED CIRCUIT BOARD, PR-211
202	A-8272-547-A	o	MOUNTED CIRCUIT BOARD, MB-602
203	A-8272-559-A	o	MOUNTED CIRCUIT BOARD, CN-1142
204	X-3678-481-1	o	PANEL ASSY, LEFT
205	⚠ A-8272-571-A	s	CONVERTER ASSY, DC-DC
206	2-623-773-11	s	BOLT (M3X8), STAINLESS
207	3-168-296-01	s	PIN, ID
208	3-687-116-01	o	WASHER (4), STOPPER
209	3-692-113-01	o	WEDGE,HANGER
210	4-924-260-01	o	BOSS (D)


306
Precision P2.6 × 5
Precision P2.6 × 5
Precision P2 × 5
319
Precision P2.6 × 5
313
307
B4 × 8
Precision P2.6 × 5
Precision P2.6 × 5
*4
308
*4
*3
*1
*2
301
BTP2.6 × 6
BTP2.6 × 6
309
302
*3
*1
*2
W2.6 SMALL
310
BOLT,HEXAGON SOCKET 3 × 8
303
314
BOLT,HEXAGON SOCKET 3 × 8
*1
B3 × 5
305
304
B3 × 5
315
E2
316
K4 × 8
311
B4 × 14
317
312
318
B4 × 14
K3 × 8
P4 × 6
K3 × 8

No.	Part No.	SP	Description
301	A-8272-549-A	o	MOUNTED PCB, CN-1120
302	A-8272-550-A	o	MOUNTED PCB, CN-1121
303	A-8278-237-A	s	PAD ASSY (LARGE)
304	A-8278-238-A	s	PAD ASSY (SMALL)
305	3-692-102-01	o	BRACKET V SHOE
306	3-692-114-02	o	PLATE,CONNECTOR(136P)
307	3-692-115-01	o	SHOE,LOCK
308	3-692-117-02	o	RAIL
309	3-692-119-01	o	RAIL,CAM
310	3-692-641-03	o	ROD,LOCK
311	3-692-643-02	o	BASE,V SHOE
312	3-692-645-01	o	ROD,ROTARY
313	3-692-646-01	o	SHEET,DUST PROTECTION (PS)
314	3-692-647-01	o	SPACER,PAD
315	3-693-973-01	s	SPRING, TORSION (SMALL)
316	3-701-444-21	s	WASHER, 6
317	3-742-011-01	s	SCREW, 1/4, 3/8 CONVERSION
318	3-742-015-01	o	WEDGE (B), MOUNTING
319	4-864-521-01	s	SPRING (PC BOARD GROUND)

BOTTOM BLOCK



No.	Part No.	SP	Description
401	1-473-315-11	s	ENCODER ROTARY “MENU SEL”
402	1-509-184-31	s	CONNECTOR 3P, FEMALE “MIC”
403	1-554-088-00	s	SWITCH, TACTILE “CANCEL”
404	1-561-781-11	s	CONNECTOR, BNC “TEST OUT”
405	1-562-222-41	s	CONNECTOR 6P, FEMALE “REMOTE”
406	1-570-282-21	s	SWITCH KEY BOARD “VTR START”
407	1-571-415-11	s	SWITCH TOGGLE “CAMERA/VTR” “GAIN” “OUTPUT” WHITE BAL”
408	1-571-416-11	s	SWITCH TOGGLE “AUTO W/B BAL”
409	1-571-679-11	s	SWITCH TOGGLE “SHUTTER”
410	1-657-443-21	o	PRINTED CIRCUIT BOARD, SW-730
411	1-657-444-21	o	PRINTED CIRCUIT BOARD, SW-731
412	1-657-445-21	o	PRINTED CIRCUIT BOARD, SW-733
413	1-657-446-21	o	PRINTED CIRCUIT BOARD, SW-742
414	1-657-447-21	o	PRINTED CIRCUIT BOARD, CN-1122
415	1-695-841-12	s	CONNECTOR 12P, FEMALE “LENS”
416	3-312-823-00	s	PACKING, KNOB
417	3-676-244-11	s	COVER, SW
418	3-679-679-03	s	KNOB,VR(AUDIO)
419	3-692-106-01	o	BASE,SHOULDER
420	3-692-107-02	o	COVER,FRONT SWITCH
421	3-692-108-01	o	GUARD,SWITCH
422	3-692-110-02	o	BRACKET,CONNECTOR
423	3-692-111-01	s	KNOB,RE “MIC LEVEL”
424	3-692-149-02	o	BRACKET,CONNECTOR(TEST OUT)
425	3-692-644-02	o	CAP,CONNECTOR
426	3-693-974-01	o	PLATE, SHIELD (SIDE)
427	3-693-976-01	o	PLATE, SHUTTER (FRONT)
428	3-693-983-01	o	CUSSHION, DROP PROTECTION (2)
429	3-694-181-01	s	TYPE1, AROCK PRECISION +P2.6
430	3-729-069-01	s	BUTTON, VTR START
431	3-742-065-01	o	SHAFT, SHUTTER
432	3-742-066-11	o	SPRING, SHUTTER
433	3-742-067-04	o	LID, SHUTTER

No.	Part No.	SP	Description
	7-621-770-87	s	SCREW +B 2.6X5
	7-623-208-22	o	SW 3,TYPE 2
	7-623-505-01	s	LUG, 2
	7-624-104-04	s	STOP RING 2.0, TYPE -E
	7-624-105-04	s	STOP RING 2.3, TYPE -E
	7-624-200-01	s	NUT, PUSH 1.5
	7-627-452-38	s	SCREW,PRECISION +K 2X5
	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
	7-627-553-78	s	SCREW,PRECISION +P 2X10
	7-627-554-18	s	SCREW,PRECISION +P 2X3.5 TYPE1
	7-627-556-57	s	PRECISION SCREW +P 2.6X5 TYPE1
	7-627-556-58	s	SCREW +P 2.6X5
	7-671-158-01	s	BALL, STAINLESS (2.5 DIA)
	7-682-160-09	s	SCREW +P 4X6
	7-682-247-04	s	SCREW +K 3X6
	7-682-248-09	s	SCREW +K 3X8
	7-682-261-09	s	SCREW +K 4X8
	7-682-545-04	s	SCREW +B 3X4
	7-682-546-04	s	SCREW +B 3X5
	7-682-546-09	s	SCREW +B 3X5
	7-682-561-09	s	SCREW +B 4X8
	7-682-563-09	s	SCREW +B 4X12
	7-682-564-09	s	SCREW +B 4X14
	7-682-576-09	s	SCREW +B 5X12
	7-683-404-04	s	BOLT,HEXAGON SOCKET 3X8
	7-683-405-04	s	BOLT,HEXAGON SOCKET 3X10
	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
	7-685-104-19	s	SCREW +P 2X6 TYPE2 NON-SLIT
	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT
	7-685-533-19	s	SCREW +BTP 2.6X6 TYPE2 N-S
	7-688-002-02	s	W2.6, SHALL
	7-688-003-02	s	W 3, SMALL

5-3. Electrical Parts List

AT-95 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-562-A	o	MOUNTED CIRCUIT BOARD, AT-95
1pc	3-692-126-02	o	PANEL,AT-95 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
BT1	1-550-104-32	s	HOLDER, BATTERY
C1	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C2	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C32	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C35	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C41	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C42	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-164-156-11	s	CERAMIC 0.1uF 25V
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C67	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C68	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C71	1-131-360-00	s	TANTALUM 15uF 10% 10V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
C81	1-126-935-11	s	ELECT, CHIP 470uF 20% 16V
CNI36	1-540-197-11	o	SOCKET, IC
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-820-41	s	DIODE 1SS302
D3	8-719-974-76	s	DIODE HSM107S
D4	8-719-974-76	s	DIODE HSM107S
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-974-76	s	DIODE HSM107S
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-974-76	s	DIODE HSM107S
D10	8-719-974-76	s	DIODE HSM107S
D11	8-719-974-76	s	DIODE HSM107S
D12	8-719-974-76	s	DIODE HSM107S
D13	8-719-974-76	s	DIODE HSM107S
D15	8-719-974-76	s	DIODE HSM107S
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D18	8-719-820-41	s	DIODE 1SS302
D19	8-719-820-41	s	DIODE 1SS302
D20	8-719-820-41	s	DIODE 1SS302
D21	8-719-820-41	s	DIODE 1SS302
D22	8-719-820-41	s	DIODE 1SS302
IC1	8-759-252-59	s	IC MAX202CSE
IC2	8-759-242-78	s	IC TC7W02F
IC3	8-759-079-74	s	IC TC74VHC157FS(EL)
IC4	8-759-076-06	s	IC TL064CPW
IC5	8-759-076-06	s	IC TL064CPW
IC6	8-759-637-07	s	IC M62021FP
IC7	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-076-06	s	IC TL064CPW
IC11	8-759-711-50	s	IC NJU7022M
IC12	8-759-711-50	s	IC NJU7022M
IC13	8-759-059-50	s	IC MB88351PFV
IC14	8-759-082-57	s	IC TC7W04FU
IC15	8-759-083-94	s	IC TC7W74FU
IC17	8-759-058-64	s	IC TC7S32FU(TE85R)
IC18	8-759-271-84	s	IC TC7SH02FU
IC19	8-759-271-86	s	IC TC7SH04FU
IC20	8-759-196-96	s	IC TC7SH08FU-TE85R
IC21	8-759-271-84	s	IC TC7SH02FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC22	8-759-196-97	s	IC TC7SH32FU-TE85R
IC23	8-759-186-31	s	IC TC74VHC20F
IC24	8-759-079-70	s	IC TC74VHC138FS(EL)
IC25	8-759-065-20	s	IC RTC-4553B
IC26	8-752-337-91	s	IC CXK58257ATM-70LL
IC27	8-759-154-60	s	IC UPD71055GB-10-3B4
IC28	8-759-154-60	s	IC UPD71055GB-10-3B4
IC29	8-759-149-10	s	IC UPD4702G
IC30	8-759-271-84	s	IC TC7SH02FU
IC31	8-759-196-97	s	IC TC7SH32FU-TE85R
IC32	8-759-242-78	s	IC TC7W02F
IC33	8-759-186-53	s	IC TC74VHC163F
IC34	8-759-186-53	s	IC TC74VHC163F
IC35	8-759-277-99	s	IC CXD8889R
IC36			IC PENDING
IC37	8-759-196-96	s	IC TC7SH08FU-TE85R
IC38	8-759-182-95	s	IC HD151015T
IC39	8-759-079-85	s	IC TC74VHC244FS(EL)
IC40	8-759-079-61	s	IC TC74VHC74FS(EL)
IC41	8-759-195-81	s	IC TC7S86FU
IC42	8-759-186-53	s	IC TC74VHC163F
IC43	8-759-082-57	s	IC TC7W04FU
IC44	8-759-186-53	s	IC TC74VHC163F
IC45	8-759-083-94	s	IC TC7W74FU
IC46	8-759-165-37	s	IC X24164SIC7000
IC47	8-759-078-75	s	IC UPD6453GT-610
IC48	8-759-276-00	s	IC TC7W139FU(TE12R)
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-377-31	s	INDUCTOR CHIP 4.7uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-920-48	s	TRANSISTOR IMH2
Q4	8-729-925-47	s	TRANSISTOR IMB2
Q5	8-729-920-48	s	TRANSISTOR IMH2
Q6	8-729-920-48	s	TRANSISTOR IMH2
R1	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R4	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R5	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R17	1-216-858-11	s	METAL, CHIP 1.2M 5% 1/16W
R18	1-218-723-11	s	METAL 20K 0.50% 1/16W
R19	1-216-692-11	s	METAL, CHIP 1K 0.5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R22	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R23	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R26	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R29	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R30	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R31	1-218-720-11	s	METAL 15K 0.50% 1/16W
R32	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R33	1-216-862-11	s	METAL 2.7M 5% 1/16W
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R36	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R37	1-216-863-11	s	METAL 3.3M 5% 1/16W
R38	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-716-11	s	METAL 10K 0.50% 1/16W
R41	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R42	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R43	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R44	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R45	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R49	1-218-716-11	s	METAL 10K 0.50% 1/16W
R50	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R54	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R55	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R59	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R60	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R61	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R62	1-218-752-11	s	METAL 330K 0.50% 1/16W
R63	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R64	1-218-750-11	s	METAL 270K 0.50% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R71	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R72	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R77	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-218-866-11	s	CHIP, METAL 6.2K 0.50% 1/16W
R83	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R84	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R85	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R86	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R87	1-216-797-11	s	METAL, CHIP 10 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R88	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R89	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R90	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R91	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R92	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R93	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R94	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R95	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R96	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R97	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R98	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R99	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R103	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R104	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R107	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R108	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R109	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R114	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R115	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R118	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R119	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R120	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R127	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R128	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R129	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R130	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R131	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R132	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R133	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R134	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R135	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R136	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R137	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R138	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R139	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R140	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R141	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R142	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R143	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R144	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R145	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R146	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R147	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R150	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R151	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R152	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R153	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R154	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R155	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R160	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R161	1-216-862-11	s	METAL 2.7M 5% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R163	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R164	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R165	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
RV1	1-237-035-11	s	RES, ADJ METAL 5K
S1	1-692-270-21	s	SWITCH, SLIDE

CN-1120 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-549-A	o	MOUNTED CIRCUIT BOARD, CN-1120
C1	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C2	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C3	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C4	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C5	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C6	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
CN201	1-569-532-11	s	HOUSING, 30P
CN202	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-825-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-825-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-825-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-825-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-825-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-825-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-825-11	s	FILTER, CHIP EMI
FL19	1-239-825-11	s	FILTER, CHIP EMI
FL20	1-239-825-11	s	FILTER, CHIP EMI
FL21	1-239-825-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-825-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-825-11	s	FILTER, CHIP EMI
FL28	1-239-825-11	s	FILTER, CHIP EMI
FL29	1-239-825-11	s	FILTER, CHIP EMI
FL30	1-239-825-11	s	FILTER, CHIP EMI
FL31	1-239-825-11	s	FILTER, CHIP EMI
FL32	1-239-825-11	s	FILTER, CHIP EMI
FL33	1-239-825-11	s	FILTER, CHIP EMI
FL34	1-239-825-11	s	FILTER, CHIP EMI
FL35	1-239-825-11	s	FILTER, CHIP EMI
FL36	1-239-825-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-825-11	s	FILTER, CHIP EMI
FL40	1-239-719-11	s	FILTER, CHIP EMI
FL41	1-239-719-11	s	FILTER, CHIP EMI
FL42	1-239-719-11	s	FILTER, CHIP EMI
FL43	1-239-825-11	s	FILTER, CHIP EMI
FL44	1-239-825-11	s	FILTER, CHIP EMI

CN-1121 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-550-A	o	MOUNTED CIRCUIT BOAAD, CN-1121
CN101	1-569-531-11	s	HOUSING, 20P
CN102	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-719-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-719-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-719-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-719-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-719-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-719-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-719-11	s	FILTER, CHIP EMI
FL19	1-239-719-11	s	FILTER, CHIP EMI
FL20	1-239-719-11	s	FILTER, CHIP EMI
FL21	1-239-719-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-719-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-719-11	s	FILTER, CHIP EMI
FL28	1-239-719-11	s	FILTER, CHIP EMI
FL30	1-239-719-11	s	FILTER, CHIP EMI
FL31	1-239-719-11	s	FILTER, CHIP EMI
FL32	1-239-719-11	s	FILTER, CHIP EMI
FL33	1-239-719-11	s	FILTER, CHIP EMI
FL34	1-239-719-11	s	FILTER, CHIP EMI
FL35	1-239-719-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-719-11	s	FILTER, CHIP EMI
R1	1-216-295-11	s	CHIP, CONDUCTOR 0
R2	1-216-295-11	s	CHIP, CONDUCTOR 0

CN-1122 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-447-21	o	PRINTED CIRCUIT BOARD, CN-1122
C1	1-128-592-11	s	ELECT 0.33uF 20% 50V
C2	1-128-592-11	s	ELECT 0.33uF 20% 50V
C5	1-126-968-11	s	CHIP, ELECT 100uF 20% 50V
CN401	1-569-629-11	s	HOUSING, 24P
CN402	1-695-890-21	o	PIN, CONNECTOR (PC BOARD) 12P
CN405	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
CN406	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
CN407	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
R1	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R2	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R3	1-215-421-00	s	METAL 1K 1% 1/6W

CN-1142 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-559-A	o	MOUNTED CIRCUIT BOARD, CN-1142

DA-88 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-566-A	o	MOUNTED CIRCUIT BOARD, DA-88
1pc	3-692-128-02	o	PANEL,DA-88 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C2	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C9	1-165-176-11	s	CERAMIC, CHIP 0.047uF 10% 16V
C10	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C17	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C21	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C27	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C28	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C46	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C49	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C50	1-164-156-11	s	CERAMIC 0.1uF 25V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C55	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-315-11	s	CERAMIC 470PF 5% 50V
C61	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C64	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C65	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C66	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C67	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C71	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C77	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C81	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C84	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C85	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C87	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C88	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C89	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C90	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C100	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C101	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C102	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C103	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C104	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C105	1-164-315-11	s	CERAMIC 470PF 5% 50V
C106	1-164-156-11	s	CERAMIC 0.1uF 25V
C107	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C109	1-164-156-11	s	CERAMIC 0.1uF 25V
C110	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C113	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C114	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C115	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C118	1-164-156-11	s	CERAMIC 0.1uF 25V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-164-156-11	s	CERAMIC 0.1uF 25V
C121	1-164-156-11	s	CERAMIC 0.1uF 25V
C122	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C123	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C124	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C125	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C126	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C127	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C128	1-164-156-11	s	CERAMIC 0.1uF 25V
C129	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C132	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C133	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C134	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C136	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C137	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C138	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C140	1-164-156-11	s	CERAMIC 0.1uF 25V
C141	1-164-156-11	s	CERAMIC 0.1uF 25V
C142	1-164-156-11	s	CERAMIC 0.1uF 25V
C143	1-164-156-11	s	CERAMIC 0.1uF 25V
C144	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C145	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C146	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C147	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C148	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C149	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C154	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C155	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C166	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C167	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C170	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C171	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C172	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C203	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C206	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C207	1-164-156-11	s	CERAMIC 0.1uF 25V
C208	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C209	1-164-156-11	s	CERAMIC 0.1uF 25V
C210	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C211	1-164-156-11	s	CERAMIC 0.1uF 25V
C213	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C214	1-164-156-11	s	CERAMIC 0.1uF 25V
C215	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C225	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C226	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C228	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C229	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C230	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C231	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C500	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-820-41	s	DIODE 1SS302
D7	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-820-41	s	DIODE 1SS302
D13	8-719-820-41	s	DIODE 1SS302
D14	8-719-820-41	s	DIODE 1SS302
D15	8-719-820-41	s	DIODE 1SS302
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D24	8-719-820-41	s	DIODE 1SS302
D25	8-719-820-41	s	DIODE 1SS302
D26	8-719-820-41	s	DIODE 1SS302
D100	8-719-820-41	s	DIODE 1SS302
D101	8-719-820-41	s	DIODE 1SS302
D102	8-719-820-41	s	DIODE 1SS302
FL1	1-239-754-11	s	FILTER, LOW PASS
FL2	1-239-753-11	s	FILTER, LOW PASS
FL3	1-233-240-21	s	FILTER, LOW PASS
FL4	1-239-753-11	s	FILTER, LOW PASS
FL5	1-233-240-21	s	FILTER, LOW PASS
FL6	1-239-754-11	s	FILTER, LOW PASS
FL7	1-239-754-11	s	FILTER, LOW PASS
FL8	1-239-754-11	s	FILTER, LOW PASS
IC1	8-759-066-68	s	IC REF-03GS
IC2	8-759-076-06	s	IC TL064CPW
IC3	8-759-632-39	s	IC M51958A-T1
IC4	8-752-360-44	s	IC CXK1203AR
IC5	8-752-360-44	s	IC CXK1203AR
IC6	8-752-360-44	s	IC CXK1203AR
IC7	8-752-363-60	s	IC CXD2307R-T4
IC8	8-759-079-46	s	IC TC74VHC00FS(EL)
IC9	8-759-058-54	s	IC TC7S00FU(TE85R)
IC10	8-759-086-42	s	IC X24C02S-3.0-C7000
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-058-62	s	IC TC7S08FU(TE85R)
IC13	8-759-237-79	s	IC TC74HC595AF(EL)
IC14	8-759-064-36	s	IC MB88346BPFV
IC15	8-759-082-61	s	IC TC4W53FU
IC16	8-759-981-48	s	IC TL082M
IC17	8-759-082-61	s	IC TC4W53FU
IC18	8-759-082-61	s	IC TC4W53FU
IC19	8-759-079-85	s	IC TC74VHC244FS(EL)
IC20	8-759-082-61	s	IC TC4W53FU
IC23	8-759-287-54	s	IC TL084CPW-E20
IC24	8-759-082-61	s	IC TC4W53FU
IC25	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC26	8-759-066-59	s	IC TC74HC4053AFS
IC27	8-759-287-54	s	IC TL084CPW-E20
IC28	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC29	8-759-082-61	s	IC TC4W53FU
IC34	8-759-271-86	s	IC TC7SH04FU
IC35	8-759-180-08	s	IC TC74HC4538AFS
IC36	8-759-237-79	s	IC TC74HC595AF(EL)
IC37	8-759-082-59	s	IC TC7W32FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC100	8-759-058-62	s	IC TC7S08FU(TE85R)
IC101	8-759-058-58	s	IC TC7S04FU(TE85R)
IC102	8-759-082-59	s	IC TC7W32FU
IC103	8-759-058-64	s	IC TC7S32FU(TE85R)
IC104	8-759-058-54	s	IC TC7S00FU(TE85R)
IC105	8-759-058-64	s	IC TC7S32FU(TE85R)
IC106	8-759-058-62	s	IC TC7S08FU(TE85R)
IC107	8-759-196-96	s	IC TC7SH08FU-TE85R
IC108	8-759-058-54	s	IC TC7S00FU(TE85R)
IC109	8-759-058-62	s	IC TC7S08FU(TE85R)
IC110	8-759-058-58	s	IC TC7S04FU(TE85R)
JR1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L6	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L7	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L8	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
L10	1-410-385-11	s	INDUCTOR, CHIP 22uH
L11	1-410-385-11	s	INDUCTOR, CHIP 22uH
L12	1-410-392-11	s	INDUCTOR, CHIP 82uH
L13	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L14	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L15	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L16	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L17	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L18	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L19	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L20	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L21	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L22	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L23	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L24	1-410-389-31	s	INDUCTOR CHIP 47uH
L25	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q12	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q19	8-729-403-32	s	TRANSISTOR XN6534
Q20	8-729-920-48	s	TRANSISTOR IMH2

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Ref. No. or Q'ty	Part No.	SP	Description
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q27	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q28	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q29	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q30	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q32	8-729-122-63	s	TRANSISTOR 2SA1226
Q33	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q34	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-403-32	s	TRANSISTOR XN6534
Q44	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q45	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q46	8-729-920-48	s	TRANSISTOR IMH2
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q49	8-729-122-63	s	TRANSISTOR 2SA1226
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-122-63	s	TRANSISTOR 2SA1226
Q54	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q59	8-729-403-32	s	TRANSISTOR XN6534
Q63	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q67	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q68	8-729-122-63	s	TRANSISTOR 2SA1226
Q69	8-729-122-63	s	TRANSISTOR 2SA1226
Q70	8-729-117-32	s	TRANSISTOR 2SC4177
Q71	8-729-122-63	s	TRANSISTOR 2SA1226
Q72	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q73	8-729-122-63	s	TRANSISTOR 2SA1226
Q75	8-729-403-32	s	TRANSISTOR XN6534
Q79	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-122-63	s	TRANSISTOR 2SA1226
Q88	8-729-122-63	s	TRANSISTOR 2SA1226
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-122-63	s	TRANSISTOR 2SA1226
Q91	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q92	8-729-122-63	s	TRANSISTOR 2SA1226
Q94	8-729-403-32	s	TRANSISTOR XN6534
Q98	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-403-32	s	TRANSISTOR XN6534
Q101	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-403-32	s	TRANSISTOR XN6534
Q104	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q105	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q106	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q107	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q108	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q109	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q110	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q111	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q112	8-729-102-08	s	TRANSISTOR 2SC2223-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q113	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q114	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q115	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q117	8-729-122-63	s	TRANSISTOR 2SA1226
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R4	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R5	1-218-723-11	s	METAL 20K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R9	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R12	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-218-676-11	s	METAL 220 0.50% 1/16W
R18	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R19	1-218-676-11	s	METAL 220 0.50% 1/16W
R20	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R21	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R22	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R23	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R24	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R25	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R26	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R27	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R33	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R34	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R35	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R36	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R37	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R38	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R39	1-218-676-11	s	METAL 220 0.50% 1/16W
R40	1-218-676-11	s	METAL 220 0.50% 1/16W
R41	1-218-676-11	s	METAL 220 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R44	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R45	1-218-883-11	s	METAL 33K 0.50% 1/16W
R46	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R47	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R48	1-218-883-11	s	METAL 33K 0.50% 1/16W
R49	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R50	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R51	1-218-883-11	s	METAL 33K 0.50% 1/16W
R52	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R53	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R57	1-218-676-11	s	METAL 220 0.50% 1/16W
R58	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R59	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R60	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R61	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R62	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R65	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R66	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R67	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R70	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R71	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R72	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R75	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R76	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R77	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R78	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R79	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R82	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R85	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R87	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R88	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R89	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R90	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R93	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R94	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R95	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R96	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R97	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R98	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R99	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R100	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R101	1-218-720-11	s	METAL 15K 0.50% 1/16W
R102	1-218-716-11	s	METAL 10K 0.50% 1/16W
R103	1-218-725-11	s	METAL 24K 0.50% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R107	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R108	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R113	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R114	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R115	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R116	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R117	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R118	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R119	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R120	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R121	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R122	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R123	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R124	1-216-805-11	s	METAL, CHIP 47 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R127	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R128	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R129	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R130	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R131	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R137	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R142	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R145	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R146	1-218-676-11	s	METAL 220 0.50% 1/16W
R147	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R148	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R149	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R150	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R151	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R152	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R153	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R154	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R155	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R158	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R159	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R160	1-218-676-11	s	METAL 220 0.50% 1/16W
R161	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R162	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R163	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R164	1-218-672-11	s	METAL 150 0.50% 1/16W
R165	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R166	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R167	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R168	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R169	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R170	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R171	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R172	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R173	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R174	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R175	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R177	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R178	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R184	1-218-828-11	s	METAL 160 0.50% 1/16W
R185	1-218-648-11	s	METAL 15 0.50% 1/16W
R186	1-218-661-11	s	CHIP, METAL 51 0.50% 1/16W
R187	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R188	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R190	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R191	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R192	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R193	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R194	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R195	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R196	1-218-720-11	s	METAL 15K 0.50% 1/16W
R197	1-218-740-11	s	METAL 100K 0.50% 1/16W
R198	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R199	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R202	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W
R205	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R206	1-218-732-11	s	METAL 47K 0.50% 1/16W
R207	1-218-725-11	s	METAL 24K 0.50% 1/16W
R208	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R209	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R210	1-218-676-11	s	METAL 220 0.50% 1/16W
R211	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R212	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R215	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R216	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R217	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R218	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R219	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R220	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R221	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R222	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R223	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R224	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R225	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R226	1-218-672-11	s	METAL 150 0.50% 1/16W
R227	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R228	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R229	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R231	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R232	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R233	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R234	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R235	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R236	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R239	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R240	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R241	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R242	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R243	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R244	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R246	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R247	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R248	1-218-732-11	s	METAL 47K 0.50% 1/16W
R249	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R252	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R253	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R254	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R255	1-218-716-11	s	METAL 10K 0.50% 1/16W
R256	1-218-725-11	s	METAL 24K 0.50% 1/16W
R257	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R258	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R259	1-218-676-11	s	METAL 220 0.50% 1/16W
R260	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R261	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R262	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R263	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R264	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R265	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R266	1-218-705-11	s	METAL 3.6K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R267	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R268	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R269	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R270	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R271	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R273	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R274	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R275	1-218-672-11	s	METAL 150 0.50% 1/16W
R276	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R277	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R278	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-218-672-11	s	METAL 150 0.50% 1/16W
R281	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R282	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R283	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R284	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R285	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R288	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R289	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R290	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R293	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R294	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R295	1-218-732-11	s	METAL 47K 0.50% 1/16W
R300	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R301	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R302	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R303	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R304	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R305	1-218-725-11	s	METAL 24K 0.50% 1/16W
R306	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R307	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R308	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R309	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R310	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R311	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R312	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R313	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R314	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R315	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R316	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R317	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R318	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R320	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R321	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R322	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R323	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R324	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R325	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R326	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R327	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R328	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R330	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R331	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R332	1-218-883-11	s	METAL 33K 0.50% 1/16W
R333	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R334	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R335	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R336	1-218-727-11	s	METAL 30K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R337	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R357	1-218-680-11	s	METAL 330 0.50% 1/16W
R358	1-218-672-11	s	METAL 150 0.50% 1/16W
R361	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R362	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R363	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R364	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R365	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R366	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R367	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R368	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R369	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R370	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R371	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R372	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R373	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R374	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R375	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R376	1-218-727-11	s	METAL 30K 0.50% 1/16W
R378	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R379	1-218-727-11	s	METAL 30K 0.50% 1/16W
R380	1-218-655-91	s	CHIP, METAL 30 0.50% 1/16W
RB1	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB2	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB3	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB4	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB5	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB6	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K
RB7	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K

IF-510 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-568-A	o	MOUNTED CIRCUIT BOARD, IF-510
1pc	3-692-129-02	o	PANEL,IF-510 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C10	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C11	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-208-11	s	TANTAL 1uF 20% 10V
C14	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C21	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-135-208-11	s	TANTAL 1uF 20% 10V
C24	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C31	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-208-11	s	TANTAL 1uF 20% 10V
C34	1-104-911-11	s	TANTALUM, CHIP 33uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-164-156-11	s	CERAMIC 0.1uF 25V
C103	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C104	1-104-914-11	s	TANTAL 22uF 20% 16V
C105	1-104-914-11	s	TANTAL 22uF 20% 16V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C152	1-164-156-11	s	CERAMIC 0.1uF 25V
C153	1-164-156-11	s	CERAMIC 0.1uF 25V
C154	1-164-156-11	s	CERAMIC 0.1uF 25V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-164-156-11	s	CERAMIC 0.1uF 25V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C206	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-104-914-11	s	TANTAL 22uF 20% 16V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C224	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C225	1-104-914-11	s	TANTAL 22uF 20% 16V
C226	1-164-156-11	s	CERAMIC 0.1uF 25V
C250	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C252	1-163-231-11	s	CERAMIC, CHIP 15PF 5% 50V
C253	1-162-919-11	s	CERAMIC 22PF 5% 50V
C254	1-162-922-11	s	CERAMIC 39PF 5% 50V
C255	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C300	1-164-156-11	s	CERAMIC 0.1uF 25V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-164-156-11	s	CERAMIC 0.1uF 25V
C308	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C309	1-164-156-11	s	CERAMIC 0.1uF 25V
C311	1-164-156-11	s	CERAMIC 0.1uF 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C313	1-104-914-11	s	TANTAL 22uF 20% 16V
C315	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C322	1-164-156-11	s	CERAMIC 0.1uF 25V
C350	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C351	1-164-156-11	s	CERAMIC 0.1uF 25V
C352	1-164-156-11	s	CERAMIC 0.1uF 25V
C353	1-164-156-11	s	CERAMIC 0.1uF 25V
C400	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C401	1-104-914-11	s	TANTAL 22uF 20% 16V
C402	1-104-914-11	s	TANTAL 22uF 20% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-164-156-11	s	CERAMIC 0.1uF 25V
C405	1-104-914-11	s	TANTAL 22uF 20% 16V
C406	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C407	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C408	1-104-914-11	s	TANTAL 22uF 20% 16V
C409	1-104-914-11	s	TANTAL 22uF 20% 16V
C410	1-164-156-11	s	CERAMIC 0.1uF 25V
C411	1-164-156-11	s	CERAMIC 0.1uF 25V
C412	1-104-914-11	s	TANTAL 22uF 20% 16V
C413	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C414	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C415	1-104-914-11	s	TANTAL 22uF 20% 16V
C416	1-104-914-11	s	TANTAL 22uF 20% 16V
C417	1-164-156-11	s	CERAMIC 0.1uF 25V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-104-914-11	s	TANTAL 22uF 20% 16V
C420	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C421	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C422	1-164-156-11	s	CERAMIC 0.1uF 25V
C502	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C503	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C504	1-104-914-11	s	TANTAL 22uF 20% 16V
C505	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C508	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C509	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C510	1-104-914-11	s	TANTAL 22uF 20% 16V
C511	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C513	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C514	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C515	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C516	1-104-914-11	s	TANTAL 22uF 20% 16V
C517	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C518	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C519	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C520	1-104-914-11	s	TANTAL 22uF 20% 16V
C521	1-104-914-11	s	TANTAL 22uF 20% 16V
C522	1-164-156-11	s	CERAMIC 0.1uF 25V
C524	1-164-156-11	s	CERAMIC 0.1uF 25V
C525	1-164-156-11	s	CERAMIC 0.1uF 25V
C601	1-164-156-11	s	CERAMIC 0.1uF 25V
C602	1-164-156-11	s	CERAMIC 0.1uF 25V
C603	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C604	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C605	1-104-914-11	s	TANTAL 22uF 20% 16V
C606	1-104-914-11	s	TANTAL 22uF 20% 16V
C621	1-164-156-11	s	CERAMIC 0.1uF 25V
C622	1-164-156-11	s	CERAMIC 0.1uF 25V
C623	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C624	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C625	1-104-914-11	s	TANTAL 22uF 20% 16V
C626	1-104-914-11	s	TANTAL 22uF 20% 16V
C641	1-164-156-11	s	CERAMIC 0.1uF 25V
C642	1-164-156-11	s	CERAMIC 0.1uF 25V
C643	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C644	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C645	1-104-914-11	s	TANTAL 22uF 20% 16V
C646	1-104-914-11	s	TANTAL 22uF 20% 16V
C701	1-164-156-11	s	CERAMIC 0.1uF 25V
C702	1-164-156-11	s	CERAMIC 0.1uF 25V
C703	1-164-156-11	s	CERAMIC 0.1uF 25V
C704	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C707	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
D11	8-719-029-63	s	DIODE RD4.3UH-T1
D21	8-719-029-63	s	DIODE RD4.3UH-T1
D31	8-719-029-57	s	DIODE RD2.4UH-T1
D101	8-719-820-41	s	DIODE 1SS302
D250	8-719-948-47	s	DIODE HSM88AS
D400	8-719-820-41	s	DIODE 1SS302
D401	8-719-820-41	s	DIODE 1SS302
D402	8-719-820-41	s	DIODE 1SS302
D500	8-719-820-41	s	DIODE 1SS302
IC12	8-759-076-06	s	IC TL064CPW
IC101	8-759-082-61	s	IC TC4W53FU
IC151	8-759-925-76	s	IC SN74HC08ANS
IC152	8-759-082-55	s	IC TC7W00FU
IC153	8-759-237-79	s	IC TC74HC595AF(EL)
IC154	8-759-082-58	s	IC TC7W08FU
IC155	8-759-086-42	s	IC X24C02S-3.0-C7000
IC200	8-759-082-61	s	IC TC4W53FU
IC201	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC202	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC206	8-759-054-61	s	IC CLC505AJE
IC301	8-759-254-49	s	IC EL4581CS-TE2
IC302	8-759-925-90	s	IC SN74HC74ANS
IC303	8-759-925-90	s	IC SN74HC74ANS
IC304	8-759-082-59	s	IC TC7W32FU
IC305	8-759-925-90	s	IC SN74HC74ANS
IC306	8-759-082-57	s	IC TC7W04FU
IC307	8-759-082-58	s	IC TC7W08FU
IC308	8-759-058-62	s	IC TC7S08FU(TE85R)
IC309	8-759-082-59	s	IC TC7W32FU
IC310	8-759-082-58	s	IC TC7W08FU
IC322	8-759-032-01	s	IC MC74HC00AF
IC351	8-759-925-90	s	IC SN74HC74ANS
IC352	8-759-058-58	s	IC TC7S04FU(TE85R)
IC400	8-759-082-61	s	IC TC4W53FU
IC404	8-759-209-57	s	IC TC4S69F
IC410	8-759-082-61	s	IC TC4W53FU
IC420	8-759-082-61	s	IC TC4W53FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC500	8-759-066-59	s	IC TC74HC4053AFS
IC501	8-759-981-48	s	IC TL082M
IC502	8-759-082-58	s	IC TC7W08FU
IC601	8-759-054-61	s	IC CLC505AJE
IC621	8-759-054-61	s	IC CLC505AJE
IC641	8-759-054-61	s	IC CLC505AJE
IC701	8-759-988-13	s	IC LM393PS
IC702	8-759-195-81	s	IC TC7S86FU
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L150	1-410-369-11	s	INDUCTOR CHIP 1uH
L201	1-410-369-11	s	INDUCTOR CHIP 1uH
L202	1-410-369-11	s	INDUCTOR CHIP 1uH
L203	1-410-369-11	s	INDUCTOR CHIP 1uH
L301	1-410-369-11	s	INDUCTOR CHIP 1uH
L400	1-410-369-11	s	INDUCTOR CHIP 1uH
L401	1-410-369-11	s	INDUCTOR CHIP 1uH
L402	1-410-369-11	s	INDUCTOR CHIP 1uH
L500	1-410-369-11	s	INDUCTOR CHIP 1uH
L501	1-410-369-11	s	INDUCTOR CHIP 1uH
L502	1-410-369-11	s	INDUCTOR CHIP 1uH
L601	1-410-369-11	s	INDUCTOR CHIP 1uH
L602	1-410-369-11	s	INDUCTOR CHIP 1uH
L603	1-410-369-11	s	INDUCTOR CHIP 1uH
L700	1-410-369-11	s	INDUCTOR CHIP 1uH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q20	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q30	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q101	8-729-122-63	s	TRANSISTOR 2SA1226
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-122-63	s	TRANSISTOR 2SA1226
Q109	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q110	8-729-117-32	s	TRANSISTOR 2SC4177
Q205	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q206	8-729-117-32	s	TRANSISTOR 2SC4177
Q207	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q210	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q211	8-729-117-32	s	TRANSISTOR 2SC4177
Q250	8-729-117-32	s	TRANSISTOR 2SC4177
Q251	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q252	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q271	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q272	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q273	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q352	8-729-920-48	s	TRANSISTOR IMH2
Q353	8-729-920-48	s	TRANSISTOR IMH2
Q354	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q401	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q402	8-729-117-32	s	TRANSISTOR 2SC4177
Q403	8-729-026-32	s	TRANSISTOR XP6534
Q404	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q405	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q406	8-729-117-32	s	TRANSISTOR 2SC4177
Q410	8-729-026-32	s	TRANSISTOR XP6534

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Ref. No. or Q'ty	Part No.	SP	Description
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q413	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q414	8-729-117-32	s	TRANSISTOR 2SC4177
Q420	8-729-026-32	s	TRANSISTOR XP6534
Q421	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q422	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q423	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q424	8-729-117-32	s	TRANSISTOR 2SC4177
Q430	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q431	8-729-117-32	s	TRANSISTOR 2SC4177
Q500	8-729-026-32	s	TRANSISTOR XP6534
Q501	8-729-122-63	s	TRANSISTOR 2SA1226
Q502	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q503	8-729-026-32	s	TRANSISTOR XP6534
Q504	8-729-122-63	s	TRANSISTOR 2SA1226
Q505	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q506	8-729-026-32	s	TRANSISTOR XP6534
Q507	8-729-122-63	s	TRANSISTOR 2SA1226
Q508	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q509	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q510	8-729-117-32	s	TRANSISTOR 2SC4177
Q701	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q702	8-729-800-37	s	TRANSISTOR 2SD1048-X7
Q703	8-729-141-48	s	TRANSISTOR 2SB624-BV345
R1	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R2	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R8	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R9	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R10	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R23	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R24	1-218-723-11	s	METAL 20K 0.50% 1/16W
R25	1-218-723-11	s	METAL 20K 0.50% 1/16W
R33	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R34	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R35	1-218-723-11	s	METAL 20K 0.50% 1/16W
R100	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R103	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R104	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R105	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R110	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R111	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R151	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R152	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R153	1-218-740-11	s	METAL 100K 0.50% 1/16W
R154	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R155	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R156	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R198	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R199	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R202	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R203	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R204	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R205	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R206	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R207	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R208	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R209	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R210	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R211	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R212	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R213	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R214	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R221	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R222	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R224	1-211-981-11	s	CHIP, METAL 33 0.50% 1/16W
R225	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R226	1-218-688-11	s	METAL 680 0.50% 1/16W
R227	1-218-883-11	s	METAL 33K 0.50% 1/16W
R228	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R229	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R230	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R253	1-218-883-11	s	METAL 33K 0.50% 1/16W
R254	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R256	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R257	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R258	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R259	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R261	1-218-716-11	s	CHIP, METAL 10K 0.5% 1/16W
R263	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R264	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R271	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R272	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R273	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R274	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R275	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R276	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R277	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R278	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R279	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R310	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R311	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R315	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R320	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R321	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R322	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R323	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R324	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R325	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R326	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R327	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R328	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R329	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R351	1-218-716-11	s	METAL 10K 0.50% 1/16W
R352	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R353	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R354	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R361	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R400	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R401	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R402	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R403	1-218-836-11	s	CHIP, METAL 360 0.50% 1/16W
R404	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R405	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R406	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R407	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R408	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R409	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R410	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R411	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R412	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R413	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R414	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R415	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R416	1-218-672-11	s	METAL 150 0.50% 1/16W
R417	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R418	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R419	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R420	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R421	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R422	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R423	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R424	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R425	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R426	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R427	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R428	1-218-672-11	s	METAL 150 0.50% 1/16W
R429	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R430	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R431	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R432	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R433	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R434	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R435	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R436	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R437	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R438	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R439	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R440	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R441	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R442	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R443	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R444	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R445	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R446	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R447	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R448	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R500	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R501	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R502	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R503	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R504	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R505	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R506	1-218-671-11	s	CHIP, METAL 130 0.50% 1/16W
R507	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R508	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R509	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W

(IF-510 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R510	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R511	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R512	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R513	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R514	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R515	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R516	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R517	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R518	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R519	1-218-650-11	s	METAL, CHIP 18 0.50% 1/16
R520	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R521	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R522	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R523	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R524	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R525	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R526	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R527	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R528	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R529	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R530	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R531	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R532	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R533	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R534	1-211-992-11	s	CHIP,METAL 91 0.50% 1/16W
R535	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R536	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R537	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R538	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R539	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R540	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R541	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R542	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R543	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R544	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R545	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R546	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R547	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R548	1-218-716-11	s	METAL 10K 0.50% 1/16W
R549	1-218-740-11	s	METAL 100K 0.50% 1/16W
R550	1-218-740-11	s	METAL 100K 0.50% 1/16W
R551	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R552	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R553	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R554	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R555	1-218-716-11	s	METAL 10K 0.50% 1/16W
R601	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R602	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R603	1-218-670-11	s	METAL 120 0.50% 1/16W
R604	1-218-680-11	s	METAL 330 0.50% 1/16W
R605	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R606	1-218-883-11	s	METAL 33K 0.50% 1/16W
R607	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R621	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R622	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R623	1-218-648-11	s	METAL 15 0.50% 1/16W
R624	1-218-680-11	s	METAL 330 0.50% 1/16W
R625	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R626	1-218-883-11	s	METAL 33K 0.50% 1/16W

(IF-510 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R627	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R641	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R642	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R643	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R644	1-218-680-11	s	METAL 330 0.50% 1/16W
R645	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R646	1-218-883-11	s	METAL 33K 0.50% 1/16W
R647	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R701	1-218-732-11	s	METAL 47K 0.50% 1/16W
R702	1-218-716-11	s	METAL 10K 0.50% 1/16W
R703	1-218-723-11	s	METAL 20K 0.50% 1/16W
R704	1-218-725-11	s	METAL 24K 0.50% 1/16W
R705	1-218-732-11	s	METAL 47K 0.50% 1/16W
R706	1-218-732-11	s	METAL 47K 0.50% 1/16W
R707	1-218-883-11	s	METAL 33K 0.50% 1/16W
R708	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R709	1-216-631-11	s	METAL 150 0.50% 1/10W
R710	1-216-631-11	s	METAL 150 0.50% 1/10W
R711	1-216-631-11	s	METAL 150 0.50% 1/10W
R712	1-216-631-11	s	METAL 150 0.50% 1/10W
R713	1-216-631-11	s	METAL 150 0.50% 1/10W
R714	1-216-631-11	s	METAL 150 0.50% 1/10W
R715	1-218-727-11	s	METAL 30K 0.50% 1/16W
R716	1-218-716-11	s	METAL 10K 0.50% 1/16W
R717	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R718	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R719	1-218-716-11	s	METAL 10K 0.50% 1/16W
R721	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R722	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
RV101	1-241-260-11	s	METAL, ADJ 500
S1	1-572-272-11	s	SWITCH, SLIDE

MB-602 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-547-A	o	MOUNTED CIRCUIT BOARD, MB-602
15pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-164-156-11	s	CERAMIC 0.1uF 25V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
CN7	1-569-629-11	s	HOUSING, 24P
CN11	1-569-532-11	s	HOUSING, 30P
CN12	1-569-532-11	s	HOUSING, 30P
CN13	1-569-532-11	s	HOUSING, 30P
CN14	1-569-531-11	s	HOUSING, 20P
CN15	1-764-088-11	o	PIN, CONNECTOR (PC BOARD) 3P
CN21	1-764-093-21	o	PIN, CONNECTOR (PC BOARD) 8P
CN22	1-774-260-11	o	CONNECTOR, FFC (ZIF) 20P
CN23	1-774-261-21	o	CONNECTOR, FFC (ZIF) 24P
CN31	1-750-934-21	o	PIN, CONNECTOR 20P
CN32	1-764-097-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN41	1-569-629-11	s	HOUSING, 24P
CN42	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
CN51	1-770-580-11	o	SOCKET, CONNECTOR(PCB-PCB) 26P
D1	8-719-042-14	s	DIODE DE5LC20U-TA2
IC1	8-759-080-02	s	IC TC74VHC541FS(EL)
IC2	8-759-080-02	s	IC TC74VHC541FS(EL)
IC3	8-759-080-02	s	IC TC74VHC541FS(EL)
IC4	8-759-080-02	s	IC TC74VHC541FS(EL)
IC5	8-759-086-42	s	IC X24C02S-3.0-C7000
Q1	8-729-119-61	s	TRANSISTOR 2SA811A-C15
Q2	8-729-271-32	s	TRANSISTOR 2SC2713-L
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

(MB-602 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R7	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R8	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R11	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB6	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB7	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB8	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
S1	1-572-272-11	s	SWITCH, SLIDE

PR-211 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-557-A	o	MOUNTED CIRCUIT BOARD, PR-211

SG-234 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-564-A	o	MOUNTED CIRCUIT BOARD, SG-234
1pc	3-692-127-02	o	PANEL,SG-234 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C2	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C3	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C9	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C10	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C28	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-164-156-11	s	CERAMIC 0.1uF 25V
C34	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C35	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C39	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C41	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C45	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C46	1-164-346-11	s	CERAMIC 1uF 16V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C51	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C52	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-165-128-11	s	CERAMIC 0.22uF 16V
C57	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C64	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
C68	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C71	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C72	1-135-217-21	s	TANTAL 15uF 20% 6.3
C73	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C77	1-164-156-11	s	CERAMIC 0.1uF 25V
C78	1-164-156-11	s	CERAMIC 0.1uF 25V
C79	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C80	1-164-315-11	s	CERAMIC 470PF 5% 50V
C81	1-128-391-11	s	ELECT 330uF 20% 6.3V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-164-156-11	s	CERAMIC 0.1uF 25V
C85	1-164-156-11	s	CERAMIC 0.1uF 25V
C87	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C88	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C89	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C90	1-164-156-11	s	CERAMIC 0.1uF 25V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-164-156-11	s	CERAMIC 0.1uF 25V
C94	1-164-156-11	s	CERAMIC 0.1uF 25V
C95	1-135-178-11	s	TANTALUM CHIP 1.5uF 20% 20V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-164-156-11	s	CERAMIC 0.1uF 25V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-948-47	s	DIODE HSM88AS
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-404-35	s	DIODE MA141WK
D7	8-719-404-35	s	DIODE MA141WK
D8	8-719-041-68	s	DIODE RD3.3UH-T1
D10	8-719-948-47	s	DIODE HSM88AS
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-948-47	s	DIODE HSM88AS
D13	8-719-948-47	s	DIODE HSM88AS
D14	8-719-948-47	s	DIODE HSM88AS
D200	8-719-820-41	s	DIODE 1SS302
D201	8-719-948-47	s	DIODE HSM88AS
FL1	1-239-756-11	s	FILTER, LOW PASS
IC3	8-759-076-06	s	IC TL064CPW
IC5	8-759-254-49	s	IC EL4581CS-TE2
IC8	8-759-082-57	s	IC TC7W04FU
IC11	8-759-082-58	s	IC TC7W08FU
IC12	8-759-064-36	s	IC MB88346BPFV
IC13	8-759-066-59	s	IC TC74HC4053AFS
IC16	8-752-360-44	s	IC CXK1203AR
IC17	8-759-082-61	s	IC TC4W53FU

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC18	8-759-632-39	s	IC M51958A-T1
IC20	8-759-058-62	s	IC TC7S08FU(TE85R)
IC21	8-759-086-42	s	IC X24C02S-3.0-C7000
IC22	8-759-271-86	s	IC TC7SH04FU
IC25	8-759-079-85	s	IC TC74VHC244FS(EL)
IC30	8-759-079-85	s	IC TC74VHC244FS(EL)
IC31	8-759-271-86	s	IC TC7SH04FU
IC32	8-759-076-06	s	IC TL064CPW
IC33	8-759-066-59	s	IC TC74HC4053AFS
IC34	8-759-184-64	s	IC TC4W66FU
IC35	8-759-049-86	s	IC SN74HCT244APW-E20
IC36	8-759-180-08	s	IC TC74HC4538AFS
IC37	8-759-082-58	s	IC TC7W08FU
IC38	8-759-083-94	s	IC TC7W74FU
IC39	8-759-195-81	s	IC TC7S86FU
IC40	8-759-082-60	s	IC TC7S66FU
IC41	8-759-082-61	s	IC TC4W53FU
IC42	8-759-049-86	s	IC SN74HCT244APW-E20
IC43	8-759-058-54	s	IC TC7S00FU(TE85R)
IC44	8-759-082-61	s	IC TC4W53FU
IC45	8-759-271-86	s	IC TC7SH04FU
IC46	8-759-082-61	s	IC TC4W53FU
IC47	8-759-082-61	s	IC TC4W53FU
IC48	8-759-173-16	s	IC TL062CPW
IC200	8-759-079-61	s	IC TC74VHC74FS(EL)
IC201	8-759-058-58	s	IC TC7S04FU(TE85R)
IC202	8-759-058-64	s	IC TC7S32FU(TE85R)
IC203	8-759-058-62	s	IC TC7S08FU(TE85R)
IC204	8-759-082-61	s	IC TC4W53FU
IC206	8-759-173-16	s	IC TL062CPW
IC207	8-759-058-55	s	IC TC7S02FU-TE85L
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-385-11	s	INDUCTOR, CHIP 22uH
L6	1-410-385-11	s	INDUCTOR, CHIP 22uH
L7	1-410-385-11	s	INDUCTOR, CHIP 22uH
L8	1-410-385-11	s	INDUCTOR, CHIP 22uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q4	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q5	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-403-29	s	TRANSISTOR XN6435
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q16	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-920-48	s	TRANSISTOR IMH2
Q20	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q21	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q22	8-729-029-14	s	TRANSISTOR DTC144EUA-T106

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Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q24	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q25	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q26	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q200	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q201	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q202	8-729-216-22	s	TRANSISTOR 2SA1162
Q203	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q204	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q205	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-218-716-11	s	METAL 10K 0.50% 1/16W
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R5	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R7	1-218-723-11	s	METAL 20K 0.50% 1/16W
R8	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R9	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R10	1-218-723-11	s	METAL 20K 0.50% 1/16W
R11	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R17	1-218-720-11	s	METAL 15K 0.50% 1/16W
R18	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R21	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R22	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R23	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R28	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R29	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W
R31	1-218-716-11	s	METAL 10K 0.50% 1/16W
R32	1-218-720-11	s	METAL 15K 0.50% 1/16W
R33	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R34	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R35	1-218-732-11	s	METAL 47K 0.50% 1/16W
R36	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R37	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R38	1-218-716-11	s	METAL 10K 0.50% 1/16W
R39	1-218-736-11	s	METAL 68K 0.50% 1/16W
R40	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R41	1-218-716-11	s	METAL 10K 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-740-11	s	METAL 100K 0.50% 1/16W
R44	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R46	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-720-11	s	METAL 15K 0.50% 1/16W
R49	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R50	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R54	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R55	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R56	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R57	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R58	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R59	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-218-833-11	s	CHIP, METAL 270 0.50% 1/16W
R62	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R65	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R66	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R67	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R68	1-218-716-11	s	METAL 10K 0.50% 1/16W
R69	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R71	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R77	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R78	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R79	1-218-716-11	s	METAL 10K 0.50% 1/16W
R80	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R83	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R84	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R85	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R86	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R90	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R92	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R95	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R96	1-218-716-11	s	METAL 10K 0.50% 1/16W
R97	1-218-716-11	s	METAL 10K 0.50% 1/16W
R98	1-218-716-11	s	METAL 10K 0.50% 1/16W
R99	1-218-883-11	s	METAL 33K 0.50% 1/16W
R100	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R101	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R102	1-218-740-11	s	METAL 100K 0.50% 1/16W
R103	1-218-732-11	s	METAL 47K 0.50% 1/16W
R104	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R105	1-218-716-11	s	METAL 10K 0.50% 1/16W
R106	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R107	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-732-11	s	METAL 47K 0.50% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R113	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R114	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R115	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R116	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R117	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R119	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R121	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R122	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R126	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R127	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R128	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R129	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R130	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R131	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R132	1-218-732-11	s	METAL 47K 0.50% 1/16W
R133	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R134	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R135	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R136	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R137	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R138	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R139	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R140	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R141	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R144	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R145	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R146	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R150	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R151	1-218-732-11	s	METAL 47K 0.50% 1/16W
R152	1-218-732-11	s	METAL 47K 0.50% 1/16W
R153	1-218-732-11	s	METAL 47K 0.50% 1/16W
R154	1-218-732-11	s	METAL 47K 0.50% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R202	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R203	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R204	1-218-716-11	s	METAL 10K 0.50% 1/16W
R205	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R206	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R207	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R208	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R209	1-218-716-11	s	METAL 10K 0.50% 1/16W
R210	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R211	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB10	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)

SW-730 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-443-21	o	PRINTED CIRCUIT BOARD, SW-730
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
CN801	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
D1	8-719-106-43	s	DIODE RD9.1M-B1
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R13	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R14	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R15	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
S1	1-571-415-11	s	SWITCH, TOGGLE
S2	1-571-415-11	s	SWITCH, TOGGLE
S3	1-571-415-11	s	SWITCH, TOGGLE
S4	1-571-415-11	s	SWITCH, TOGGLE

SW-731 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-444-21	o	PRINTED CIRCUIT BOARD, SW-731
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
CN501	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R9	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R10	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RV1	1-223-686-11	s	RES, VAR, CARBON 5K/5K
S1	1-571-416-11	s	SWITCH, TOGGLE
S2	1-571-679-11	s	SWITCH, TOGGLE
S3	1-570-282-21	s	SWITCH, KEY BOARD

SW-732 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-442-22	o	PRINTED CIRCUIT BOARD, SW-732
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
CN301	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R8	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-570-985-11	s	SWITCH, TOGGLE
S3	1-571-396-11	s	SWITCH, TOGGLE

SW-733 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-445-21	o	PRINTED CIRCUIT BOARD, SW-733
CN701	1-764-079-21	s	PIN, CONNECTOR (PC BOARD) 4P
S1	1-473-315-11	s	ENCODER, ROTARY

SW-742 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-446-21	o	PRINTED CIRCUIT BOARD, SW-742
CN601	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
S1	1-554-088-00	s	SWITCH, TACTILE

VA-163 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-560-A	o	MOUNTED CIRCUIT BOARD, VA-163
1pc	3-692-125-02	o	PANEL,VA-163 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-135-217-21	s	TANTAL 15uF 20% 6.3
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-126-391-11	s	ELECT 47uF 20% 6.3V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C15	1-135-125-21	s	TANTAL 33uF 20% 10V
C16	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C17	1-126-391-11	s	ELECT 47uF 20% 6.3V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C20	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-217-11	s	CERAMIC 150PF 5% 50V
C27	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C47	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C51	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C52	1-104-559-11	s	FILM, CHIP 0.047uF 5% 16V
C53	1-164-315-11	s	CERAMIC 470PF 5% 50V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C65	1-135-217-21	s	TANTAL 15uF 20% 6.3
C66	1-135-217-21	s	TANTAL 15uF 20% 6.3
C67	1-135-217-21	s	TANTAL 15uF 20% 6.3
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-135-217-21	s	TANTAL 15uF 20% 6.3
C70	1-135-217-21	s	TANTAL 15uF 20% 6.3
C71	1-135-217-21	s	TANTAL 15uF 20% 6.3
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C124	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C125	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C200	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C207	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C208	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C209	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C211	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C212	1-164-156-11	s	CERAMIC 0.1uF 25V
C214	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C215	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-164-156-11	s	CERAMIC 0.1uF 25V
C224	1-104-608-11	s	ELECT 33uF 20% 6.3V
C225	1-135-217-21	s	TANTAL 15uF 20% 6.3
C226	1-135-217-21	s	TANTAL 15uF 20% 6.3
C227	1-164-156-11	s	CERAMIC 0.1uF 25V
C228	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C229	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C230	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C231	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C232	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C233	1-164-156-11	s	CERAMIC 0.1uF 25V
C234	1-164-156-11	s	CERAMIC 0.1uF 25V
C235	1-164-156-11	s	CERAMIC 0.1uF 25V
C236	1-164-156-11	s	CERAMIC 0.1uF 25V
C237	1-164-156-11	s	CERAMIC 0.1uF 25V
C238	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C239	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C240	1-162-924-11	s	CERAMIC 56PF 5% 50V
C242	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C243	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C259	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C300	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C302	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C304	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C305	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C308	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C309	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C311	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C314	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C315	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C316	1-164-156-11	s	CERAMIC 0.1uF 25V
C317	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C318	1-164-156-11	s	CERAMIC 0.1uF 25V
C319	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C323	1-164-156-11	s	CERAMIC 0.1uF 25V
C324	1-104-608-11	s	ELECT 33uF 20% 6.3V
C325	1-135-217-21	s	TANTAL 15uF 20% 6.3
C326	1-135-217-21	s	TANTAL 15uF 20% 6.3
C327	1-164-156-11	s	CERAMIC 0.1uF 25V
C328	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C329	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C330	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C331	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C332	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C333	1-164-156-11	s	CERAMIC 0.1uF 25V
C334	1-164-156-11	s	CERAMIC 0.1uF 25V
C335	1-164-156-11	s	CERAMIC 0.1uF 25V
C336	1-164-156-11	s	CERAMIC 0.1uF 25V
C337	1-164-156-11	s	CERAMIC 0.1uF 25V
C338	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C339	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C340	1-162-924-11	s	CERAMIC 56PF 5% 50V
C342	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C343	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C359	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C400	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C401	1-164-156-11	s	CERAMIC 0.1uF 25V
C402	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C405	1-164-156-11	s	CERAMIC 0.1uF 25V
C407	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C408	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C409	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C411	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C412	1-164-156-11	s	CERAMIC 0.1uF 25V
C414	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C415	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C416	1-164-156-11	s	CERAMIC 0.1uF 25V
C417	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-164-156-11	s	CERAMIC 0.1uF 25V
C420	1-164-156-11	s	CERAMIC 0.1uF 25V
C421	1-164-156-11	s	CERAMIC 0.1uF 25V
C423	1-164-156-11	s	CERAMIC 0.1uF 25V
C424	1-104-608-11	s	ELECT 33uF 20% 6.3V
C425	1-135-217-21	s	TANTAL 15uF 20% 6.3
C426	1-135-217-21	s	TANTAL 15uF 20% 6.3
C427	1-164-156-11	s	CERAMIC 0.1uF 25V
C428	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C429	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C430	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C431	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C432	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C433	1-164-156-11	s	CERAMIC 0.1uF 25V
C434	1-164-156-11	s	CERAMIC 0.1uF 25V
C435	1-164-156-11	s	CERAMIC 0.1uF 25V
C436	1-164-156-11	s	CERAMIC 0.1uF 25V
C437	1-164-156-11	s	CERAMIC 0.1uF 25V
C438	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C439	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C440	1-162-924-11	s	CERAMIC 56PF 5% 50V
C442	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C443	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C459	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
CT200	1-141-311-11	s	CAP, VAR, TRIMMER
CT300	1-141-311-11	s	CAP, VAR, TRIMMER
CT400	1-141-311-11	s	CAP, VAR, TRIMMER
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
FL200	1-402-639-11	s	FILTER, TRAP
FL300	1-402-639-11	s	FILTER, TRAP
FL400	1-402-639-11	s	FILTER, TRAP
IC1	8-759-076-06	s	IC TL064CPW
IC3	8-759-066-68	s	IC REF-03GS
IC5	8-759-180-08	s	IC TC74HC4538AFS
IC6	8-759-175-02	s	IC TL074CPW-ELM1000
IC7	8-759-058-64	s	IC TC7S32FU(TE85R)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-085-67	s	IC LM339NS
IC10	8-759-058-58	s	IC TC7S04FU(TE85R)
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-175-02	s	IC TL074CPW-ELM1000
IC13	8-759-082-60	s	IC TC7S66FU
IC14	8-759-082-60	s	IC TC7S66FU
IC15	8-759-076-06	s	IC TL064CPW
IC16	8-759-326-65	s	IC MP7670AS-TE2
IC17	8-759-066-59	s	IC TC74HC4053AFS
IC18	8-759-326-65	s	IC MP7670AS-TE2
IC19	8-759-175-02	s	IC TL074CPW-ELM1000
IC20	8-759-237-79	s	IC TC74HC595AF(EL)
IC21	8-759-064-36	s	IC MB88346BPFV
IC22	8-759-066-59	s	IC TC74HC4053AFS
IC23	8-759-049-60	s	IC SN74HC08APW-E05
IC24	8-759-059-50	s	IC MB88351PFV
IC25	8-759-058-58	s	IC TC7S04FU(TE85R)
IC26	8-759-086-42	s	IC X24C02S-3.0-C7000
IC27	8-759-058-62	s	IC TC7S08FU(TE85R)
IC200	8-759-076-06	s	IC TL064CPW
IC201	8-759-082-61	s	IC TC4W53FU
IC202	8-752-068-64	s	IC CXA1486Q-TH
IC203	8-759-082-61	s	IC TC4W53FU
IC204	8-759-058-62	s	IC TC7S08FU(TE85R)

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Ref. No. or Q'ty	Part No.	SP	Description
IC300	8-759-076-06	s	IC TL064CPW
IC301	8-759-082-61	s	IC TC4W53FU
IC302	8-752-068-64	s	IC CXA1486Q-TH
IC303	8-759-082-61	s	IC TC4W53FU
IC304	8-759-058-62	s	IC TC7S08FU(TE85R)
IC400	8-759-076-06	s	IC TL064CPW
IC401	8-759-082-61	s	IC TC4W53FU
IC402	8-752-068-64	s	IC CXA1486Q-TH
IC403	8-759-082-61	s	IC TC4W53FU
IC404	8-759-058-62	s	IC TC7S08FU(TE85R)
L1	1-410-385-11	s	INDUCTOR, CHIP 22uH
L2	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-820-86	s	TRANSISTOR 2SB1121-ST
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q7	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q10	8-729-402-78	s	TRANSISTOR XN6401
Q11	8-729-402-19	s	TRANSISTOR XN6501
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-402-78	s	TRANSISTOR XN6401
Q200	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q201	8-729-175-73	s	TRANSISTOR 2SC2757
Q202	8-729-122-63	s	TRANSISTOR 2SA1226
Q203	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q204	8-729-122-63	s	TRANSISTOR 2SA1226
Q205	8-729-122-63	s	TRANSISTOR 2SA1226
Q206	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q207	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q210	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q211	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q212	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q213	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q214	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q215	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q216	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q217	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q218	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q219	8-729-402-19	s	TRANSISTOR XN6501
Q220	8-729-402-19	s	TRANSISTOR XN6501
Q300	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q301	8-729-175-73	s	TRANSISTOR 2SC2757
Q302	8-729-122-63	s	TRANSISTOR 2SA1226
Q303	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q304	8-729-122-63	s	TRANSISTOR 2SA1226
Q305	8-729-122-63	s	TRANSISTOR 2SA1226
Q306	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q307	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q308	8-729-117-32	s	TRANSISTOR 2SC4177
Q309	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q310	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q311	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q312	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q313	8-729-117-73	s	TRANSISTOR 2SC4178-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q314	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q315	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q316	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q317	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q318	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q319	8-729-402-19	s	TRANSISTOR XN6501
Q320	8-729-402-19	s	TRANSISTOR XN6501
Q400	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q401	8-729-175-73	s	TRANSISTOR 2SC2757
Q402	8-729-122-63	s	TRANSISTOR 2SA1226
Q403	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q404	8-729-122-63	s	TRANSISTOR 2SA1226
Q405	8-729-122-63	s	TRANSISTOR 2SA1226
Q406	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q407	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q408	8-729-117-32	s	TRANSISTOR 2SC4177
Q409	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q410	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q413	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q414	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q415	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q416	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q417	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q418	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q419	8-729-402-19	s	TRANSISTOR XN6501
Q420	8-729-402-19	s	TRANSISTOR XN6501
R1	1-218-723-11	s	METAL 20K 0.50% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-732-11	s	METAL 47K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-218-716-11	s	METAL 10K 0.50% 1/16W
R8	1-218-716-11	s	METAL 10K 0.50% 1/16W
R9	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-716-11	s	METAL 10K 0.50% 1/16W
R12	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R14	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R15	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R21	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R22	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R23	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R28	1-218-716-11	s	METAL 10K 0.50% 1/16W
R29	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R31	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R35	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R36	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R37	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R38	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R41	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R42	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R43	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R44	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R45	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R46	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R47	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R49	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R50	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-716-11	s	METAL 10K 0.50% 1/16W
R53	1-218-723-11	s	METAL 20K 0.50% 1/16W
R54	1-218-716-11	s	METAL 10K 0.50% 1/16W
R55	1-218-723-11	s	METAL 20K 0.50% 1/16W
R56	1-218-901-11	s	CHIP, METAL 180K 0.50% 1/16W
R57	1-218-732-11	s	METAL 47K 0.50% 1/16W
R58	1-218-716-11	s	METAL 10K 0.50% 1/16W
R59	1-218-732-11	s	METAL 47K 0.50% 1/16W
R60	1-218-732-11	s	METAL 47K 0.50% 1/16W
R61	1-208-854-11	s	CHIP,METAL 1M 0.50% 1/10W
R62	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R63	1-218-883-11	s	METAL 33K 0.50% 1/16W
R64	1-218-883-11	s	METAL 33K 0.50% 1/16W
R65	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R66	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R67	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R70	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R71	1-218-883-11	s	METAL 33K 0.50% 1/16W
R72	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R73	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R74	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R75	1-218-883-11	s	METAL 33K 0.50% 1/16W
R76	1-218-883-11	s	METAL 33K 0.50% 1/16W
R77	1-218-883-11	s	METAL 33K 0.50% 1/16W
R78	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R79	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R82	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R83	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R84	1-218-883-11	s	METAL 33K 0.50% 1/16W
R85	1-218-883-11	s	METAL 33K 0.50% 1/16W
R86	1-218-883-11	s	METAL 33K 0.50% 1/16W
R87	1-218-883-11	s	METAL 33K 0.50% 1/16W
R88	1-218-883-11	s	METAL 33K 0.50% 1/16W
R89	1-218-883-11	s	METAL 33K 0.50% 1/16W
R90	1-218-883-11	s	METAL 33K 0.50% 1/16W
R91	1-218-716-11	s	METAL 10K 0.50% 1/16W
R92	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R93	1-218-716-11	s	METAL 10K 0.50% 1/16W
R94	1-218-732-11	s	METAL 47K 0.50% 1/16W
R95	1-218-732-11	s	METAL 47K 0.50% 1/16W
R96	1-218-732-11	s	METAL 47K 0.50% 1/16W
R97	1-218-732-11	s	METAL 47K 0.50% 1/16W
R98	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R99	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R100	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R101	1-218-873-11	s	METAL 12K 0.50% 1/16W
R102	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R103	1-218-886-11	s	CHIP, METAL 43K 0.50% 1/16W
R104	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R109	1-218-716-11	s	METAL 10K 0.50% 1/16W
R110	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R111	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R112	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R113	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R114	1-218-723-11	s	METAL 20K 0.50% 1/16W
R115	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R116	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R117	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R118	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R120	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-218-723-11	s	METAL 20K 0.50% 1/16W
R202	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R203	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R204	1-218-727-11	s	METAL 30K 0.50% 1/16W
R205	1-218-732-11	s	METAL 47K 0.50% 1/16W
R206	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R207	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R208	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R209	1-218-723-11	s	METAL 20K 0.50% 1/16W
R210	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R211	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R212	1-218-680-11	s	METAL 330 0.50% 1/16W
R213	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R214	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R215	1-218-680-11	s	METAL 330 0.50% 1/16W
R216	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R217	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R218	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R219	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R220	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R222	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R223	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R224	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R225	1-218-883-11	s	METAL 33K 0.50% 1/16W
R226	1-218-716-11	s	METAL 10K 0.50% 1/16W
R227	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R228	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R229	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R230	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R231	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R232	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R233	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R234	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R235	1-218-672-11	s	METAL 150 0.50% 1/16W
R236	1-218-732-11	s	METAL 47K 0.50% 1/16W
R237	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R238	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R239	1-218-723-11	s	METAL 20K 0.50% 1/16W
R240	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R241	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R242	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R243	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R244	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R245	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R246	1-218-716-11	s	METAL 10K 0.50% 1/16W
R247	1-218-723-11	s	METAL 20K 0.50% 1/16W
R248	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R249	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R250	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-716-11	s	METAL 10K 0.50% 1/16W
R253	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R254	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R255	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R256	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R257	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R258	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R259	1-218-723-11	s	METAL 20K 0.50% 1/16W
R260	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R261	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R262	1-218-727-11	s	METAL 30K 0.50% 1/16W
R263	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R264	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R265	1-218-723-11	s	METAL 20K 0.50% 1/16W
R266	1-218-716-11	s	METAL 10K 0.50% 1/16W
R267	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R268	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R269	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R270	1-218-883-11	s	METAL 33K 0.50% 1/16W
R271	1-218-740-11	s	METAL 100K 0.50% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R280	1-218-883-11	s	METAL 33K 0.50% 1/16W
R281	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R300	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R301	1-218-723-11	s	METAL 20K 0.50% 1/16W
R302	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R303	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R304	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R305	1-218-727-11	s	METAL 30K 0.50% 1/16W
R306	1-218-732-11	s	METAL 47K 0.50% 1/16W
R307	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R308	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R309	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R310	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R311	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R312	1-218-680-11	s	METAL 330 0.50% 1/16W
R313	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R314	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R315	1-218-680-11	s	METAL 330 0.50% 1/16W
R316	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R317	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R318	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R319	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R320	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R322	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R323	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R324	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R325	1-218-883-11	s	METAL 33K 0.50% 1/16W
R326	1-218-716-11	s	METAL 10K 0.50% 1/16W
R327	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R328	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R329	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R330	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R331	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R332	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R333	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R334	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R335	1-218-672-11	s	METAL 150 0.50% 1/16W
R336	1-218-732-11	s	METAL 47K 0.50% 1/16W
R337	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R338	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R339	1-218-723-11	s	METAL 20K 0.50% 1/16W
R340	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R341	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R342	1-218-716-11	s	METAL 10K 0.50% 1/16W
R343	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R344	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R345	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R346	1-218-750-11	s	METAL 270K 0.50% 1/16W
R347	1-218-723-11	s	METAL 20K 0.50% 1/16W
R348	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R349	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R350	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R351	1-218-740-11	s	METAL 100K 0.50% 1/16W
R352	1-218-716-11	s	METAL 10K 0.50% 1/16W
R353	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R354	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R355	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R356	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R357	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R358	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R359	1-218-723-11	s	METAL 20K 0.50% 1/16W
R360	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R361	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R362	1-218-727-11	s	METAL 30K 0.50% 1/16W
R363	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R364	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R365	1-218-723-11	s	METAL 20K 0.50% 1/16W
R366	1-218-716-11	s	METAL 10K 0.50% 1/16W
R367	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R368	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R369	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R370	1-218-883-11	s	METAL 33K 0.50% 1/16W
R371	1-218-740-11	s	METAL 100K 0.50% 1/16W
R372	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R380	1-218-883-11	s	METAL 33K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R381	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R400	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R401	1-218-723-11	s	METAL 20K 0.50% 1/16W
R402	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R403	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R404	1-218-727-11	s	METAL 30K 0.50% 1/16W
R405	1-218-732-11	s	METAL 47K 0.50% 1/16W
R406	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R407	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R408	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R409	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R410	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R411	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R412	1-218-680-11	s	METAL 330 0.50% 1/16W
R413	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R414	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R415	1-218-680-11	s	METAL 330 0.50% 1/16W
R416	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R417	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R418	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R419	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R420	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R422	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R423	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R424	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R425	1-218-883-11	s	METAL 33K 0.50% 1/16W
R426	1-218-716-11	s	METAL 10K 0.50% 1/16W
R427	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R428	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R429	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R430	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R431	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R432	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R433	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R434	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R435	1-218-672-11	s	METAL 150 0.50% 1/16W
R436	1-218-732-11	s	METAL 47K 0.50% 1/16W
R437	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R438	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R439	1-218-723-11	s	METAL 20K 0.50% 1/16W
R440	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R441	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R442	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R443	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R444	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R445	1-218-740-11	s	METAL 100K 0.50% 1/16W
R446	1-218-723-11	s	METAL 20K 0.50% 1/16W
R447	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R448	1-218-716-11	s	METAL 10K 0.50% 1/16W
R449	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R450	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R451	1-218-740-11	s	METAL 100K 0.50% 1/16W
R452	1-218-716-11	s	METAL 10K 0.50% 1/16W
R453	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R454	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R455	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R456	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R457	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R458	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R459	1-218-723-11	s	METAL 20K 0.50% 1/16W
R460	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R461	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R462	1-218-727-11	s	METAL 30K 0.50% 1/16W
R463	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R464	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R465	1-218-723-11	s	METAL 20K 0.50% 1/16W
R466	1-218-716-11	s	METAL 10K 0.50% 1/16W
R467	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R468	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R469	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R470	1-218-883-11	s	METAL 33K 0.50% 1/16W
R471	1-218-740-11	s	METAL 100K 0.50% 1/16W
R472	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R480	1-218-883-11	s	METAL 33K 0.50% 1/16W
R481	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
RV50	1-241-263-11	s	RES, ADJ, METALT 5K
RV200	1-241-260-11	s	METAL, ADJ 500
RV300	1-241-260-11	s	METAL, ADJ 500
RV400	1-241-260-11	s	METAL, ADJ 500

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
⚠	A-8272-571-A	s	CONVERTER ASSY, DC-DC
	1-775-774-11	o	FLEXIBLE CARD WIRE (20 CORE) (CN-1121 TO MB-602)
	1-775-775-11	o	FLEXIBLE CARD WIRE (24 CORE) (CN-1122 TO MB-602)
	1-775-776-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-775-777-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1121 TO MB-602)
	1-775-778-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-777-000-11	s	FLEXIBLE CARD WIRE (20 CORE) (MB-602 TO CCD UNIT)
	1-777-001-11	s	FLEXIBLE CARD WIRE (24 CORE) (MB-602 TO CCD UNIT)
	1-955-080-12	o	HARNESS (VF)
	1-955-086-12	o	HARNESS (PA)
CN901	1-561-781-11	s	CONNECTOR BNC "TEST OUT"
CN902	1-562-222-41	s	CONNECTOR 6P FEMALE "REMOTE"
CN903	1-565-051-21	o	CONNECTOR, 20P FEMAL "VF"
CN904	1-695-841-12	s	CONNECTOR 12P FEMALE "LENS"
CN905	1-509-184-31	s	CONNECTOR 3P MALE "MIC"

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN2F(to PA-181 BOARD of CCD UNIT)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN15F(to MB602 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN21F(to MB-602 BOARD)			
	1-764-196-11	o	HOUSING, 8P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN31F(to MB-602 BOARD)			
	1-580-586-11	o	HOUSING, 20P
	1-573-176-11	o	CONTACT, FEMALE AWG22-26
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN32F(to MB-602 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN42F(to MB-602 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN301F(to SW-732 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN402F(to CN1122 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN405F(to CN1122 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN406F(to CN1122 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN407F(to MB602 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN501F(to SW731 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN601F(to SW742 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN701F(to SW733 BOARD)			
	1-764-194-11	o	HOUSING, 4P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN801F(to SW730 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30

5-4. Optional Fixtures

TOOLS AND FIXTURES		
Part No.	SP	Description
J-6026-110-A	o	MULTI-BURST CHART
J-6026-130-B	o	GRAYSCALE CHART
J-6029-140-B	o	PATTERN BOX PTB-500
J-6394-080-A	o	GRAYSCALE CHART (16:9)
J-6395-040-A	o	EXTENSION BOARD, EX-464

Section 6
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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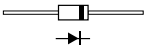

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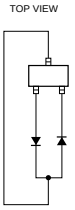

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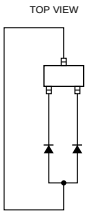

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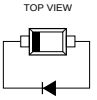

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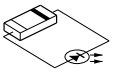

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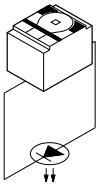

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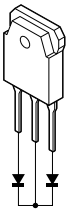

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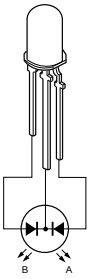

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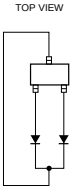

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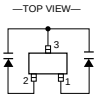

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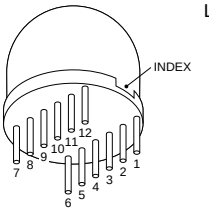

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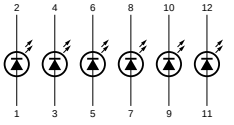

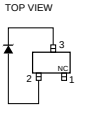

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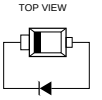
RD ? ?MB
RD ? ?M-B ?



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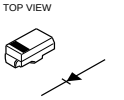
RD ? ?UJN



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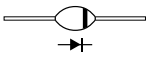
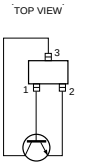
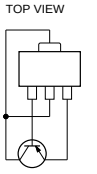


V09C
V09G
V11 ?

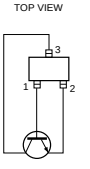
TRANSISTOR



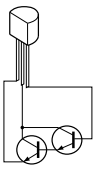
2SA1162G
2SA1226
2SA1610
2SA1611
2SA1688
2SA1808
2SA811A
2SB1440S
2SB624



2SB1115A
2SB1121
2SB798



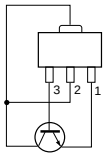
2SC1623
2SC2223
2SC2712
2SC2713
2SC2714Y
2SC2757
2SC2758
2SC3115
2SC3360
2SC4177
2SC4177-L6
2SC4178
2SC4184
2SC4215
2SD1048
2SD596
2SD596-DV5



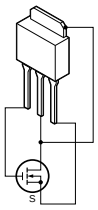
2SD1111

Others

TOP VIEW

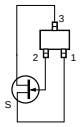


2SD1615A
2SD1623



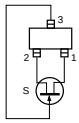
2SK612

TOP VIEW



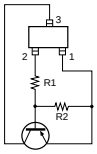
2SK663

TOP VIEW



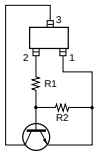
2SK852-X2
2SK853

TOP VIEW



DTA143XKA(R1=4.7K R2=10K)
DTA144EE(R1=47K, R2=47K)
DTA144EUA(R1=47K, R2=47K)

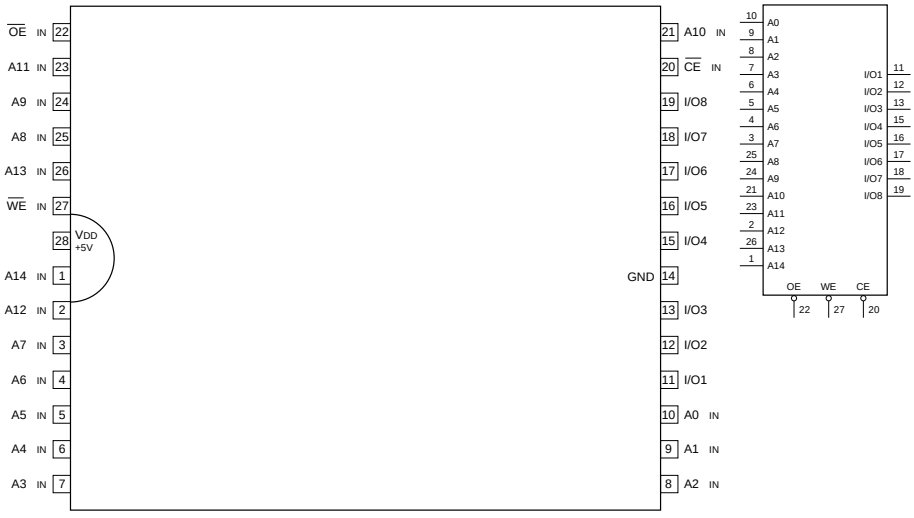
TOP VIEW



DTC143XKA(R1=4.7K, R2=10K)
DTC144EE(R1=47K, R2=47K)
DTC144EK(R1=47K, R2=47K)
DTC144EKA(R1=47K, R2=47K)
DTC144EUA(R1=47K, R2=47K)

CXK58257ATM-70LL(SONY)(ACCESS TIME=70ns)FLAT PACKAGE

C-MOS 256K (32768 x 8)-BIT STATIC RAM
—TOP VIEW—

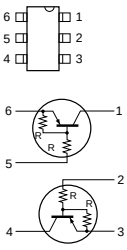


A0-A14 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
I/O1-I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

CE	OE	WE	MODE	I/O TERMINAL
1	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	X	0	WRITE	INPUT DATA

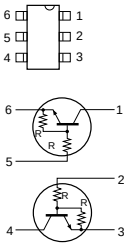
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

—TOP VIEW—

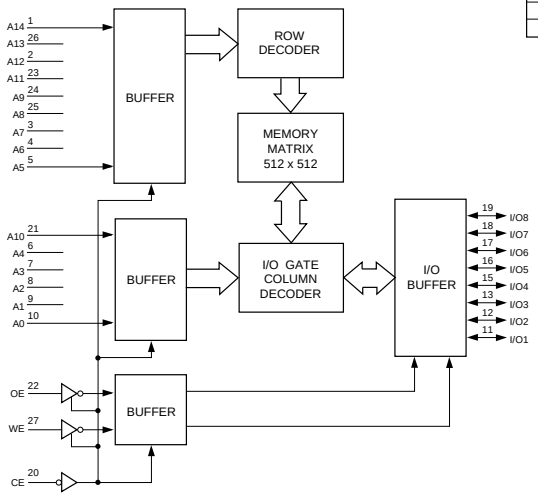


IMB2(R=47K)

TOP VIEW



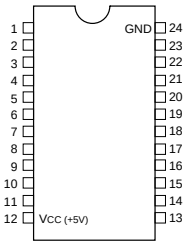
IMH2(R=47K)



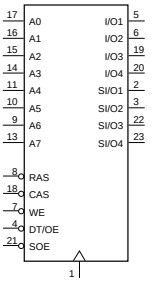
HM53461JP-12(HITACHI)(ACCESS TIME=120ns)PLCC

C-MOS 64K WORD x 4 BIT MULTI PORT RAM

—TOP VIEW—



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	SC	13	I	A7
2	I/O	SI/O1	14	I	A3
3	I/O	SI/O2	15	I	A2
4	—	$\overline{DT/OE}$	16	I	A1
5	I/O	I/O1	17	I	A0
6	I/O	I/O2	18	—	$\overline{CAS}$
7	—	$\overline{WE}$	19	I/O	I/O3
8	—	$\overline{RAS}$	20	I/O	I/O4
9	I	A6	21	—	$\overline{SOE}$
10	I	A5	22	I/O	SI/O3
11	I	A4	23	I/O	SI/O4
12	—	VCC	24	—	GND

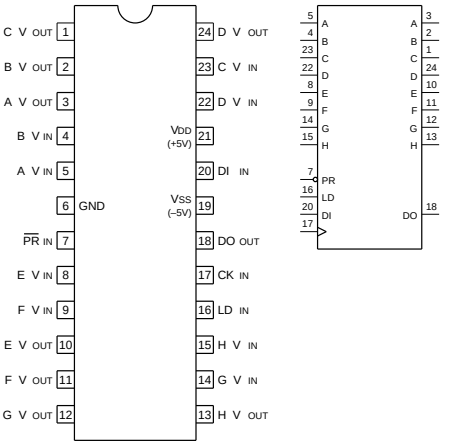


A0-A7 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE INPUT
DT/OE ; DATA TRANSMISSION/OUTPUT ENABLE INPUT
I/O1-I/O4 ; RAM PORT DATA INPUT/OUTPUT
RAS ; ROW ADDRESS STROBE INPUT
SC ; SERIAL CLOCK INPUT
SI/O1-SI/O4 ; SAM PORT DATA INPUT/OUTPUT
SOE ; SAM PORT ENABLE INPUT/OUTPUT
WE ; WRITE ENABLE INPUT

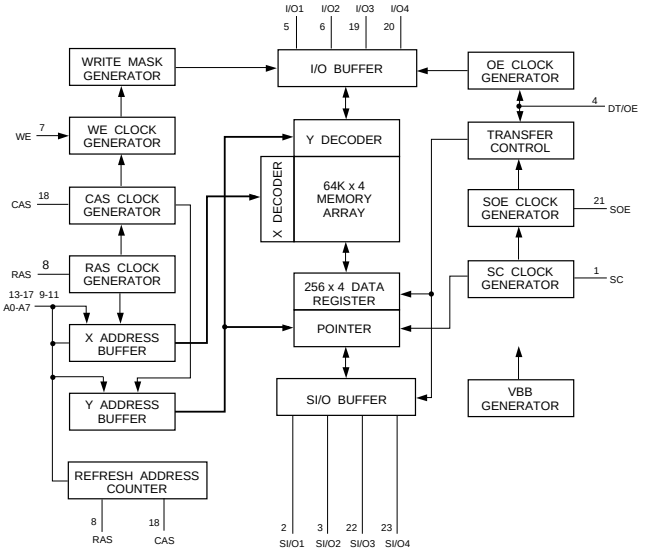
MP7670AS(MICRO POWER SYSTEMS)FLAT PACKAGE

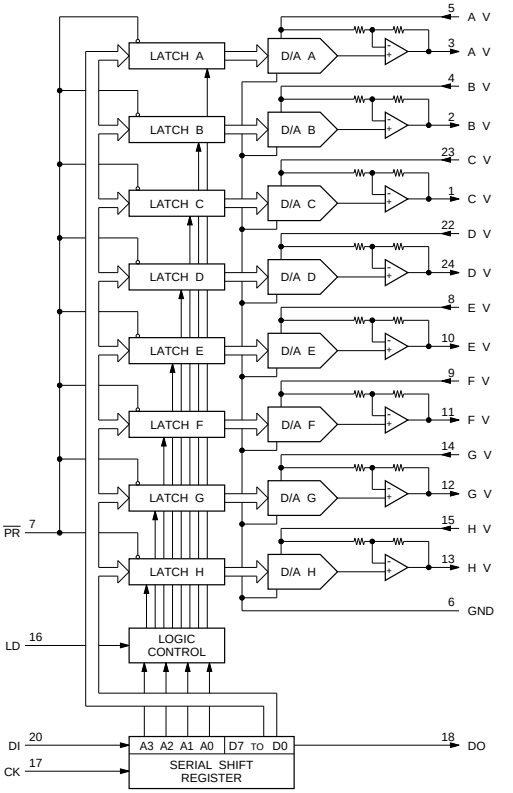
C-MOS 8-BIT 8CHANNEL D/A CONVERTER

— TOP VIEW —



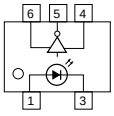
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT
LD ; DATA LOAD CONTROL INPUT
$\overline{PR}$; PRESET INPUT

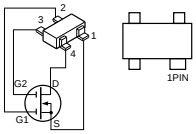




PC410(SHARP)FLAT PACKAGE

OPIC-OUTPUT PHOTO COUPLER
—TOP VIEW—

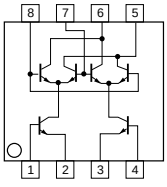


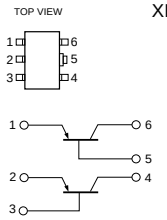


SGM2016M

UPA101G(NEC)FLAT PACKAGE

TRANSISTOR ARRAY
—TOP VIEW—

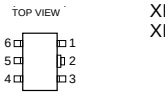




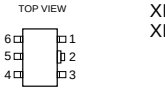
XP6435

XP6501

XP6534



XN6401
XN6435

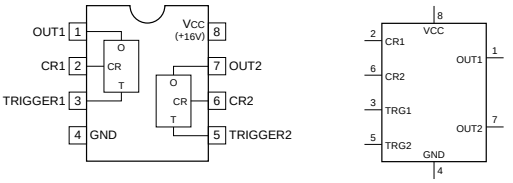


XN6501
XN6534

IC

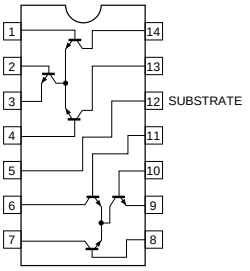
BA225F(ROHM)

CR TIMER
-TOP VIEW-



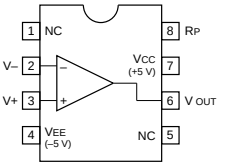
CA3102M(RCA)FLAT PACKAGE

HIGH FREQ.DIFFERENTIAL AMPLIFIER
—TOP VIEW—



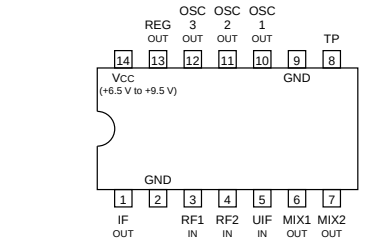
CLC505AJE(COMLINEAR)FLAT PACKAGE

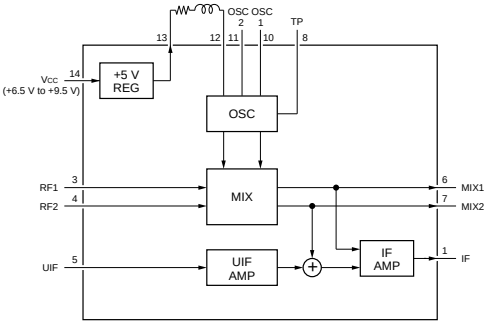
OPERATIONAL AMPLIFIER
— TOP VIEW —



CXA1165M(SONY)FLAT PACKAGE

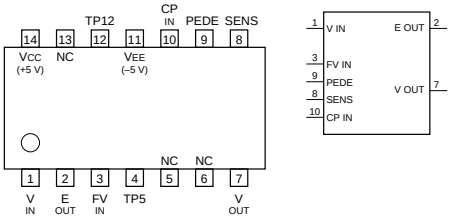
CATV VHF TUNER
— TOP VIEW —



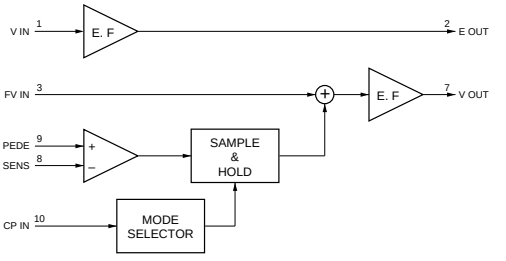


CXA1432M(SONY)FLAT PACKAGE

VIDEO SIGNAL CLAMPER
— TOP VIEW —



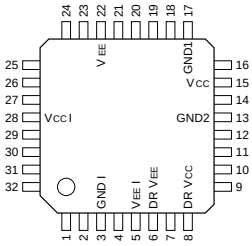
CP IN	; CLAMP PULSE INPUT
E OUT	; BUFFER AMP OUTPUT
FV IN	; FLOATING VIDEO SIGNAL INPUT
PEDE	; CLAMP LEVEL DC INPUT
SENS	; CLAMP POINT SIGNAL INPUT
TP5, TP12	; FOR TEST
V IN	; VIDEO SIGNAL INPUT
V OUT	; VIDEO SIGNAL OUTPUT



CXA1486Q (SONY)

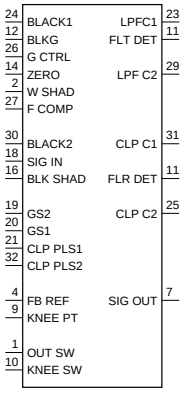
VIDEO AMPLIFIER FOR VIDEO CAMERA

- TOP VIEW -



VCC, VCC I, DR VCC, = (+5V)
VEE, VEE I, DR VEE, = (-2.5 to -5.5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	OUT SW	17	–	GND1
2	I	W SHAD	18	I	SIG IN
3	–	GND I	19	I	GS2
4	I	FB REF	20	I	GS1
5	–	VEE I	21	I	CLP PLS1
6	–	DR VEE	22	–	VEE
7	O	SIG OUT	23	O	LPF C1
8	–	DR VCC	24	I	BLACK1
9	I	KNEE PT	25	O	CLP C2
10	I	KNEE SW	26	I	G CTRL
11	O	FLR DET	27	I	F COMP
12	I	BLKG	28	–	VCC I
13	–	GND2	29	O	LPF C2
14	I	ZERO	30	I	BLACK2
15	–	VCC	31	O	CLP C1
16	I	BLK SHAD	32	I	CLP PLS2

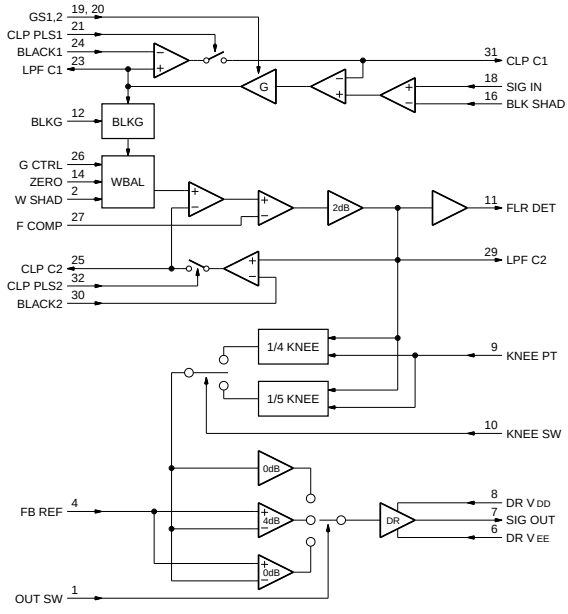


INPUT

BLACK1, 2	; FOR CLAMP DC COMPENSATION
BLKG	; BLANKING SIGNAL
BLK SHAD	; BLACK SHADING CORRECTION SIGNAL
CLP PLS1, 2	; CLAMP PULSE
F COMP	; FLARE COMPENSATION SIGNAL
FB REF	; OUTPUT 2 INVERT AMPLIFY DC ADJUST
G CTRL	; WHITE BALANCE GAIN CONTROL
GS1, 2	; GAIN SELECT
KNEE PT	; KNEE POINT
KNEE SW	; 1/4, 1/5 KNEE SELECT (4.5V=1/4 KNEE, 0V=1/5 KNEE)
OUT SW	; OUTPUT 3 AMPLIFY SELECT
SIG IN	; SIGNAL INPUT
W SHAD	; WHITE SHADING SIGNAL
ZERO	; VARIABLE GAIN AMPLIFY ZERO POINT ADJUST

OUTPUT

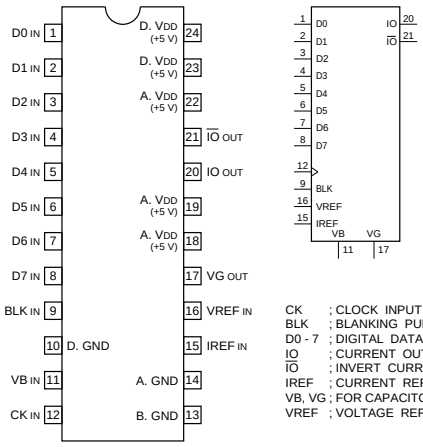
CLP C1, C2	; FOR CLAMP CAPACITANCE
FLR DET	; FLARE DETECT
LPF C1, C2	; CONNECT CAPACITANCE FOR LPF
SIG OUT	; SIGNAL OUTPUT



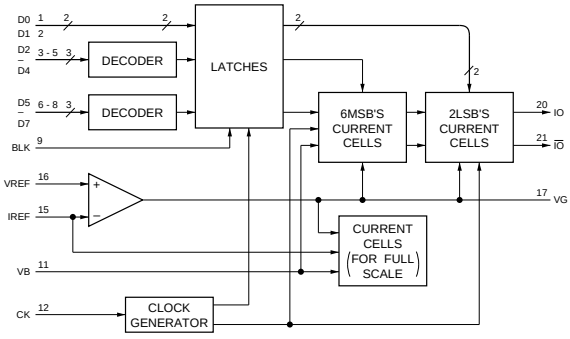
CXD1171M(SONY)FLAT PACKAGE

C-MOS 8-BIT D/A CONVERTER

— TOP VIEW —

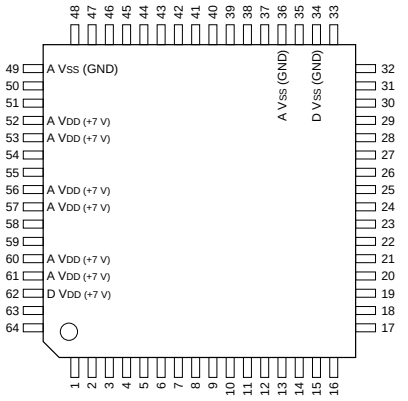


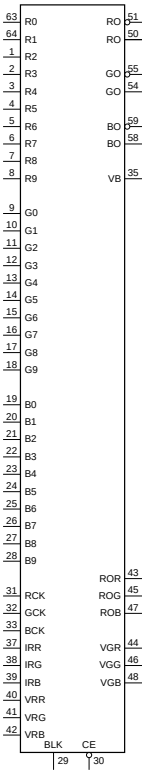
CK ; CLOCK INPUT
BLK ; BLANKING PULSE INPUT
D0 - 7 ; DIGITAL DATA INPUT
IO ; CURRENT OUTPUT
$\overline{IO}$; INVERT CURRENT OUTPUT
IREF ; CURRENT REFERENCE INPUT
VB, VG ; FOR CAPACITOR
VREF ; VOLTAGE REFERENCE INPUT



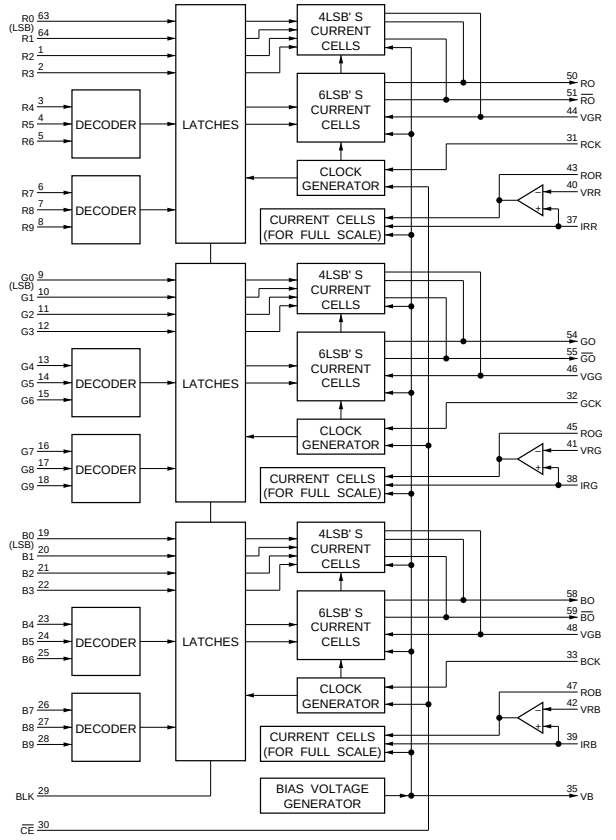
CXD2307R(SONY)FLAT PACKAGE

C-MOS 10-BIT 50MSPS RGB 3CHANNEL D/A CONVERTER
— TOP VIEW —



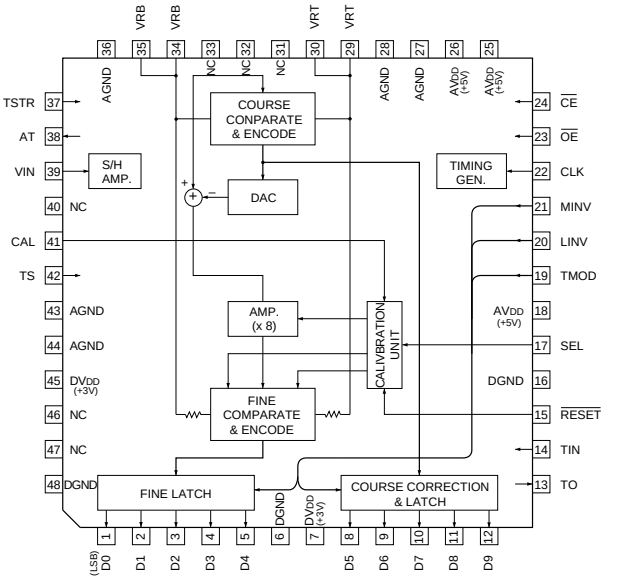


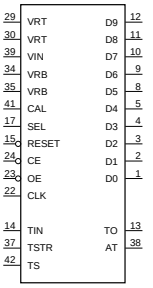
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	R2	17	I	G8	33	I	BCK	49	—	AVSS
2	I	R3	18	I	G9	34	—	DVSS	50	O	RO
3	I	R4	19	I	B0 (LSB)	35	O	VB	51	O	$\overline{RO}$
4	I	R5	20	I	B1	36	—	AVSS	52	—	AVDD
5	I	R6	21	I	B2	37	I	IRR	53	—	AVDD
6	I	R7	22	I	B3	38	I	IRG	54	O	GO
7	I	R8	23	I	B4	39	I	IRB	55	O	$\overline{GO}$
8	I	R9	24	I	B5	40	I	VRR	56	—	AVDD
9	I	G0 (LSB)	25	I	B6	41	I	VRG	57	—	AVDD
10	I	G1	26	I	B7	42	I	VRB	58	O	BO
11	I	G2	27	I	B8	43	I	ROR	59	O	$\overline{BO}$
12	I	G3	28	I	B9	44	I	VGR	60	—	AVDD
13	I	G4	29	I	BLK	45	I	ROG	61	—	AVDD
14	I	G5	30	I	$\overline{CE}$	46	I	VGG	62	—	DVDD
15	I	G6	31	I	RCK	47	I	ROB	63	I	R0 (LSB)
16	I	G7	32	I	GCK	48	I	VGB	64	I	R1



CXD2310R(SONY)

C-MOS 10-BIT 20MSPS VIDEO A/D CONVERTER
—TOP VIEW—





INPUT

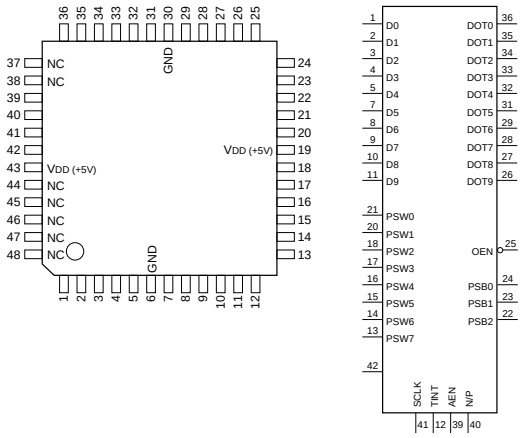
CAL	; CALIBRATION PULSE INPUT
CE	; CHIP ENABLE
CLK	; CLOCK
LINV	; OUTPUT (D0-D8) INVERSION
MINV	; OUTPUT (D9) INVERSION
OE	; DIGITAL DATA OUTPUT ENABLE
RESET	; CALIBRATION CIRCUIT RESET
SEL	; OUTPUT DATA (D5-D9) SELECT FOR CALIBRATION (4-CLOCK) HIGH; THROUGH OUTPUT, LOW; DATA FIXED AS WITH D0-D4
TIN	; TEST SIGNAL INPUT
TMOD	; TEST MODE
TS	; TEST SIGNAL INPUT
TSTR	; TEST SIGNAL INPUT
VRB	; REFERENCE BOTTOM VOLTAGE
VRT	; REFERENCE TOP VOLTAGE

OUTPUT

AT	; TEST SIGNAL OUTPUT
D0-D9	; DIGIRAL DATA OUTPUT
TO	; TEST PIN

CXK1203AR(SONY)FLAT PACKAGE

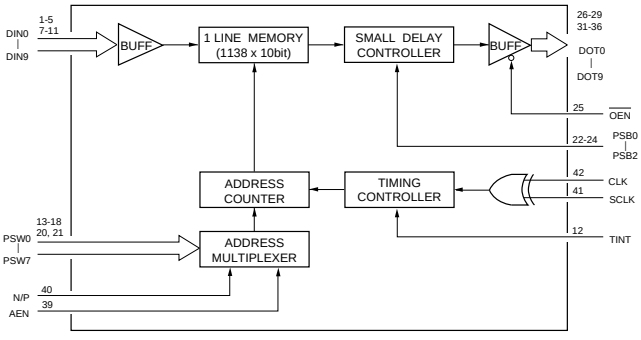
C-MOS DIGITAL LINE MEMORY
—TOP VIEW—



(VDD = +5V)

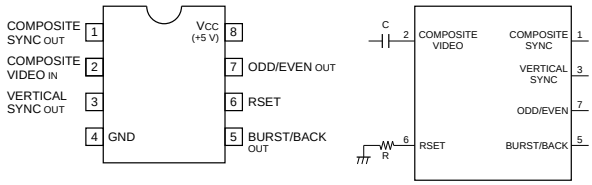
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	D0	13	I	PSW7	25	I	OEN	37	—	N.C
2	I	D1	14	I	PSW6	26	O	DOT9	38	—	N.C
3	I	D2	15	I	PSW5	27	O	DOT8	39	I	AEN
4	I	D3	16	I	PSW4	28	O	DOT7	40	I	N/P
5	I	D4	17	I	PSW3	29	O	DOT6	41	I	SCLK
6	—	GND	18	I	PSW2	30	—	GND	42	I	CLK
7	I	D5	19	—	VDD	31	O	DOT5	43	—	VDD
8	I	D6	20	I	PSW1	32	O	DOT4	44	—	N.C
9	I	D7	21	I	PSW0	33	O	DOT3	45	—	N.C
10	I	D8	22	I	PSB2	34	O	DOT2	46	—	N.C
11	I	D9	23	I	PSB1	35	O	DOT1	47	—	N.C
12	I	TINT	24	I	PSB0	36	O	DOT0	48	—	N.C

AEN	;	LINE MEMORY SELECT
CLK	;	CLOCK
DIN0-DIN9	;	VIDEO DATA INPUT
DOT0-DOT9	;	VIDEO DATA OUTPUT
N/P	;	NTSC/PAL/SECAM SELECT
OEN	;	OUTPUT ENABLE
PSB0-PSB2	;	DELAY STEP SELECT (1 BITxN)
PSW0-PSW7	;	DELAY STEP SELECT (8 BITxN)
SCLK	;	CLOCK EDGE SELECT
TINT	;	TEST

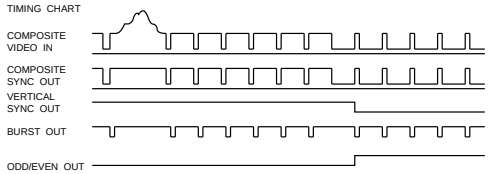


EL4581CS(ELT)FLAT PACKAGE

VIDEO SYNC SEPARATOR
— TOP VIEW —

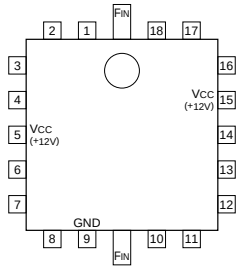


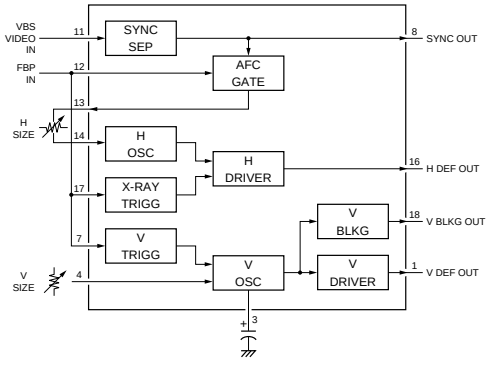
TIMING CHART



HA11423MP(HITACHI)FLAT PACKAGE

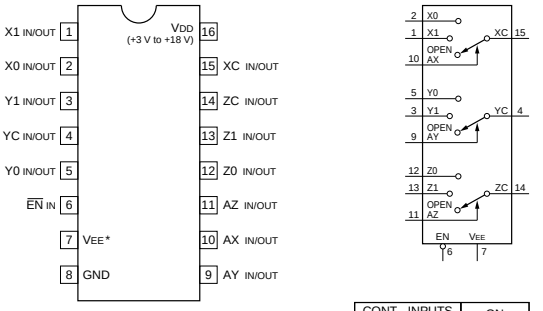
TV H/V SYNC SIGNAL PROCESSOR
-TOP VIEW-





HD14053BFP(HITACHI)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
— TOP VIEW —



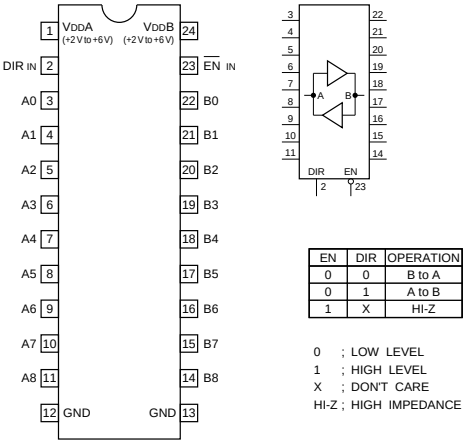
VEE*; VDD – VEE + 3 V + 18 V

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. INPUTS		ON CHANNEL
EN	A (X, Y, Z)	
0	0	0
0	1	1
1	X	OPEN

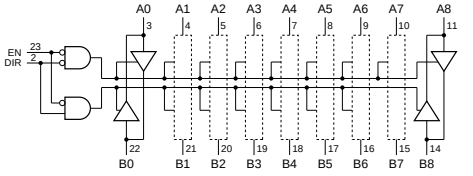
HD151015T(HITACHI)FLAT PACKAGE

C-MOS 9-BIT LEVEL SHIFTER/TRANSCEIVER WITH 3-STATE OUTPUTS
— TOP VIEW —



EN	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

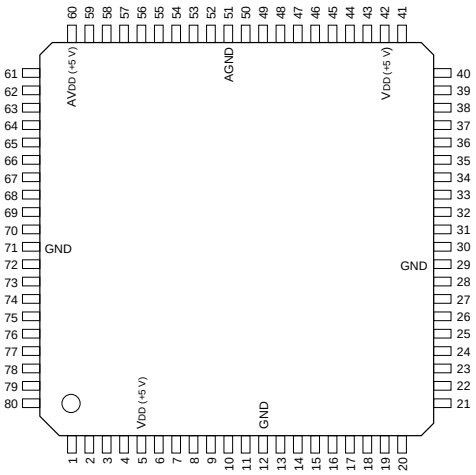
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



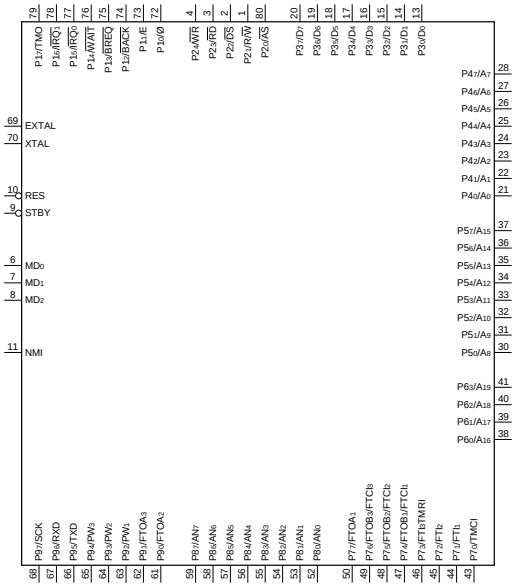
HD6475328F10(HITACHI)

C-MOS 16-BIT MICROPROCESSOR

— TOP VIEW —



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{DS}$	29	—	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{RD}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{WR}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	—	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	—	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{STBY}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{RES}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	—	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	—	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	—	VSS
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/ø
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{BACK}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{BREQ}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{WAIT}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{IRQ0}$
24	I/O	P43/A3	51	—	AGND	78	I/O	P12/$\overline{IRQ1}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{AS}$
27	I/O	P46/A6	54	I/O	P82/AN2			



INPUT

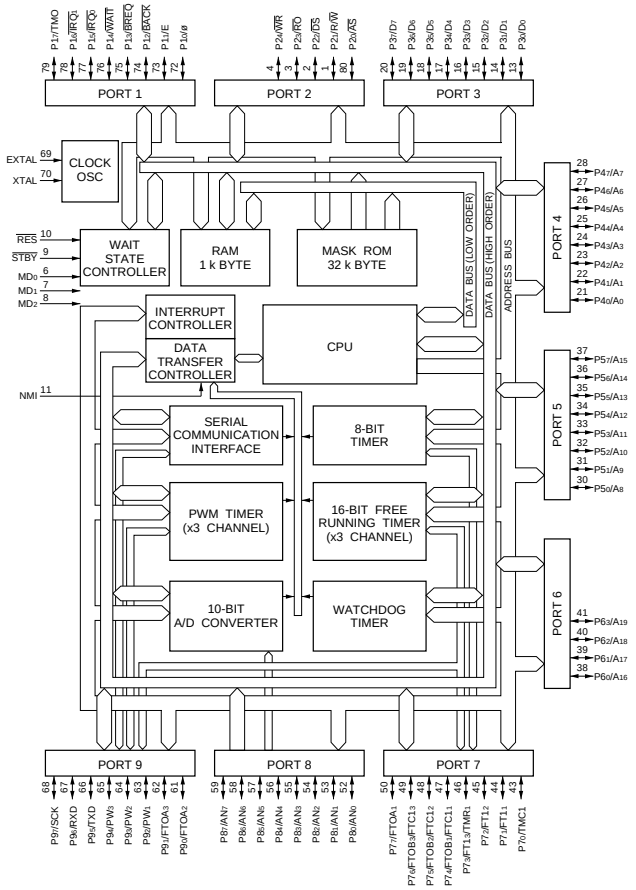
AN0-AN7	; ANALOG INPUT
BREQ	; BUS REQUEST
EXTAL	; CONNECTED TO CRYSTAL OSCILLATOR.
ETCI1-FTCI3	; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1-FTI3	; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1	; INTERRUPTION REQUEST 0 AND 1
MD0-MD2	; MODE SETTING
NMI	; NON MASKABLE INTERRUPTION
P80-P87	; PORT 8
RES	; RESET
RXD	; RECEIVE DATA
STBY	; STANDBY
TMCI	; 8-BIT TIMER CLOCK INPUT
TMRI	; 8-BIT TIMER COUNTER RESET INPUT
WAIT	; WAIT
XTAL	; CONNECTED TO CRYSTAL OSCILLATOR.

OUTPUT

A0-A19	; ADDRESS BUS
AS	; ADDRESS STROBE
BACK	; BUS REQUEST ACKNOWLEDGE
DS	; DATA STROBE
E	; ENABLE CLOCK
FTOA1-FTOA3	; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1-FTOB3	; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1-PW3	; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	; READ/WRITE
RD	; READ
TMO	; 8-BIT TIMER OUTPUT
TXD	; SEND DATA
WR	; WRITE
ø	; SYSTEM CLOCK

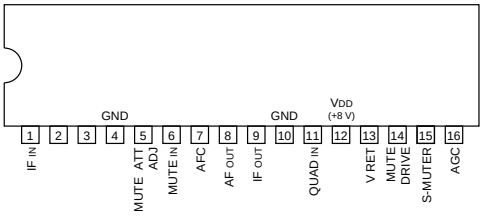
INPUT/OUTPUT

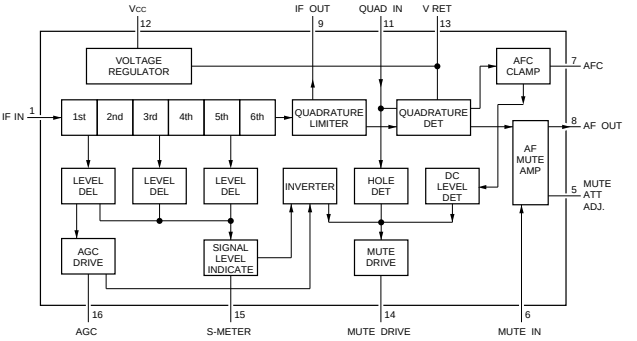
D0-D7	; DATA BUS
P10-P17	; PORT 1
P20-P24	; PORT 2
P30-P37	; PORT 3
P40-P47	; PORT 4
P50-P57	; PORT 5
P60-P63	; PORT 6
P70-P77	; PORT 7
P90-P97	; PORT 9
SCK	; SERIAL CLOCK INPUT/OUTPUT



LA1140(SANYO)

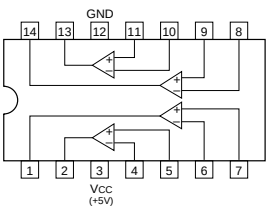
IF AMP, LIMITTER, DETECTOR, MUTING, + FM CS
— PRINTED SIDE VIEW —





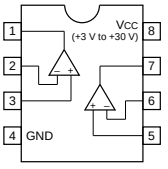
LM339NS(TI)FLAT PACKAGE
LM339PW(TI)FLAT PACKAGE–

QUAD COMPARATORS
—TOP VIEW—



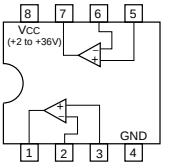
LM358PS(TI)FLAT PACKAGE
UPC358G2(NEC)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —



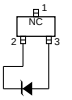
LM393PS(TI)FLAT PACKAGE
UPC393G2(NEC)FLAT PACKAGE

DUAL VOLTAGE COMPARATORS
—TOP VIEW—



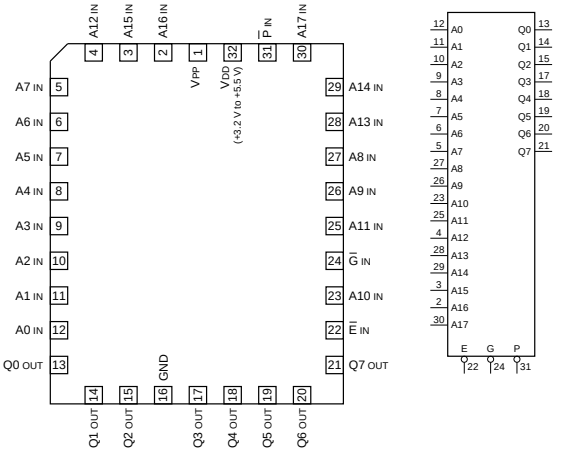
LM4040BIM3X(NS)

PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE
— TOP VIEW —



M27V201-200L6(SGS)CHIP CARRIER

C-MOS 2M (256×8) -BIT UV ERASABLE PROM AND OTP ROM
— TOP VIEW —



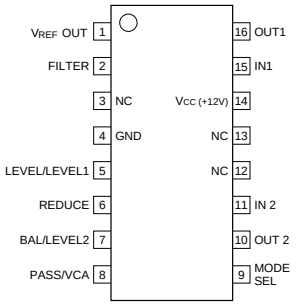
A0 - A17 ; ADDRESS INPUTS
Q0 - Q7 ; DATA OUTPUTS
$\overline{E}$; CHIP ENABLE INPUT
$\overline{G}$; OUTPUT ENABLE INPUT
$\overline{P}$; PROGRAM INPUT
VPP ; PROGRAM SUPPLY (12.75 V)

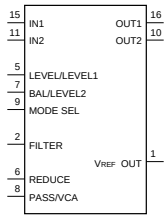
MODE	E	G	E	E	E	Q0 -Q7
READ	0	0	X	X	X	DATA OUT
OUTPUT DISABLE	0	1	X	X	X	HI-Z
PROGRAM	0	1	⊓	X	VPP	DATA IN
VERIFY	0	0	1	X	VPP	DATA OUT
PROGRAM INHIBIT	1	X	X	X	VPP	HI-Z
STANDBY	1	X	X	X	X	HI-Z
ELECTRONIC SIGNATURE	0	0	1	VID	VDD	CODES

0 ; INPUT LOW VOLTAGE
1 ; INPUT HIGH VOLTAGE
X ; DON'T CARE
VID ; 12 V ± 0.5 V
HI-Z ; HIGH IMPEDANCE

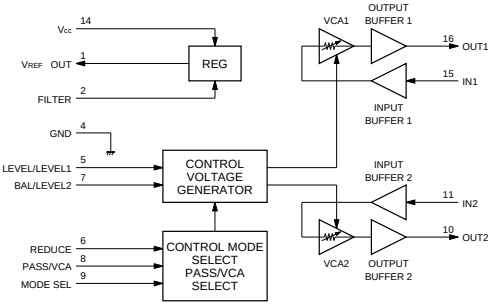
M51132FP(MITSUBISHI)FLAT PACKAGE

2-CHANNEL ELECTRONIC LEVEL CONTROL
—TOP VIEW—



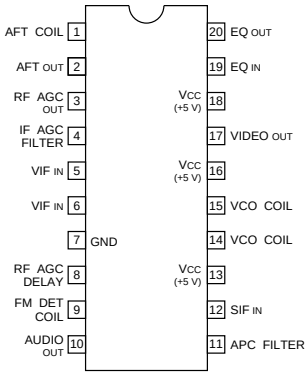


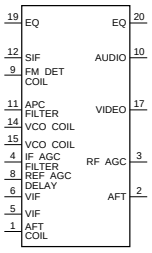
BAL/LEVEL2	; BALANCE/LEVEL2 CONTROL
FILTER	; FILTER
IN1	; INPUT 1
IN2	; INPUT 2
MODE SEL	; MODE SELECT
OUT1	; OUTPUT 1
OUT2	; OUTPUT 2
PASS/VCA	; PASS/VCA CONTROL SWITCH
REDUCE	; SWITCHING NOISE REDUCE
LEVEL/LEVEL1	; LEVEL/LEVEL1 CONTROL
V REF OUT	; REFERENCE VOLTAGE OUTPUT

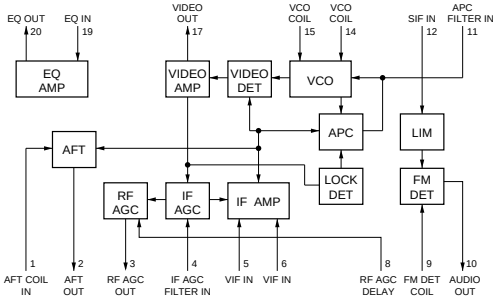


M52313SP(MITSUBISHI)

PLL VIF/SIF
— TOP VIEW —

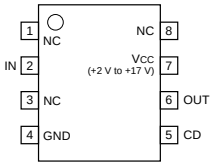


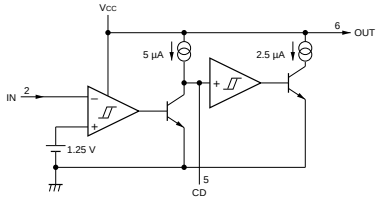




M51958A(MITSUBISHI)FLAT PACKAGE

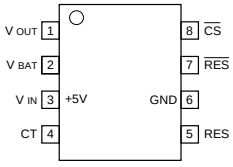
VOLTAGE DETECT DELAY
— TOP VIEW —

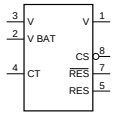




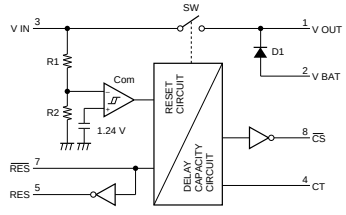
M62021FP(MITSUBISHI)FLAT PACKAGE

SELECTION SW BUILT-IN SYSTEM RESET
— TOP VIEW —



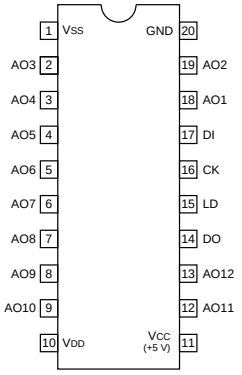


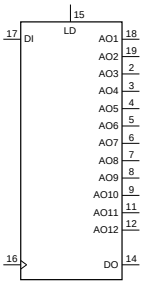
CS	; CHIP SELECT OUTPUT
CT	; DELAY CAPACITY INPUT
RES	; RESET OUTPUT
VBAT	; VIDEO SIGNAL BACKUP INPUT
VIN	; VIDEO SIGNAL INPUT
VOUT	; VIDEO SIGNAL OUTPUT



M62352GP(MITSUBISHI)FLAT PACKAGE

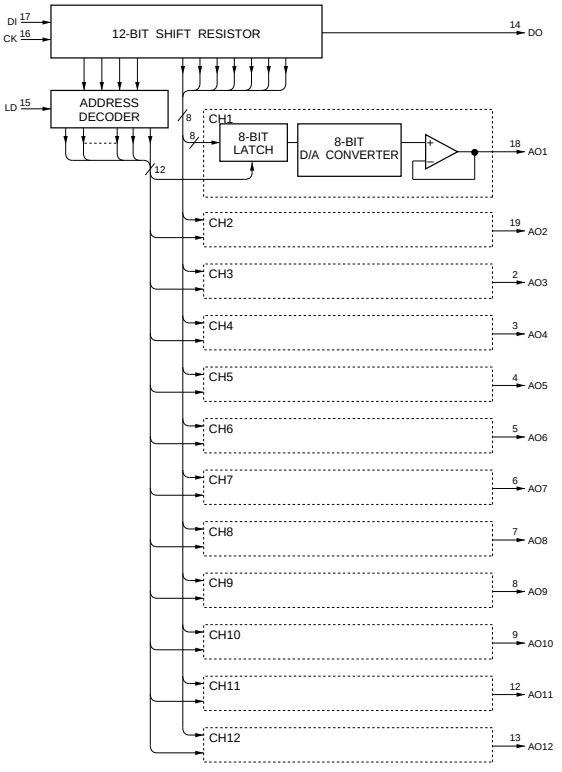
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
— TOP VIEW —





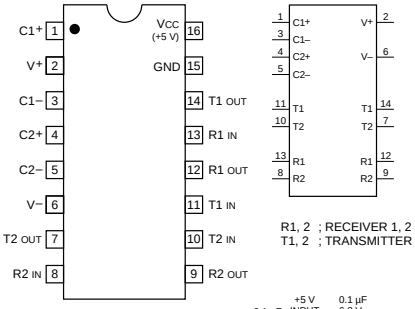
AO1-AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT

NOTE:
3.5 V < V_{DD} < V_{CC}
–3.5 V < V_{SS} < V_{CC}

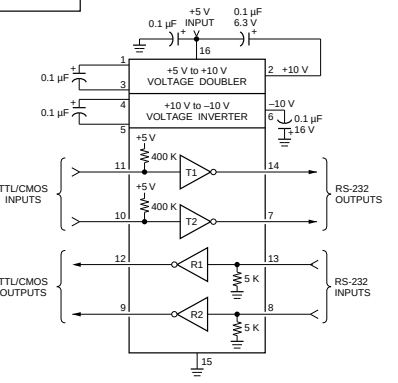


MAX202CSE(MAXIM)

RS-232 TRANSMITTER/RECEIVER
— TOP VIEW —

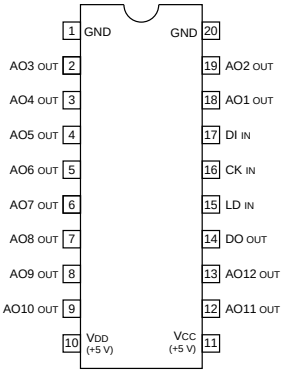


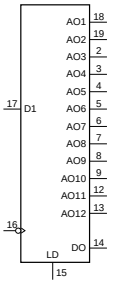
R1, 2 ; RECEIVER 1, 2
T1, 2 ; TRANSMITTER 1, 2



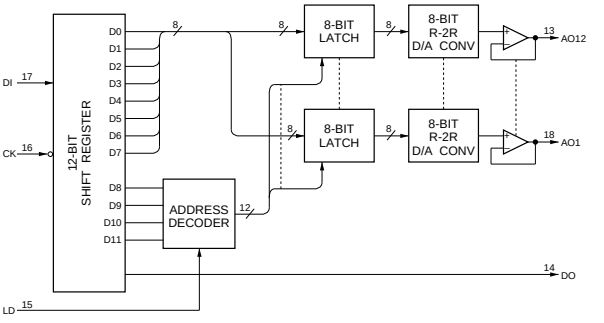
MB88346BPFV(FUJITSU)FLAT PACKAGE(SMALL)

C-MOS 8-BIT D/A CONVERTER
— TOP VIEW —



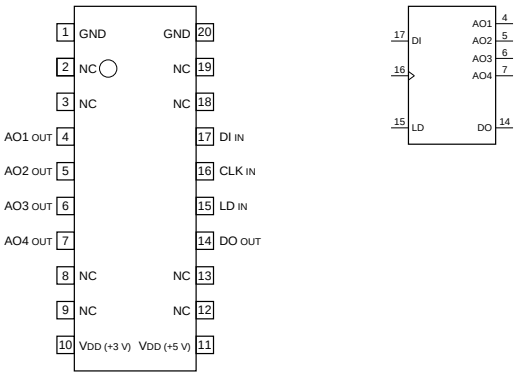


AO1 - AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT
LD	; DATA LOAD CONTROL INPUT (H ; LOAD)



MB88351PFV(FUJITSU)FLAT PACKAGE

C-MOS 12-BIT D/A CONVERTER WITH OPERATIONAL AMPLIFIER
— TOP VIEW —

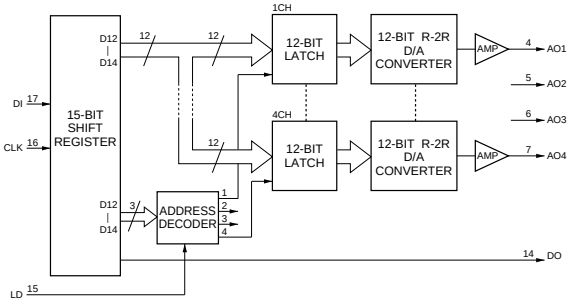


INPUT
CLK ; SHIFT CLOCK
DI ; SERIAL DATA
LD ; DECODER AND D/A REGISTER TO LOAD

OUTPUT
AO1-AO4 ; ANALOG DATA
DO ; MBS BIT DATA IN 15-BIT SHIFT REGISTER

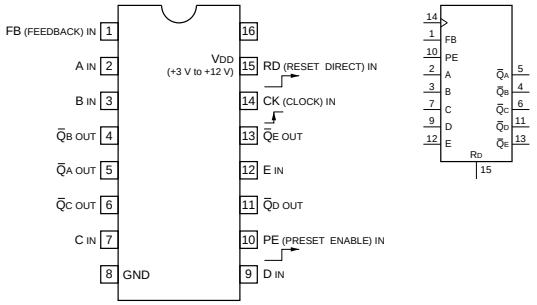
D12	D13	D14	ADDRESS SELECT
0	0	0	DON'T CARE
0	0	1	AO1 SELECT
0	1	0	AO2 SELECT
0	1	1	AO3 SELECT
1	0	0	AO4 SELECT
1	0	1	DON'T CARE
1	1	0	DON'T CARE
1	1	1	DON'T CARE

0 ; LOW LEVEL
1 ; HIGH LEVEL



MC14018BF(MOTOROL)FLAT PACKAGE

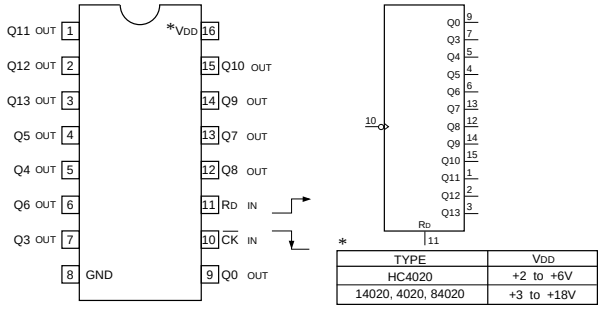
C-MOS PRESETTABLE DIVIDE-BY-N COUNTER
— TOP VIEW —



DIVIDE BY	CONNECT TO FB INPUT	VIA	RESULTS FROM EACH $\overline{Q}$ OUTPUT
10	$\overline{Q}_E$	DIRECT	5 COUNTS HIGH, 5 COUNTS LOW
9	$\overline{Q}_D$, $\overline{Q}_E$	AND GATE	5 COUNTS HIGH, 4 COUNTS LOW
8	$\overline{Q}_D$	DIRECT	4 COUNTS HIGH, 4 COUNTS LOW
7	$\overline{Q}_C$, $\overline{Q}_D$	AND GATE	4 COUNTS HIGH, 3 COUNTS LOW
6	$\overline{Q}_C$	DIRECT	3 COUNTS HIGH, 3 COUNTS LOW
5	$\overline{Q}_B$, $\overline{Q}_C$	AND GATE	3 COUNTS HIGH, 2 COUNTS LOW
4	$\overline{Q}_B$	DIRECT	2 COUNTS HIGH, 2 COUNTS LOW
3	$\overline{Q}_A$, $\overline{Q}_B$	AND GATE	2 COUNTS HIGH, 1 COUNTS LOW
2	$\overline{Q}_A$	DIRECT	1 COUNTS HIGH, 1 COUNTS LOW

MC14020BF(MOTOROLA)FLAT PACKAGE

C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER
—TOP VIEW—



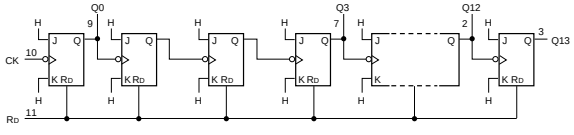
TYPE	VDD
HC4020	+2 to +6V
14020, 4020, 84020	+3 to +18V

COUNT		BINARY OUTPUTS											
		Q13	Q12	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q0
0	0000	0	0	0	0	0	0	0	0	0	0	0	0
1	0001	0	0	0	0	0	0	0	0	0	0	0	1
2	0002	0	0	0	0	0	0	0	0	0	0	0	0
3	0003	0	0	0	0	0	0	0	0	0	0	0	1
4	0004	0	0	0	0	0	0	0	0	0	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
16380	4FFC	1	1	1	1	1	1	1	1	1	1	1	0
16381	4FFD	1	1	1	1	1	1	1	1	1	1	1	1
16382	4FFE	1	1	1	1	1	1	1	1	1	1	1	0
16383	4FFF	1	1	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

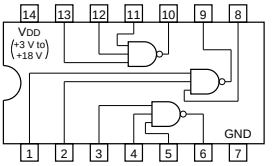
0 ; LOW LEVEL
1 ; HIGH LEVEL

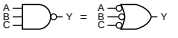
RD	Q13-Q0
1	ALL LOW
0	COUNT



MC14023BF(MOTOROLA)FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
— TOP VIEW —





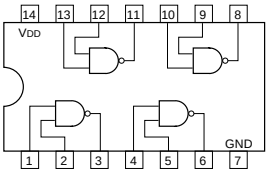
$Y = \overline{A \cdot B \cdot C} = \overline{A} + \overline{B} + \overline{C}$

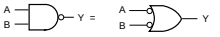
A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC74HC00AF(MOTOROLA)FLAT PACKAGE
TC74HC00AF(TOSHIBA)FLAT PACKAGE
TC74VHC00FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT NAND GATES
—TOP VIEW—





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

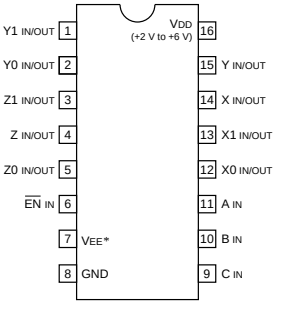
0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE:

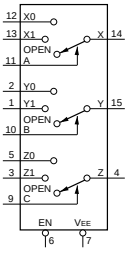
TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

MC74HC4053F(MOTOROLA)FLAT PACKAGE
TC74HC4053AFS(TOSHIBA)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



VEE*; VDD – VEE = +3 V to +12 V
VEE ≦ GND

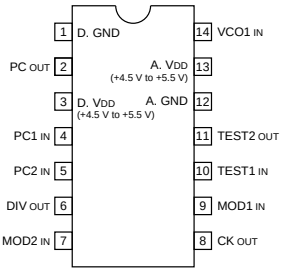


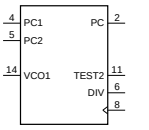
CONTROL INPUTS				ON CHANNEL		
EN	SELECT					
	C	B	A			
0	0	0	0	Z0	Y0	X0
0	0	0	1	Z0	Y0	X1
0	0	1	0	Z0	Y1	X0
0	0	1	1	Z0	Y1	X1
0	1	0	0	Z1	Y0	X0
0	1	0	1	Z1	Y0	X1
0	1	1	0	Z1	Y1	X0
0	1	1	1	Z1	Y1	X1
1	X	X	X	OPEN		

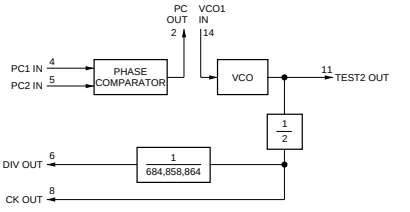
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MN6790S(MATSUSHITA)

C-MOS CLOCK GENERATOR
— TOP VIEW —







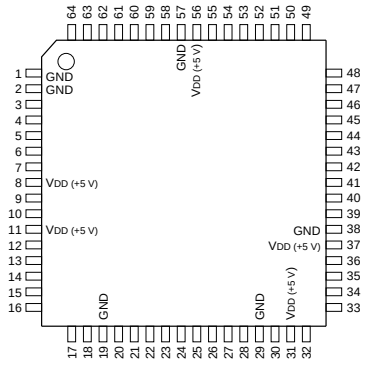
MOD1	MOD2	FREQUENCY RATIO	VCO	MOTE
0	0	1/684	OSCILLATION	——
1	0	1/858		
0	1	1/864		
1	1	——	STANDSTILL	CK = DIV = L

0 ; LOW LEVEL
1 ; HIGH LEVEL

MN8232A(MATSUSHITA)

PICTURE IN PICTURE/PICTURE OUT PICTURE CONTROLLER

— TOP VIEW —

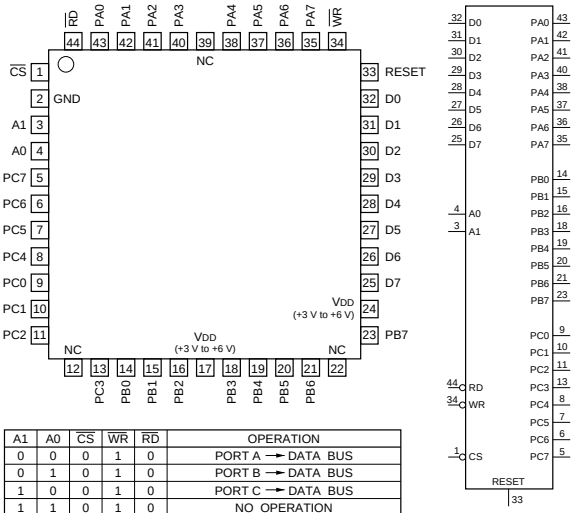


PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	GND	17	O	RY	33	O	YS	49	O	RAS
2	—	GND	18	O	BY	34	I	HP	50	O	WE
3	—	VRB	19	—	GND	35	O	PPC	51	O	DT
4	I	TEST0	20	I	RST	36	I	PVC	52	O	SC
5	I	Y	21	I	SCL	37	—	VDD	53	I	LEV1
6	I	RY	22	O	SDA	38	—	GND	54	I	LEV0
7	I	BY	23	I	VPD	39	O	A0	55	I	DI3
8	—	VDD	24	I	VCD	40	O	A1	56	—	VDD
9	—	VRT	25	I	CKCNT	41	O	A2	57	—	GND
10	I	TEST1	26	I	CVC	42	O	A3	58	I	DI2
11	—	VDD	27	O	CPC	43	O	A4	59	I	DI1
12	I	IREF	28	I	HC	44	O	A5	60	I	DI0
13	I	VREF	29	—	GND	45	O	A6	61	I/O	DO3
14	O	Y	30	I	IREFVC	46	O	A7	62	I/O	DO2
15	I	COMP	31	—	VDD	47	O	A8	63	I/O	DO1
16	I	VIB	32	O	CLAMP	48	O	CAS	64	I/O	DO0

MSM82C55A-2GS(OKI)FLAT PACKAGE

C-MOS PROGRAMMABLE PERIPHERAL INTERFACE

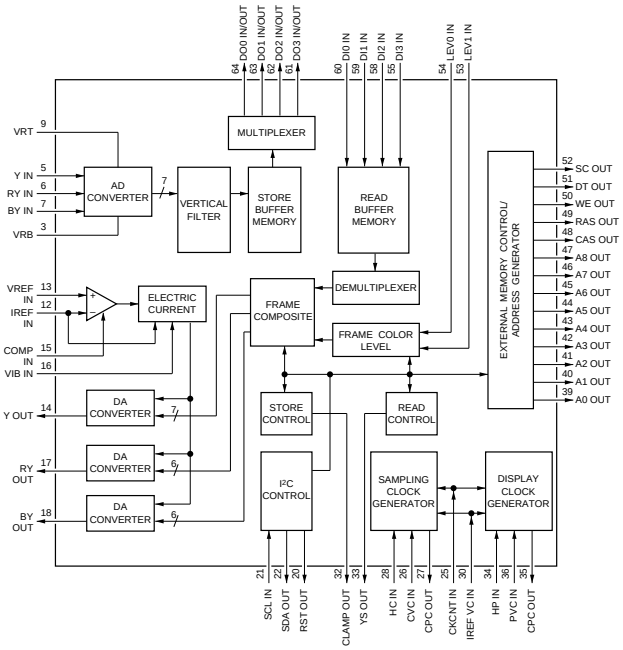
— TOP VIEW —

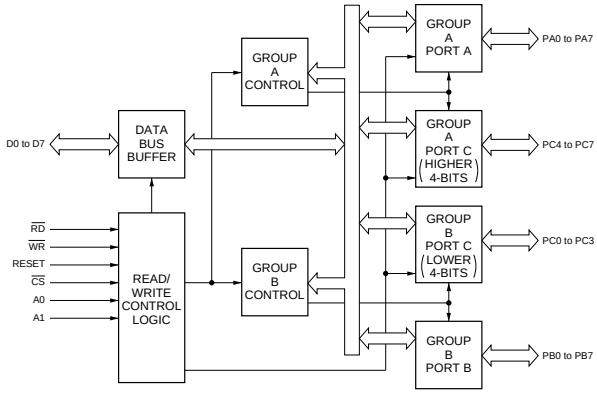


A1	A0	$\overline{CS}$	$\overline{WR}$	$\overline{RD}$	OPERATION
0	0	0	1	0	PORT A → DATA BUS
0	1	0	1	0	PORT B → DATA BUS
1	0	0	1	0	PORT C → DATA BUS
1	1	0	1	0	NO OPERATION
0	0	0	0	1	DATA BUS → PORT A
0	1	0	0	1	DATA BUS → PORT B
1	0	0	0	1	DATA BUS → PORT C
1	1	0	0	1	DATA BUS → CONTROL REGISTER
X	X	1	X	X	HIGH IMPEDANCE

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

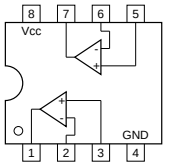
A0, A1 ; PORT SELECT ADDRESS
$\overline{CS}$; CHIP SELECT
D0 to 7 ; DATA BUS
PA0 to 7 ; PORT A IN/OUT
PB0 to 7 ; PORT B IN/OUT
PC0 to 7 ; PORT C IN/OUT
$\overline{RD}$; READ
$\overline{WR}$; WRITE





NJM3414AM(SNM)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —

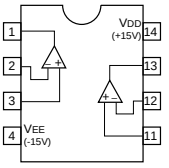


NOTE:

TYPE	Vcc
TA75358P	+12V
NJM3414M RC3414M	+15V
M5223FP	+36V

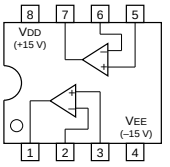
NJM4556AM-A(NEC)FLAT PACKAGE

OPERATIONAL AMPLIFIER
(WIDE BAND, DECOMPENSATED)
—TOP VIEW—



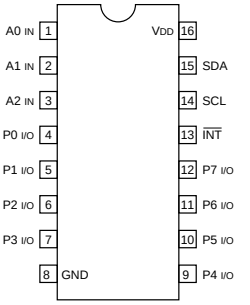
NJM4558V(JRC)FLAT PACKAGE
NJU7022M(JRC)FLAT PACKAGE

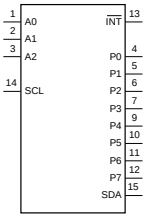
DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —



PCF8574AT(PHILIPS)
PCF8574T(PHILIPS)

C-MOS REMOTE 8-BIT I/O EXPANDER
— TOP VIEW —

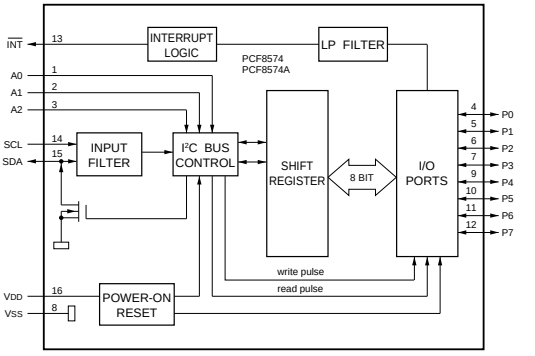




INPUT
A0 - A2 ; ADDRESS INPUTS
SCL ; SYSTEM CLOCK LINE

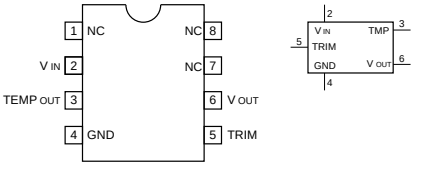
OUTPUT
$\overline{INT}$; INTERRUPT OUTPUT
SDA ; SERIAL DATA LINE

INPUT/OUTPUT
P0 - P7 ; 8-BITS QUASI-BIDIRECTIONAL I/O PORT



REF-03GS(PMI)

REFERENCE/TEMPERATURE TRANSDUCER
— TOP VIEW —

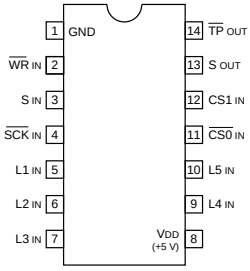


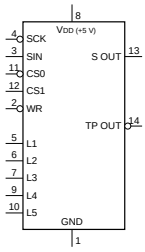
V IN ; INPUT VOLTAGE (+4.5 V to +33 V)
TEMP OUT ; TEMPERATURE TRANSDUCER VOLTAGE OUTPUT
TRIM IN ; OUTPUT SIGNAL TRIMMING
V OUT ; OUTPUT VOLTAGE (+2.5 V)

RTC4553B(EPSON)

C-MOS REAL TIME CLOCK

— TOP VIEW —



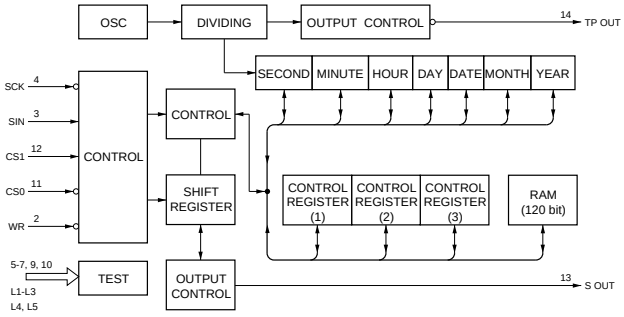


INPUT

$\overline{CS0}$	; CHIP SELECT (L: ACCESS ENABLE, H: SOUT HIGH Z)
CS1	; POWER DOWN DETECTION
L1-L5	; TEST IN
$\overline{SCK}$	; SERIAL SYNC SIGNAL
SIN	; SERIAL ADDRESS/DATA
$\overline{WR}$	; WRITING SELECT (L: WRITING, H: READING)

OUTPUT

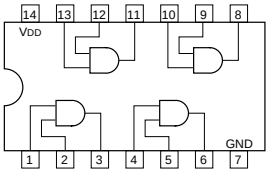
SOUT	; SERIAL ADDRESS/DATA
$\overline{TPOUT}$	; REFERENCE SIGNAL

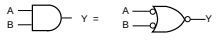


SN74HC08ANS(TI)FLAT PACKAGE
SN74HC08APW(TI)FLAT PACKAGE
TC74VHC08FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT AND GATES

—TOP VIEW—





$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

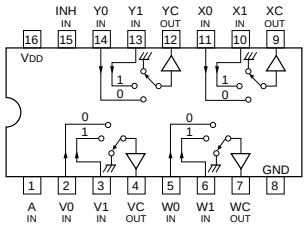
NOTE:

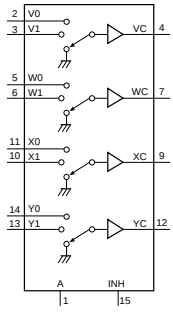
TYPE	VDD
TC74AC08 TYPE MC74ACT08M	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

SN74HC157APW(TI)FLAT PACKAGE
TC74VHC157FS(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/ DEMULTIPLEXER

—TOP VIEW—





NOTE:

TYPE	VDD
74ACT/74FCT	+5V
TC74AC157P TC74AC157	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

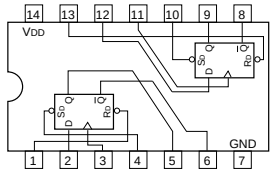
CONT.IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC74ANS(TI)FLAT PACKAGE
TC74VHC74F(TOSHIBA)FLAT PACKAGE
TC74VHC74FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

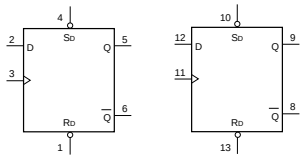
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET

—TOP VIEW—



INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



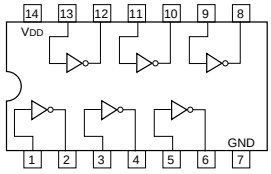
NOTE:

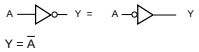
TYPE	VDD
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

SN74HCT04APW(TOSHIBA)FLAT PACKAGE
TC74VHC04FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

A	Y
0	1
1	0

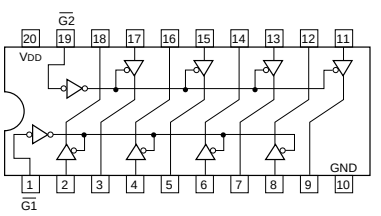
0 ; LOW LEVEL
1 ; HIGH LEVEL

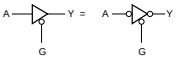
NOTE:

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HCT244APW-E05(TI)FLAT PACKAGE
TC74VHC244FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

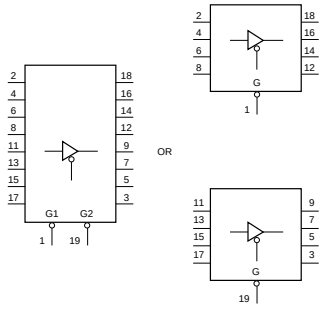
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
—TOP VIEW—





G	A	Y
0	0	0
0	1	1
X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

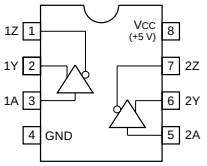


NOTE:

TYPE	VDD
AC HC 40H	+2 to +6V
ACT BCT FCT HCT	+5V
TC74AC244 TYPE TC74VHC244	+2 to +5.5V

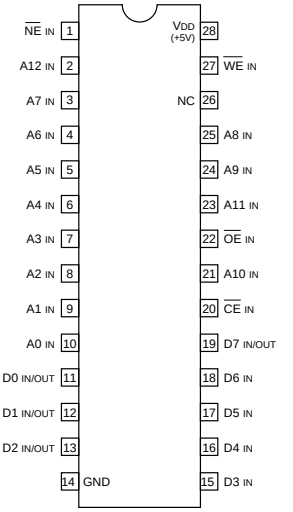
SN75158PS(TI)

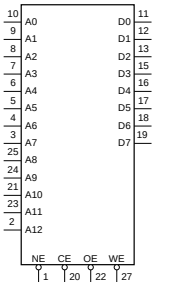
DUAL DIFFERENTIAL LINE DRIVE
— TOP VIEW —



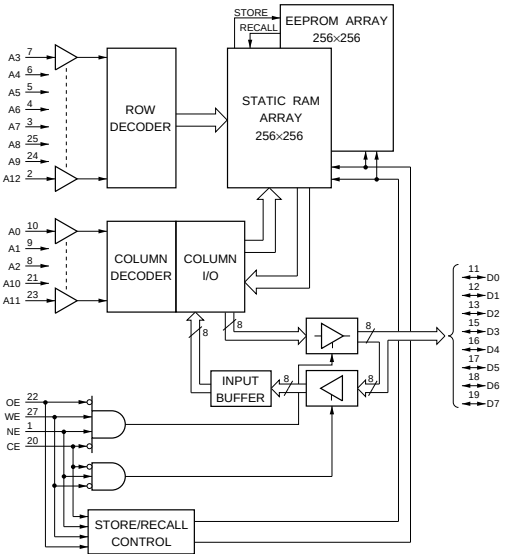
STK10C68-5S35(SIMTEK)FLAT PACKAGE

C-MOS 8K×8-BIT NONVOLATILE STATIC RAM
— TOP VIEW —



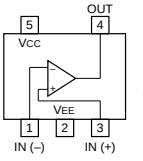


A0 - A12 ; ADDRESS INPUTS
$\overline{CE}$; CHIP ENABLE INPUT
D0 - D7 ; DATA INPUTS/OUTPUTS
$\overline{NE}$; NONVOLATILE ENABLE INPUT
$\overline{OE}$; OUTPUT ENABLE INPUT
$\overline{WE}$; WRITE ENABLE INPUT



TA75S393F(TOSHIBA)

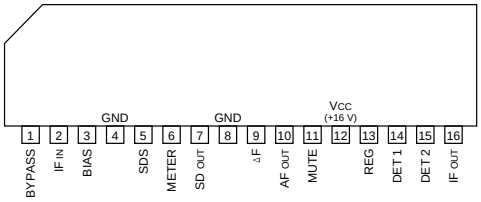
SINGLE COMPARATOR
— TOP VIEW —

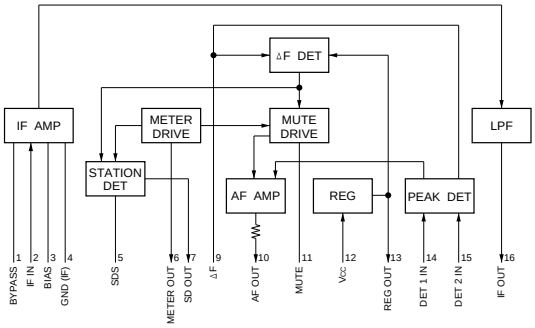


VCC ; +1 V to +18 V or +2 V to +36 V
VEE ; –1 V to –18 V

TA8129Z(TOSHIBA)

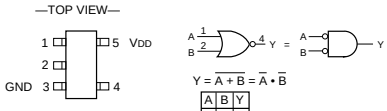
FM IF SYSTEM (DIFFERENTIAL PEAK DETECT)
— SIDE VIEW —





TC4S01F(TOSHIBA)CHIP PACKAGE
TC7S02FU(TOSHIBA)CHIP PACKAGE
TC7SH02FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NOR GATE



$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

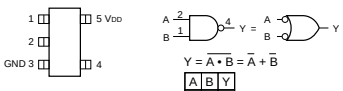
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
4S01F	+3 to +18V
7S02F 7S02FU 7SH02FU	+2 to +6V

TC4S11F(TOSHIBA)CHIP PACKAGE
TC7S00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
— TOP VIEW —



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

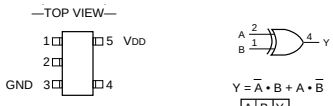
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S00F 7S00FU	+2 to +6 V
4S11F 4SU11F	+3 to +18 V
7SH00FU	+2 to +5.5 V

TC4S30F(TOSHIBA)CHIP PACKAGE
TC7S86FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT EXCLUSIVE OR GATE



$Y = \overline{A} \cdot B + A \cdot \overline{B}$

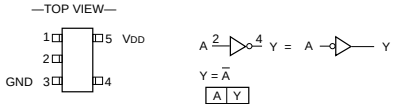
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S86FU 7S86F	+2 to +6V
4S30F	+3 to +18V

TC4S69F(TOSHIBA)CHIP PACKAGE
TC4SU69F(TOSHIBA)CHIP PACKAGE
TC7S04FU(TOSHIBA)CHIP PACKAGE
TC7SH04FU(TOSHIBA)CHIP PACKAGE

C-MOS INVERTER



$Y = \overline{A}$

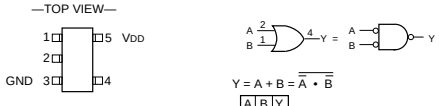
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S04F 7SU04F 7SU04FU	+2 to +6V
4S69F 4SU69F	+3 to +18V
7SH04FU	+2 to +5.5V

TC4S71F(TOSHIBA)CHIP PACKAGE
TC7S32FU(TOSHIBA)CHIP PACKAGE
TC7SH32FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT OR GATE



$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

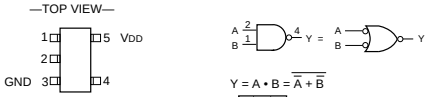
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S32F 7S32FU	+2 to +6V
4S71F	+3 to +18V
7SH32FU	−2 to +5.5V

TC4S81F(TOSHIBA)CHIP PACKAGE
TC7S08FU(TOSHIBA)CHIP PACKAGE
TC7SH08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE



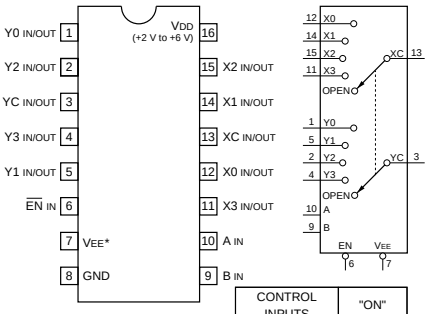
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S08F 7S08FU	+2 to +6V
4S81F 14S81F	+3 to +18V
7SH08FU	–2 to +5.5V

TC74HC4052AFS(EL)(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



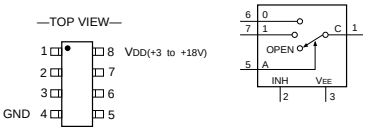
VEE* ; VDD – VEE = +3 V to +12 V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC4W53FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER

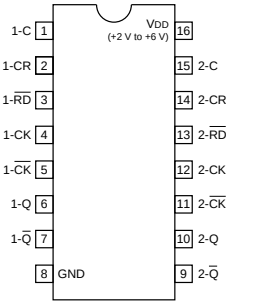


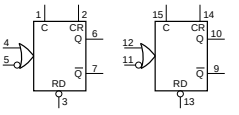
CONT.INPUT		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	OPEN

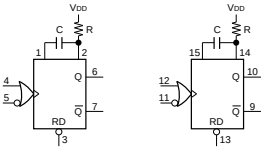
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC74HC4538AFS(TOSHIBA)FLAT PACKAGE

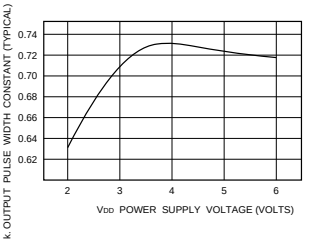
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



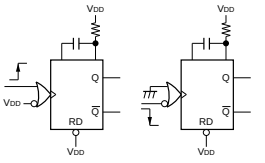




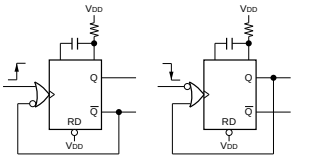
OUTPUT PULSE WIDTH = k · C · R



RETRIGGERABLE M. M. V

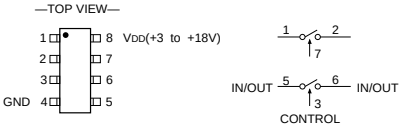


NON-RETRIGGERABLE M. M. V



TC4W66FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL BILATERAL SWITCH

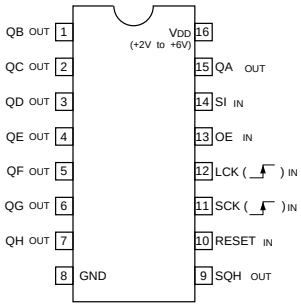


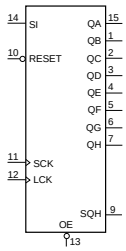
CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

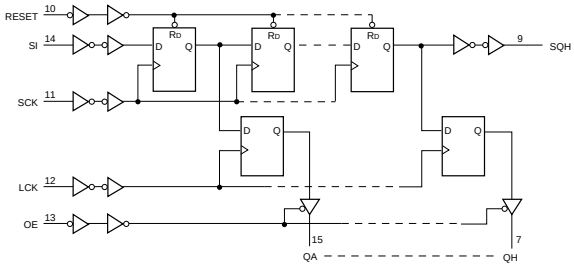
TC74HC595AF(TOSHIBA)FLAT PACKAGE

C-MOS 8-BIT SERIAL-INPUT/SERIAL- OR PARALLEL-OUTPUT
SHIFT REGISTER WITH LATCHED 3-STATE OUTPUT
—TOP VIEW—



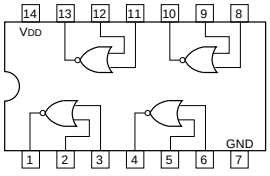


OE ; OUTPUT ENABLE INPUT
LCK ; LATCH CLOCK INPUT
SCK ; SHIFT CLOCK INPUT
RESET ; SHIFT-REGISTER RESET INPUT
SI ; SERIAL IN
QA-QH ; PARALLEL OUTPUT
SQH ; SERIAL OUT



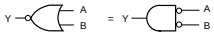
TC74VHC02F(TOSHIBA)FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES
—TOP VIEW—



NOTE:

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V



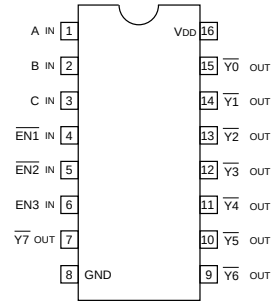
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

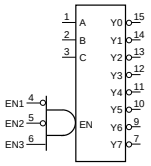
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74VHC138FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—





NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

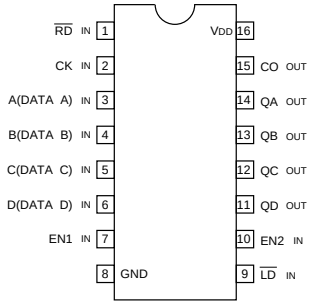
INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

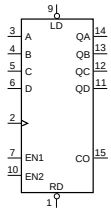
TC74VHC163F(TOSHIBA)FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
—TOP VIEW—



NOTE:

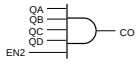
TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"



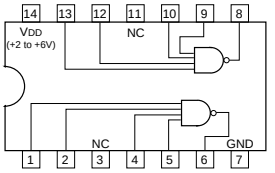
CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

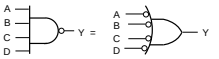
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

TC74VHC20F(TOSHIBA)FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
—TOP VIEW—





$Y = \overline{A \cdot B \cdot C \cdot D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
⋮	⋮	⋮	⋮	⋮
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

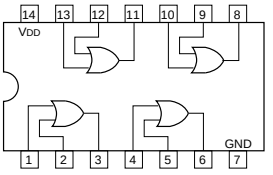
0 ; LOW LEVEL
1 ; HIGH LEVEL

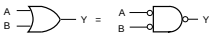
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC32FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

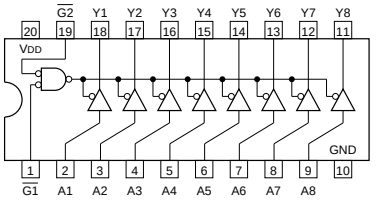
0 ; LOW LEVEL
1 ; HIGH LEVEL

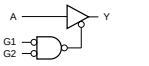
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC541FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

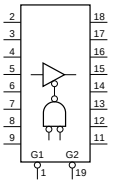
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
— TOP VIEW —





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

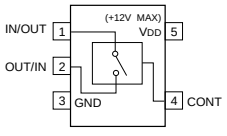


NOTE :

TYPE	VDD
AC/VHC	+2 V to +5.5 V
HC	+2 V to +6 V
ABT/ACT/BCT/HCT/VHCT	+5 V

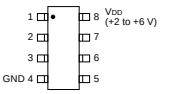
TC7S66FU(TOSHIBA)

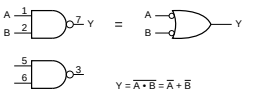
C-MOS ANALOG SWITCH
—TOP VIEW—



TC7W00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –





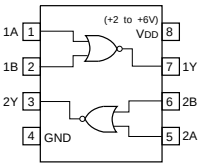
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

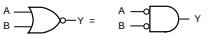
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC7W02F(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE
—TOP VIEW—





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

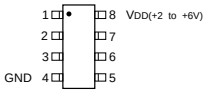
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

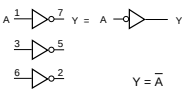
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W04FU(TOSHIBA)CHIP PACKAGE

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

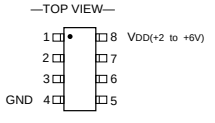
A	Y
0	1
1	0

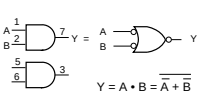
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE

—TOP VIEW—





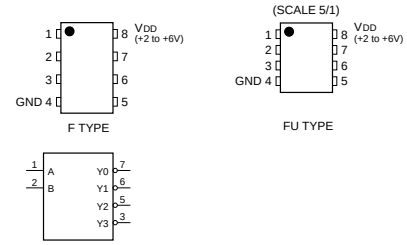
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W139FU(TOSHIBA)CHIP PACKAGE

C-MOS 2 to 4 LINE DECODER WITH ENABLE
—TOP VIEW —

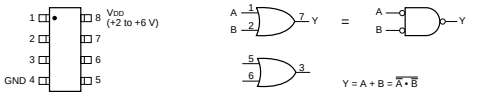


INPUTS		OUTPUTS				SELECTED OUTPUT
SELECT						
B	A	$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	
0	0	0	1	1	1	$\overline{Y0}$
0	1	1	0	1	1	$\overline{Y1}$
1	0	1	1	0	1	$\overline{Y2}$
1	1	1	1	1	0	$\overline{Y3}$

0 ; LOW LEVL
1 ; HIGH LEVEL

TC7W32FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL 2-INPUT OR GATE
—TOP VIEW—

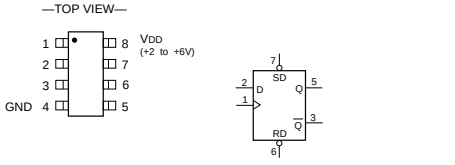


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC7W74FU(TOSHIBA)CHIP PACKAGE

C-MOS D-TYPE FLIP-FLOPS WITH DIRECT SET / RESET
—TOP VIEW—

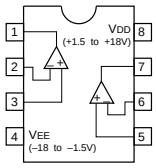


INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	↓	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

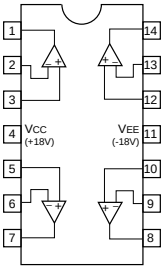
TL062CPW(TI)FLAT PACKAGE
TL082M(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



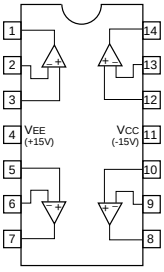
TL064CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



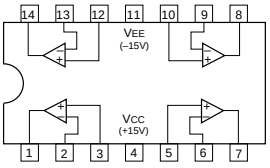
TL074CPW(TI)

OPERATIONAL AMPLIFIER
(LOW-NOISE, JFET-INPUT)
—TOP VIEW—



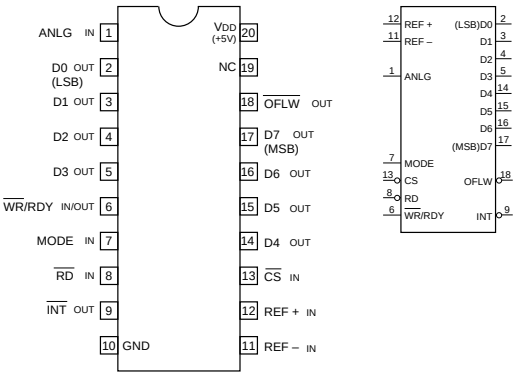
TL084CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



TLC0820ACDW(TI)FLAT PACKAGE

C-MOS 8-BIT SEMIFLASH TYPE A / D CONVERTER
—TOP VIEW—



INPUT

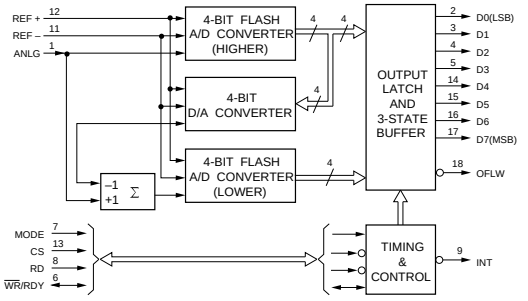
ANLG	;	ANALOG SIGNAL
$\overline{CS}$	;	CHIP SELECT
MODE	;	MODE
$\overline{RD}$	;	READ
REF+, REF–	;	REFERENCE VOLTAGE +, –

OUTPUT

D0-D7	;	DIGITAL SIGNAL
$\overline{INT}$	;	INTERRUPT
$\overline{OFLW}$	;	OVERFLOW

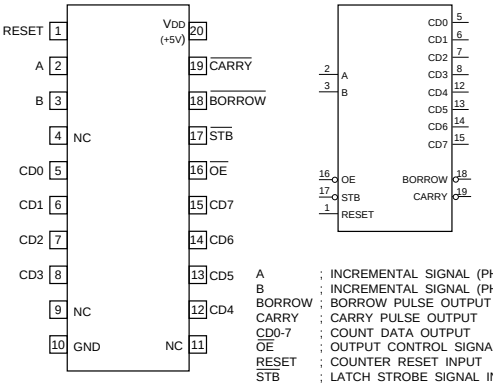
INPUT/OUTPUT

WR/RDY	;	L : WRITE/H : READY

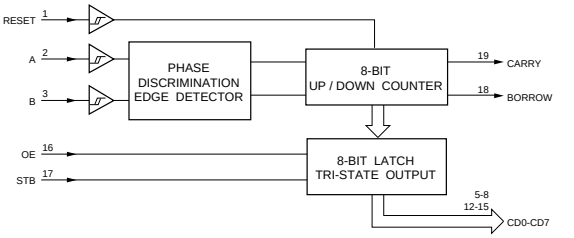


UPD4702G(NEC)

C-MOS INCREMENTAL ENCODER 8-BIT UP DOWN COUNTER
—TOP VIEW—

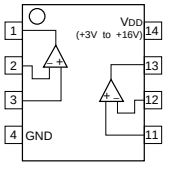


A	;	INCREMENTAL SIGNAL (PHASE A) INPUT
B	;	INCREMENTAL SIGNAL (PHASE B) INPUT
BORROW	;	BORROW PULSE OUTPUT
CARRY	;	CARRY PULSE OUTPUT
$\overline{CD}$0-7	;	COUNT DATA OUTPUT
$\overline{OE}$	;	OUTPUT CONTROL SIGNAL INPUT
$\overline{RESET}$	;	COUNTER RESET INPUT
$\overline{STB}$	;	LATCH STROBE SIGNAL INPUT



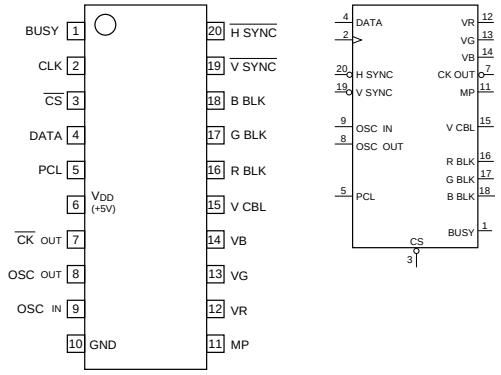
TLC272CP
TLC272CPW(TI)
TLC27L2CPS(TI)FLAT PACKAGE

OPERATIONAL AMPLIFIER
—TOP VIEW—



UPD6453GT-610(NEC)FLAT PACKAGE

C-MOS ON-SCREEN CHARACTER DISPLAY
—TOP VIEW—

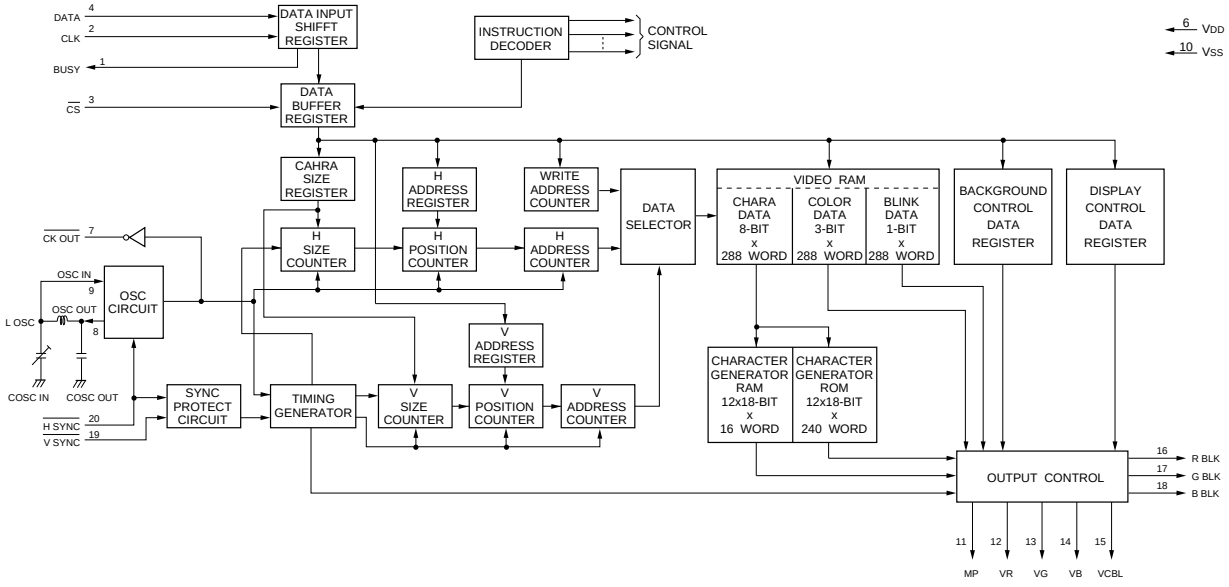


INPUT

CLK	;	CLOCK
$\overline{CS}$	;	CHIP SELECT
DATA	;	SERIAL DATA
$\overline{H\ SYNC}$	;	HORIZONTAL SYNC
OSC IN	;	OSCILLATOR IN
$\overline{PCL}$	;	POWER ON CLEAR
$\overline{V\ SYNC}$	;	VERTICAL SYNC

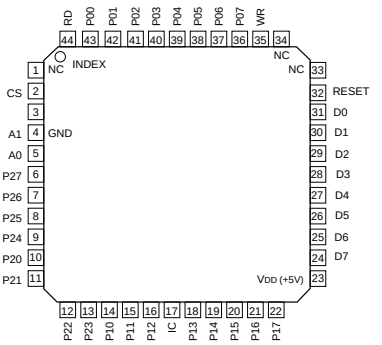
OUTPUT

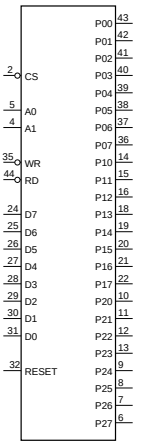
B_{BLK}, R_{BLK}, G_{BLK}	;	B, R, G, BLANKING
$\overline{BUSY}$	;	BUSY OUT
$\overline{CK\ OUT}$	;	CLOCK
MP	;	MASK PULSE
OSC OUT	;	OSCILLATOR OUT
V_R, V_G, V_B	;	R, G, B, CHARACTER DATA
V_{CBL}	;	VIDEO CUT BLANKING



UPD71055GB-10-3B4(NEC)FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
—TOP VIEW—



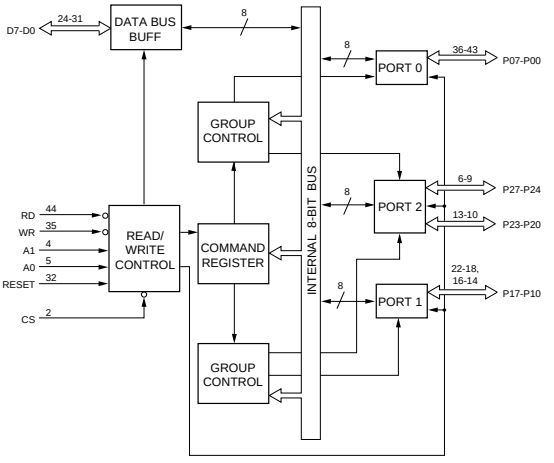


A1, A0	; ADDRESS	P17-P10	; PORT 1
CS	; CHIP SELECT	P27-P20	; PORT 2
D7-D0	; DATA BUS	RD	; READ STROBE
P07-P00	; PORT 0	WR	; WRITE STROBE

IC ; INTERNALLY CONNECTED

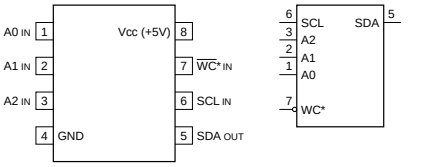
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PORT0→DATA • BUS	INPUT
0	0	1	0	1	PORT1→DATA • BUS	INPUT
0	0	1	1	0	PORT2→DATA • BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA • BUS→PORT0	OUTPUT
0	1	0	0	1	DATA • BUS→PORT1	OUTPUT
0	1	0	1	0	DATA • BUS→PORT2	OUTPUT
0	1	0	1	1	DATA • BUS→COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

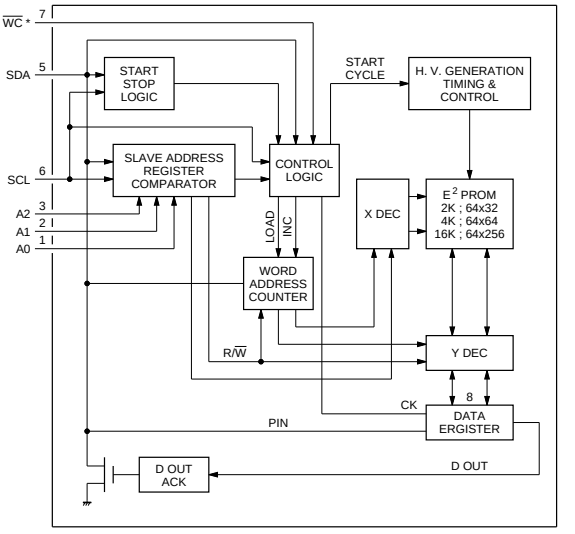
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



X24164SI(XICOR)(16K BIT)FLAT PACKAGE
X24C02S-3.0(XICOR)(2K BIT)FLAT PACKAGE

C-MOS SERIAL EEPROM
- TOP VIEW -



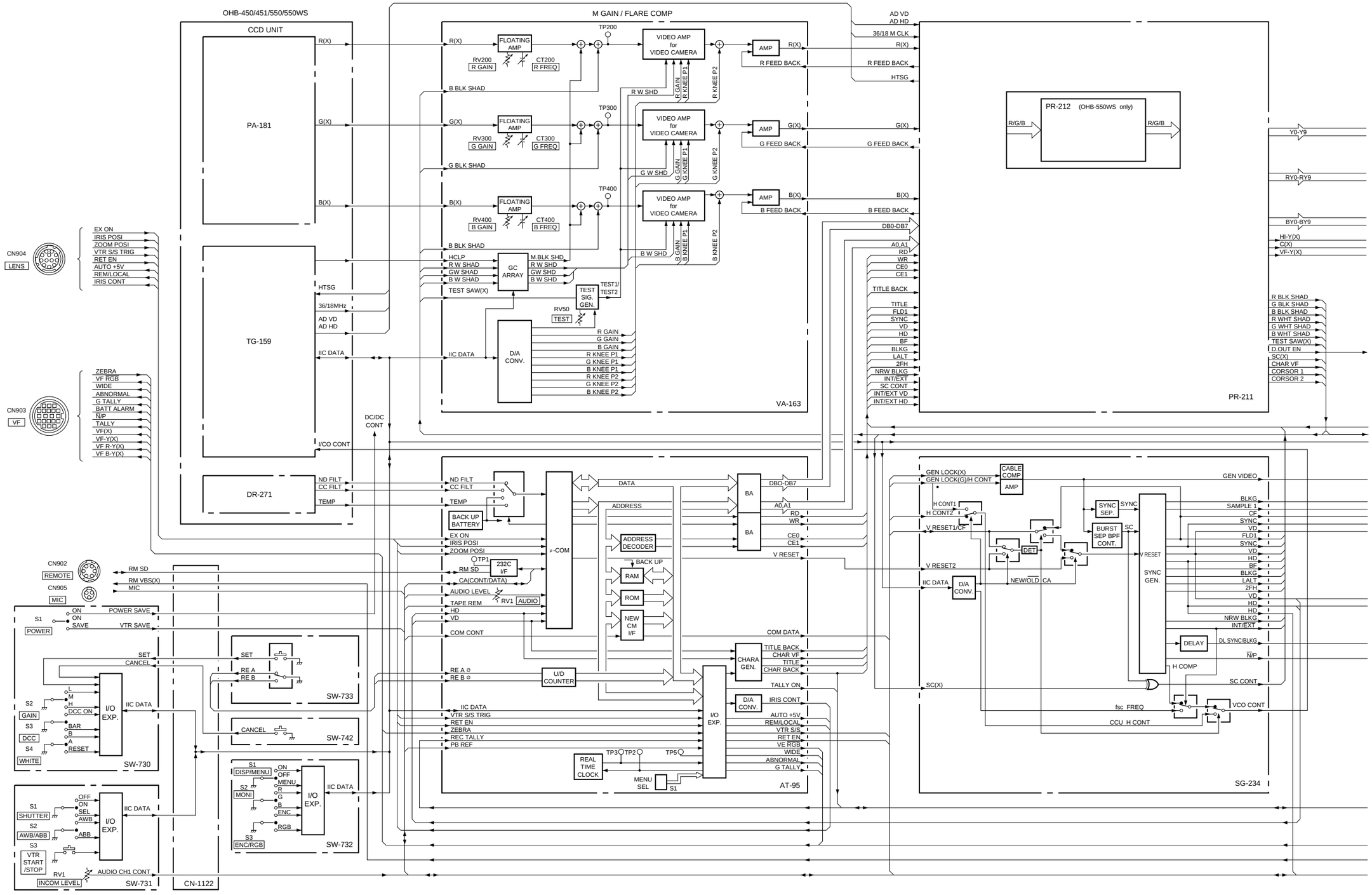


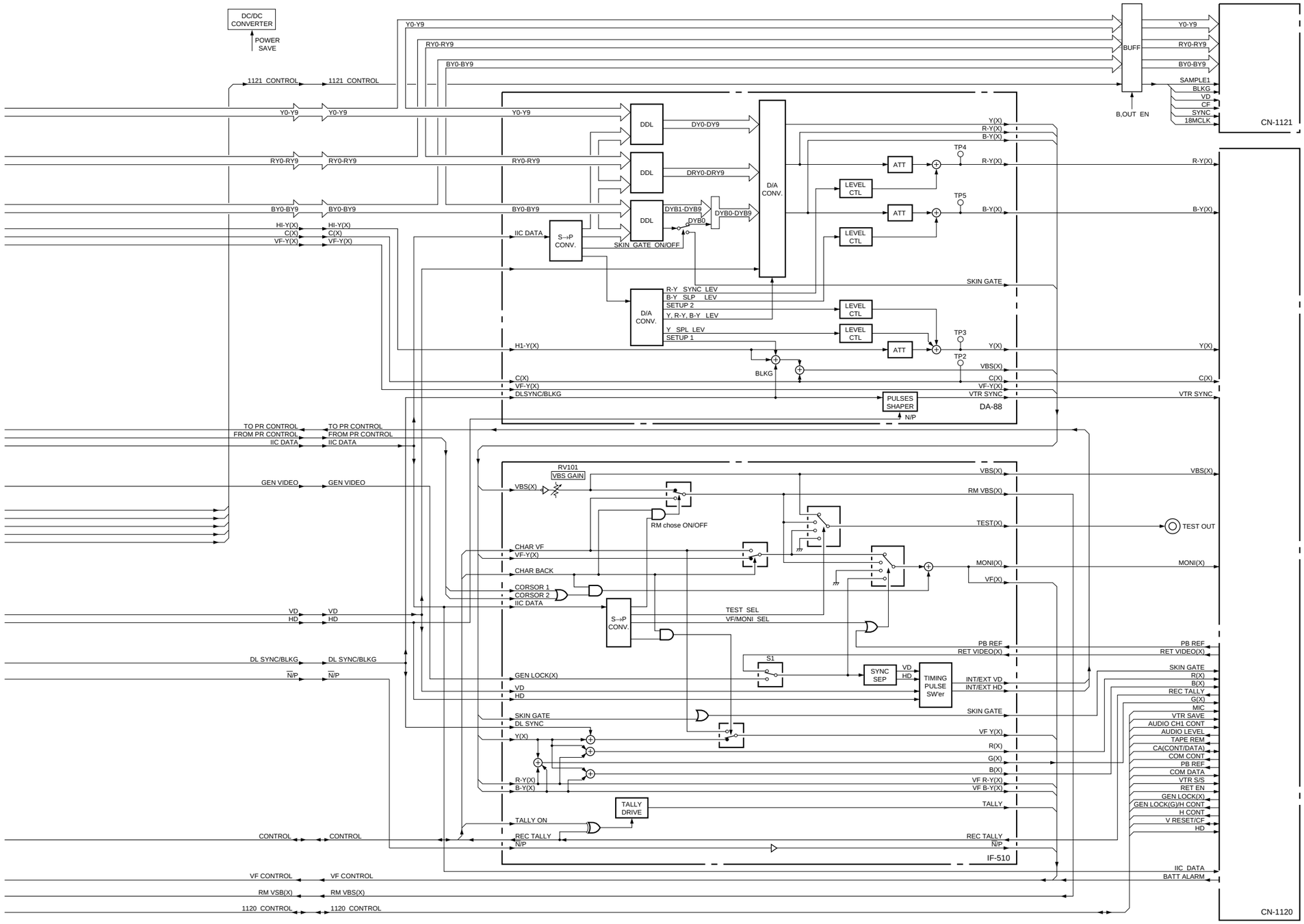
NOTE : * TEST (at X24164SIC7000)

Section 7
Block Diagrams

7-1

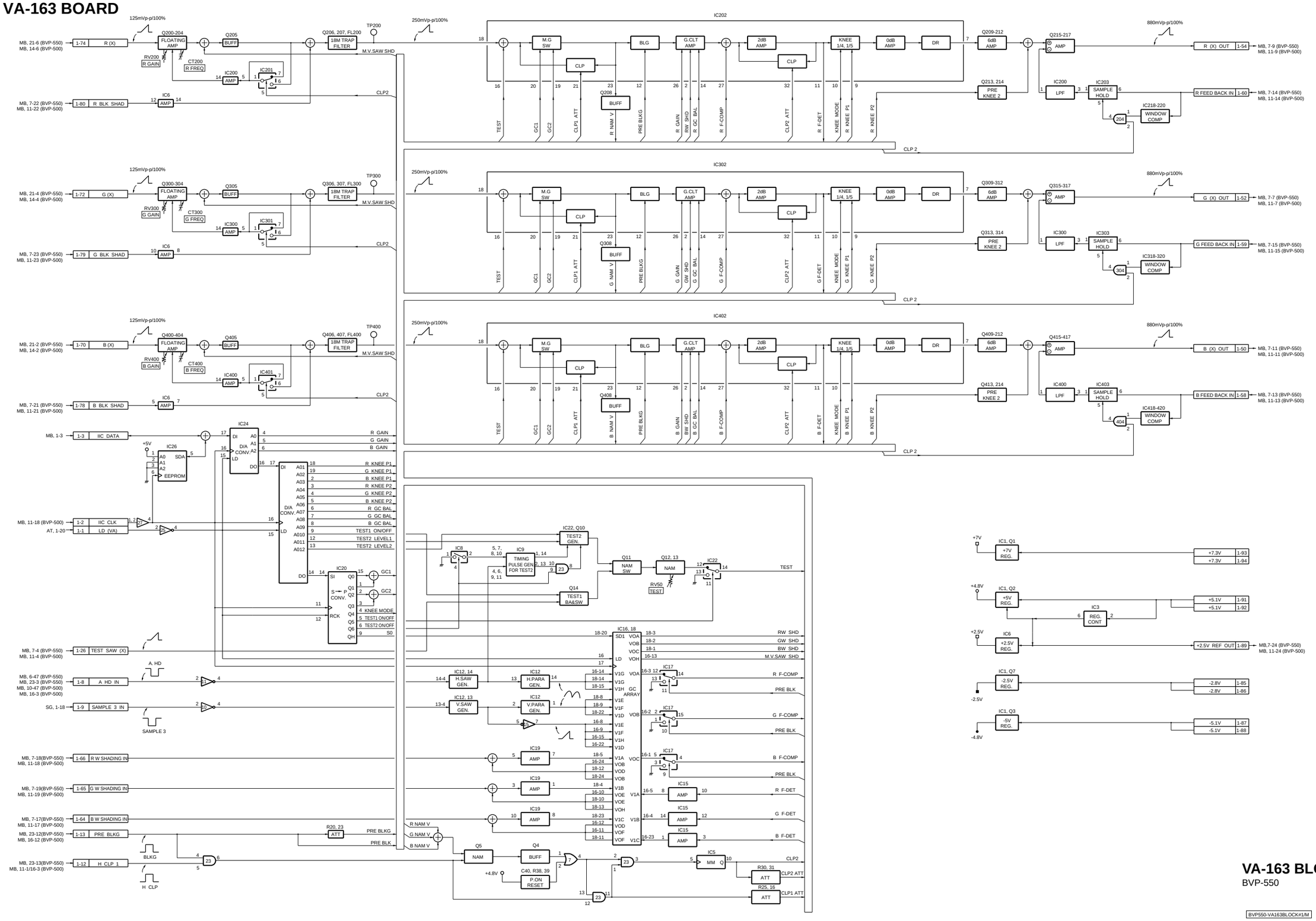
OVERALL BLOCK





OVERALL BLOCK
BVP-550

VA-163 BOARD

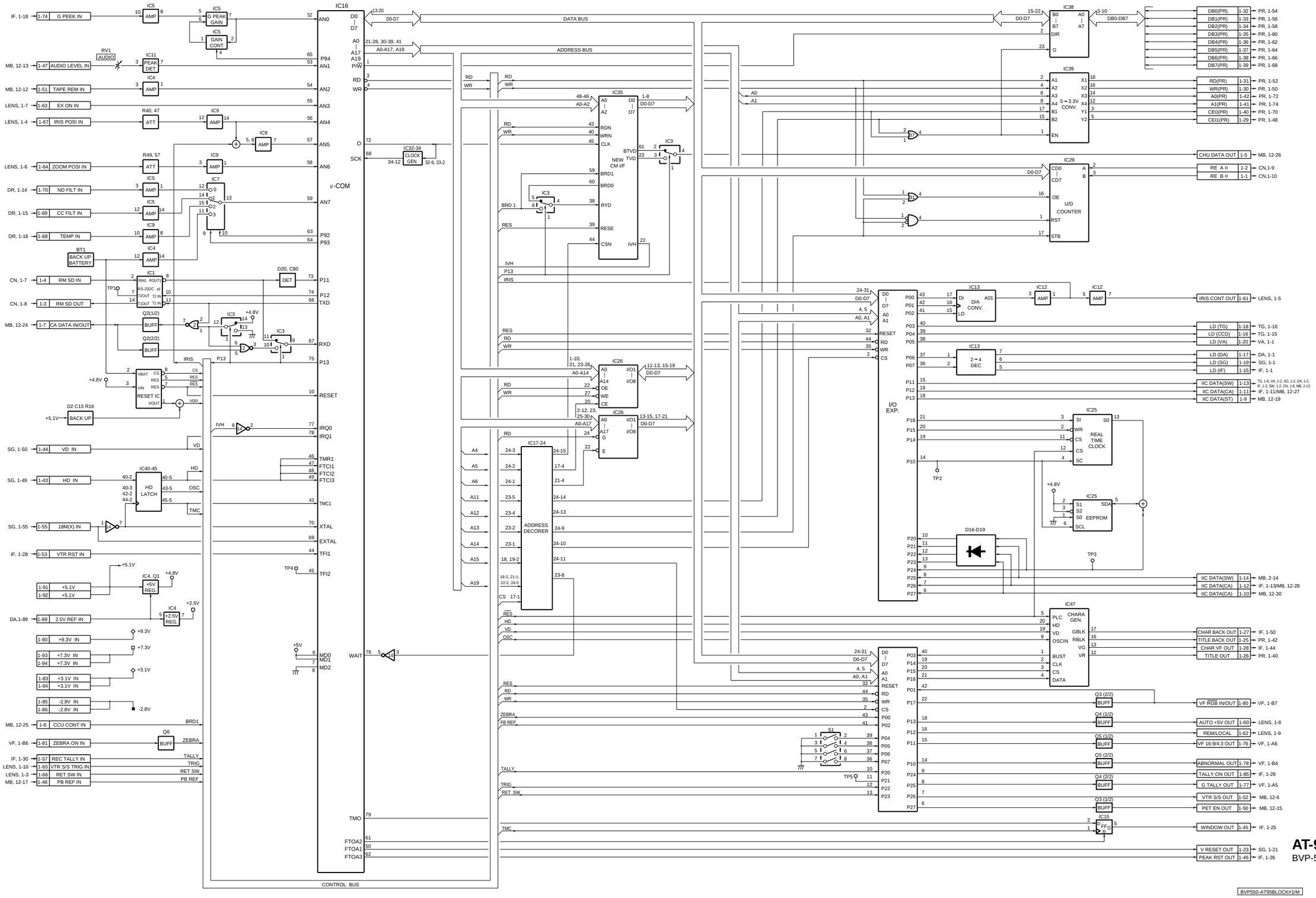


VA-163 BLOCK

BVP-550

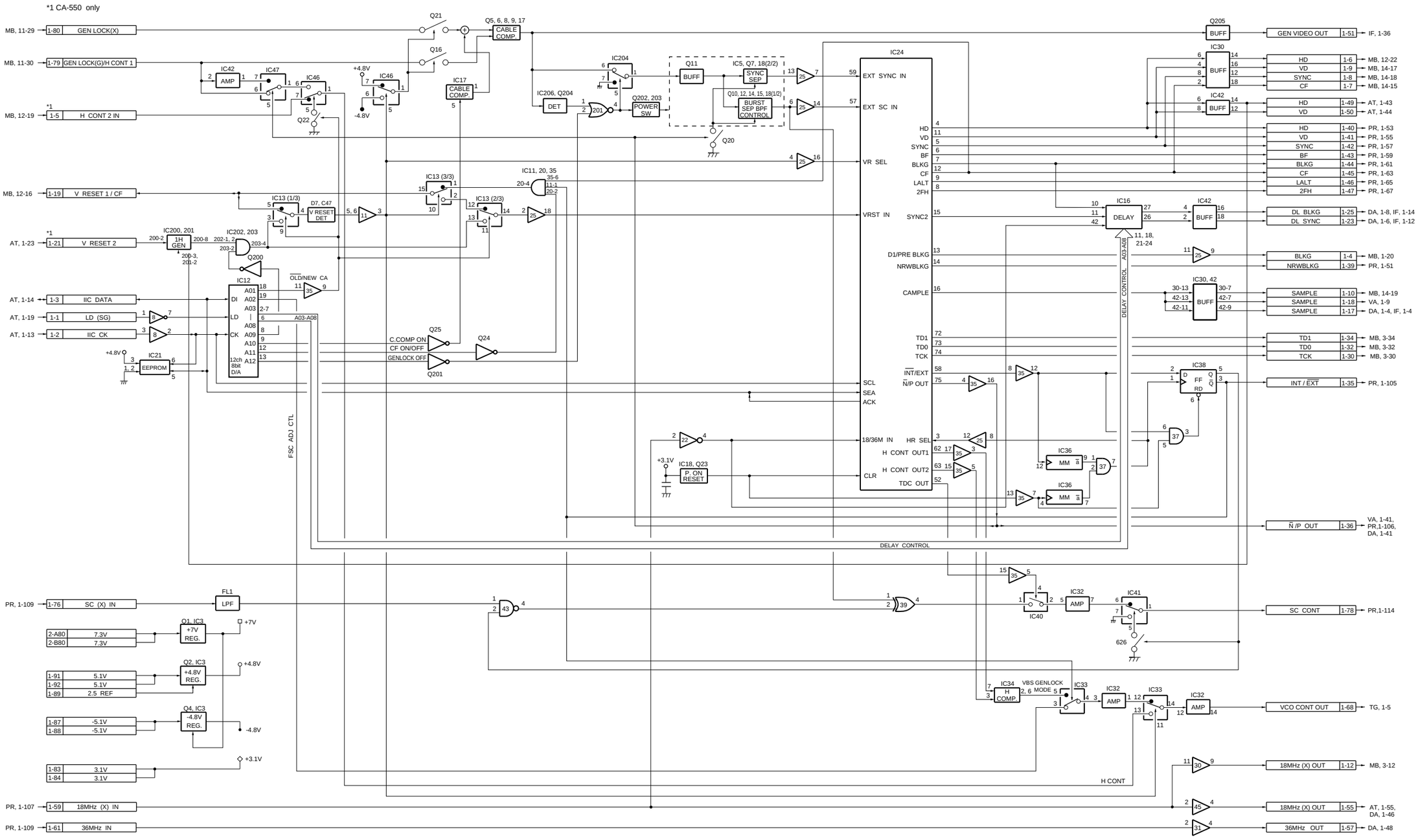
BVP550-VA163BLOCK#1/M

AT-95 BOARD



AT-95 BLOCK
BVP-550

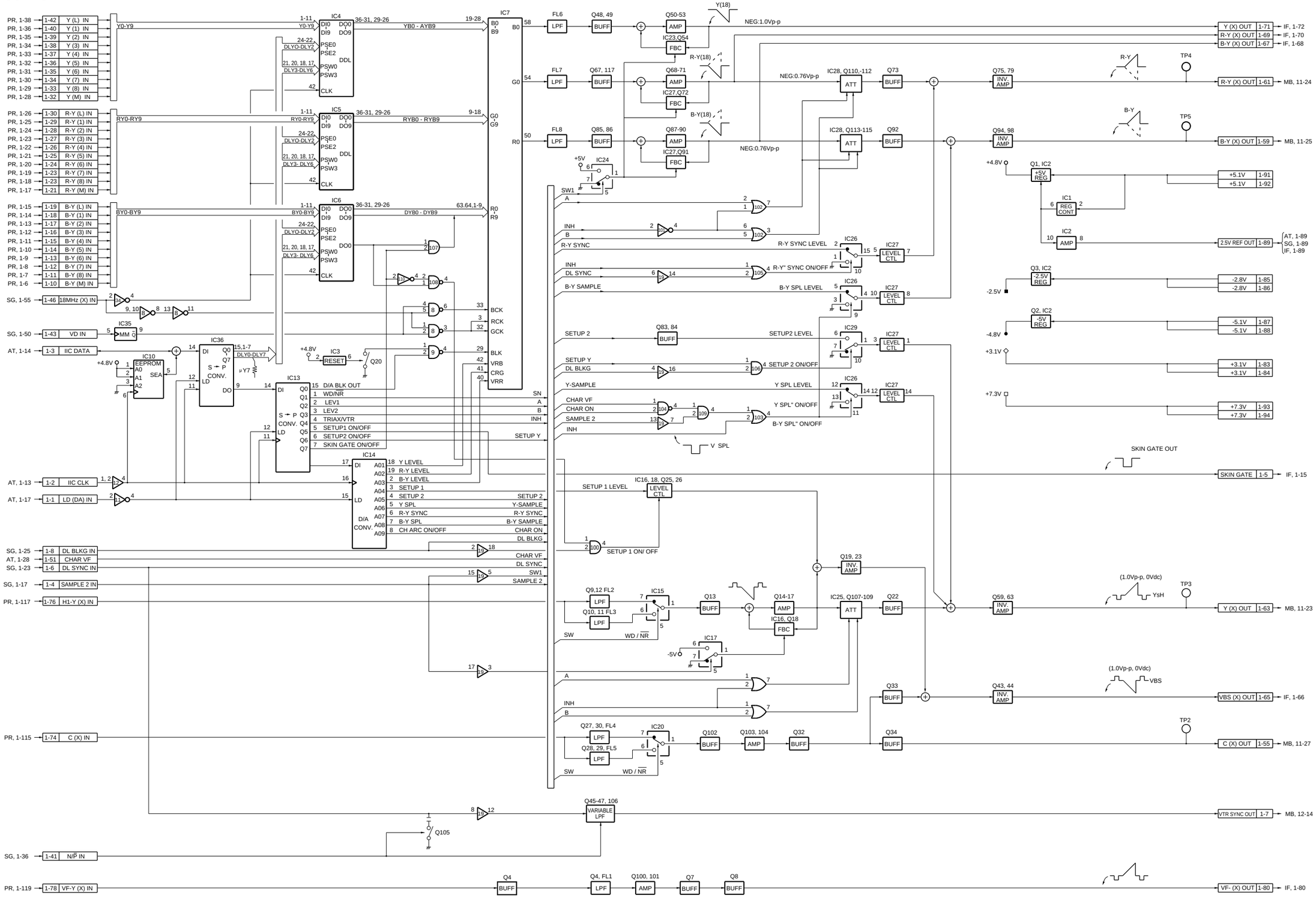
SG-234 BOARD



SG-234 BLOCK
BVP-550

BVP550-SG234BLOCK#1/M

DA-88 BOARD

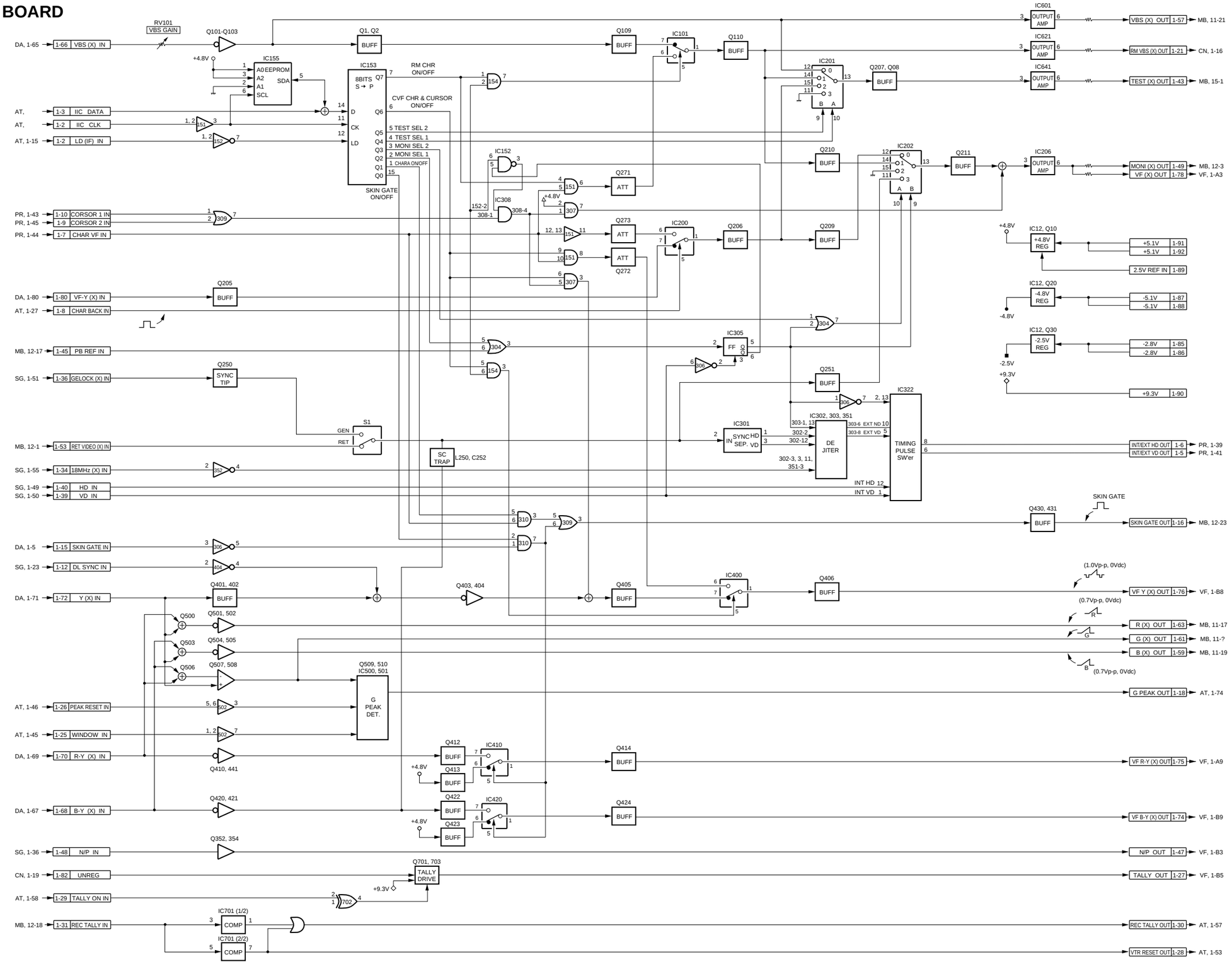


DA-88 BLOCK

BVP-550

BVP550-DA88BLOCK#1/M

IF-510 BOARD

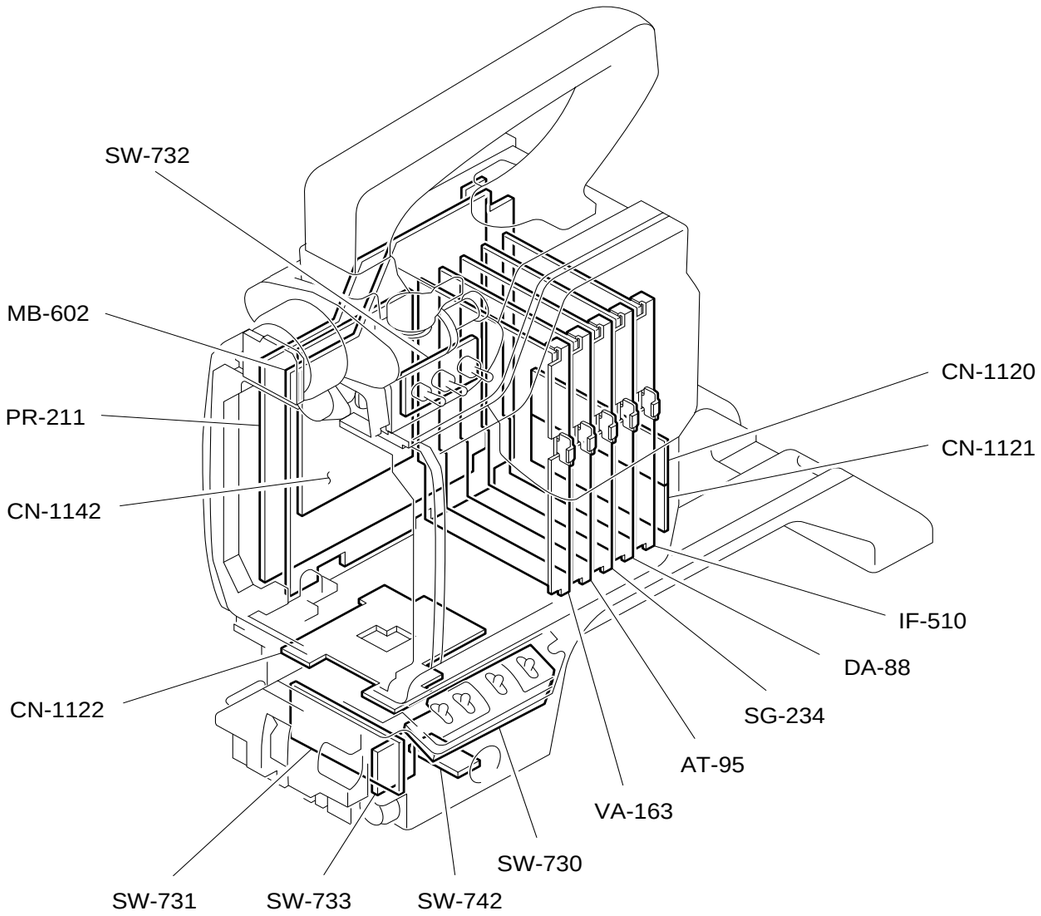


IF-510 BLOCK
BVP-550

BVP550-IF510BLOCK#1/M

Section 8
Schematic Diagrams

LOCATION OF PRINTED CIRCUIT BOARDS



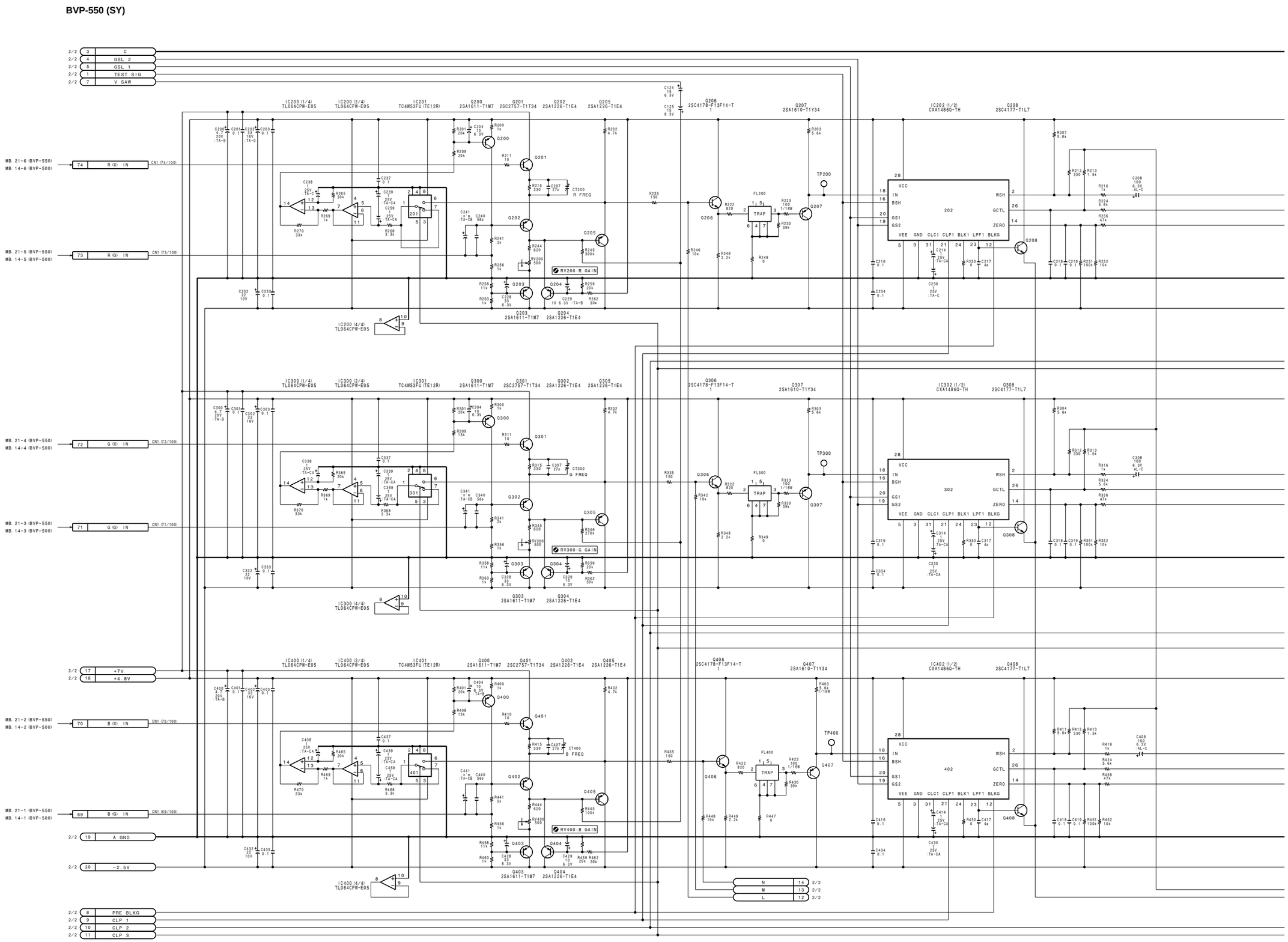
BVP-550 (SY)

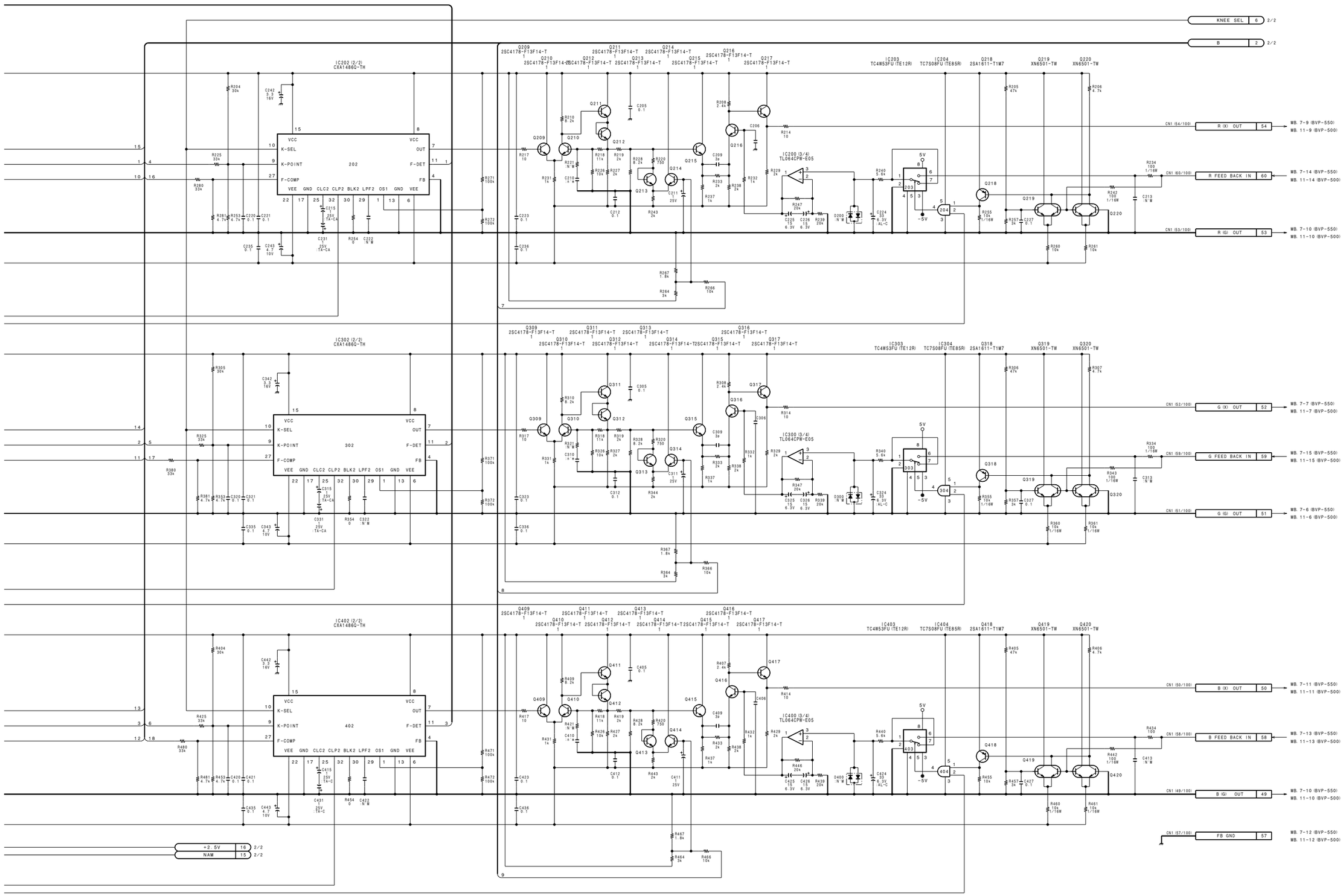
VA-163 BOARD

VA-163 (1-657-438-21)

*: B SIDE

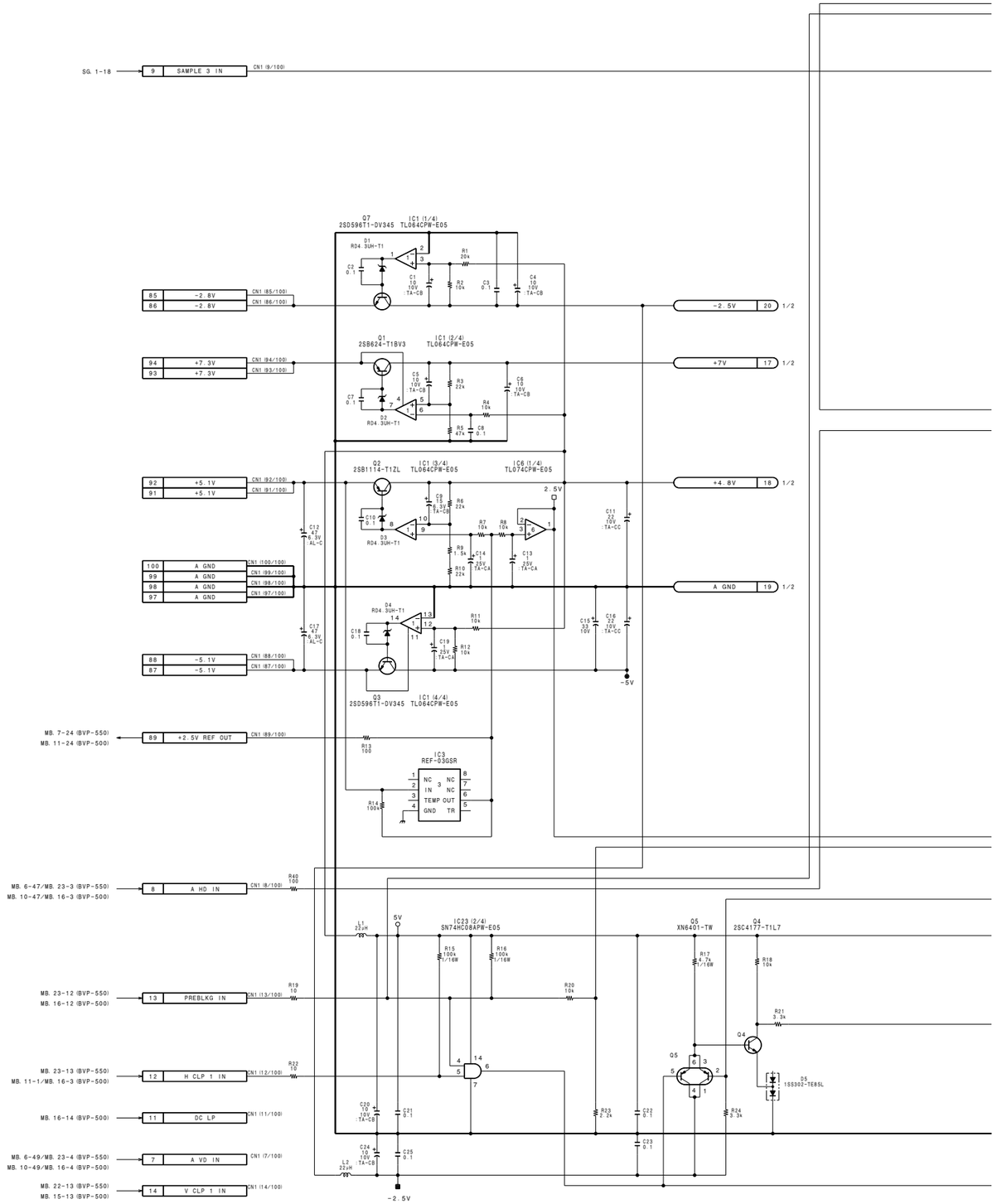
CN1	C-1	* Q213	C-1
		* Q214	C-1
CT200	B-4	* Q215	C-2
CT300	D-4	Q216	C-2
CT400	F-4	Q217	C-1
		* Q218	B-1
* D1	A-3	Q219	C-1
* D2	A-2	Q220	C-1
* D3	A-2	* Q300	C-4
* D4	A-3	* Q301	C-4
* D5	B-3	* Q302	D-4
D7	B-3	* Q303	D-4
* D8	F-3	* Q304	D-4
* D9	F-3	* Q305	D-3
* D10	F-3	Q306	D-3
		* Q307	D-3
FL200	C-3	* Q308	D-3
FL300	D-3	Q309	D-2
FL400	E-3	Q310	D-2
		Q311	D-2
IC1	A-3	Q312	D-2
IC3	B-2	* Q313	D-1
IC5	B-3	* Q314	D-1
IC6	B-2	* Q315	D-2
* IC7	B-3	Q316	D-2
* IC8	F-4	Q317	D-1
IC9	F-4	* Q318	C-1
IC10	F-2	Q319	D-1
IC11	F-2	Q320	D-1
IC12	F-2	* Q400	D-4
IC13	F-2	* Q401	E-4
IC14	F-2	* Q402	E-4
IC15	F-3	* Q403	F-4
IC16	G-3	* Q404	E-4
* IC17	G-3	* Q405	E-3
IC18	G-2	Q406	E-3
* IC19	G-3	* Q407	E-3
IC20	G-2	* Q408	E-3
IC21	G-1	Q409	E-2
IC22	B-4	Q410	E-2
IC23	B-3	Q411	E-2
IC24	G-1	Q412	E-2
IC25	F-1	* Q413	E-1
IC26	F-1	* Q414	E-1
IC27	F-1	* Q415	E-2
IC200	C-4	Q416	E-2
* IC201	C-3	Q417	E-1
IC202	C-2	* Q418	E-1
* IC203	B-2	Q419	E-1
* IC204	B-1	Q420	E-1
IC300	D-4		
* IC301	D-3	RV50	B-4
IC302	D-2	RV200	C-4
* IC303	C-2	RV300	D-4
* IC304	C-1	RV400	F-4
IC400	E-4		
* IC401	E-3	TP200	D-4
IC402	E-2	TP300	E-4
* IC403	D-2	TP400	F-4
* IC404	E-1		
L1	A-2		
L2	A-3		
* Q1	A-2		
* Q2	A-2		
* Q3	A-3		
Q4	B-3		
Q5	A-3		
* Q7	A-3		
Q10	A-4		
Q11	A-4		
Q12	A-4		
Q13	A-4		
Q14	A-4		
* Q200	B-4		
* Q201	B-4		
* Q202	C-4		
* Q203	C-4		
* Q204	C-4		
* Q205	C-3		
Q206	B-3		
* Q207	C-3		
* Q208	C-3		
Q209	B-2		
Q210	C-2		
Q211	B-2		
Q212	C-2		

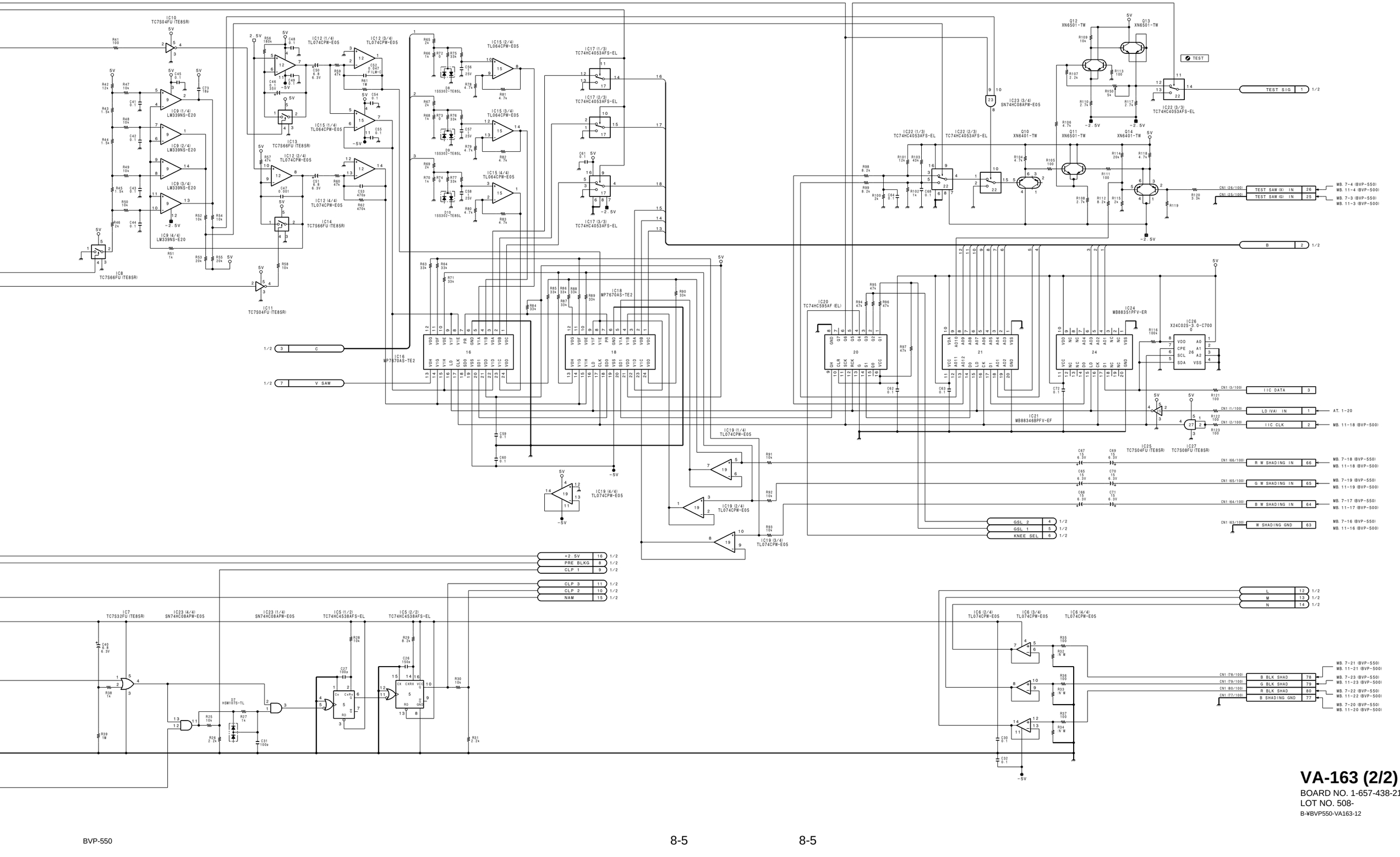




VA-163 (1/2)
BOARD NO. 1-657-438-21
LOT NO. 508-
B-¥BVP550-VA163-12

BVP-550 (SY)


SG. 1-18
9 SAMPLE 3 IN
CN1 (9/100)
Q7 2SD596T1-DV345
IC1 (1/4) TL064CPW-E05
D1 RD4.3UH-T1
R1 20k
C2 0.1
C1 10 10V :TA-CB
R2 10k
C3 0.1
C4 10 10V :TA-CB
85 -2.8V
86 -2.8V
CN1 (85/100)
CN1 (86/100)
-2.5V 20 1/2
Q1 2SB624-T1BV3
IC1 (2/4) TL064CPW-E05
94 +7.3V
93 +7.3V
CN1 (94/100)
CN1 (93/100)
+7V 17 1/2
C5 10 10V :TA-CB
R3 22k
C6 10 10V :TA-CB
C7 0.1
D2 RD4.3UH-T1
R4 10k
R5 47k
C8 0.1
92 +5.1V
91 +5.1V
CN1 (92/100)
CN1 (91/100)
Q2 2SB1114-T1ZL
IC1 (3/4) TL064CPW-E05
IC6 (1/4) TL074CPW-E05
2.5V
+4.8V 18 1/2
C9 15 6.3V :TA-CB
C10 0.1
D3 RD4.3UH-T1
R6 22k
R7 10k
R8 10k
R9 1.5k
C14 25V :TA-CA
R10 22k
C13 25V :TA-CA
C12 47 6.3V :AL-C
C11 22 10V :TA-CC
100 A GND
99 A GND
98 A GND
97 A GND
CN1 (100/100)
CN1 (99/100)
CN1 (98/100)
CN1 (97/100)
A GND 19 1/2
D4 RD4.3UH-T1
C17 47 6.3V :AL-C
C18 0.1
R11 10k
C19 1 25V :TA-CA
R12 10k
C15 33 10V
C16 22 10V :TA-CC
88 -5.1V
87 -5.1V
CN1 (88/100)
CN1 (87/100)
-5V
Q3 2SD596T1-DV345
IC1 (4/4) TL064CPW-E05
MB. 7-24 (BVP-550)
MB. 11-24 (BVP-500)
89 +2.5V REF OUT
CN1 (89/100)
R13 100
IC3 REF-03GSR
NC NC IN TEMP OUT GND TR
R14 100k
MB. 6-47/MB. 23-3 (BVP-550)
MB. 10-47/MB. 16-3 (BVP-500)
8 A HD IN
CN1 (8/100)
R40 100
5V
L1 22uH
IC23 (2/4) SN74HC08APW-E05
Q5 XN6401-TW
Q4 2SC4177-T1L7
R15 100k 1/16W
R16 100k 1/16W
R17 4.7k 1/16W
R18 10k
R20 10k
R21 3.3k
MB. 23-12 (BVP-550)
MB. 16-12 (BVP-500)
13 PREBLKG IN
CN1 (13/100)
R19 10
Q4
Q5
D5 1SS302-TE85L
MB. 23-13 (BVP-550)
MB. 11-1/MB. 16-3 (BVP-500)
12 H CLP 1 IN
CN1 (12/100)
R22 10
MB. 16-14 (BVP-500)
11 DC LP
CN1 (11/100)
C20 10 10V :TA-CB
C21 0.1
R33 2.2k
C22 0.1
C23 0.1
R24 3.3k
MB. 6-49/MB. 23-4 (BVP-550)
MB. 10-49/MB. 16-4 (BVP-500)
7 A VD IN
CN1 (7/100)
C24 10 10V TA-CB
L2 22uH
C25 0.1
MB. 22-13 (BVP-550)
MB. 15-13 (BVP-500)
14 V CLP 1 IN
CN1 (14/100)
-2.5V



VA-163 (2/2)
BOARD NO. 1-657-438-21
LOT NO. 508-
B-¥BVP550-VA163-12

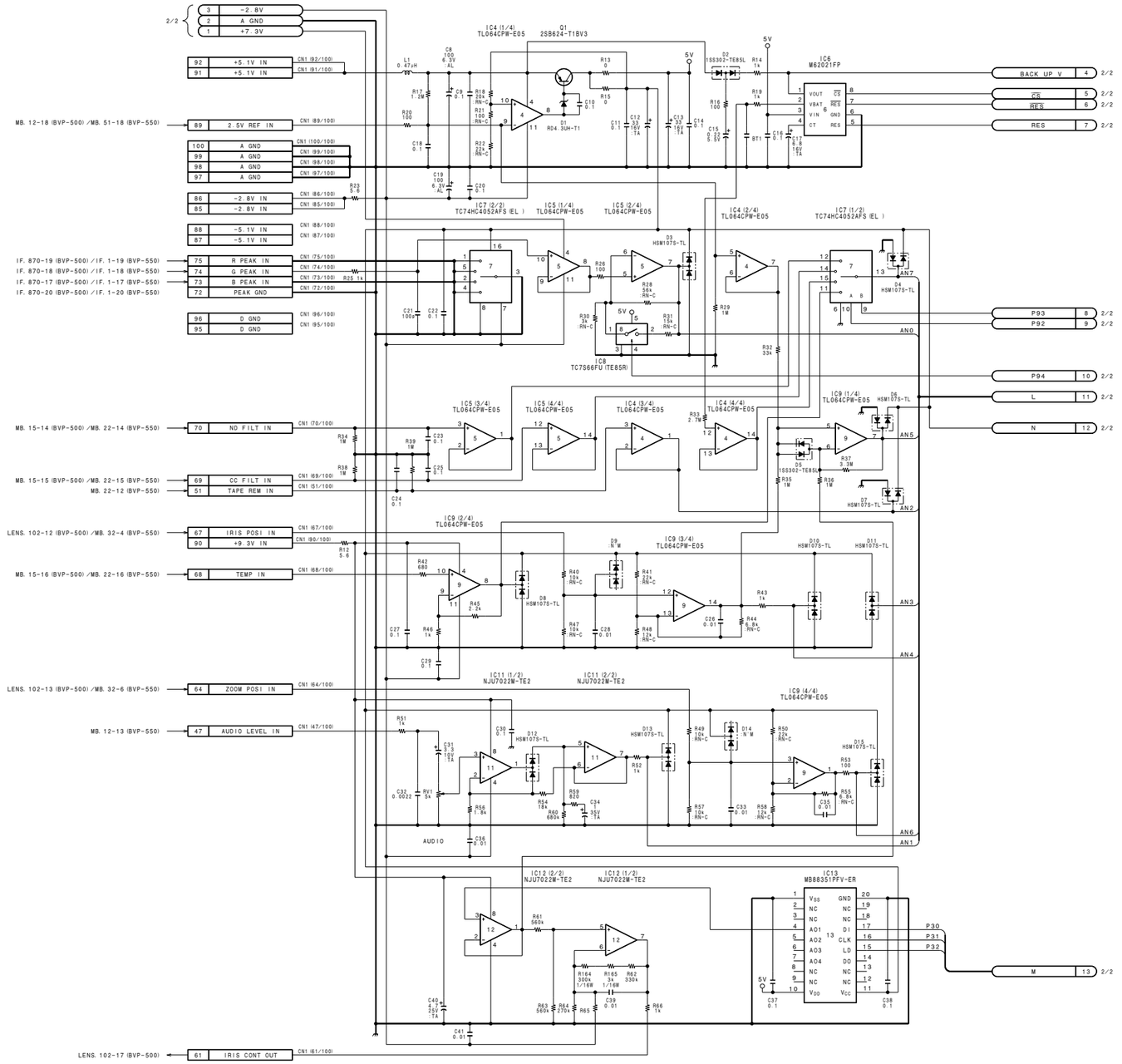
AT-95 BOARD

AT-95 (1-657-448-21)

*: B SIDE

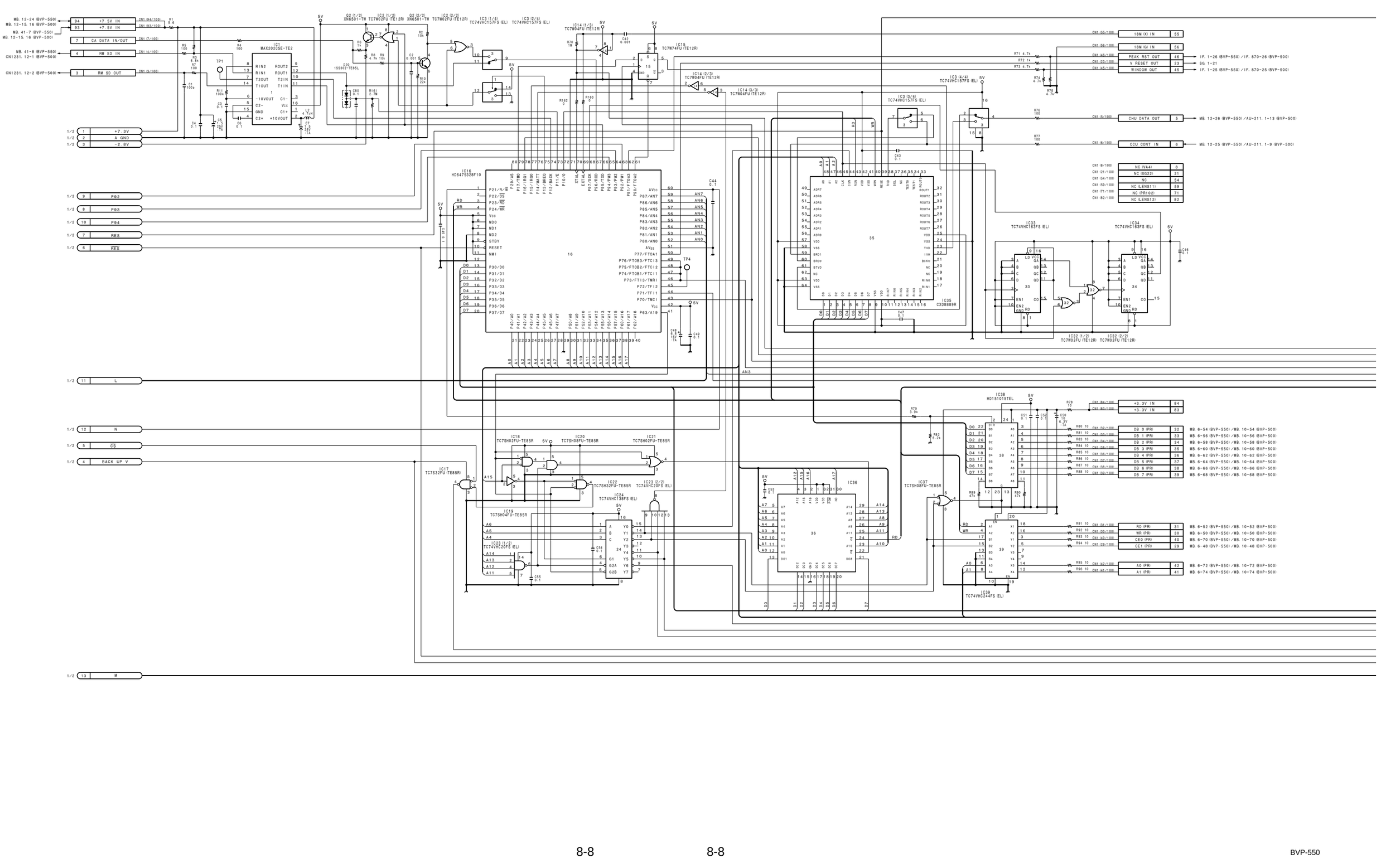
	BT1	B-4
	CNI36	F-2
	CN1	C-1
	D1	A-2
	D2	B-4
*	D3	A-2
*	D4	A-2
*	D5	A-3
*	D6	B-3
*	D7	B-3
*	D8	A-3
*	D10	A-3
*	D11	A-3
*	D12	A-4
*	D13	B-4
*	D15	B-3
*	D16	G-4
*	D17	G-4
*	D18	G-4
*	D19	G-4
*	D20	G-1
*	D21	C-2
*	D22	G-3
	IC1	F-1
*	IC2	G-2
*	IC3	G-1
*	IC4	A-2
*	IC5	B-2
*	IC6	B-4
*	IC7	B-2
*	IC8	A-2
*	IC9	B-3
*	IC11	B-4
*	IC12	C-2
*	IC13	B-2
*	IC14	C-3
*	IC15	D-4
	IC16	D-2
*	IC17	D-4
*	IC18	D-4
*	IC19	D-4
*	IC20	D-4
*	IC21	D-4
*	IC22	D-4
*	IC23	E-3
*	IC24	E-3
	IC25	D-4
*	IC26	E-2
	IC27	E-4
	IC28	F-4
*	IC29	G-3
*	IC30	G-2
*	IC31	F-2
*	IC32	B-2
	IC33	B-2
	IC34	C-2
	IC35	C-4
*	IC37	E-4
	IC38	C-3
*	IC39	E-4
*	IC40	D-2
*	IC41	C-3
*	IC42	D-3
*	IC43	D-3
*	IC44	D-3
*	IC45	D-2
*	IC46	G-4
	IC47	E-2
*	IC48	G-2
	L1	B-1
	L2	F-1
	Q1	A-2
*	Q2	F-2
*	Q3	B-1
*	Q4	C-1
*	Q5	B-1
*	Q6	B-1
	RV1	C-3
	S1	E-3

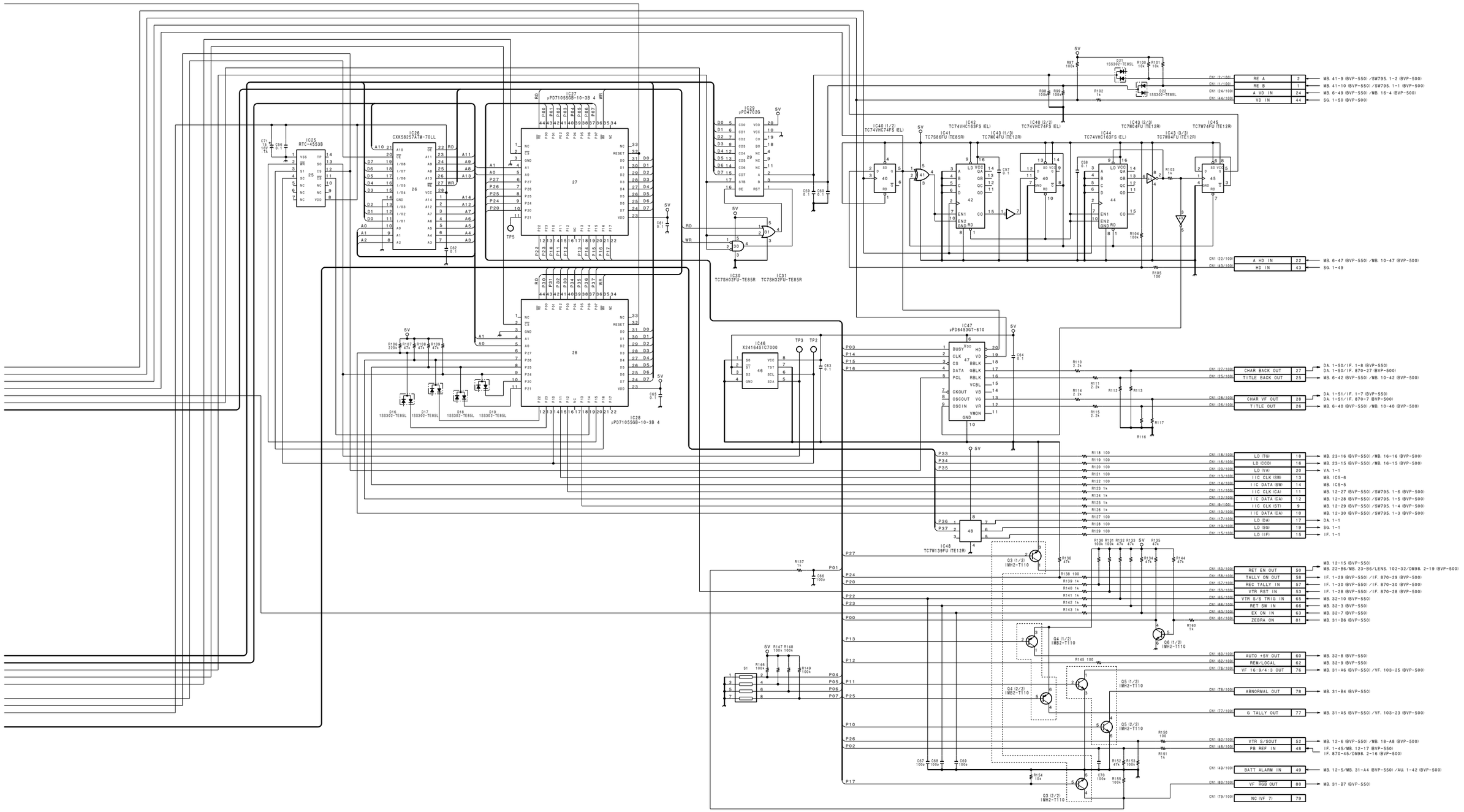
BVP-550 (SY)



AT-95 (1/2)
BOARD NO. 1-657-448-21
LOT NO. 508-
B-¥BVP550-AT95-12

BVP-550 (SY)


MB. 12-24 (BVP-550)
MB. 12-15. 16 (BVP-500)
MB. 41-7 (BVP-550)
MB. 12-15. 16 (BVP-500)
MB. 41-8 (BVP-550)
CN1231. 12-1 (BVP-500)
CN1231. 12-2 (BVP-500)
+7.5V IN
CA DATA IN/OUT
RM SD IN
RM SD OUT
IC1 MAX202CSE-TE2
IC2 (1/2) TC7W02FU (TE12R)
IC2 (2/2) TC7W02FU (TE12R)
IC3 (1/4) TC74VHC157FS (EL)
IC3 (2/4) TC74VHC157FS (EL)
IC14 (1/3) TC7W04FU (TE12R)
IC14 (2/3) TC7W04FU (TE12R)
IC14 (3/3) TC7W04FU (TE12R)
IC15 TC7W74FU (TE12R)
IC3 (3/4) TC74VHC157FS (EL)
18M (X) IN
18M (G) IN
PEAK RST OUT
V RESET OUT
WINDOW OUT
CHU DATA OUT
CCU CONT IN
IF. 1-26 (BVP-550) /IF. 870-26 (BVP-500)
SG. 1-21
IF. 1-25 (BVP-550) /IF. 870-25 (BVP-500)
MB. 12-26 (BVP-550) /AU-211. 1-13 (BVP-500)
MB. 12-25 (BVP-550) /AU-211. 1-9 (BVP-500)
NC (VA4)
NC (SG22)
NC
NC (LENS11)
NC (PR102)
NC (LENS12)
+7.3V
A GND
-2.8V
P92
P93
P94
RES
RES
IC16 HD6475328F10
IC35 CX88889R
IC33 TC74VHC163FS (EL)
IC34 TC74VHC163FS (EL)
IC32 (1/2) TC7W02FU (TE12R)
IC32 (2/2) TC7W02FU (TE12R)
L
N
CB
BACK UP V
M
IC38 H0151015TEL
IC37 TC7SH08FU-TE85R
IC39 TC74VHC244FS (EL)
+3.3V IN
DB 0 (PR)
DB 1 (PR)
DB 2 (PR)
DB 3 (PR)
DB 4 (PR)
DB 5 (PR)
DB 6 (PR)
DB 7 (PR)
RD (PR)
WR (PR)
CE0 (PR)
CE1 (PR)
A0 (PR)
A1 (PR)
MB. 6-54 (BVP-550) /MB. 10-54 (BVP-500)
MB. 6-56 (BVP-550) /MB. 10-56 (BVP-500)
MB. 6-58 (BVP-550) /MB. 10-58 (BVP-500)
MB. 6-60 (BVP-550) /MB. 10-60 (BVP-500)
MB. 6-62 (BVP-550) /MB. 10-62 (BVP-500)
MB. 6-64 (BVP-550) /MB. 10-64 (BVP-500)
MB. 6-66 (BVP-550) /MB. 10-66 (BVP-500)
MB. 6-68 (BVP-550) /MB. 10-68 (BVP-500)
MB. 6-52 (BVP-550) /MB. 10-52 (BVP-500)
MB. 6-50 (BVP-550) /MB. 10-50 (BVP-500)
MB. 6-70 (BVP-550) /MB. 10-70 (BVP-500)
MB. 6-48 (BVP-550) /MB. 10-48 (BVP-500)
MB. 6-72 (BVP-550) /MB. 10-72 (BVP-500)
MB. 6-74 (BVP-550) /MB. 10-74 (BVP-500)



AT-95 (2/2)
BOARD NO. 1-657-448-21
LOT NO. 508-
B-¥BVP550AT-95-12

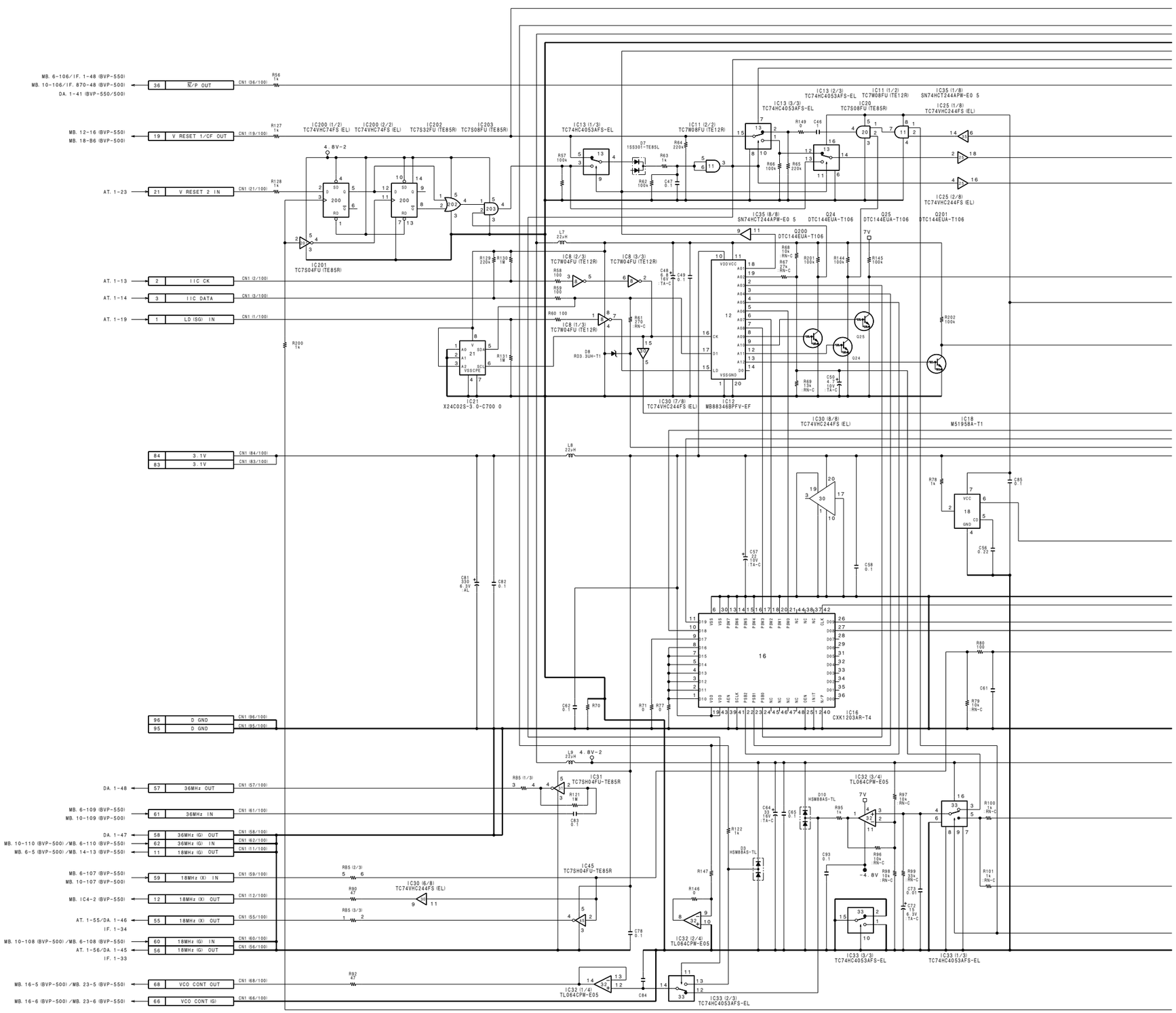
SG-234 BOARD

SG-234 (1-657-449-21)

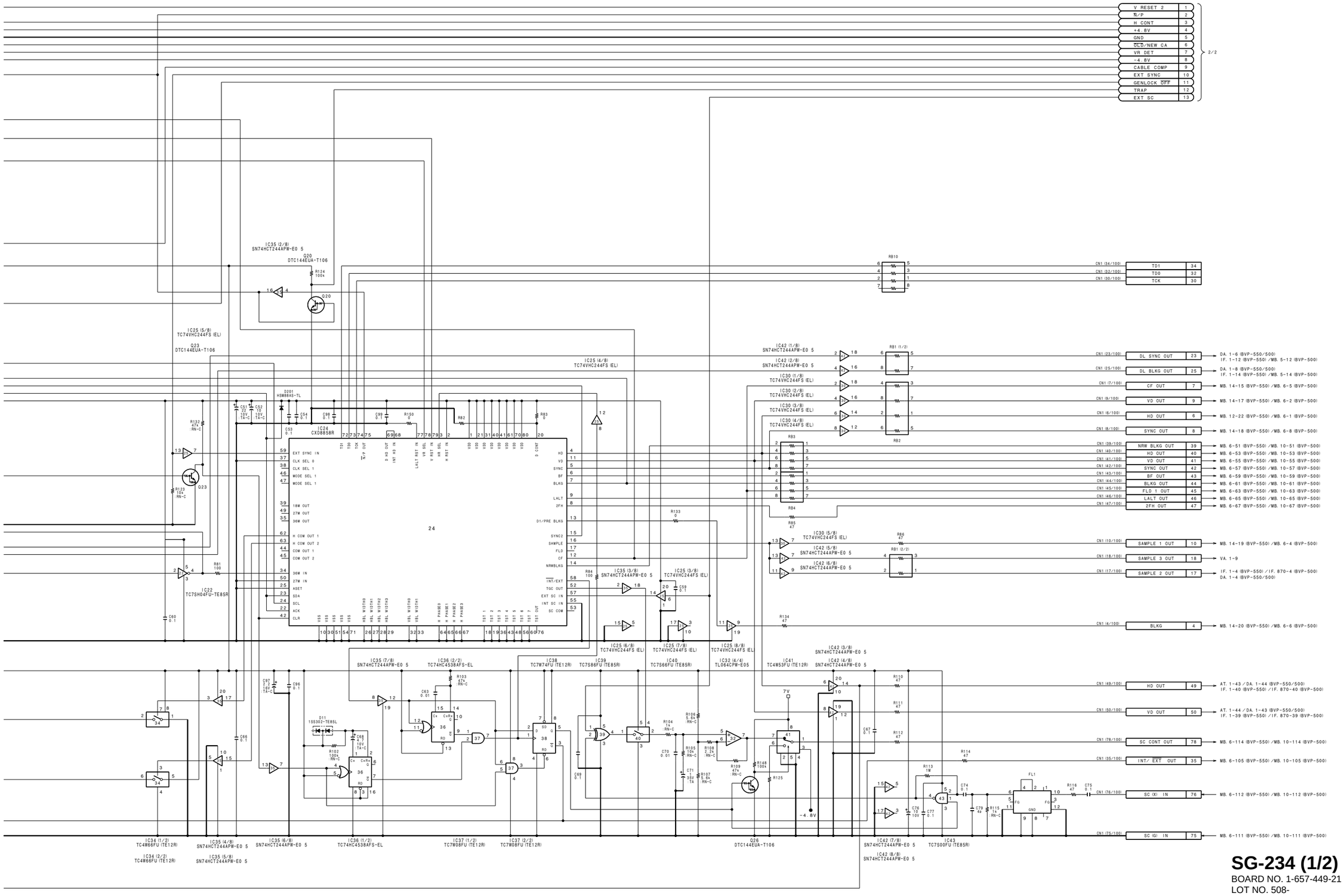
*: B SIDE

CN1	C-1	* Q20	D-4
		* Q21	A-3
D1	A-2	Q22	B-3
* D2	A-2	Q23	G-4
D3	E-2	* Q24	F-1
* D4	A-1	* Q25	F-1
D5	B-3	Q26	D-3
D6	B-4	* Q200	E-1
* D7	D-3	* Q201	F-2
D8	F-1	Q202	A-4
D10	C-2	Q203	A-4
D11	C-3	Q204	B-4
D12	A-3	* Q205	A-3
* D13	D-1		
D14	A-3	RB1	E-1
* D200	B-4	RB2	F-1
* D201	E-3	RB3	D-1
		RB4	D-1
FL1	C-2	RB5	C-1
		RB10	D-1
IC3	A-2		
IC5	B-4		
IC8	F-1		
* IC11	D-3		
IC12	F-1		
IC13	D-3		
IC16	F-2		
* IC17	A-2		
IC18	F-4		
* IC20	D-3		
* IC21	F-1		
* IC22	F-3		
IC24	F-4		
IC25	E-2		
IC30	E-2		
* IC31	C-2		
IC32	D-2		
IC33	D-3		
* IC34	D-4		
IC35	D-4		
IC36	C-4		
IC37	C-3		
IC38	D-3		
* IC39	D-3		
* IC40	C-3		
IC41	D-3		
IC42	D-2		
* IC43	C-3		
IC44	B-3		
* IC45	D-2		
IC46	A-3		
* IC47	B-3		
IC48	A-3		
* IC200	D-1		
* IC201	D-1		
* IC202	D-1		
* IC203	D-1		
* IC204	A-4		
* IC206	B-4		
IC207	B-4		
* L1	A-1		
* L2	A-1		
* L4	B-1		
* L5	B-4		
* L6	C-4		
* L7	F-1		
L8	B-2		
L9	B-2		
Q1	A-2		
* Q2	A-2		
* Q4	B-2		
Q5	A-4		
Q6	A-4		
* Q7	B-4		
Q8	A-4		
* Q9	A-4		
Q10	C-4		
* Q11	A-4		
* Q12	C-3		
* Q14	C-3		
Q15	C-4		
* Q16	A-3		
Q17	A-3		
* Q18	C-4		

BVP-550 (SY)

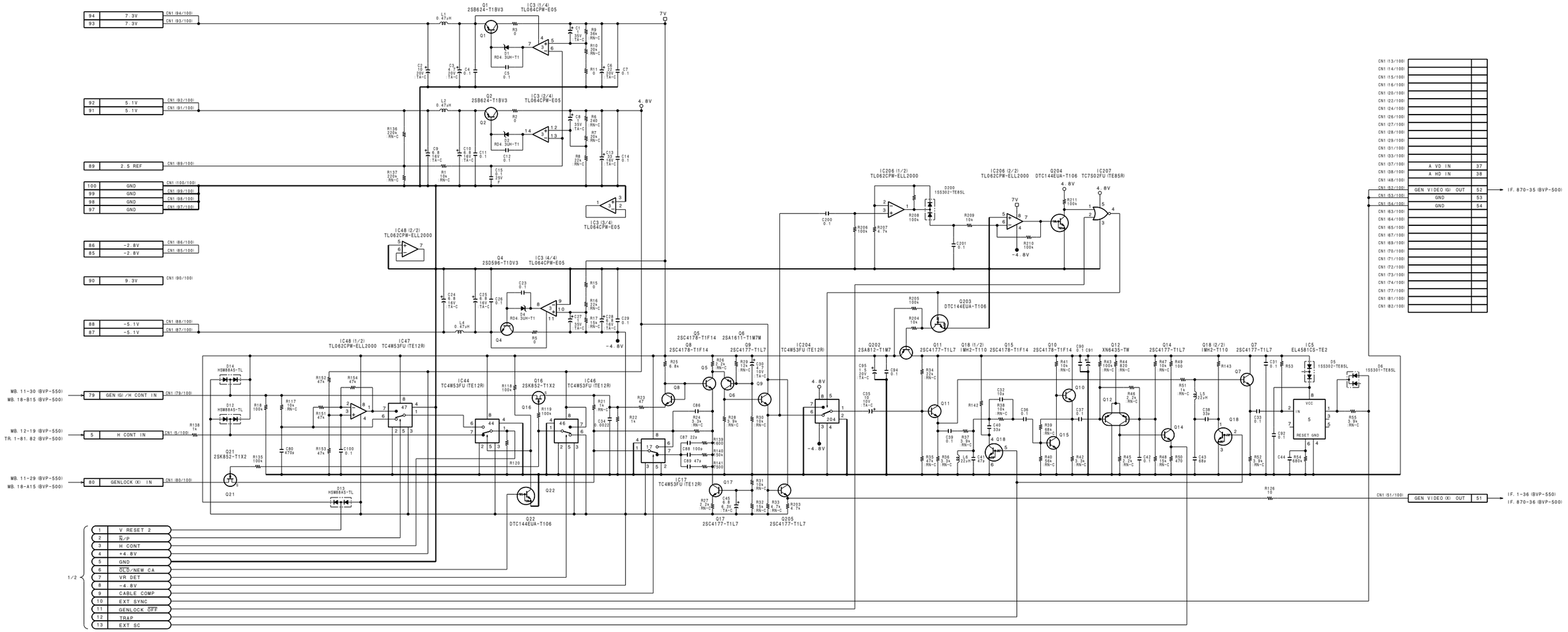


A B C D E F G H



SG-234 (1/2)
BOARD NO. 1-657-449-21
LOT NO. 508-
B-¥BVP550SG234-12

BVP-550 (SY)



SG-234 (2/2)

BOARD NO. 1-657-449-21
LOT NO. 508-
B-¥BVP550-SG234-12

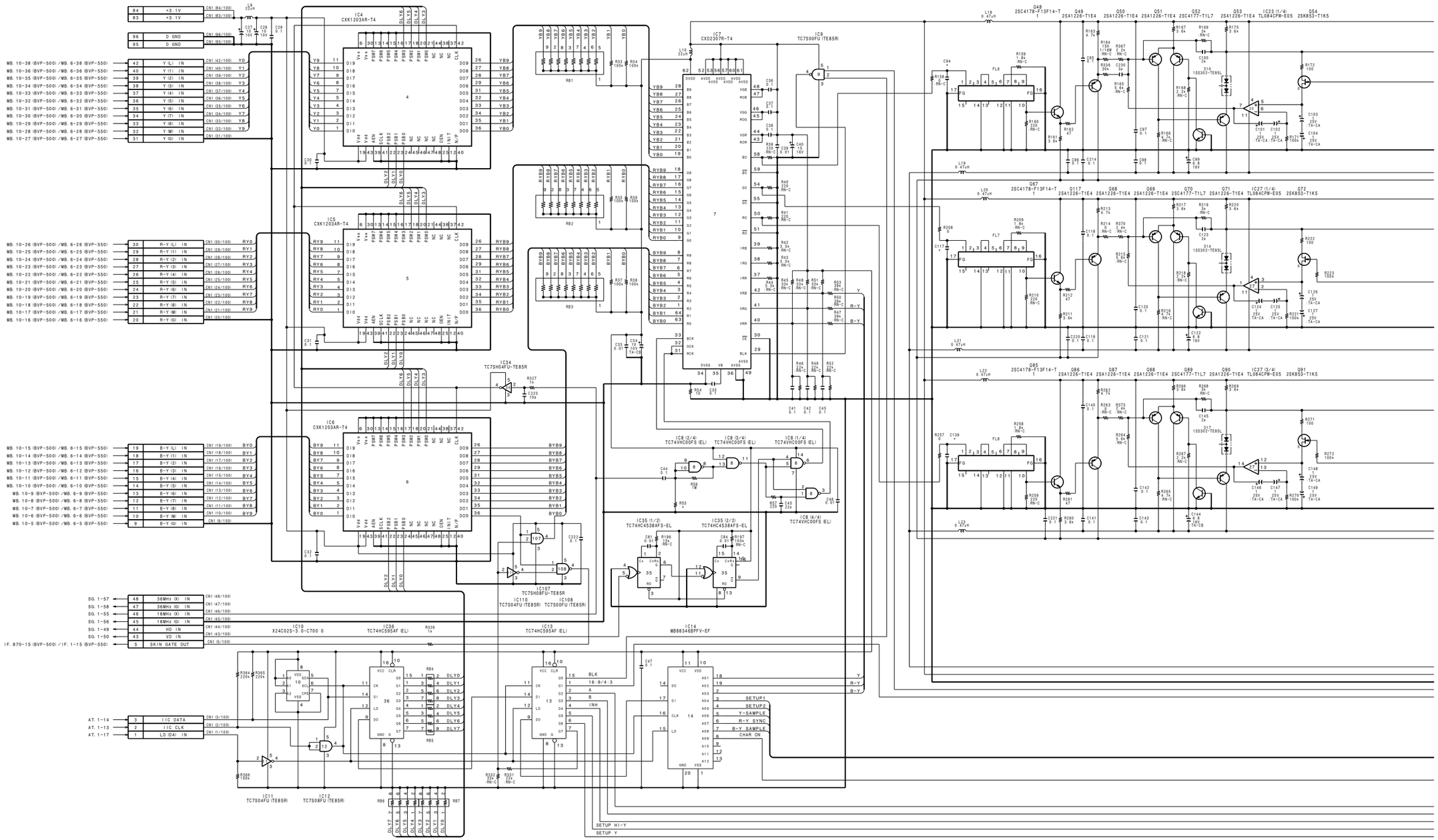
BVP-550 (SY)

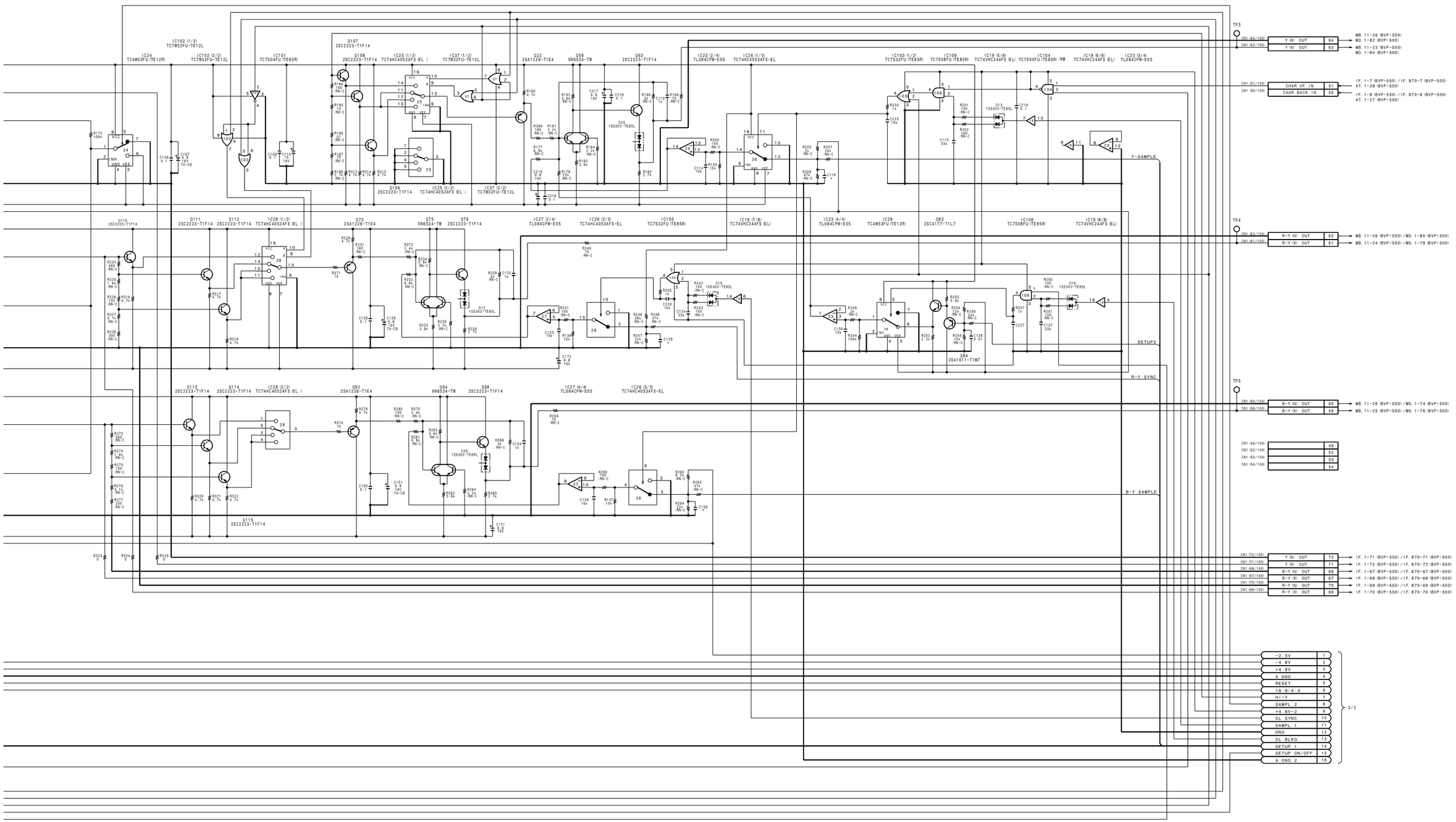
DA-88 BOARD

DA-88 (1-657-450-21)

*: B SIDE

CN1	C-1	L6	B-2	* Q103	C-2
		L7	A-3	* Q104	C-3
* D1	A-2	L8	A-3	Q105	G-2
* D2	B-1	L9	B-1	* Q106	G-1
* D3	B-1	L10	D-2	* Q107	B-3
* D5	A-4	L11	F-1	* Q108	C-3
* D6	G-2	L12	G-1	* Q109	C-3
D7	F-2	L13	G-3	* Q110	E-4
* D9	C-1	L14	A-3	* Q111	E-4
* D10	D-3	L15	B-3	* Q112	E-4
* D11	G-2	L16	B-2	* Q113	F-4
D12	E-4	L17	B-2	* Q114	G-4
D13	G-2	L18	D-4	* Q115	G-4
* D14	E-3	L19	D-4	Q117	D-3
D15	G-2	* L20	E-4		
D16	G-2	* L21	E-4	* RB1	D-2
* D17	G-3	* L22	F-4	* RB2	E-2
D24	B-3	L23	G-4	* RB3	E-2
D25	C-4	L24	G-1	RB4	F-2
D26	G-4	L25	F-1	RB5	F-1
* D100	A-3			* RB6	F-2
* D101	C-2	* Q1	A-2	* RB7	F-2
* D102	G-2	Q2	A-2		
		Q3	B-2	TP1	B-2
E1	F-4	* Q4	A-3	TP2	C-1
		* Q7	A-3	TP3	D-4
FL1	A-4	* Q8	A-3	TP4	E-4
FL2	A-3	* Q9	A-3	TP5	F-4
FL3	B-3	* Q10	A-2		
FL4	B-2	* Q11	B-3		
FL5	C-2	* Q12	A-4		
FL6	D-3	* Q13	B-4		
FL7	E-3	Q14	B-4		
FL8	F-3	Q15	A-4		
		* Q16	A-4		
* IC1	A-1	Q17	B-4		
* IC2	B-1	* Q18	B-4		
* IC3	A-2	* Q19	B-3		
* IC4	D-1	* Q20	A-2		
* IC5	E-1	* Q22	C-3		
* IC6	E-1	Q23	B-3		
* IC7	D-2	* Q25	C-4		
* IC8	D-1	* Q26	B-4		
IC9	E-2	* Q27	B-2		
* IC10	E-1	* Q28	B-1		
IC11	F-1	* Q29	C-2		
IC12	F-1	* Q30	B-2		
* IC13	E-2	* Q32	C-2		
IC14	F-2	* Q33	C-2		
* IC15	B-3	* Q34	C-2		
IC16	B-4	Q43	C-2		
* IC17	B-4	Q44	C-1		
* IC18	C-4	* Q45	F-1		
IC19	G-2	* Q46	G-1		
* IC20	C-2	* Q47	G-1		
IC23	C-3	* Q48	D-4		
* IC24	D-4	* Q49	D-3		
IC25	C-3	* Q50	D-4		
IC26	C-4	* Q51	D-4		
IC27	E-3	* Q52	D-4		
IC28	F-4	* Q53	D-4		
IC29	C-4	* Q54	D-4		
IC34	D-1	Q59	C-4		
* IC35	E-1	Q63	C-4		
* IC36	F-2	* Q67	D-3		
* IC37	C-3	* Q68	E-3		
IC100	F-2	* Q69	E-3		
IC101	C-3	* Q70	E-3		
IC102	C-3	* Q71	E-3		
IC103	G-2	Q72	E-3		
* IC104	G-2	* Q73	E-4		
IC105	G-2	Q75	E-4		
IC106	G-2	Q79	E-4		
IC107	E-2	* Q83	C-4		
IC108	E-2	* Q84	C-4		
IC109	G-2	* Q85	F-3		
IC110	E-2	Q86	F-3		
		* Q87	G-3		
* JR1	B-4	* Q88	G-3		
* JR2	A-4	* Q89	G-3		
* JR3	C-2	* Q90	G-3		
* JR4	B-3	Q91	G-3		
		* Q92	F-4		
L1	A-1	Q94	G-4		
L2	A-2	Q98	G-4		
L3	A-1	* Q100	A-4		
L4	A-2	* Q101	A-4		
L5	B-1	* Q102	C-2		



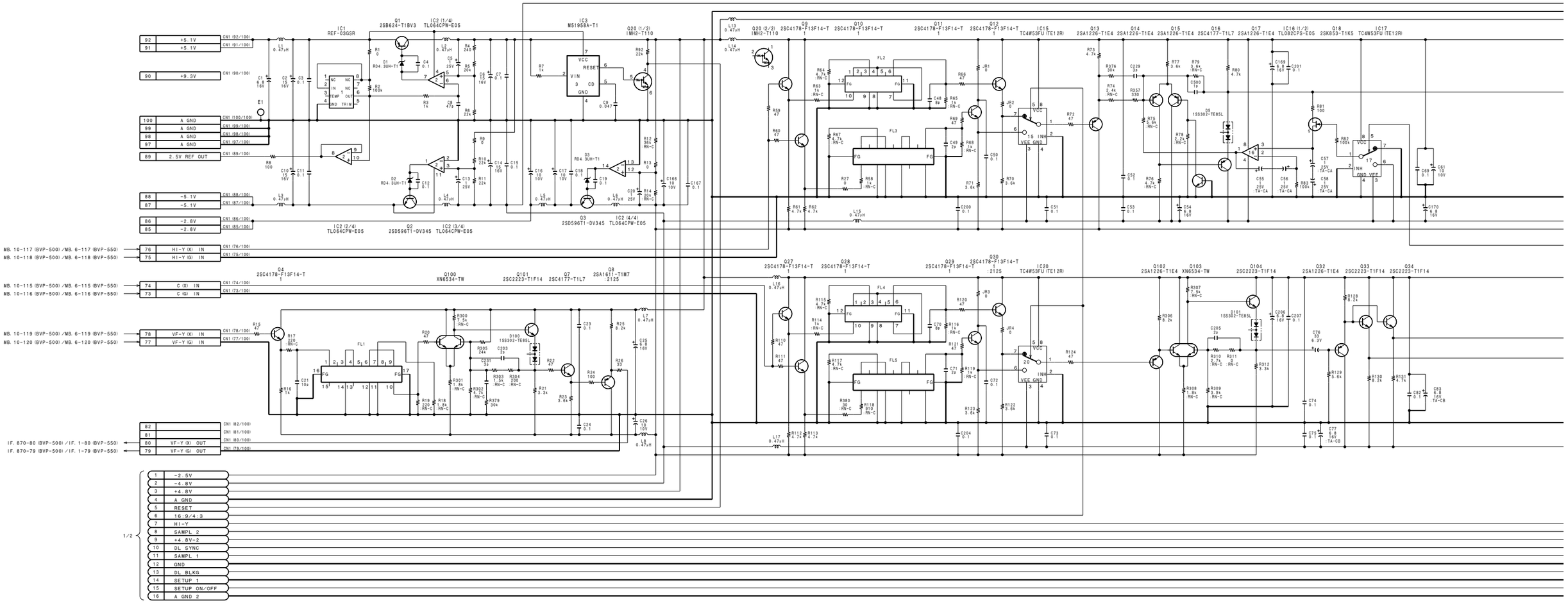


DA-88 (1/2)

BOARD NO. 1-657-450-21
LOT NO. 508-
B-¥BVP550-DA88-12

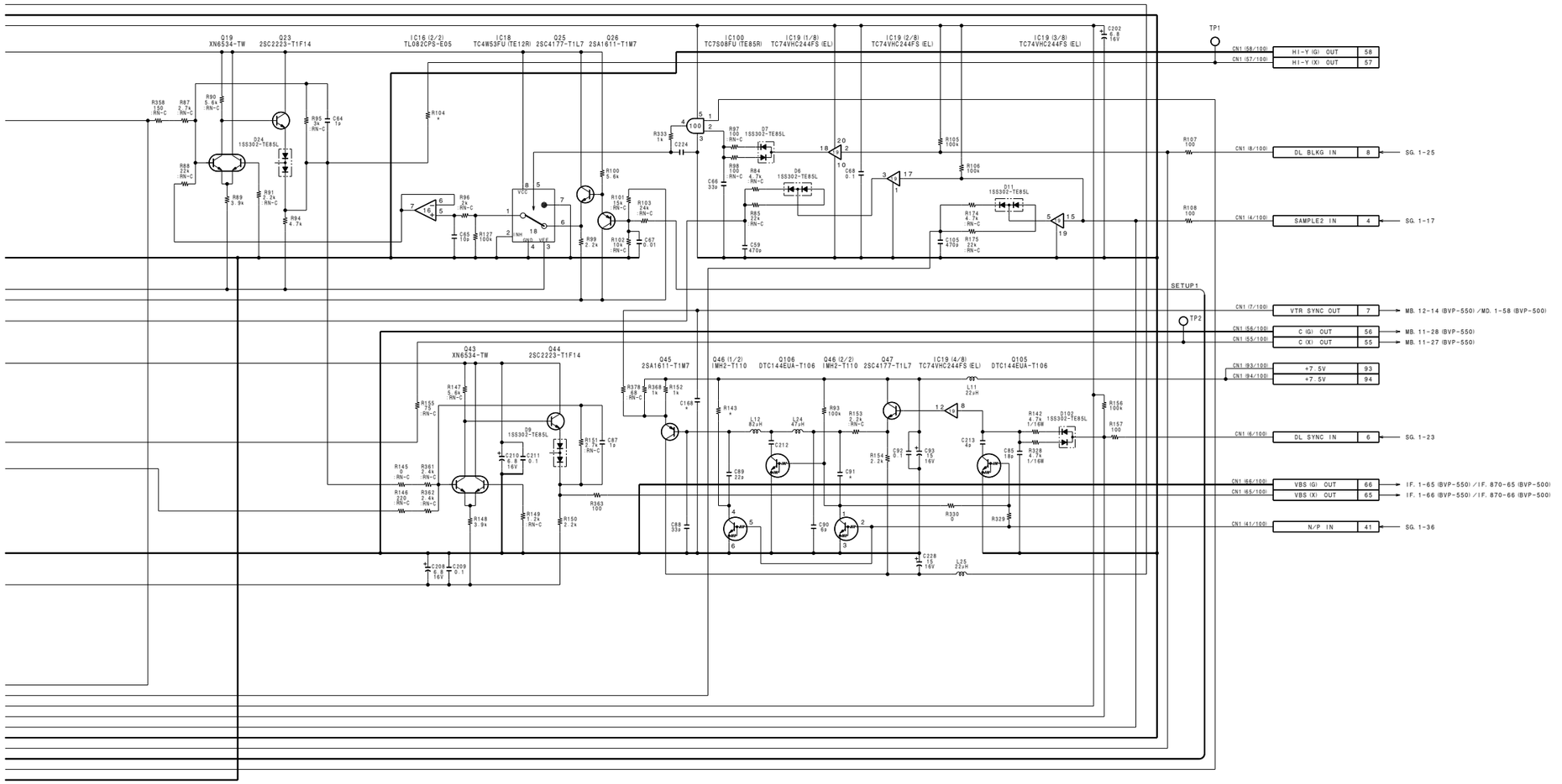
DA-88 (2/2)

BVP-550 (SY)



8-16

A B C D E F G H



DA-88 (2/2)

BOARD NO. 1-657-450-21
LOT NO. 508-
B-¥BVP550-DA88-12

I J K L M N O P

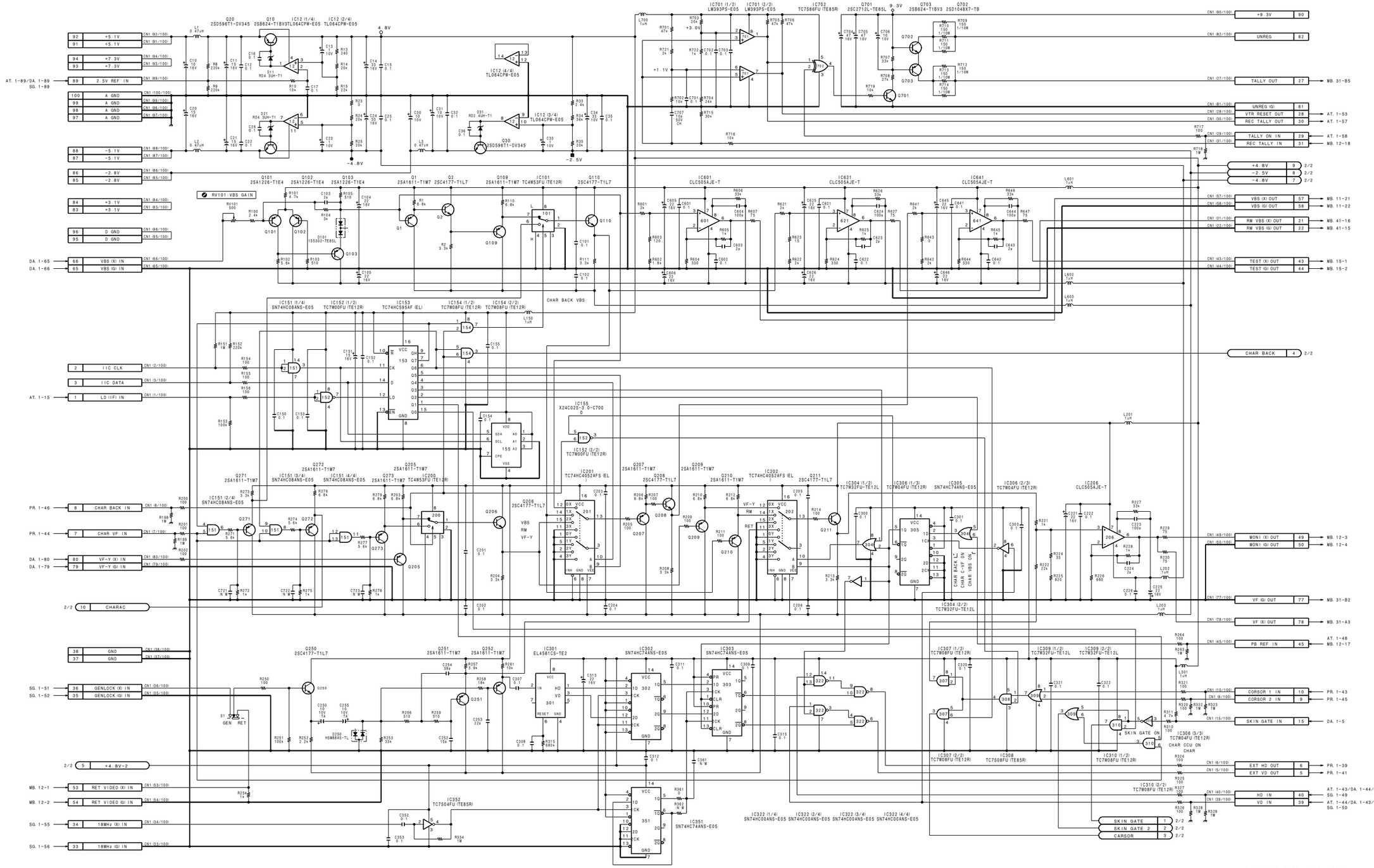
IF-510 BOARD

IF-510 (1-657-453-21)

*: B SIDE

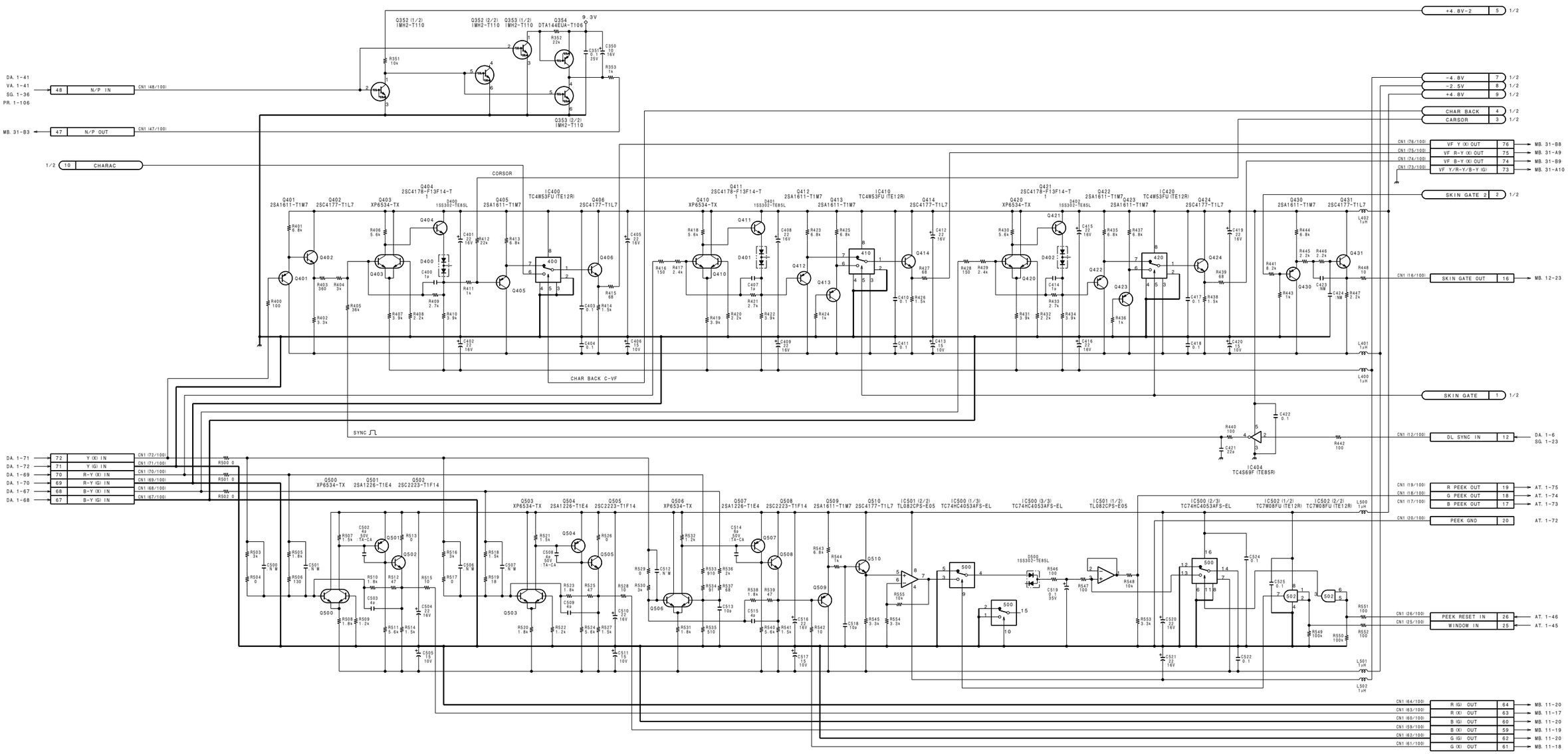
CN1	C-1	* Q251	B-3
		* Q271	C-4
* D11	A-2	* Q272	C-4
* D21	A-2	* Q273	C-3
* D31	B-2	* Q352	G-3
* D101	D-3	* Q353	F-3
* D250	B-3	* Q354	G-3
* D400	C-2	* Q401	B-2
* D401	C-3	* Q402	B-3
* D402	D-3	* Q403	C-2
* D500	E-2	* Q404	C-3
		* Q405	C-3
* IC12	A-2	* Q406	B-3
* IC101	D-4	* Q410	C-2
IC151	F-4	* Q411	C-3
* IC152	F-3	* Q412	C-3
* IC153	F-3	* Q413	C-3
* IC154	F-3	* Q414	C-3
IC155	G-4	* Q420	D-2
IC200	B-4	* Q421	D-3
* IC201	B-4	* Q422	D-3
* IC202	A-4	* Q423	D-3
* IC206	A-3	* Q424	D-3
* IC301	G-2	Q430	C-3
* IC302	F-2	Q431	C-4
IC303	F-2	* Q500	C-2
* IC304	G-2	* Q501	B-2
IC305	F-3	* Q502	B-2
* IC306	F-1	* Q503	C-2
* IC307	G-2	* Q504	C-2
* IC308	G-1	* Q505	C-2
IC309	G-1	* Q506	D-2
* IC310	G-1	* Q507	D-2
IC322	F-1	* Q508	D-2
* IC351	F-2	Q509	E-2
* IC352	F-2	Q510	E-1
IC400	C-3	* Q701	A-3
* IC404	C-4	* Q702	A-3
IC410	C-3	* Q703	A-3
IC420	D-3		
* IC500	E-1	RV101	D-4
* IC501	C-1		
* IC502	D-1	S1	C-3
* IC601	E-3		
* IC621	E-2		
* IC641	E-2		
IC701	A-3		
IC702	A-2		
L1	A-1		
L2	A-1		
L3	B-1		
L150	E-4		
L201	A-3		
L202	A-3		
L203	A-4		
L250	B-3		
L301	F-2		
L400	D-2		
L401	D-3		
L402	C-3		
L500	D-2		
L501	C-1		
L502	D-1		
L601	D-4		
L602	E-3		
L603	D-3		
L700	A-2		
* Q1	E-4		
* Q2	E-4		
* Q10	A-2		
* Q20	A-2		
* Q30	B-2		
Q101	D-4		
Q102	D-4		
Q103	D-4		
* Q109	E-4		
* Q110	D-3		
* Q205	B-4		
Q206	B-4		
Q207	B-4		
Q208	B-4		
Q209	A-4		
Q210	A-4		
Q211	A-4		
* Q250	B-4		

BVP-550 (SY)



IF-510 (1/2)
BOARD NO. 1-657-453-21
LOT NO. 508-
B-¥BVP550-IF510-12

BVP-550 (SY)

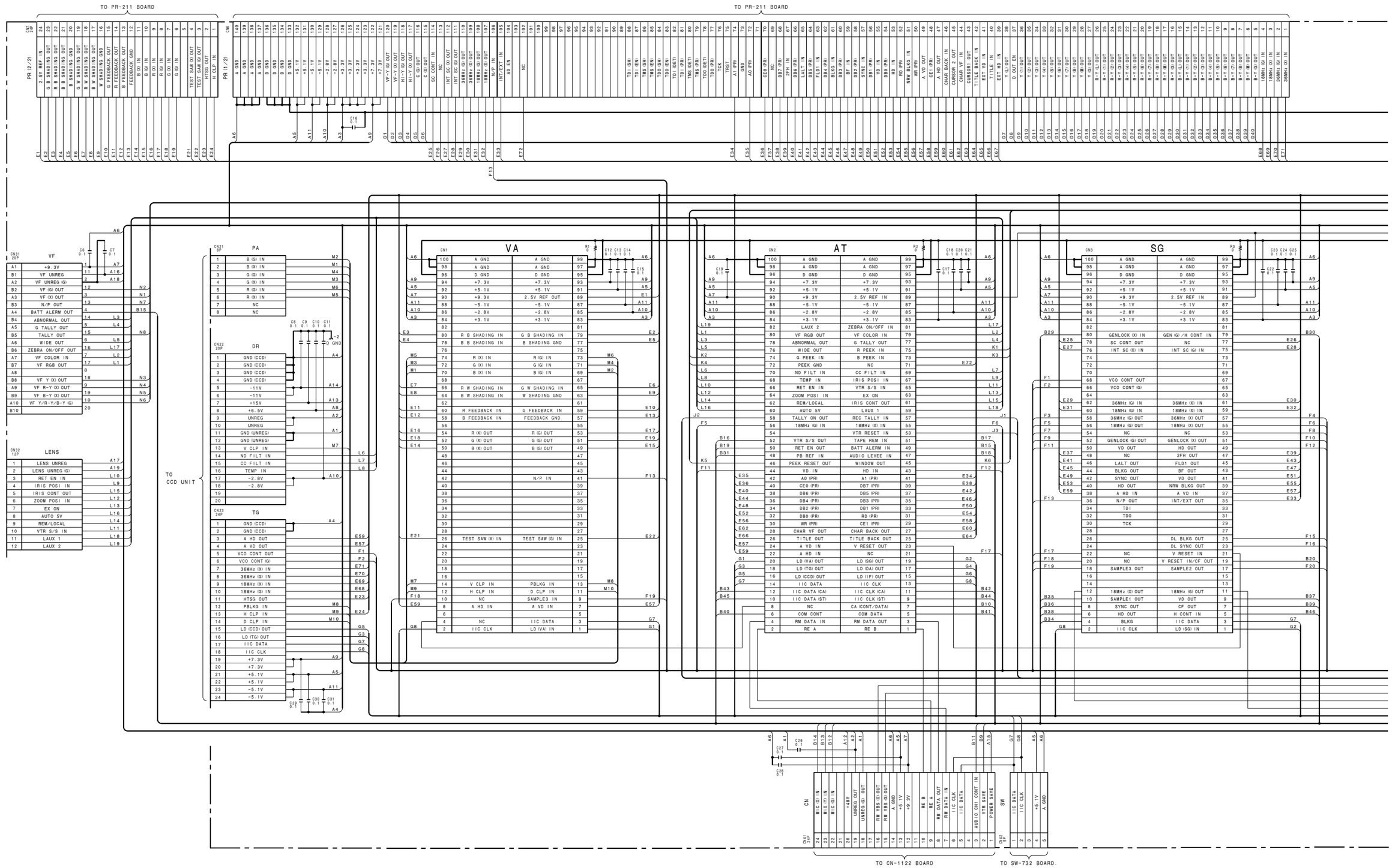


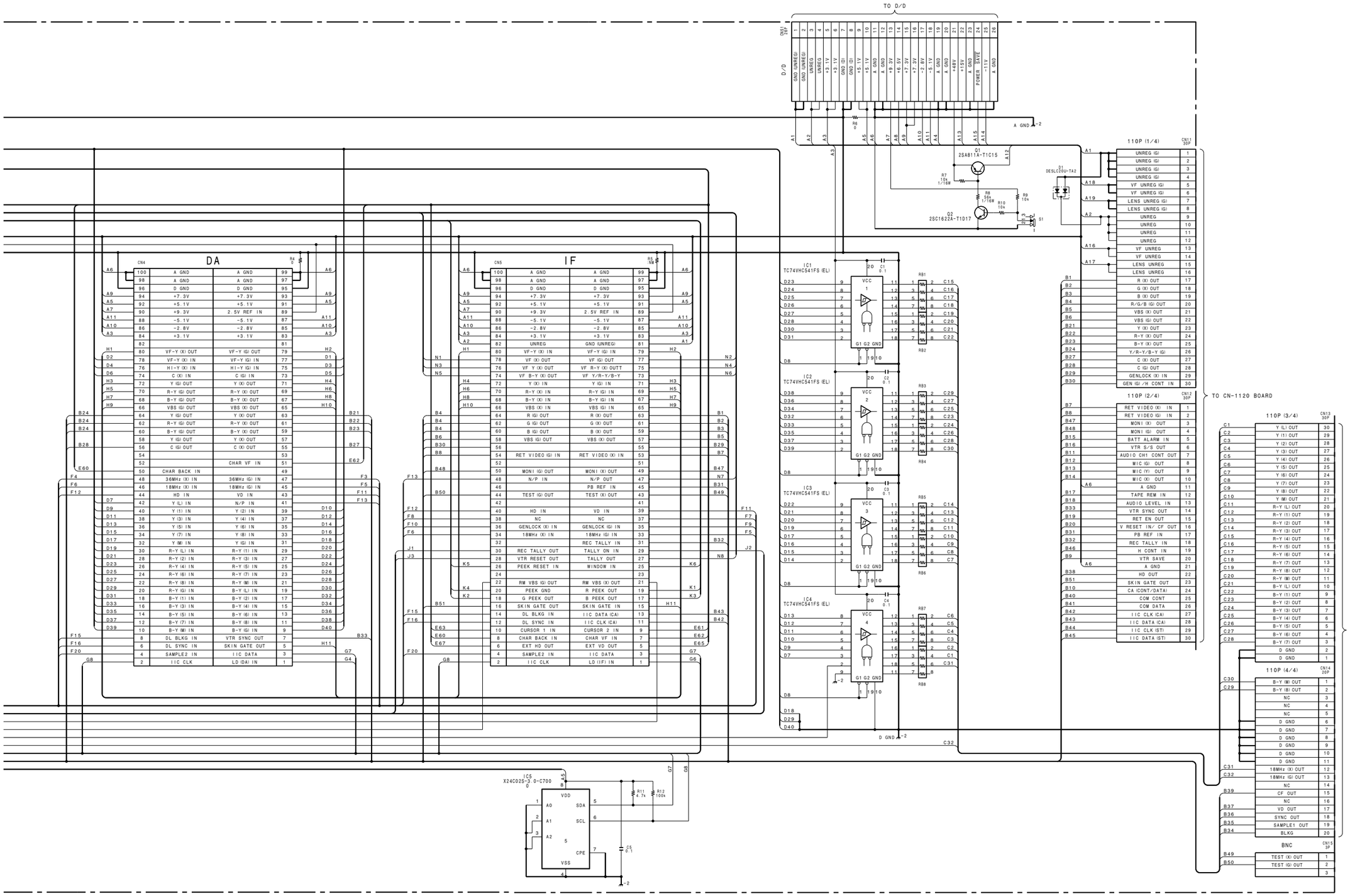
IF-510 (2/2)

BOARD NO. 1-657-453-21
LOT NO. 508-
B-¥BVP550-IF510-12

MB-602 BOARD

BVP-550 (SY)





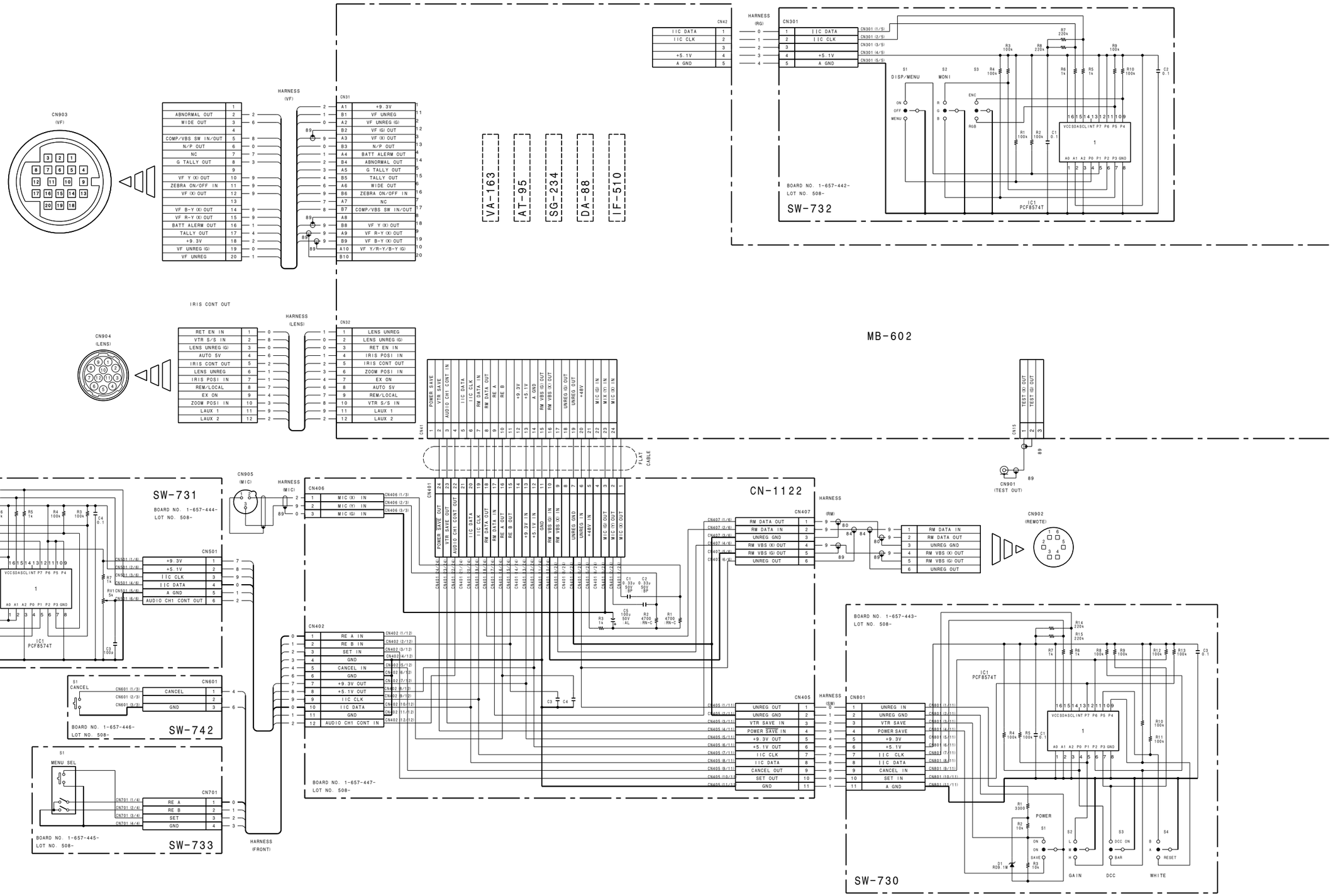
MB-602

BOARD NO. 1-657-437-21
LOT NO. 508-
B-¥BVP550-MB602-11

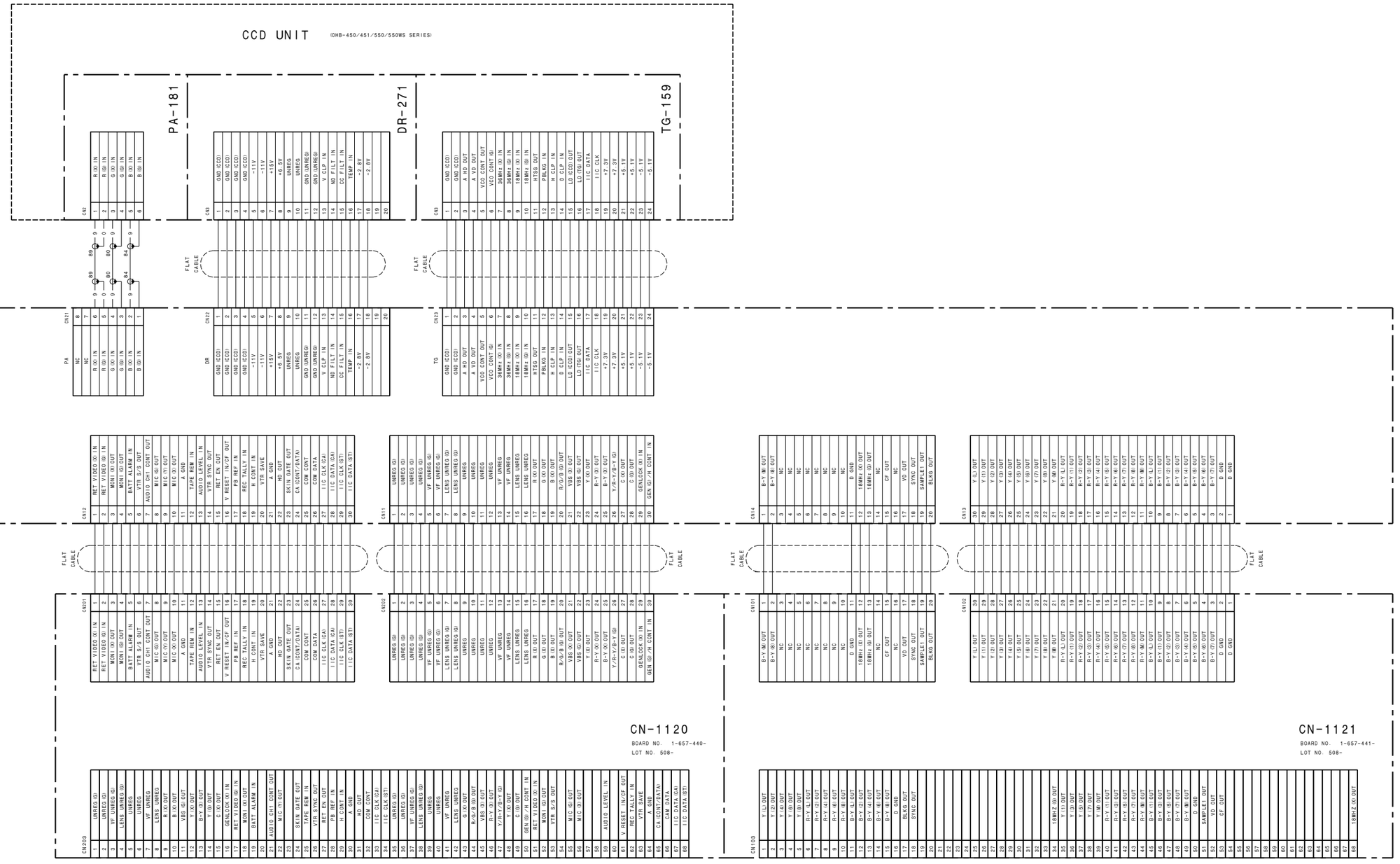
FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

FRAME WIRING

BVP-550 (SY)



FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742



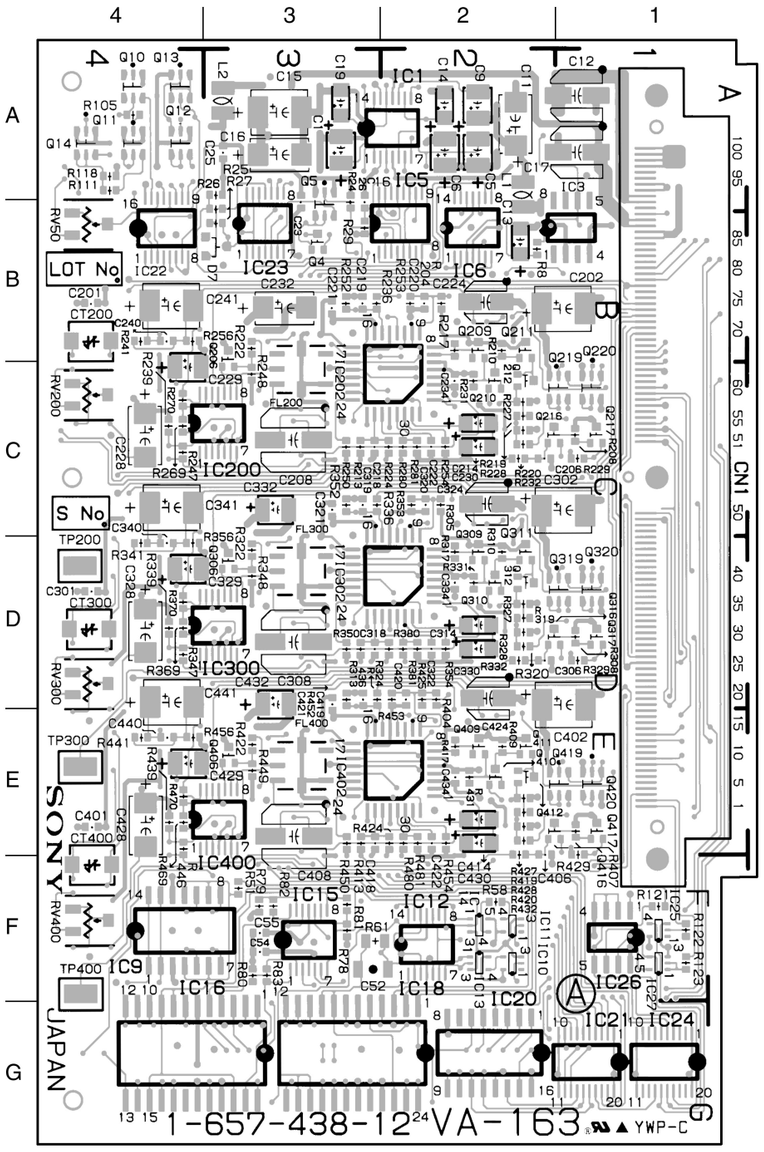
FRAME WIRING

CN-1120/1121/1122/1142
SW-730/731/732/733/742

A-¥BVP550-FRAME/M
B-¥BVP550-FRAME/M
B-¥BVP550-CN1122/M
B-¥BVP550-SW730/M
B-¥BVP550-SW731/M
B-¥BVP550-SW732/M
B-¥BVP550-SW733/M
B-¥BVP550-SW742/M

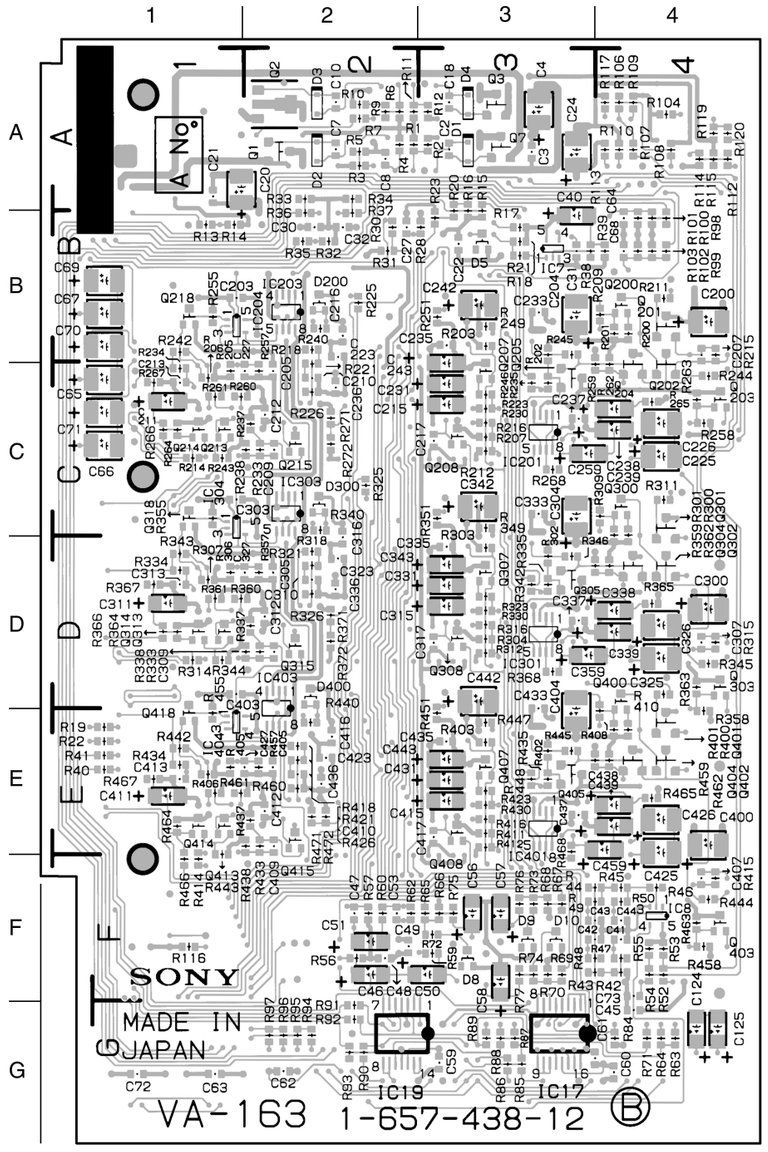
Section 9
Board Layouts

VA-163 BOARD



VA-163 - A SIDE -

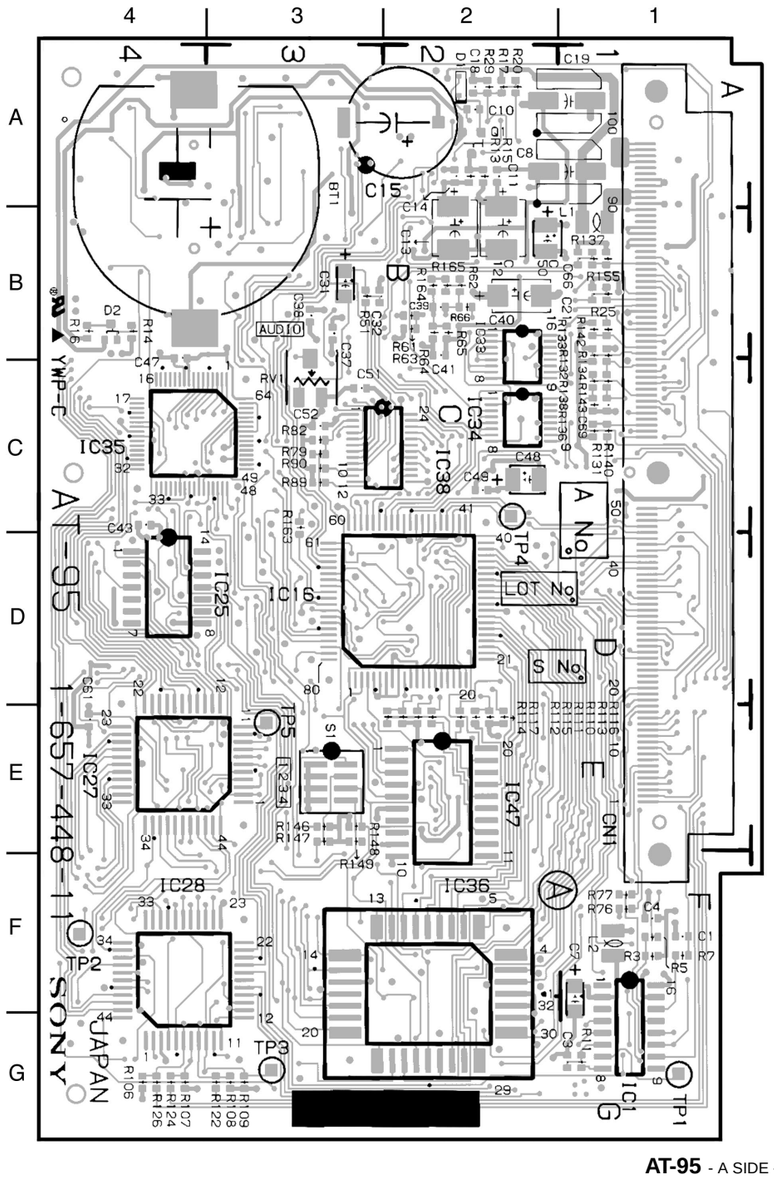
1-657-438-12, 21



VA-163 - B SIDE -

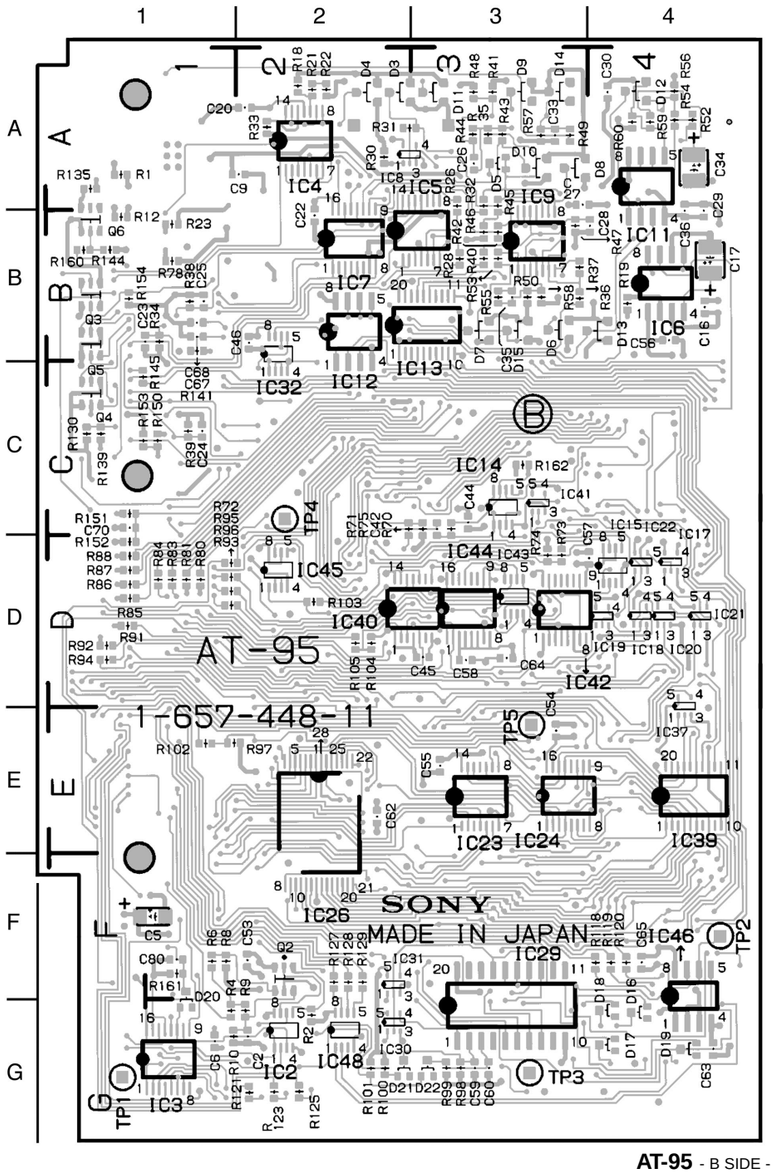
1-657-438-12, 21

AT-95 BOARD



AT-95 - A SIDE -

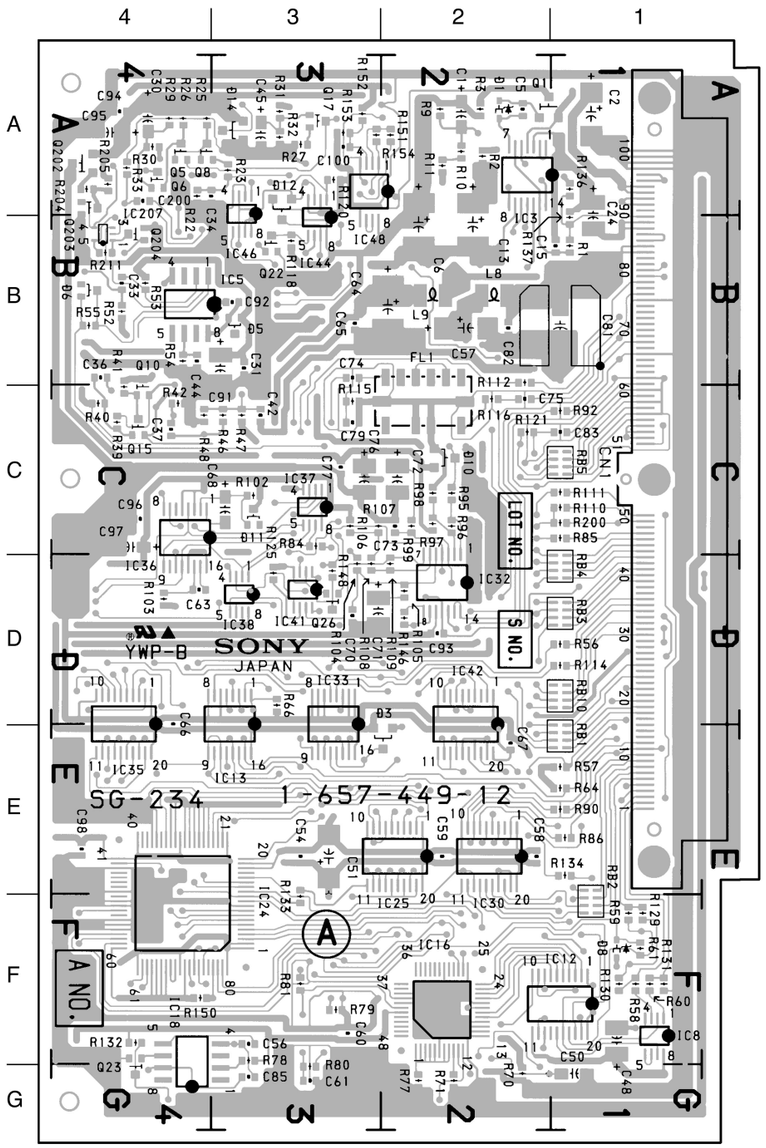
1-657-448-11, 12, 21



AT-95 - B SIDE -

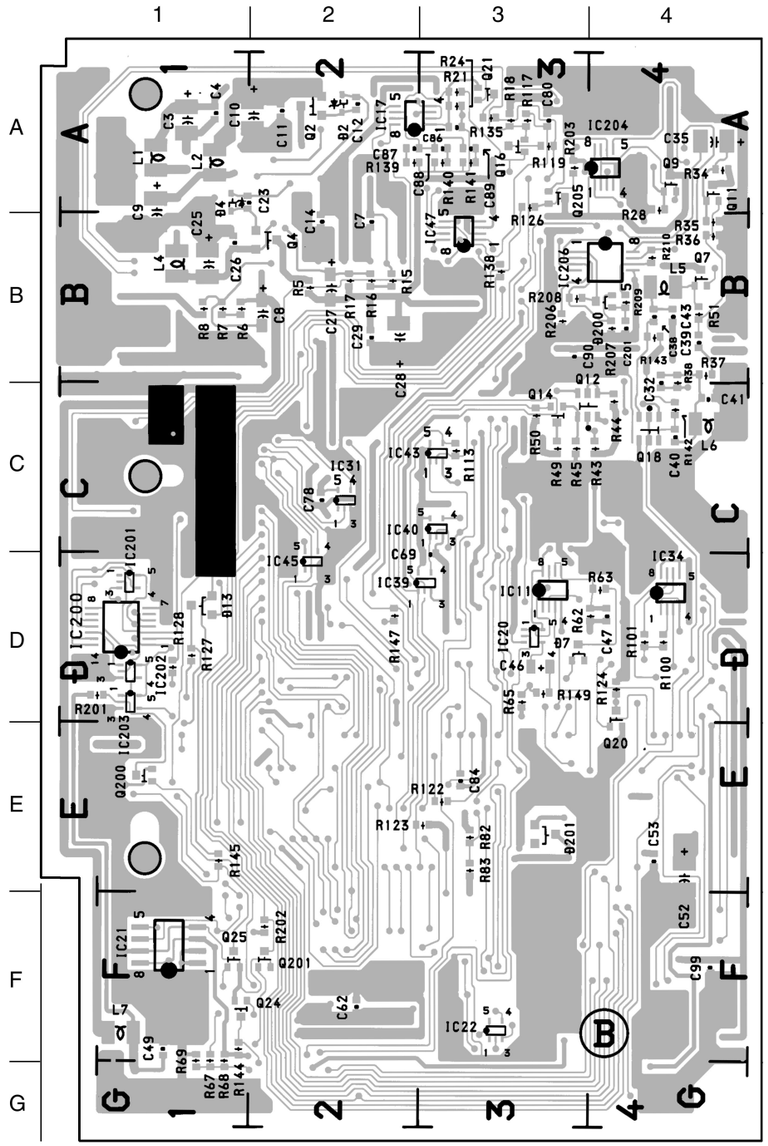
1-657-448-11, 12, 21

SG-234 BOARD



SG-234 - A SIDE -

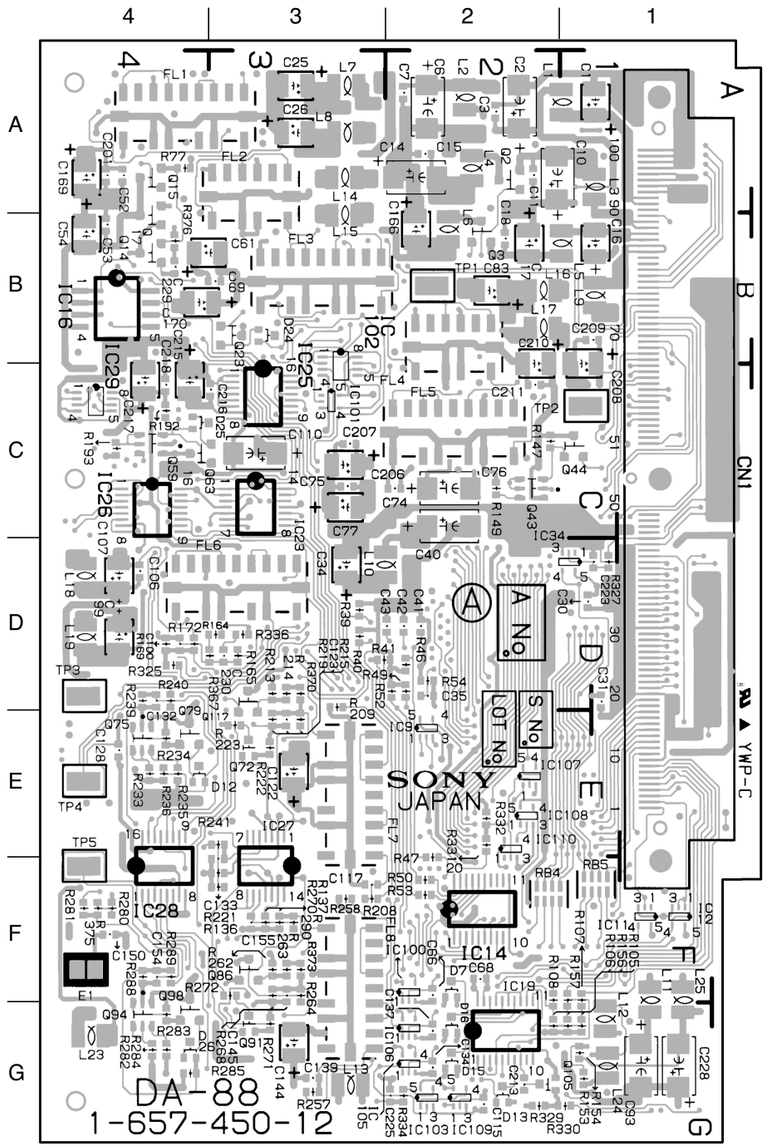
1-657-449-12, 21



SG-234 - B SIDE -

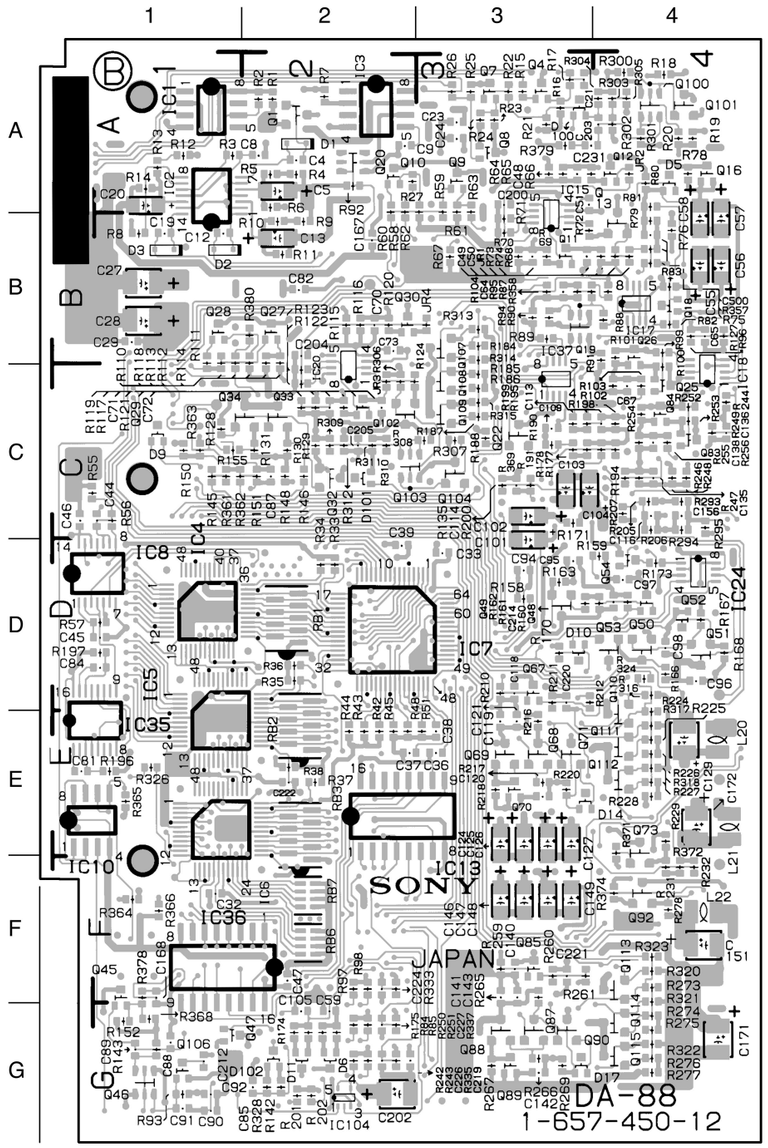
1-657-449-12, 21

DA-88 BOARD



DA-88 - A SIDE -

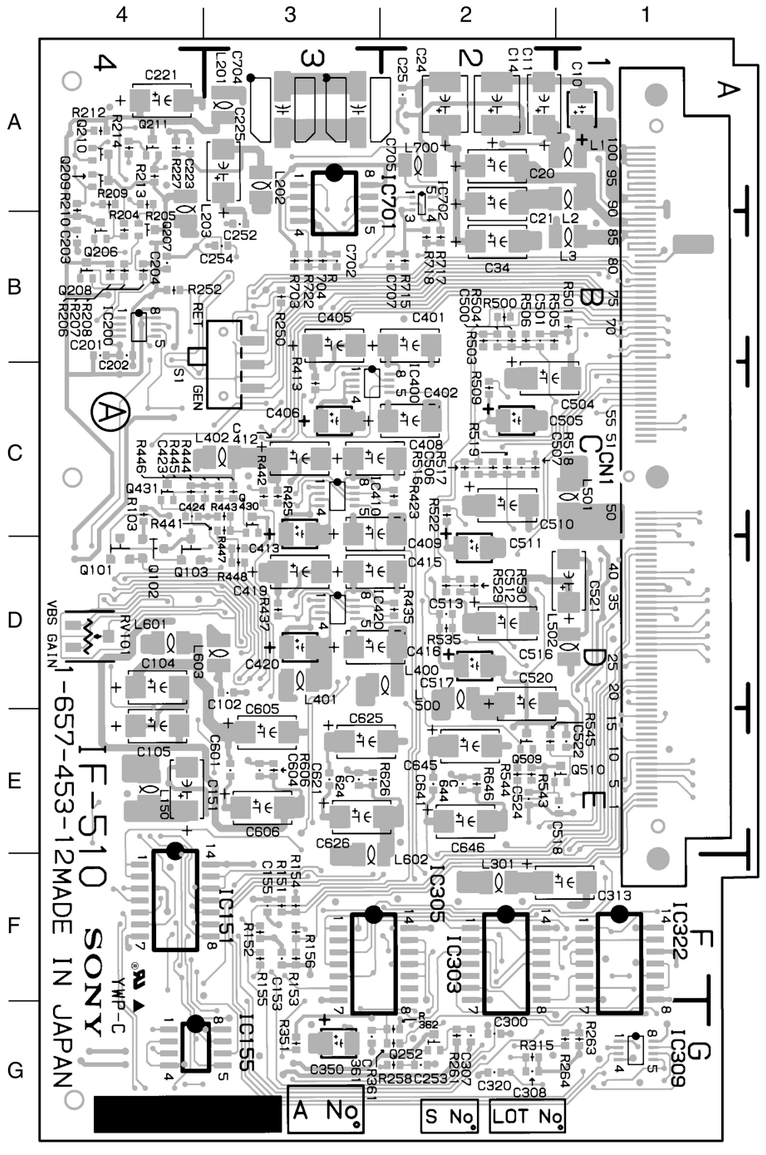
1-657-450-12, 21



DA-88 - B SIDE -

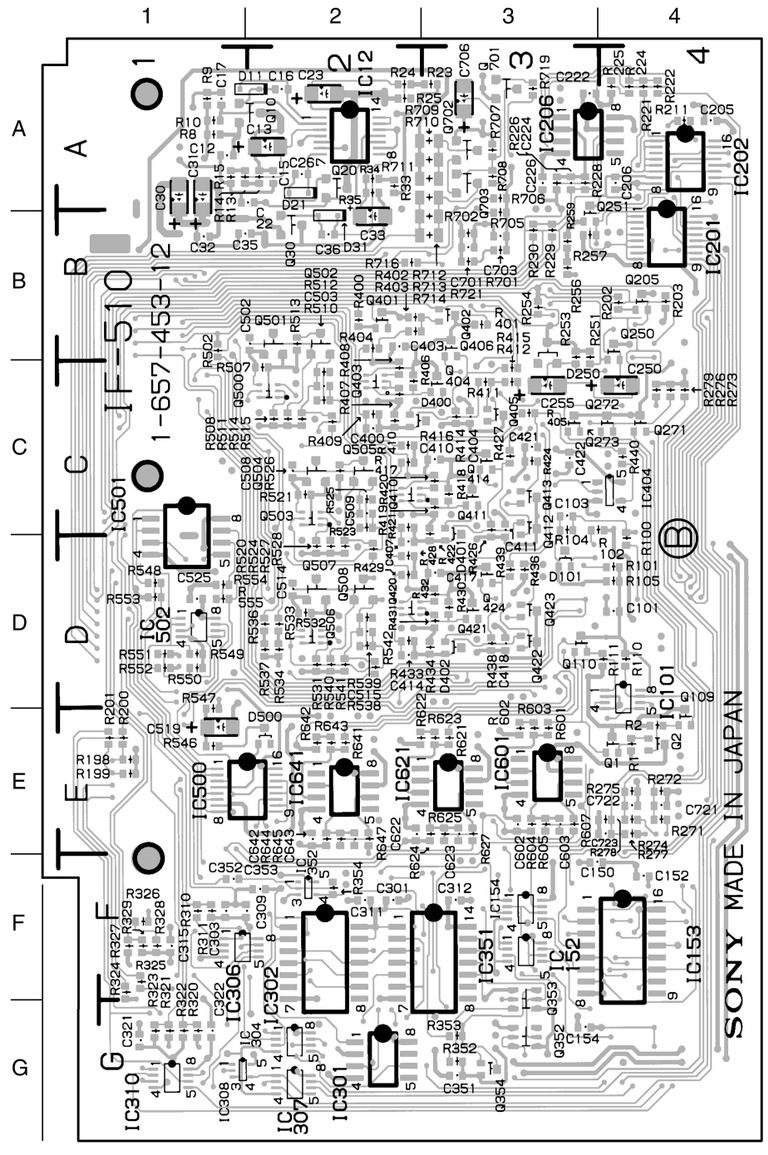
1-657-450-12, 21

IF-510 BOARD



IF-510 - A SIDE -

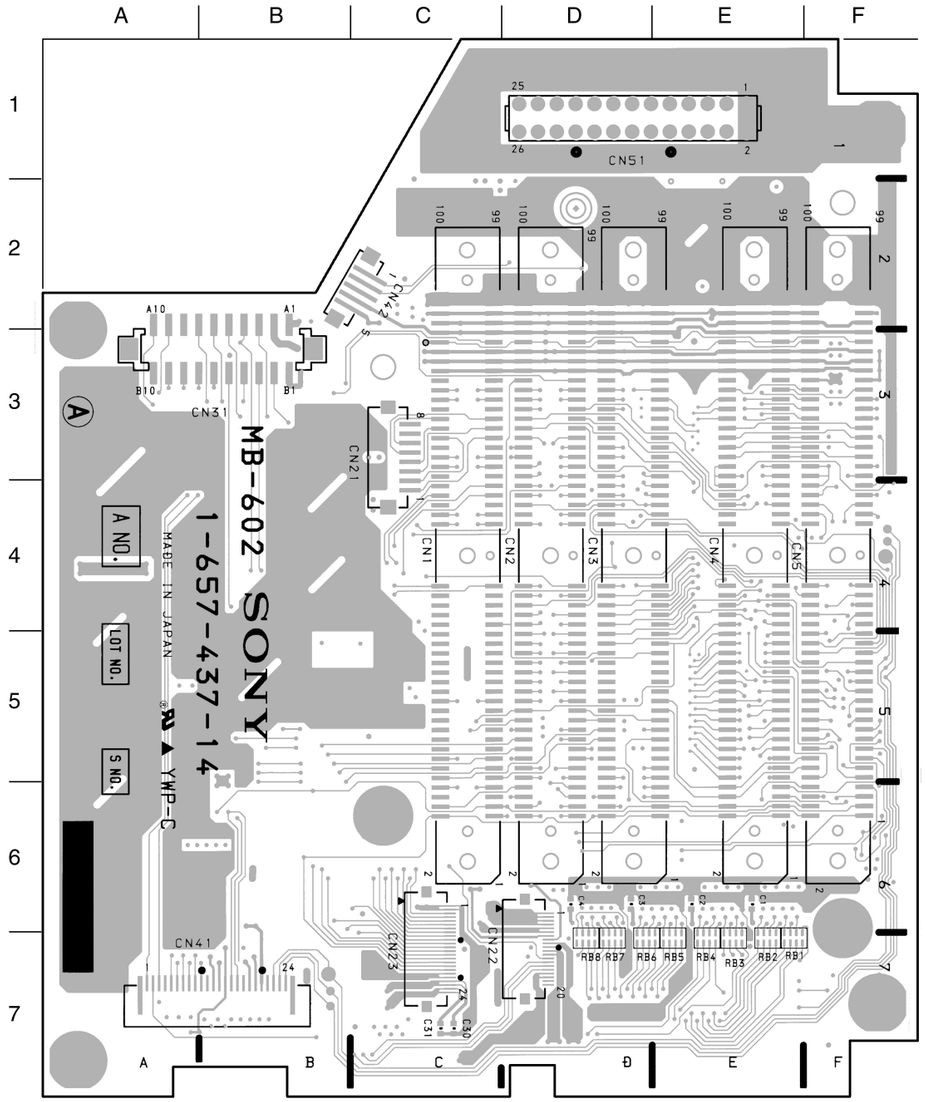
1-657-453-12, 21



IF-510 - B SIDE -

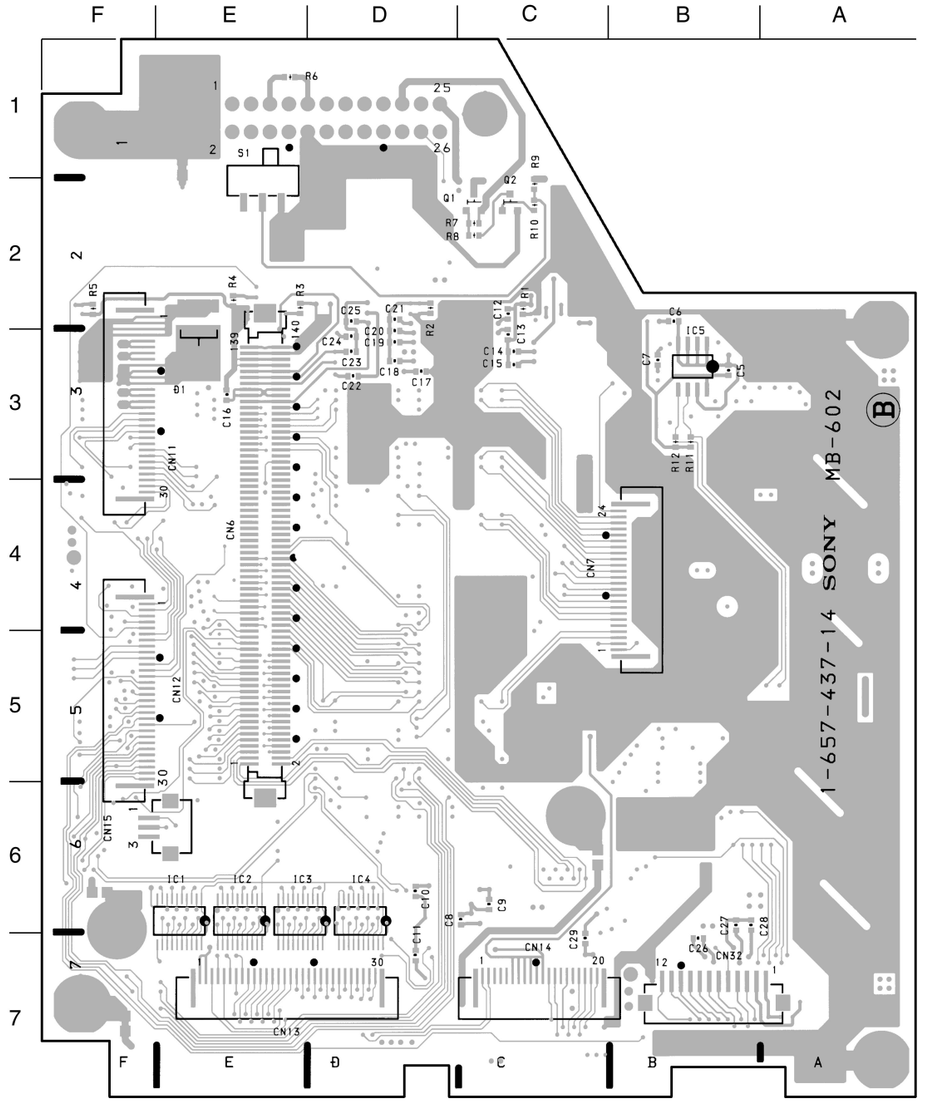
1-657-453-12, 21

MB-602 BOARD



MB-602 - A SIDE -

1-657-437-14, 21



MB-602 - B SIDE -

1-657-437-14, 21

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SONY

COLOR VIDEO CAMERA

BVP-550

Digital 1000

MAINTENANCE MANUAL

1st Edition (Revised 1)

Serial No. 15001 and Higher

Serial No. 50001 and Higher

⚠警告

このマニュアルは，サービス専用です。
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⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Color Video Camera BVP-550.
This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1. Installation

Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2. Service Overview

Describes information about board locations, circuit description, replacement of part and notes on services.

Section 3. Setup menu

Describes information about setup menu and self-diagnosis mode.

Section 4. Electrical Alignment

Describes electrical adjustment.

Section 5. Spare Parts

Describes parts list, exploded views, supplied accessories and fixtures list used in the unit.

Section 6. Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 7. Block Diagrams

Describes overall block diagram and the block diagrams for every circuit board.

Section 8. Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 9. Board Layouts

Describes board layouts for every circuit board.

Relative manuals

Besides this maintenance manual the following manuals are available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

- **System manual (Not supplied with this unit)**
  This manual is necessary for connection and operation of this unit and other peripheral equipments.
  If this manual is required, please contact Sony service organization

Section 1
Installation

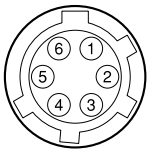
1-1. Connectors and Cables

1-1-1. Connector Input/Output Signals

Output Signal

- TEST OUT
  BNC 75 Ω 1.0 Vp-p

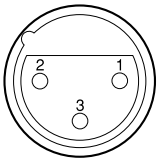
REMOTE (6P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	SERIAL DATA IN	Serial data for camera control
2	SERIAL DATA OUT	
3	UNREG (G)	
4	VBS (X) OUT	VBS 1 Vp-p, Zo = 75 Ω
5	VBS (G) OUT	
6	UNREG OUT	+10.5 V to +17 V

MIC IN (3P FEMALE)

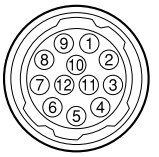


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	MIC IN (G)	–60 dBu High impedance balanced
2	MIC IN (X)	
3	MIC IN (Y)	

(0 dBu=0.775 Vrms)

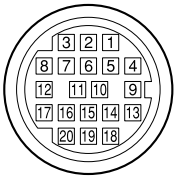
LENS (12P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	RET VIDEO ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
2	RET 2 ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
3	GND	GND for UNREG
4	AUTO +5 V OUT	AUTO: +5 V MANU: 0 V or OPEN
5	IRIS CONT OUT	+3.4 V (F16) to +6.2 V (F2.8)
6	UNREG OUT	+10.5 V to +17 V
7	IRIS POSITION IN	+3.4 V (F16) to +6.2 V (F2.8)
8	AUTO/MANU OUT	AUTO IRIS: 0 V MANUAL IRIS: +5 V
9	EXTENDER ON/OFF IN	EX 2 ON: 0 V EX 0.8 ON: +1.8 V OFF: +4.8 V
10	ZOOM POSITION IN	WIDE: 2 V TELE: 7 V
11	NC	No connection
12	NC	No connection

VF (20P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	NC	No connection
2	ABNORMAL IND OUT	H: Indicator lights L: Indicator goes out
3	16:9 MODE OUT	H: NORMAL (4:3) L: WIDE (16:9)
4	NC	No connection
5	COMP/VBS SW IN/OUT	*Note1
6	CCIR/EIA OUT	H:CCIR, L:EIA
7	NC	No connection
8	G TALLY OUT	H: Indicator lights L: Indicator goes out
9	NC	No connection
10	Y (X) OUT	1 Vp-p, VF:Zi = 1 kΩ
11	ZEBRA $\overline{\text{ON}}$ IN	H: OFF, L:ON
12	VF VIDEO OUT (X)	1.0 Vp-p, VF:Zi = 1 kΩ
13	NC	No connection
14	B-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
15	R-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
16	BATT IND OUT	H: Indicator lights L: Indicator goes out
17	TALLY IND OUT	H: Indicator lights L: Indicator goes out
18	+9.3 V (VF) OUT	REG +9.3 V
19	GND	GND
20	UNREG OUT	+10.5 V to 17 V

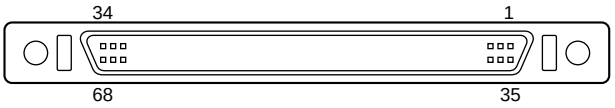
Note1: Specification of COMP/VBS SW Signal

When powering on, the microcomputer of the camera identifies a viewfinder in use by detecting the voltage at pin 5.

H: Color VF, L: B/W VF

- In use of B/W VF
  Voltage control of pin 5 is disabled during operation. Switching between the return video signal and monochrome signal for the viewfinder is done by the camera and selected signal is output at pin 12 to the viewfinder.
- In use of Color VF
  By controlling the voltage at pin 5 during operation, switching between the decoded return video signal and the camera component signal is done in the viewfinder.
  H: Camera, L: Return video

ANALOG CA (68P FEMALE)



(EXTERNAL VIEW)

*: In connection with CCU, **: In connection with VTR

No.	SIGNAL	SPECIFICATIONS
1	UNREG GND	GND for UNREG
2	UNREG GND	GND for UNREG
3	VF UNREG GND	GND for VF UNREG
4	LENS UNREG GND	GND for LENS UNREG
5	UNREG IN	10.5 V to 17 V
6	UNREG IN	10.5 V to 17 V
7	VF UNREG IN	10.5 V to 17 V
8	LENS UNREG IN	10.5 V to 17 V
9	R OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
10	B OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
11	VBS OUT (G)	GND for VBS VIDEO
12	Y OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
13	B-Y OUT (X)	700 mVp-p, with sample 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
14	NC	No connection
15	C OUT (X)	SC for S connector
16	VBS GENLOCK IN (X)	1.0 Vp-p ±6 dB
17	RET VIDEO IN (G)	GND for RET VIDEO
18	MONITOR VIDEO OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
19	BATTERY ALARM IN	Zi = 300 Ω *Note 2
20	NC	No connection
21	AUDIO CH1 CONT OUT	0 V (0 dB) to 7 V (–50 dB or less)
22	MIC 1 OUT (Y)	Zo ≤ 600 Ω, –60 dBu balanced
23	NC	No connection
24	SKIN TONE GATE OUT	1.0 Vp-p
25	TAPE REM IN	*Note 4
26	VTR SYNC OUT	+5.0 Vp-p Negative pulse, Zo ≤ 100 Ω
27	RET EN OUT	ENABLE; 0 V, DISABLE; +5 V or OPEN
28	PB REF IN	PB; +4.5 V, CAM; 0 V or OPEN
29	H CONT IN	0 V to 5 V, Analog
30	ANALOG GND	
31	DIGITAL HD OUT	3 Vp-p for Digital
32	COM CONT IN	5 Vp-p
33	IIC CLOCK OUT (CA)	5 Vp-p
34	IIC CLOCK OUT (ST)	5 Vp-p

No.	SIGNAL	SPECIFICATIONS
35	UNREG GND	GND for UNREG
36	UNREG GND	GND for UNREG
37	VF UNREG GND	GND for VF UNREG
38	LENS UNREG GND	GND for LENS UNREG
39	UNREG IN	10.5 V to 17 V
40	UNREG IN	10.5 V to 17 V
41	VF UNREG IN	10.5 V to 17 V
42	LENS UNREG IN	10.5 V to 17 V
43	G OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
44	R/G/B GND	GND for R/G/B VIDEO
45	VBS OUT (X)	1.0 Vp-p ±10%, Zo = 75 Ω
46	R-Y OUT (X)	700 mVp-p, with sync 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
47	Y/R-Y/B-Y GND	GND for Y/R-Y/B-Y
48	NC	No connection
49	C OUT (G)	GND for C
50	VBS GENLOCK IN (G)	GND for GENLOCK/H CONT IN
51	RET VIDEO IN (X)	1.0 Vp-p, Zi = 1 kΩ
52	MONITOR VIDEO OUT (G)	GND for MONITOR VIDEO
53	VTR START/STOP OUT	Zo ≤ 10 kΩ
54	NC	No connection
55	MIC 1 OUT (G)	GND for CAM MIC
56	MIC 1 OUT (X)	Zo ≤ 600 Ω, –60 dBu balanced
57	NC	No connection
58	NC	No connection
59	AUDIO LEVEL IN	Zi ≥ 1 kΩ (–15 dBu at 0 VU)
60	NC	No connection
61	V RESET IN/CF OUT	V Reset;0 V to +5 V, CF; 0 V to –5 V
62	REC TALLY IN	ON; +5 V, OFF; +2.5 V or 0 V, Zi ≥ 20 kΩ *Note 3
63	VTR SAVE OUT	SAVE; +4.5 V, STANDBY; 0 V, Zo ≤ 10 kΩ
64	GND	
65	SD IN/OUT	Serial data for camera control
66	COM DATA OUT	5 Vp-p
67	IIC DATA IN/OUT (CA)	5 Vp-p, 4700 Ω, Pull up
68	IIC DATA IN/OUT (ST)	5 Vp-p, 4700 Ω, Pull up

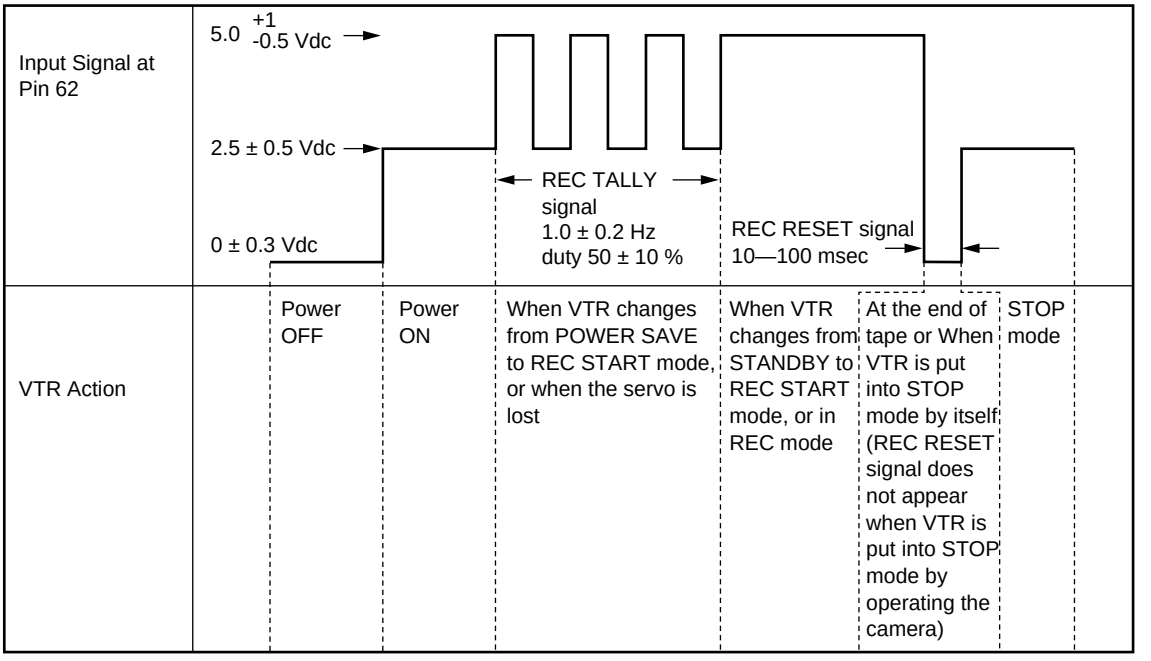
(0 dBu=0.775 Vrms)

Note 2 : Specifications of BATT ALARM Signal

VTR has a battery voltage detection and waring signal generation circuits and it sends the signal shown below to the camera.

Battery Terminal Voltage (VTR internal battery)	12.0—11.1 Vdc	11.1—10.8 Vdc	10.8 Vdc—
Input Signal at Pin 19	0 V	1.0 ± 0.2 Hz duty 50 ± 10 %	2—3 Vdc across 300 Ω
LED on Viewfinder	Stays out	Blinks at 1 Hz	Lights up

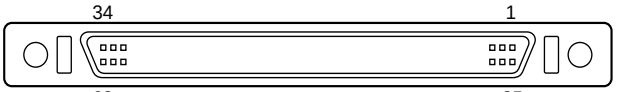
Note 3 : Specifications of REC TALLY Signal



Note 4 : Specifications of TAPE REM Signal

Tape Remaining (VTR)		Input Signal at Pin 25	Remark
TAPE1	**TAPE2**		
+5 V	+5 V	+3.4 V	
+5 V	0 V	+3.1 V	G TALLY lamp lights at +3.1 V
0 V	+5 V	+2.2 V	
0 V	0 V	0 V	

DIGITAL CA (68P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	Y (L) OUT	
2	Y (2) OUT	
3	Y (4) OUT	3.3 Vp-p
4	Y (6) OUT	
5	Y (8) OUT	
6	R-Y (L) OUT	
7	R-Y (2) OUT	
8	R-Y (4) OUT	3.3 Vp-p
9	R-Y (6) OUT	
10	R-Y (8) OUT	
11	B-Y (L) OUT	
12	B-Y (2) OUT	
13	B-Y (4) OUT	3.3 Vp-p
14	B-Y (6) OUT	
15	B-Y (8) OUT	
16	DIGITAL GND	GND for DIGITAL
17	DIGITAL BLANKING OUT	3.3 Vp-p
18	DIGITAL SYNC OUT	3.3 Vp-p
19	NC	No connection
20	NC	No connection
21	NC	No connection
22	NC	No connection
23	NC	No connection
24	NC	No connection
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	NC	No connection
29	NC	No connection
30	NC	No connection
31	NC	No connection
32	NC	No connection
33	NC	No connection
34	18 MHz OUT (G)	GND for 18 MHz

No.	SIGNAL	SPECIFICATIONS
35	Y (1) OUT	
36	Y (3) OUT	
37	Y (5) OUT	3.3 Vp-p
38	Y (7) OUT	
39	Y (M) OUT	
40	R-Y (1) OUT	
41	R-Y (3) OUT	
42	R-Y (5) OUT	3.3 Vp-p
43	R-Y (7) OUT	
44	R-Y (M) OUT	
45	B-Y (1) OUT	
46	B-Y (3) OUT	
47	B-Y (5) OUT	3.3 Vp-p
48	B-Y (7) OUT	
49	B-Y (M) OUT	
50	DIGITAL GND	GND for DIGITAL
51	DIGITAL SAMPLE OUT	3.3 Vp-p
52	DIGITAL VD OUT	3.3 Vp-p
53	DIGITAL CF OUT	3.3 Vp-p
54	NC	No connection
55	NC	No connection
56	NC	No connection
57	NC	No connection
58	NC	No connection
59	NC	No connection
60	NC	No connection
61	NC	No connection
62	NC	No connection
63	NC	No connection
64	NC	No connection
65	NC	No connection
66	NC	No connection
67	NC	No connection
68	18 MHz OUT (X)	3.3 Vp-p

1-1-2. Connection Connector

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Connection Connectors/Cables
TEST OUT (BNC)	1-560-069-11 Plug, BNC or B-B Cable assembly (cable length 1.5 m, option)
REMOTE (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
MIC IN (3P FEMALE)	1-508-084-00 XLR, 3P Male or CANNON XLR-3-12C equivalent

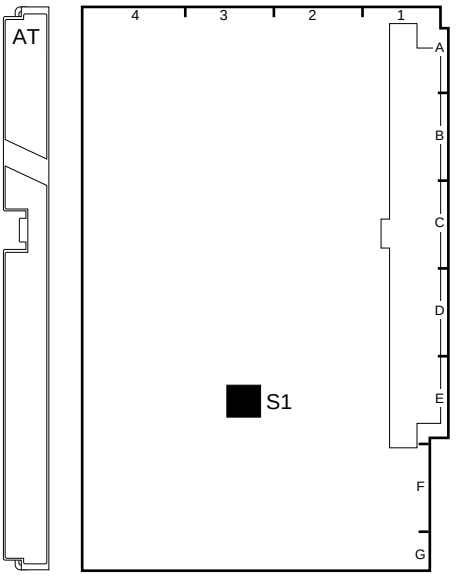
1-2. Installaton Conditions

Operating Temparature : –20°C to +45°C
Storage Temparature : –20°C to +50°C
Humidity : No condence

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temparature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric fields
  A place subjected to direct sunlight or strong light

1-3. Function of Internal Switches

AT-95 Board



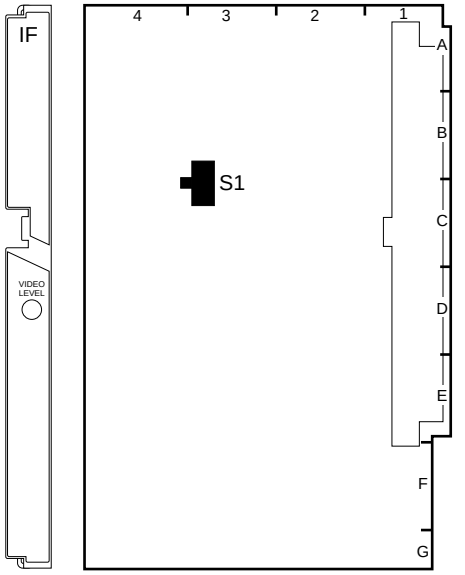
S1 : Setup menu select switch (S1-1 to S1-4)
Setup menu indicated on the viewfinder can be selected in combination of switches S1-1 to S1-4.

( ) in parentheses: Factory-set positions

				Setup Menu					
S1-1	S1-2	S1-3	S1-4	Operation	Paint	Maintenance	Reference	Triming	Config
OFF	OFF	OFF	OFF	YES	NO	NO	NO	NO	NO
(ON)	(OFF)	(OFF)	(OFF)	YES	YES	NO	NO	NO	NO
OFF	ON	OFF	OFF	YES	YES	YES	NO	NO	NO
ON	ON	OFF	OFF	YES	YES	YES	YES	NO	NO
OFF	OFF	ON	OFF	YES	YES	YES	YES	YES	NO
ON	OFF	ON	OFF	YES	YES	YES	YES	YES	YES

For details on the setup menu, refer to Section 3.

IF-510 Board



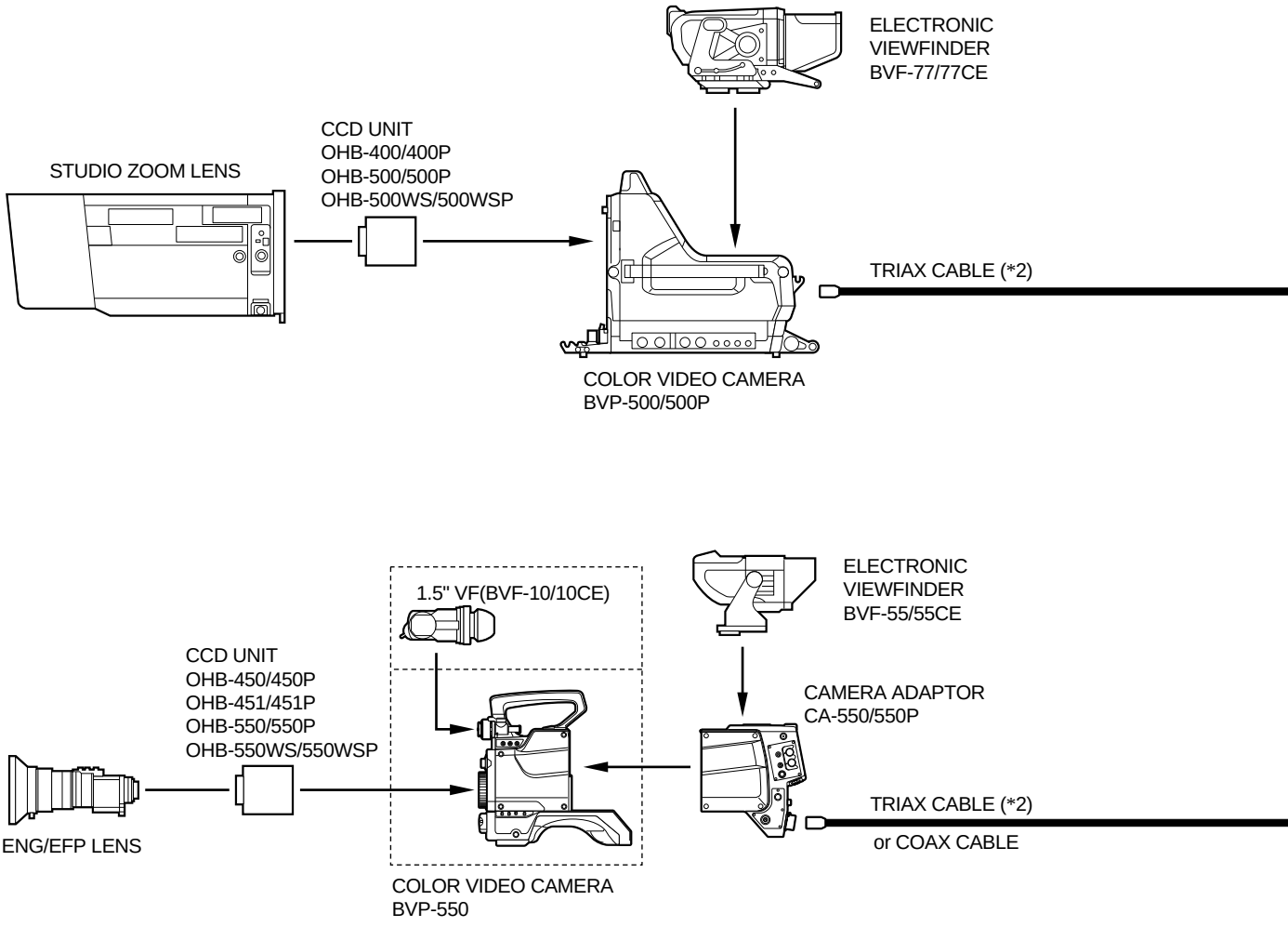
S1 : VF connector signal select switch
Selects an output signal at VF connector.
RET: Return video signal from CCU
GEN: Reference signal for external synchronization which is input at GENLOCK IN connector of CA
Factory-set position: RET

MB-602 Board

In setting a switch on MB-602 board, open the left side panel.

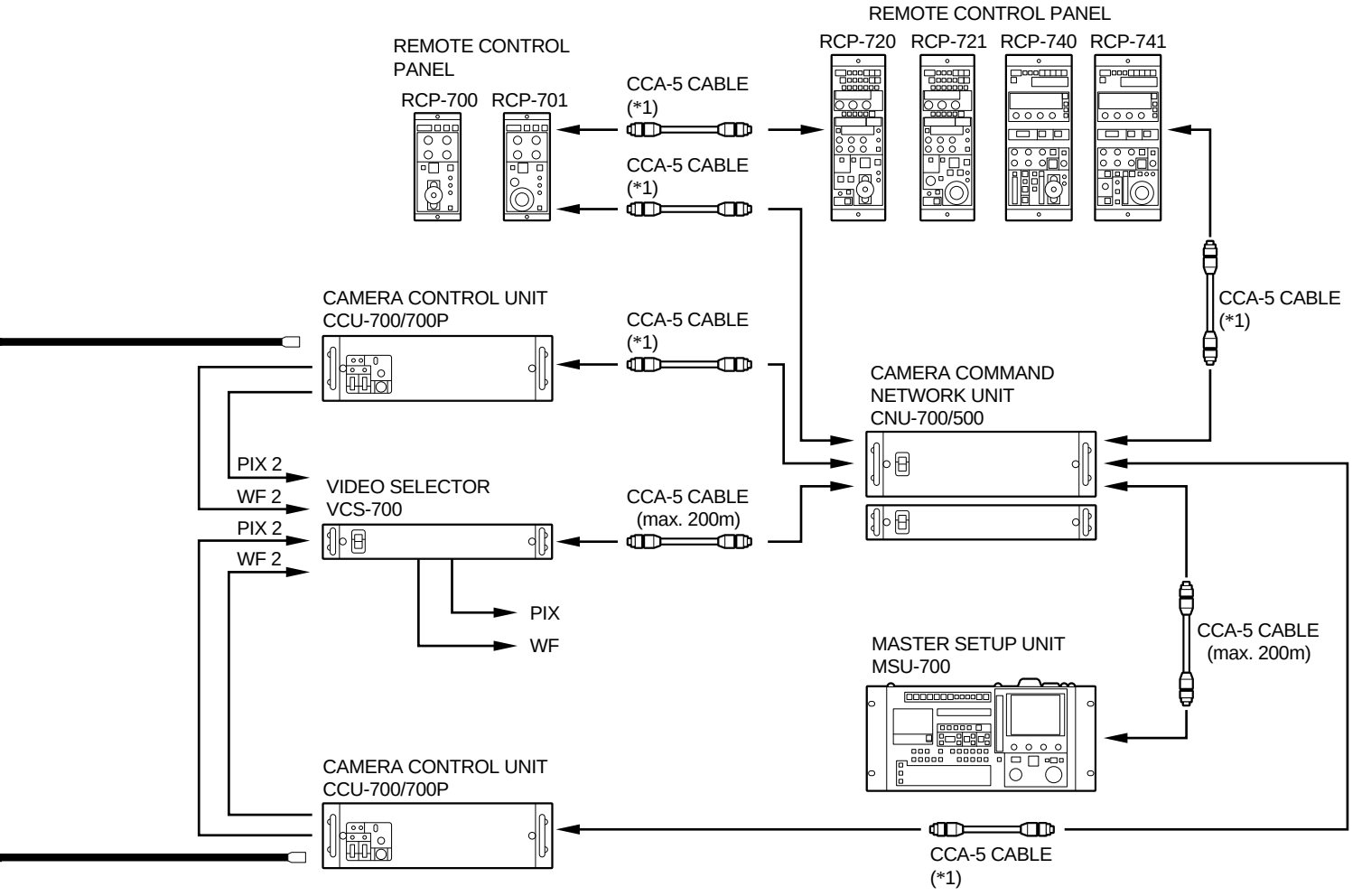
S1 : PHANTOM POWER switch
Turn on when connecting the PHANTOM +48 V microphone to MIC connector.
Factory-set position: ON

1-4. Instance of Sytem Configuration

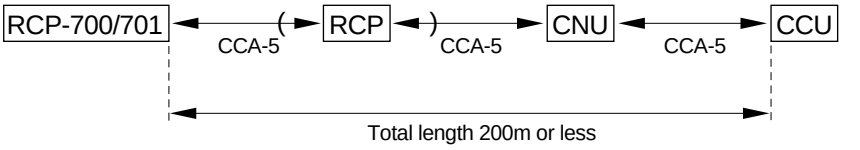


OTHER OPTIONAL ACCESSORIES

For BVP-500/500P	STANDALONE UNIT BKP-5910/5910P
	SCRIPT HOLDER BKP-7911/7912
For BVP-550	ELECTRET CONDENSER MICROPHONE ECM-MS5
	MICROPHONE C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION CRS-3P
	CARRYING CASE LC-303SFT
For CA-550/550P	TELEPROMPTER UNIT BKP-5971

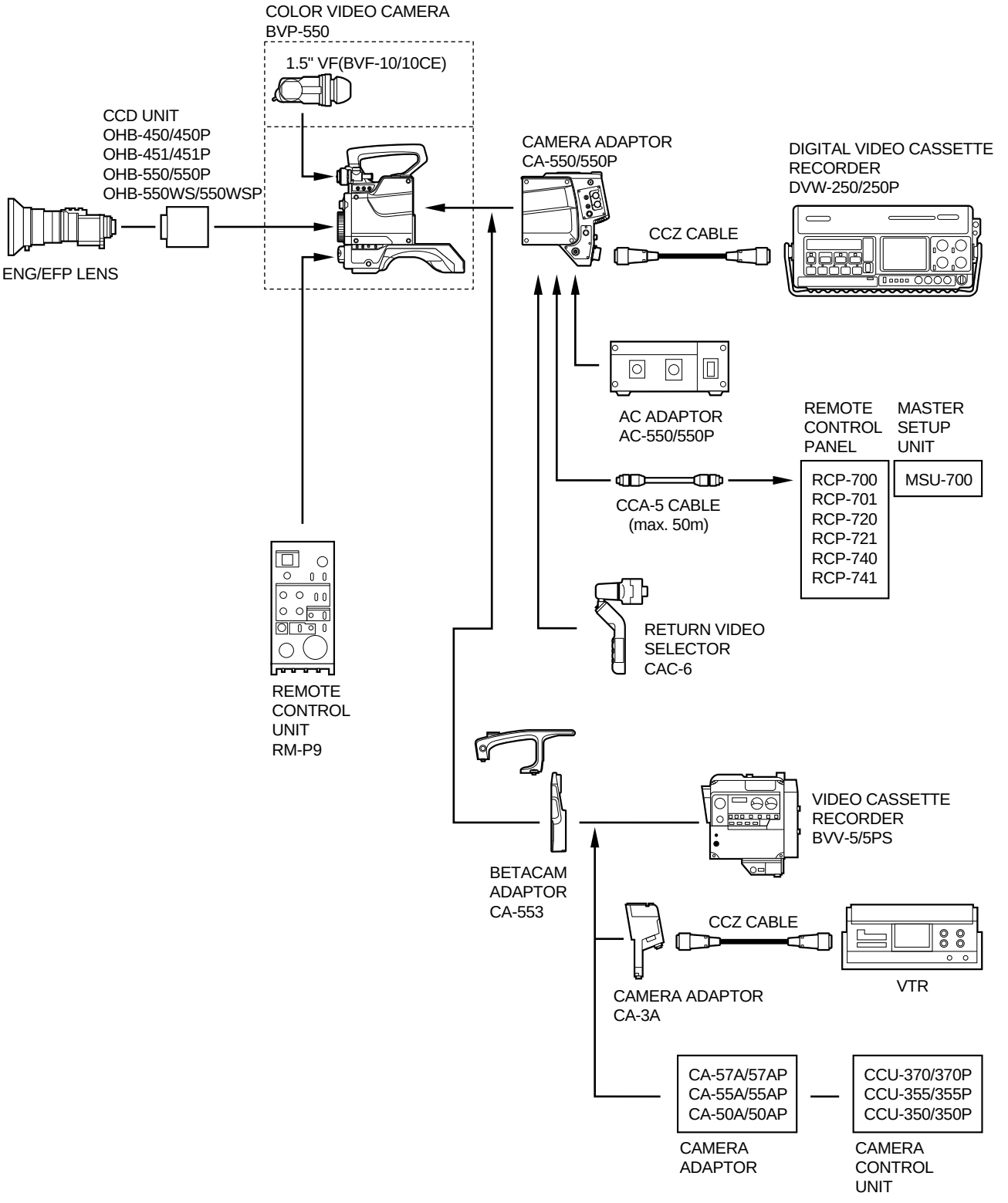


*1: CCA-5 CABLE LENGTH



*2: TRIAX CABLE LENGTH

Diameter	Maximum length
8.5 mm	1000 m
14.5 mm	2000 m


COLOR VIDEO CAMERA
BVP-550
1.5" VF(BVF-10/10CE)
CCD UNIT
OHB-450/450P
OHB-451/451P
OHB-550/550P
OHB-550WS/550WSP
ENG/EFP LENS
CAMERA ADAPTOR
CA-550/550P
DIGITAL VIDEO CASSETTE
RECORDER
DVW-250/250P
CCZ CABLE
AC ADAPTOR
AC-550/550P
REMOTE
CONTROL
PANEL
MASTER
SETUP
UNIT
RCP-700
RCP-701
RCP-720
RCP-721
RCP-740
RCP-741
MSU-700
CCA-5 CABLE
(max. 50m)
REMOTE
CONTROL
UNIT
RM-P9
RETURN VIDEO
SELECTOR
CAC-6
VIDEO CASSETTE
RECORDER
BVV-5/5PS
BETACAM
ADAPTOR
CA-553
CCZ CABLE
VTR
CAMERA ADAPTOR
CA-3A
CA-57A/57AP
CA-55A/55AP
CA-50A/50AP
CAMERA
ADAPTOR
CCU-370/370P
CCU-355/355P
CCU-350/350P
CAMERA
CONTROL
UNIT

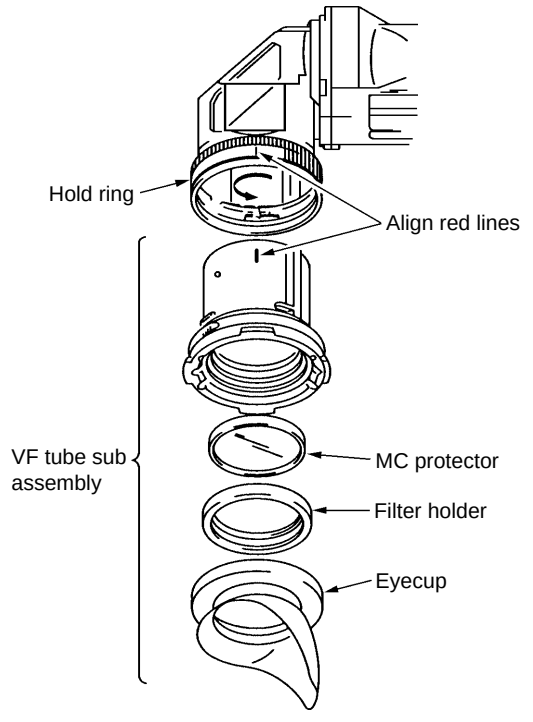
1-5. Optional Accessories for Viewfinder

The following accessories are available separately for the supplied viewfinder. Please order as necessary.

- VF Rotation Bracket BKW-401
  By fitting the BKW-401 to the camera, you can rotate the viewfinder out of the way so that your right leg does not hit the viewfinder while you are carrying the camera.

- Fog-proof Filter (Sony Part No. 1-547-341-11)
  Use in place of the MC protector shown in the figure.

- Lens Assembly for Aged Eye
  (Sony Part No. A-8262-537-A)
- Lens Assembly for Low Power
  (Sony Part No. A-8262-538-A)
- Lens Assembly (Standard magnification with special compensation for aberration)
  (Sony Part No. A-8267-737-A)
- High Performance (3X) Lens Assembly
  (Sony Part No. A-8314-798-A)
  Use in place of the VF tube sub assembly shown in the figure.



* To protect the viefinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.

Section 2
Service Overview

2-1. Notes on Service

2-1-1. Note on Replacement of Parts

Every component electrical part mounted on the PR-211 and CN-1142 boards cannot be replaced. And also a 68-pin connector on the CN-1120/1121 board cannot be. If there is any defective part, replace the mounted circuit board itself.
The PR-211 board is provided with a termination board CN-1142 on it. The CN-1142 board is necessary when the PR-212 board of OHB-550WS/550WSP is not installed. Unless the PR-212 board is installed, be sure to connect the CN-1142 board to the PR-211 board.

2-1-2. Description of EEPROM Data

The table below gives the holding data of EEPROM on every printed circuit board.

Board	Ref. No.	Holding data
VA-163	IC26	VA-163 adjustment data
AT-95	IC46	Triming/Reference files
SG-234	IC21	SG-234 adjustment data
DA-88	IC10	DA-88 adjustment data
IF-510	IC155	IF-510 adjustment data
MB-602	IC5	Model name, Serial number of the unit

Note

The IC listed above cannot be replaced because it is the EEPROM that is holding data inherent in the board. The part number listed in Section 5 “Spare Parts” is for an EEPROM which is not programmed. If replacement is needed, consult your Sony representatives.

2-1-3. Extension Boards

The extension boards and harness are available separately for check or adjustment of some printed circuit boards.

Extension Board/Harness	Sony P/N	To be extended
EX-464	J-6395-040-A	VA-163 AT-95 SG-234 DA-88 IF-510 Plug-in boards for CA

2-1-4. Notes on Repair Parts

1. WARNING

Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

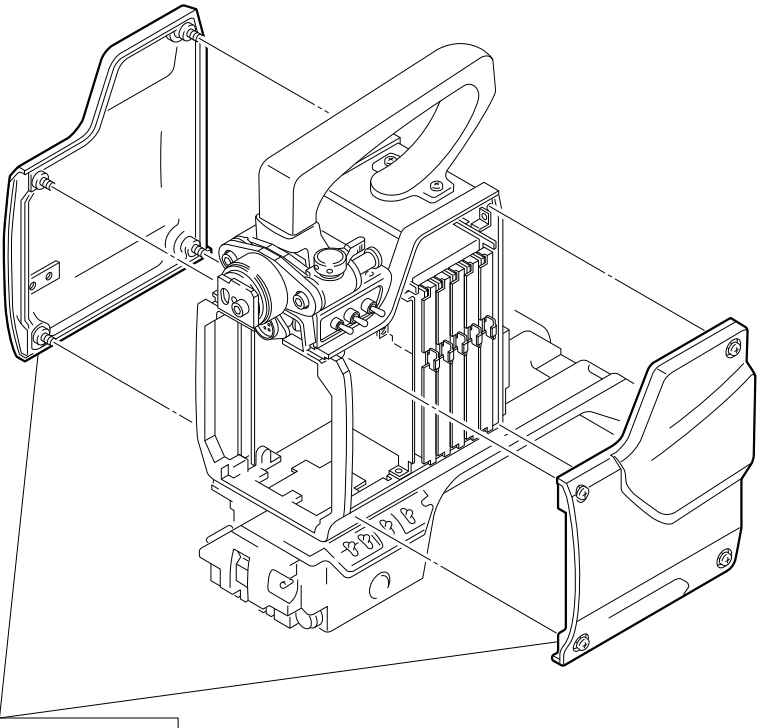
Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

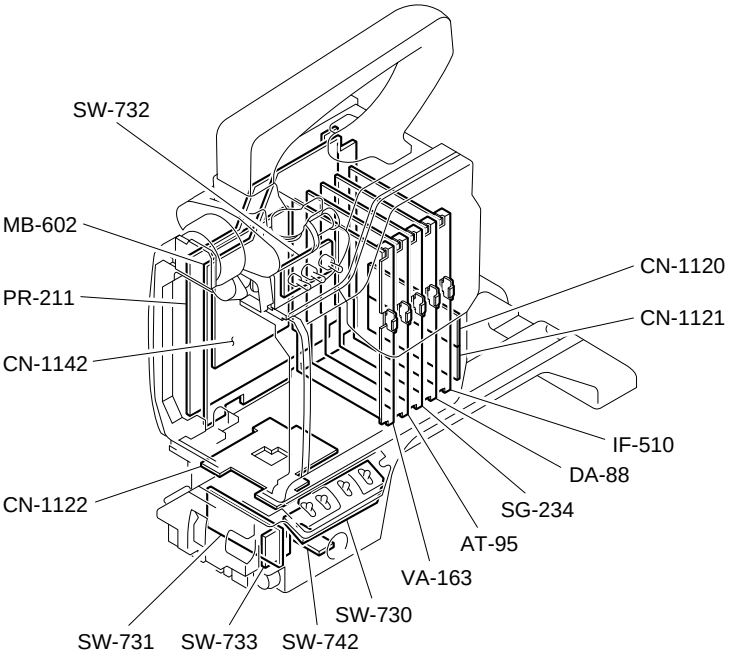
Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

2-2. Removal of Cabinet



To remove the both side panels
Loosen the four screws respectively.

2-3. Location of Printed Circuit Boards



2-4. Circuit Description

Circuit description for the BVP-550 and CCD unit OHB-450/451/550/550W series (available separately) is described here. The BVP-550 is called as BVP, and OHB-450/451/550/550W series is called as OHB in this section.

(1) CCD Drive System (OHB)

TG-159 board

The TG-159 outputs the pulses for driving the CCD to the DR-271 board and outputs the pulses for sampling the CCD output to the PA-181 board.
The driving pulses are synchronized with the HD and VD pulses input from the BVP and are output.
Pulses are generated from the VCO clock (36 MHz) of the board. The clocks for the digital processing circuit (36 MHz, 18 MHz)are also output to the BVP.
CCD V-sub voltage, white shading data and so on are also stored in the EEPROM of the TG-159 board.

DR-271 board

The DR-271 board converts the pulses from the TG-159 board to directly drive the CCD. The converted pulses are transmitted to the CCD via the BI-91(R)/91(G)/91(B) board respectively. The board also has a circuit which makes +29 V from +15 V for the V-sub voltage. Furthermore, the board also has an interface circuit for the optical filter.

BI-91(R)/91(G)/91(B) boards

The CCDs are mounted on the BI-91(R)/91(G) /91(B) boards. These boards supply the driving pulses and control voltages to the CCD.
The signals output from the CCD are sent to the PA-181 board via the emitter follower.

PA-181 board

The PA-181 board extracts video signals from the CCD signals output from the BI-91(R) /91(G)/91(B) boards by a correlated double sampling circuit, and amplifies the R and G signals by one time, and the B signal by three times. The resultant signals are output to the VA-163 board of the BVP.

DR-302 board (OHB-451/451P only)

The DR-302 is a driving board for one optical filter disk, which motor-drives a filter selected by the RCP or MSU. The DR-302 board consists of a motor-drive circuit, and a servo circuit comprised of a selected filter detection and filter position voltage generation circuits.

(2) Video Signal System

VA-163 board

The VA-163 board amplifies the video signals output from the OHB and performs the following processings:

- Black shading correction
- Gain-up control
- Blanking cleaning
- White shading correction
- Feedback clamping
- White balancing
- Flare compensation, and
- Pre-knee

In addition, it also switches between the video signals, TEST SAW(TEST1) signal and 3-STEP TEST(TEST2) signal.

PR-211 board

The PR-211 board converts the analog R, G, and B video signals into digital signals with an A/D converter having sampling/holding functions.
It generates clocks required for the A/D conversion and the digital processings from the clocks generated by the OHB.
In addition, the PR-211 board adds a linear matrix and detail signals to the analog-to-digital-converted R, G and B signals.
It performs the processings such as pedestal control, gamma correction, knee correction and white clipping for the signals. It also performs the followings.

- Generates an internal color-bar signal and switches between this signal and the main line signals.
- Creates detail and aperture signals from digital R and G signals.
- Creates a skin tone singal.
- Detects signals for an auto iris, flare compensation, DCC, and auto white/black balancings.
- Detects black/white shadings, generates a waveform to compensate them and outputs the wavefoem to the VA-163 board.
- Detects black levels and outputs the feedback clamp voltage to the VA-163 board.
- Generates TEST SAW waveforms and output them to the VA-163 board.

- Generates a 27-MHz clock signal required for the VTR control.

The video signals that has thus been digital-processed, are then converted to Y, R-Y and B-Y signals. Some signals are output to the DA-88 board and the others are output via the MB board as a digital video signal output at the same time. The Y/C signals are generated from the Y, R-Y and B-Y signals with a color encoder IC on the PR-211 board. These signals, that were sampled at 36-MHz rate and quantized by 10 bits, are digital-to-analog converted. And the resultants are then output to the DA-88 board as a monochrome signal for VF, wide-band luminance signal, or modulated chroma signal. The monochrome signal for VF has a zebra signal for level indication, and character signal and center marker signal on it.

DA-88 board

The monochrome signal for VF (VF Y) sent from the PR-211 board goes through a lowpass filter and is output to the MB-602 board. The wide-band luminance signal Hi-Ys is output via a lowpass filter to the IF-510 board. The modulated chroma signal C goes through a black clamp circuit and lowpass filter and is added to the Hi-Ys. The resultant is output to the IF-510 board as a VBS signal.
The Y, R-Y and B-Y signals, that are input from the PR-211 board as the digital video signals, are aligned in phase with video signals in another channels by a digital delay line. The resultant is digital-to-analog converted and is then output via a lowpass filter to the IF-510 board. On the other hand, an analog component signal is generated in combination with the above-mentioned Hi-Ys signal, R-Y and B-Y signals. The analog component signal is controlled, on the level adjustment and reference signal addition, by the AT-95 board according to equipment connected to the camera (VTR or CCU). The analog component signal is output to external equipment via the 68P interface connector .

IF-510 board

Input signals at the IF-510 board are as follows;
Signals from the DA-88 board: VF Y, VBS, Y, R-Y and B-Y
Signals from external equipment: Reference signal for external synchronization, Return video signal
By combination with these signals, the IF-510 board outputs the following signals.

- VBS OUT signal
  Output via a buffer amplifier to external equipment.
- VBS OUT signal for RM
  Output to an interface connector for a remote control unit RM-P9. Using the setup menu, a character signal to confirm the menu setting can be mixed to this signal.
- TEST OUT signal
  With the signal select switch at the right top of the camera, the above-mentioned VBS or the VF Y signal can be selected as a TEST OUT signal output at the TEST OUT connector.
- VF OUT/MONI OUT signal
  The same signal is output as the VF OUT signal and the MONI OUT signal. One of the VF Y, VBS, or return video or reference signal selected by S1 on the IF-510 board, is selected. The selected signal is mixed with a center marker and safety-zone pulse, and is then output. The VF OUT signal is output at the VF connector and the MONI OUT signal is output at the 68P interface connector.
- R/G/B output signals
  The Y, R-Y and B-Y signals are converted to the R, G and B signals by a matrix circuit. The converted signals are output at the 68P interface connector.
- Y/R-Y/B-Y output signals for VF
  These signals are for a color viewfinder. A character signal and SKIN GATE signal are mixed with the above-mentioned Y, R-Y and B-Y signals. The resultants are output to the VF.
  In addition, the IF-510 board is equipped with the following circuits.
- HD/VD external sync circuit
  When displaying the return video or reference signal on the viewfinder screen, it is necessary to synchronize the cursor signal with those signals. And a sync signal is separated from those signals to generate the external HD and VD signals, and the resultant is sent to the cursor signal generation circuit on the PR-211 board.
- Peak-detects the G signal and outputs to the AT-95 board.
- Transmits the SKIN GATE signal from DA-88 board to the CCU via the 68P interface connector.

(3) Auto system

AT-95 board

The AT-95 board consists of a microcomputer which controls the camera according to the instructions stored in a ROM. Operations of the board are listed below;

- Analyzes instructions of the function switches, video system detection data and analog data.
- Outputs various control signals and compensation signals to the boards.
- Outputs status information and self-diagnosis infomation as character data from the character generator.
- Incorporates the interface function with the RM-P9 or the CCU-700/700P.

(4) Pulse system

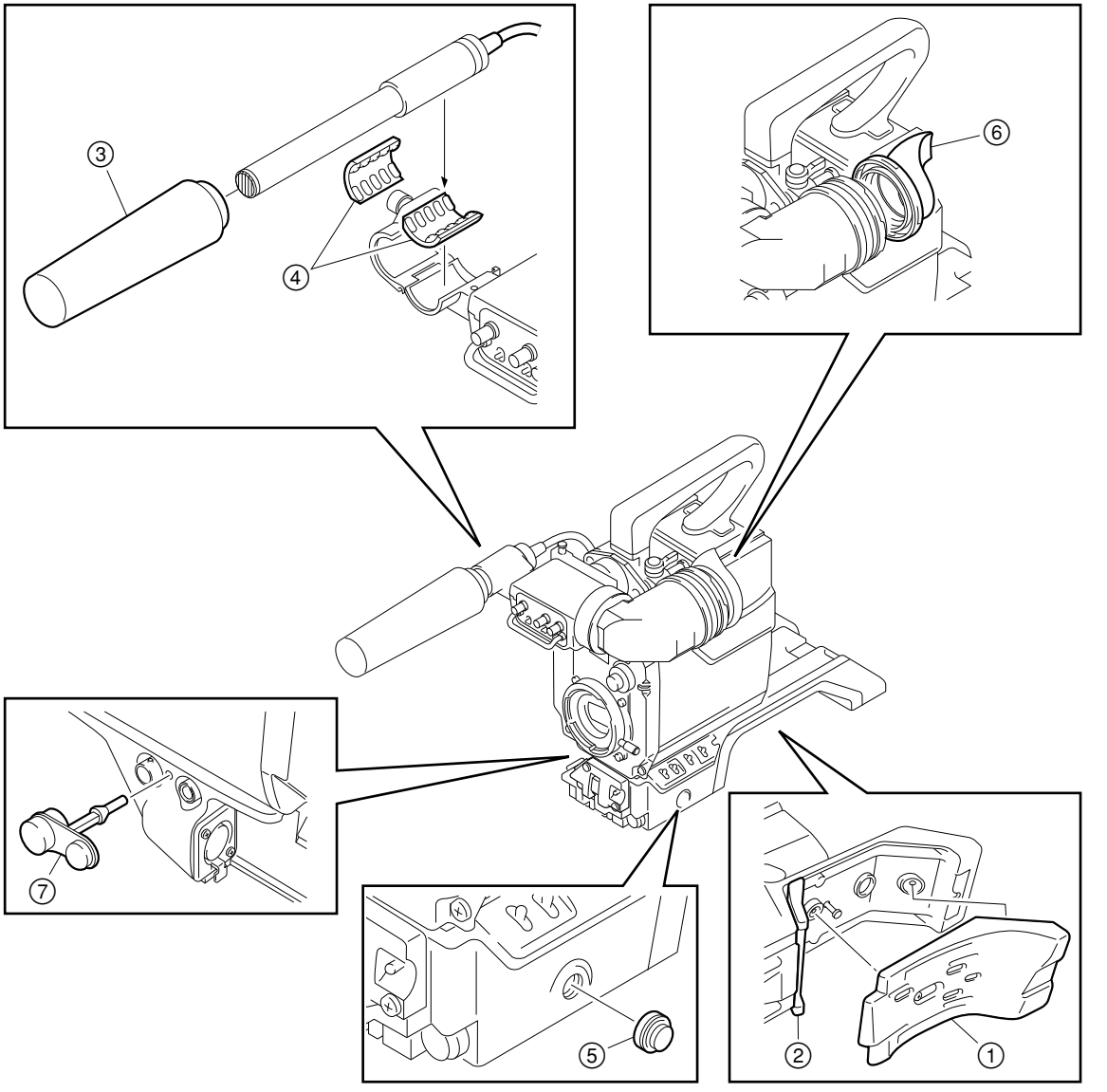
SG-234 board

The SG-234 board has a sync signal generator which generates various sync signals for the camera. The sync signals are generated from the clock pulse input from the OHB via the PR-211 board. They are output to the board of the camera, OHB and the camera adaptor (CA) respectively. This generator has two modes to synchronize with a reference signal input for external synchronization. One is a VBS input mode when the camera is used alone and the other is V RESET/H CONT mode when the CCU is connected to the camera. Input channels of the V RESET and H CONT signals differ depending on the type of CA in connection with the camera.

2-5. Periodic Replacement Part

Parts listed below are periodic replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N	Remarks
①	PAD ASSY (LARGE)	A-8278-237-A	
②	PAD ASSY (SMALL)	A-8278-238-A	
③	WIND SCREEN	3-708-875-0X	Supplied with VF
④	MIC CUSHION, RUBBER	3-692-138-0X	Supplied with VF
⑤	COVER, SW	3-676-244-1X	
⑥	EYE CUP	3-723-079-0X	Supplied with VF
⑦	CAP, CONNECTOR	3-692-914-1X	



2-6. Cleaning

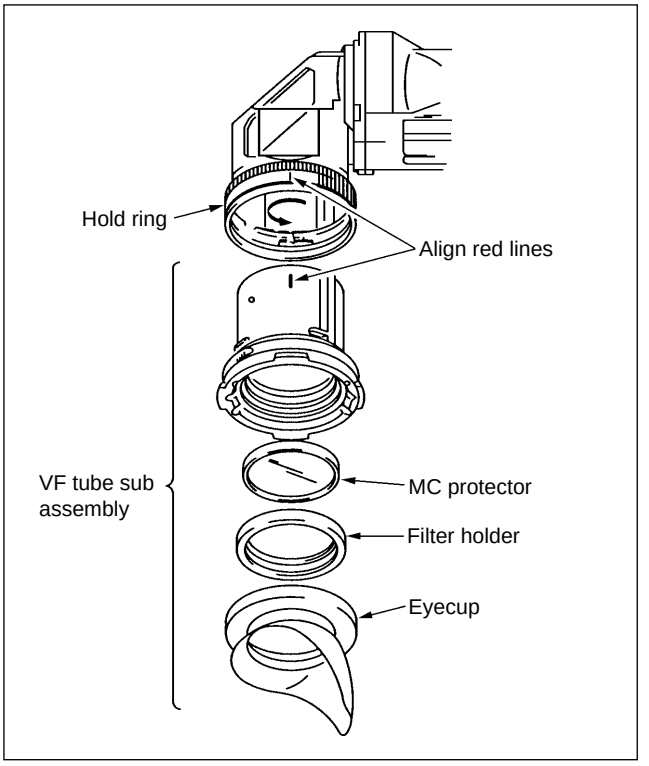
2-6-1. Cleaning of Viewfinder (Option)

By extracting VF tube sub assy, lens and MC protector can be easily cleaned. And also dust on the CRT surface or mirror can be easily cleaned off.

1. Turn the hold ring to the left and extract the VF tube sub assy.
2. Detach the eyecup.
3. Remove the MC protector with a commercially available camera lens cleaner. Blow off dust with a blower carefully so as not to flaw the mirror.
5. After the cleaning is completed, install by reversing the preceding steps. Align red lines of the VF tube and VF tube sub assy when inserting, and turn the hold ring to the right until it locks.

Notes

- Do not use any type of solvent, such as alcohol, benzine or thinner to remove stains.
- Be sure to attach the eyecup to the VF, or the MC protector may come off.
- To protect the viewfinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.



2-6-2. Cares After Using at Special Environment

It is recommended to check the following items after gathering the news at seaside, dust area or spa.

1. Clean off sand and other dust in the unit carefully.
2. Do not allow salt in seawater or sulfur in spa to contact a not-painted surface of the cabinet. They may cause to corrode. Clean with alcohol immediately if contacted.
3. Clean the connection surface of connectors.
4. Carry out the common operation check and check that the unit has not an abnormal sound or operation.

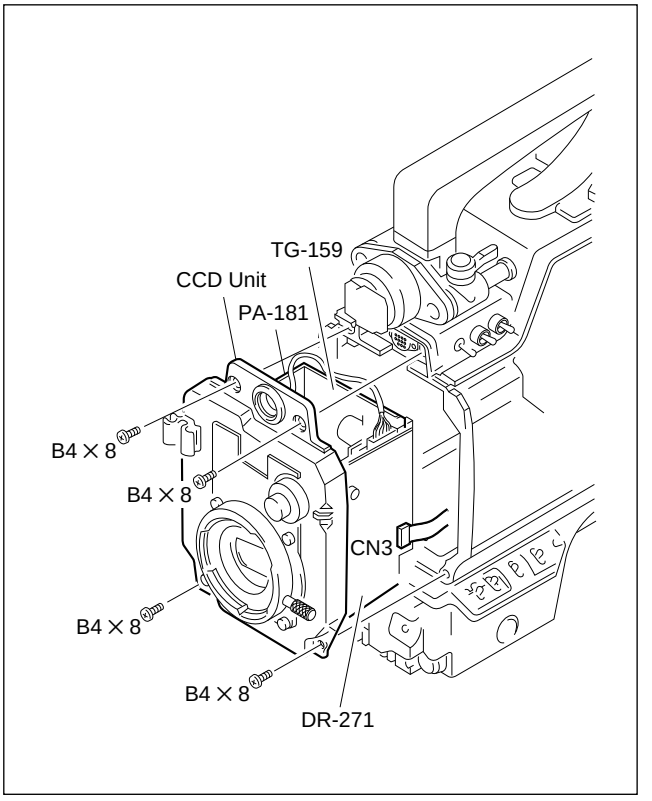
2-7. Replacement of External Connectors

2-7-1. VF Connector

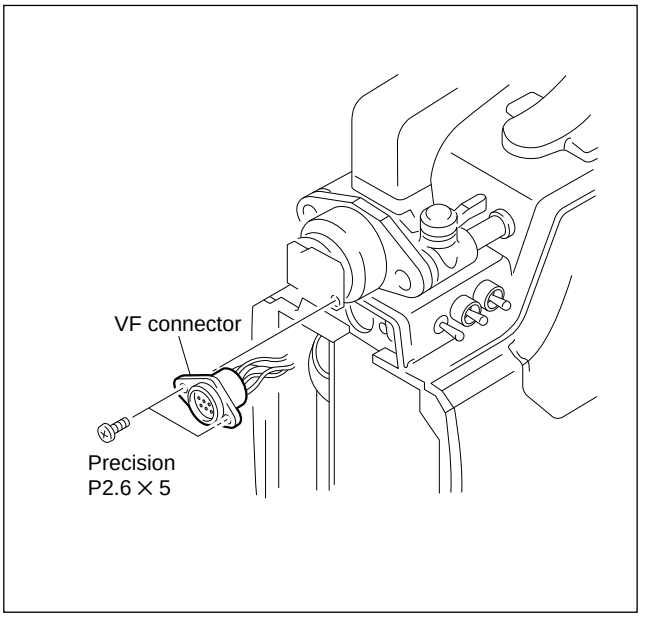
1. Remove the four screws and remove the CCD unit.
2. Disconnect the three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board of the CCD unit.

Note

When disconnecting the flexible card wires, refer to "2-8. Disconnecting/Connecting of Flexible Card Wires".



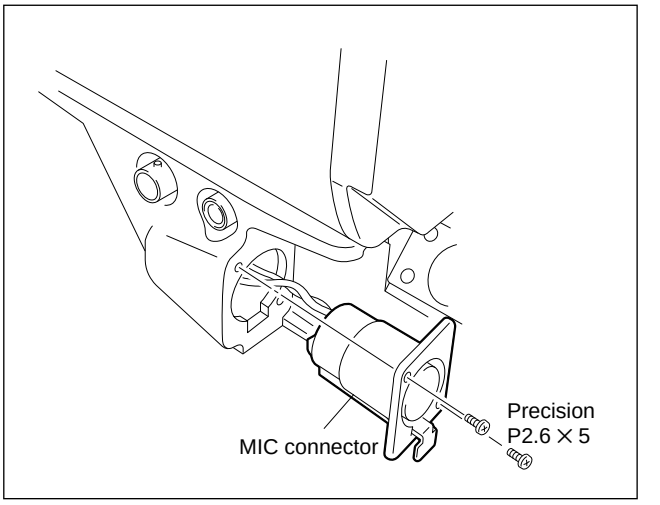
3. Remove the two screws and remove the VF connector. Then unsolder it.



4. Install a new connector in the reverse procedures of removal.

2-7-2. MIC Connector

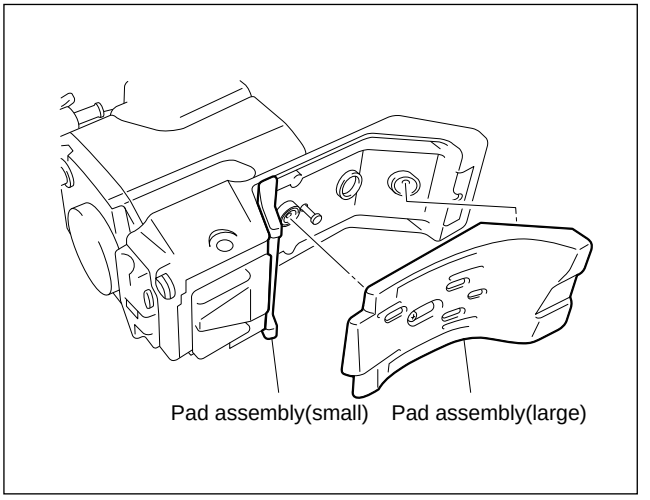
1. Remove the two screws and remove the MIC connector.
   Then unsolder it.



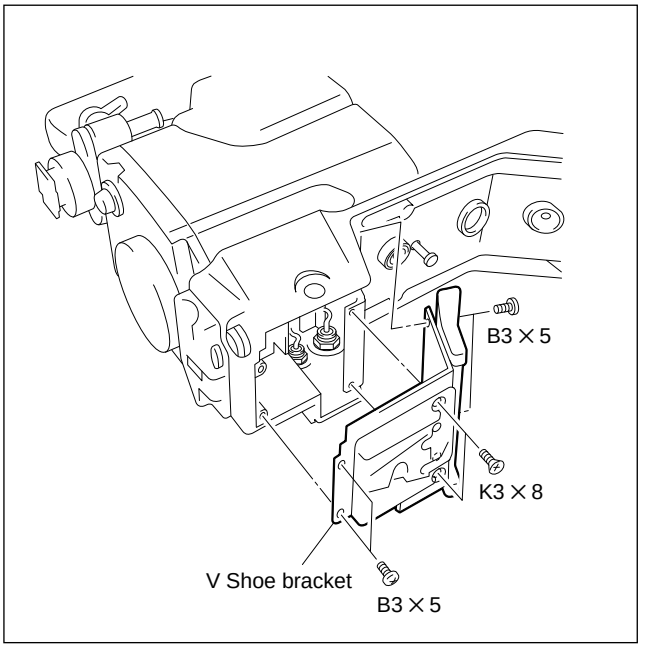
2. Install a new connector in the reverse procedures of removal.

2-7-3. TEST OUT/REMOTE Connector

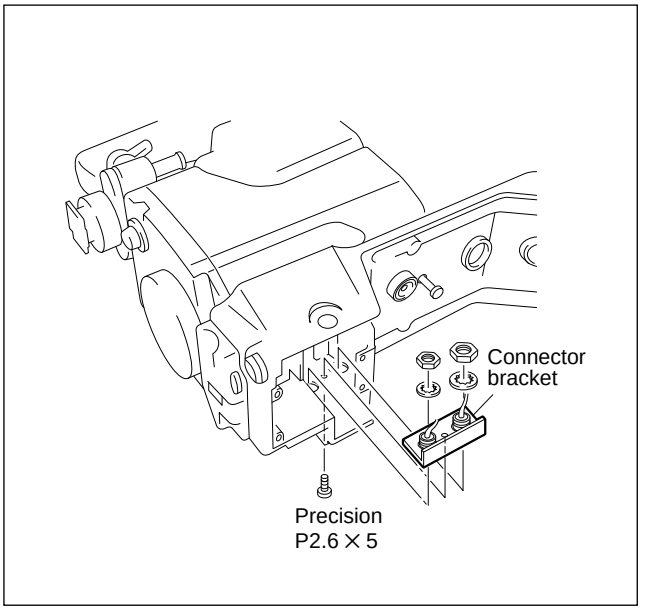
1. Remove the three screws and remove the Pad Assembly (Large).



2. Remove the seven screws and remove the V shoe bracket.



3. Remove the screw and remove the connector bracket.Unsolder the TEST OUT/REMOTE connector. Remove the each nut and remove the TEST OUT/ REMOTE connector.



4. Install a new connector in the reverse procedures of removal.

2-8. Disconnecting/Connecting of Flexible Card Wires

The flexible card wires are used between the MB-602 board and the CCD unit, the MB-602 board and the CN-1120/1121/1122/PR-211 boards. Be careful not to bend these wires. This shortens the wire life.

Disconnecting

1. Turn off the power of the camera.

Type A

(between the MB-602 board and CCD unit)

2. Lift up the portion A in the direction of the arrow and disconnect the flexible card wire.

Type B

(between the MB-602 board and CN-1120/1121/1122/PR-211 boards)

2. Slide portion B in the direction of the arrow and disconnect the flexible card wire.

Connecting

Notes

- Be careful not to insert the flexible card wires obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

Type A

(between the MB-602 board and CCD unit)

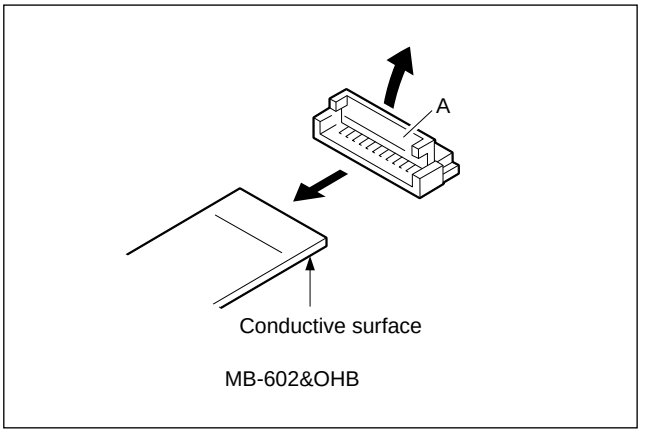
1. Lift up the portion A in the direction of the arrow. Insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Push down the portion A to secure the flexible card wire.

Type B

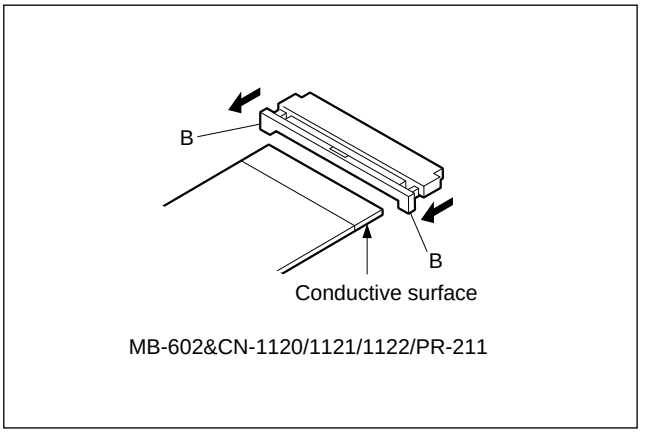
(between the MB-602 board and CN-1120/1121/1122/PR-211boards)

1. Slide portion B in the direction of the arrow and insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Slide portion B in the opposite direction of the arrow and lock each connector.

Type A



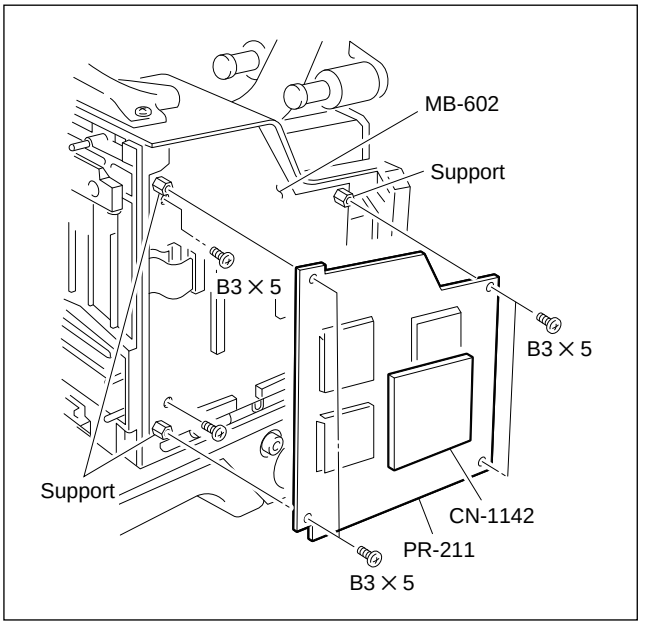
Type B



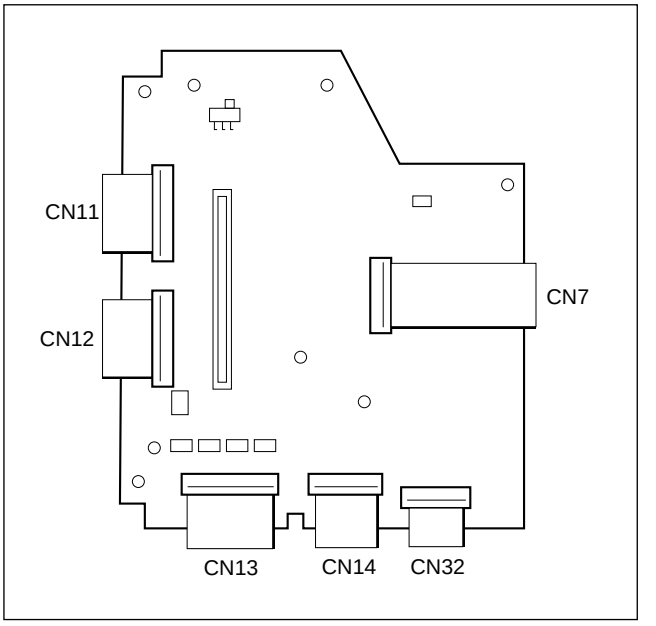
2-9. Board Replacement

2-9-1. MB-602 Board

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards.
3. Remove the four screws and remove the PR-211 board.
4. Disconnect the four connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.
5. Remove the four screws and remove the four supports. Remove the MB-602 board.



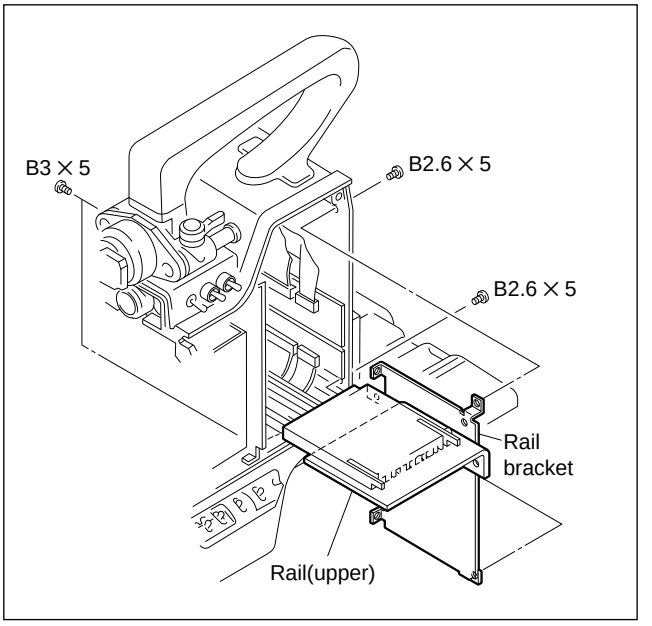
6. Disconnect the connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.



7. Install a new board in the reverse procedures of removal.

2-9-2. CN-1120/1121 Board

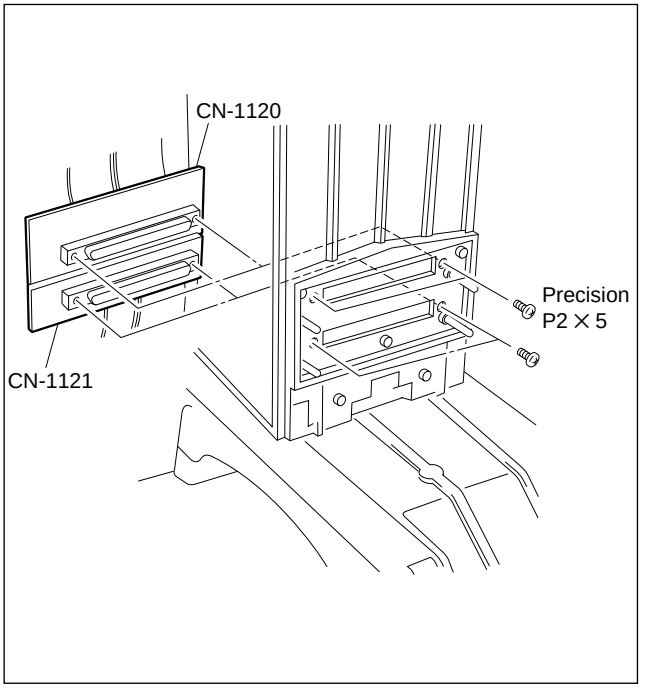
1. Remove the right side panel of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards and the four shielding plates.
3. Remove the DC/DC convertor unit.
   (Refer to “2-11. Replacement of DC/DC Convertor Unit”.)
4. Remove the rail(upper).
5. Remove the four screws and remove the rail bracket.



6. Remove the two screws and remove the CN-1120/1121 board.
7. Disconnect the connector.

   Note

   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.

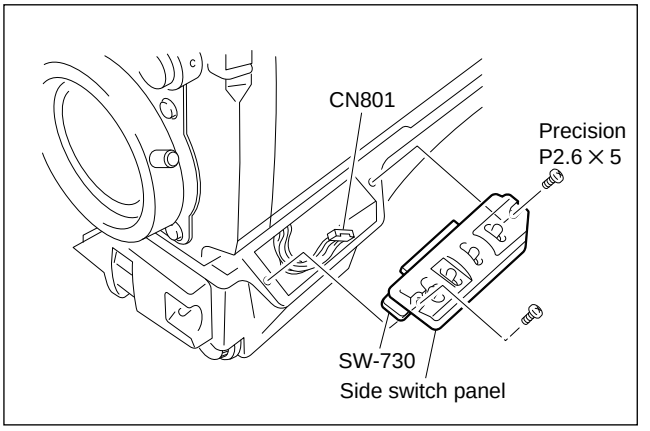


8. Install a new board in the reverse procedures of removal.

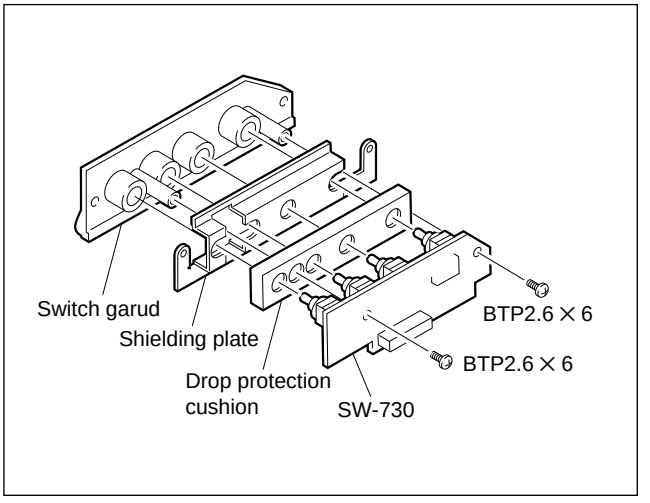
2-10. Replacement of Function Switches

2-10-1. Side Switch Panel Block

1. Remove the two screws and remove the side switch panel.
2. Disconnect the connector CN801 on the SW-730 board.



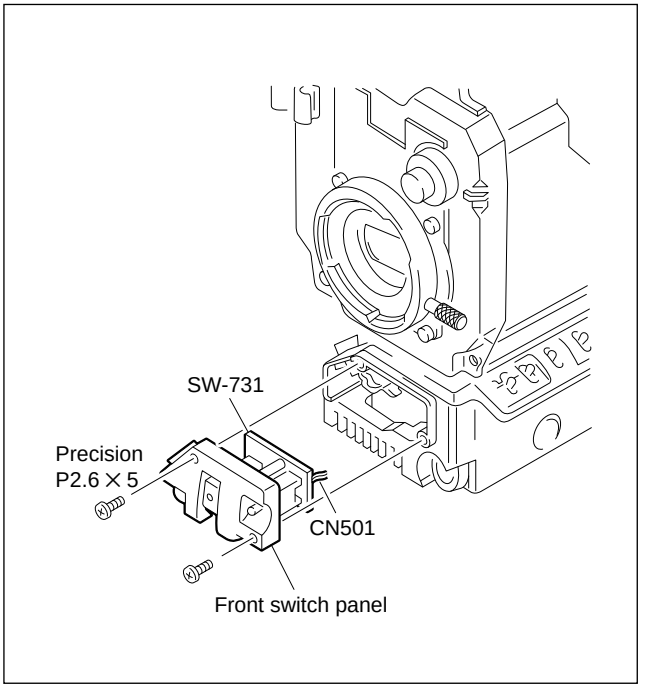
3. Remove the two screws.Remove the SW-730 board, shielding plate and drop protection cushion.
4. Unsolder the terminals and remove the switch to be replaced.



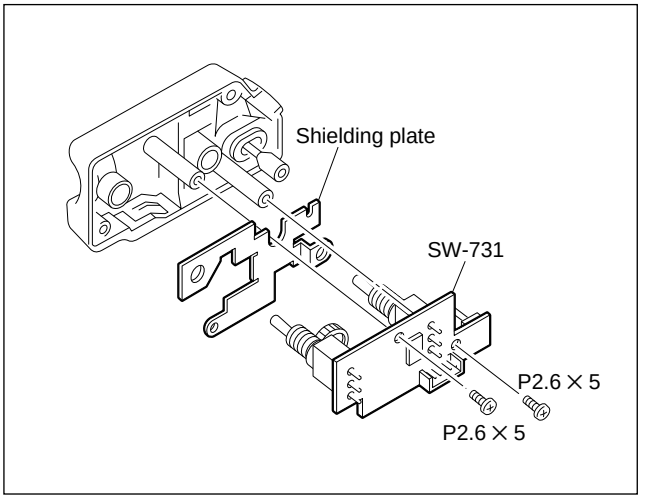
5. Install a new switch in the reverse procedures of removal.

2-10-2. Front Switch Panel Block

1. Remove the two screws and remove the front switch panel.
2. Disconnect the connector CN501 on the SW-731 board.



3. Remove the two screws.Remove the SW-731 board, knob packing, VR knob and shielding plate.
4. Unsolder the terminals and remove the switch to be replaced.



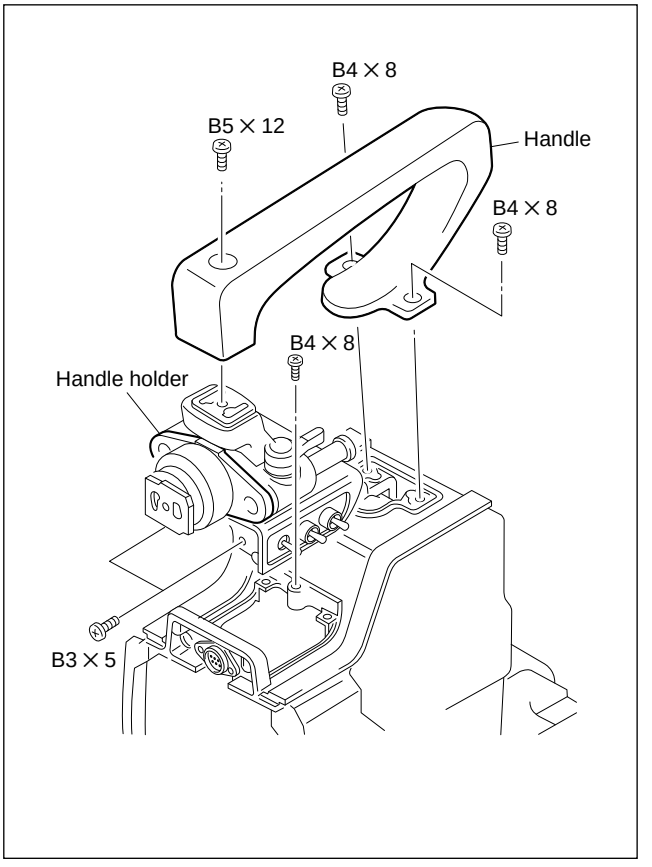
5. Install a new switch in the reverse procedures of removal.

2-10-3. VF DISP Switch

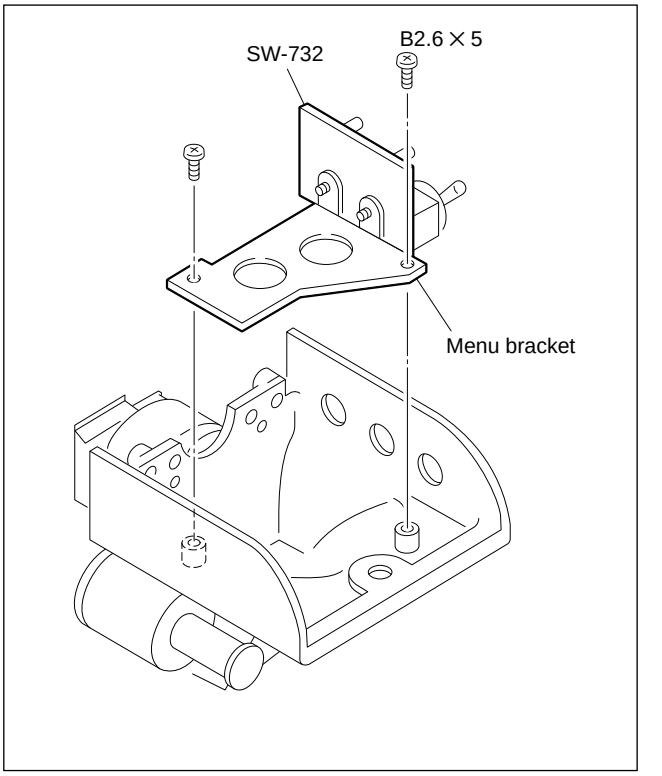
1. Remove the four screws and remove the CCD unit referring to “2-7-1. VF Connector”.
2. Disconnect three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board.

   Note

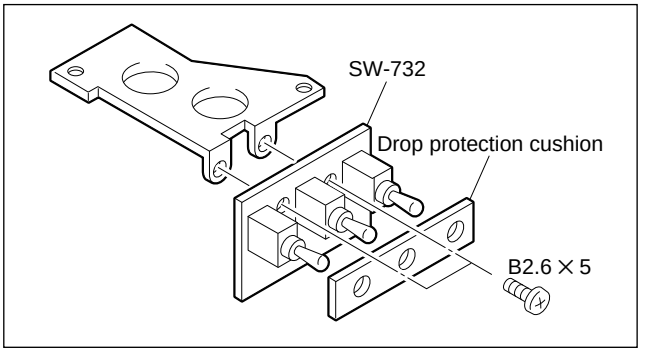
   When disconnecting the connectors, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires” and “2-7-1. VF Connector”.
3. Remove the three screws and remove the handle.
4. Remove the three screws and remove the handle holder.



5. Remove the two screws and remove the menu bracket.



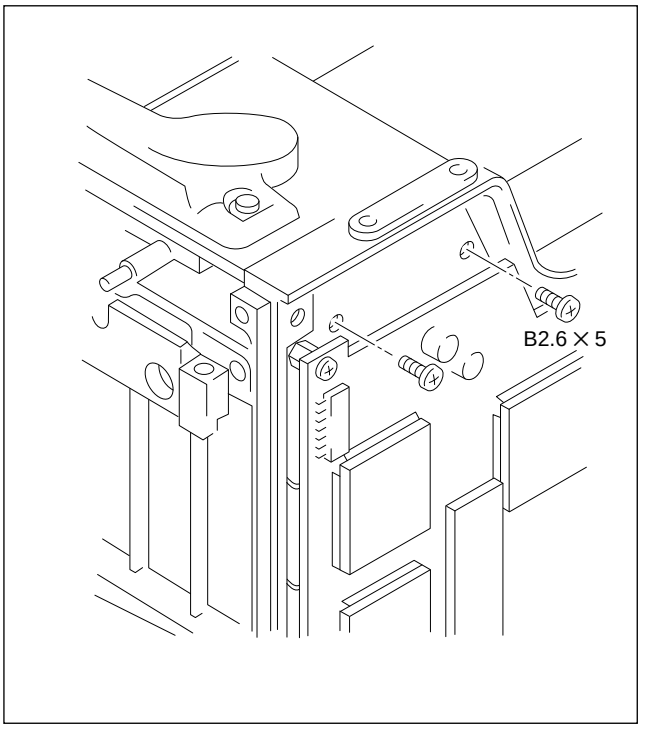
6. Remove the two screws and remove the SW-732 board and the drop protection cushion.
7. Unsolder the terminals and remove the switch to be replaced.



8. Install a new switch in the reverse procedures of removal.

2-11. Replacement of DC/DC Convertor Unit

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Remove the two screws on the left side of the camera shown in the figure.

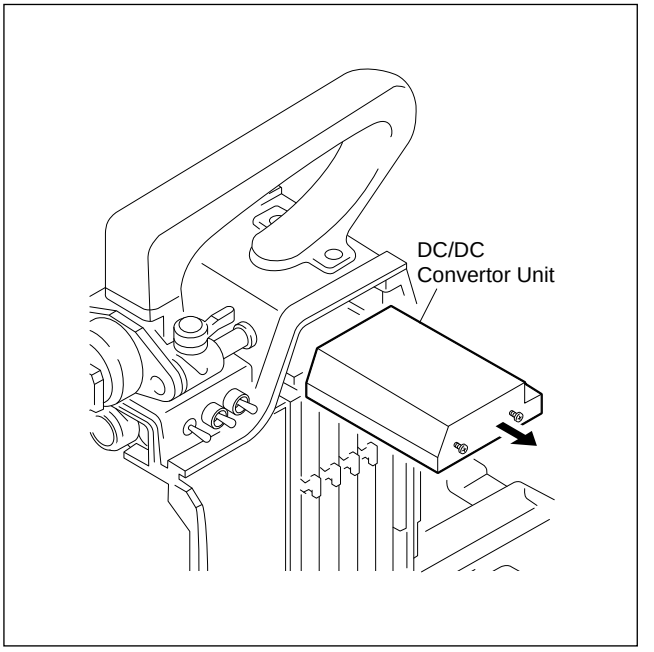


3. Thread the two screws that were removed in Step 2, into the holes of the DC/DC convertor unit three turns.

Note

Never turn the two screws more than three turns.

4. Hold the two screws with hands and remove the DC/DC convertor unit.



5. Install a new DC/DC convertor unit pushing with hands.
   Secure it to the MB-602 board with the two screws that were removed in Step 2.

Section 3
Setup Menu

3-1. Setup Menu

The Setup menu is used to select settings of camera operation, select items to be displayed on the viewfinder screen, and select the way the items are displayed.
It is also used for adjustment. The menu appears on the viewfinder screen.
By changing a setting through this menu, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

• Configuration of the Setup Menu

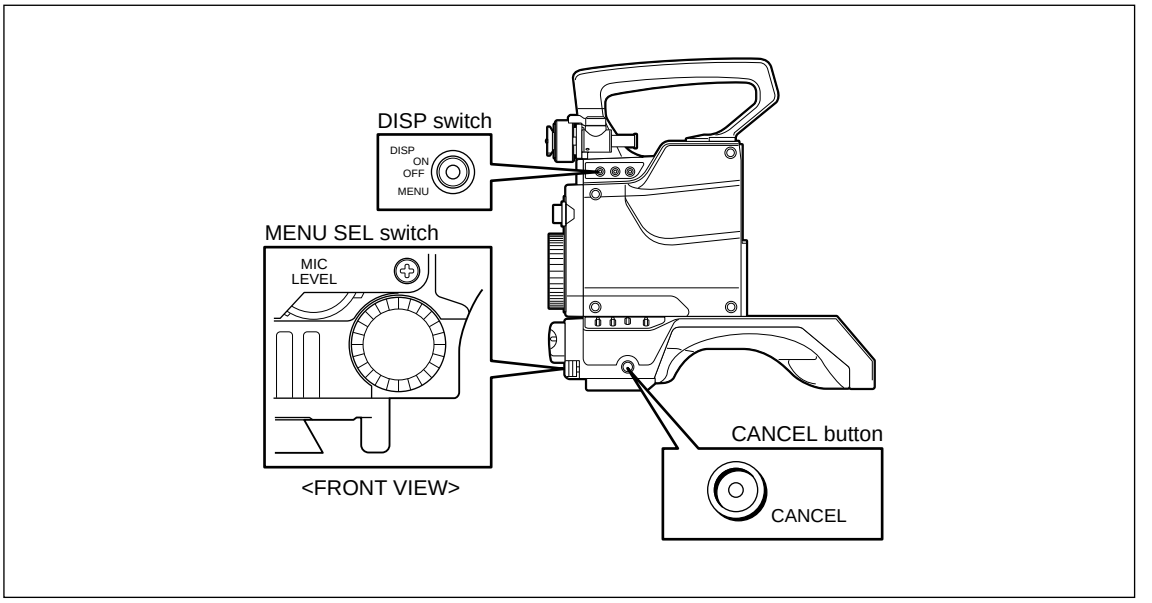
The setup menu consists of the following menus
- Operation menu
- Paint menu
- Maintenance menu
- Reference menu
- Triming menu
- System config menu

Operation and Paint menus are normally accessible. To display the other menus, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”

• Equipment required

CCD Unit OHB-450/550 series
Camera Adaptor CA-550/550P
Supply power from a camera control unit CCU-700/700P, AC adaptor AC-550/550CE or VTR.

• Switches and Button



DISP switch

ON : Displays characters and messages indicating the video camera settings and operation status.
OFF : No character or marker display appears on the viewfinder screen.
MENU : The setup menu appears on the viewfinder screen.

MENU SEL switch

Selects the menu item or setting value displayed on the viewfinder screen.

CANCEL button

Cancels the contents of a menu setting, or returns to the page select mode or TOP menu.

Note

The TOP menu screen indicates the entire configuration of menu items.
To display the TOP menu, set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch.

- **Basic Operation**

1. Displaying the menu
   To display the Operation menu, set the DISP switch to MENU.
   To display the other menus than the Operation menu, first of all, the TOP menu shall be displayed.
   To display the TOP menu, set the DISP switch to MENU while holding down the MENU SEL switch. Then turn the MENU SEL switch to move the cursor to a menu item which you want and press the MENU SEL switch.
2. To shift the page, turn the MENU SEL switch with a page scroll bar displayed at the top-right of the screen until the desired page is displayed and press the MENU SEL switch.
   The menu enters the item select mode and the page scroll bar disappears.
3. To shift the item, turn the MENU SEL switch until the → cursor points the item to be set and press the MENU SEL switch.
4. To change the value, turn the MENU SEL switch. You can change the values quickly by turning the MENU SEL switch fast. You can make very fine adjustments by turning the switch slowly. By pressing the MENU SEL switch, the setting is entered.
5 The menu page is returned to the item select mode or page select mode every time the CANCEL button is pressed.
6. To exit from the setup menu, set the DISP switch to OFF.

- **ROM version**

Contents in the menu and factory settings may differ from the descriptions in this manual depending on the version of ROM (IC36) on the AT-95 board.
In this section, an item under “Ver.” in the table shows a ROM version. If any version is given, it shows that the function for the item is added or changed, and the ROM with that version or higher version supports the function. If no version is given, it shows that every ROM version supports the function.
To confirm the ROM version easily proceed as follows:

1. Set the DISP switch to OFF.
2. Power the unit on while holding down the MENU SEL switch. The indication of ROM version is displayed for about three seconds.

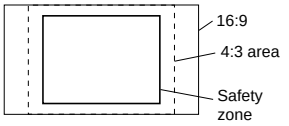
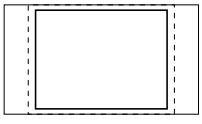
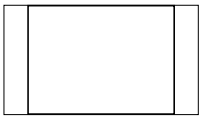
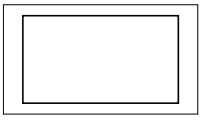
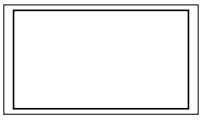
3-1-1. Operation Menu

This menu contains items contained for changing camera settings to suit shooting conditions during normal camera operations.

(Boxed items under “Settings” indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VF DISPLAY		ZOOM	[ON], OFF	Turns on and off the indications of zoom position and lens extender.
		SHUTTER	[ON], OFF	Turns on and off the indications of shutter speed and mode.
		IRIS	[ON], OFF	Turns the iris setting indication on and off.
		AUDIO	[ON], OFF	Turns the audio level indication on and off. (Automatically turned OFF in connection with CCU/RCP)
		TAPE	[ON], OFF	Turns the tape-remaining indication on and off. (Automatically turned OFF in connection with CCU/RCP)
		ZEBRA	ON, OFF	Turns the zebra indication on and off. (Corresponds to the ZEBRA switch of VF connected to the camera.)
		MESSAGE	[ON], OFF	Turns on and off the indication of message in changing each setting of filter, white balance memory, gain value, DCC(auto knee) and shutter speed. The indication is displayed within three seconds in the center of the viewfinder screen.
		MODE	CHG, [USR]	CHG : The indications of the optical filter, white balance memory and gain value are displayed only when they differ from the standard settings (FILTER:1B, WHITE:A, GAIN:0dB) USR : The indications are displayed corresponding to the settings on the VF DISPLAY page.
		FILTER	*, [ON], OFF	Turns the optical filter indication on and off.
		WHITE	*, [ON], OFF	Turns the white balance memory indication on and off.
		GAIN	*, [ON], OFF	Turns the gain value indication on and off.
MARKER		CENTER	[ON], OFF	Turns the center marker indication on and off.
		SAFETY ZONE	80%, [90%], OFF	Turns the safety zone marker indication on and off and selects the area indicated by that marker. a)
		BOX CURSOR	ON, [OFF]	Turns the box cursor indication on and off.
		BOX H POS	-99 to 99 ([0])	Shifts horizontally the location of the box cursor on the screen.
		BOX V POS	-99 to 99 ([0])	Shifts vertically the location of the box cursor on the screen.
		BOX WIDTH	00 to 99 ([41])	Sets the width of the box cursor.
		BOX HEIGHT	00 to 99 ([10])	Sets the height of the box cursor.

a) In the 16:9 mode, the following kinds of safety zone marker can be selected in combination of the settings of “SAFETY ZONE” and “4:3 SAFETY”.

		SAFETY ZONE		
		80%	90%	OFF
4:3 SAFETY	ON			
	OFF			Not indicated

Page	Ver.	Item	Settings	Contents
GAIN SW		LOW	-3, [0], 3, 6, 9, 12, 18, 24, 30 dB	Selects the gain value for each gain switch position. (LOW, MIDDLE, HIGH)
		MID	-3, 0, 3, 6, [9], 12, 18, 24, 30dB	
		HIGH	-3, 0, 3, 6, 9, 12, [18], 24, 30dB	
WIDE SCREEN (For OHB-550WS /550WSP)		16:9/4:3 MODE	[16:9], 4:3	Selects the aspect ratio for the video signal output. (This setting is valid only when the camera is used alone.) b)
		VF ASPECT	[AUTO], 4:3	Selects the aspect ratio for the viewfinder indication. AUTO: Automatically selects according to the aspect ratio selected by 16:9/4:3 MODE on the WIDE SCREEN page. 4:3 : Selects 4:3 regardless of the 16:9/4:3 MODE setting.
		4:3 SAFETY	ON, [OFF]	Selects whether the safety zone marker showing the 4:3 area is indicated in the 16:9 mode, or not. a)
		16:9 ID ON VF	ON, [OFF]	Turns on and off the 16:9 indication in the 16:9 mode on the viewfinder screen. (This setting is valid only when the DISP switch is set to on or off.)
		16:9 ID ON BARS	ON, [OFF]	Selects whether the 16:9 indication is displayed on the internal color-bar in the16:9 mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
MON OUT		BNC TEST OUT	[VBS], RM, VF Y	Selects a video signal to be output at TEST OUT connector. VBS : Color composite signal RM : The same as a signal ouput to RM-P9 Y : Y(monochrome) signal
		RM/MON CHAR	[ON], OFF	Selects whether character signals displayed on the viewfinder screen are mixed with the VBS signal to be output to RM-P9, or not. Turning on is convenient to operate the setup menu by RM-P9.
		VBS LOCK	ON, [OFF]	Used to prevent misoperation by ENC/RGB switch. ON : ENC signal is output at TEST OUT connector regardless of ENC/RGB switch setting. OFF : A signal selected by ENC/RGB switch is output.
		VF VIDEO MODE	[Y], MIX, NAM	Selects a video signal to be output to the viewfinder. Y : Y=0.3R+0.59G+0.11B; The same as a camera output signal MIX : Y=0.33R+0.33G+0.33B NAM : Selects one of the R, G, and B signal that is maximum in level.
		[RGB]-G	ON, [OFF]	Sets signals selectable by RGB switch. ON : R-G, B-G OFF : R, G, B
AUTO IRIS AUTO KNEE (DCC)		IRIS OVERRIDE	-99 to 99 ([0])	Sets the reference value for automatic iris adjustment. -99 (further closed) ↔ 99 (further opened)
		IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
		APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
		AUTO KNEE POINT	-99 to 99 ([XX])	Sets the point on which the knee function starts to have effect in the auto-knee mode.
		AUTO KNEE SLOPE	-99 to 99 ([XX])	Sets the volume of the effect of the knee function in the auto-knee mode.

b) The change of aspect ratio using this menu is disabled because the CCU' s setting has a priority when the CCU is connected. If you want to change the aspect ratio when the CCU is connected, use the OTHERS page of the Paint menu. When you attempt to change using this menu, a message “Use Paint MNU” is displayed.

Page	Ver.	Item	Settings	Contents
STAND ALONE		H PHASE	-99 to 99 (XX)	Sets the horizontal phase of the camera in the genlock mode.
		SC PHASE	0 to 360(XX)	Sets the subcarrier phase of the camera in the genlock mode.
		CABLE COMP	ON, OFF	Turns on and off the cable compensation circuit for the external sync signal in the genlock mode.
		SNG BARS	ON, OFF	Turns the color-bar signal for SNG on and off.
		MASTER BLACK	-99 to 99 (0)	Adjusts the MASTER BLACK level.
		IRIS OVERRIDE	ON, OFF	Turns the auto-iris override function on and off.
		CF PULSE	ON, OFF	Turns on and off the color framing pulse supplied to the VTR.
		SKIN DETAIL	ON, OFF	Turns the skin tone detail function on and off.
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
AUTO SETUP		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance. (To abort a processing during execution, press MENU SEL switch.)
		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c) (To abort a processing during execution, press MENU SEL switch.)
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output.
DIAGNOSIS		OHB	OK, NG	Displays a state of communication for control data between the OHB block and CPU on AT board.
		PR	OK, NG	Displays a state of communication for control data between the PR board and CPU on AT board.
		VA	OK, NG	Displays a state of communication for control data between the VA board and CPU on AT board.
		AT	OK, NG	Displays a state of communication for control data between the CPU and memory on AT board.
		SG	OK, NG	Displays a state of communication for control data between the SG board and CPU on AT board.
		DA	OK, NG	Displays a state of communication for control data between DA board and CPU on AT board.
		IF	OK, NG	Displays a state of communication for control data between IF board and CPU on AT board.
		MD	OK, NG	Displays a self-diagnosis result of MD board (of camera adaptor).
		AU	OK, NG	Displays a self-diagnosis result of AU board (of camera adaptor).
		TR	OK, NG	Displays a self-diagnosis result of TR board (of camera adaptor).

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence, After the adjustment is complete, adjustment result is stored as a master setup data.
1. A reference file which is reference for adjustment is loaded .
2. Lens is autmatically closed and the black balance is automatically adjusted.
3. The white balance is automatically adjust using TEST 2 (3-step) signal.

Notes

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the gamma and knee compensation values remains the values stored in the reference file.

Page	Ver.	Item	Settings	Contents
CAMERA ID		No.	1 to 96 (X)	Sets a camera number in the range of 1 to 96. (When no camera number is set, "- -" is displayed.)
		ID: □□□□□□□□		Sets a camera ID of up to ten alphanumerics, symbols, and spaces.
	1.10	No. / ID ON BARS	CAM No., CAM ID, OFF	Selects whether the camera number or ID is mixed with a camera output signal only in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
LENS FILE	1.10	CENTER H POS	–20 to 20 (XX)	Shifts horizontally the location of the center marker on the screen. 20 (right) ↔ –20 (left)
	1.10	CENTER V POS	–20 to 20 (XX)	Shifts vertically the location of the center marker on the screen. 20 (up) ↔ –20 (down)
	1.10	CENTER POS STORE	Press MENU SEL switch to execute.	Stores the location of the center marker at present in the selected lens file number.
	1.10	No.	0 to 15	Selects a lens file. d) (Example) No. : 1 ← Lens file number (0 to15) Lens : 27 : A14x8BERM ← Lens name EX : 1.0 ← Lens extender value

d) Select a lens file appropriate for the mounted lens from 16 kinds of the lens files which are stored in the RAM IC26/AT-95 board.
An additional data such as a center marker is also stored in the selected lens file.

3-1-2. Paint Menu

The Paint menu is used for white and other paint adjustments items. To activate the Paint menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VIDEO LEVEL		WHITE R/G/B	–99 to 99 (0)	Adjusts the R, G, B gain level.
		BLACK R/G/B/M	–99 to 99 (0)	Adjusts the R, G, B master black level.
		FLARE R/G/B	–99 to 99 (0)	Adjusts the R, G, B flare level.
		GAMMA R/G/B/M	–99 to 99 (0)	Adjusts the R, G, B master gamma correction curve.
		FLARE	ON, OFF	Turns the flare correction circuit on and off.
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the VIDEO LEVEL page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL1		DETAIL	ON, OFF	Turns the function on and off to improve resolution by adding the detail signal.
		LEVEL	–99 to 99 (0)	Adjusts the master level for the detail signal.
		LIMITTER	–99 to 99 (0)	Adjusts the clipping level against the maximum detail level.
		CRISPENING	–99 to 99 (0)	Adjusts the level at which the detail signal is crispened.
		LEVEL DEP	–99 to 99 (0)	Adjusts the level to control the detail signal used at lower signal level.
		LEVEL DEP	ON, OFF	Turns the level depend function on and off.
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL 1 page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL2		DETAIL	ON, OFF	Turns the function on and off to improve resolution by adding detail signal.
		H/V RATIO	–99 to 99 (0)	Adjusts the mix ratio of H and V detail signal.
		FREQUENCY	–99 to 99 (0)	Adjusts the boost frequency for H detail signal.
		MIX RATIO	–99 to 99 (0)	Adjusts the mix ratio of H detail signal used before and after the gamma compensation circuit.
		W.LIMITTER	–99 to 99 (0)	Adjust the clipping level adainst the higher detail signal at the maximum level.
		B.LIMITTER	–99 to 99 (0)	Adjusts the clippping level against the lower detail signal at the minimum level.
		COMB	–99 to 99 (0)	Sets the effect volume of the comb filter 99 (Causes less cross colors.) ↔ –99 (Yields clear pictures, but causes more cross colors.) * For a PAL model, this function has the effect on not every object but a specified object.
		KNEE APRT.	ON, OFF	Turns the knee aperture function on and off.
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL2 page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Ver.	Item	Settings	Contents
SKIN DETAIL		SKIN DETAIL	ON, [OFF]	Turns the skin detail function on and off.
		LEVEL	–99 to 99 ([0])	Adjusts the level of the skin detail.
		PHASE	100° to 170°([120])	Adjusts the hue for the skin detail function.
		WIDTH	0° to 90° ([60])	Adjusts the color width for the skin detail function.
		SATURATION	–99 to 99 ([0])	Adjusts the color saturation of the skin detail function.
		GATE	ON, [OFF]	Turns the area display of the skin detail function in the viewfinder screen.
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the range of skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the SKIN DETAIL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
GAMMA		GAMMA, R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B and master gamma level.
		COARSE	0.40, [0.45], 0.50	Selects the gamma value in steps.
		GAMMA	[ON], OFF	Turns the gamma value on and off.
	1.07	BLACK GAMMA	–99 to 99 ([0])	Adjusts the black gamma (master). e)
	1.07	BLACK GAMMA	ON, [OFF]	Turns the black gamma function on and off. e)
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Resets all settings on the GAMMA page to the factry settings. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
KNEE/W.CLIP		POINT	–99 to 99 ([0])	Adjusts the knee point level when the function is OFF.
		SLOPE	–99 to 99 ([0])	Adjusts the knee slope level when the function is OFF.
		KNEE	[ON], OFF	Turns the knee function on and off.
		AUTO KNEE	ON, [OFF]	Turns the auto knee function on and off.
		KNEE MAX	ON, [OFF]	Turns on and off the knee max function which changes the slope to completely collapsed form.
		WHITE CLIP	–99 to 99 ([0])	Adjusts the white clip level.
		WHITE CLIP	[ON],OFF	Turn the white clip function on and off.
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the KNEE/W.CLIP page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

e) This function is inhibited while TALLY lamps are lit or by the setting of the System Config menu.
A noise appears on the screen during operation.

Page	Ver.	Item	Settings	Contents
MATRIX		G-R, B-R	–99 to 99 (0)	Compensates the user's matrix (sets an optional value as the constant for G-R, B-R, R-G, B-G, R-B, and G-B).
		R-G, B-G	–99 to 99 (0)	
		R-B, G-B	–99 to 99 (0)	
		MATRIX	ON, OFF	Turns the matrix compensation on and off.
		USER f)	ON, OFF	Turns the user's matrix compensation on and off.
		PRESET f)	ON, OFF	Turns on and off only the preset matrix compensation (fixed constant compensation).
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step form test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the MATRIX page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
SCENE FILE		1	Storing and recalling a scene file (painting data corresponding to a shot scene)	
		2	**Storing a scene file**	
		3	1 Turn MENU SEL switch to move the → cursor to "FILE STORE," then press MENU SEL	
		4	switch. "FILE STORE" flashes on the viewfinder screen.	
		5	2 Select the file number (1 to 5) to be stored to.	
		FILE STORE	(If data is already stored at the selected location, the new data replaces the current data.) **Recalling a scene file** Turn MENU SEL switch to move the → cursor to the file number whose data is to be recalled, then press MENU SEL switch. • When MENU SEL switch is pressed, the scene file data replaces the current settings. • When the scene file is recalled, an asterisk appears next to the number.	
		STANDARD	Returns the current amount of paint adjustments and switch setting to their reference value stored as a reference file.	
SHUTTER	1.10	SELECT	OFF, SHUTTER, EVS, ECS	Selects the shutter, EVS, or ECS mode. (Does not correspond to the setting of the SHUTTER switch in the camera front.)
	1.10	SHUTTER	$\frac{1}{100}$ (or $\frac{1}{60}$), $\frac{1}{125}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$, $\frac{1}{2000}$	Selects the shutter speed.
	1.10	ECS	h)	Sets the ECS (CLS) frequency.
	1.10	S-EVS	0 to 100%	Sets the desired resolution in %. (This setting is invalid with the OHB-450/450P/451/451P installed.)
OTHERS	1.09	16:9/4:3 MODE	16:9, 4:3	Selects the aspect ratio for the video signal output. i)

f) When both USER and PRESET are set to ON, the matrix constant compensation is total value of the USER and PRESET matrix.
h) Variable range differs depending on the OHB in use. For details refer to the operation manual supplied with the OHB.
i) The aspect ratio normally corresponds to the CCU's setting when the CCU is connected. To forcefully select, use this menu.

3-1-3. Maintenance Menu

The Maintenance menu is used for encoder output level and other adjustments items necessary for camera's maintenance. The Maintenance menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required.
For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board".
To activate the Maintenance menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VBS		SYNC LEVEL	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal.
		Y LEVEL	-99 to 99 ([XX])	Adjusts the Y level of camera's encoder output signal.
		BURST LEVEL	-99 to 99 ([XX])	Adjusts the burst level of camera's encoder output signal.
		CHROMA LEVEL	-99 to 99 ([XX])	Adjusts the chroma level of camera's encoder output signal.
		Q/V LEVEL	-99 to 99 ([XX])	Adjusts the Q (or V) level of camera's encoder output signal.
		SET UP	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal. (This setting is valid only for NTSC.)
		BF PHASE	-99 to 99 ([XX])	Adjusts the burst phase of camera's encoder output signal.
		SC-H PHASE	-99 to 99 ([XX])	Adjusts the SC-H phase of camera's encoder output signal.
		V BLANKING	19,[20],21H	Adjusts the V blanking width of camera's encoder output signal. (This setting is valid only for NTSC.) In connection with CCU, the width is fixed to 19H. * For a PAL model, the width is fixed to 25H at all times.
WHITE SHADING		V SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, or B white shading.
		V PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.PARA compensation for the R, G, or B white shading.
		H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B white shading.
		H PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.PARA compensation for the R, G, or B white shading.
		WHITE R/G/B	-99 to 99 ([XX])	Adjusts the R, G, or B white level.
		V MOD R/G/B/M	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, B or master modulation shading of the lens and prism. j)
		V MOD	ON, [OFF]	Turns the V modulation shading on and off.
		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the WHITE SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)
BLACK SHADING		V SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, or B black shading.
		H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B black shading.
		BLK SET R/G/B	-99 to 99 ([XX])	Adjusts the volume of BLACK SET compensation for the R, G, or B. (Adjusts for each gain.)
		BLACK R/G/B/M	-99 to 99 ([XX])	Adjusts the R, G, B or master black level.
		MASTER GAIN	-3,0,3,6,9,12,18, 24,30 dB ([X])	Selects the master gain value.
		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
		CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the BLACK SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)

j) When the master modulation shading is adjusted, the V. SAW component for the R and B V-modulation shadings of the prism is simultaneously compensated.

Page	Ver.	Item	Settings	Contents
AUTO SET UP		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance. (To abort a processing during execution, press MENU SEL switch.)
		LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c) (To abort a processing during execution, press MENU SEL switch.)
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
		WHITE SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the white shading. (To abort a processing during execution, press MENU SEL switch.)
		BLACK SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the black shading. k) (To abort a processing during execution, press MENU SEL switch.)
	1.10	COLOR REF (SELF)	Press MENU SEL switch to execute.	Makes a color reference to compensate the difference in colors between OHBs using a single camera. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) m)
	1.10	COLOR SETUP (SELF)	Press MENU SEL switch to execute.	Automatically calculates the color matrix from the reference. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) n)
DATE/TIME		DD/MM/YY HH:MM:SS		Adjusts a built-in timer. (HH;hour/MM;minute only)
		DATE ON BARS	ON, [OFF]	Selects whether the date characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
		TIME ON BARS	ON, [OFF]	Selects whether the time characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
OTHERS		S/N MEASURE	ON, [OFF]	ON : Set to ON in mesuring the S/N ratio. And settings of the DETAIL, CHROMA, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF : Settings of DETAIL and so on are returned as they were.
		MOD MEASURE	ON, [OFF]	ON : Set to ON in mesuring the modulation depth. And settings of the DETAIL, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF : Settings of DETAIL and so on are returned as they were.
		MASTER BLACK	-99 to 99 ([0])	Adjusts the master black in measuring the S/N ratio and modulation depth.
		DETAIL	[ON], OFF	
		CHROMA	[ON], OFF	
		GAMMA	[ON], OFF	
		MATRIX	[ON], OFF	
		FLARE	[ON], OFF	

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence, After the adjustment is complete, adjustment result is stored as a master setup data.
1. A reference file which is reference for adjustment is loaded .
2. Lens is autmatically closed and the black balance is automatically adjusted.
3. The white balance is automatically adjust using TEST 2 (3-step) signal.

Notes

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the gamma and knee compensation values remains the values stored in the reference file.

k) Before first using the camera with the OHB-450/451/550/550WS (or their PAL version) installed, or After replacing the CCD unit, be sure to execute the automatic black shading adjustment.

m) When performing compensation between two or more cameras, use the MSU.

n) Differing from the color-setup operation by plural cameras, a data transfer is not performed.
Execute to recalculate. After execution, the color matrix data is temporarily reflected in the OHB matrix of the System Config menu.
Execute the OHB FILE STORE of the Triming menu to store the color matrix data.

3-1-4. Reference Menu

The Reference menu stores the reference values used for automatic setup adjustment and the standard settings of the switches as the reference files. And the menu can clear the current reference files. The Reference menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board". To activate the Reference menu, first display the TOP menu.

Notes

1. Executing the FILE STORE on the REFERENCE FILE page registers settings of items, which have been set through the Paint, Maintenance and System config menus just before the file store, as the reference values.
2. When changed numbers of items are returned to the reference values stored as the reference files, recall the standard file using an MSU/RCP or the setup menu.

Page	Ver.	Item	Settings	Contents
REFERENCE FILE		FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
		CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the reference files. (Temporarily clears the current reference files p).)

p) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-5. Triming Menu

The Triming menu stores the adjustment data in replacing parts as the triming files. And the menu can clear the current adjustment values. The Triming menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board". To activate the Triming menu, first display the TOP menu.

Note

Executing the FILE STORE on the TRIMING FILE page registers settings of items, which have been set through the Maintenance and System config menus just before the file store, as the reference values.

Page	Ver.	Item	Settings	Contents
TRIMING FILE		FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
		CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the triming files. (Temporarily clears the current triming files p).)
OHB FILE		FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a CCD unit to be used as the OHB files. The standard values are stored at the factory. (Stores the offset value, OHB matrix data and so on.)
LENS FILE	1.10	LENS FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a lens to be used as the lens files. The standard values are stored at the factory.
	1.10	SELECT CURRENT LENS	0 to 49	Loads a lens data into the lens file selected at present by the LENS FILE page of the Operation menu.
	1.10	RESET ALL LENS	Press MENU SEL switch to execute.	Resets all of 16 lens files. (Example) No. : 1 ← Lens stored number (0 to 49) Lens : 27 : A14x8BERM ← Lens name EX : 1.0 ← Lens extender value

p) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-6. System Config Menu

The System config menu is used for adjustments items necessary to replace a printed circuit board or some parts of the camera. The System config menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the System config menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting. XX or XXX represents two or three digits in hexadecimal.)

Page	Ver.	Item	Settings	Contents
DATE/TIME		YY/MM/DD HH:MM:SS		Adjusts the built-in calender and timer.
		RESET	Turn MENU SEL switch to execute.	Resets hour (HH), minute (MM) and second (SS) of the timer.
Y/CHROMA		SC FREQ	XXX ([XX])	Adjusts the camera’s subcarrier frequency.
		Y SYNC	XXX ([XX])	Adjusts the sync level of camera’s Y output signal.
		Y SETUP	XXX ([XX])	Adjusts the setup level of camera’s Y output signal.
		Y VIDEO	XXX ([XX])	Adjusts the Y level of camera’s Y output signal.
		TEST SETUP	XXX ([XX])	Adjusts the setup level of camera’s encoder output signal.
		BURST LVL	XXX ([XX])	Adjusts the burst level of camera’s encoder output signal.
		CHROMA LVL	XXX ([XX])	Adjusts the chroma level of camera’s encoder output signal.
		Q/V LEVEL	XXX ([XX])	Adjusts the Q(V) level of camera’s encoder output signal.
		SC-H PHASE	XXX ([XX])	Adjusts the SC-H phase of camera’s encoder output signal.
		REG LVL	XXX ([XX])	Adjusts the level of the R, G and B output signals.
		CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the Y/CHROMA page.
PR/VA/TEST		PR ADG R/G/B	XXX ([XX])	Adjusts the reference level of the AD converter for R/G/B signals on the PR board.
		VA MOD R/G/B	XXX ([XX])	Adjusts the R, G or B modulation balance for the VA board.
		G CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for G signal on the PR board. (Note: In replacing OHB, readjustment is required to set the maximum value of the modulation depth.)
		R/B CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for R/B signals on the PR board. (Note: In replacing OHB, readjustment is required to set the minimum level of a pseudo signal.)
		M.BLACK	XXX ([XX])	Adjusts the master black signal.
		TEST2 HI	XXX ([XX])	Adjusts the high level of the TEST2 (3-STEP) signal on the VA board.
		TEST2 MID	XXX ([XX])	Adjusts the middle level of the TEST2 (3-STEP) signal on the VA board.
		TEST CLIP	XXX ([XX])	Adjusts the clip level of the TEST1 (sawtooth) signal on the VA board.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PR/VR/TEST page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
PRE KNEE/ ZEBRA		PREKNEE1 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 1 level on the VA board.
		PREKNEE2 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 2 level on the VA board.
(Continued)		APERTURE	XXX ([XX])	Adjusts the aperture compensation signal level.

Page	Ver.	Item	Settings	Contents
PRE KNEE/ ZEBRA		WHITE CLIP	XXX ([XX])	Adjusts the white clip level.
		WHITE CLIP	[ON], OFF	Turns the white clip function on and off.
		ZEBRA1 LEVEL, RANGE	XXX ([XX])	Sets the center value and range for the zebra 1 signal detection.
		ZEBRA2 LEVEL	XXX ([XX])	Sets the detection value for the zebra 2 signal.
		Z.DISP	1,2, [1&2]	Selects a zebra signal to be displayed on the viewfinder. 1 : Zebra 1 signal 2 : Zebra 2 signal 1&2 : Both zebra 1 and 2 signals are displayed at the same time.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PREKNEE/ZEBRA page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
VTR/CCU		VTR R-Y	XXX ([XX])	Adjusts the R-Y color-difference signal level.
		VTR B-Y	XXX ([XX])	Adjusts the B-Y color-difference signal level.
		CCU Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the Y signal.
		CCU R-Y SYNC	XXX ([XX])	Adjusts the level of the sync pulse to be mixed with the R-Y signal.
		CCU B-Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the B-Y signal.
		RGB OFFSET	XXX ([XX])	Adjusts the G signal level.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the VTR/CCU page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
		CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the VTR/CCU page.
IRIS		LEVEL	XXX ([XX])	Adjusts the auto-iris level.
		APL RATIO	XXX ([XX])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
COLOR SETUP	1.10	COLOR REF (SELF)	Press MENU SEL switch to execute.	Makes a color reference to compensate the difference in colors between OHBs using a single camera. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) m)
	1.10	COLOR SETUP (SELF)	Press MENU SEL switch to execute.	Automatically calculates the color matrix from the reference. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) n)
	1.10	(OHB MATRIX) G-R, B-R R-G, B-G R-B, G-B	 -99 to 99 ([0]) -99 to 99 ([0]) -99 to 99 ([0])	Compensates the OHB matrix to adjust the difference between OHBs or cameras (sets an optional value as the constant for G-R, B-R, R-G, B-G, R-B and G-B). r)
	1.10	OHB MTX	[ON], OFF	Turns the OHB matrix compensation on and off.
	1.10	CM ADD LVL	[0] to 16	For fine adjustment in color-setup operation. Compensates the caluculation value for the color selected by the CM ADD COLOR in 16 steps and recalculates the OHB matrix. (Selecting 0 turns off the function.) s) t)
	1.10	CM ADD COLOR	[0] to 17	For fine adjustment in color-setup operation. Select a color to be compensated from 18 colors of the Macbeth chart with the gate marker of VF. Recalculates the OHB matrix t)

m) When performing compensation between two or more cameras, use the MSU.
n) Differing from the color-setup operation by plural cameras, a data transfer is not performed.
Execute to recalculate. After execution, the color matrix data is temporarily reflected in the OHB matrix of the System Config menu.
Execute the OHB FILE STORE of the Triming menu to store the color matrix data.
r) Adjust with the MATRIX of the Paint menu turned OFF. Execute the OHB FILE STORE to store the adjustment values.
s) The compensation value is temporarily reflected in the OHB matrix of the System Config menu after execution of the COLOR SETUP(SELF). Execute the OHB FILE STORE of the Triming menu to store the value.
The higher you set the value of the CM ADD LVL, the more the weights are assigned to the color selected by the CM ADD COLOR.
The compensation is performed so as to entirely minimize the error, while reducing the error for the weights-assigned color.
t) After powered off once following the completion of color-setup operation, recalculation is not performed.

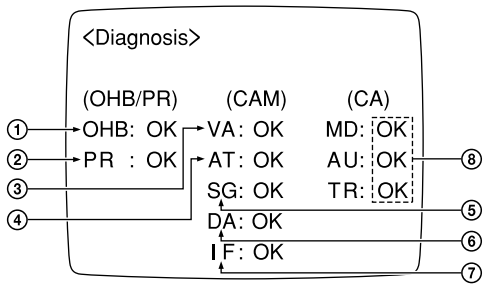
Page	Ver.	Item	Settings	Contents
OTHERS 1		FILTER, WHT MEM	[ON], OFF	ON : A total of 8 settings of the white balance value can be saved in conbination with the CC filter and WHITE BAL switch settings. OFF : One white balance value can be saved for the WHITE BAL switch setting A or B, for a total of 2 settings.
		NTSC ENC	[WIDE], NRW	Sets the band width of the Q signal for the NTSC color encoder.
		ROTARY	[STD], RVS	Selects the mode of MENU SEL switch (as turned counterclockwise when viewed from the front.) STD : Cursor moves downwards and a numeric value increases. RVS : Cursor moves upwards and a numeric value decreases.
		OWN CALL	R, [F&R], OFF	Selects whether one or two TALLY lamps are lit corresponding to the CALL button of camera adaptor pressed, or not. Or selects which TALLY lamp is lit when the CALL button is pressed. (This setting is valid in connection with CCU. When the camera is used alone and MSU/RCP is not connected to the camera, it is always set to OFF.) R : Rear TALLY lamp is lit. F&R : Rear and front TALLY lamps are lit. OFF : No TALLY lamp is lit corresponding to the CALL button.
		CENTER H POS	–20 to 20 ([XX])	Shifts horizontally the location of the center marker on the screen. 20 (right) ↔ –20 (left)
		CENTER V POS	–20 to 20 ([XX])	Shifts vertically the location of the center marker on the screen. 20 (up) ↔ –20 (down)
		LENS VTR S/S	TALK, [RET2]	Selects the mode of VTR S/S SW of the lens and camera. TALK : VTR S/S SW of lens functions as INCOM TALK SW (momentary) and that of the camra as RET2 SW. RET2 : VTR S/S SW of lens functions as RET2 SW and that of the camera as INCOM TALK SW.
		VF ? DISPLAY	[ON], OFF	Turns on and off the indication of ? mark at the top-right of the VF screen with the DISP switch set to ON when the self-diagnosis result is NG (no good) and so on.
		PinP RET RVS	[RVS1], RVS 2, OFF	Selects the indication mode of VF display in PinP mode. (Does not function in the unit.)
OTHERS 2		F TALLY RVS	[ON], OFF	Selects the operation mode of TALLY lamps corresponding to a CALL button of MSU or RCP pressed when a TALLY signal is input to the camera from CCU or VTR. ON : Rear and front TALLY lamps go out. OFF : Rear TALLY lamp alone goes out.
	1.07	BLK GAM INHIBIT	[ON], OFF	ON : Inhibits the black gamma adjustment and on/off function from the MSU or Paint manu. OFF : Enables the above operation.
	1.10	CHAR CAM No.	[1,2,3], A,B,C	Selects the indication mode of the camera number set by the CAMERA No. page of Operation menu. 1,2,3 : Indicates in numerics. A,B,C : Indicates camera numbers 1 to 27 in alphabetical order of A to Z. (When connecting 28 or more cameras, select “1,2,3”.)
	1.10	WHT SETUP MODE	[AWB], LEVEL	AWB : After executing the LEVEL AUTO, white balance adjustment data returns to the value before execution. LEVEL : After executing the LEVEL AUTO, white balance adjustment data changes to the value after the white balance is adjusted using TEST 2 signal.
	1.10	AW SHADING MODE	[RGB], RB ONLY	RGB : When automatically adjusting the white balance, R, G, and B signal waveforms are all flattened. RB ONLY : When automatically adjusting the white balance, R and B signal waveforms are flattened.

3-2. Self-Diagnosis

The BVP-550 has a diagnosis mode used for self-diagnosis of every plug-in board and the OHB.
The diagnosis page is displayed on the viewfinder screen.

- Operation
  Select “Diagnosis” page of the Operation menu referring to Section 3-1.

- Viewfinder Screen



- Display Descriptions

Marks	Board/Block	Judging Point for NG
①	OHB(CCD UNIT)	Error in communication with IC18, IC19/TG-159
②	PR-211	Error in communication with IC49
③	VA-163	Error in communication with IC26
④	AT-95	Error in communication with IC46
⑤	SG-234	Error in communication with IC21
⑥	DA-88	Error in communication with IC10
⑦	IF-510	Error in communication with IC155

Refer to CA-550/550P maintenance manual for descriptions on columns of CA.

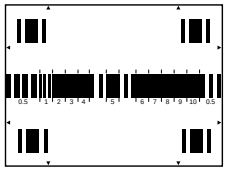
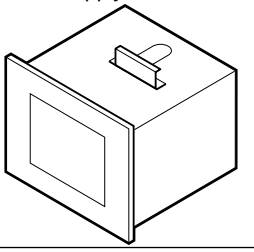
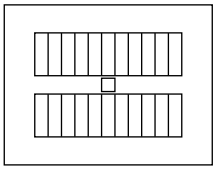
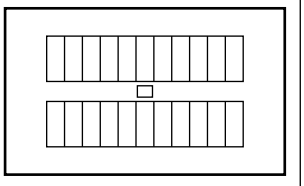
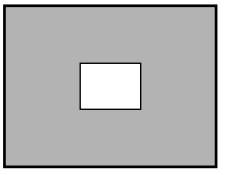
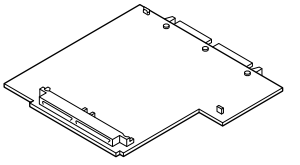
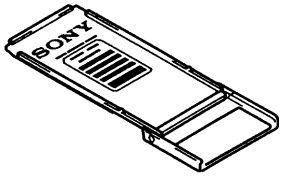
Note

When other equipment than the CA-550/550P is connected to the camera, or when the CA-550/550P is connected to the camera but is not connected to the CCU, the columns ⑧ will display “– –”.

Section 4
Electrical Alignment

4-1. Preparation

4-1-1. Equipment Required

Multiburst Chart	Pattern box PTB-500
Sony P/N: J-6026-110-A 	**Sony P/N: J-6029-140-B** • Light source for test chart Power supply AC90 to 240V 
Grayscale Chart	**Grayscale Chart (16:9)**
Sony P/N: J-6026-130-B 	**Sony P/N: J-6394-080-A** 
White Window Chart	**Extension board EX-464 (option)**
Make a square hole at the center of a black sheet of paper. 	**Sony P/N: J-6395-040-A** For BVP-550 plug-in boards 
Extension board BKP-7900 (option)	
For CCU-700/700P plug-in boards 	

Measuring Equipment

- Frequency counter
  Advantest TR5821AK or equivalent
- Oscilloscope
  Tektronix 2465 or equivalent
- Waveform monitor/Vectorscope
  Tektronix 1750 or equivalent (for NTSC)
  Tektronix 1751 or equivalent (for PAL)
- Digital voltmeter
  Advantest TR6845 or equivalent
- Video signal generator
  Tektronix 1410 or equivalent (for NTSC)
  Tektronix 1411 or equivalent (for PAL)
- Color monitor
  Sony BVM-1911/2811 or equivalent (for NTSC)
  Sony BVM-2011P/3011P or equivalent (for PAL)

Peripheral Equipment

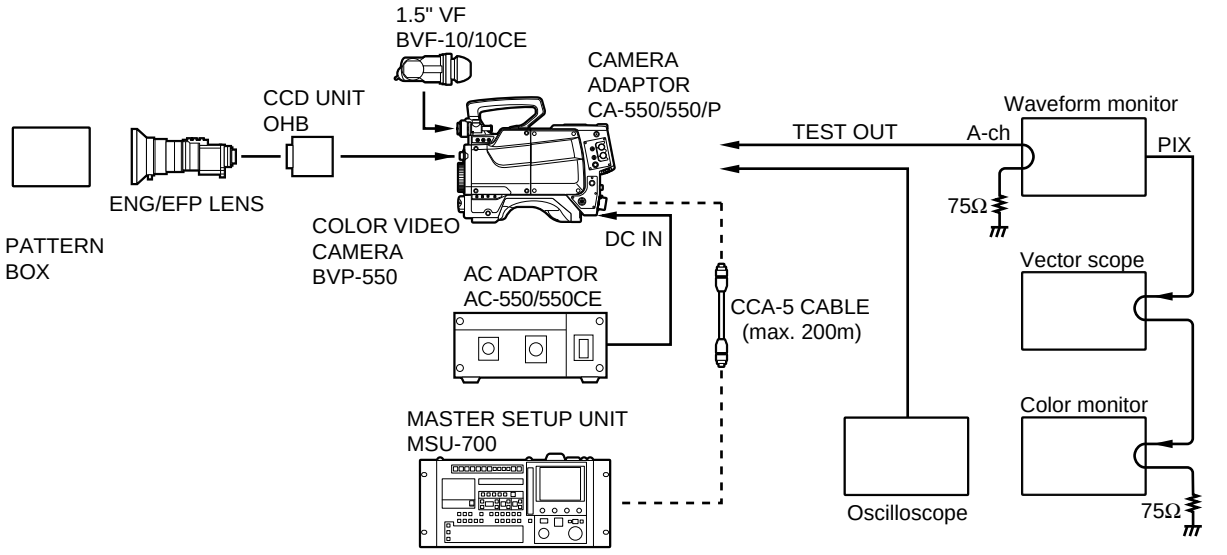
- CCD unit OHB-450/550 series
- Camera adaptor CA-550/550P
- AC adaptor AC-550/550CE
- Master setup unit MSU-700

4-1-2. Notes on Adjustment

When performing the adjustment, read throughly the following comments.

1. The calibration of all measuring equipment should be completed.
2. The alignment of OHB-450/550 series, CA-550/550P and MSU-700 should be also completed.
3. “4-1-5. Initial Setting” should be completed.
4. Turn off the power before extending the plug-in board using the extension board.
5. When using the camera as 16:9 mode together with the OHB-550WS/550WSP, use the specified grayscale chart (J-6394-080-A).
6. Paste a black colored velvets (around 3×3 cm) to both sides of the full white portion in the center of the grayscale chart.
   (For more details, consult your Sony service represen tative.)
7. When connecting MSU-700 to BVP-550, use MSU-700 for various settings, because the switches on the side panel of the camera become invalid.

4-1-3. Connections



4-1-4. Description of Setup Menu

A part of adjustments given in this section uses the setup menu. The setup menu consists of the following menus. Besides there is a TOP menu indicating the entire configuration of menu items.

- Operation
- Paint
- Maintenance
- Reference File
- Triming File
- System config

To display all of the menus, switch setting of the AT-95 board is required. And for details on the setup menu, refer to Section 3.

In this manual, describes the setup menu operation as follows.

Title of the selected page (top right corner display)

For reference:
When Paint → Skin Detail is selected:

MENU : Paint
PAGE : Skin Detail (P4)

Displaying Setup Menu

1. Set the internal switches of the AT-95 board as follows.
   S1-1 → ON
   S1-2 → OFF
   S1-3 → ON
   S1-4 → OFF
2. DISP switch (on the side panel) → OFF
3. POWER switch (on the camera adaptor) → ON
4. Set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch (on the front panel). (TOP menu will be displayed.)

Note

If the power switch is turned off once, perform the above operations again to display the setup menu (steps 2 to 4).

How to change the setting values

To enter or cancel the setting value of items, which can be changed by turning the MENU SEL switch, proceed as follows.

To enter the setting value;

Press the MENU SEL switch to ENTER.

To cancel the setting value;

Before pressing the MENU SEL switch, press the CANCEL button. The original setting is restored.
After pressing the MENU SEL switch, the setting can not be canceled.

File Store

If the adjustments in this section are suspended or the power is turned off to extend a printed circuit board and so on, be sure to execute the FILE STORE before being powered off.

4-1-5. Initial Setting

Internal Switches:

Note

When switching the following switches from a customer-set position, it is recommended to record the setting state of the customer in the table below.
After adjustment is complete, be sure to return the switches to their customer-set position.

Board	Switch	Initial setting	Customer-set position
AT-95	S1-1	ON	
	S1-2	OFF	
	S1-3	ON	
	S1-4	OFF	

Setup Menu:

MENU : Operation
- PAGE : Gain Sw (?3)
- ITEM : Low → 0 dB
- ITEM : Middle → 9 dB
- ITEM : High → 18 dB
- PAGE : Wide Screen (?4)
- ITEM : 16:9/4:3 MODE → 16:9 (For OHB-550WS/550WSP)

MENU : Paint
- PAGE : Video Level (P1)
- ITEM : Test → Off
- PAGE : Detail 1 (P2)
- ITEM : Detail → On
- PAGE : Skin Detail (P4)
- ITEM : Skin Detail → Off
- PAGE : Gamma (P5)
- ITEM : Gamma → On
- PAGE : Knee/W.Clip (P6)
- ITEM : Knee → Off
- ITEM : White Clip → Off
- PAGE : Matrix (P7)
- ITEM : Matrix → Off

Side Panel:

VTR SAVE/STBY switch → STBY
GAIN switch → L (0 dB)
OUTPUT/DCC switch → CAM/OFF
WHITE BAL switch → PRST

Front Panel:

SHUTTER switch → OFF

Filter Setting:3200 K

OHB-550/550WS series → 1B (FILTER selector)
OHB-450/451 series → 1 (FILTER selector)

Execution of Scene File Standard:

MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard
(Press the MENU SEL switch to execute.)

4-2. Adjustment for Installation of OHB

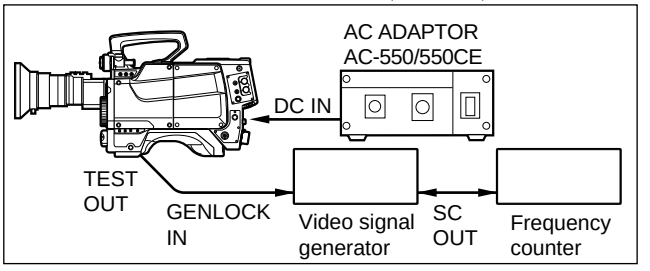
When the auto black adjustment is executed with the AUTO W/B BAL switch on the front panel for the first time after the OHB is replaced or a new OHB is installed, the black shading is automatically adjusted in succession to the auto black adjustment.
If the shading adjustment is correctly completed at that time, “4-2-3. Black Shading Adjustment” can be skipped.

4-2-1. VCO CONT Frequency Confirmation

Notes:
- Perform this confirmation only when the CCD unit is installed.
- Warm up the camera for about 10 minutes before performing this confirmation.

Preparation:
- RGB/ENC switch (on the side panel) → ENC

Equipment : Frequency counter, Video signal generator
Test Point : TEST OUT connector
Specifications: 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specification is not satisfied, perform the following adjustment.

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications: 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:
Execute the OHB file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-2-2. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:
- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

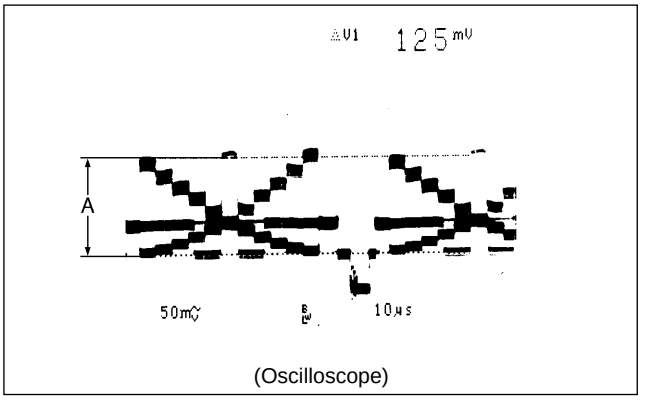
Note:
- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

Preparations:
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-2-5. Master Black Adjustment”.

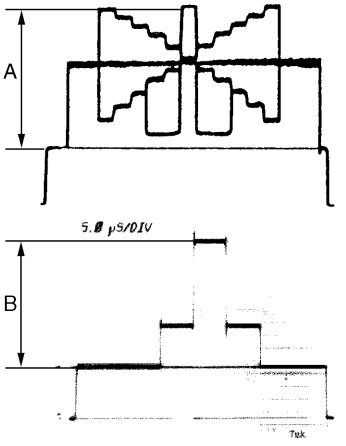
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

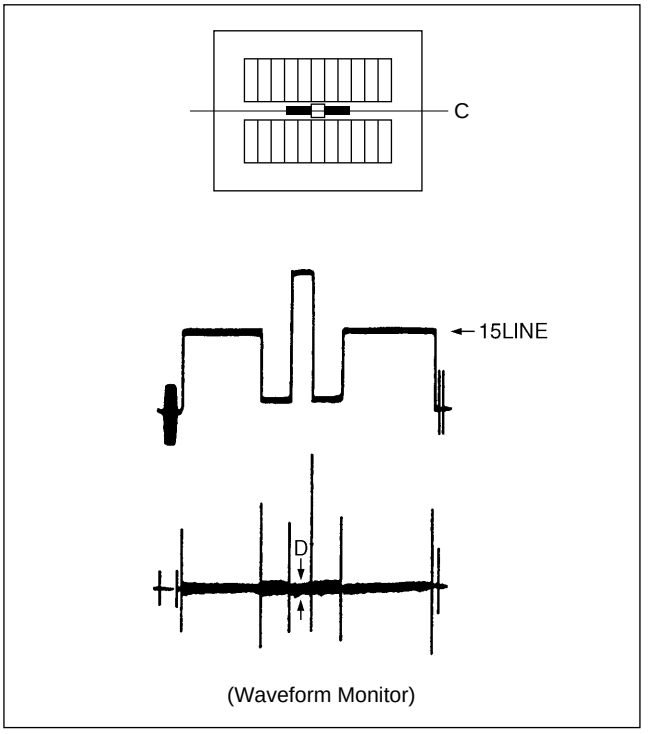
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

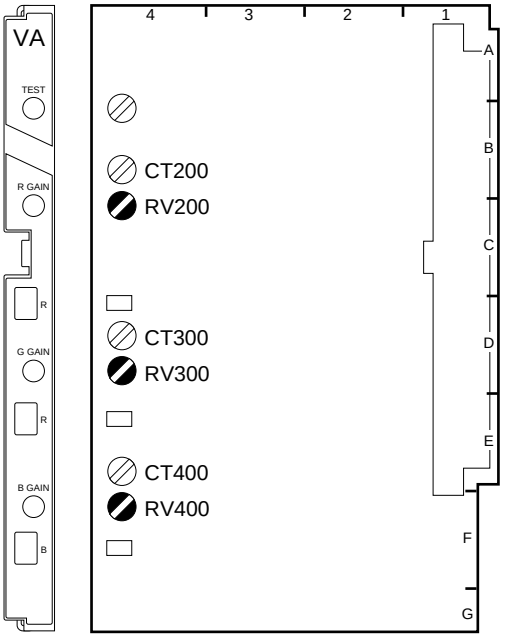


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-2-3. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

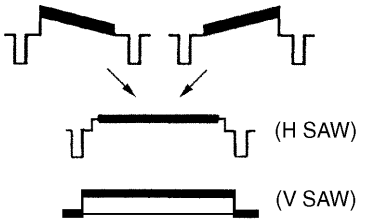
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-2-4. White Shading Adjustment

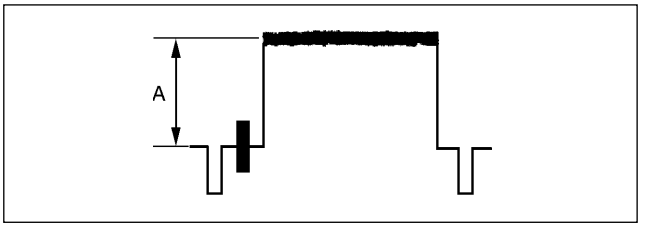
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

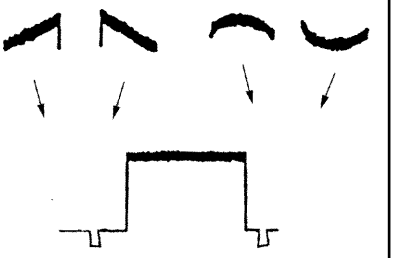
Preparations:

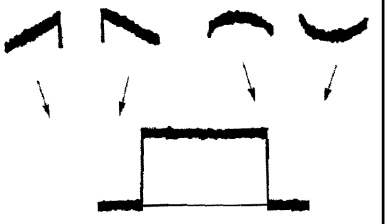
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-2-5. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

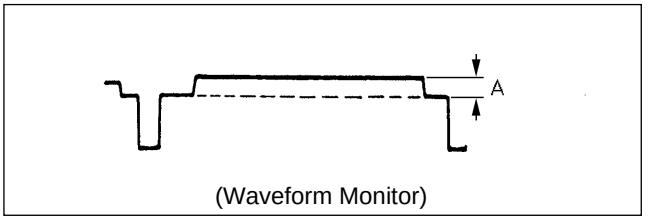
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-2-6. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

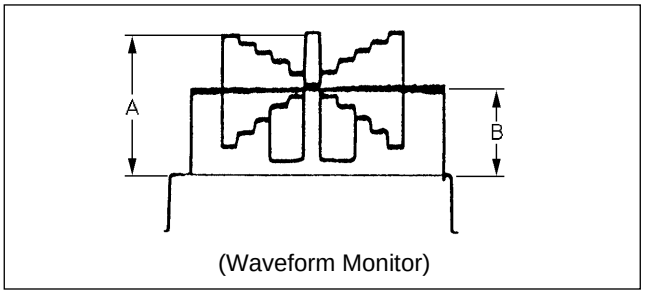
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

Adjustment Procedures:

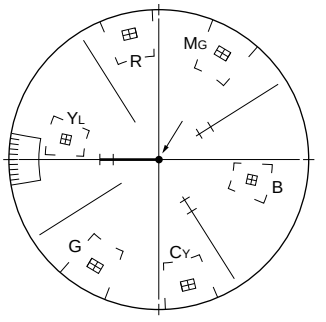
1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)



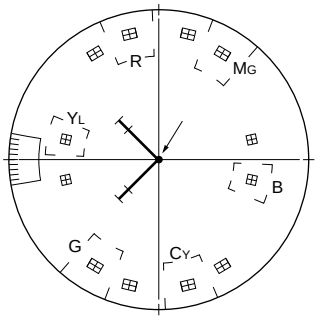
(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.

8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.



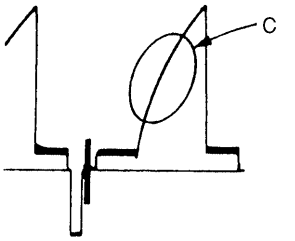
(For NTSC)



(For PAL)

(Vectorscope)

9. Confirm that the carrier leakage does not observed at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

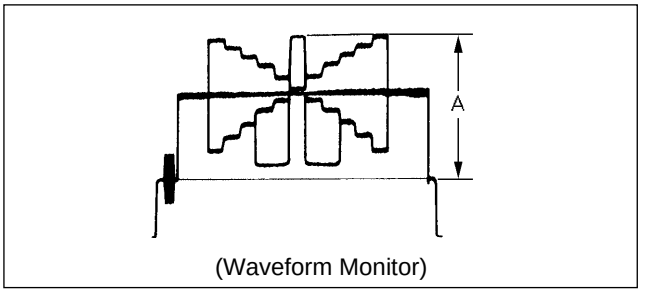
4-2-7. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

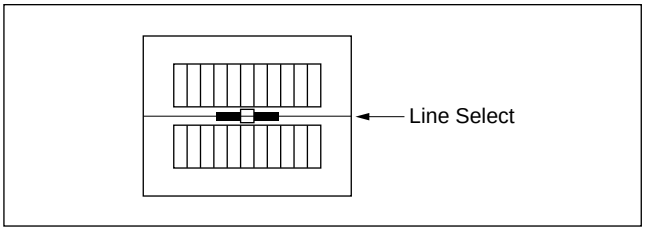
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



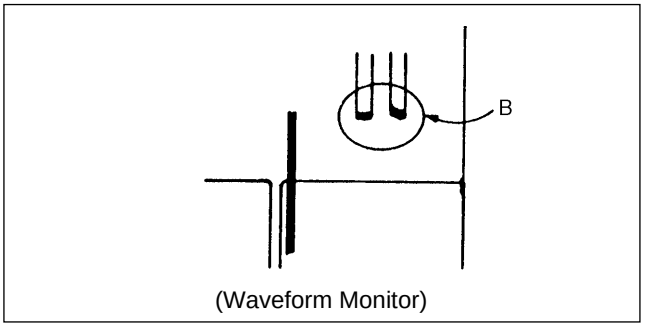
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC. Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

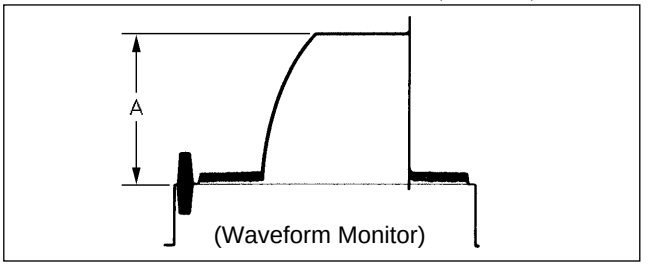
4-2-8. Knee and White Clip Adjustment

Note:
Perform this adjustment on the customer's preferences, if necessary.

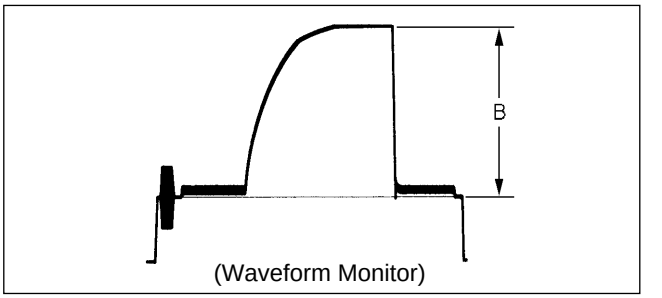
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

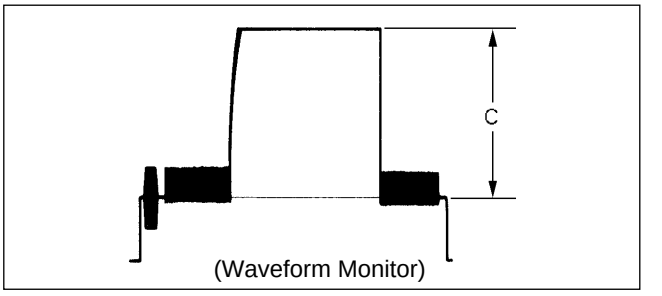
Adjustment Procedures:
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:
- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

Note:
The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-2-9. Crispening Adjustment

Note:

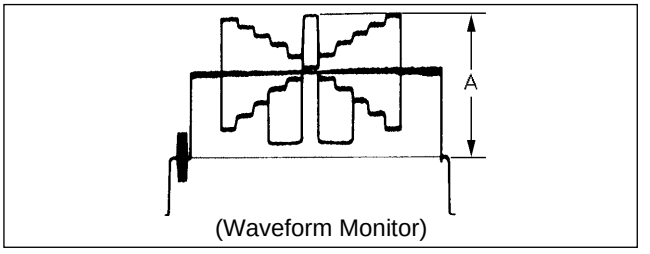
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Iris of the lens : A = 90 ±2 IRE (for NTSC)
A = 630 ±14 mV (for PAL)



(Waveform Monitor)

Adjustment Procedure:

Set the menu as follows, and adjust the crispening by using the MENU SEL switch.

MENU : Paint
PAGE : Detail 1(P2)
ITEM : Crispening
Specifications : Turn the MENU SEL switch (on the front panel) once to –99, and turn slowly for increment until the noise at the black level of the waveform is just decreased, or turn the MENU SEL switch so that the crispening level is an appropriate value.

4-2-10. Level Dependent Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

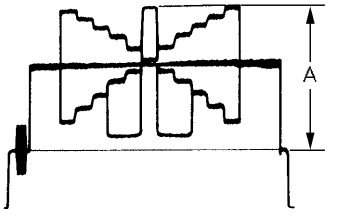
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On
  ITEM : Level Dep. → On

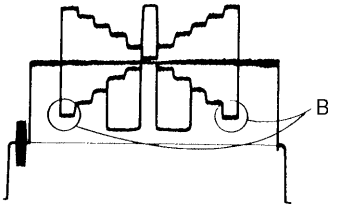
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the level dependent by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level Dep.
   Specifications: Turn the MENU SEL switch (on the front panel) once to –99, and slowly turn it for increment until spikes at portions B are just decreased.



(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-11. Detail Frequency Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

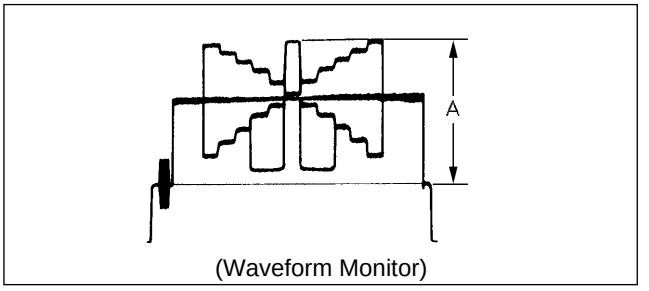
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

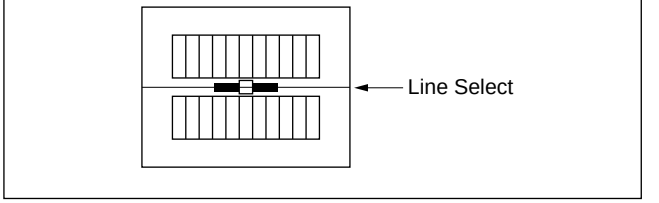
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

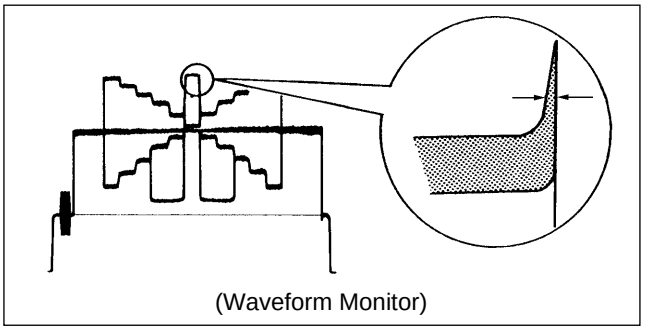


(Waveform Monitor)

2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the detail frequency by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : Frequency
   Specifications: Adjust the edge width at each end of the center white portion to the desired width.


(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-12. H/V Ratio Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

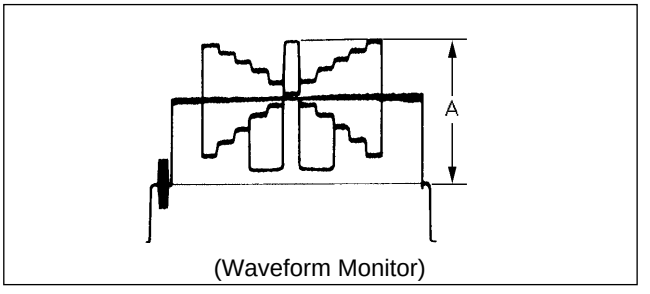
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

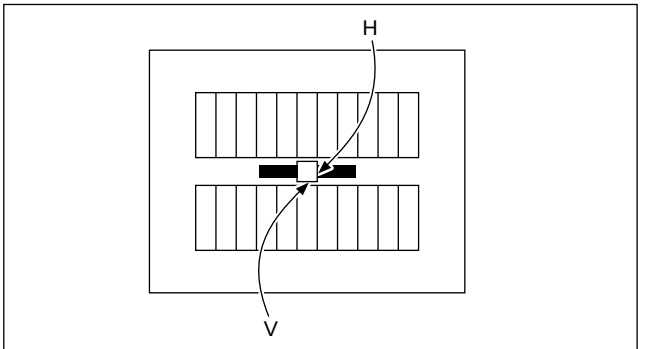
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the H/V ratio by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : H/V Ratio
   Specifications: The ratio between the H and V detail amounts (white) to be added shall be 1 : 1.



(Monitor Screen)

4-2-13. Detail Level Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

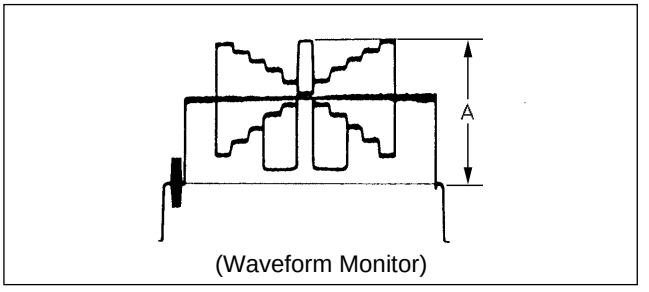
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the signal level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level
   Specifications: Adjust the detail signal level to be added to each step in the grayscale chart for the desired level.

4-2-14. Detail Clip Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

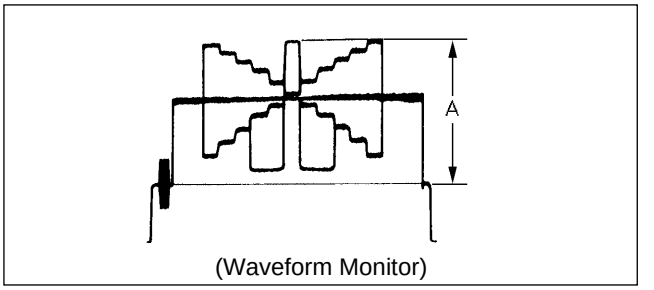
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

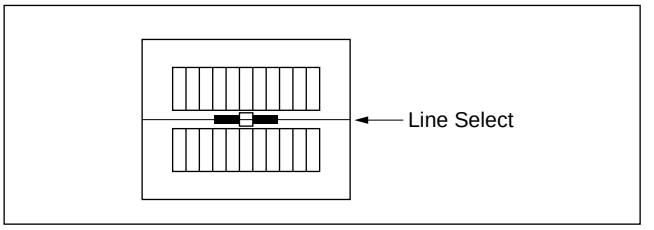
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

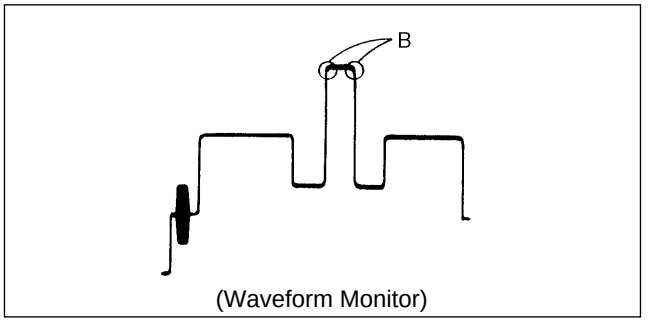


(Waveform Monitor)

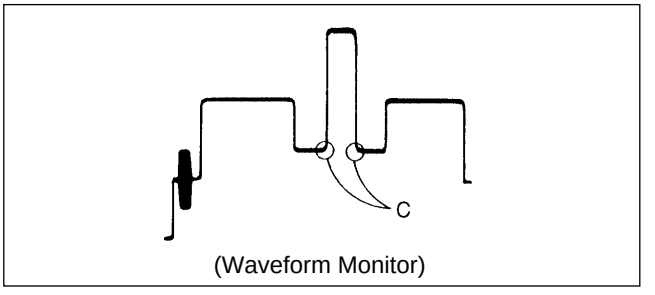
2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the white limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : W.Limitter
   Specifications: Adjust the edges of portions B to the desired clip level.



4. Set the menu as follows, and adjust the black limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : B.Limitter
   Specifications: Adjust the edges of portions C to the desired clip level.



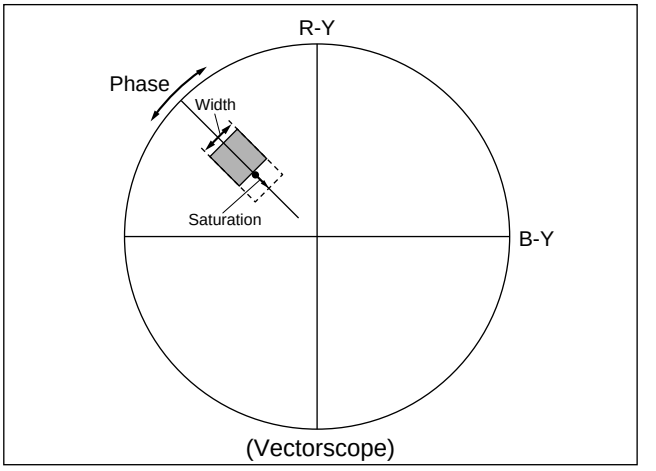
4-2-15. Skin Tone Adjustment

Note:
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Color monitor, Viewfinder or Vectorscope

Preparations:
- Connect the vectorscope to the TEST OUT connector.
- Shoot a person's face.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Skin Detail → On

Adjustment Procedures:
1. Set the menu as follows.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Gate → On
2. Set the menu as follows, and adjust the amount of the skin detail signal to the desired level according to the following items by using the MENU SEL switch.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Level (Detail level within the skin gate)
   ITEM : Phase (Hue)
   ITEM : Saturation
   (Component in the saturation direction)
   ITEM : Width (Component in the hue direction)
   (The effective area of the skin detail signal appears in a zebra pattern on the viewfinder screen. Set the desired level.)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Gate → Off

4-2-16. Zebra Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

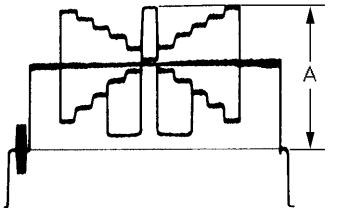
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- ZEBRA switch (on the viewfinder) → ON
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

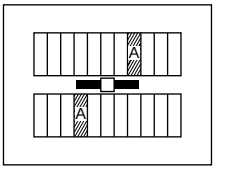
Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. **Iris of the lens**: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



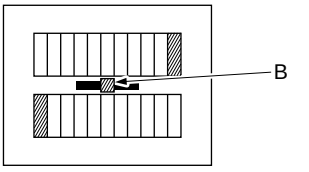
(Waveform Monitor)

3. Set the menu as follows, and adjust the zebra 1 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 1
   Adjustment Point:
   ITEM : Zebra1 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions A on the viewfinder screen.
   The area of the stripes can be changed by ITEM: Zebla 1 [RANGE].



(Monitor Screen)

4. Set the menu as follows, and adjust the zebra 2 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 2
   Adjustment Point:
   ITEM : Zebra2 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions B on the viewfinder screen.



(Monitor Screen)

Resetting after Adjustment:

- ZEBRA switch (on the viewfinder) → OFF
- WHITE BAL switch (on the side panel) → PRST

4-2-17. Auto Iris Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

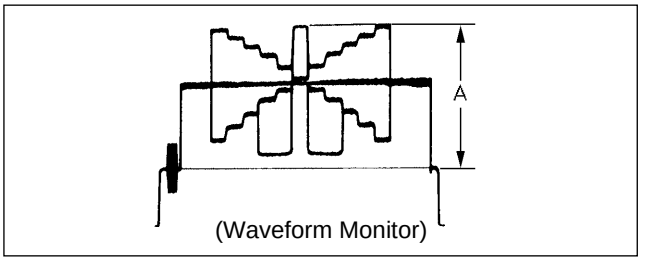
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- AUTO/MANU switch (on the lens) → AUTO
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Set the menu as follows, and adjust the APL ratio by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : APL Ratio
   Specifications: Adjust the auto-iris operation mode depending on the application.
   Note : Automatic iris operation mode setting can be done from the average level to peak-to-peak level of the video signal.
   99 → average level
   –99 → peak-to-peak level
3. Set the menu as follows, and adjust the auto-iris level by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : Iris Override → Off
   Adjustment Point:
   MENU : System config
   PAGE : Iris (S6)
   ITEM : Level
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

4-2-18. Menu Settings After Finishing Adjustment

MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On

4-2-19. File Store

Be sure to execute the file store after any one of the adjustments of Sections 4-2-1 through 4-2-17 is performed.

Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Execute the reference file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Reference File
   PAGE : Reference File (R1)
   ITEM : File Store
3. Execute the triming file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store

4-3. Overall Electrical Alignment

Before beginning this adjustment, check the initial settings referring to Section 4-1-5. When a board was replaced or repaired, preset the compensation data, proceeding as follows. If the data is preset once, be sure to carry out all steps of 4-3-1 through 4-3-23. Because presetting clears all adjustment data of video and detail system.

(1) Execute the reference file clear.
Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : Clear File

(2) Execute the scene file standard.
Press the MENU SEL switch to execute.
MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard

This section provides intructions to store the setting data on the reference or triming file in every adjustment item. This intends to prevent the data from being cleared when the unit is powered off to extend a board, and so on.
As the data is kept held unless powered off, however, more than one data can be stored at a time.
The file store may not necessarily be executed for every adjustment item.

4-3-1. VCO CONT Frequency Adjustment

Note:

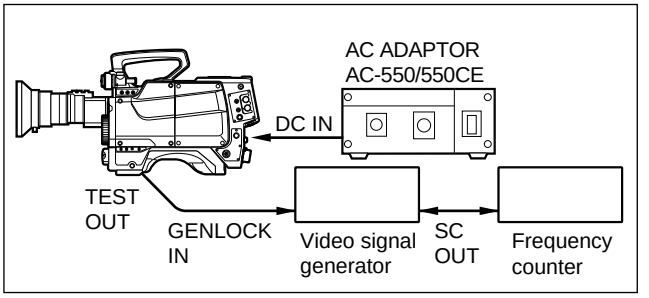
- Warm up the camera for about 10 minutes before this confirmation.

Equipment : Frequency counter,
Video signal generator

Test Point : TEST OUT connector

Preparation:

- RGB/ENC switch (on the side panel) → ENC



Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications : 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:

Execute the OHB file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-3-2. VTR Y Adjustment

Equipment : Oscilloscope
Test Point : TP3 (Y)/DA-88 panel

Preparations:

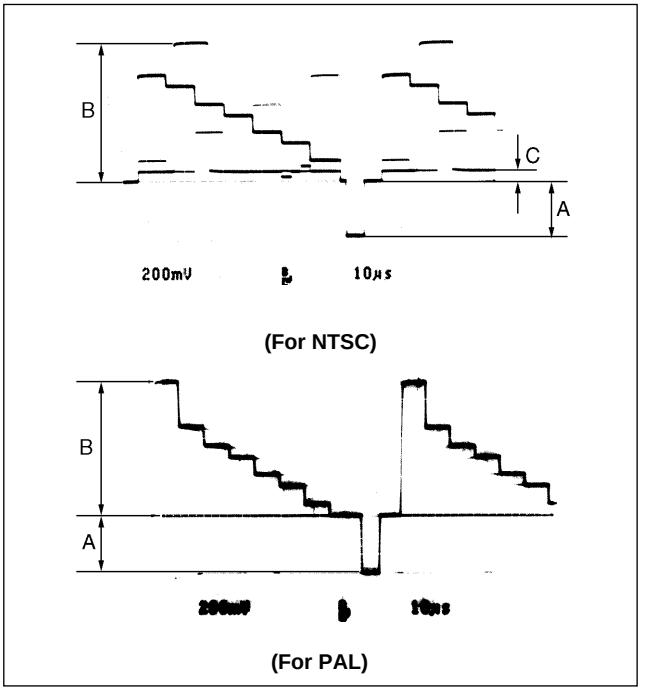
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the Y sync by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SYNC
   Specifications: A = 286 ±2 mV (for NTSC)
   A = 300 ±2 mV (for PAL)

3. (NTSC only)
   Set the menu as follows, and adjust the Y setup by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SETUP
   Specifications: C = 53.5 ±2 mV

4. Set the menu as follows, and adjust the Y video by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y Video
   Specifications: B = 714 ±7 mV (for NTSC)
   B = 700 ±7 mV (for PAL)



(20 MHz B/W LIMIT → ON)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-3. Test out Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

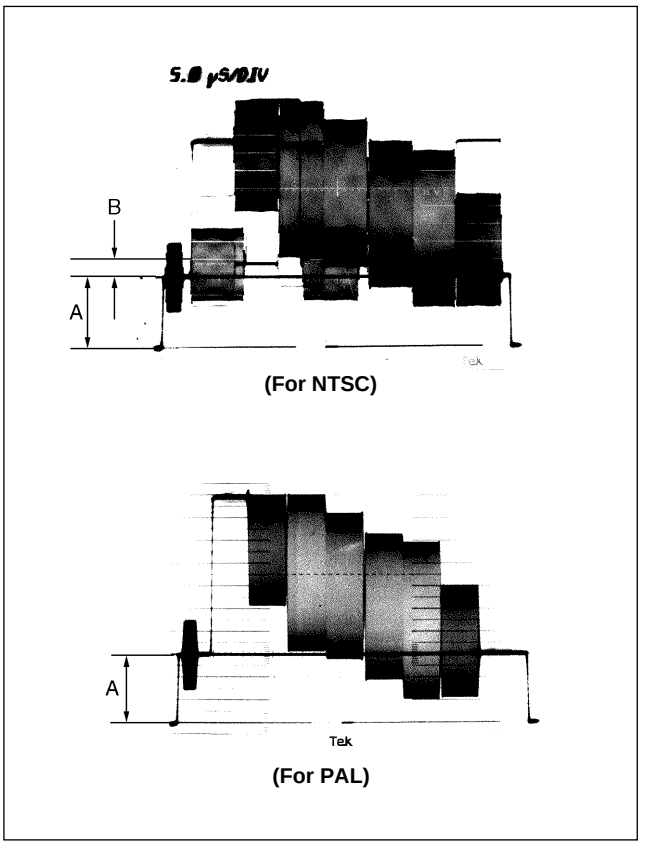
Preparations:

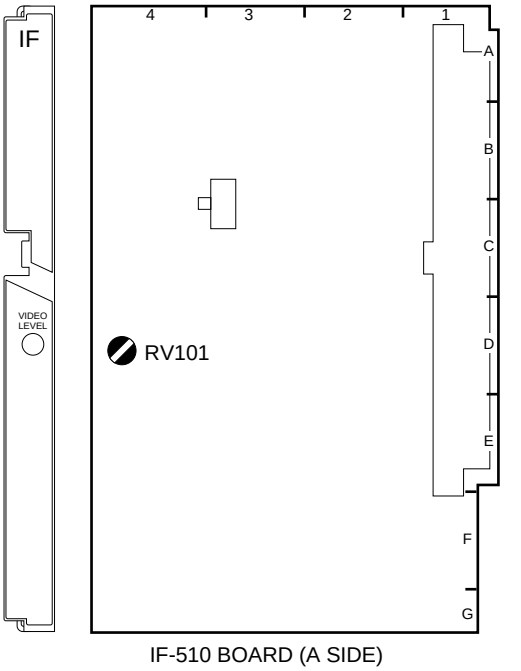
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. **Adjustment Point** : ⊘RV101 (VIDEO LEVEL)/ IF-510 panel
   Specifications : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)

2. (NTSC only)
   Set the menu as follows, and adjust the test setup by using the MENU SEL.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : TEST SETUP
   Specifications : B = 7.5 ±1 IRE
   File Store:
   Execute the file store. Press the MENU SEL switch to execute.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store





IF-510 BOARD (A SIDE)

4-3-4. Chroma Adjustment

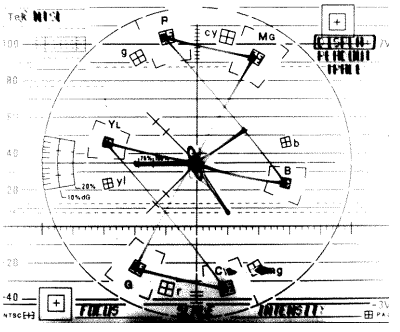
Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector

Preparations:

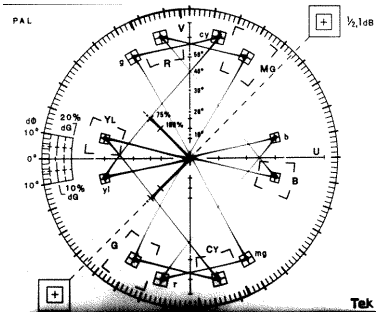
- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the chroma level and Q/V level alternately by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Chroma LVL
   ITEM : Q/V LVL
   Specifications: Place the beam spots inside the corresponding frames on the vectorscope.

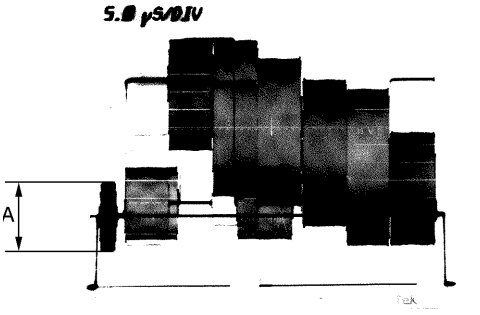


(For NTSC)

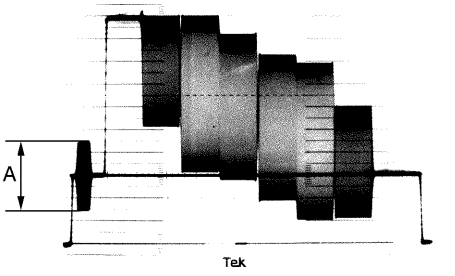


(For PAL)

3. Connect the waveform monitor to the TEST OUT connector.
4. Set the menu as follows, and adjust the burst level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Burst LVL
   Specifications: A = 40 ±1 IRE (for NTSC)
   A = 300 ±5 mV (for PAL)



(For NTSC)



(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-5. INT SC Phase Adjustment

Notes:

This adjustment precedures are stated below assuming that where the Tektronix 1750 (for NTSC) or1751 (for PAL) is used.

If any other measuring instrument is used, follow the instructions given in the operation manual attached to it.

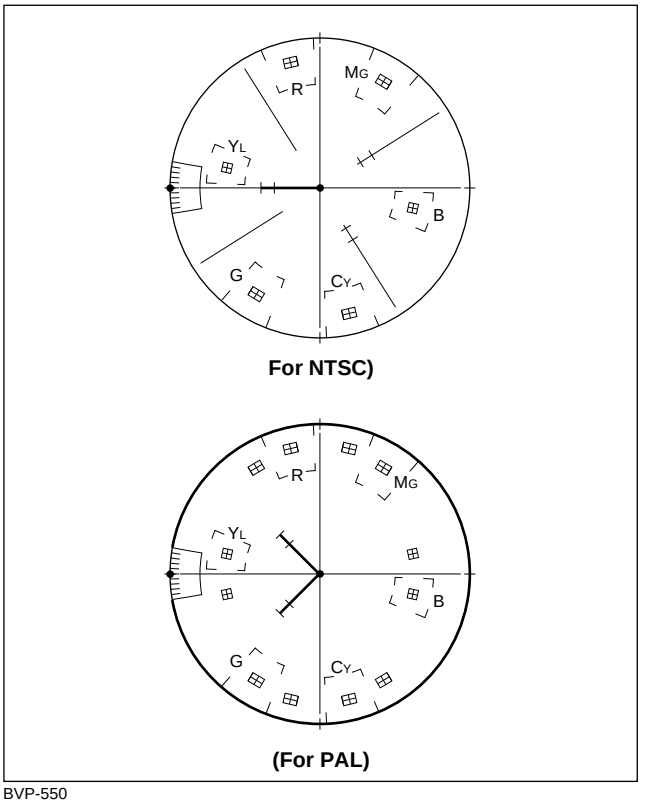
Equipment : Vectorscope (SC-H Phase measuring mode)
Test Point : TEST OUT connector

Preparations:

- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the SC-H phase by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC-H Phase
   Specifications: Position the luminous line of the burst (SC) and the beam spot of H as shown in the figure.



For NTSC)

(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-6. REG Level Adjustment

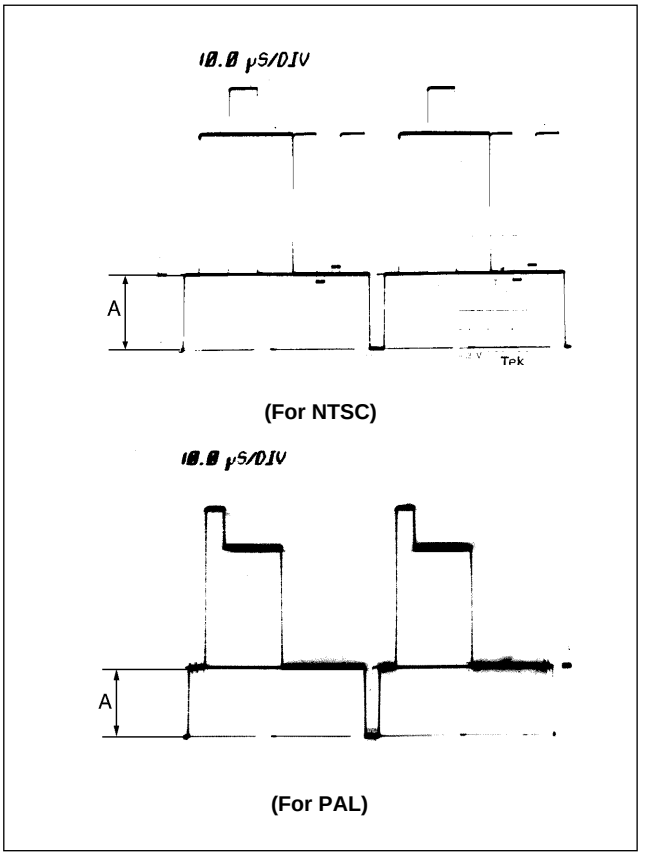
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the REG level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : REG LVL
   Specifications:
   SYNC LEVEL : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-7. TEST1 Adjustment

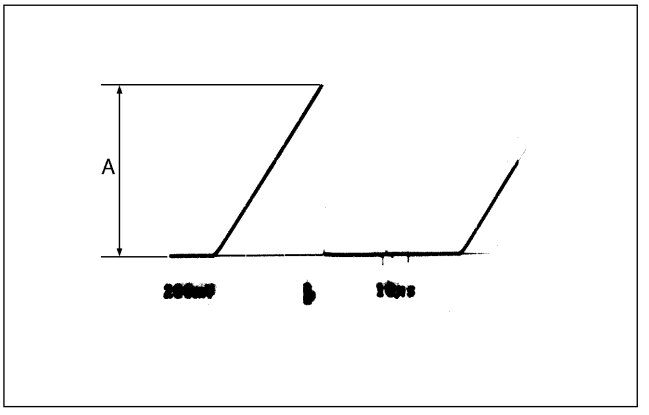
Equipment : Oscilloscope

Preparation:

- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. WHITE BAL switch (on the side panel) → PRST
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 1
4. **Test Point** : TP52 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point : ⊘RV50 (TEST)/VA-163 panel
   Specifications : A = 880 ±2 mV



5. Set the menu as follows, and adjust the white level for R by using the MENU SEL switch.
   Test Point : TP54 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [R]
   Specifications : A = 880 ±40 mV
6. Set the menu as follows, and adjust the white level for B by turning the MENU SEL switch.
   Test Point : TP50 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [B]
   Specifications : A = 880 ±40 mV

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-8. TEST2 Adjustment

Equipment : Oscilloscope
Test Point : TP52 (GND:GND (A))/
Extension board (extending VA-163)

Preparation:

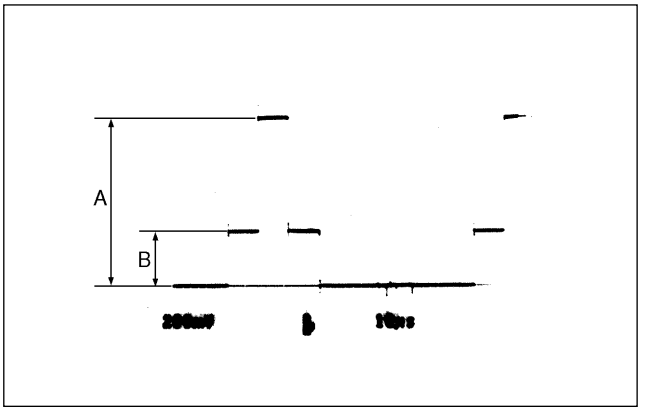
- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2

3. Set the menu as follows, and adjust the TEST2 high level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 HI
   Specifications: A = 880 ±5 mV

4. Set the menu as follows, and adjust the TEST 2 middle level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 MID
   Specifications: B = 290 ±5 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-9. A/D Gain Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

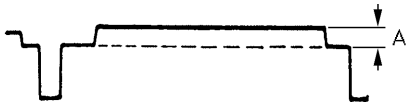
- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : Paint
  PAGE : Detail1 (P2)
  ITEM : Detail → Off
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
  ITEM : White Clip → Off

Iris of the lens : CLOSE

Adjustment Procedures:

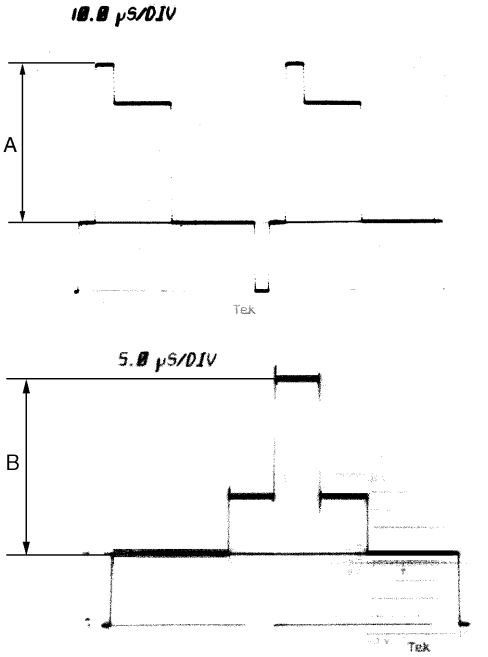
1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

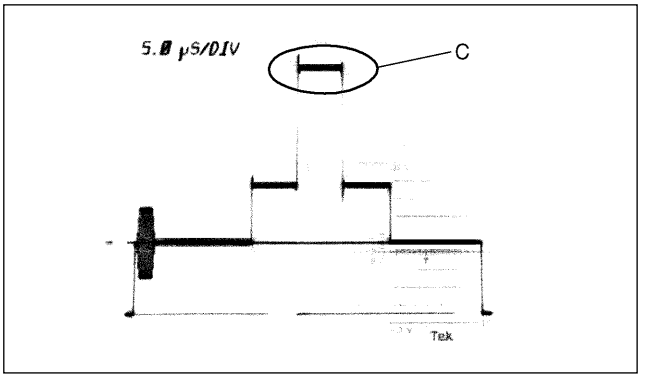
3. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK
4. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2
5. Set the menu as follows, and adjust the A/D gain for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [G]
   Specifications: The white level shall not be changed even if the OUTPUT/DCC switch (on the side panel) is changed over between CAM and BARS.
   A = B

(For NTSC)



(For PAL)

6. Set the R/G/B switch (on the side panelüj to ENC.
7. Set the OUTPUT/DCC switch (on the side panel) to CAM/OFF.
8. Set the menu as follows, and adjust the A/D gain for R by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [R]
   Specifications: Minimize the carrier leakage.
   C = Minimum
9. Set the menu as follows, and adjust the A/D gain for B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [B]
   Specifications: Minimize the carrier leakage.
   C = Minimum



10. Repeat the steps 8 and 9 alternately until the specifications are satisfied.

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-10. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:

- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

Note:

- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

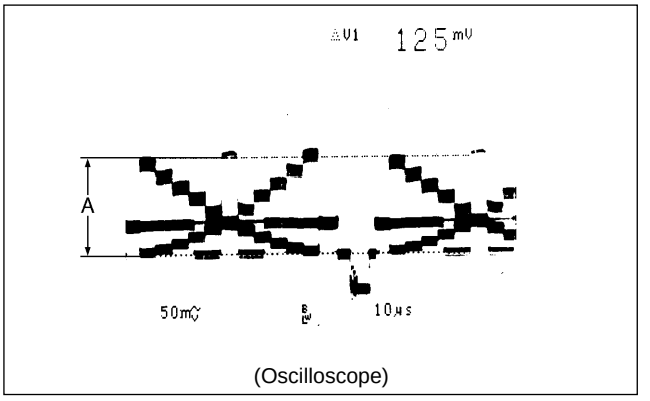
Preparations:

- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-3-14. Master Black Adjustment”.

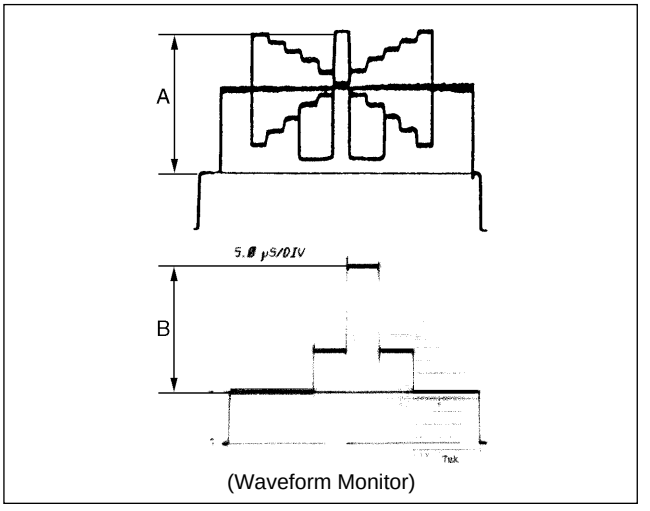
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

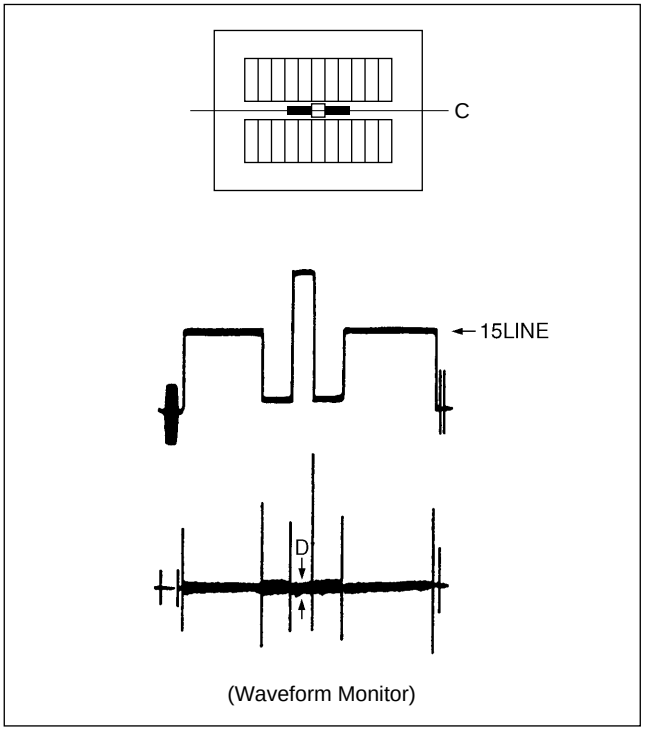
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

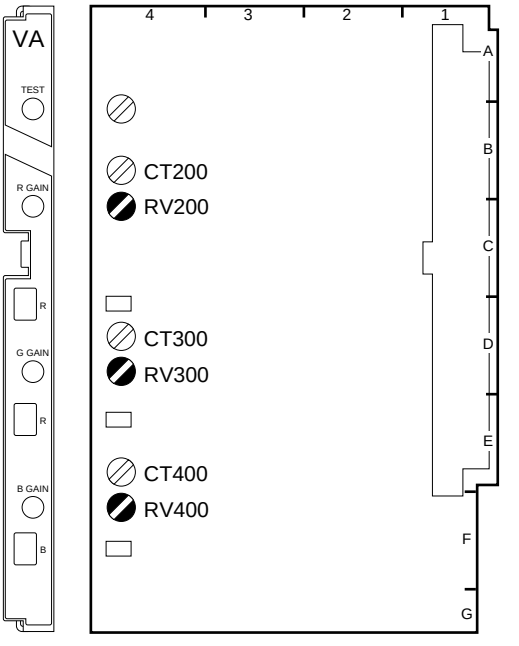


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-3-11. VA MOD Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

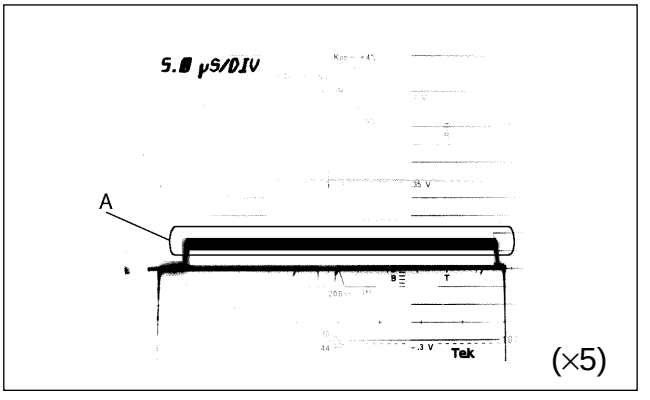
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → R

Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [R]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [R] varies from 99 to –99.



3. Set the R/G/B switch (on the side panel) to G.
4. Set the menu as follows, and adjust the V MOD for G by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [G] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [G]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [G] varies from 99 to –99.

5. Set the R/G/B switch (on the side panel) to B.
6. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [B] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [B]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [B] varies from 99 to –99.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows. Press the MENU SEL switch to execute.
  MENU : Maintenance
  PAGE : White Shading (M2)
  ITEM : Clear

4-3-12. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-4-12. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

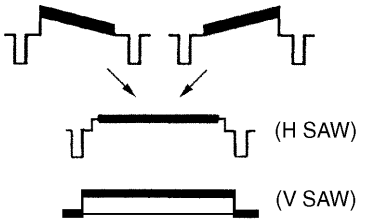
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-3-13. White Shading Adjustment

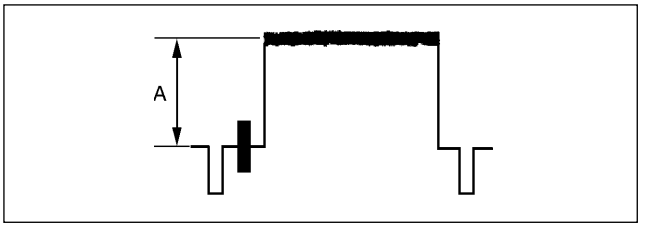
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

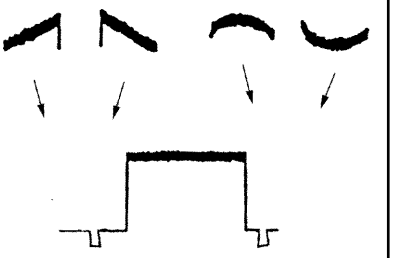
Preparations:

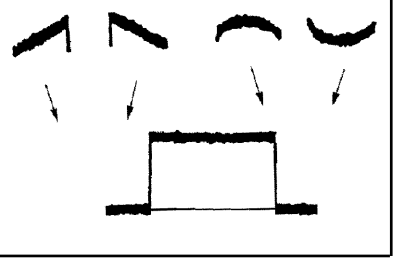
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-3-14. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

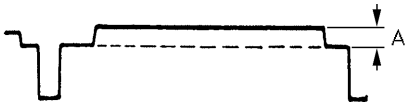
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-3-15. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

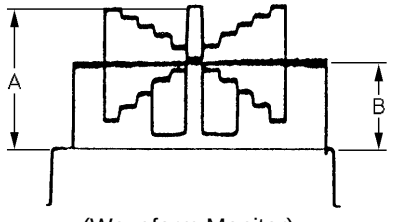
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

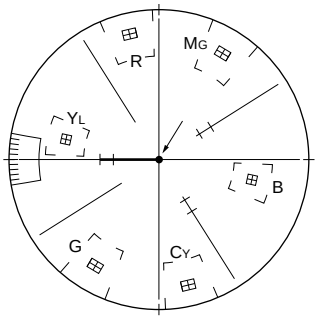
Adjustment Procedures:

1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)

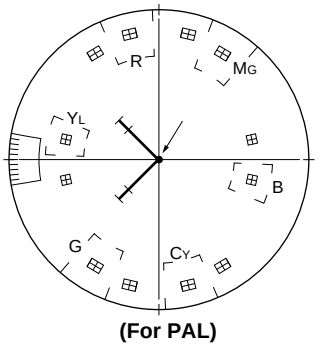


(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHT BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panl) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.
8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.

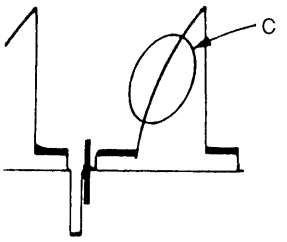


(For NTSC)



(For PAL)
(Vectorscope)

9. Confirm that the carrier leakage does not monitored at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

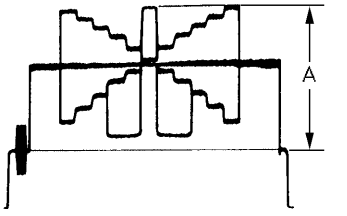
4-3-16. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

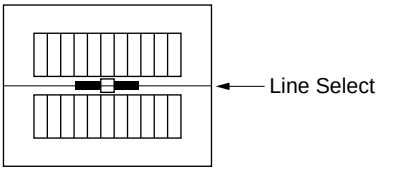
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



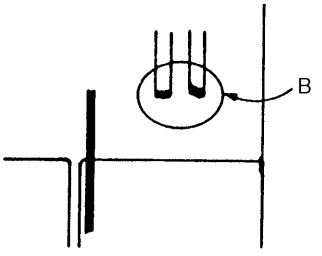
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC.
   Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:
Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:
• WHITE BAL switch (on the side panel) → PRST

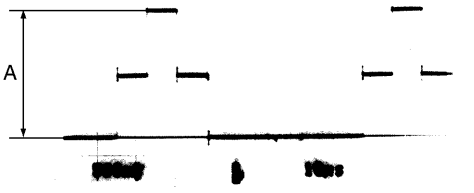
4-3-17. Pre Knee Adjustment

Equipment : Oscilloscope, Waveform monitor

Preparation:
• Extend VA-163 board with EX-464 board.

Iris of the lens : CLOSE

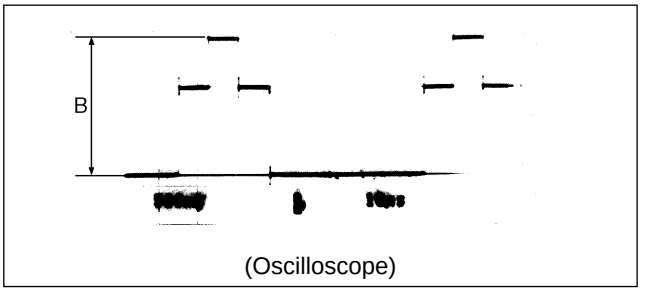
Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → On
3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Set the GAIN switch (on the side panel) to M (9 dB).
5. Set the WHITE BAL switch (on the side panel) to PRST.
6. Set the menu as follows.
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : Test → 2
7. Set the menu as follows, and adjust the pre knee 1 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[G]
   Specifications: A = 1.68 ±0.02 V p-p



(Oscilloscope)

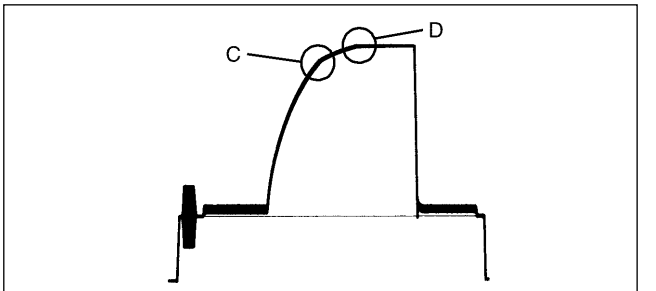
8. Set the menu as follows.
   MENU : Operation
   PAGE : Gain SW (?3)
   ITEM : Middle → 12 dB

9. Set the menu as follows, and adjust the pre knee 2 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee2[G]
   Specifications: B = 1.80 ±0.02 V p-p



(Oscilloscope)

10. Set the menu as follows.
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : Test → 1
11. Set the GAIN switch (on the side panel) to H (18dB). Set the OUTPUT/DCC switch (on the side panel) to CAM/ON.
12. Set the menu as follows, and adjust the pre knee 1 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[R]
    Specifications: Minimize the carrier leakage C.
13. Set the menu as follows, and adjust the pre knee 1 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[B]
    Specifications: Minimize the carrier leakage C.
14. Set the menu as follows, and adjust the pre knee 2 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications: Minimize the carrier leakage D.
15. Set the menu as follows, and adjust the pre knee 2 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[B]
    Specifications: Minimize the carrier leakage D.



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Operation
  PAGE : Gain SW (?3)
  ITEM : Middle → 9 dB
  MENU : System config
  PAGE : Pre Knee/Zebra (S4)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB)

4-3-18. Knee and White Clip Adjustment

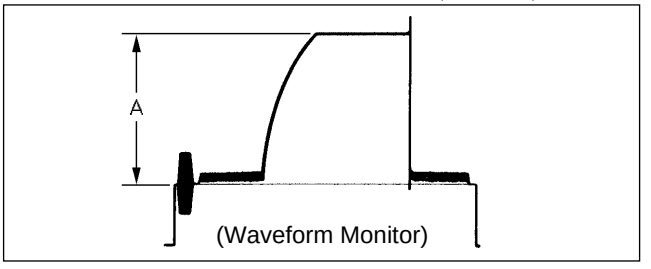
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

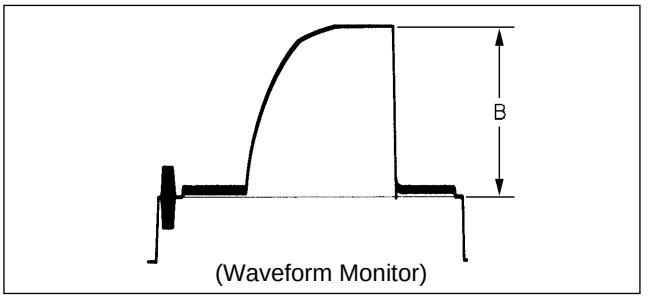
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

Adjustment Procedures:

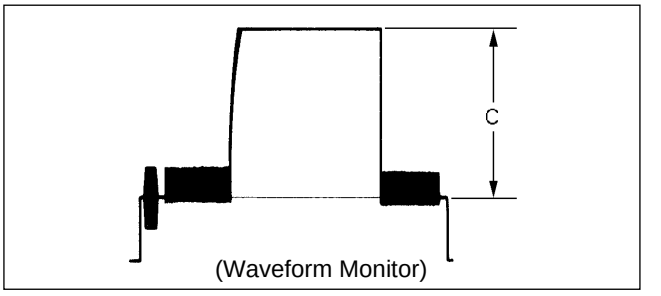
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Note:

The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).

When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-3-19. A/D Clock Phase Adjustment

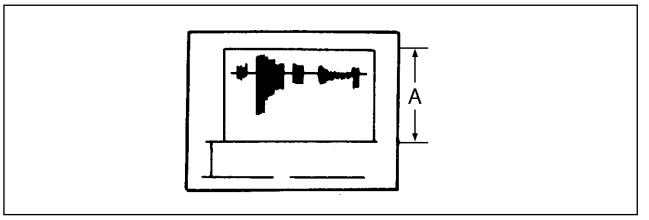
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Multiburst chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the multiburst chart so that the chart frame is aligned with the underscanned monitor frame with the zoom control.
- Pan so that the 9 MHz portion of the multiburst chart is positioned at the center of the monitor screen.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Auto Knee → On

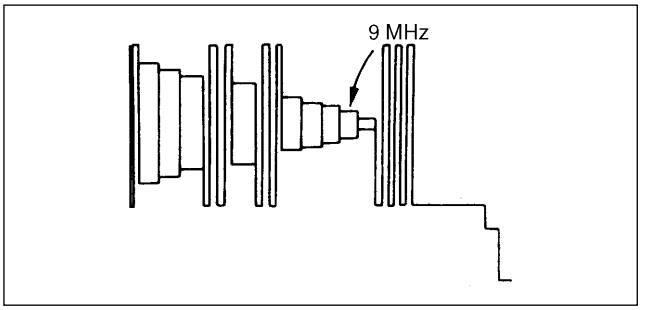
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ± 2 IRE (for NTSC)
   A = 630 ± 10 mV (for PAL)



2. Set the menu as follows, and adjust the clock phase for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : G Clock
   Specifications: Maximize the 9 MHz signal portion.

3. Set the menu as follows, and adjust the clock phase for R/B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : R/B Clock
   Specifications: Minimize the aliasing around the 9 MHz signal portion.



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-20. VTR R-Y/B-Y Adjustment

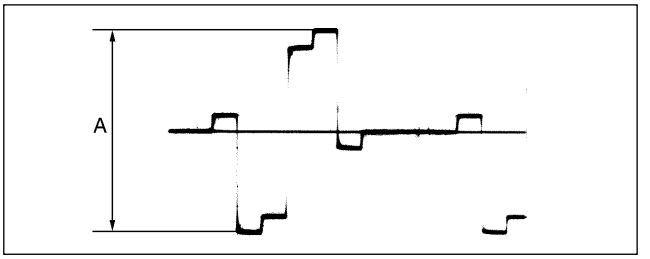
Equipment : Oscilloscope

Preparation:

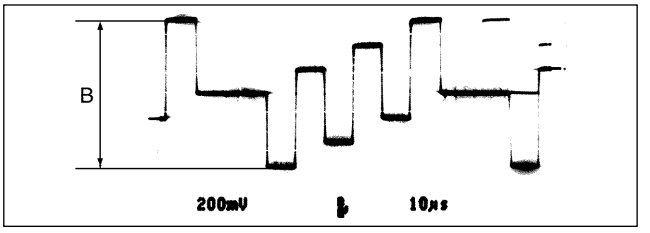
• OUTPUT/DCC switch (on the side panel) → BARS

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the VTR R-Y by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR R-Y
   Specifications: A = 700 ±5 mV (for NTSC)
   : A = 525 ±5 mV (for PAL)



3. Set the menu as follows, and adjust the VTR B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR B-Y
   Specifications: B = 700 ±5 mV (for NTSC)
   : B = 525 ±5 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-21. CCU Y/R-Y/B-Y Adjustment

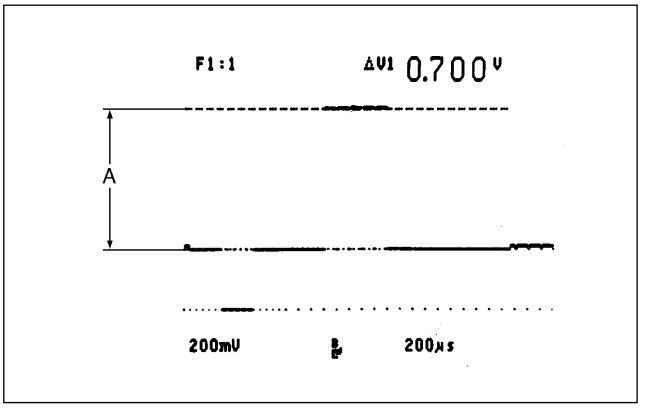
Equipment : Oscilloscope

Preparation:

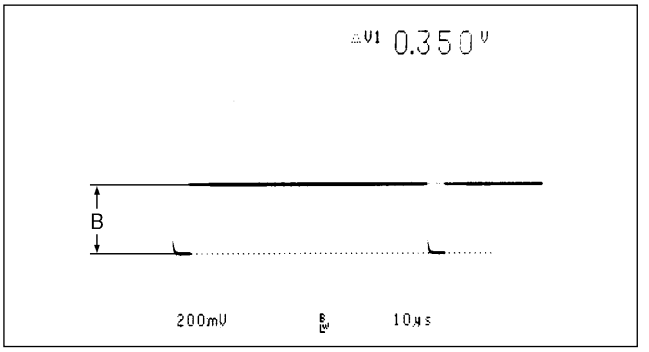
• Connect the CCU to the camera.

Adjustment Procedures:

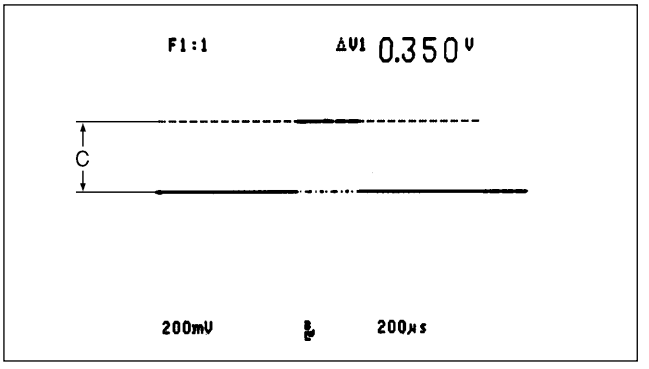
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the CCU Y sample by using the MENU SEL switch.
   Test Point : TP3 (Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU Y SAMP
   Specifications: A = 700 ±2 mV



3. Set the menu as follows, and adjust the CCU R-Y sync by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU R-Y SYNC
   Specifications: B = 350 ±2 mV



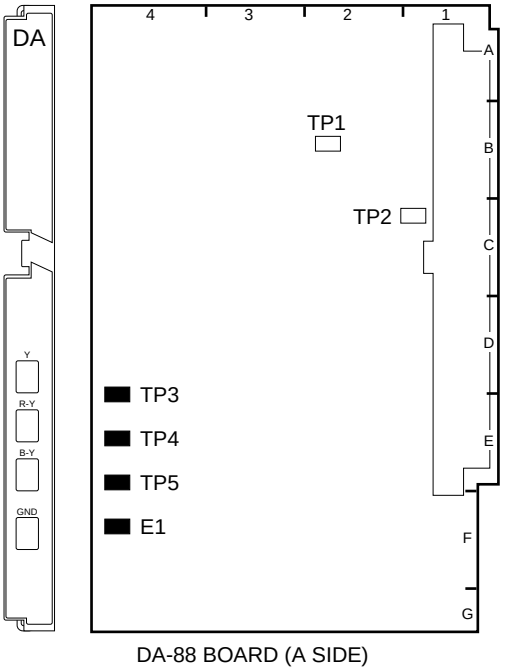
4. Set the menu as follows, and adjust the CCU B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
6. **Adjustment Point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU B-Y SAMP
   Specifications: C = 350 ±2 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store



DA-88 BOARD (A SIDE)

4-3-22. RGB Adjustment

Equipment : Oscilloscope

Preparations:

- Extend IF-510 board with EX-464 board.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : System config
  PAGE : VTR/CCU (S5)
  ITEM : CB → On

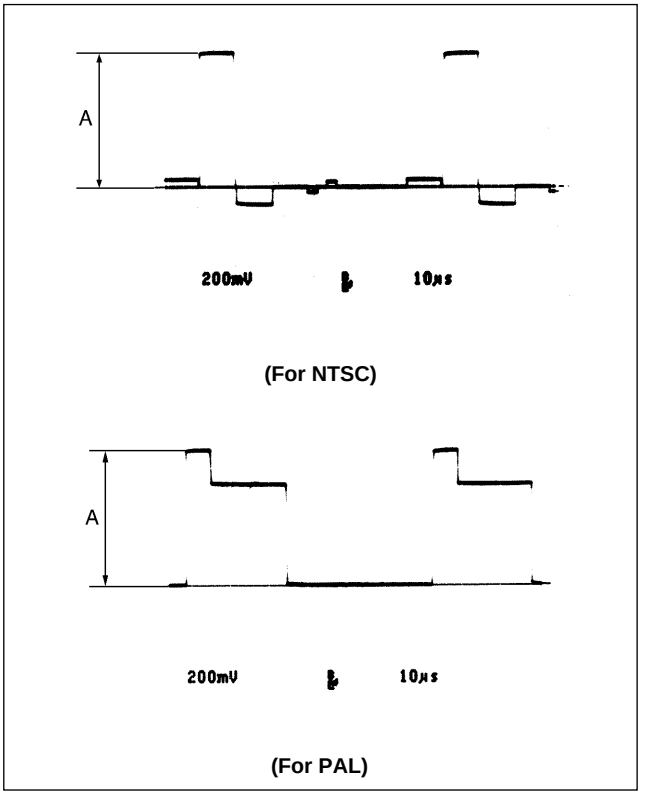
Adjustment Procedures:

1. Set the menu as follows, and adjust the G video level by using the MENU SEL switch.

   Test Point : TP61 (GND:GND (A))/
   Extension board (extending IF-510)

   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : RGB OFFSET

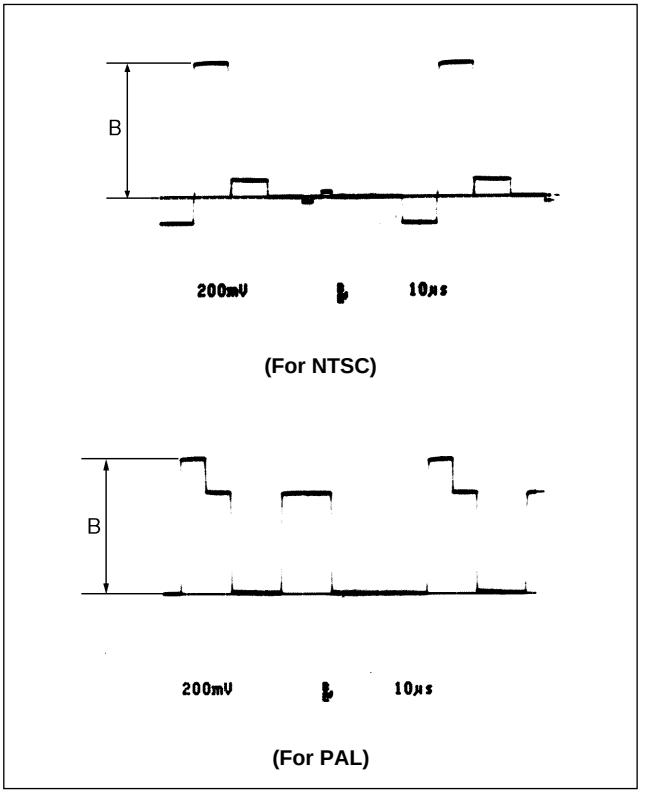
   Specifications: A = 700 ±5 mV



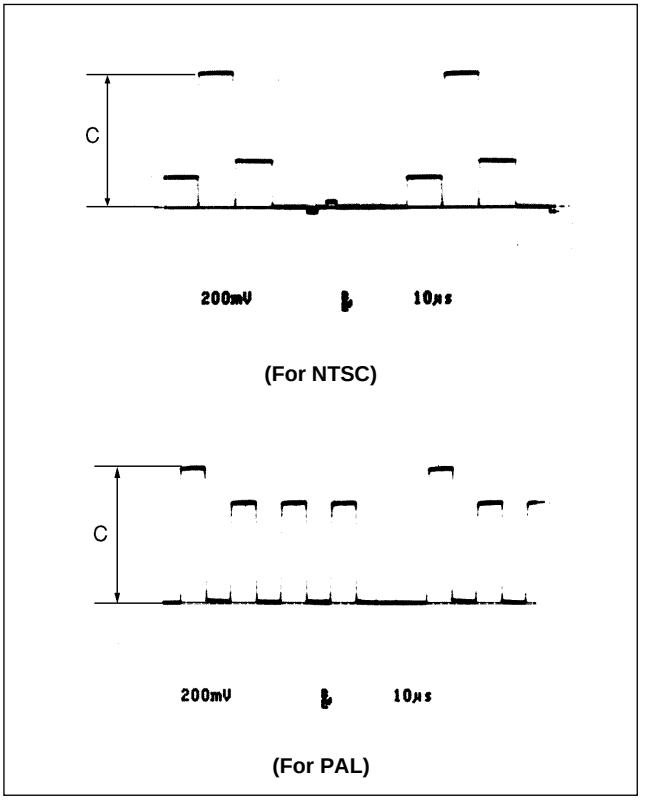
2. Confirm the R video level.

   Test Point : TP63 (GND:GND (A))/
   Extension board (extending IF-510)

   Specifications:B = 700 ±7 mV



3. Confirm the B video level.
   Test Point : TP59 (GND:GND (A))/
   Extension board (extending IF-510)
   Specifications: C = 700 ±7 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-23. Menu Setting After Finishing Adjustment

MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB→Off
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store
(Press the MENU SEL switch to execute.)

Section 5
Spare Parts

5-1. Notes on Repair Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

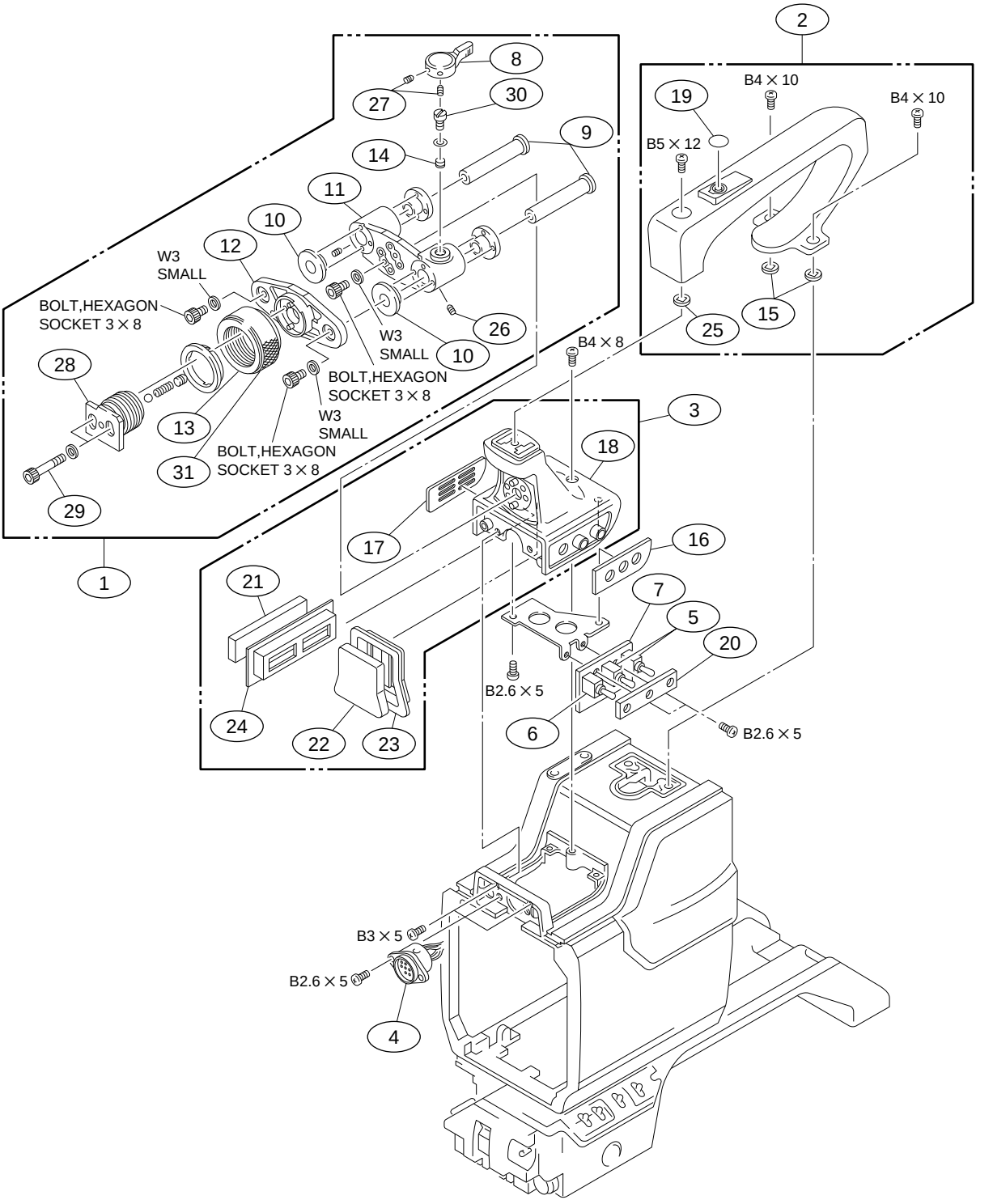
Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

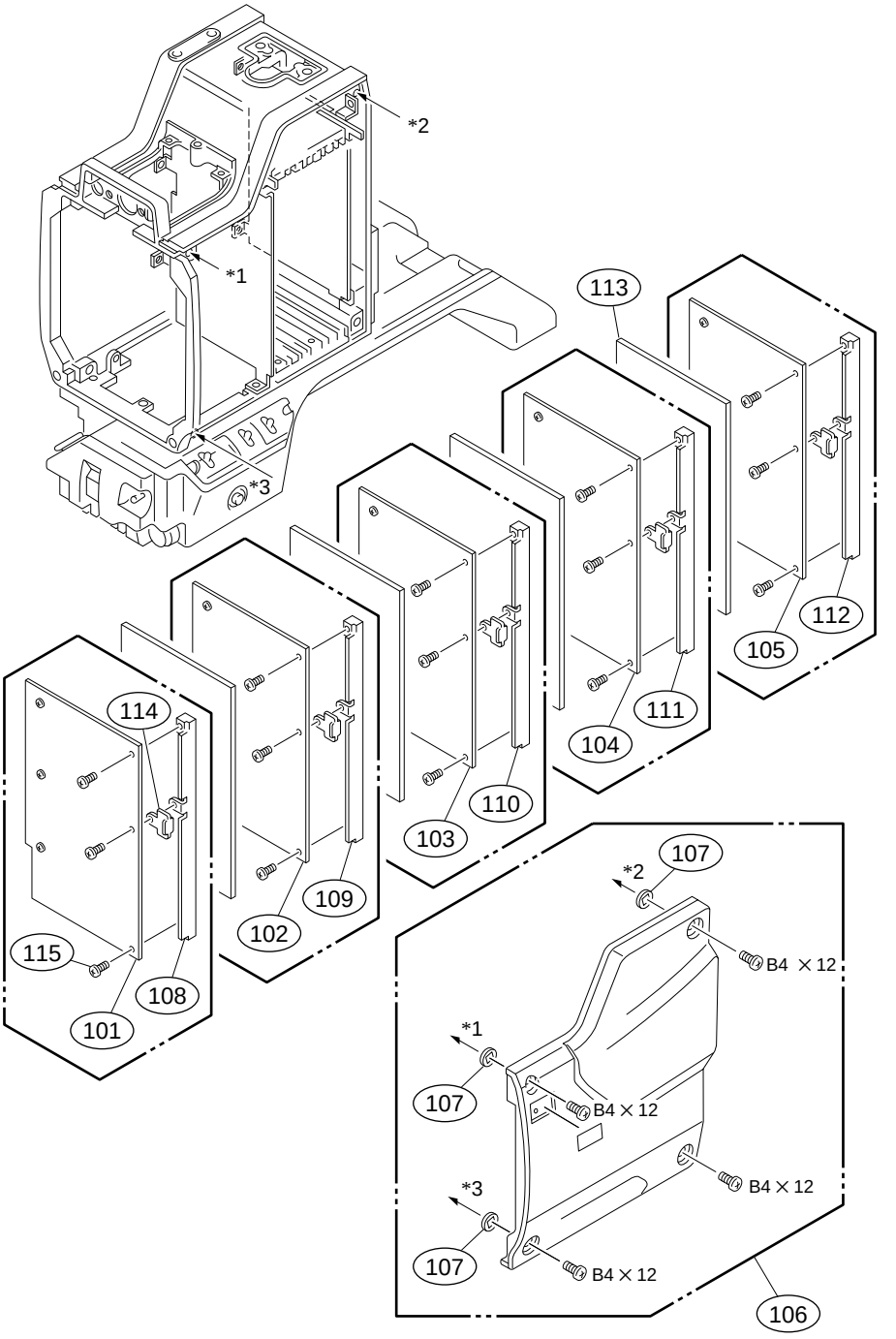
The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

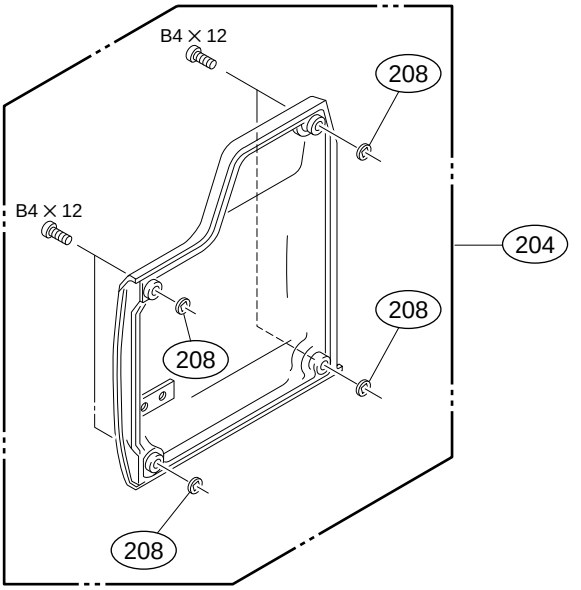
5-2. Exploded Views

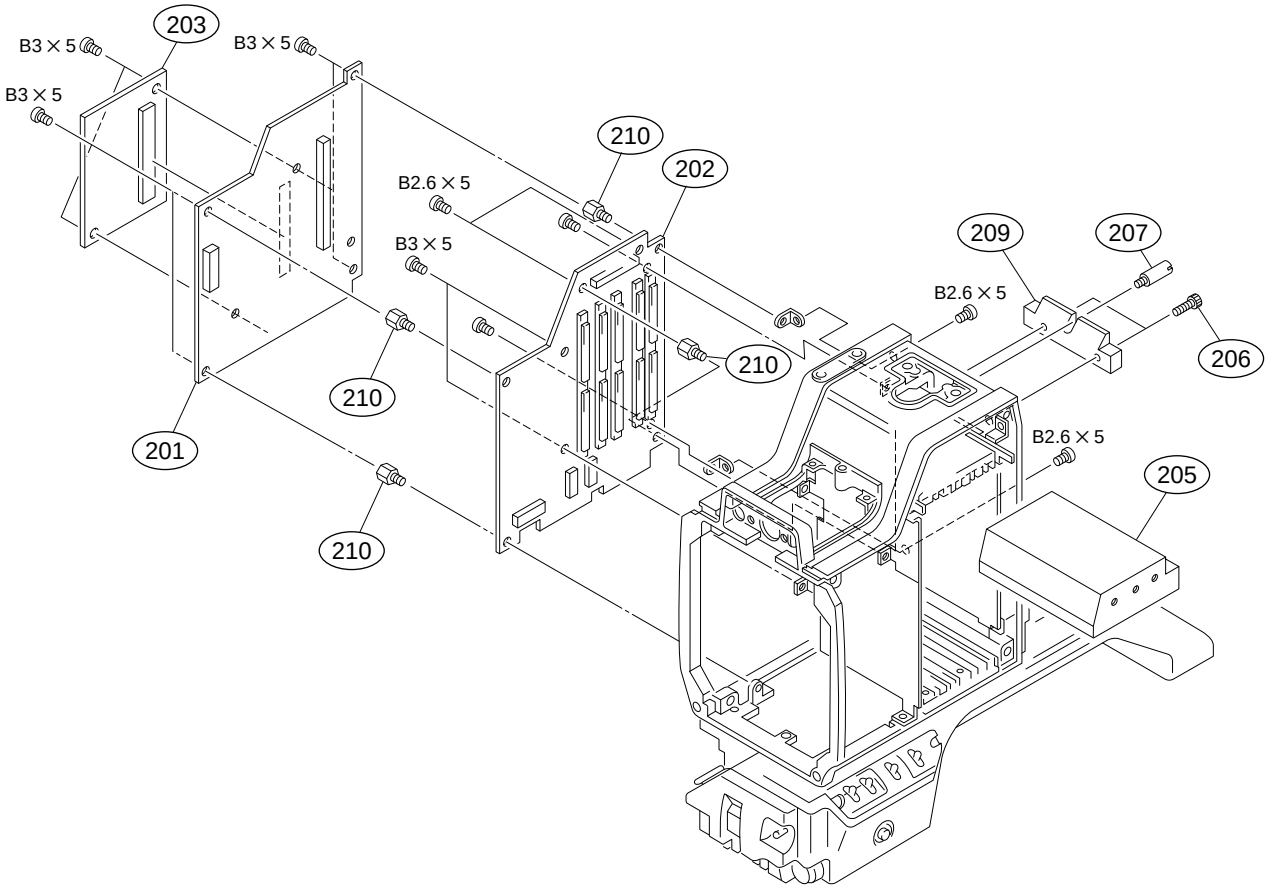


No.	Part No.	SP	Description
1	A-8278-029-A	o	SLIDE ASSY,VF
2	X-3678-451-2	o	HANDLE ASSY
3	X-3678-484-1	o	HOLDER SUB ASSY,HANDLE
4	1-565-051-21	o	CONNECTOR 20P, FEMALE “VF”
5	1-570-985-11	s	SWITCH TOGGLE “R/G/B” “ENC/RGB”
6	1-571-396-11	s	SWITCH TOGGLE “DIPS ON/OFF/MENU”
7	1-657-442-22	o	PRINTED CIRCUIT BOARD, SW-732
8	3-673-046-00	s	LEVER, LOCK
9	3-679-683-01	o	ARM,SLIDE
10	3-679-684-01	o	REST,ARM
11	3-679-685-01	o	TABEL,FIXED,VF SLIDE
12	3-679-686-01	o	TABEL,FIXED,VF SHOE
13	3-679-698-01	o	RING(C),LOCK
14	3-679-702-01	o	CUSION,STOPPER
15	3-687-116-01	o	WASHER(4), STOPPER
16	3-692-112-01	o	PLATE,MENU
17	3-692-150-01	o	SHEET,DROP PROTECTION
18	3-692-165-01	o	HOLDER,HANDOLE
19	3-692-649-01	s	SHEET, BLIND
20	3-693-984-01	s	CUSSHION, DROP PROTECTION (3)
21	3-694-196-01	s	SHEET, DUST PROTECTION (S)
22	3-694-197-01	o	SHEET, DUST PROTECTION (F)
23	3-694-198-01	s	RETAINER, DROP PROTECTION (F)
24	3-694-199-01	s	RETAINER DROP, PROTECTION (S)
25	3-701-442-21	s	WASHER, 4.5
26	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
27	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
28	3-710-039-03	s	SHOE, SLIDE
29	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
30	3-711-794-01	o	PIN, STOPPER
31	3-720-919-01	o	RUBBER, LOCK RING

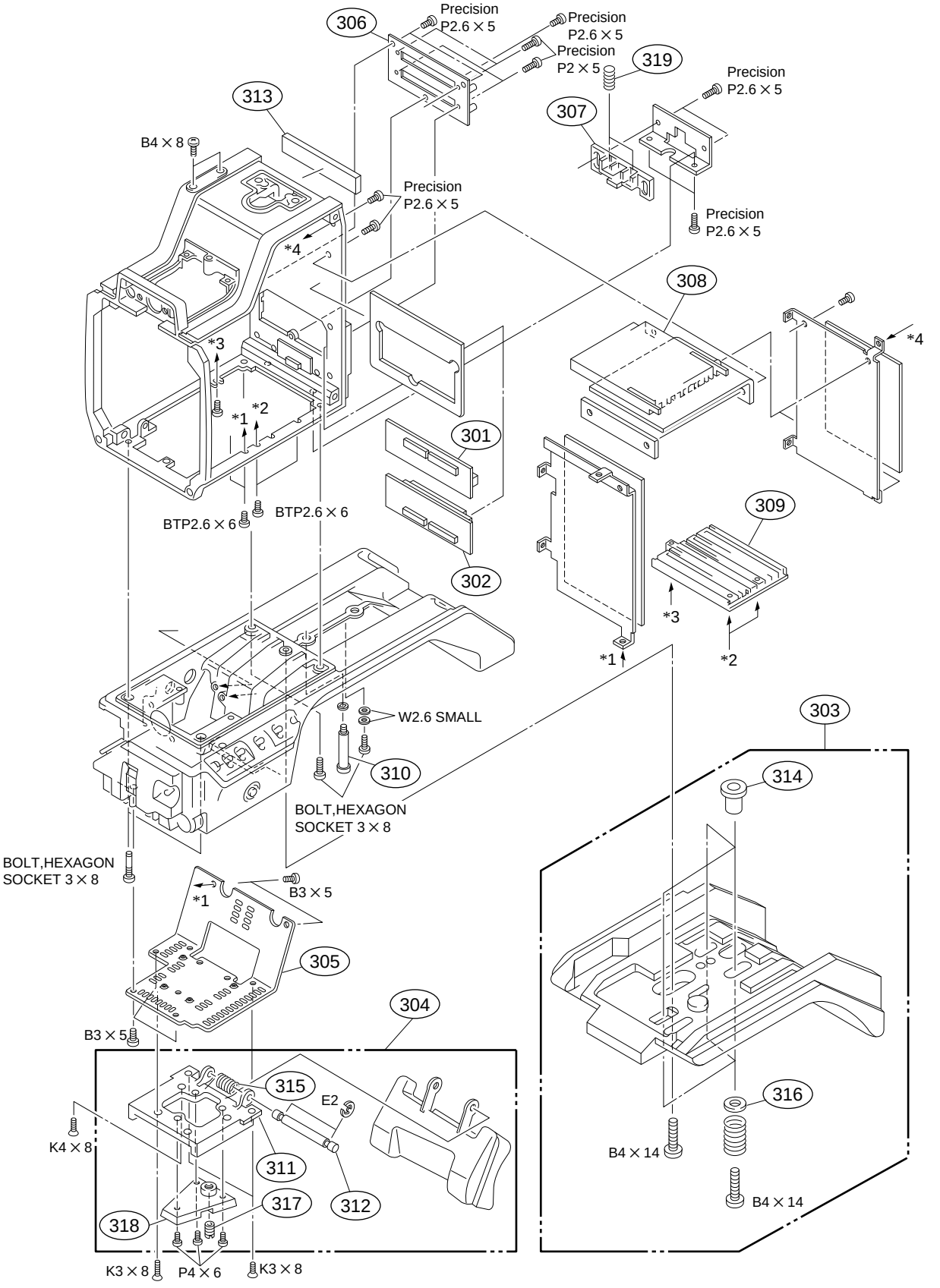

*2
*1
*3
113
112
105
111
104
110
103
114
109
102
115
108
101
107
*2
B4 × 12
*1
107
B4 × 12
B4 × 12
*3
107
B4 × 12
106

No.	Part No.	SP	Description
101	A-8272-560-A	o	MOUNTED CIRCUIT BOARD, VA-163
102	A-8272-562-A	o	MOUNTED CIRCUIT BOARD, AT-95
103	A-8272-564-A	o	MOUNTED CIRCUIT BOARD, SG-234
104	A-8272-566-A	o	MOUNTED CIRCUIT BOARD, DA-88
105	A-8272-568-A	o	MOUNTED CIRCUIT BOARD, IF-510
106	X-3678-480-1	o	PANEL ASSY, RIGHT
107	3-687-116-01	o	WASHER (4), STOPPER
108	3-692-125-02	o	PANEL,VA-163 PC BOARD
109	3-692-126-02	o	PANEL,AT-95 PC BOARD
110	3-692-127-02	o	PANEL,SG-234 PC BOARD
111	3-692-128-02	o	PANEL,DA-88 PC BOARD
112	3-692-129-02	o	PANEL,IF-510 PC BOARD
113	3-692-642-01	o	SHEET,SHIELD
114	3-724-753-01	o	RING
115	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)


B4 × 12
208
B4 × 12
204
208
208
208

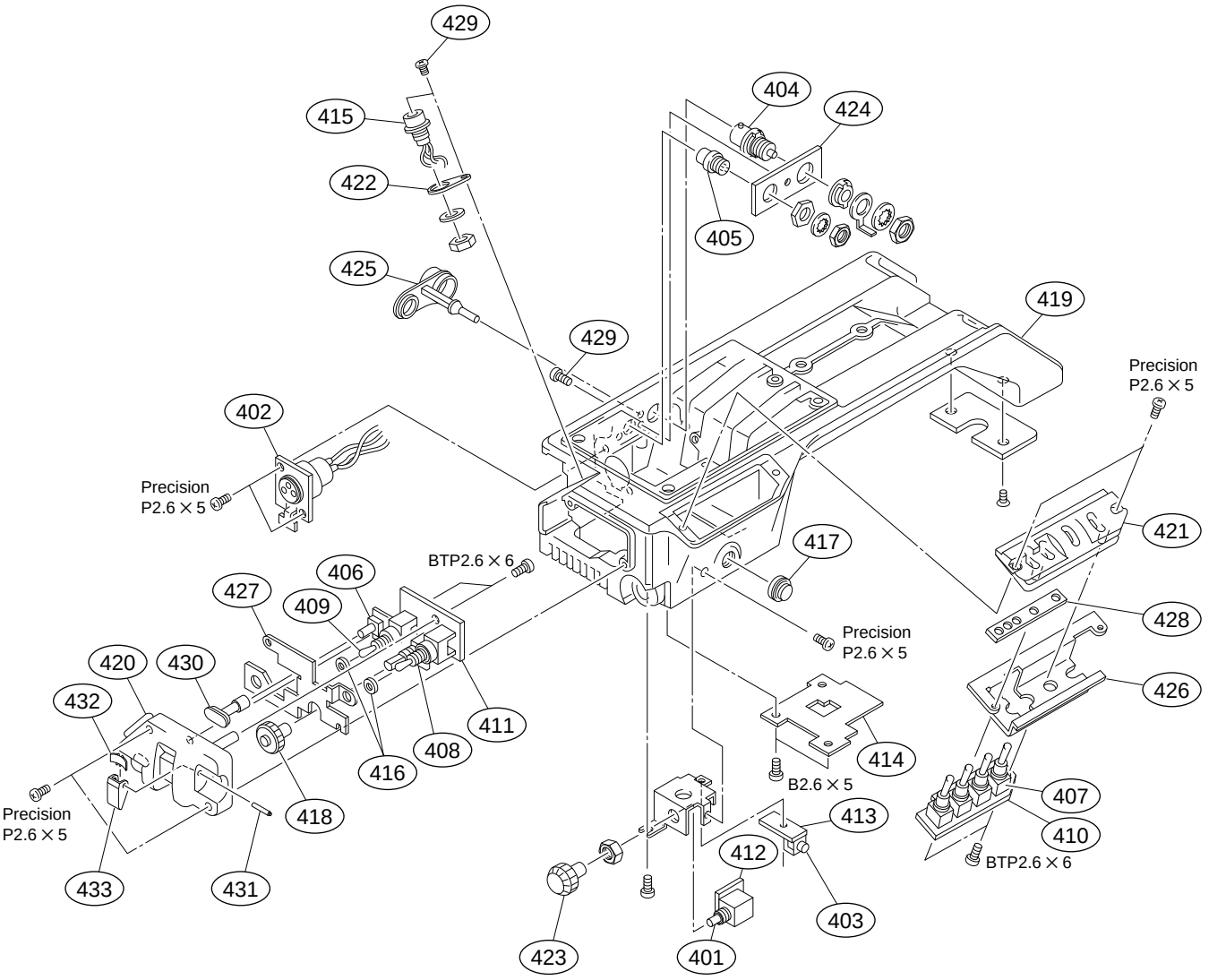

203
B3 × 5
B3 × 5
B3 × 5
210
202
B2.6 × 5
B3 × 5
209
207
B2.6 × 5
206
210
210
201
B2.6 × 5
205
210

No.	Part No.	SP	Description
201	A-8272-557-A	o	MOUNTED CIRCUIT BOARD, PR-211
202	A-8272-547-A	o	MOUNTED CIRCUIT BOARD, MB-602
203	A-8272-559-A	o	MOUNTED CIRCUIT BOARD, CN-1142
204	X-3678-481-1	o	PANEL ASSY, LEFT
205	⚠ A-8272-571-A	s	CONVERTER ASSY, DC-DC
206	2-623-773-11	s	BOLT (M3X8), STAINLESS
207	3-168-296-01	s	PIN, ID
208	3-687-116-01	o	WASHER (4), STOPPER
209	3-692-113-01	o	WEDGE,HANGER
210	4-924-260-01	o	BOSS (D)


306
Precision P2.6 × 5
Precision P2.6 × 5
Precision P2 × 5
319
Precision P2.6 × 5
313
307
B4 × 8
Precision P2.6 × 5
Precision P2.6 × 5
*4
308
*4
*3
*1
*2
301
BTP2.6 × 6
BTP2.6 × 6
309
302
*3
*1
*2
W2.6 SMALL
310
BOLT,HEXAGON SOCKET 3 × 8
303
314
BOLT,HEXAGON SOCKET 3 × 8
*1
B3 × 5
305
304
B3 × 5
315
E2
316
K4 × 8
311
B4 × 14
317
312
318
B4 × 14
K3 × 8
P4 × 6
K3 × 8

No.	Part No.	SP	Description
301	A-8272-549-A	o	MOUNTED PCB, CN-1120
302	A-8272-550-A	o	MOUNTED PCB, CN-1121
303	A-8278-237-A	s	PAD ASSY (LARGE)
304	A-8278-238-A	s	PAD ASSY (SMALL)
305	3-692-102-01	o	BRACKET V SHOE
306	3-692-114-02	o	PLATE,CONNECTOR(136P)
307	3-692-115-01	o	SHOE,LOCK
308	3-692-117-02	o	RAIL
309	3-692-119-01	o	RAIL,CAM
310	3-692-641-03	o	ROD,LOCK
311	3-692-643-02	o	BASE,V SHOE
312	3-692-645-01	o	ROD,ROTARY
313	3-692-646-01	o	SHEET,DUST PROTECTION (PS)
314	3-692-647-01	o	SPACER,PAD
315	3-693-973-01	s	SPRING, TORSION (SMALL)
316	3-701-444-21	s	WASHER, 6
317	3-742-011-01	s	SCREW, 1/4, 3/8 CONVERSION
318	3-742-015-01	o	WEDGE (B), MOUNTING
319	4-864-521-01	s	SPRING (PC BOARD GROUND)

BOTTOM BLOCK



No.	Part No.	SP	Description
401	1-473-315-11	s	ENCODER ROTARY “MENU SEL”
402	1-509-184-31	s	CONNECTOR 3P, FEMALE “MIC”
403	1-554-088-00	s	SWITCH, TACTILE “CANCEL”
404	1-561-781-11	s	CONNECTOR, BNC “TEST OUT”
405	1-562-222-41	s	CONNECTOR 6P, FEMALE “REMOTE”
406	1-570-282-21	s	SWITCH KEY BOARD “VTR START”
407	1-571-415-11	s	SWITCH TOGGLE “CAMERA/VTR” “GAIN” “OUTPUT” WHITE BAL”
408	1-571-416-11	s	SWITCH TOGGLE “AUTO W/B BAL”
409	1-571-679-11	s	SWITCH TOGGLE “SHUTTER”
410	1-657-443-21	o	PRINTED CIRCUIT BOARD, SW-730
411	1-657-444-21	o	PRINTED CIRCUIT BOARD, SW-731
412	1-657-445-21	o	PRINTED CIRCUIT BOARD, SW-733
413	1-657-446-21	o	PRINTED CIRCUIT BOARD, SW-742
414	1-657-447-21	o	PRINTED CIRCUIT BOARD, CN-1122
415	1-695-841-12	s	CONNECTOR 12P, FEMALE “LENS”
416	3-312-823-00	s	PACKING, KNOB
417	3-676-244-11	s	COVER, SW
418	3-679-679-03	s	KNOB,VR(AUDIO)
419	3-692-106-01	o	BASE,SHOULDER
420	3-692-107-02	o	COVER,FRONT SWITCH
421	3-692-108-01	o	GUARD,SWITCH
422	3-692-110-02	o	BRACKET,CONNECTOR
423	3-692-111-01	s	KNOB,RE “MIC LEVEL”
424	3-692-149-02	o	BRACKET,CONNECTOR(TEST OUT)
425	3-692-644-02	o	CAP,CONNECTOR
426	3-693-974-01	o	PLATE, SHIELD (SIDE)
427	3-693-976-01	o	PLATE, SHUTTER (FRONT)
428	3-693-983-01	o	CUSSHION, DROP PROTECTION (2)
429	3-694-181-01	s	TYPE1, AROCK PRECISION +P2.6
430	3-729-069-01	s	BUTTON, VTR START
431	3-742-065-01	o	SHAFT, SHUTTER
432	3-742-066-11	o	SPRING, SHUTTER
433	3-742-067-04	o	LID, SHUTTER

No.	Part No.	SP	Description
	7-621-770-87	s	SCREW +B 2.6X5
	7-623-208-22	o	SW 3,TYPE 2
	7-623-505-01	s	LUG, 2
	7-624-104-04	s	STOP RING 2.0, TYPE -E
	7-624-105-04	s	STOP RING 2.3, TYPE -E
	7-624-200-01	s	NUT, PUSH 1.5
	7-627-452-38	s	SCREW,PRECISION +K 2X5
	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
	7-627-553-78	s	SCREW,PRECISION +P 2X10
	7-627-554-18	s	SCREW,PRECISION +P 2X3.5 TYPE1
	7-627-556-57	s	PRECISION SCREW +P 2.6X5 TYPE1
	7-627-556-58	s	SCREW +P 2.6X5
	7-671-158-01	s	BALL, STAINLESS (2.5 DIA)
	7-682-160-09	s	SCREW +P 4X6
	7-682-247-04	s	SCREW +K 3X6
	7-682-248-09	s	SCREW +K 3X8
	7-682-261-09	s	SCREW +K 4X8
	7-682-545-04	s	SCREW +B 3X4
	7-682-546-04	s	SCREW +B 3X5
	7-682-546-09	s	SCREW +B 3X5
	7-682-561-09	s	SCREW +B 4X8
	7-682-563-09	s	SCREW +B 4X12
	7-682-564-09	s	SCREW +B 4X14
	7-682-576-09	s	SCREW +B 5X12
	7-683-404-04	s	BOLT,HEXAGON SOCKET 3X8
	7-683-405-04	s	BOLT,HEXAGON SOCKET 3X10
	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
	7-685-104-19	s	SCREW +P 2X6 TYPE2 NON-SLIT
	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT
	7-685-533-19	s	SCREW +BTP 2.6X6 TYPE2 N-S
	7-688-002-02	s	W2.6, SHALL
	7-688-003-02	s	W 3, SMALL

5-3. Electrical Parts List

AT-95 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-562-A	o	MOUNTED CIRCUIT BOARD, AT-95
1pc	3-692-126-02	o	PANEL,AT-95 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
BT1	1-550-104-32	s	HOLDER, BATTERY
C1	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C2	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C32	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C35	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C41	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C42	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-164-156-11	s	CERAMIC 0.1uF 25V
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C60	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C67	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C68	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C71	1-131-360-00	s	TANTALUM 15uF 10% 10V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
C81	1-126-925-11	s	ELECT, CHIP 470uF 20% 10V
CNI36	1-540-197-11	o	SOCKET, IC
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-820-41	s	DIODE 1SS302
D3	8-719-974-76	s	DIODE HSM107S
D4	8-719-974-76	s	DIODE HSM107S
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-974-76	s	DIODE HSM107S
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-974-76	s	DIODE HSM107S
D10	8-719-974-76	s	DIODE HSM107S
D11	8-719-974-76	s	DIODE HSM107S
D12	8-719-974-76	s	DIODE HSM107S
D13	8-719-974-76	s	DIODE HSM107S
D15	8-719-974-76	s	DIODE HSM107S
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D18	8-719-820-41	s	DIODE 1SS302
D19	8-719-820-41	s	DIODE 1SS302
D20	8-719-820-41	s	DIODE 1SS302
D21	8-719-820-41	s	DIODE 1SS302
D22	8-719-820-41	s	DIODE 1SS302
IC1	8-759-252-59	s	IC MAX202CSE
IC2	8-759-242-78	s	IC TC7W02F
IC3	8-759-079-74	s	IC TC74VHC157FS(EL)
IC4	8-759-076-06	s	IC TL064CPW
IC5	8-759-076-06	s	IC TL064CPW
IC6	8-759-637-07	s	IC M62021FP
IC7	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-076-06	s	IC TL064CPW
IC11	8-759-711-50	s	IC NJU7022M
IC12	8-759-711-50	s	IC NJU7022M
IC13	8-759-059-50	s	IC MB88351PFV
IC14	8-759-082-57	s	IC TC7W04FU
IC15	8-759-083-94	s	IC TC7W74FU
IC17	8-759-058-64	s	IC TC7S32FU(TE85R)
IC18	8-759-271-84	s	IC TC7SH02FU
IC19	8-759-271-86	s	IC TC7SH04FU
IC20	8-759-196-96	s	IC TC7SH08FU-TE85R
IC21	8-759-271-84	s	IC TC7SH02FU

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC22	8-759-196-97	s	IC TC7SH32FU-TE85R
IC23	8-759-186-31	s	IC TC74VHC20F
IC24	8-759-079-70	s	IC TC74VHC138FS(EL)
IC25	8-759-065-20	s	IC RTC-4553B
IC26	8-752-337-91	s	IC CXK58257ATM-70LL
IC27	8-759-154-60	s	IC UPD71055GB-10-3B4
IC28	8-759-154-60	s	IC UPD71055GB-10-3B4
IC29	8-759-149-10	s	IC UPD4702G
IC30	8-759-271-84	s	IC TC7SH02FU
IC31	8-759-196-97	s	IC TC7SH32FU-TE85R
IC32	8-759-242-78	s	IC TC7W02F
IC33	8-759-186-53	s	IC TC74VHC163F
IC34	8-759-186-53	s	IC TC74VHC163F
IC35	8-759-277-99	s	IC CXD8889R
IC36			IC PENDING
IC37	8-759-196-96	s	IC TC7SH08FU-TE85R
IC38	8-759-182-95	s	IC HD151015T
IC39	8-759-079-85	s	IC TC74VHC244FS(EL)
IC40	8-759-079-61	s	IC TC74VHC74FS(EL)
IC41	8-759-195-81	s	IC TC7S86FU
IC42	8-759-186-53	s	IC TC74VHC163F
IC43	8-759-082-57	s	IC TC7W04FU
IC44	8-759-186-53	s	IC TC74VHC163F
IC45	8-759-083-94	s	IC TC7W74FU
IC46	8-759-165-37	s	IC X24164SIC7000
IC47	8-759-078-75	s	IC UPD6453GT-610
IC48	8-759-276-00	s	IC TC7W139FU(TE12R)
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-377-31	s	INDUCTOR CHIP 4.7uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-920-48	s	TRANSISTOR IMH2
Q4	8-729-925-47	s	TRANSISTOR IMB2
Q5	8-729-920-48	s	TRANSISTOR IMH2
Q6	8-729-920-48	s	TRANSISTOR IMH2
R1	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R4	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R5	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R17	1-216-858-11	s	METAL, CHIP 1.2M 5% 1/16W
R18	1-218-723-11	s	METAL 20K 0.50% 1/16W
R19	1-216-692-11	s	METAL, CHIP 1K 0.5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R22	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R23	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R26	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R29	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R30	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R31	1-218-720-11	s	METAL 15K 0.50% 1/16W
R32	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R33	1-216-862-11	s	METAL 2.7M 5% 1/16W
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R36	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R37	1-216-863-11	s	METAL 3.3M 5% 1/16W
R38	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-716-11	s	METAL 10K 0.50% 1/16W
R41	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R42	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R43	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R44	1-218-707-11	s	CHIP, METAL 4.3K 0.50% 1/16W
R45	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R49	1-218-716-11	s	METAL 10K 0.50% 1/16W
R50	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R54	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R55	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R59	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R60	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R61	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R62	1-218-752-11	s	METAL 330K 0.50% 1/16W
R63	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R64	1-218-750-11	s	METAL 270K 0.50% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R71	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R72	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R77	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-218-866-11	s	CHIP, METAL 6.2K 0.50% 1/16W
R83	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R84	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R85	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R86	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R87	1-216-797-11	s	METAL, CHIP 10 5% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R88	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R89	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R90	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R91	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R92	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R93	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R94	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R95	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R96	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R97	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R98	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R99	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R103	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R104	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R107	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R108	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R109	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R114	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R115	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R118	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R119	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R120	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R127	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R128	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R129	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R130	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R131	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R132	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R133	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R134	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R135	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R136	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R137	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R138	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R139	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R140	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R141	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R142	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R143	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R144	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R145	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R146	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R147	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R150	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

(AT-95 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R151	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R152	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R153	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R154	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R155	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R160	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R161	1-216-862-11	s	METAL 2.7M 5% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R163	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R164	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R165	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
RV1	1-237-035-11	s	RES, ADJ METAL 5K
S1	1-692-270-21	s	SWITCH, SLIDE

CN-1120 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-549-A	o	MOUNTED CIRCUIT BOARD, CN-1120
C1	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C2	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C3	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C4	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C5	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C6	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
CN201	1-569-532-11	s	HOUSING, 30P
CN202	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-825-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-825-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-825-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-825-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-825-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-825-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-825-11	s	FILTER, CHIP EMI
FL19	1-239-825-11	s	FILTER, CHIP EMI
FL20	1-239-825-11	s	FILTER, CHIP EMI
FL21	1-239-825-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-825-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-825-11	s	FILTER, CHIP EMI
FL28	1-239-825-11	s	FILTER, CHIP EMI
FL29	1-239-825-11	s	FILTER, CHIP EMI
FL30	1-239-825-11	s	FILTER, CHIP EMI
FL31	1-239-825-11	s	FILTER, CHIP EMI
FL32	1-239-825-11	s	FILTER, CHIP EMI
FL33	1-239-825-11	s	FILTER, CHIP EMI
FL34	1-239-825-11	s	FILTER, CHIP EMI
FL35	1-239-825-11	s	FILTER, CHIP EMI
FL36	1-239-825-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-825-11	s	FILTER, CHIP EMI
FL40	1-239-719-11	s	FILTER, CHIP EMI
FL41	1-239-719-11	s	FILTER, CHIP EMI
FL42	1-239-719-11	s	FILTER, CHIP EMI
FL43	1-239-825-11	s	FILTER, CHIP EMI
FL44	1-239-825-11	s	FILTER, CHIP EMI

CN-1121 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-550-A	o	MOUNTED CIRCUIT BOAAD, CN-1121
CN101	1-569-531-11	s	HOUSING, 20P
CN102	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-719-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-719-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-719-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-719-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-719-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-719-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-719-11	s	FILTER, CHIP EMI
FL19	1-239-719-11	s	FILTER, CHIP EMI
FL20	1-239-719-11	s	FILTER, CHIP EMI
FL21	1-239-719-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-719-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-719-11	s	FILTER, CHIP EMI
FL28	1-239-719-11	s	FILTER, CHIP EMI
FL30	1-239-719-11	s	FILTER, CHIP EMI
FL31	1-239-719-11	s	FILTER, CHIP EMI
FL32	1-239-719-11	s	FILTER, CHIP EMI
FL33	1-239-719-11	s	FILTER, CHIP EMI
FL34	1-239-719-11	s	FILTER, CHIP EMI
FL35	1-239-719-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-719-11	s	FILTER, CHIP EMI
R1	1-216-295-11	s	CHIP, CONDUCTOR 0
R2	1-216-295-11	s	CHIP, CONDUCTOR 0

CN-1122 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-447-21	o	PRINTED CIRCUIT BOARD, CN-1122
C1	1-128-592-11	s	ELECT 0.33uF 20% 50V
C2	1-128-592-11	s	ELECT 0.33uF 20% 50V
C5	1-126-968-11	s	CHIP, ELECT 100uF 20% 50V
CN401	1-569-629-11	s	HOUSING, 24P
CN402	1-695-890-21	o	PIN, CONNECTOR (PC BOARD) 12P
CN405	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
CN406	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
CN407	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
R1	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R2	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R3	1-215-421-00	s	METAL 1K 1% 1/6W

CN-1142 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-559-A	o	MOUNTED CIRCUIT BOARD, CN-1142

DA-88 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-566-A	o	MOUNTED CIRCUIT BOARD, DA-88
1pc	3-692-128-02	o	PANEL,DA-88 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C2	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C9	1-165-176-11	s	CERAMIC, CHIP 0.047uF 10% 16V
C10	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C17	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C21	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C27	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C28	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C46	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C49	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C50	1-164-156-11	s	CERAMIC 0.1uF 25V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C55	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-315-11	s	CERAMIC 470PF 5% 50V
C61	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C64	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C65	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C66	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C67	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C71	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C77	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C81	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C84	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C85	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C87	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C88	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C89	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C90	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C100	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C101	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C102	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C103	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C104	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C105	1-164-315-11	s	CERAMIC 470PF 5% 50V
C106	1-164-156-11	s	CERAMIC 0.1uF 25V
C107	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C109	1-164-156-11	s	CERAMIC 0.1uF 25V
C110	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C113	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C114	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C115	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C118	1-164-156-11	s	CERAMIC 0.1uF 25V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-164-156-11	s	CERAMIC 0.1uF 25V
C121	1-164-156-11	s	CERAMIC 0.1uF 25V
C122	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C123	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C124	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C125	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C126	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C127	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C128	1-164-156-11	s	CERAMIC 0.1uF 25V
C129	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C132	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C133	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C134	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C136	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C137	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C138	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C140	1-164-156-11	s	CERAMIC 0.1uF 25V
C141	1-164-156-11	s	CERAMIC 0.1uF 25V
C142	1-164-156-11	s	CERAMIC 0.1uF 25V
C143	1-164-156-11	s	CERAMIC 0.1uF 25V
C144	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C145	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C146	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C147	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C148	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C149	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C154	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C155	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C166	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C167	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C170	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C171	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C172	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C203	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C206	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C207	1-164-156-11	s	CERAMIC 0.1uF 25V
C208	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C209	1-164-156-11	s	CERAMIC 0.1uF 25V
C210	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C211	1-164-156-11	s	CERAMIC 0.1uF 25V
C213	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C214	1-164-156-11	s	CERAMIC 0.1uF 25V
C215	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C225	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C226	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C228	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C229	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C230	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C231	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C500	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1

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Ref. No. or Q'ty	Part No.	SP	Description
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-820-41	s	DIODE 1SS302
D7	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-820-41	s	DIODE 1SS302
D13	8-719-820-41	s	DIODE 1SS302
D14	8-719-820-41	s	DIODE 1SS302
D15	8-719-820-41	s	DIODE 1SS302
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D24	8-719-820-41	s	DIODE 1SS302
D25	8-719-820-41	s	DIODE 1SS302
D26	8-719-820-41	s	DIODE 1SS302
D100	8-719-820-41	s	DIODE 1SS302
D101	8-719-820-41	s	DIODE 1SS302
D102	8-719-820-41	s	DIODE 1SS302
FL1	1-239-754-11	s	FILTER, LOW PASS
FL2	1-239-753-11	s	FILTER, LOW PASS
FL3	1-233-240-21	s	FILTER, LOW PASS
FL4	1-239-753-11	s	FILTER, LOW PASS
FL5	1-233-240-21	s	FILTER, LOW PASS
FL6	1-239-754-11	s	FILTER, LOW PASS
FL7	1-239-754-11	s	FILTER, LOW PASS
FL8	1-239-754-11	s	FILTER, LOW PASS
IC1	8-759-066-68	s	IC REF-03GS
IC2	8-759-076-06	s	IC TL064CPW
IC3	8-759-632-39	s	IC M51958A-T1
IC4	8-752-360-44	s	IC CXK1203AR
IC5	8-752-360-44	s	IC CXK1203AR
IC6	8-752-360-44	s	IC CXK1203AR
IC7	8-752-363-60	s	IC CXD2307R-T4
IC8	8-759-079-46	s	IC TC74VHC00FS(EL)
IC9	8-759-058-54	s	IC TC7S00FU(TE85R)
IC10	8-759-086-42	s	IC X24C02S-3.0-C7000
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-058-62	s	IC TC7S08FU(TE85R)
IC13	8-759-237-79	s	IC TC74HC595AF(EL)
IC14	8-759-064-36	s	IC MB88346BPFV
IC15	8-759-082-61	s	IC TC4W53FU
IC16	8-759-981-48	s	IC TL082M
IC17	8-759-082-61	s	IC TC4W53FU
IC18	8-759-082-61	s	IC TC4W53FU
IC19	8-759-079-85	s	IC TC74VHC244FS(EL)
IC20	8-759-082-61	s	IC TC4W53FU
IC23	8-759-287-54	s	IC TL084CPW-E20
IC24	8-759-082-61	s	IC TC4W53FU
IC25	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC26	8-759-066-59	s	IC TC74HC4053AFS
IC27	8-759-287-54	s	IC TL084CPW-E20
IC28	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC29	8-759-082-61	s	IC TC4W53FU
IC34	8-759-271-86	s	IC TC7SH04FU
IC35	8-759-180-08	s	IC TC74HC4538AFS
IC36	8-759-237-79	s	IC TC74HC595AF(EL)
IC37	8-759-082-59	s	IC TC7W32FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC100	8-759-058-62	s	IC TC7S08FU(TE85R)
IC101	8-759-058-58	s	IC TC7S04FU(TE85R)
IC102	8-759-082-59	s	IC TC7W32FU
IC103	8-759-058-64	s	IC TC7S32FU(TE85R)
IC104	8-759-058-54	s	IC TC7S00FU(TE85R)
IC105	8-759-058-64	s	IC TC7S32FU(TE85R)
IC106	8-759-058-62	s	IC TC7S08FU(TE85R)
IC107	8-759-196-96	s	IC TC7SH08FU-TE85R
IC108	8-759-058-54	s	IC TC7S00FU(TE85R)
IC109	8-759-058-62	s	IC TC7S08FU(TE85R)
IC110	8-759-058-58	s	IC TC7S04FU(TE85R)
JR1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L6	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L7	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L8	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
L10	1-410-385-11	s	INDUCTOR, CHIP 22uH
L11	1-410-385-11	s	INDUCTOR, CHIP 22uH
L12	1-410-392-11	s	INDUCTOR, CHIP 82uH
L13	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L14	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L15	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L16	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L17	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L18	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L19	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L20	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L21	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L22	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L23	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L24	1-410-389-31	s	INDUCTOR CHIP 47uH
L25	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q12	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q19	8-729-403-32	s	TRANSISTOR XN6534
Q20	8-729-920-48	s	TRANSISTOR IMH2

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Ref. No. or Q'ty	Part No.	SP	Description
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q27	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q28	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q29	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q30	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q32	8-729-122-63	s	TRANSISTOR 2SA1226
Q33	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q34	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-403-32	s	TRANSISTOR XN6534
Q44	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q45	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q46	8-729-920-48	s	TRANSISTOR IMH2
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q49	8-729-122-63	s	TRANSISTOR 2SA1226
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-122-63	s	TRANSISTOR 2SA1226
Q54	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q59	8-729-403-32	s	TRANSISTOR XN6534
Q63	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q67	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q68	8-729-122-63	s	TRANSISTOR 2SA1226
Q69	8-729-122-63	s	TRANSISTOR 2SA1226
Q70	8-729-117-32	s	TRANSISTOR 2SC4177
Q71	8-729-122-63	s	TRANSISTOR 2SA1226
Q72	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q73	8-729-122-63	s	TRANSISTOR 2SA1226
Q75	8-729-403-32	s	TRANSISTOR XN6534
Q79	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-122-63	s	TRANSISTOR 2SA1226
Q88	8-729-122-63	s	TRANSISTOR 2SA1226
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-122-63	s	TRANSISTOR 2SA1226
Q91	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q92	8-729-122-63	s	TRANSISTOR 2SA1226
Q94	8-729-403-32	s	TRANSISTOR XN6534
Q98	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-403-32	s	TRANSISTOR XN6534
Q101	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-403-32	s	TRANSISTOR XN6534
Q104	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q105	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q106	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q107	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q108	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q109	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q110	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q111	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q112	8-729-102-08	s	TRANSISTOR 2SC2223-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q113	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q114	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q115	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q117	8-729-122-63	s	TRANSISTOR 2SA1226
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R4	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R5	1-218-723-11	s	METAL 20K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R9	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R12	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-218-676-11	s	METAL 220 0.50% 1/16W
R18	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R19	1-218-676-11	s	METAL 220 0.50% 1/16W
R20	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R21	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R22	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R23	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R24	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R25	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R26	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R27	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R33	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R34	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R35	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R36	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R37	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R38	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R39	1-218-676-11	s	METAL 220 0.50% 1/16W
R40	1-218-676-11	s	METAL 220 0.50% 1/16W
R41	1-218-676-11	s	METAL 220 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R44	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R45	1-218-883-11	s	METAL 33K 0.50% 1/16W
R46	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R47	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R48	1-218-883-11	s	METAL 33K 0.50% 1/16W
R49	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R50	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R51	1-218-883-11	s	METAL 33K 0.50% 1/16W
R52	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R53	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R57	1-218-676-11	s	METAL 220 0.50% 1/16W
R58	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R59	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R60	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R61	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R62	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R65	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R66	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R67	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R70	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R71	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R72	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R75	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R76	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R77	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R78	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R79	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R82	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R85	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R87	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R88	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R89	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R90	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R93	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R94	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R95	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R96	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R97	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R98	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R99	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R100	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R101	1-218-720-11	s	METAL 15K 0.50% 1/16W
R102	1-218-716-11	s	METAL 10K 0.50% 1/16W
R103	1-218-725-11	s	METAL 24K 0.50% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R107	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R108	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R113	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R114	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R115	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R116	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R117	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R118	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R119	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R120	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R121	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R122	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R123	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R124	1-216-805-11	s	METAL, CHIP 47 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R127	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R128	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R129	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R130	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R131	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R137	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R142	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R145	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R146	1-218-676-11	s	METAL 220 0.50% 1/16W
R147	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R148	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R149	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R150	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R151	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R152	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R153	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R154	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R155	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R158	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R159	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R160	1-218-676-11	s	METAL 220 0.50% 1/16W
R161	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R162	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R163	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R164	1-218-672-11	s	METAL 150 0.50% 1/16W
R165	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R166	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R167	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R168	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R169	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R170	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R171	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R172	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R173	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R174	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R175	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R177	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R178	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R184	1-218-828-11	s	METAL 160 0.50% 1/16W
R185	1-218-648-11	s	METAL 15 0.50% 1/16W
R186	1-218-661-11	s	CHIP, METAL 51 0.50% 1/16W
R187	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R188	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R190	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R191	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R192	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R193	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R194	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R195	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R196	1-218-720-11	s	METAL 15K 0.50% 1/16W
R197	1-218-740-11	s	METAL 100K 0.50% 1/16W
R198	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R199	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R202	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W
R205	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R206	1-218-732-11	s	METAL 47K 0.50% 1/16W
R207	1-218-725-11	s	METAL 24K 0.50% 1/16W
R208	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R209	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R210	1-218-676-11	s	METAL 220 0.50% 1/16W
R211	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R212	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R215	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R216	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R217	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R218	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R219	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R220	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R221	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R222	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R223	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R224	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R225	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R226	1-218-672-11	s	METAL 150 0.50% 1/16W
R227	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R228	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R229	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R231	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R232	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R233	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R234	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R235	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R236	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R239	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R240	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R241	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R242	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R243	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R244	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R246	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R247	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R248	1-218-732-11	s	METAL 47K 0.50% 1/16W
R249	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R252	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R253	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R254	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R255	1-218-716-11	s	METAL 10K 0.50% 1/16W
R256	1-218-725-11	s	METAL 24K 0.50% 1/16W
R257	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R258	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R259	1-218-676-11	s	METAL 220 0.50% 1/16W
R260	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R261	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R262	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R263	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R264	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R265	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R266	1-218-705-11	s	METAL 3.6K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R267	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R268	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R269	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R270	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R271	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R273	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R274	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R275	1-218-672-11	s	METAL 150 0.50% 1/16W
R276	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R277	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R278	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-218-672-11	s	METAL 150 0.50% 1/16W
R281	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R282	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R283	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R284	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R285	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R288	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R289	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R290	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R293	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R294	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R295	1-218-732-11	s	METAL 47K 0.50% 1/16W
R300	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R301	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R302	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R303	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R304	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R305	1-218-725-11	s	METAL 24K 0.50% 1/16W
R306	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R307	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R308	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R309	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R310	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R311	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R312	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R313	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R314	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R315	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R316	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R317	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R318	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R320	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R321	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R322	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R323	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R324	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R325	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R326	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R327	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R328	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R330	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R331	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R332	1-218-883-11	s	METAL 33K 0.50% 1/16W
R333	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R334	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R335	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R336	1-218-727-11	s	METAL 30K 0.50% 1/16W

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R337	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R357	1-218-680-11	s	METAL 330 0.50% 1/16W
R358	1-218-672-11	s	METAL 150 0.50% 1/16W
R361	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R362	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R363	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R364	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R365	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R366	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R367	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R368	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R369	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R370	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R371	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R372	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R373	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R374	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R375	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R376	1-218-727-11	s	METAL 30K 0.50% 1/16W
R378	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R379	1-218-727-11	s	METAL 30K 0.50% 1/16W
R380	1-218-655-91	s	CHIP, METAL 30 0.50% 1/16W
RB1	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB2	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB3	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB4	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB5	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB6	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K
RB7	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K

IF-510 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-568-A	o	MOUNTED CIRCUIT BOARD, IF-510
1pc	3-692-129-02	o	PANEL,IF-510 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C10	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C11	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-208-11	s	TANTAL 1uF 20% 10V
C14	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C21	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-135-208-11	s	TANTAL 1uF 20% 10V
C24	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C31	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-208-11	s	TANTAL 1uF 20% 10V
C34	1-104-911-11	s	TANTALUM, CHIP 33uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-164-156-11	s	CERAMIC 0.1uF 25V
C103	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C104	1-104-914-11	s	TANTAL 22uF 20% 16V
C105	1-104-914-11	s	TANTAL 22uF 20% 16V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C152	1-164-156-11	s	CERAMIC 0.1uF 25V
C153	1-164-156-11	s	CERAMIC 0.1uF 25V
C154	1-164-156-11	s	CERAMIC 0.1uF 25V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-164-156-11	s	CERAMIC 0.1uF 25V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C206	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-104-914-11	s	TANTAL 22uF 20% 16V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C224	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C225	1-104-914-11	s	TANTAL 22uF 20% 16V
C226	1-164-156-11	s	CERAMIC 0.1uF 25V
C250	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C252	1-162-917-11	s	CERAMIC 15PF 5% 50V
C253	1-162-919-11	s	CERAMIC 22PF 5% 50V
C254	1-162-922-11	s	CERAMIC 39PF 5% 50V
C255	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C300	1-164-156-11	s	CERAMIC 0.1uF 25V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-164-156-11	s	CERAMIC 0.1uF 25V
C308	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C309	1-164-156-11	s	CERAMIC 0.1uF 25V
C311	1-164-156-11	s	CERAMIC 0.1uF 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C313	1-104-914-11	s	TANTAL 22uF 20% 16V
C315	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C322	1-164-156-11	s	CERAMIC 0.1uF 25V
C330	1-162-958-11	s	CERAMIC 270p 10% 50V
C350	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C351	1-164-156-11	s	CERAMIC 0.1uF 25V
C352	1-164-156-11	s	CERAMIC 0.1uF 25V
C353	1-164-156-11	s	CERAMIC 0.1uF 25V
C400	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C401	1-104-914-11	s	TANTAL 22uF 20% 16V
C402	1-104-914-11	s	TANTAL 22uF 20% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-164-156-11	s	CERAMIC 0.1uF 25V
C405	1-104-914-11	s	TANTAL 22uF 20% 16V
C406	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C407	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C408	1-104-914-11	s	TANTAL 22uF 20% 16V
C409	1-104-914-11	s	TANTAL 22uF 20% 16V
C410	1-164-156-11	s	CERAMIC 0.1uF 25V
C411	1-164-156-11	s	CERAMIC 0.1uF 25V
C412	1-104-914-11	s	TANTAL 22uF 20% 16V
C413	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C414	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C415	1-104-914-11	s	TANTAL 22uF 20% 16V
C416	1-104-914-11	s	TANTAL 22uF 20% 16V
C417	1-164-156-11	s	CERAMIC 0.1uF 25V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-104-914-11	s	TANTAL 22uF 20% 16V
C420	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C421	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C422	1-164-156-11	s	CERAMIC 0.1uF 25V
C502	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C503	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C504	1-104-914-11	s	TANTAL 22uF 20% 16V
C505	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C508	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C509	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C510	1-104-914-11	s	TANTAL 22uF 20% 16V
C511	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C513	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C514	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C515	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C516	1-104-914-11	s	TANTAL 22uF 20% 16V
C517	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C518	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C519	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C520	1-104-914-11	s	TANTAL 22uF 20% 16V
C521	1-104-914-11	s	TANTAL 22uF 20% 16V
C522	1-164-156-11	s	CERAMIC 0.1uF 25V
C524	1-164-156-11	s	CERAMIC 0.1uF 25V
C525	1-164-156-11	s	CERAMIC 0.1uF 25V
C601	1-164-156-11	s	CERAMIC 0.1uF 25V
C602	1-164-156-11	s	CERAMIC 0.1uF 25V
C603	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C604	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C605	1-104-914-11	s	TANTAL 22uF 20% 16V
C606	1-104-914-11	s	TANTAL 22uF 20% 16V
C621	1-164-156-11	s	CERAMIC 0.1uF 25V
C622	1-164-156-11	s	CERAMIC 0.1uF 25V
C623	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C624	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C625	1-104-914-11	s	TANTAL 22uF 20% 16V
C626	1-104-914-11	s	TANTAL 22uF 20% 16V
C641	1-164-156-11	s	CERAMIC 0.1uF 25V
C642	1-164-156-11	s	CERAMIC 0.1uF 25V
C643	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C644	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C645	1-104-914-11	s	TANTAL 22uF 20% 16V
C646	1-104-914-11	s	TANTAL 22uF 20% 16V
C701	1-164-156-11	s	CERAMIC 0.1uF 25V
C702	1-164-156-11	s	CERAMIC 0.1uF 25V
C703	1-164-156-11	s	CERAMIC 0.1uF 25V
C704	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C707	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
D11	8-719-029-63	s	DIODE RD4.3UH-T1
D21	8-719-029-63	s	DIODE RD4.3UH-T1
D31	8-719-029-57	s	DIODE RD2.4UH-T1
D101	8-719-820-41	s	DIODE 1SS302
D250	8-719-948-47	s	DIODE HSM88AS
D400	8-719-820-41	s	DIODE 1SS302
D401	8-719-820-41	s	DIODE 1SS302
D402	8-719-820-41	s	DIODE 1SS302
D500	8-719-820-41	s	DIODE 1SS302
IC12	8-759-076-06	s	IC TL064CPW
IC101	8-759-082-61	s	IC TC4W53FU
IC151	8-759-925-76	s	IC SN74HC08ANS
IC152	8-759-082-55	s	IC TC7W00FU
IC153	8-759-237-79	s	IC TC74HC595AF(EL)
IC154	8-759-082-58	s	IC TC7W08FU
IC155	8-759-086-42	s	IC X24C02S-3.0-C7000
IC200	8-759-082-61	s	IC TC4W53FU
IC201	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC202	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC206	8-759-054-61	s	IC CLC505AJE
IC301	8-759-254-49	s	IC EL4581CS-TE2
IC302	8-759-925-90	s	IC SN74HC74ANS
IC303	8-759-925-90	s	IC SN74HC74ANS
IC304	8-759-082-59	s	IC TC7W32FU
IC305	8-759-925-90	s	IC SN74HC74ANS
IC306	8-759-082-57	s	IC TC7W04FU
IC307	8-759-082-58	s	IC TC7W08FU
IC308	8-759-058-62	s	IC TC7S08FU(TE85R)
IC309	8-759-082-59	s	IC TC7W32FU
IC310	8-759-082-58	s	IC TC7W08FU
IC322	8-759-032-01	s	IC MC74HC00AF
IC351	8-759-925-90	s	IC SN74HC74ANS
IC352	8-759-058-58	s	IC TC7S04FU(TE85R)
IC400	8-759-082-61	s	IC TC4W53FU
IC404	8-759-209-57	s	IC TC4S69F
IC410	8-759-082-61	s	IC TC4W53FU
IC420	8-759-082-61	s	IC TC4W53FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC500	8-759-066-59	s	IC TC74HC4053AFS
IC501	8-759-981-48	s	IC TL082M
IC502	8-759-082-58	s	IC TC7W08FU
IC601	8-759-054-61	s	IC CLC505AJE
IC621	8-759-054-61	s	IC CLC505AJE
IC641	8-759-054-61	s	IC CLC505AJE
IC701	8-759-988-13	s	IC LM393PS
IC702	8-759-195-81	s	IC TC7S86FU
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L150	1-410-369-11	s	INDUCTOR CHIP 1uH
L201	1-410-369-11	s	INDUCTOR CHIP 1uH
L202	1-410-369-11	s	INDUCTOR CHIP 1uH
L203	1-410-369-11	s	INDUCTOR CHIP 1uH
L301	1-410-369-11	s	INDUCTOR CHIP 1uH
L400	1-410-369-11	s	INDUCTOR CHIP 1uH
L401	1-410-369-11	s	INDUCTOR CHIP 1uH
L402	1-410-369-11	s	INDUCTOR CHIP 1uH
L500	1-410-369-11	s	INDUCTOR CHIP 1uH
L501	1-410-369-11	s	INDUCTOR CHIP 1uH
L502	1-410-369-11	s	INDUCTOR CHIP 1uH
L601	1-410-369-11	s	INDUCTOR CHIP 1uH
L602	1-410-369-11	s	INDUCTOR CHIP 1uH
L603	1-410-369-11	s	INDUCTOR CHIP 1uH
L700	1-410-369-11	s	INDUCTOR CHIP 1uH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q20	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q30	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q101	8-729-122-63	s	TRANSISTOR 2SA1226
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-122-63	s	TRANSISTOR 2SA1226
Q109	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q110	8-729-117-32	s	TRANSISTOR 2SC4177
Q205	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q206	8-729-117-32	s	TRANSISTOR 2SC4177
Q207	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q210	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q211	8-729-117-32	s	TRANSISTOR 2SC4177
Q250	8-729-117-32	s	TRANSISTOR 2SC4177
Q251	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q252	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q271	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q272	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q273	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q352	8-729-920-48	s	TRANSISTOR IMH2
Q353	8-729-920-48	s	TRANSISTOR IMH2
Q354	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q401	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q402	8-729-117-32	s	TRANSISTOR 2SC4177
Q403	8-729-026-32	s	TRANSISTOR XP6534
Q404	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q405	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q406	8-729-117-32	s	TRANSISTOR 2SC4177
Q410	8-729-026-32	s	TRANSISTOR XP6534

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Ref. No. or Q'ty	Part No.	SP	Description
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q413	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q414	8-729-117-32	s	TRANSISTOR 2SC4177
Q420	8-729-026-32	s	TRANSISTOR XP6534
Q421	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q422	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q423	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q424	8-729-117-32	s	TRANSISTOR 2SC4177
Q430	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q431	8-729-117-32	s	TRANSISTOR 2SC4177
Q500	8-729-026-32	s	TRANSISTOR XP6534
Q501	8-729-122-63	s	TRANSISTOR 2SA1226
Q502	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q503	8-729-026-32	s	TRANSISTOR XP6534
Q504	8-729-122-63	s	TRANSISTOR 2SA1226
Q505	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q506	8-729-026-32	s	TRANSISTOR XP6534
Q507	8-729-122-63	s	TRANSISTOR 2SA1226
Q508	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q509	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q510	8-729-117-32	s	TRANSISTOR 2SC4177
Q701	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q702	8-729-800-37	s	TRANSISTOR 2SD1048-X7
Q703	8-729-141-48	s	TRANSISTOR 2SB624-BV345
R1	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R2	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R8	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R9	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R10	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R23	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R24	1-218-723-11	s	METAL 20K 0.50% 1/16W
R25	1-218-723-11	s	METAL 20K 0.50% 1/16W
R33	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R34	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R35	1-218-723-11	s	METAL 20K 0.50% 1/16W
R100	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R103	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R104	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R105	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R106	1-211-990-11	s	CHIP, METAL 75 0.50% 1/10W
R107	1-218-705-11	s	CHIP, METAL 3.6K 0.50% 1/10W
R110	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R111	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R151	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R152	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R153	1-218-740-11	s	METAL 100K 0.50% 1/16W
R154	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R155	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R156	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R198	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R199	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R202	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R203	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R204	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R205	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R206	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R207	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R208	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R209	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R210	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R211	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R212	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R213	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R214	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R221	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R222	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R224	1-211-981-11	s	CHIP, METAL 33 0.50% 1/16W
R225	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R226	1-218-688-11	s	METAL 680 0.50% 1/16W
R227	1-218-883-11	s	METAL 33K 0.50% 1/16W
R228	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R229	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R230	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R253	1-218-883-11	s	METAL 33K 0.50% 1/16W
R254	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R256	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R257	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R258	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R259	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R261	1-218-716-11	s	CHIP, METAL 10K 0.5% 1/16W
R263	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R264	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R271	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R272	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R273	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R274	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R275	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R276	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R277	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R278	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R279	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R310	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R311	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R315	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R320	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R321	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R322	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R323	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R324	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R325	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R326	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R327	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R328	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R329	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R351	1-218-716-11	s	METAL 10K 0.50% 1/16W
R352	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R353	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R354	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R361	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R400	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R401	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R402	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R403	1-218-836-11	s	CHIP, METAL 360 0.50% 1/16W
R404	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R405	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R406	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R407	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R408	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R409	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R410	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R411	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R412	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R413	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R414	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R415	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R416	1-218-672-11	s	METAL 150 0.50% 1/16W
R417	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R418	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R419	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R420	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R421	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R422	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R423	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R424	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R425	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R426	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R427	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R428	1-218-672-11	s	METAL 150 0.50% 1/16W
R429	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R430	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R431	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R432	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R433	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R434	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R435	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R436	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R437	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R438	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R439	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R440	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R441	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R442	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R443	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R444	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R445	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R446	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R447	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R448	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R500	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R501	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R502	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R503	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R504	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R505	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R506	1-218-671-11	s	CHIP, METAL 130 0.50% 1/16W
R507	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R508	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R509	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R510	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R511	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R512	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R513	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R514	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R515	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R516	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R517	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R518	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R519	1-218-650-11	s	METAL, CHIP 18 0.50% 1/16
R520	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R521	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R522	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R523	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R524	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R525	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R526	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R527	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R528	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R529	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R530	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R531	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R532	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R533	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R534	1-211-992-11	s	CHIP,METAL 91 0.50% 1/16W
R535	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R536	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R537	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R538	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R539	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R540	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R541	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R542	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R543	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R544	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R545	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R546	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R547	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R548	1-218-716-11	s	METAL 10K 0.50% 1/16W
R549	1-218-740-11	s	METAL 100K 0.50% 1/16W
R550	1-218-740-11	s	METAL 100K 0.50% 1/16W
R551	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R552	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R553	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R554	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R555	1-218-716-11	s	METAL 10K 0.50% 1/16W
R601	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R602	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R603	1-218-670-11	s	METAL 120 0.50% 1/16W
R604	1-218-680-11	s	METAL 330 0.50% 1/16W
R605	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R606	1-218-883-11	s	METAL 33K 0.50% 1/16W
R607	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R621	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R622	1-218-698-11	s	CHIP, METAL 1.8K 0.50% 1/16W
R623	1-218-671-11	s	METAL 130 0.50% 1/16W
R624	1-218-680-11	s	METAL 330 0.50% 1/16W
R625	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R626	1-218-883-11	s	METAL 33K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R627	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R641	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R642	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R643	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R644	1-218-680-11	s	METAL 330 0.50% 1/16W
R645	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R646	1-218-883-11	s	METAL 33K 0.50% 1/16W
R647	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R701	1-218-732-11	s	METAL 47K 0.50% 1/16W
R702	1-218-716-11	s	METAL 10K 0.50% 1/16W
R703	1-218-723-11	s	METAL 20K 0.50% 1/16W
R704	1-218-725-11	s	METAL 24K 0.50% 1/16W
R705	1-218-732-11	s	METAL 47K 0.50% 1/16W
R706	1-218-732-11	s	METAL 47K 0.50% 1/16W
R707	1-218-883-11	s	METAL 33K 0.50% 1/16W
R708	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R709	1-216-631-11	s	METAL 150 0.50% 1/10W
R710	1-216-631-11	s	METAL 150 0.50% 1/10W
R711	1-216-631-11	s	METAL 150 0.50% 1/10W
R712	1-216-631-11	s	METAL 150 0.50% 1/10W
R713	1-216-631-11	s	METAL 150 0.50% 1/10W
R714	1-216-631-11	s	METAL 150 0.50% 1/10W
R715	1-218-727-11	s	METAL 30K 0.50% 1/16W
R716	1-218-716-11	s	METAL 10K 0.50% 1/16W
R717	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R718	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R719	1-218-716-11	s	METAL 10K 0.50% 1/16W
R721	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R722	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
RV101	1-241-260-11	s	METAL, ADJ 500
S1	1-572-272-11	s	SWITCH, SLIDE

MB-602 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-547-A	o	MOUNTED CIRCUIT BOARD, MB-602
15pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-164-156-11	s	CERAMIC 0.1uF 25V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-164-156-11	s	CERAMIC 0.1uF 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
CN7	1-569-629-11	s	HOUSING, 24P
CN11	1-569-532-11	s	HOUSING, 30P
CN12	1-569-532-11	s	HOUSING, 30P
CN13	1-569-532-11	s	HOUSING, 30P
CN14	1-569-531-11	s	HOUSING, 20P
CN15	1-764-088-11	o	PIN, CONNECTOR (PC BOARD) 3P
CN21	1-764-093-21	o	PIN, CONNECTOR (PC BOARD) 8P
CN22	1-774-260-11	o	CONNECTOR, FFC (ZIF) 20P
CN23	1-774-261-21	o	CONNECTOR, FFC (ZIF) 24P
CN31	1-750-934-21	o	PIN, CONNECTOR 20P
CN32	1-764-097-11	o	PIN, CONNECTOR (PC BOARD) 12P
CN41	1-569-629-11	s	HOUSING, 24P
CN42	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
CN51	1-770-580-11	o	SOCKET, CONNECTOR(PCB-PCB) 26P
D1	8-719-042-14	s	DIODE DE5LC20U-TA2
IC1	8-759-080-02	s	IC TC74VHC541FS(EL)
IC2	8-759-080-02	s	IC TC74VHC541FS(EL)
IC3	8-759-080-02	s	IC TC74VHC541FS(EL)
IC4	8-759-080-02	s	IC TC74VHC541FS(EL)
IC5	8-759-086-42	s	IC X24C02S-3.0-C7000
Q1	8-729-119-61	s	TRANSISTOR 2SA811A-C15
Q2	8-729-271-32	s	TRANSISTOR 2SC2713-L
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

(MB-602 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R7	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R8	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R11	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB6	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB7	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB8	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
S1	1-572-272-11	s	SWITCH, SLIDE

PR-211 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-557-A	o	MOUNTED CIRCUIT BOARD, PR-211

SG-234 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-564-A	o	MOUNTED CIRCUIT BOARD, SG-234
1pc	3-692-127-02	o	PANEL,SG-234 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C2	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C3	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C9	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C10	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C28	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-164-156-11	s	CERAMIC 0.1uF 25V
C34	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C35	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C39	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C41	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C45	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C46	1-164-346-11	s	CERAMIC 1uF 16V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C51	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C52	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-165-128-11	s	CERAMIC 0.22uF 16V
C57	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C64	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
C68	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C71	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C72	1-135-217-21	s	TANTAL 15uF 20% 6.3
C73	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C77	1-164-156-11	s	CERAMIC 0.1uF 25V
C78	1-164-156-11	s	CERAMIC 0.1uF 25V
C79	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C80	1-164-315-11	s	CERAMIC 470PF 5% 50V
C81	1-128-391-11	s	ELECT 330uF 20% 6.3V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-164-156-11	s	CERAMIC 0.1uF 25V
C85	1-164-156-11	s	CERAMIC 0.1uF 25V
C87	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C88	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C89	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C90	1-164-156-11	s	CERAMIC 0.1uF 25V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-164-156-11	s	CERAMIC 0.1uF 25V
C94	1-164-156-11	s	CERAMIC 0.1uF 25V
C95	1-135-178-11	s	TANTALUM CHIP 1.5uF 20% 20V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-164-156-11	s	CERAMIC 0.1uF 25V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-948-47	s	DIODE HSM88AS
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-404-35	s	DIODE MA141WK
D7	8-719-404-35	s	DIODE MA141WK
D8	8-719-041-68	s	DIODE RD3.3UH-T1
D10	8-719-948-47	s	DIODE HSM88AS
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-948-47	s	DIODE HSM88AS
D13	8-719-948-47	s	DIODE HSM88AS
D14	8-719-800-76	s	DIODE 1SS126
D200	8-719-820-41	s	DIODE 1SS302
D201	8-719-948-47	s	DIODE HSM88AS
FL1	1-239-756-11	s	FILTER, LOW PASS
IC3	8-759-076-06	s	IC TL064CPW
IC5	8-759-254-49	s	IC EL4581CS-TE2
IC8	8-759-082-57	s	IC TC7W04FU
IC11	8-759-082-58	s	IC TC7W08FU
IC12	8-759-064-36	s	IC MB88346BPFV
IC13	8-759-066-59	s	IC TC74HC4053AFS
IC16	8-752-360-44	s	IC CXK1203AR
IC17	8-759-082-61	s	IC TC4W53FU

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC18	8-759-632-39	s	IC M51958A-T1
IC20	8-759-058-62	s	IC TC7S08FU(TE85R)
IC21	8-759-086-42	s	IC X24C02S-3.0-C7000
IC22	8-759-271-86	s	IC TC7SH04FU
IC25	8-759-079-85	s	IC TC74VHC244FS(EL)
IC30	8-759-079-85	s	IC TC74VHC244FS(EL)
IC31	8-759-271-86	s	IC TC7SH04FU
IC32	8-759-076-06	s	IC TL064CPW
IC33	8-759-066-59	s	IC TC74HC4053AFS
IC34	8-759-184-64	s	IC TC4W66FU
IC35	8-759-049-86	s	IC SN74HCT244APW-E20
IC36	8-759-180-08	s	IC TC74HC4538AFS
IC37	8-759-082-58	s	IC TC7W08FU
IC38	8-759-083-94	s	IC TC7W74FU
IC39	8-759-195-81	s	IC TC7S86FU
IC40	8-759-082-60	s	IC TC7S66FU
IC41	8-759-082-61	s	IC TC4W53FU
IC42	8-759-049-86	s	IC SN74HCT244APW-E20
IC43	8-759-058-54	s	IC TC7S00FU(TE85R)
IC44	8-759-082-61	s	IC TC4W53FU
IC45	8-759-271-86	s	IC TC7SH04FU
IC46	8-759-082-61	s	IC TC4W53FU
IC47	8-759-082-61	s	IC TC4W53FU
IC48	8-759-173-16	s	IC TL062CPW
IC200	8-759-079-61	s	IC TC74VHC74FS(EL)
IC201	8-759-058-58	s	IC TC7S04FU(TE85R)
IC202	8-759-058-64	s	IC TC7S32FU(TE85R)
IC203	8-759-058-62	s	IC TC7S08FU(TE85R)
IC204	8-759-082-61	s	IC TC4W53FU
IC206	8-759-173-16	s	IC TL062CPW
IC207	8-759-058-55	s	IC TC7S02FU-TE85L
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-385-11	s	INDUCTOR, CHIP 22uH
L6	1-410-385-11	s	INDUCTOR, CHIP 22uH
L7	1-410-385-11	s	INDUCTOR, CHIP 22uH
L8	1-410-385-11	s	INDUCTOR, CHIP 22uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q4	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q5	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-403-29	s	TRANSISTOR XN6435
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q16	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-920-48	s	TRANSISTOR IMH2
Q20	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q21	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q22	8-729-029-14	s	TRANSISTOR DTC144EUA-T106

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Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q24	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q25	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q26	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q200	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q201	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q202	8-729-216-22	s	TRANSISTOR 2SA1162
Q203	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q204	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q205	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-218-716-11	s	METAL 10K 0.50% 1/16W
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R5	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R7	1-218-723-11	s	METAL 20K 0.50% 1/16W
R8	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R9	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R10	1-218-723-11	s	METAL 20K 0.50% 1/16W
R11	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R17	1-218-720-11	s	METAL 15K 0.50% 1/16W
R18	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R21	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R22	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R23	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R28	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R29	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W
R31	1-218-716-11	s	METAL 10K 0.50% 1/16W
R32	1-218-720-11	s	METAL 15K 0.50% 1/16W
R33	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R34	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R35	1-218-732-11	s	METAL 47K 0.50% 1/16W
R36	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R37	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R38	1-218-716-11	s	METAL 10K 0.50% 1/16W
R39	1-218-736-11	s	METAL 68K 0.50% 1/16W
R40	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R41	1-218-716-11	s	METAL 10K 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-740-11	s	METAL 100K 0.50% 1/16W
R44	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R46	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-720-11	s	METAL 15K 0.50% 1/16W
R49	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R50	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R54	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R55	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R56	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R57	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R58	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R59	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-218-833-11	s	CHIP, METAL 270 0.50% 1/16W
R62	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R65	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R66	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R67	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R68	1-218-716-11	s	METAL 10K 0.50% 1/16W
R69	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R71	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R77	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R78	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R79	1-218-716-11	s	METAL 10K 0.50% 1/16W
R80	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R83	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R84	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R85	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R86	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R90	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R92	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R95	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R96	1-218-716-11	s	METAL 10K 0.50% 1/16W
R97	1-218-716-11	s	METAL 10K 0.50% 1/16W
R98	1-218-716-11	s	METAL 10K 0.50% 1/16W
R99	1-218-883-11	s	METAL 33K 0.50% 1/16W
R100	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R101	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R102	1-218-740-11	s	METAL 100K 0.50% 1/16W
R103	1-218-732-11	s	METAL 47K 0.50% 1/16W
R104	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R105	1-218-716-11	s	METAL 10K 0.50% 1/16W
R106	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R107	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-732-11	s	METAL 47K 0.50% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R113	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R114	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R115	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R116	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R117	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R119	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R121	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R122	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R126	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R127	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R128	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R129	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R130	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R131	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R132	1-218-732-11	s	METAL 47K 0.50% 1/16W
R133	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R134	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R135	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R136	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R137	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R138	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R139	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R140	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R141	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R144	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R145	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R146	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R150	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R151	1-218-732-11	s	METAL 47K 0.50% 1/16W
R152	1-218-732-11	s	METAL 47K 0.50% 1/16W
R153	1-218-732-11	s	METAL 47K 0.50% 1/16W
R154	1-218-732-11	s	METAL 47K 0.50% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R202	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R203	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R204	1-218-716-11	s	METAL 10K 0.50% 1/16W
R205	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R206	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R207	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R208	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R209	1-218-716-11	s	METAL 10K 0.50% 1/16W
R210	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R211	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB10	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)

SW-730 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-443-21	o	PRINTED CIRCUIT BOARD, SW-730
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
CN801	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
D1	8-719-106-43	s	DIODE RD9.1M-B1
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R13	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R14	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R15	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
S1	1-571-415-11	s	SWITCH, TOGGLE
S2	1-571-415-11	s	SWITCH, TOGGLE
S3	1-571-415-11	s	SWITCH, TOGGLE
S4	1-571-415-11	s	SWITCH, TOGGLE

SW-731 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-444-21	o	PRINTED CIRCUIT BOARD, SW-731
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
CN501	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R9	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R10	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RV1	1-223-686-11	s	RES, VAR, CARBON 5K/5K
S1	1-571-416-11	s	SWITCH, TOGGLE
S2	1-571-679-11	s	SWITCH, TOGGLE
S3	1-570-282-21	s	SWITCH, KEY BOARD

SW-732 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-442-22	o	PRINTED CIRCUIT BOARD, SW-732
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
CN301	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-570-985-11	s	SWITCH, TOGGLE
S3	1-571-396-11	s	SWITCH, TOGGLE

SW-733 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-445-21	o	PRINTED CIRCUIT BOARD, SW-733
CN701	1-764-079-21	s	PIN, CONNECTOR (PC BOARD) 4P
S1	1-473-315-11	s	ENCODER, ROTARY

SW-742 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-446-21	o	PRINTED CIRCUIT BOARD, SW-742
CN601	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
S1	1-554-088-00	s	SWITCH, TACTILE

VA-163 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8272-560-A	o	MOUNTED CIRCUIT BOARD, VA-163
1pc	3-692-125-02	o	PANEL,VA-163 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-135-217-21	s	TANTAL 15uF 20% 6.3
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-126-391-11	s	ELECT 47uF 20% 6.3V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C15	1-135-125-21	s	TANTAL 33uF 20% 10V
C16	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C17	1-126-391-11	s	ELECT 47uF 20% 6.3V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C20	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-217-11	s	CERAMIC 150PF 5% 50V
C27	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C47	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C51	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C52	1-104-559-11	s	FILM, CHIP 0.047uF 5% 16V
C53	1-164-315-11	s	CERAMIC 470PF 5% 50V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C65	1-135-217-21	s	TANTAL 15uF 20% 6.3
C66	1-135-217-21	s	TANTAL 15uF 20% 6.3
C67	1-135-217-21	s	TANTAL 15uF 20% 6.3
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-135-217-21	s	TANTAL 15uF 20% 6.3
C70	1-135-217-21	s	TANTAL 15uF 20% 6.3
C71	1-135-217-21	s	TANTAL 15uF 20% 6.3
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C124	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C125	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C200	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C207	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C208	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C209	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C211	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C212	1-164-156-11	s	CERAMIC 0.1uF 25V
C214	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C215	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-164-156-11	s	CERAMIC 0.1uF 25V
C224	1-104-608-11	s	ELECT 33uF 20% 6.3V
C225	1-135-217-21	s	TANTAL 15uF 20% 6.3
C226	1-135-217-21	s	TANTAL 15uF 20% 6.3
C227	1-164-156-11	s	CERAMIC 0.1uF 25V
C228	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C229	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C230	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C231	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C232	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C233	1-164-156-11	s	CERAMIC 0.1uF 25V
C234	1-164-156-11	s	CERAMIC 0.1uF 25V
C235	1-164-156-11	s	CERAMIC 0.1uF 25V
C236	1-164-156-11	s	CERAMIC 0.1uF 25V
C237	1-164-156-11	s	CERAMIC 0.1uF 25V
C238	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C239	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C240	1-162-924-11	s	CERAMIC 56PF 5% 50V
C242	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C243	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C259	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C300	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C302	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C304	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C305	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C308	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C309	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C311	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C314	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C315	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C316	1-164-156-11	s	CERAMIC 0.1uF 25V
C317	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C318	1-164-156-11	s	CERAMIC 0.1uF 25V
C319	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C323	1-164-156-11	s	CERAMIC 0.1uF 25V
C324	1-104-608-11	s	ELECT 33uF 20% 6.3V
C325	1-135-217-21	s	TANTAL 15uF 20% 6.3
C326	1-135-217-21	s	TANTAL 15uF 20% 6.3
C327	1-164-156-11	s	CERAMIC 0.1uF 25V
C328	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C329	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C330	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C331	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C332	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C333	1-164-156-11	s	CERAMIC 0.1uF 25V
C334	1-164-156-11	s	CERAMIC 0.1uF 25V
C335	1-164-156-11	s	CERAMIC 0.1uF 25V
C336	1-164-156-11	s	CERAMIC 0.1uF 25V
C337	1-164-156-11	s	CERAMIC 0.1uF 25V
C338	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C339	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C340	1-162-924-11	s	CERAMIC 56PF 5% 50V
C342	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C343	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C359	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C400	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C401	1-164-156-11	s	CERAMIC 0.1uF 25V
C402	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C405	1-164-156-11	s	CERAMIC 0.1uF 25V
C407	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C408	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C409	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C411	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C412	1-164-156-11	s	CERAMIC 0.1uF 25V
C414	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C415	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C416	1-164-156-11	s	CERAMIC 0.1uF 25V
C417	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-164-156-11	s	CERAMIC 0.1uF 25V
C420	1-164-156-11	s	CERAMIC 0.1uF 25V
C421	1-164-156-11	s	CERAMIC 0.1uF 25V
C423	1-164-156-11	s	CERAMIC 0.1uF 25V
C424	1-104-608-11	s	ELECT 33uF 20% 6.3V
C425	1-135-217-21	s	TANTAL 15uF 20% 6.3
C426	1-135-217-21	s	TANTAL 15uF 20% 6.3
C427	1-164-156-11	s	CERAMIC 0.1uF 25V
C428	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C429	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C430	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C431	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C432	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C433	1-164-156-11	s	CERAMIC 0.1uF 25V
C434	1-164-156-11	s	CERAMIC 0.1uF 25V
C435	1-164-156-11	s	CERAMIC 0.1uF 25V
C436	1-164-156-11	s	CERAMIC 0.1uF 25V
C437	1-164-156-11	s	CERAMIC 0.1uF 25V
C438	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C439	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C440	1-162-924-11	s	CERAMIC 56PF 5% 50V
C442	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C443	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C459	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
CT200	1-141-311-11	s	CAP, VAR, TRIMMER
CT300	1-141-311-11	s	CAP, VAR, TRIMMER
CT400	1-141-311-11	s	CAP, VAR, TRIMMER
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
FL200	1-402-639-11	s	FILTER, TRAP
FL300	1-402-639-11	s	FILTER, TRAP
FL400	1-402-639-11	s	FILTER, TRAP
IC1	8-759-076-06	s	IC TL064CPW
IC3	8-759-066-68	s	IC REF-03GS
IC5	8-759-180-08	s	IC TC74HC4538AFS
IC6	8-759-175-02	s	IC TL074CPW-ELM1000
IC7	8-759-058-64	s	IC TC7S32FU(TE85R)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-085-67	s	IC LM339NS
IC10	8-759-058-58	s	IC TC7S04FU(TE85R)
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-175-02	s	IC TL074CPW-ELM1000
IC13	8-759-082-60	s	IC TC7S66FU
IC14	8-759-082-60	s	IC TC7S66FU
IC15	8-759-076-06	s	IC TL064CPW
IC16	8-759-326-65	s	IC MP7670AS-TE2
IC17	8-759-066-59	s	IC TC74HC4053AFS
IC18	8-759-326-65	s	IC MP7670AS-TE2
IC19	8-759-175-02	s	IC TL074CPW-ELM1000
IC20	8-759-237-79	s	IC TC74HC595AF(EL)
IC21	8-759-064-36	s	IC MB88346BPFV
IC22	8-759-066-59	s	IC TC74HC4053AFS
IC23	8-759-049-60	s	IC SN74HC08APW-E05
IC24	8-759-059-50	s	IC MB88351PFV
IC25	8-759-058-58	s	IC TC7S04FU(TE85R)
IC26	8-759-086-42	s	IC X24C02S-3.0-C7000
IC27	8-759-058-62	s	IC TC7S08FU(TE85R)
IC200	8-759-076-06	s	IC TL064CPW
IC201	8-759-082-61	s	IC TC4W53FU
IC202	8-752-068-64	s	IC CXA1486Q-TH
IC203	8-759-082-61	s	IC TC4W53FU
IC204	8-759-058-62	s	IC TC7S08FU(TE85R)

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Ref. No. or Q'ty	Part No.	SP	Description
IC300	8-759-076-06	s	IC TL064CPW
IC301	8-759-082-61	s	IC TC4W53FU
IC302	8-752-068-64	s	IC CXA1486Q-TH
IC303	8-759-082-61	s	IC TC4W53FU
IC304	8-759-058-62	s	IC TC7S08FU(TE85R)
IC400	8-759-076-06	s	IC TL064CPW
IC401	8-759-082-61	s	IC TC4W53FU
IC402	8-752-068-64	s	IC CXA1486Q-TH
IC403	8-759-082-61	s	IC TC4W53FU
IC404	8-759-058-62	s	IC TC7S08FU(TE85R)
L1	1-410-385-11	s	INDUCTOR, CHIP 22uH
L2	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-820-86	s	TRANSISTOR 2SB1121-ST
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q7	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q10	8-729-402-78	s	TRANSISTOR XN6401
Q11	8-729-402-19	s	TRANSISTOR XN6501
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-402-78	s	TRANSISTOR XN6401
Q200	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q201	8-729-175-73	s	TRANSISTOR 2SC2757
Q202	8-729-122-63	s	TRANSISTOR 2SA1226
Q203	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q204	8-729-122-63	s	TRANSISTOR 2SA1226
Q205	8-729-122-63	s	TRANSISTOR 2SA1226
Q206	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q207	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q210	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q211	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q212	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q213	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q214	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q215	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q216	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q217	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q218	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q219	8-729-402-19	s	TRANSISTOR XN6501
Q220	8-729-402-19	s	TRANSISTOR XN6501
Q300	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q301	8-729-175-73	s	TRANSISTOR 2SC2757
Q302	8-729-122-63	s	TRANSISTOR 2SA1226
Q303	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q304	8-729-122-63	s	TRANSISTOR 2SA1226
Q305	8-729-122-63	s	TRANSISTOR 2SA1226
Q306	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q307	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q308	8-729-117-32	s	TRANSISTOR 2SC4177
Q309	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q310	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q311	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q312	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q313	8-729-117-73	s	TRANSISTOR 2SC4178-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q314	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q315	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q316	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q317	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q318	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q319	8-729-402-19	s	TRANSISTOR XN6501
Q320	8-729-402-19	s	TRANSISTOR XN6501
Q400	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q401	8-729-175-73	s	TRANSISTOR 2SC2757
Q402	8-729-122-63	s	TRANSISTOR 2SA1226
Q403	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q404	8-729-122-63	s	TRANSISTOR 2SA1226
Q405	8-729-122-63	s	TRANSISTOR 2SA1226
Q406	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q407	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q408	8-729-117-32	s	TRANSISTOR 2SC4177
Q409	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q410	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q413	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q414	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q415	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q416	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q417	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q418	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q419	8-729-402-19	s	TRANSISTOR XN6501
Q420	8-729-402-19	s	TRANSISTOR XN6501
R1	1-218-723-11	s	METAL 20K 0.50% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-732-11	s	METAL 47K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-218-716-11	s	METAL 10K 0.50% 1/16W
R8	1-218-716-11	s	METAL 10K 0.50% 1/16W
R9	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-716-11	s	METAL 10K 0.50% 1/16W
R12	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R14	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R15	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R21	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R22	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R23	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R28	1-218-716-11	s	METAL 10K 0.50% 1/16W
R29	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R31	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R35	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R36	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R37	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R38	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R41	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R42	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R43	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R44	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R45	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R46	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R47	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R49	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R50	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-716-11	s	METAL 10K 0.50% 1/16W
R53	1-218-723-11	s	METAL 20K 0.50% 1/16W
R54	1-218-716-11	s	METAL 10K 0.50% 1/16W
R55	1-218-723-11	s	METAL 20K 0.50% 1/16W
R56	1-218-901-11	s	CHIP, METAL 180K 0.50% 1/16W
R57	1-218-732-11	s	METAL 47K 0.50% 1/16W
R58	1-218-716-11	s	METAL 10K 0.50% 1/16W
R59	1-218-732-11	s	METAL 47K 0.50% 1/16W
R60	1-218-732-11	s	METAL 47K 0.50% 1/16W
R61	1-208-854-11	s	CHIP,METAL 1M 0.50% 1/10W
R62	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R63	1-218-883-11	s	METAL 33K 0.50% 1/16W
R64	1-218-883-11	s	METAL 33K 0.50% 1/16W
R65	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R66	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R67	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R70	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R71	1-218-883-11	s	METAL 33K 0.50% 1/16W
R72	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R73	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R74	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R75	1-218-883-11	s	METAL 33K 0.50% 1/16W
R76	1-218-883-11	s	METAL 33K 0.50% 1/16W
R77	1-218-883-11	s	METAL 33K 0.50% 1/16W
R78	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R79	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R82	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R83	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R84	1-218-883-11	s	METAL 33K 0.50% 1/16W
R85	1-218-883-11	s	METAL 33K 0.50% 1/16W
R86	1-218-883-11	s	METAL 33K 0.50% 1/16W
R87	1-218-883-11	s	METAL 33K 0.50% 1/16W
R88	1-218-883-11	s	METAL 33K 0.50% 1/16W
R89	1-218-883-11	s	METAL 33K 0.50% 1/16W
R90	1-218-883-11	s	METAL 33K 0.50% 1/16W
R91	1-218-716-11	s	METAL 10K 0.50% 1/16W
R92	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R93	1-218-716-11	s	METAL 10K 0.50% 1/16W
R94	1-218-732-11	s	METAL 47K 0.50% 1/16W
R95	1-218-732-11	s	METAL 47K 0.50% 1/16W
R96	1-218-732-11	s	METAL 47K 0.50% 1/16W
R97	1-218-732-11	s	METAL 47K 0.50% 1/16W
R98	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R99	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R100	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R101	1-218-873-11	s	METAL 12K 0.50% 1/16W
R102	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R103	1-218-886-11	s	CHIP, METAL 43K 0.50% 1/16W
R104	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R109	1-218-716-11	s	METAL 10K 0.50% 1/16W
R110	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R111	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R112	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R113	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R114	1-218-723-11	s	METAL 20K 0.50% 1/16W
R115	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R116	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R117	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R118	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R120	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-218-723-11	s	METAL 20K 0.50% 1/16W
R202	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R203	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R204	1-218-727-11	s	METAL 30K 0.50% 1/16W
R205	1-218-732-11	s	METAL 47K 0.50% 1/16W
R206	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R207	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R208	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R209	1-218-723-11	s	METAL 20K 0.50% 1/16W
R210	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R211	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R212	1-218-680-11	s	METAL 330 0.50% 1/16W
R213	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R214	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R215	1-218-680-11	s	METAL 330 0.50% 1/16W
R216	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R217	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R218	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R219	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R220	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R222	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R223	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R224	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R225	1-218-883-11	s	METAL 33K 0.50% 1/16W
R226	1-218-716-11	s	METAL 10K 0.50% 1/16W
R227	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R228	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R229	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R230	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R231	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R232	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R233	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R234	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R235	1-218-672-11	s	METAL 150 0.50% 1/16W
R236	1-218-732-11	s	METAL 47K 0.50% 1/16W
R237	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R238	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R239	1-218-723-11	s	METAL 20K 0.50% 1/16W
R240	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R241	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R242	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R243	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R244	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R245	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R246	1-218-716-11	s	METAL 10K 0.50% 1/16W
R247	1-218-723-11	s	METAL 20K 0.50% 1/16W
R248	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R249	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R250	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-716-11	s	METAL 10K 0.50% 1/16W
R253	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R254	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R255	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R256	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R257	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R258	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R259	1-218-723-11	s	METAL 20K 0.50% 1/16W
R260	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R261	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R262	1-218-727-11	s	METAL 30K 0.50% 1/16W
R263	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R264	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R265	1-218-723-11	s	METAL 20K 0.50% 1/16W
R266	1-218-716-11	s	METAL 10K 0.50% 1/16W
R267	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R268	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R269	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R270	1-218-883-11	s	METAL 33K 0.50% 1/16W
R271	1-218-740-11	s	METAL 100K 0.50% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R280	1-218-883-11	s	METAL 33K 0.50% 1/16W
R281	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R300	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R301	1-218-723-11	s	METAL 20K 0.50% 1/16W
R302	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R303	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R304	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R305	1-218-727-11	s	METAL 30K 0.50% 1/16W
R306	1-218-732-11	s	METAL 47K 0.50% 1/16W
R307	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R308	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R309	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R310	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R311	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R312	1-218-680-11	s	METAL 330 0.50% 1/16W
R313	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R314	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R315	1-218-680-11	s	METAL 330 0.50% 1/16W
R316	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R317	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R318	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R319	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R320	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R322	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R323	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R324	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R325	1-218-883-11	s	METAL 33K 0.50% 1/16W
R326	1-218-716-11	s	METAL 10K 0.50% 1/16W
R327	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R328	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R329	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R330	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R331	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R332	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R333	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R334	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R335	1-218-672-11	s	METAL 150 0.50% 1/16W
R336	1-218-732-11	s	METAL 47K 0.50% 1/16W
R337	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R338	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R339	1-218-723-11	s	METAL 20K 0.50% 1/16W
R340	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R341	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R342	1-218-716-11	s	METAL 10K 0.50% 1/16W
R343	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R344	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R345	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R346	1-218-750-11	s	METAL 270K 0.50% 1/16W
R347	1-218-723-11	s	METAL 20K 0.50% 1/16W
R348	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R349	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R350	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R351	1-218-740-11	s	METAL 100K 0.50% 1/16W
R352	1-218-716-11	s	METAL 10K 0.50% 1/16W
R353	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R354	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R355	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R356	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R357	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R358	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R359	1-218-723-11	s	METAL 20K 0.50% 1/16W
R360	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R361	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R362	1-218-727-11	s	METAL 30K 0.50% 1/16W
R363	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R364	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R365	1-218-723-11	s	METAL 20K 0.50% 1/16W
R366	1-218-716-11	s	METAL 10K 0.50% 1/16W
R367	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R368	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R369	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R370	1-218-883-11	s	METAL 33K 0.50% 1/16W
R371	1-218-740-11	s	METAL 100K 0.50% 1/16W
R372	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R380	1-218-883-11	s	METAL 33K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R381	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R400	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R401	1-218-723-11	s	METAL 20K 0.50% 1/16W
R402	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R403	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R404	1-218-727-11	s	METAL 30K 0.50% 1/16W
R405	1-218-732-11	s	METAL 47K 0.50% 1/16W
R406	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R407	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R408	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R409	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R410	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R411	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R412	1-218-680-11	s	METAL 330 0.50% 1/16W
R413	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R414	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R415	1-218-680-11	s	METAL 330 0.50% 1/16W
R416	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R417	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R418	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R419	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R420	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R422	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R423	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R424	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R425	1-218-883-11	s	METAL 33K 0.50% 1/16W
R426	1-218-716-11	s	METAL 10K 0.50% 1/16W
R427	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R428	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R429	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R430	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R431	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R432	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R433	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R434	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R435	1-218-672-11	s	METAL 150 0.50% 1/16W
R436	1-218-732-11	s	METAL 47K 0.50% 1/16W
R437	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R438	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R439	1-218-723-11	s	METAL 20K 0.50% 1/16W
R440	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R441	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R442	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R443	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R444	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R445	1-218-740-11	s	METAL 100K 0.50% 1/16W
R446	1-218-723-11	s	METAL 20K 0.50% 1/16W
R447	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R448	1-218-716-11	s	METAL 10K 0.50% 1/16W
R449	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R450	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R451	1-218-740-11	s	METAL 100K 0.50% 1/16W
R452	1-218-716-11	s	METAL 10K 0.50% 1/16W
R453	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R454	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R455	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R456	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R457	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R458	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R459	1-218-723-11	s	METAL 20K 0.50% 1/16W
R460	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R461	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R462	1-218-727-11	s	METAL 30K 0.50% 1/16W
R463	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R464	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R465	1-218-723-11	s	METAL 20K 0.50% 1/16W
R466	1-218-716-11	s	METAL 10K 0.50% 1/16W
R467	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R468	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R469	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R470	1-218-883-11	s	METAL 33K 0.50% 1/16W
R471	1-218-740-11	s	METAL 100K 0.50% 1/16W
R472	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R480	1-218-883-11	s	METAL 33K 0.50% 1/16W
R481	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
RV50	1-241-263-11	s	RES, ADJ, METALT 5K
RV200	1-241-260-11	s	METAL, ADJ 500
RV300	1-241-260-11	s	METAL, ADJ 500
RV400	1-241-260-11	s	METAL, ADJ 500

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
⚠	A-8272-571-A	s	CONVERTER ASSY, DC-DC
	1-775-774-11	o	FLEXIBLE CARD WIRE (20 CORE) (CN-1121 TO MB-602)
	1-775-775-11	o	FLEXIBLE CARD WIRE (24 CORE) (CN-1122 TO MB-602)
	1-775-776-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-775-777-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1121 TO MB-602)
	1-775-778-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-777-000-11	s	FLEXIBLE CARD WIRE (20 CORE) (MB-602 TO CCD UNIT)
	1-777-001-11	s	FLEXIBLE CARD WIRE (24 CORE) (MB-602 TO CCD UNIT)
	1-955-080-12	o	HARNESS (VF)
	1-955-086-12	o	HARNESS (PA)
CN901	1-561-781-11	s	CONNECTOR BNC "TEST OUT"
CN902	1-562-222-41	s	CONNECTOR 6P FEMALE "REMOTE"
CN903	1-565-051-21	o	CONNECTOR, 20P FEMAL "VF"
CN904	1-695-841-12	s	CONNECTOR 12P FEMALE "LENS"
CN905	1-509-184-31	s	CONNECTOR 3P MALE "MIC"

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN2F(to PA-181 BOARD of CCD UNIT)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN15F(to MB602 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN21F(to MB-602 BOARD)			
	1-764-196-11	o	HOUSING, 8P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN31F(to MB-602 BOARD)			
	1-580-586-11	o	HOUSING, 20P
	1-573-176-11	o	CONTACT, FEMALE AWG22-26
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN32F(to MB-602 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN42F(to MB-602 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN301F(to SW-732 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN402F(to CN1122 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN405F(to CN1122 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN406F(to CN1122 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN407F(to MB602 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN501F(to SW731 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN601F(to SW742 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN701F(to SW733 BOARD)			
	1-764-194-11	o	HOUSING, 4P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN801F(to SW730 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30

5-4. Optional Fixtures

TOOLS AND FIXTURES		
Part No.	SP	Description
J-6026-110-A	o	MULTI-BURST CHART
J-6026-130-B	o	GRAYSCALE CHART
J-6029-140-B	o	PATTERN BOX PTB-500
J-6394-080-A	o	GRAYSCALE CHART (16:9)
J-6395-040-A	o	EXTENSION BOARD, EX-464

5-5. Changed Parts

NOTE: The numbers identified by marking with) are matching with each serial numbers.
See the table matched with each serial numbers.

510) Serial No. 50141 and higher
15001 and higher
604) Serial No. 15621 and higher

AT-95 BOARD
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510) R44	1-218-567-11 s METAL, CHIP 6.8K 0.5% 1/16W	--->	1-218-707-11 s METAL, CHIP 4.3K 0.5% 1/16W

IF-510 BOARD
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604) C252	1-163-231-11 s CERAMIC, CHIP 15PF 5% 50V	--->	1-162-917-11 s CERAMIC 15PF 5% 50V
604) C330	1-102-111-00 s CERAMIC 270PF 10% 50V	--->	1-162-958-11 s CERAMIC 270PF 5% 50V
510) R106	NOT IN USE.	--->	1-216-624-11 s METAL, CHIP 75 0.5% 1/10W
604) R106	1-216-624-11 s METAL, CHIP 75 0.5% 1/10W	--->	1-211-990-11 s METAL, CHIP 75 0.5% 1/16W
510) R107	NOT IN USE.	--->	1-216-664-11 s METAL, CHIP 3.6K 0.5% 1/10W
604) R107	1-216-664-11 s METAL, CHIP 3.6K 0.5% 1/10W	--->	1-218-705-11 s METAL, CHIP 4.3K 0.5% 1/16W
510) R622	1-218-699-11 s METAL, CHIP 2K 0.5% 1/16W	--->	1-218-698-11 s METAL, CHIP 1.8K 0.5% 1/16W
510) R623	1-218-648-11 s METAL, CHIP 15 0.5% 1/16W	--->	1-218-671-11 s METAL, CHIP 130 0.5% 1/16W

Section 6
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

Diode **PAGE**

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1SS226 6-2
1SS300 6-2
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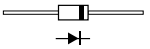

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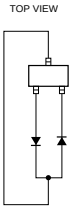
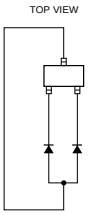


1SS226
1SS302
HSM107S
HSM88AS



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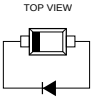
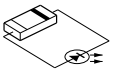
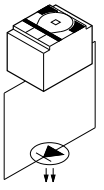


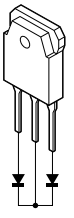
1T363



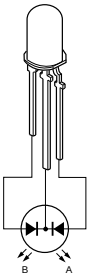
CL-150D-CD;ORANGE
CL-150PG-CD;GREEN
CL-150UR-CD;RED



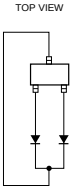
CL-200HR;RED



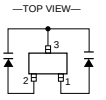
DE5LC20U



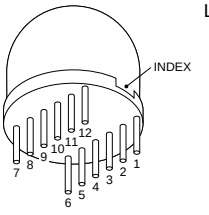
GL-5ED5;A=RED,B=YEL GRN



HSM88WK
MA141WK



KV1470



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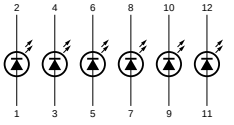
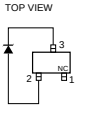
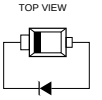
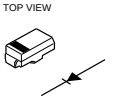




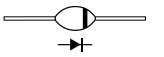
RD ? ?M-B
RD ? ?MB
RD ? ?M-B ?



RD ? ?UH
RD ? ?UJN

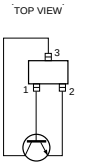


SC802-04

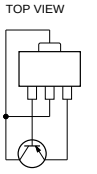


V09C
V09G
V11 ?

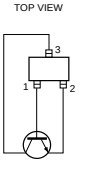
TRANSISTOR



2SA1162G
2SA1226
2SA1610
2SA1611
2SA1688
2SA1808
2SA811A
2SB1440S
2SB624



2SB1115A
2SB1121
2SB798



2SC1623
2SC2223
2SC2712
2SC2713
2SC2714Y
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2SC3115
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2SC4177-L6
2SC4178
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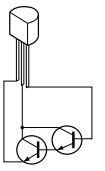
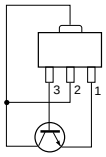
2SC4215
2SD1048
2SD596
2SD596-DV5



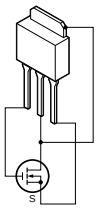
2SD1111

Others

TOP VIEW

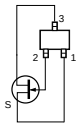


2SD1615A
2SD1623



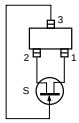
2SK612

TOP VIEW



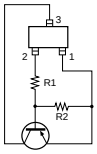
2SK663

TOP VIEW



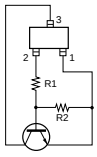
2SK852-X2
2SK853

TOP VIEW



DTA143XKA(R1=4.7K R2=10K)
DTA144EE(R1=47K, R2=47K)
DTA144EUA(R1=47K, R2=47K)

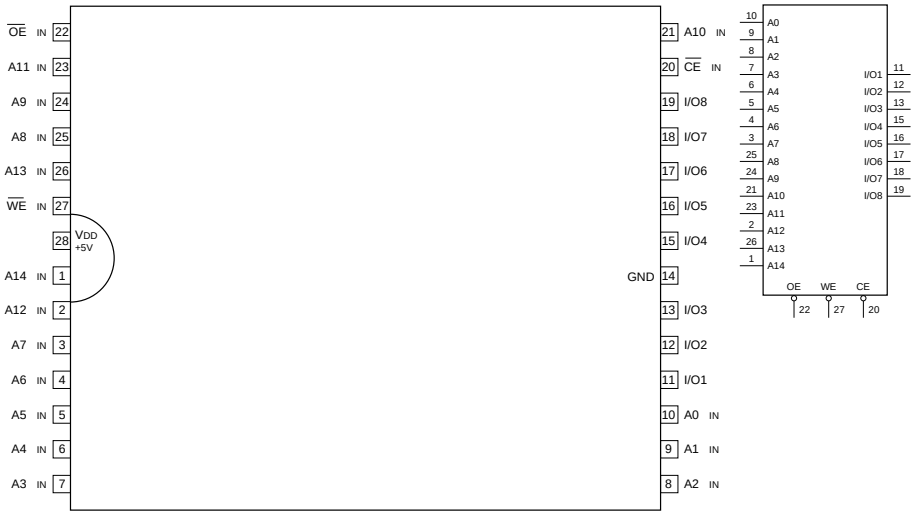
TOP VIEW



DTC143XKA(R1=4.7K, R2=10K)
DTC144EE(R1=47K, R2=47K)
DTC144EK(R1=47K, R2=47K)
DTC144EKA(R1=47K, R2=47K)
DTC144EUA(R1=47K, R2=47K)

CXK58257ATM-70LL(SONY)(ACCESS TIME=70ns)FLAT PACKAGE

C-MOS 256K (32768 x 8)-BIT STATIC RAM
—TOP VIEW—

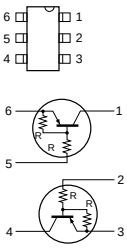


A0-A14 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
I/O1-I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

CE	OE	WE	MODE	I/O TERMINAL
1	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	X	0	WRITE	INPUT DATA

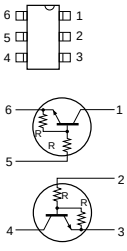
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

—TOP VIEW—

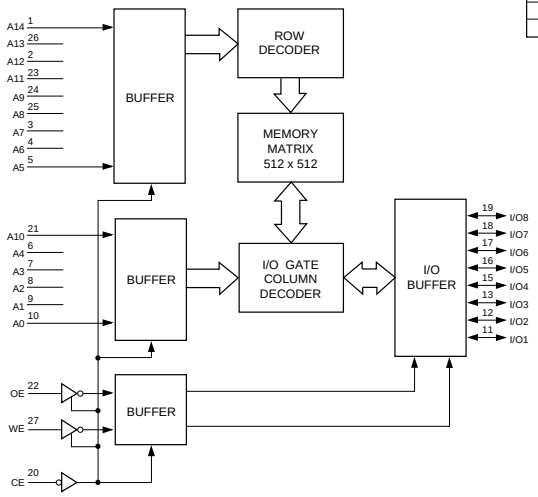


IMB2(R=47K)

TOP VIEW



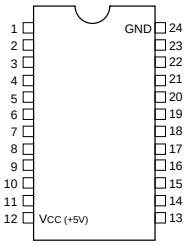
IMH2(R=47K)



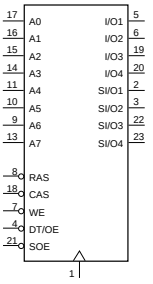
HM53461JP-12(HITACHI)(ACCESS TIME=120ns)PLCC

C-MOS 64K WORD x 4 BIT MULTI PORT RAM

—TOP VIEW—



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	SC	13	I	A7
2	I/O	SI/O1	14	I	A3
3	I/O	SI/O2	15	I	A2
4	—	$\overline{DT/OE}$	16	I	A1
5	I/O	I/O1	17	I	A0
6	I/O	I/O2	18	—	$\overline{CAS}$
7	—	$\overline{WE}$	19	I/O	I/O3
8	—	$\overline{RAS}$	20	I/O	I/O4
9	I	A6	21	—	$\overline{SOE}$
10	I	A5	22	I/O	SI/O3
11	I	A4	23	I/O	SI/O4
12	—	VCC	24	—	GND

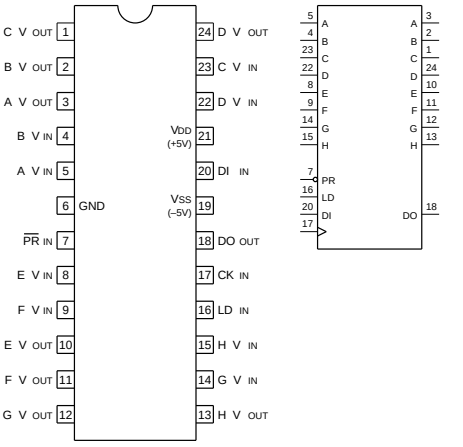


A0-A7 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE INPUT
DT/OE ; DATA TRANSMISSION/OUTPUT ENABLE INPUT
I/O1-I/O4 ; RAM PORT DATA INPUT/OUTPUT
RAS ; ROW ADDRESS STROBE INPUT
SC ; SERIAL CLOCK INPUT
SI/O1-SI/O4 ; SAM PORT DATA INPUT/OUTPUT
SOE ; SAM PORT ENABLE INPUT/OUTPUT
WE ; WRITE ENABLE INPUT

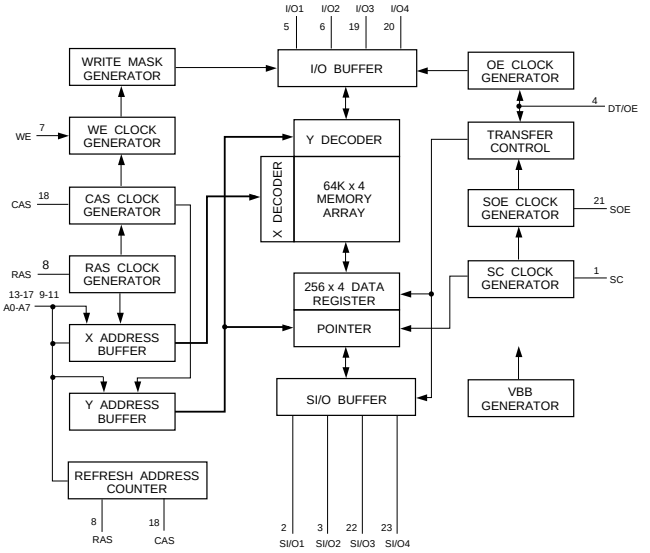
MP7670AS(MICRO POWER SYSTEMS)FLAT PACKAGE

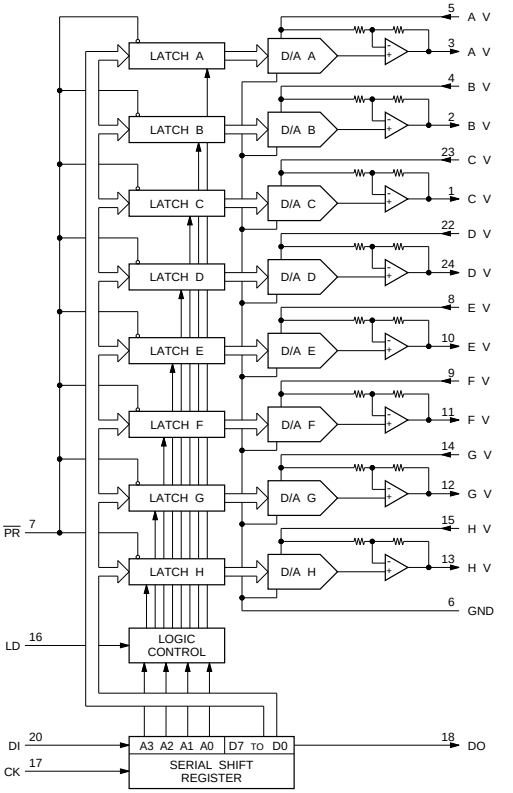
C-MOS 8-BIT 8CHANNEL D/A CONVERTER

— TOP VIEW —



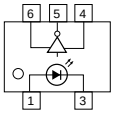
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT
LD ; DATA LOAD CONTROL INPUT
$\overline{PR}$; PRESET INPUT

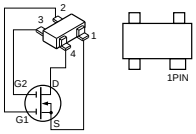




PC410(SHARP)FLAT PACKAGE

OPIC-OUTPUT PHOTO COUPLER
—TOP VIEW—

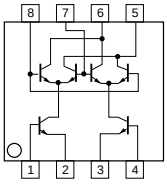


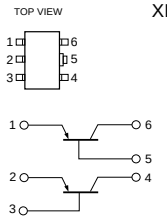


SGM2016M

UPA101G(NEC)FLAT PACKAGE

TRANSISTOR ARRAY
—TOP VIEW—

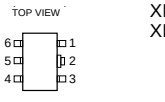




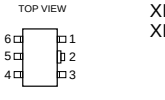
XP6435

XP6501

XP6534



XN6401
XN6435

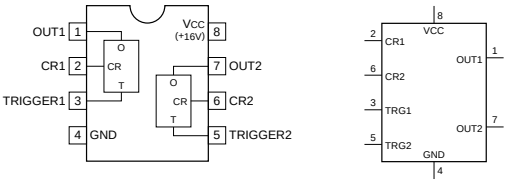


XN6501
XN6534

IC

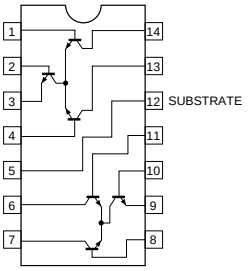
BA225F(ROHM)

CR TIMER
-TOP VIEW-



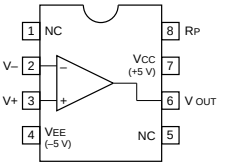
CA3102M(RCA)FLAT PACKAGE

HIGH FREQ.DIFFERENTIAL AMPLIFIER
—TOP VIEW—



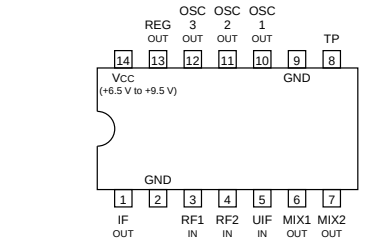
CLC505AJE(COMLINEAR)FLAT PACKAGE

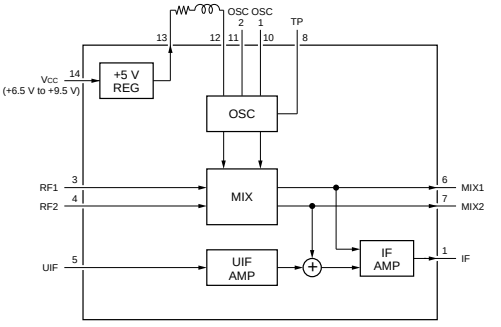
OPERATIONAL AMPLIFIER
— TOP VIEW —



CXA1165M(SONY)FLAT PACKAGE

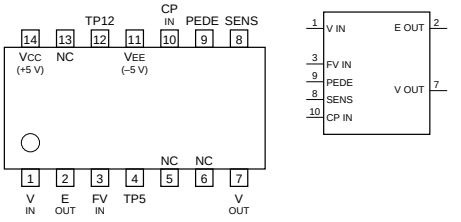
CATV VHF TUNER
— TOP VIEW —



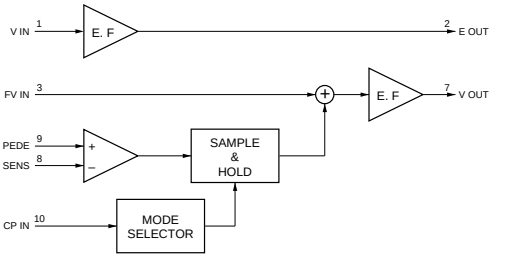


CXA1432M(SONY)FLAT PACKAGE

VIDEO SIGNAL CLAMPER
— TOP VIEW —



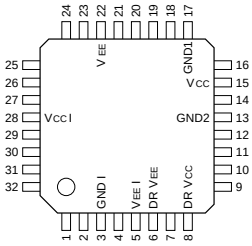
CP IN	; CLAMP PULSE INPUT
E OUT	; BUFFER AMP OUTPUT
FV IN	; FLOATING VIDEO SIGNAL INPUT
PEDE	; CLAMP LEVEL DC INPUT
SENS	; CLAMP POINT SIGNAL INPUT
TP5, TP12	; FOR TEST
V IN	; VIDEO SIGNAL INPUT
V OUT	; VIDEO SIGNAL OUTPUT



CXA1486Q (SONY)

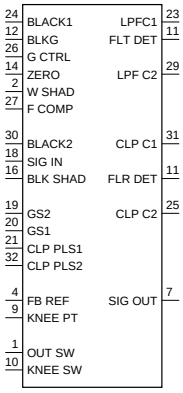
VIDEO AMPLIFIER FOR VIDEO CAMERA

- TOP VIEW -



VCC, VCC I, DR VCC, = (+5V)
VEE, VEE I, DR VEE, = (-2.5 to -5.5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	OUT SW	17	–	GND1
2	I	W SHAD	18	I	SIG IN
3	–	GND I	19	I	GS2
4	I	FB REF	20	I	GS1
5	–	VEE I	21	I	CLP PLS1
6	–	DR VEE	22	–	VEE
7	O	SIG OUT	23	O	LPF C1
8	–	DR VCC	24	I	BLACK1
9	I	KNEE PT	25	O	CLP C2
10	I	KNEE SW	26	I	G CTRL
11	O	FLR DET	27	I	F COMP
12	I	BLKG	28	–	VCC I
13	–	GND2	29	O	LPF C2
14	I	ZERO	30	I	BLACK2
15	–	VCC	31	O	CLP C1
16	I	BLK SHAD	32	I	CLP PLS2

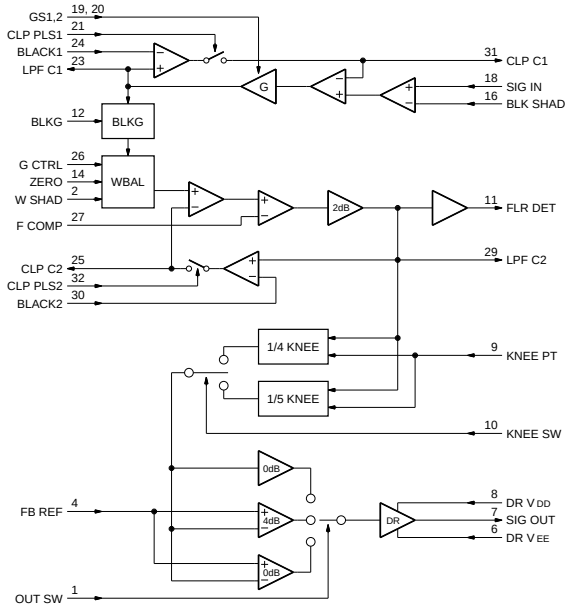


INPUT

BLACK1, 2	; FOR CLAMP DC COMPENSATION
BLKG	; BLANKING SIGNAL
BLK SHAD	; BLACK SHADING CORRECTION SIGNAL
CLP PLS1, 2	; CLAMP PULSE
F COMP	; FLARE COMPENSATION SIGNAL
FB REF	; OUTPUT 2 INVERT AMPLIFY DC ADJUST
G CTRL	; WHITE BALANCE GAIN CONTROL
GS1, 2	; GAIN SELECT
KNEE PT	; KNEE POINT
KNEE SW	; 1/4, 1/5 KNEE SELECT (4.5V=1/4 KNEE, 0V=1/5 KNEE)
OUT SW	; OUTPUT 3 AMPLIFY SELECT
SIG IN	; SIGNAL INPUT
W SHAD	; WHITE SHADING SIGNAL
ZERO	; VARIABLE GAIN AMPLIFY ZERO POINT ADJUST

OUTPUT

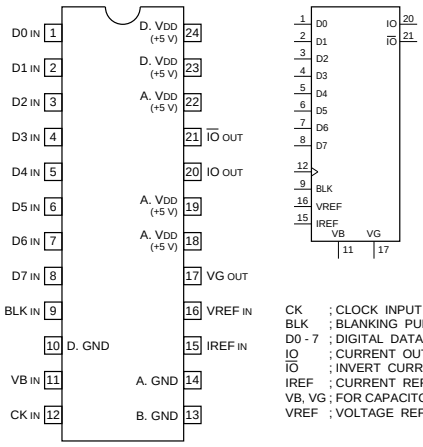
CLP C1, C2	; FOR CLAMP CAPACITANCE
FLR DET	; FLARE DETECT
LPF C1, C2	; CONNECT CAPACITANCE FOR LPF
SIG OUT	; SIGNAL OUTPUT



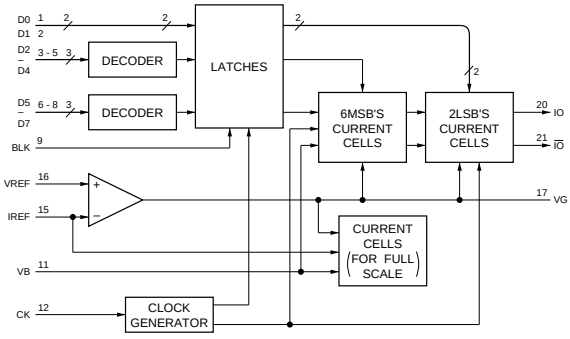
CXD1171M(SONY)FLAT PACKAGE

C-MOS 8-BIT D/A CONVERTER

— TOP VIEW —

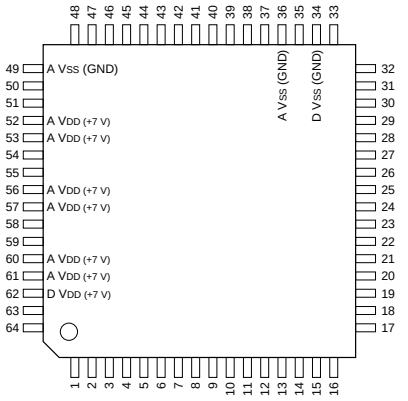


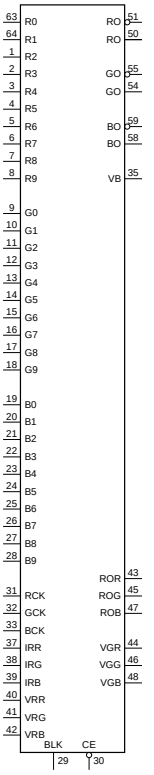
CK ; CLOCK INPUT
BLK ; BLANKING PULSE INPUT
D0 - 7 ; DIGITAL DATA INPUT
IO ; CURRENT OUTPUT
$\overline{IO}$; INVERT CURRENT OUTPUT
IREF ; CURRENT REFERENCE INPUT
VB, VG ; FOR CAPACITOR
VREF ; VOLTAGE REFERENCE INPUT



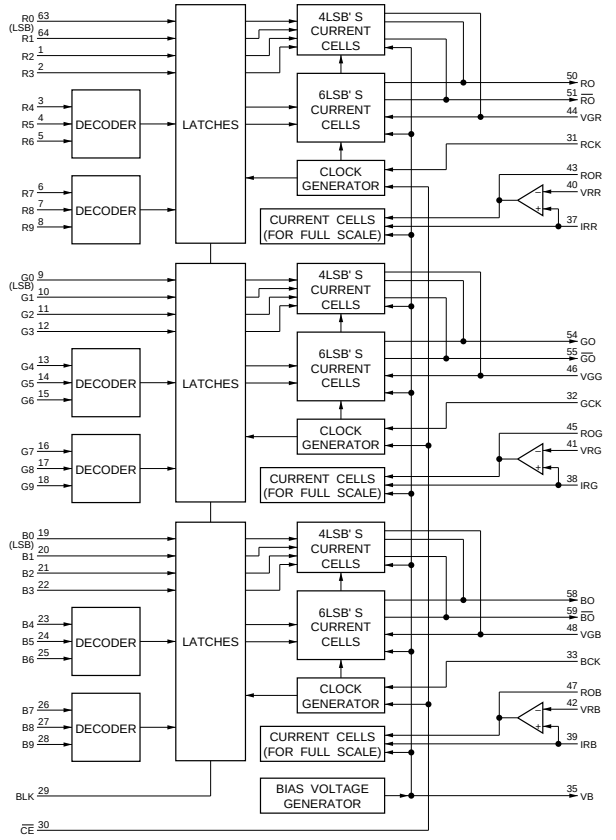
CXD2307R(SONY)FLAT PACKAGE

C-MOS 10-BIT 50MSPS RGB 3CHANNEL D/A CONVERTER
— TOP VIEW —



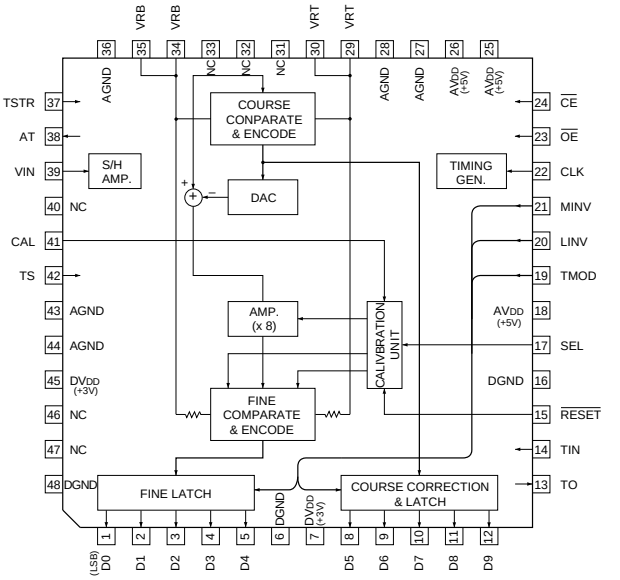


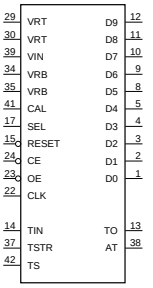
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	R2	17	I	G8	33	I	BCK	49	—	AVSS
2	I	R3	18	I	G9	34	—	DVSS	50	O	RO
3	I	R4	19	I	B0 (LSB)	35	O	VB	51	O	$\overline{RO}$
4	I	R5	20	I	B1	36	—	AVSS	52	—	AVDD
5	I	R6	21	I	B2	37	I	IRR	53	—	AVDD
6	I	R7	22	I	B3	38	I	IRG	54	O	GO
7	I	R8	23	I	B4	39	I	IRB	55	O	$\overline{GO}$
8	I	R9	24	I	B5	40	I	VRR	56	—	AVDD
9	I	G0 (LSB)	25	I	B6	41	I	VRG	57	—	AVDD
10	I	G1	26	I	B7	42	I	VRB	58	O	BO
11	I	G2	27	I	B8	43	I	ROR	59	O	$\overline{BO}$
12	I	G3	28	I	B9	44	I	VGR	60	—	AVDD
13	I	G4	29	I	BLK	45	I	ROG	61	—	AVDD
14	I	G5	30	I	$\overline{CE}$	46	I	VGG	62	—	DVDD
15	I	G6	31	I	RCK	47	I	ROB	63	I	R0 (LSB)
16	I	G7	32	I	GCK	48	I	VGB	64	I	R1



CXD2310R(SONY)

C-MOS 10-BIT 20MSPS VIDEO A/D CONVERTER
—TOP VIEW—





INPUT

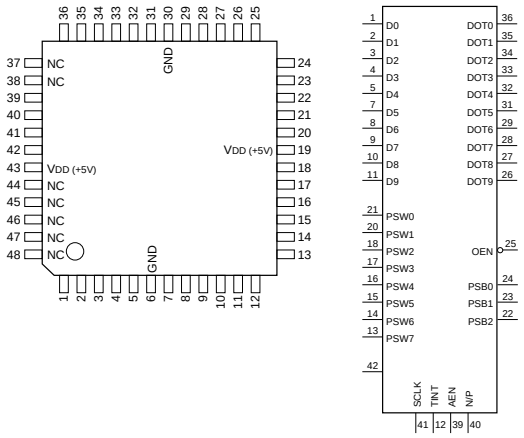
CAL	; CALIBRATION PULSE INPUT
CE	; CHIP ENABLE
CLK	; CLOCK
LINV	; OUTPUT (D0-D8) INVERSION
MINV	; OUTPUT (D9) INVERSION
OE	; DIGITAL DATA OUTPUT ENABLE
RESET	; CALIBRATION CIRCUIT RESET
SEL	; OUTPUT DATA (D5-D9) SELECT FOR CALIBRATION (4-CLOCK) HIGH; THROUGH OUTPUT, LOW; DATA FIXED AS WITH D0-D4
TIN	; TEST SIGNAL INPUT
TMOD	; TEST MODE
TS	; TEST SIGNAL INPUT
TSTR	; TEST SIGNAL INPUT
VRB	; REFERENCE BOTTOM VOLTAGE
VRT	; REFERENCE TOP VOLTAGE

OUTPUT

AT	; TEST SIGNAL OUTPUT
D0-D9	; DIGIRAL DATA OUTPUT
TO	; TEST PIN

CXK1203AR(SONY)FLAT PACKAGE

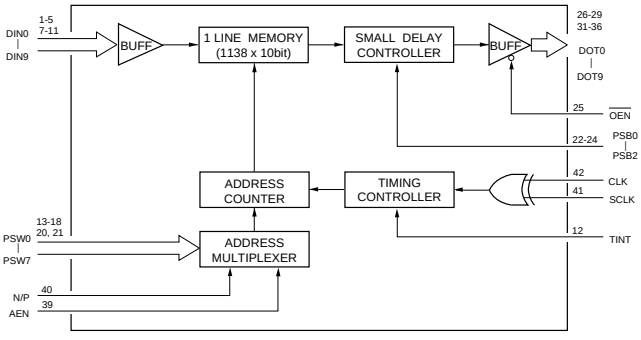
C-MOS DIGITAL LINE MEMORY
—TOP VIEW—



(VDD = +5V)

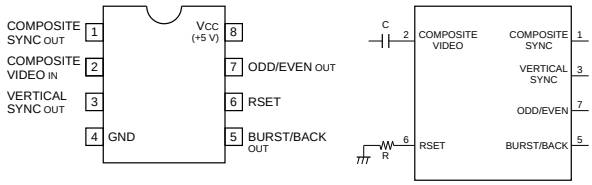
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	D0	13	I	PSW7	25	I	OEN	37	—	N.C
2	I	D1	14	I	PSW6	26	O	DOT9	38	—	N.C
3	I	D2	15	I	PSW5	27	O	DOT8	39	I	AEN
4	I	D3	16	I	PSW4	28	O	DOT7	40	I	N/P
5	I	D4	17	I	PSW3	29	O	DOT6	41	I	SCLK
6	—	GND	18	I	PSW2	30	—	GND	42	I	CLK
7	I	D5	19	—	VDD	31	O	DOT5	43	—	VDD
8	I	D6	20	I	PSW1	32	O	DOT4	44	—	N.C
9	I	D7	21	I	PSW0	33	O	DOT3	45	—	N.C
10	I	D8	22	I	PSB2	34	O	DOT2	46	—	N.C
11	I	D9	23	I	PSB1	35	O	DOT1	47	—	N.C
12	I	TINT	24	I	PSB0	36	O	DOT0	48	—	N.C

AEN	;	LINE MEMORY SELECT
CLK	;	CLOCK
DIN0-DIN9	;	VIDEO DATA INPUT
DOT0-DOT9	;	VIDEO DATA OUTPUT
N/P	;	NTSC/PAL/SECAM SELECT
OEN	;	OUTPUT ENABLE
PSB0-PSB2	;	DELAY STEP SELECT (1 BITxN)
PSW0-PSW7	;	DELAY STEP SELECT (8 BITxN)
SCLK	;	CLOCK EDGE SELECT
TINT	;	TEST

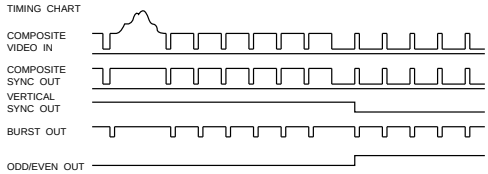


EL4581CS(ELT)FLAT PACKAGE

VIDEO SYNC SEPARATOR
— TOP VIEW —

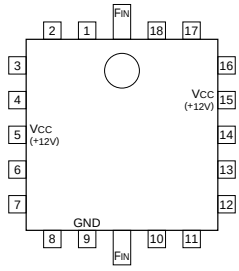


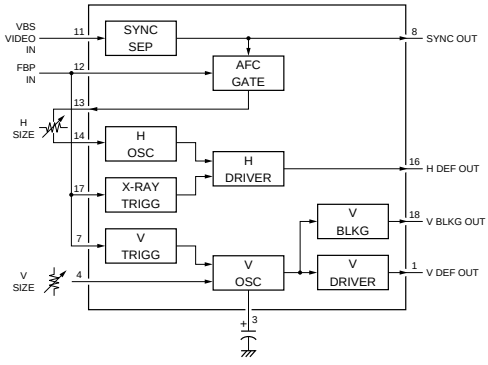
TIMING CHART



HA11423MP(HITACHI)FLAT PACKAGE

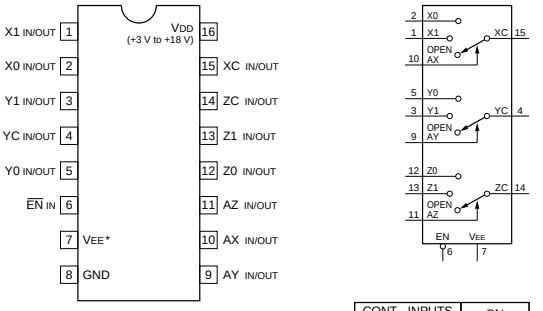
TV H/V SYNC SIGNAL PROCESSOR
-TOP VIEW-





HD14053BFP(HITACHI)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
— TOP VIEW —



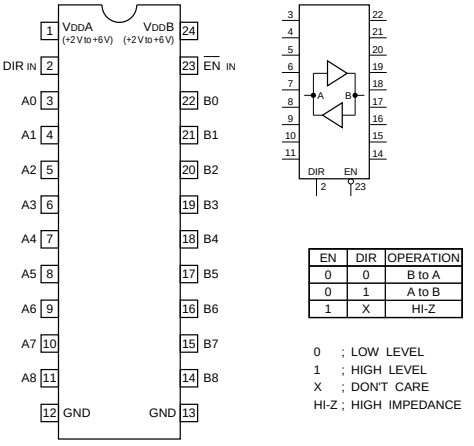
VEE*; VDD – VEE + 3 V + 18 V

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. INPUTS		ON CHANNEL
EN	A (X, Y, Z)	
0	0	0
0	1	1
1	X	OPEN

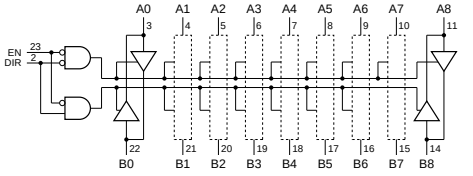
HD151015T(HITACHI)FLAT PACKAGE

C-MOS 9-BIT LEVEL SHIFTER/TRANSCEIVER WITH 3-STATE OUTPUTS
— TOP VIEW —



EN	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

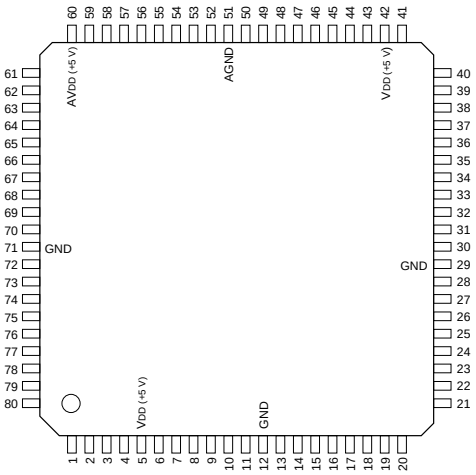
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



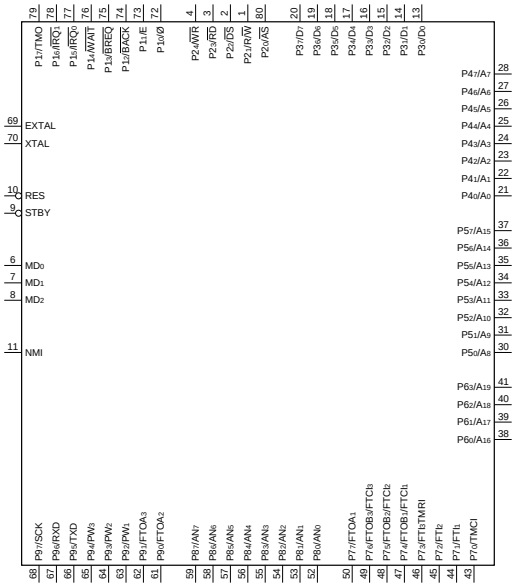
HD6475328F10(HITACHI)

C-MOS 16-BIT MICROPROCESSOR

— TOP VIEW —



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{DS}$	29	—	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{RD}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{WR}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	—	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	—	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{STBY}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{RES}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	—	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	—	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	—	VSS
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/ø
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{BACK}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{BREQ}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{WAIT}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{IRQ0}$
24	I/O	P43/A3	51	—	AGND	78	I/O	P12/$\overline{IRQ1}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{AS}$
27	I/O	P46/A6	54	I/O	P82/AN2			



INPUT

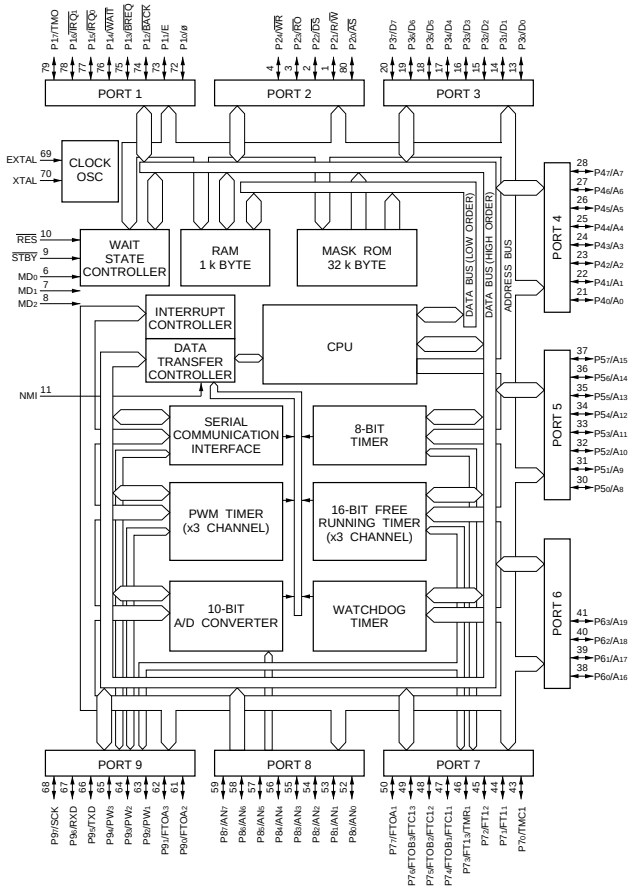
AN0-AN7	; ANALOG INPUT
BREQ	; BUS REQUEST
EXTAL	; CONNECTED TO CRYSTAL OSCILLATOR.
ETCI1-FTCI3	; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1-FTI3	; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1	; INTERRUPTION REQUEST 0 AND 1
MD0-MD2	; MODE SETTING
NMI	; NON MASKABLE INTERRUPTION
P80-P87	; PORT 8
RES	; RESET
RXD	; RECEIVE DATA
STBY	; STANDBY
TMCI	; 8-BIT TIMER CLOCK INPUT
TMRI	; 8-BIT TIMER COUNTER RESET INPUT
WAIT	; WAIT
XTAL	; CONNECTED TO CRYSTAL OSCILLATOR.

OUTPUT

A0-A19	; ADDRESS BUS
AS	; ADDRESS STROBE
BACK	; BUS REQUEST ACKNOWLEDGE
DS	; DATA STROBE
E	; ENABLE CLOCK
FTOA1-FTOA3	; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1-FTOB3	; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1-PW3	; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	; READ/WRITE
RD	; READ
TMO	; 8-BIT TIMER OUTPUT
TXD	; SEND DATA
WR	; WRITE
ø	; SYSTEM CLOCK

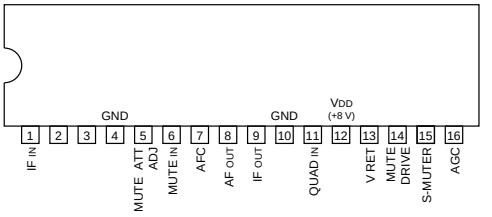
INPUT/OUTPUT

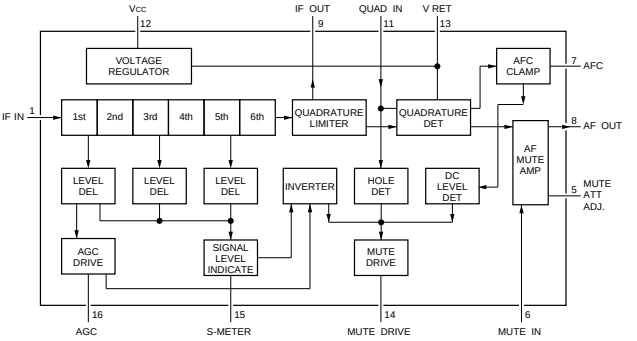
D0-D7	; DATA BUS
P10-P17	; PORT 1
P20-P24	; PORT 2
P30-P37	; PORT 3
P40-P47	; PORT 4
P50-P57	; PORT 5
P60-P63	; PORT 6
P70-P77	; PORT 7
P90-P97	; PORT 9
SCK	; SERIAL CLOCK INPUT/OUTPUT



LA1140(SANYO)

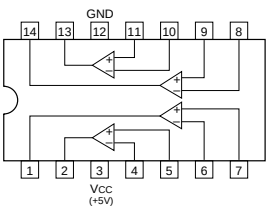
IF AMP, LIMITTER, DETECTOR, MUTING, + FM CS
— PRINTED SIDE VIEW —





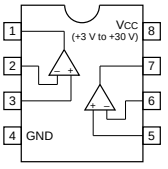
LM339NS(TI)FLAT PACKAGE
LM339PW(TI)FLAT PACKAGE–

QUAD COMPARATORS
—TOP VIEW—



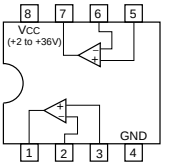
LM358PS(TI)FLAT PACKAGE
UPC358G2(NEC)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —



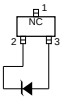
LM393PS(TI)FLAT PACKAGE
UPC393G2(NEC)FLAT PACKAGE

DUAL VOLTAGE COMPARATORS
—TOP VIEW—



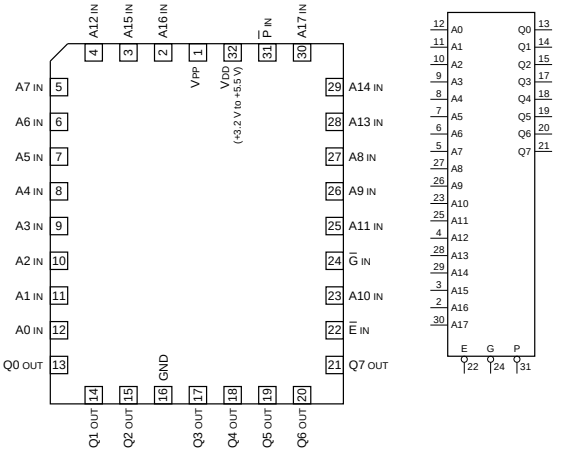
LM4040BIM3X(NS)

PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE
— TOP VIEW —



M27V201-200L6(SGS)CHIP CARRIER

C-MOS 2M (256×8) -BIT UV ERASABLE PROM AND OTP ROM
— TOP VIEW —



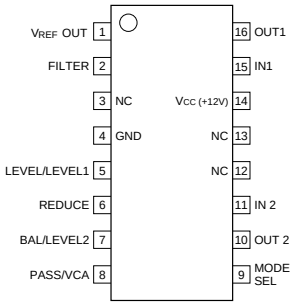
A0 - A17 ; ADDRESS INPUTS
Q0 - Q7 ; DATA OUTPUTS
$\overline{E}$; CHIP ENABLE INPUT
$\overline{G}$; OUTPUT ENABLE INPUT
$\overline{P}$; PROGRAM INPUT
VPP ; PROGRAM SUPPLY (12.75 V)

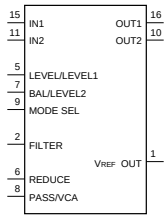
MODE	E	G	E	E	E	Q0 -Q7
READ	0	0	X	X	X	DATA OUT
OUTPUT DISABLE	0	1	X	X	X	HI-Z
PROGRAM	0	1	⊓	X	VPP	DATA IN
VERIFY	0	0	1	X	VPP	DATA OUT
PROGRAM INHIBIT	1	X	X	X	VPP	HI-Z
STANDBY	1	X	X	X	X	HI-Z
ELECTRONIC SIGNATURE	0	0	1	VID	VDD	CODES

0 ; INPUT LOW VOLTAGE
1 ; INPUT HIGH VOLTAGE
X ; DON'T CARE
VID ; 12 V ± 0.5 V
HI-Z ; HIGH IMPEDANCE

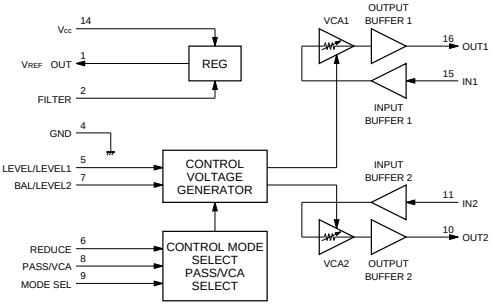
M51132FP(MITSUBISHI)FLAT PACKAGE

2-CHANNEL ELECTRONIC LEVEL CONTROL
—TOP VIEW—



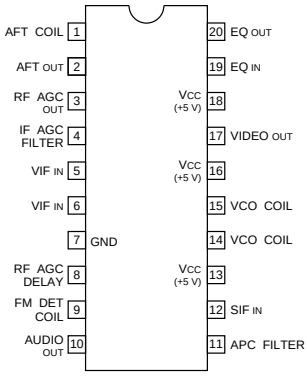


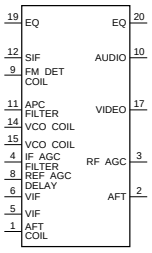
BAL/LEVEL2	; BALANCE/LEVEL2 CONTROL
FILTER	; FILTER
IN1	; INPUT 1
IN2	; INPUT 2
MODE SEL	; MODE SELECT
OUT1	; OUTPUT 1
OUT2	; OUTPUT 2
PASS/VCA	; PASS/VCA CONTROL SWITCH
REDUCE	; SWITCHING NOISE REDUCE
LEVEL/LEVEL1	; LEVEL/LEVEL1 CONTROL
V REF OUT	; REFERENCE VOLTAGE OUTPUT

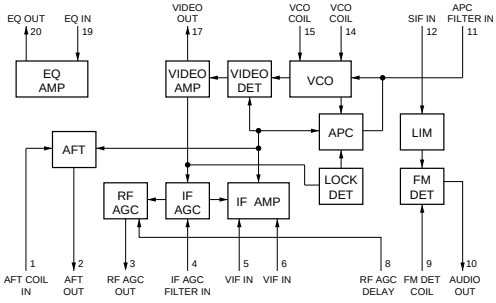


M52313SP(MITSUBISHI)

PLL VIF/SIF
— TOP VIEW —

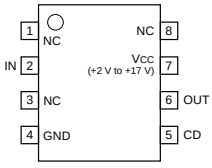


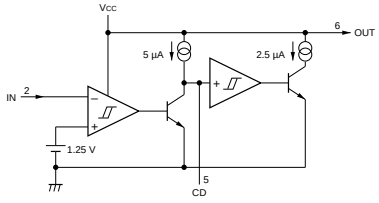




M51958A(MITSUBISHI)FLAT PACKAGE

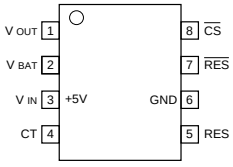
VOLTAGE DETECT DELAY
— TOP VIEW —

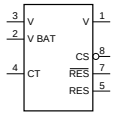




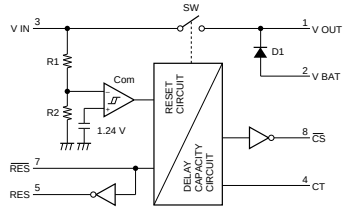
M62021FP(MITSUBISHI)FLAT PACKAGE

SELECTION SW BUILT-IN SYSTEM RESET
— TOP VIEW —



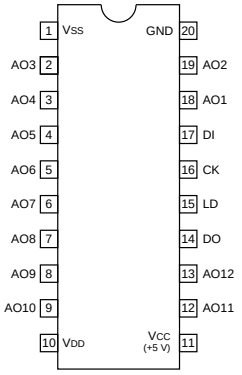


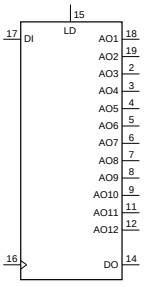
CS	; CHIP SELECT OUTPUT
CT	; DELAY CAPACITY INPUT
RES	; RESET OUTPUT
VBAT	; VIDEO SIGNAL BACKUP INPUT
VIN	; VIDEO SIGNAL INPUT
VOUT	; VIDEO SIGNAL OUTPUT



M62352GP(MITSUBISHI)FLAT PACKAGE

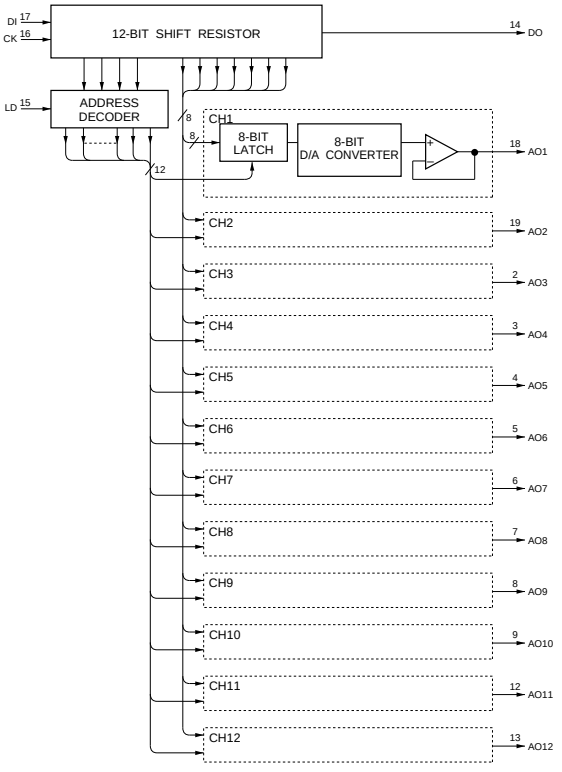
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
— TOP VIEW —





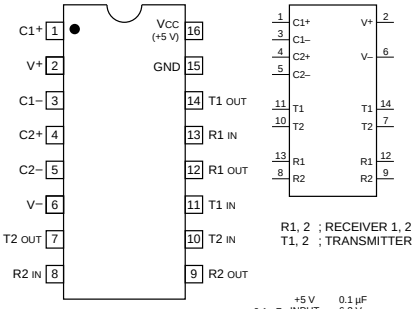
AO1-AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT

NOTE:
3.5 V < V_{DD} < V_{CC}
–3.5 V < V_{SS} < V_{CC}

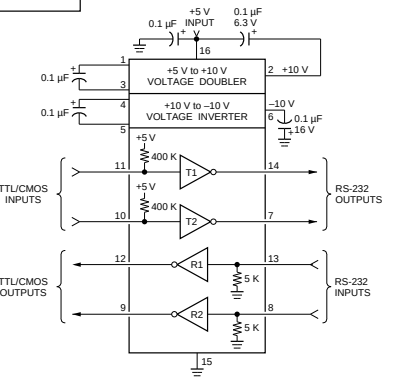


MAX202CSE(MAXIM)

RS-232 TRANSMITTER/RECEIVER
— TOP VIEW —

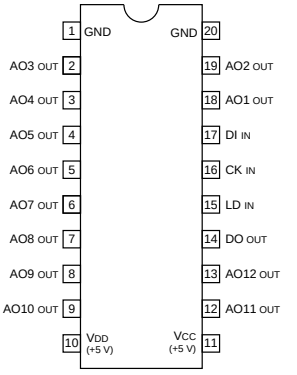


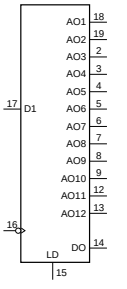
R1, 2 ; RECEIVER 1, 2
T1, 2 ; TRANSMITTER 1, 2



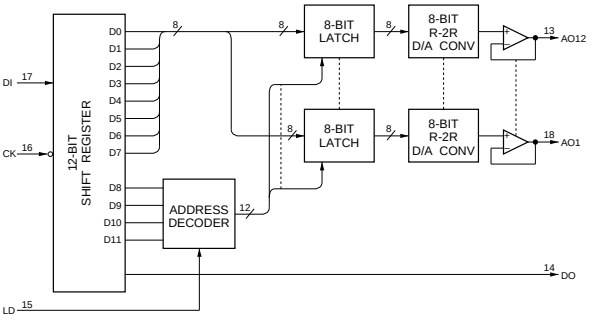
MB88346BPFV(FUJITSU)FLAT PACKAGE(SMALL)

C-MOS 8-BIT D/A CONVERTER
— TOP VIEW —



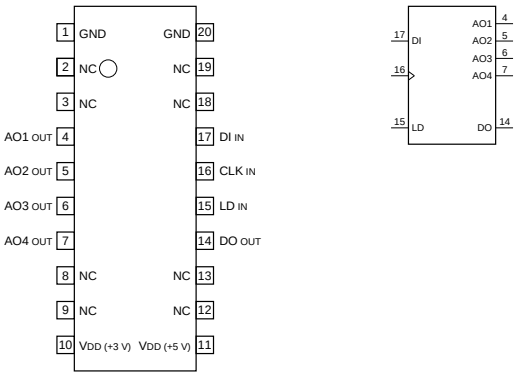


AO1 - AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT
LD	; DATA LOAD CONTROL INPUT (H ; LOAD)



MB88351PFV(FUJITSU)FLAT PACKAGE

C-MOS 12-BIT D/A CONVERTER WITH OPERATIONAL AMPLIFIER
— TOP VIEW —

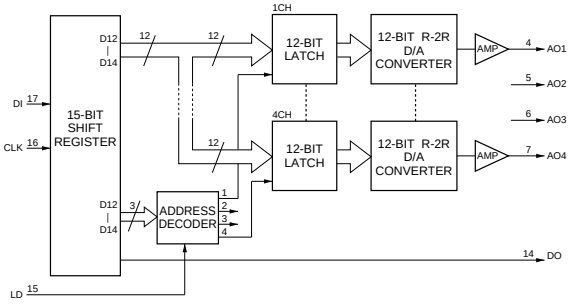


INPUT
CLK ; SHIFT CLOCK
DI ; SERIAL DATA
LD ; DECODER AND D/A REGISTER TO LOAD

OUTPUT
AO1-AO4 ; ANALOG DATA
DO ; MBS BIT DATA IN 15-BIT SHIFT REGISTER

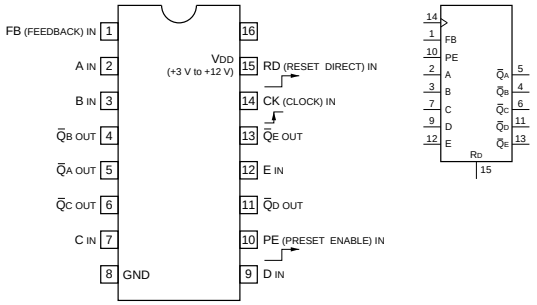
D12	D13	D14	ADDRESS SELECT
0	0	0	DON'T CARE
0	0	1	AO1 SELECT
0	1	0	AO2 SELECT
0	1	1	AO3 SELECT
1	0	0	AO4 SELECT
1	0	1	DON'T CARE
1	1	0	DON'T CARE
1	1	1	DON'T CARE

0 ; LOW LEVEL
1 ; HIGH LEVEL



MC14018BF(MOTOROL)FLAT PACKAGE

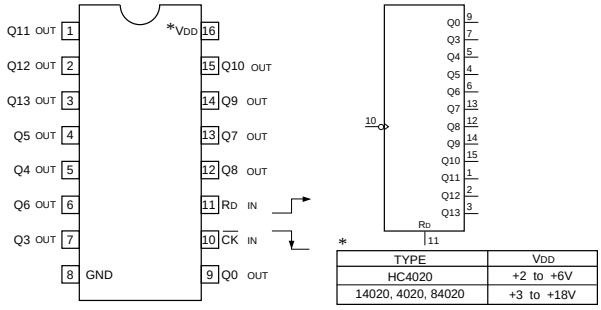
C-MOS PRESETTABLE DIVIDE-BY-N COUNTER
— TOP VIEW —



DIVIDE BY	CONNECT TO FB INPUT	VIA	RESULTS FROM EACH $\overline{Q}$ OUTPUT
10	$\overline{Q}_E$	DIRECT	5 COUNTS HIGH, 5 COUNTS LOW
9	$\overline{Q}_D$, $\overline{Q}_E$	AND GATE	5 COUNTS HIGH, 4 COUNTS LOW
8	$\overline{Q}_D$	DIRECT	4 COUNTS HIGH, 4 COUNTS LOW
7	$\overline{Q}_C$, $\overline{Q}_D$	AND GATE	4 COUNTS HIGH, 3 COUNTS LOW
6	$\overline{Q}_C$	DIRECT	3 COUNTS HIGH, 3 COUNTS LOW
5	$\overline{Q}_B$, $\overline{Q}_C$	AND GATE	3 COUNTS HIGH, 2 COUNTS LOW
4	$\overline{Q}_B$	DIRECT	2 COUNTS HIGH, 2 COUNTS LOW
3	$\overline{Q}_A$, $\overline{Q}_B$	AND GATE	2 COUNTS HIGH, 1 COUNTS LOW
2	$\overline{Q}_A$	DIRECT	1 COUNTS HIGH, 1 COUNTS LOW

MC14020BF(MOTOROLA)FLAT PACKAGE

C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER
—TOP VIEW—



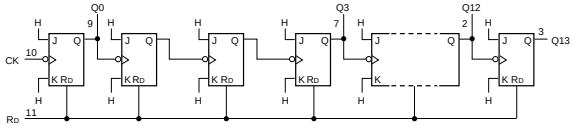
TYPE	VDD
HC4020	+2 to +6V
14020, 4020, 84020	+3 to +18V

COUNT		BINARY OUTPUTS											
		Q13	Q12	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q0
0	0000	0	0	0	0	0	0	0	0	0	0	0	0
1	0001	0	0	0	0	0	0	0	0	0	0	0	1
2	0002	0	0	0	0	0	0	0	0	0	0	0	0
3	0003	0	0	0	0	0	0	0	0	0	0	0	1
4	0004	0	0	0	0	0	0	0	0	0	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
16380	4FFC	1	1	1	1	1	1	1	1	1	1	1	0
16381	4FFD	1	1	1	1	1	1	1	1	1	1	1	1
16382	4FFE	1	1	1	1	1	1	1	1	1	1	1	0
16383	4FFF	1	1	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

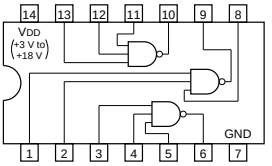
0 ; LOW LEVEL
1 ; HIGH LEVEL

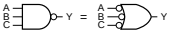
RD	Q13-Q0
1	ALL LOW
0	COUNT



MC14023BF(MOTOROLA)FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
— TOP VIEW —





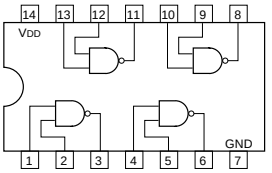
$Y = \overline{A \cdot B \cdot C} = \overline{A} + \overline{B} + \overline{C}$

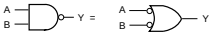
A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC74HC00AF(MOTOROLA)FLAT PACKAGE
TC74HC00AF(TOSHIBA)FLAT PACKAGE
TC74VHC00FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT NAND GATES
—TOP VIEW—





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

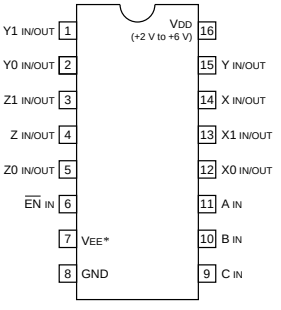
0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE:

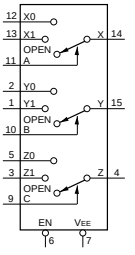
TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

MC74HC4053F(MOTOROLA)FLAT PACKAGE
TC74HC4053AFS(TOSHIBA)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



VEE*; VDD – VEE = +3 V to +12 V
VEE ≦ GND

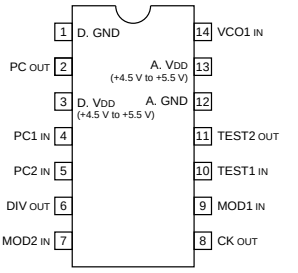


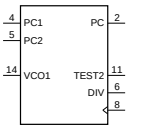
CONTROL INPUTS				ON CHANNEL		
EN	SELECT					
	C	B	A			
0	0	0	0	Z0	Y0	X0
0	0	0	1	Z0	Y0	X1
0	0	1	0	Z0	Y1	X0
0	0	1	1	Z0	Y1	X1
0	1	0	0	Z1	Y0	X0
0	1	0	1	Z1	Y0	X1
0	1	1	0	Z1	Y1	X0
0	1	1	1	Z1	Y1	X1
1	X	X	X	OPEN		

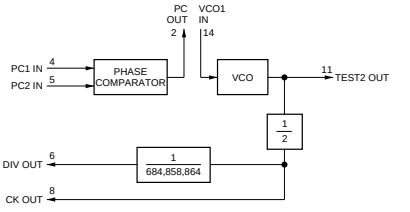
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MN6790S(MATSUSHITA)

C-MOS CLOCK GENERATOR
— TOP VIEW —







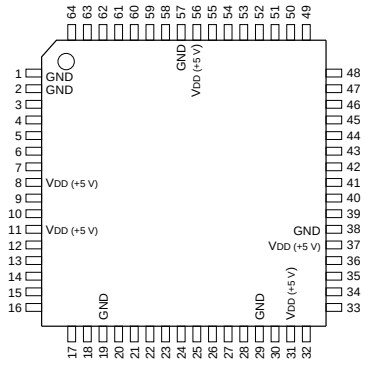
MOD1	MOD2	FREQUENCY RATIO	VCO	MOTE
0	0	1/684	OSCILLATION	——
1	0	1/858		
0	1	1/864		
1	1	——	STANDSTILL	CK = DIV = L

0 ; LOW LEVEL
1 ; HIGH LEVEL

MN8232A(MATSUSHITA)

PICTURE IN PICTURE/PICTURE OUT PICTURE CONTROLLER

— TOP VIEW —

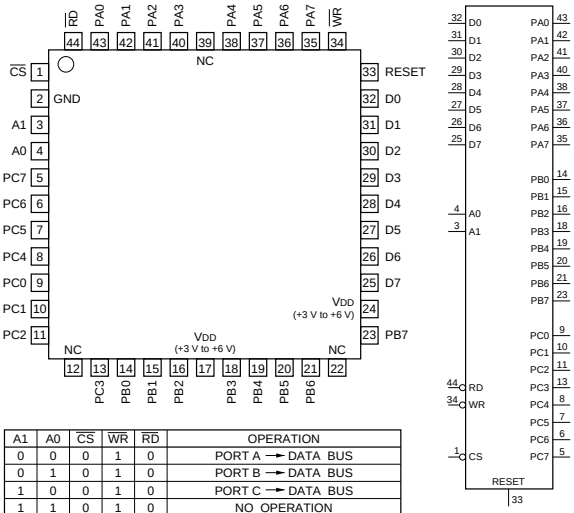


PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	GND	17	O	RY	33	O	YS	49	O	RAS
2	—	GND	18	O	BY	34	I	HP	50	O	WE
3	—	VRB	19	—	GND	35	O	PPC	51	O	DT
4	I	TEST0	20	I	RST	36	I	PVC	52	O	SC
5	I	Y	21	I	SCL	37	—	VDD	53	I	LEV1
6	I	RY	22	O	SDA	38	—	GND	54	I	LEV0
7	I	BY	23	I	VPD	39	O	A0	55	I	DI3
8	—	VDD	24	I	VCD	40	O	A1	56	—	VDD
9	—	VRT	25	I	CKCNT	41	O	A2	57	—	GND
10	I	TEST1	26	I	CVC	42	O	A3	58	I	DI2
11	—	VDD	27	O	CPC	43	O	A4	59	I	DI1
12	I	IREF	28	I	HC	44	O	A5	60	I	DI0
13	I	VREF	29	—	GND	45	O	A6	61	I/O	DO3
14	O	Y	30	I	IREFVC	46	O	A7	62	I/O	DO2
15	I	COMP	31	—	VDD	47	O	A8	63	I/O	DO1
16	I	VIB	32	O	CLAMP	48	O	CAS	64	I/O	DO0

MSM82C55A-2GS(OKI)FLAT PACKAGE

C-MOS PROGRAMMABLE PERIPHERAL INTERFACE

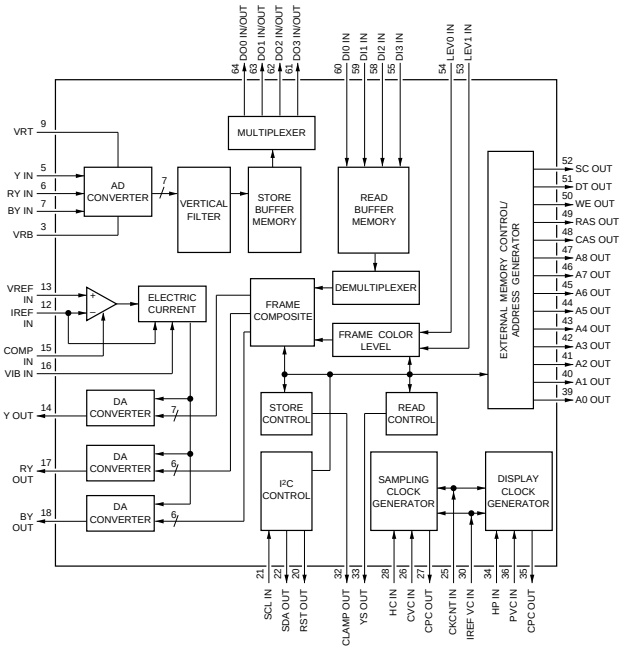
— TOP VIEW —

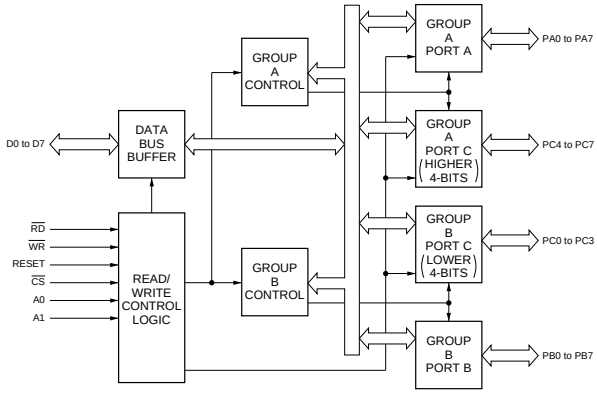


A1	A0	$\overline{CS}$	$\overline{WR}$	$\overline{RD}$	OPERATION
0	0	0	1	0	PORT A → DATA BUS
0	1	0	1	0	PORT B → DATA BUS
1	0	0	1	0	PORT C → DATA BUS
1	1	0	1	0	NO OPERATION
0	0	0	0	1	DATA BUS → PORT A
0	1	0	0	1	DATA BUS → PORT B
1	0	0	0	1	DATA BUS → PORT C
1	1	0	0	1	DATA BUS → CONTROL REGISTER
X	X	1	X	X	HIGH IMPEDANCE

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

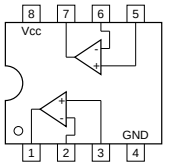
A0, A1 ; PORT SELECT ADDRESS
$\overline{CS}$; CHIP SELECT
D0 to 7 ; DATA BUS
PA0 to 7 ; PORT A IN/OUT
PB0 to 7 ; PORT B IN/OUT
PC0 to 7 ; PORT C IN/OUT
$\overline{RD}$; READ
$\overline{WR}$; WRITE





NJM3414AM(SNM)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —

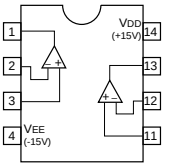


NOTE:

TYPE	Vcc
TA75358P	+12V
NJM3414M RC3414M	+15V
M5223FP	+36V

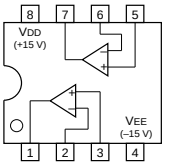
NJM4556AM-A(NEC)FLAT PACKAGE

OPERATIONAL AMPLIFIER
(WIDE BAND, DECOMPENSATED)
—TOP VIEW—



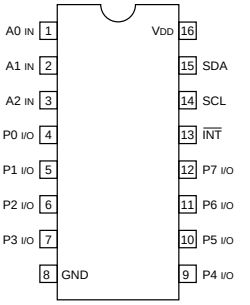
NJM4558V(JRC)FLAT PACKAGE
NJU7022M(JRC)FLAT PACKAGE

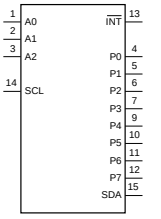
DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —



PCF8574AT(PHILIPS)
PCF8574T(PHILIPS)

C-MOS REMOTE 8-BIT I/O EXPANDER
— TOP VIEW —

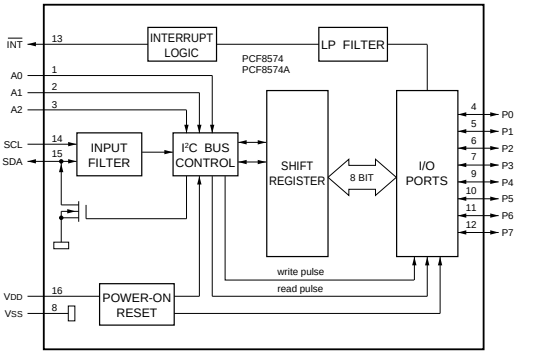




INPUT
A0 - A2 ; ADDRESS INPUTS
SCL ; SYSTEM CLOCK LINE

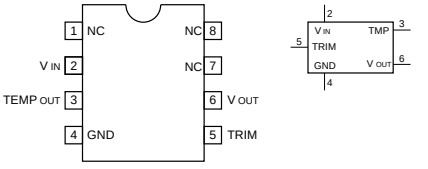
OUTPUT
$\overline{INT}$; INTERRUPT OUTPUT
SDA ; SERIAL DATA LINE

INPUT/OUTPUT
P0 - P7 ; 8-BITS QUASI-BIDIRECTIONAL I/O PORT



REF-03GS(PMI)

REFERENCE/TEMPERATURE TRANSDUCER
— TOP VIEW —

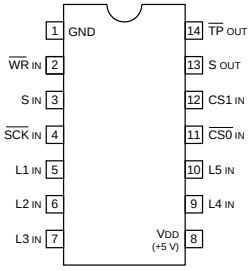


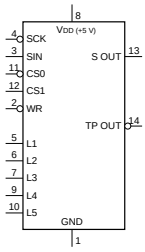
V IN ; INPUT VOLTAGE (+4.5 V to +33 V)
TEMP OUT ; TEMPERATURE TRANSDUCER VOLTAGE OUTPUT
TRIM IN ; OUTPUT SIGNAL TRIMMING
V OUT ; OUTPUT VOLTAGE (+2.5 V)

RTC4553B(EPSON)

C-MOS REAL TIME CLOCK

— TOP VIEW —



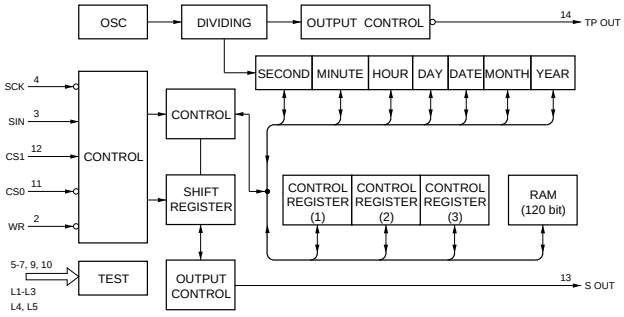


INPUT

$\overline{CS0}$	; CHIP SELECT (L: ACCESS ENABLE, H: SOUT HIGH Z)
CS1	; POWER DOWN DETECTION
L1-L5	; TEST IN
$\overline{SCK}$	; SERIAL SYNC SIGNAL
SIN	; SERIAL ADDRESS/DATA
$\overline{WR}$	; WRITING SELECT (L: WRITING, H: READING)

OUTPUT

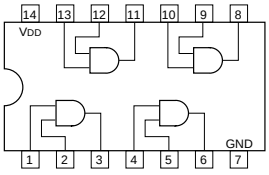
SOUT	; SERIAL ADDRESS/DATA
$\overline{TPOUT}$	; REFERENCE SIGNAL

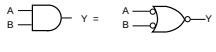


SN74HC08ANS(TI)FLAT PACKAGE
SN74HC08APW(TI)FLAT PACKAGE
TC74VHC08FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT AND GATES

—TOP VIEW—





$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

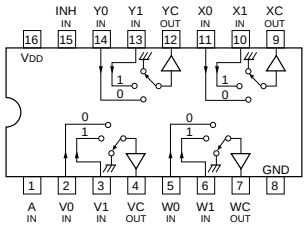
NOTE:

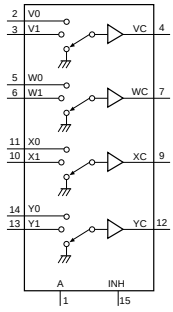
TYPE	VDD
TC74AC08 TYPE MC74ACT08M	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

SN74HC157APW(TI)FLAT PACKAGE
TC74VHC157FS(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/ DEMULTIPLEXER

—TOP VIEW—





NOTE:

TYPE	VDD
74ACT/74FCT	+5V
TC74AC157P TC74AC157	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

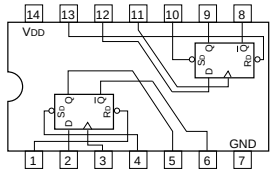
CONT.IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC74ANS(TI)FLAT PACKAGE
TC74VHC74F(TOSHIBA)FLAT PACKAGE
TC74VHC74FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

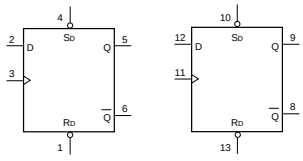
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET

—TOP VIEW—



INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



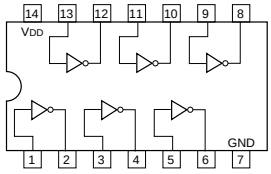
NOTE:

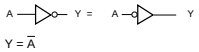
TYPE	VDD
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

SN74HCT04APW(TOSHIBA)FLAT PACKAGE
TC74VHC04FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

A	Y
0	1
1	0

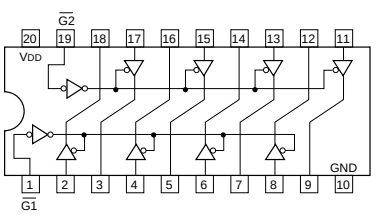
0 ; LOW LEVEL
1 ; HIGH LEVEL

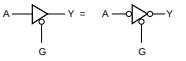
NOTE:

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HCT244APW-E05(TI)FLAT PACKAGE
TC74VHC244FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

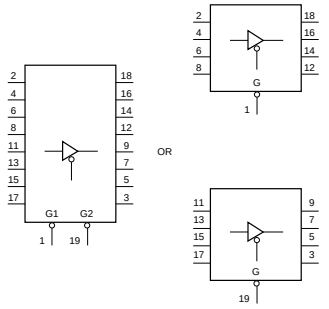
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
—TOP VIEW—





G	A	Y
0	0	0
0	1	1
X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

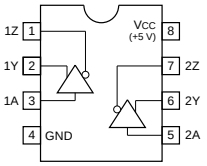


NOTE:

TYPE	VDD
AC HC 40H	+2 to +6V
ACT BCT FCT HCT	+5V
TC74AC244 TYPE TC74VHC244	+2 to +5.5V

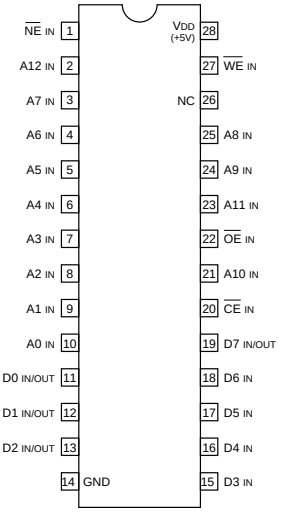
SN75158PS(TI)

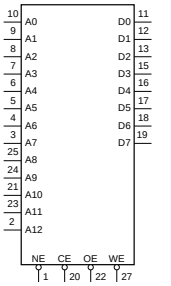
DUAL DIFFERENTIAL LINE DRIVE
— TOP VIEW —



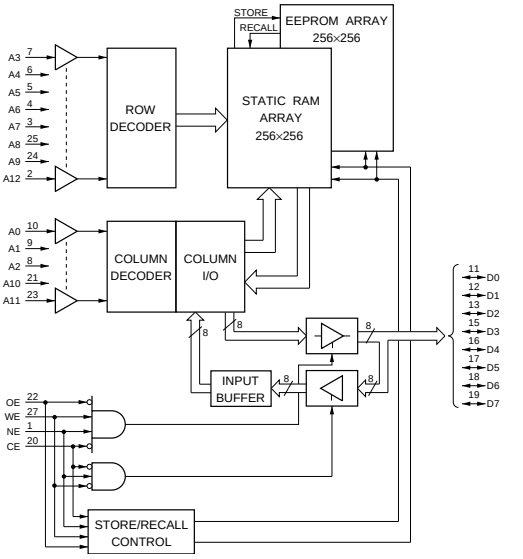
STK10C68-5S35(SIMTEK)FLAT PACKAGE

C-MOS 8K×8-BIT NONVOLATILE STATIC RAM
— TOP VIEW —



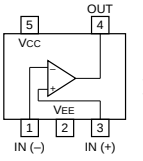


A0 - A12 ; ADDRESS INPUTS
$\overline{CE}$; CHIP ENABLE INPUT
D0 - D7 ; DATA INPUTS/OUTPUTS
$\overline{NE}$; NONVOLATILE ENABLE INPUT
$\overline{OE}$; OUTPUT ENABLE INPUT
$\overline{WE}$; WRITE ENABLE INPUT



TA75S393F(TOSHIBA)

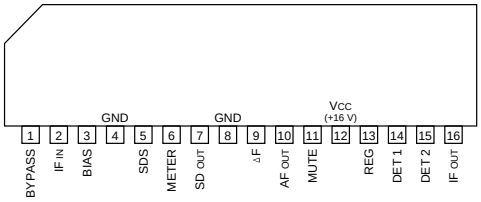
SINGLE COMPARATOR
— TOP VIEW —

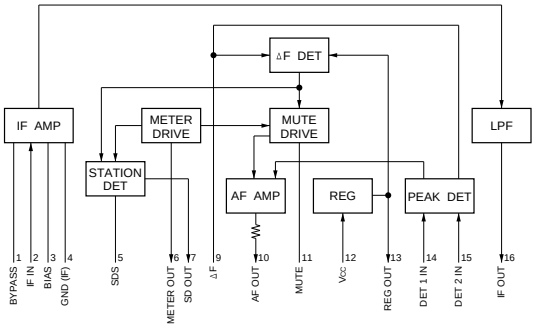


VCC ; +1 V to +18 V or +2 V to +36 V
VEE ; –1 V to –18 V

TA8129Z(TOSHIBA)

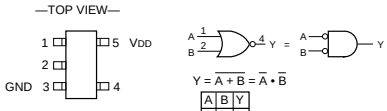
FM IF SYSTEM (DIFFERENTIAL PEAK DETECT)
— SIDE VIEW —





TC4S01F(TOSHIBA)CHIP PACKAGE
TC7S02FU(TOSHIBA)CHIP PACKAGE
TC7SH02FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NOR GATE



$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

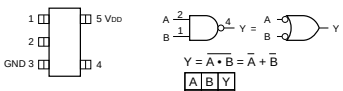
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
4S01F	+3 to +18V
7S02F 7S02FU 7SH02FU	+2 to +6V

TC4S11F(TOSHIBA)CHIP PACKAGE
TC7S00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
— TOP VIEW —



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

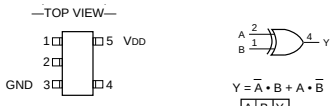
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S00F 7S00FU	+2 to +6 V
4S11F 4SU11F	+3 to +18 V
7SH00FU	+2 to +5.5 V

TC4S30F(TOSHIBA)CHIP PACKAGE
TC7S86FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT EXCLUSIVE OR GATE



$Y = \overline{A} \cdot B + A \cdot \overline{B}$

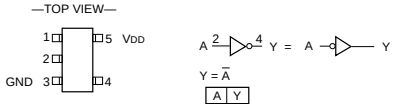
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S86FU 7S86F	+2 to +6V
4S30F	+3 to +18V

TC4S69F(TOSHIBA)CHIP PACKAGE
TC4SU69F(TOSHIBA)CHIP PACKAGE
TC7S04FU(TOSHIBA)CHIP PACKAGE
TC7SH04FU(TOSHIBA)CHIP PACKAGE

C-MOS INVERTER



$Y = \overline{A}$

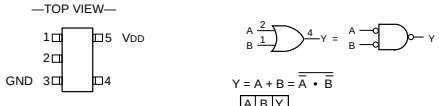
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S04F 7SU04F 7SU04FU	+2 to +6V
4S69F 4SU69F	+3 to +18V
7SH04FU	+2 to +5.5V

TC4S71F(TOSHIBA)CHIP PACKAGE
TC7S32FU(TOSHIBA)CHIP PACKAGE
TC7SH32FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT OR GATE



$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

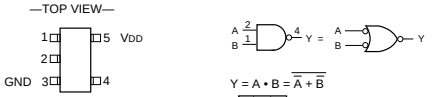
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S32F 7S32FU	+2 to +6V
4S71F	+3 to +18V
7SH32FU	−2 to +5.5V

TC4S81F(TOSHIBA)CHIP PACKAGE
TC7S08FU(TOSHIBA)CHIP PACKAGE
TC7SH08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE



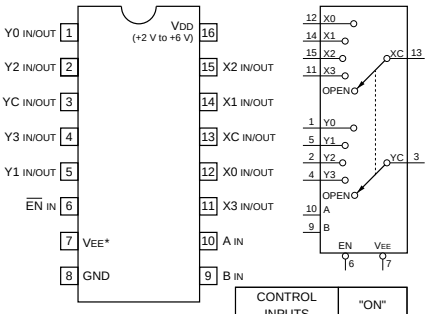
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S08F 7S08FU	+2 to +6V
4S81F 14S81F	+3 to +18V
7SH08FU	–2 to +5.5V

TC74HC4052AFS(EL)(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



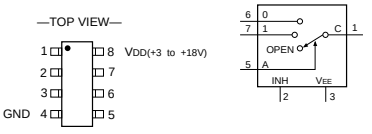
VEE* ; VDD – VEE = +3 V to +12 V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC4W53FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER

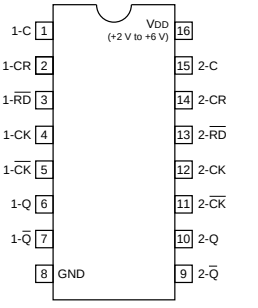


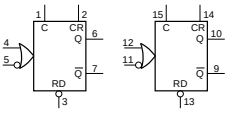
CONT.INPUT		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	OPEN

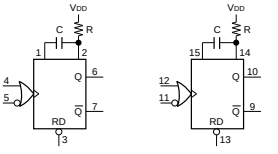
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC74HC4538AFS(TOSHIBA)FLAT PACKAGE

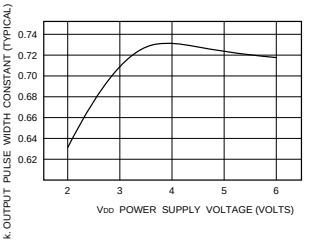
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



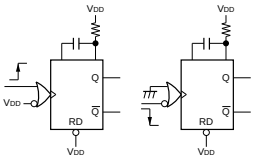




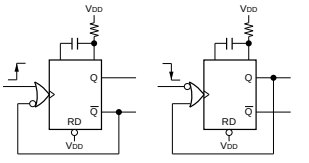
OUTPUT PULSE WIDTH = k · C · R



RETRIGGERABLE M. M. V

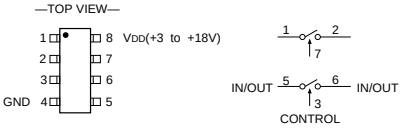


NON-RETRIGGERABLE M. M. V



TC4W66FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL BILATERAL SWITCH

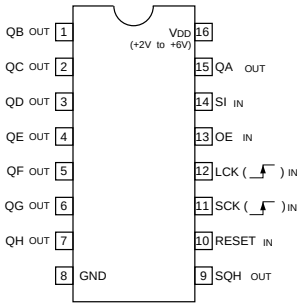


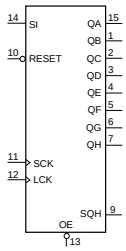
CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

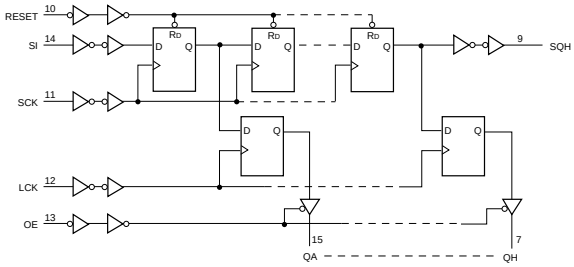
TC74HC595AF(TOSHIBA)FLAT PACKAGE

C-MOS 8-BIT SERIAL-INPUT/SERIAL- OR PARALLEL-OUTPUT
SHIFT REGISTER WITH LATCHED 3-STATE OUTPUT
—TOP VIEW—



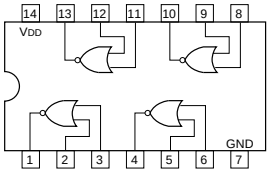


OE ; OUTPUT ENABLE INPUT
LCK ; LATCH CLOCK INPUT
SCK ; SHIFT CLOCK INPUT
RESET ; SHIFT-REGISTER RESET INPUT
SI ; SERIAL IN
QA-QH ; PARALLEL OUTPUT
SQH ; SERIAL OUT



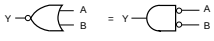
TC74VHC02F(TOSHIBA)FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES
—TOP VIEW—



NOTE:

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V



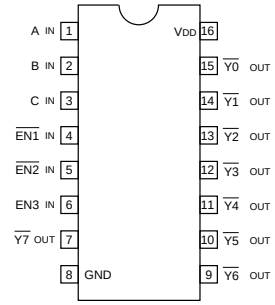
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

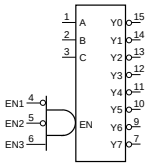
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74VHC138FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—





NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

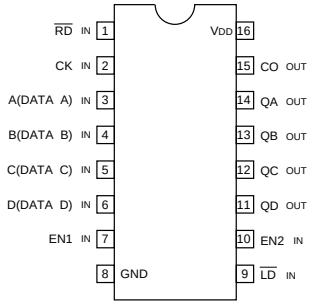
INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

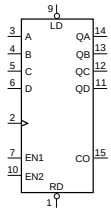
TC74VHC163F(TOSHIBA)FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
—TOP VIEW—



NOTE:

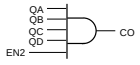
TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"



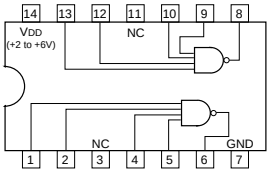
CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

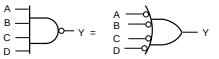
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

TC74VHC20F(TOSHIBA)FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
—TOP VIEW—





$Y = \overline{A \cdot B \cdot C \cdot D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
⋮	⋮	⋮	⋮	⋮
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

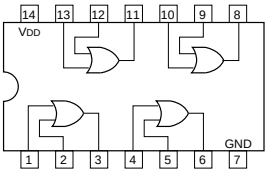
0 ; LOW LEVEL
1 ; HIGH LEVEL

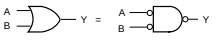
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC32FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

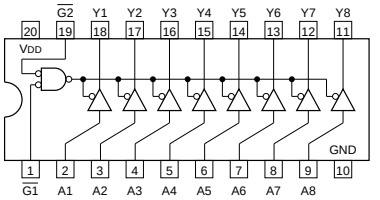
0 ; LOW LEVEL
1 ; HIGH LEVEL

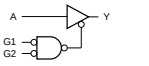
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC541FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

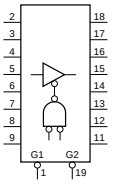
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
— TOP VIEW —





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

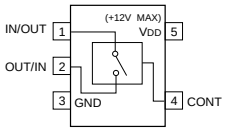


NOTE :

TYPE	VDD
AC/VHC	+2 V to +5.5 V
HC	+2 V to +6 V
ABT/ACT/BCT/HCT/VHCT	+5 V

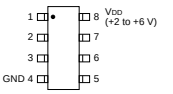
TC7S66FU(TOSHIBA)

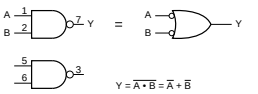
C-MOS ANALOG SWITCH
—TOP VIEW—



TC7W00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –





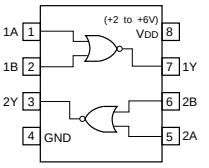
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

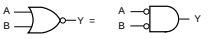
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC7W02F(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE
—TOP VIEW—





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

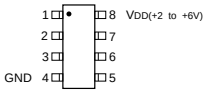
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

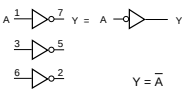
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W04FU(TOSHIBA)CHIP PACKAGE

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

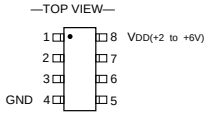
A	Y
0	1
1	0

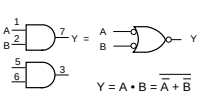
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE

—TOP VIEW—





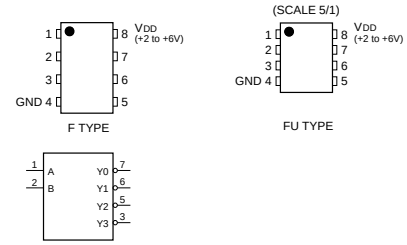
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W139FU(TOSHIBA)CHIP PACKAGE

C-MOS 2 to 4 LINE DECODER WITH ENABLE
—TOP VIEW —

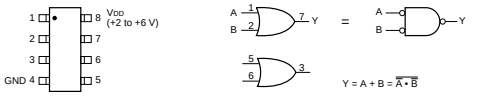


INPUTS		OUTPUTS				SELECTED OUTPUT
SELECT						
B	A	$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	
0	0	0	1	1	1	$\overline{Y0}$
0	1	1	0	1	1	$\overline{Y1}$
1	0	1	1	0	1	$\overline{Y2}$
1	1	1	1	1	0	$\overline{Y3}$

0 ; LOW LEVL
1 ; HIGH LEVEL

TC7W32FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL 2-INPUT OR GATE
—TOP VIEW—

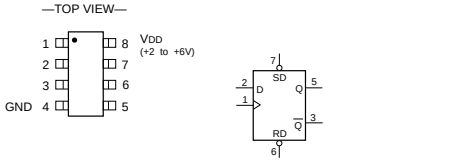


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC7W74FU(TOSHIBA)CHIP PACKAGE

C-MOS D-TYPE FLIP-FLOPS WITH DIRECT SET / RESET
—TOP VIEW—

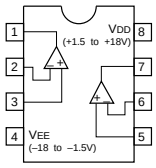


INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	↓	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

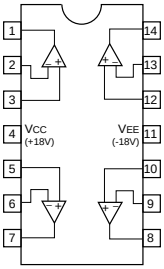
TL062CPW(TI)FLAT PACKAGE
TL082M(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



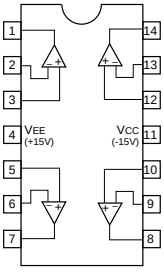
TL064CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



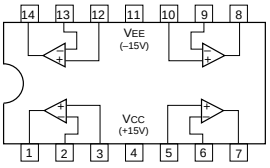
TL074CPW(TI)

OPERATIONAL AMPLIFIER
(LOW-NOISE, JFET-INPUT)
—TOP VIEW—



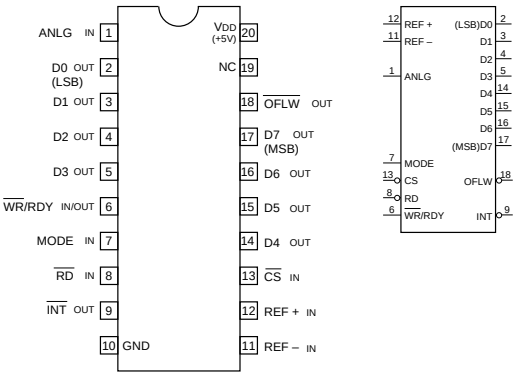
TL084CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



TLC0820ACDW(TI)FLAT PACKAGE

C-MOS 8-BIT SEMIFLASH TYPE A / D CONVERTER
—TOP VIEW—



INPUT

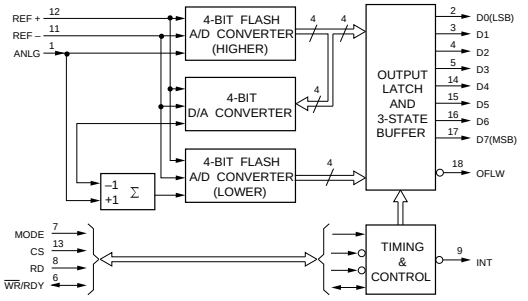
ANLG	;	ANALOG SIGNAL
$\overline{CS}$	;	CHIP SELECT
MODE	;	MODE
$\overline{RD}$	;	READ
REF+, REF–	;	REFERENCE VOLTAGE +, –

OUTPUT

D0-D7	;	DIGITAL SIGNAL
$\overline{INT}$	;	INTERRUPT
$\overline{OFLW}$	;	OVERFLOW

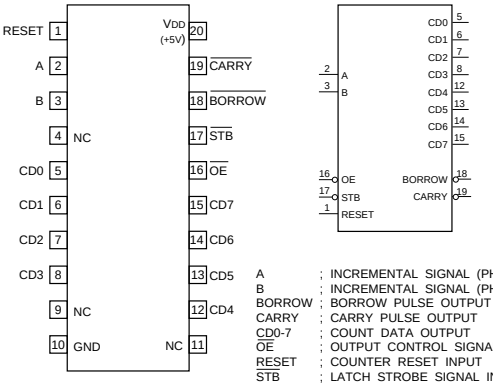
INPUT/OUTPUT

WR/RDY	;	L : WRITE/H : READY

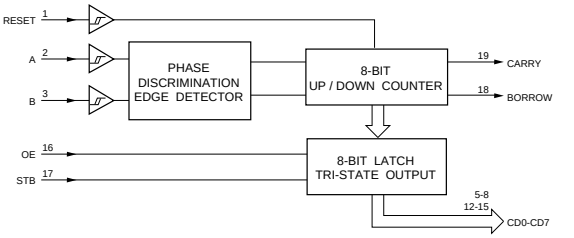


UPD4702G(NEC)

C-MOS INCREMENTAL ENCODER 8-BIT UP DOWN COUNTER
—TOP VIEW—

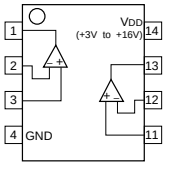


A	;	INCREMENTAL SIGNAL (PHASE A) INPUT
B	;	INCREMENTAL SIGNAL (PHASE B) INPUT
BORROW	;	BORROW PULSE OUTPUT
CARRY	;	CARRY PULSE OUTPUT
$\overline{CD}$0-7	;	COUNT DATA OUTPUT
$\overline{OE}$	;	OUTPUT CONTROL SIGNAL INPUT
$\overline{RESET}$	;	COUNTER RESET INPUT
$\overline{STB}$	;	LATCH STROBE SIGNAL INPUT



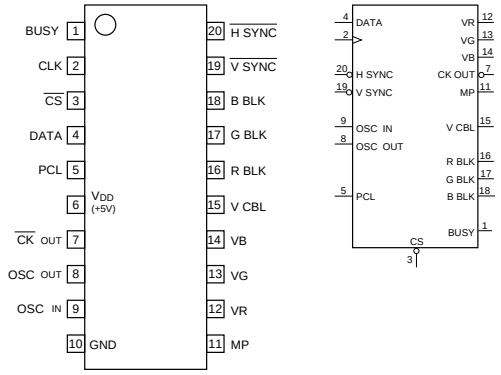
TLC272CP
TLC272CPW(TI)
TLC27L2CPS(TI)FLAT PACKAGE

OPERATIONAL AMPLIFIER
—TOP VIEW—



UPD6453GT-610(NEC)FLAT PACKAGE

C-MOS ON-SCREEN CHARACTER DISPLAY
—TOP VIEW—

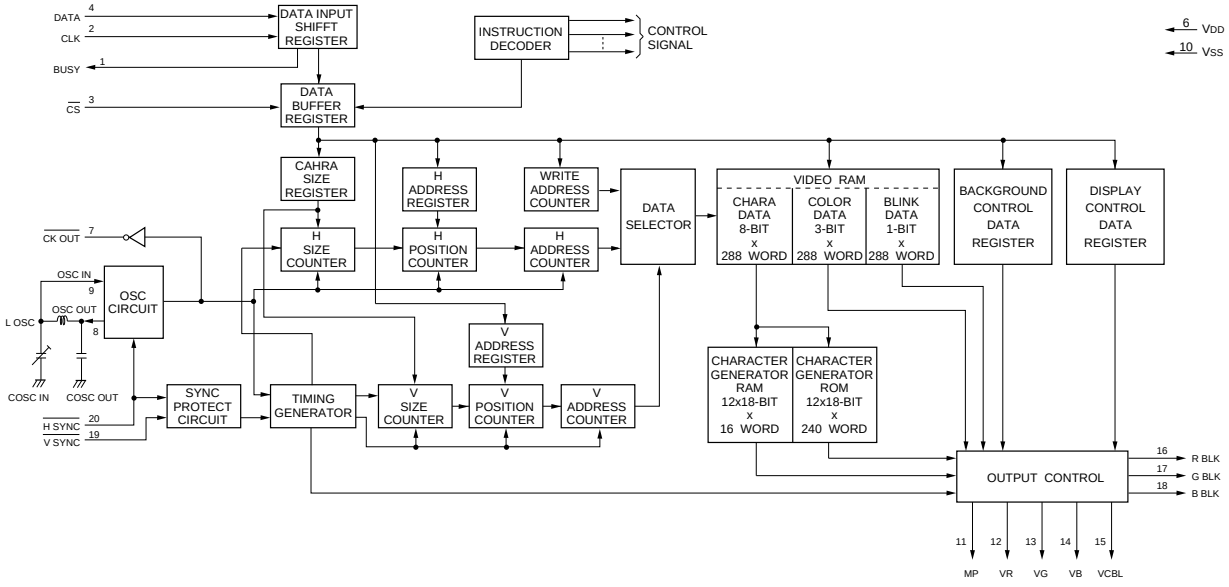


INPUT

CLK	;	CLOCK
$\overline{CS}$	;	CHIP SELECT
DATA	;	SERIAL DATA
$\overline{H\ SYNC}$	;	HORIZONTAL SYNC
OSC IN	;	OSCILLATOR IN
$\overline{PCL}$	;	POWER ON CLEAR
$\overline{V\ SYNC}$	;	VERTICAL SYNC

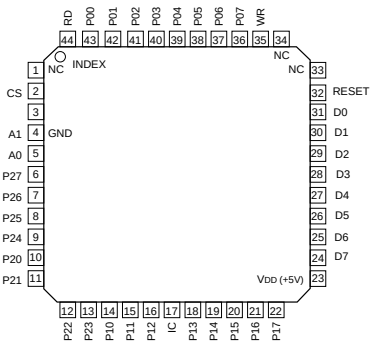
OUTPUT

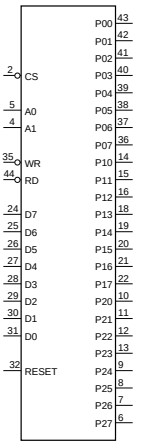
B_{BLK}, R_{BLK}, G_{BLK}	;	B, R, G, BLANKING
$\overline{BUSY}$	;	BUSY OUT
$\overline{CK\ OUT}$	;	CLOCK
MP	;	MASK PULSE
OSC OUT	;	OSCILLATOR OUT
V_R, V_G, V_B	;	R, G, B, CHARACTER DATA
V_{CBL}	;	VIDEO CUT BLANKING



UPD71055GB-10-3B4(NEC)FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
—TOP VIEW—



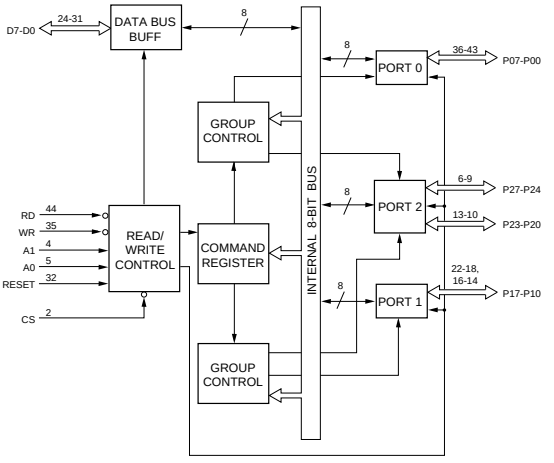


A1, A0	; ADDRESS	P17-P10	; PORT 1
CS	; CHIP SELECT	P27-P20	; PORT 2
D7-D0	; DATA BUS	RD	; READ STROBE
P07-P00	; PORT 0	WR	; WRITE STROBE

IC ; INTERNALLY CONNECTED

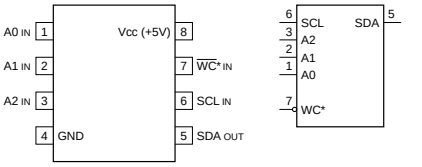
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PORT0→DATA • BUS	INPUT
0	0	1	0	1	PORT1→DATA • BUS	INPUT
0	0	1	1	0	PORT2→DATA • BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA • BUS→PORT0	OUTPUT
0	1	0	0	1	DATA • BUS→PORT1	OUTPUT
0	1	0	1	0	DATA • BUS→PORT2	OUTPUT
0	1	0	1	1	DATA • BUS→COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

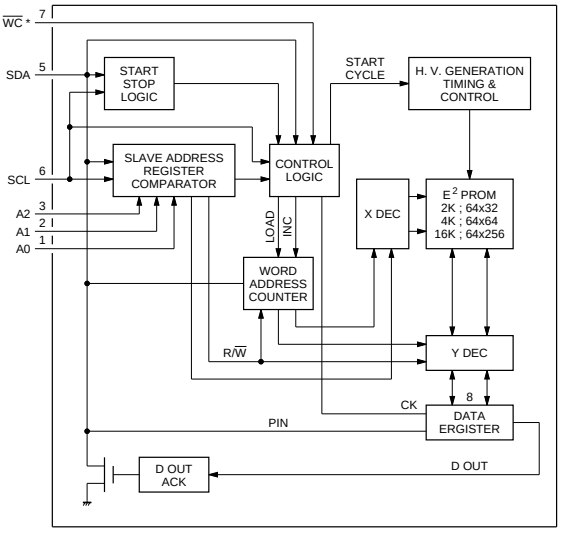
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



X24164SI(XICOR)(16K BIT)FLAT PACKAGE
X24C02S-3.0(XICOR)(2K BIT)FLAT PACKAGE

C-MOS SERIAL EEPROM
- TOP VIEW -



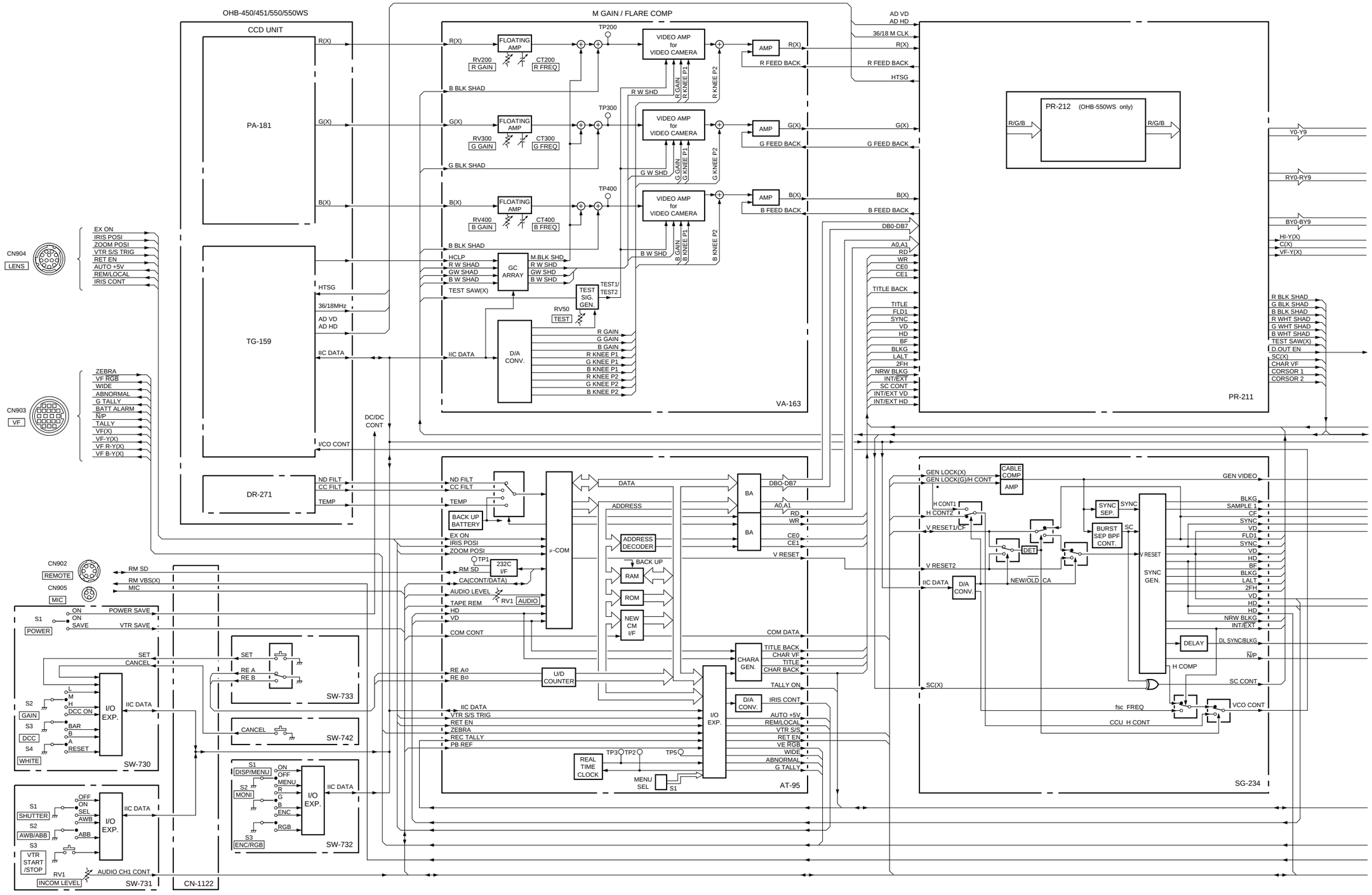


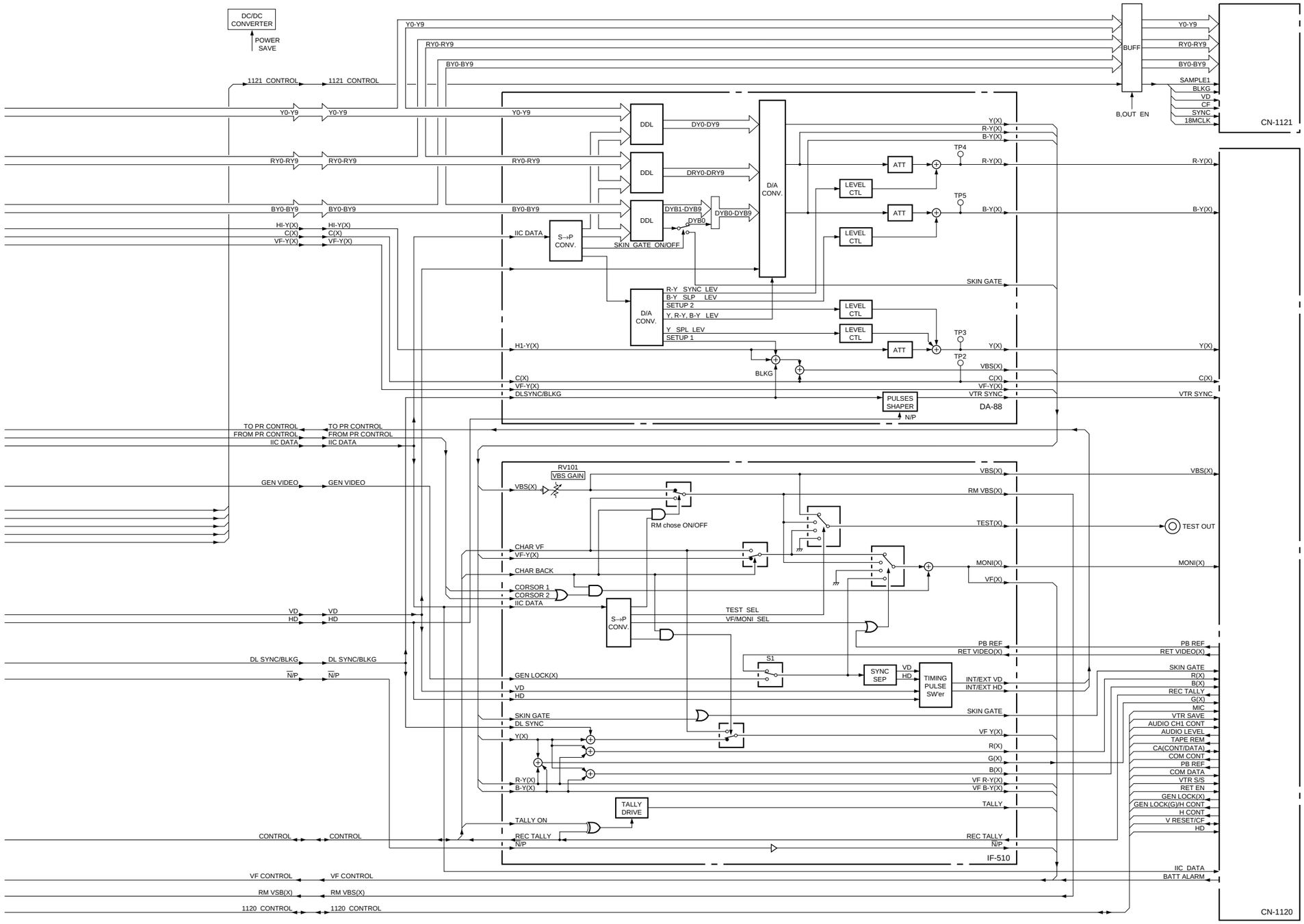
NOTE : * TEST (at X24164SIC7000)

Section 7
Block Diagrams

7-1

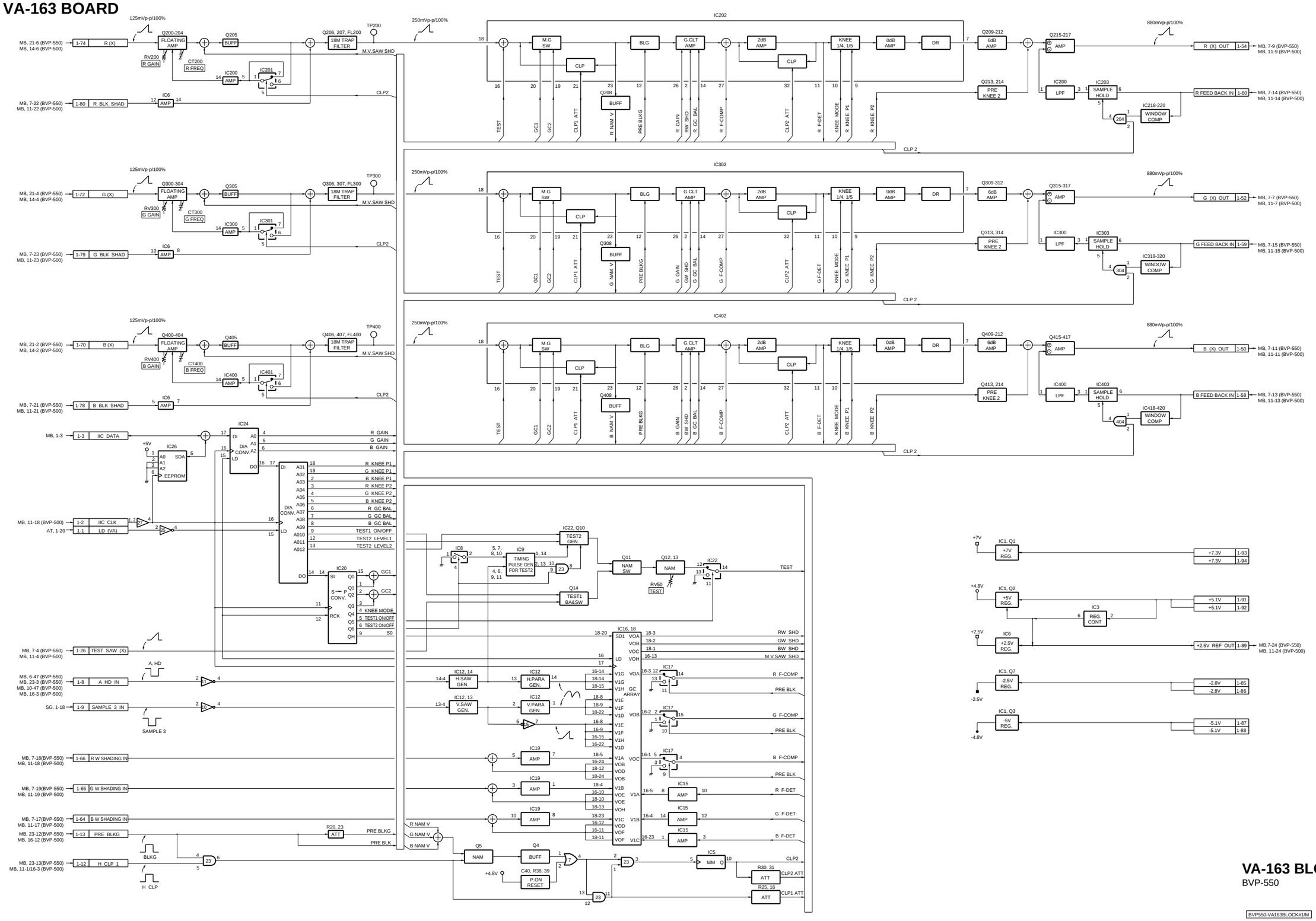
OVERALL BLOCK





OVERALL BLOCK
BVP-550

VA-163 BOARD

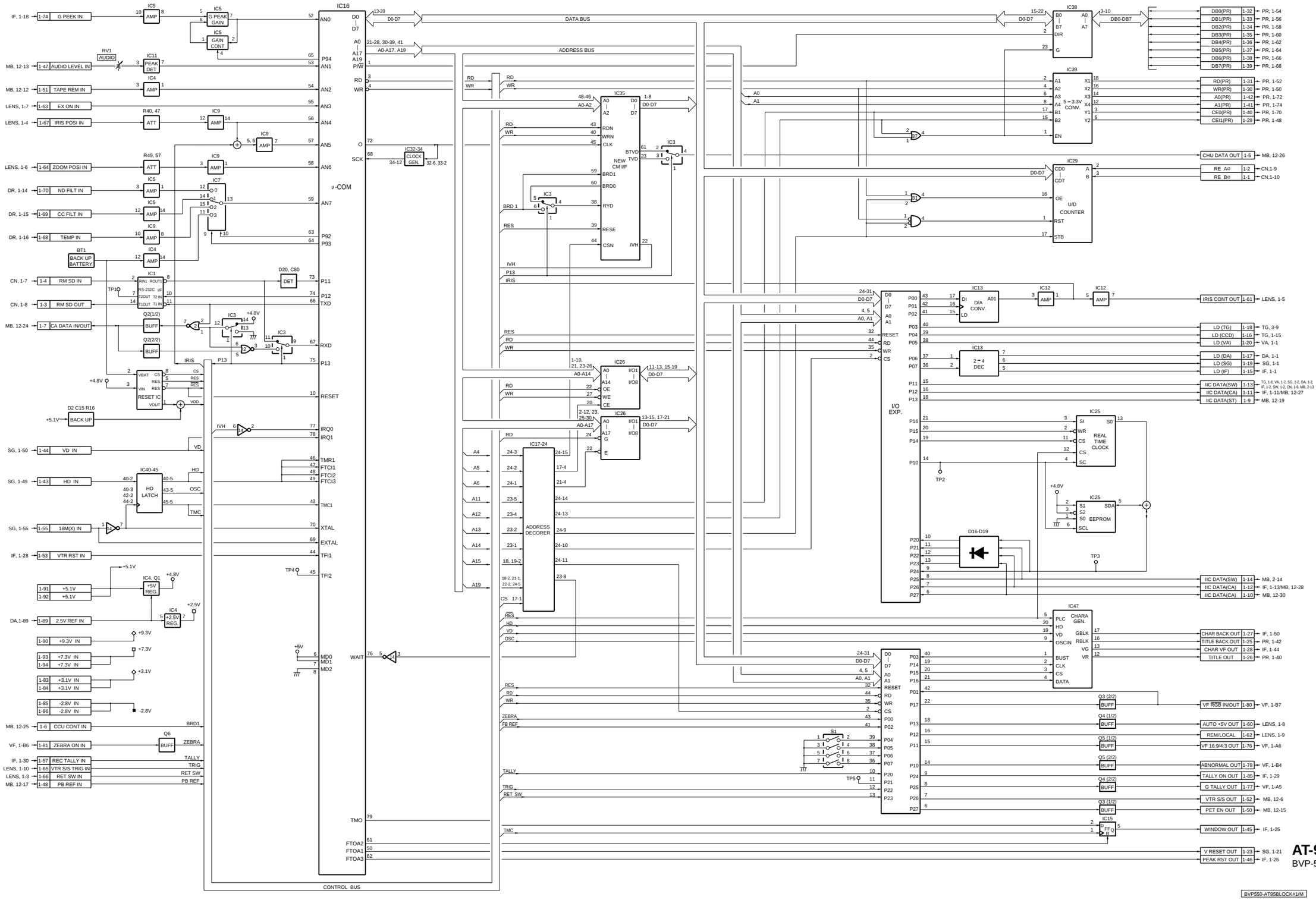


VA-163 BLOCK

BVP-550

BVP550-VA163BLOCK#1/M

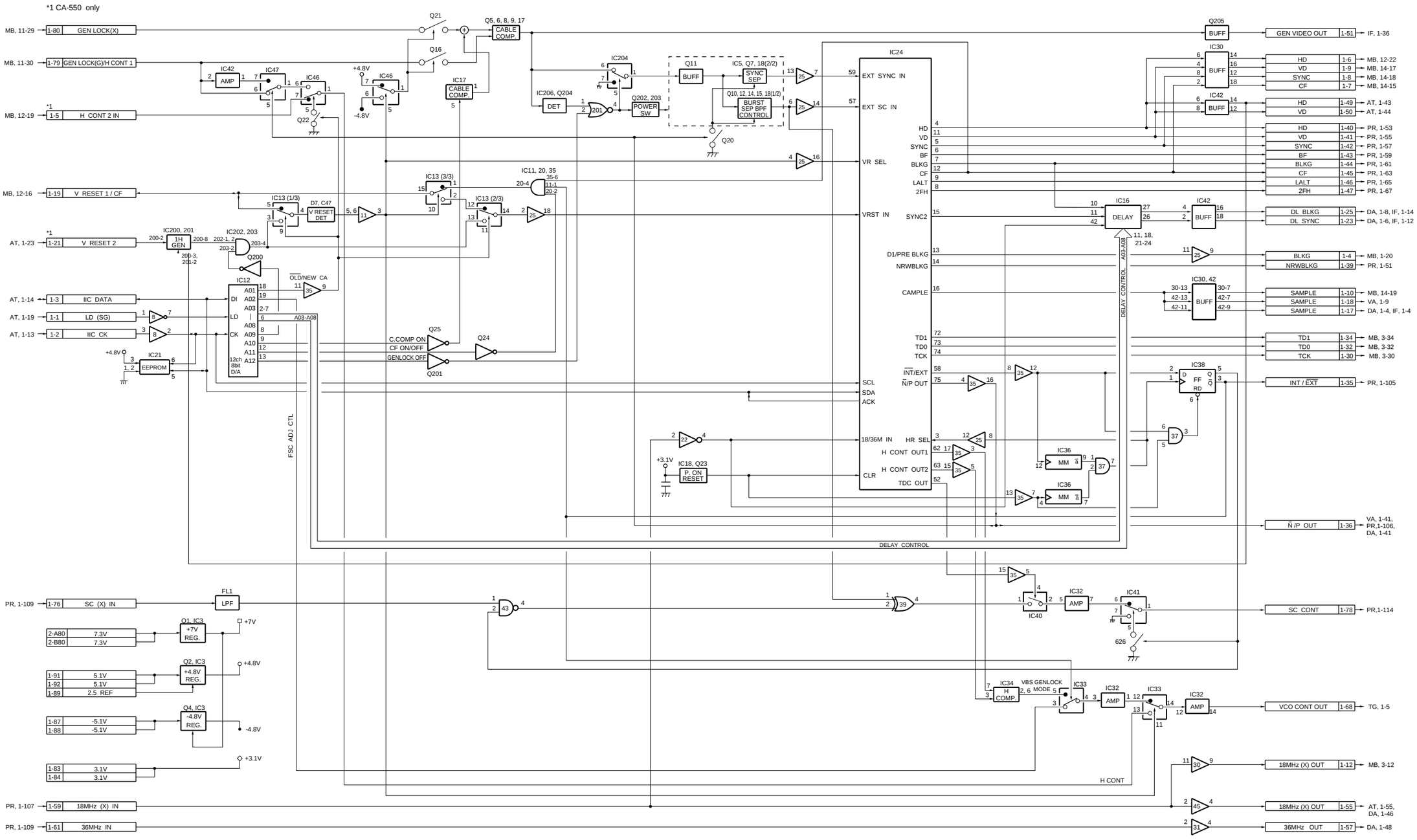
AT-95 BOARD



AT-95 BLOCK

BVP-550

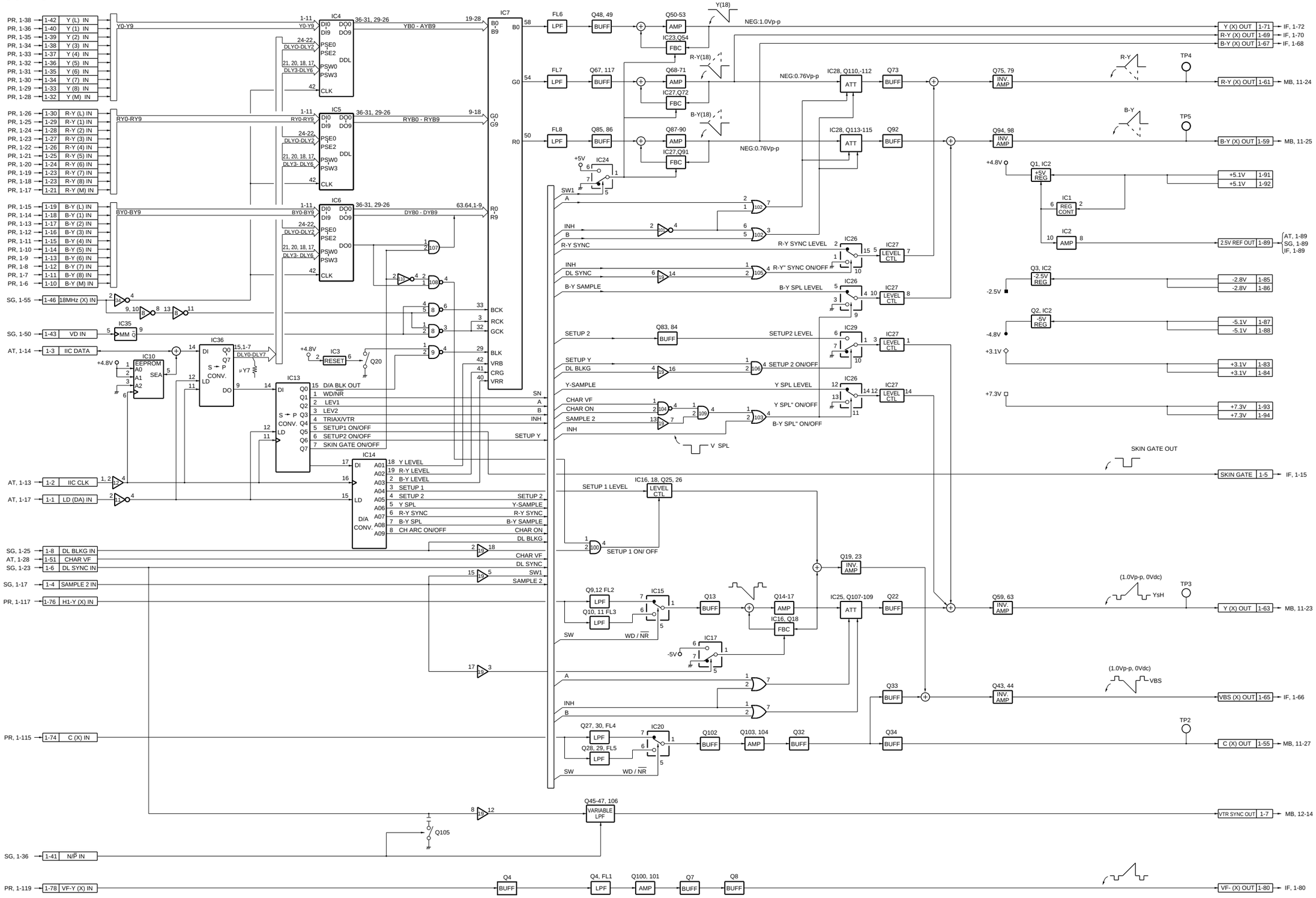
SG-234 BOARD



SG-234 BLOCK
BVP-550

BVP550-SG234BLOCK#1/M

DA-88 BOARD

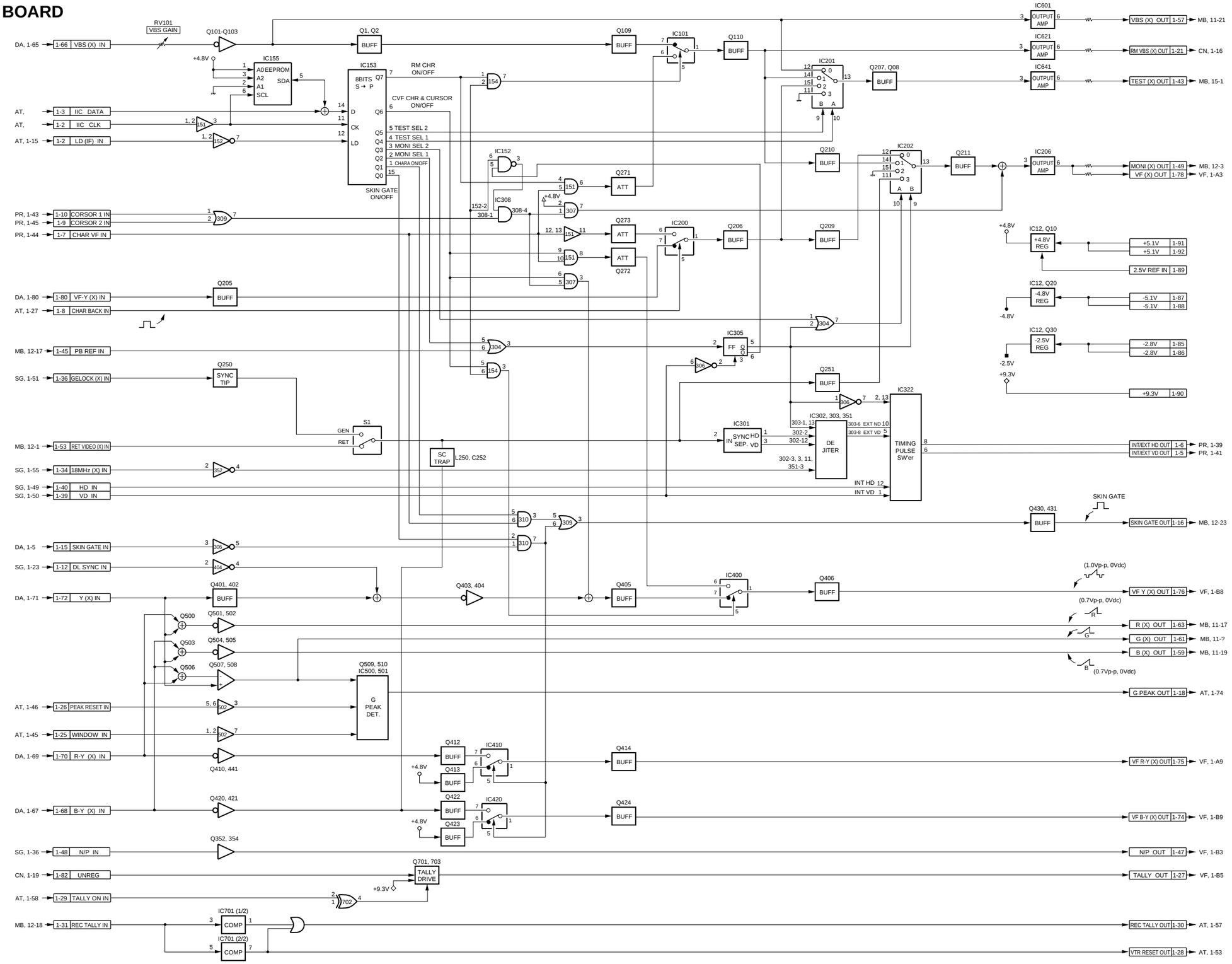


DA-88 BLOCK

BVP-550

BVP550-DA88BLOCK#1/M

IF-510 BOARD

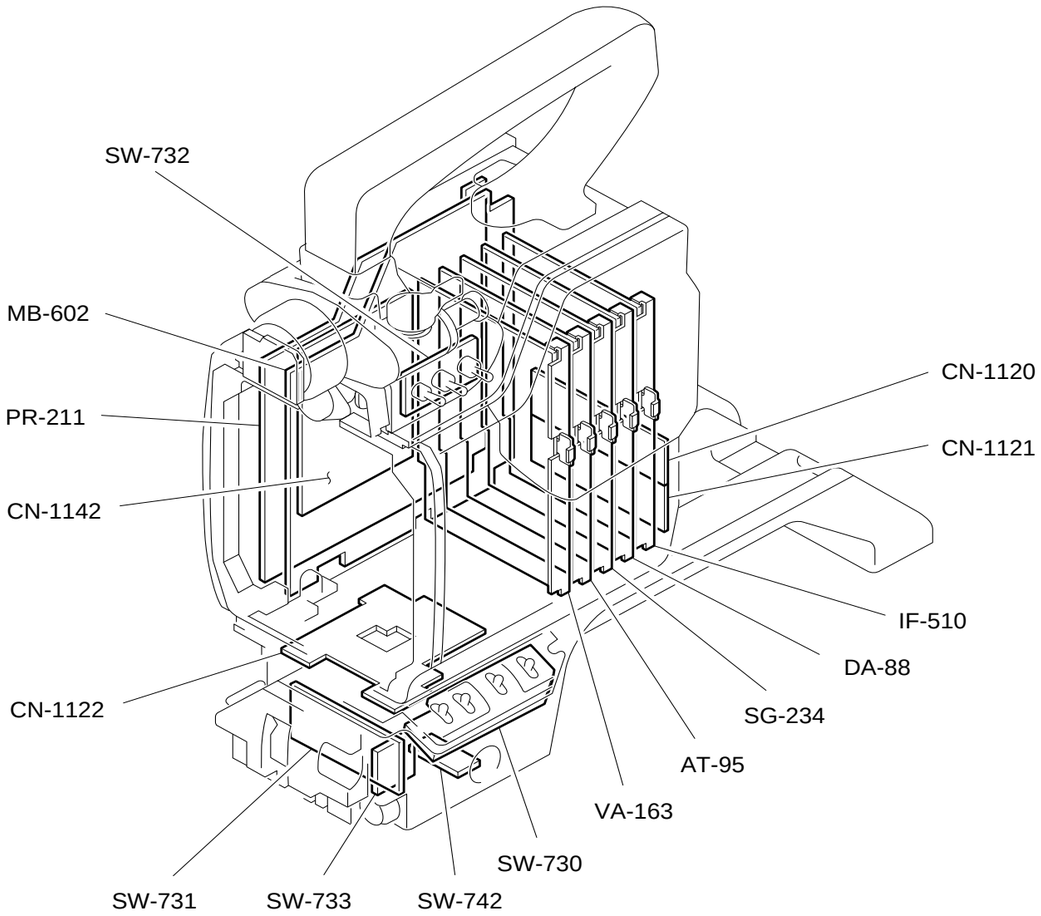


IF-510 BLOCK
BVP-550

BVP550-IF510BLOCK#1/M

Section 8
Schematic Diagrams

LOCATION OF PRINTED CIRCUIT BOARDS



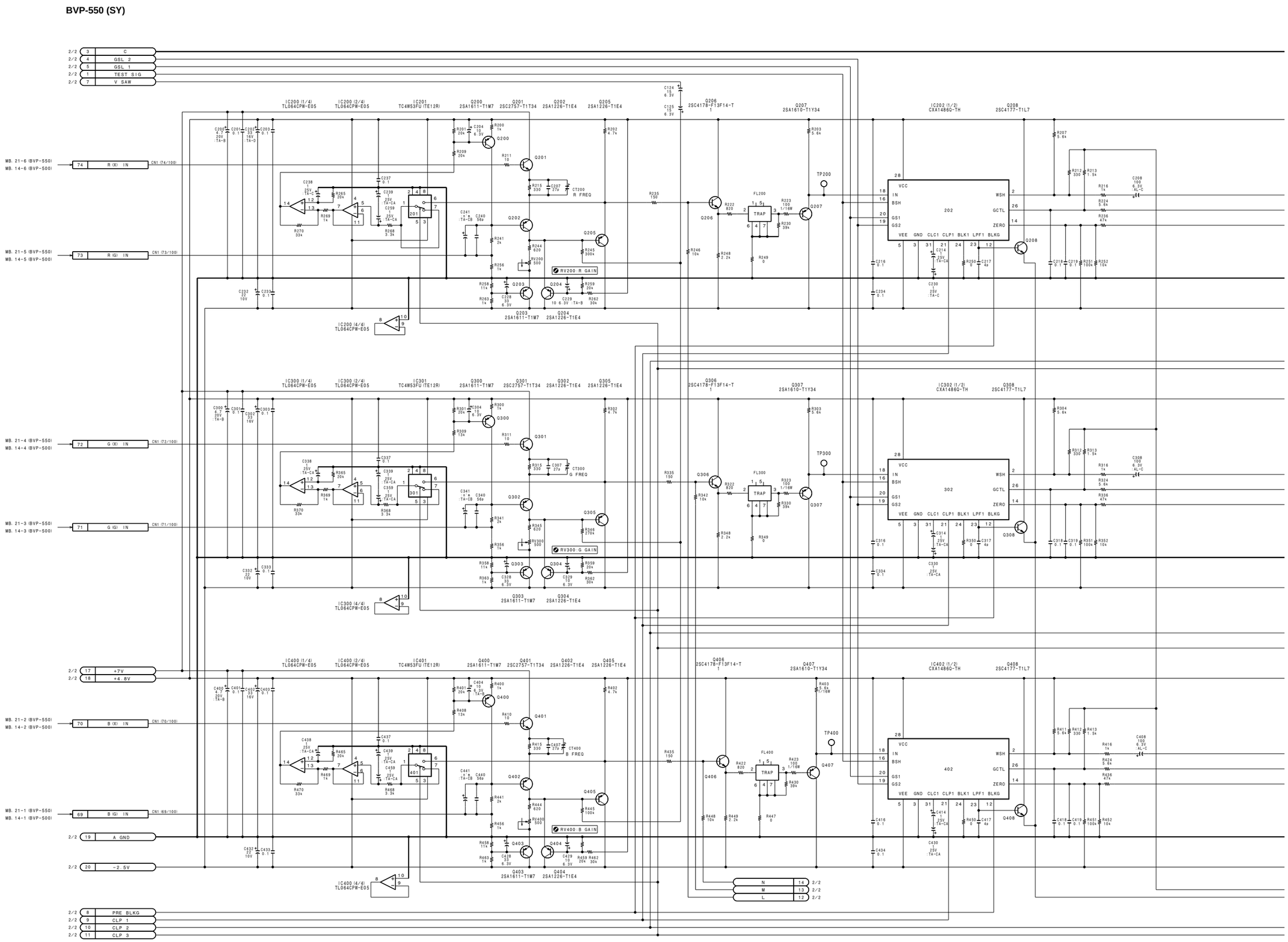
BVP-550 (SY)

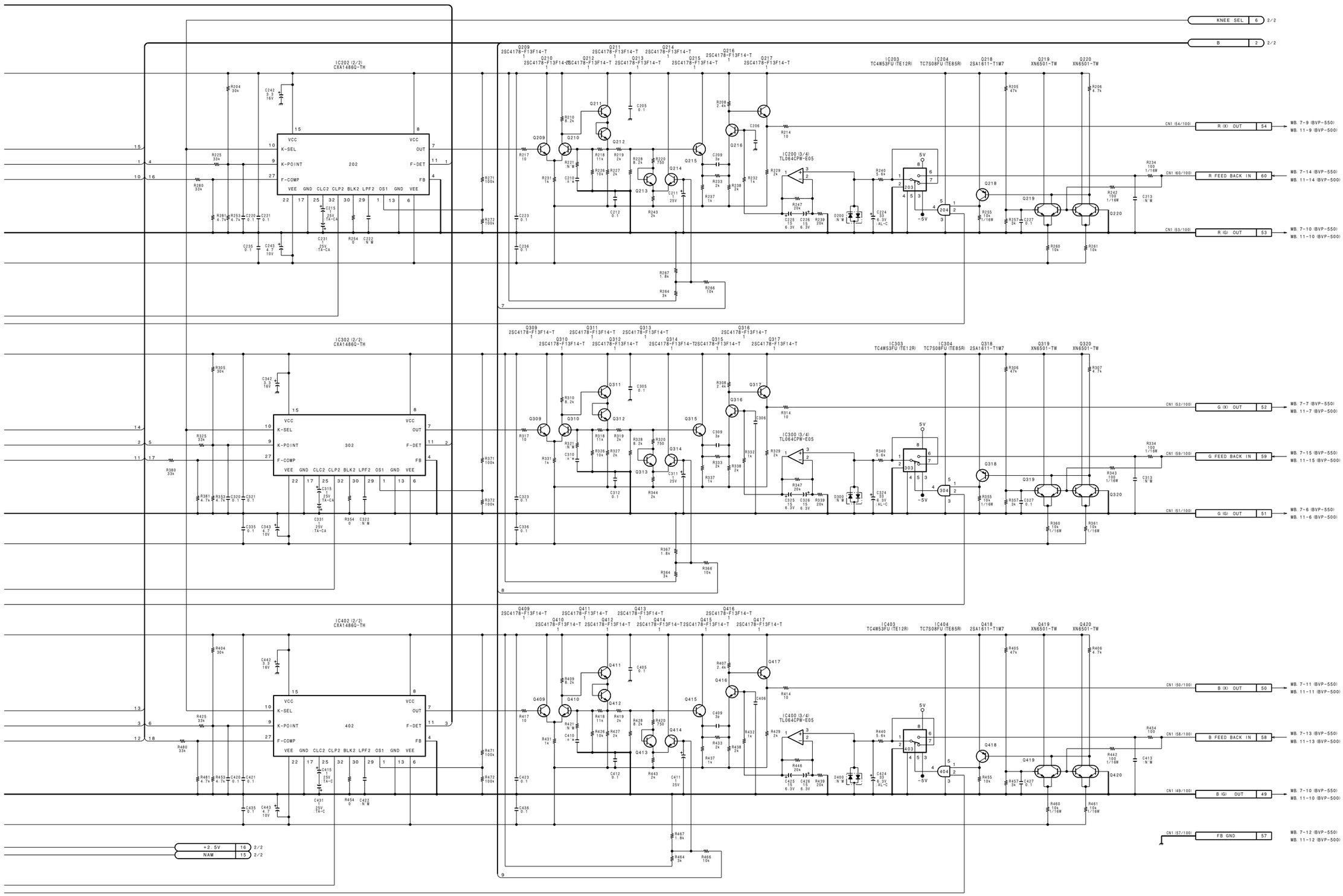
VA-163 BOARD

VA-163 (1-657-438-21)

*: B SIDE

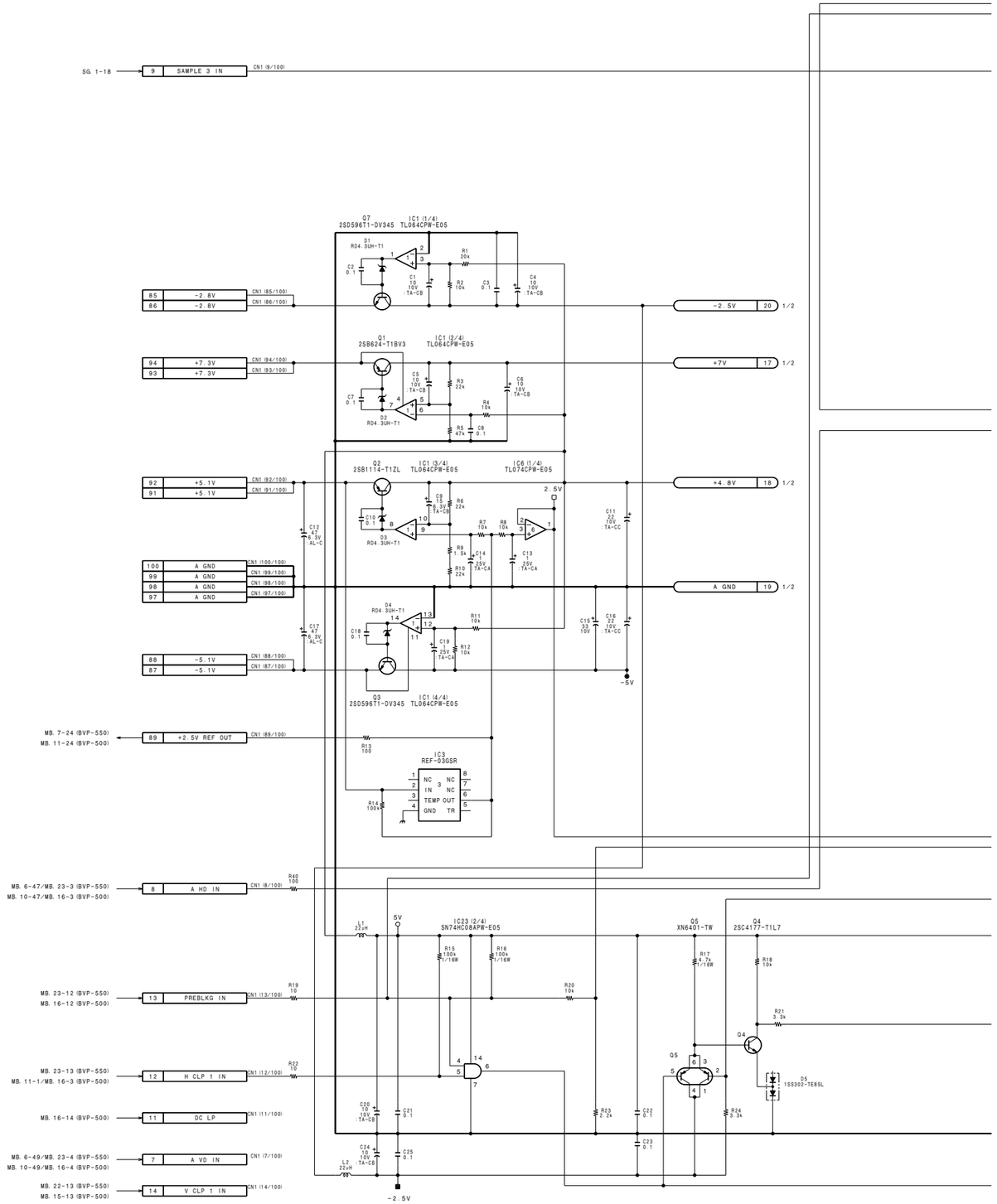
CN1	C-1	* Q213	C-1
		* Q214	C-1
CT200	B-4	* Q215	C-2
CT300	D-4	Q216	C-2
CT400	F-4	Q217	C-1
		* Q218	B-1
* D1	A-3	Q219	C-1
* D2	A-2	Q220	C-1
* D3	A-2	* Q300	C-4
* D4	A-3	* Q301	C-4
* D5	B-3	* Q302	D-4
D7	B-3	* Q303	D-4
* D8	F-3	* Q304	D-4
* D9	F-3	* Q305	D-3
* D10	F-3	Q306	D-3
		* Q307	D-3
FL200	C-3	* Q308	D-3
FL300	D-3	Q309	D-2
FL400	E-3	Q310	D-2
		Q311	D-2
IC1	A-3	Q312	D-2
IC3	B-2	* Q313	D-1
IC5	B-3	* Q314	D-1
IC6	B-2	* Q315	D-2
* IC7	B-3	Q316	D-2
* IC8	F-4	Q317	D-1
IC9	F-4	* Q318	C-1
IC10	F-2	Q319	D-1
IC11	F-2	Q320	D-1
IC12	F-2	* Q400	D-4
IC13	F-2	* Q401	E-4
IC14	F-2	* Q402	E-4
IC15	F-3	* Q403	F-4
IC16	G-3	* Q404	E-4
* IC17	G-3	* Q405	E-3
IC18	G-2	Q406	E-3
* IC19	G-3	* Q407	E-3
IC20	G-2	* Q408	E-3
IC21	G-1	Q409	E-2
IC22	B-4	Q410	E-2
IC23	B-3	Q411	E-2
IC24	G-1	Q412	E-2
IC25	F-1	* Q413	E-1
IC26	F-1	* Q414	E-1
IC27	F-1	* Q415	E-2
IC200	C-4	Q416	E-2
* IC201	C-3	Q417	E-1
IC202	C-2	* Q418	E-1
* IC203	B-2	Q419	E-1
* IC204	B-1	Q420	E-1
IC300	D-4		
* IC301	D-3	RV50	B-4
IC302	D-2	RV200	C-4
* IC303	C-2	RV300	D-4
* IC304	C-1	RV400	F-4
IC400	E-4		
* IC401	E-3	TP200	D-4
IC402	E-2	TP300	E-4
* IC403	D-2	TP400	F-4
* IC404	E-1		
L1	A-2		
L2	A-3		
* Q1	A-2		
* Q2	A-2		
* Q3	A-3		
Q4	B-3		
Q5	A-3		
* Q7	A-3		
Q10	A-4		
Q11	A-4		
Q12	A-4		
Q13	A-4		
Q14	A-4		
* Q200	B-4		
* Q201	B-4		
* Q202	C-4		
* Q203	C-4		
* Q204	C-4		
* Q205	C-3		
Q206	B-3		
* Q207	C-3		
* Q208	C-3		
Q209	B-2		
Q210	C-2		
Q211	B-2		
Q212	C-2		

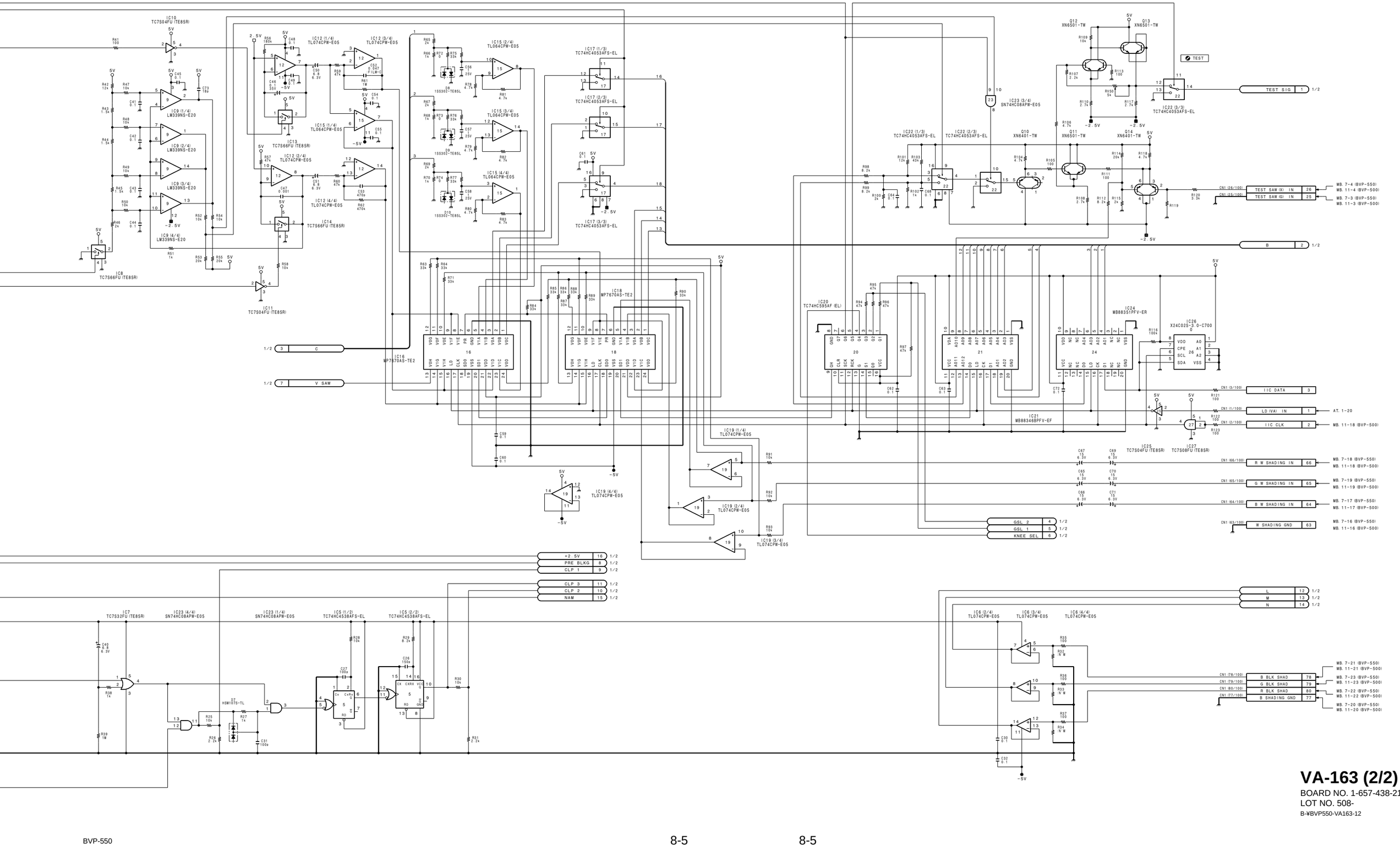




VA-163 (1/2)
BOARD NO. 1-657-438-21
LOT NO. 508-
B-¥BVP550-VA163-12

BVP-550 (SY)


SG. 1-18
9 SAMPLE 3 IN
CN1 (9/100)
Q7 2SD596T1-DV345
IC1 (1/4) TL064CPW-E05
D1 RD4.3UH-T1
R1 20k
C2 0.1
C1 10 10V :TA-CB
R2 10k
C3 0.1
C4 10 10V :TA-CB
85 -2.8V
86 -2.8V
CN1 (85/100)
CN1 (86/100)
-2.5V 20 1/2
Q1 2SB624-T1BV3
IC1 (2/4) TL064CPW-E05
94 +7.3V
93 +7.3V
CN1 (94/100)
CN1 (93/100)
+7V 17 1/2
C5 10 10V :TA-CB
R3 22k
C6 10 10V :TA-CB
C7 0.1
D2 RD4.3UH-T1
R4 10k
R5 47k
C8 0.1
92 +5.1V
91 +5.1V
CN1 (92/100)
CN1 (91/100)
Q2 2SB1114-T1ZL
IC1 (3/4) TL064CPW-E05
IC6 (1/4) TL074CPW-E05
2.5V
+4.8V 18 1/2
C9 15 6.3V :TA-CB
C10 0.1
D3 RD4.3UH-T1
R6 22k
R7 10k
R8 10k
R9 1.5k
C14 25V :TA-CA
R10 22k
C13 25V :TA-CA
C12 47 6.3V :AL-C
C11 22 10V :TA-CC
100 A GND
99 A GND
98 A GND
97 A GND
CN1 (100/100)
CN1 (99/100)
CN1 (98/100)
CN1 (97/100)
A GND 19 1/2
D4 RD4.3UH-T1
C17 47 6.3V :AL-C
C18 0.1
R11 10k
C19 1 25V :TA-CA
R12 10k
C15 33 10V
C16 22 10V :TA-CC
88 -5.1V
87 -5.1V
CN1 (88/100)
CN1 (87/100)
-5V
Q3 2SD596T1-DV345
IC1 (4/4) TL064CPW-E05
MB. 7-24 (BVP-550)
MB. 11-24 (BVP-500)
89 +2.5V REF OUT
CN1 (89/100)
R13 100
IC3 REF-03GSR
NC NC IN TEMP OUT GND TR
R14 100k
MB. 6-47/MB. 23-3 (BVP-550)
MB. 10-47/MB. 16-3 (BVP-500)
8 A HD IN
CN1 (8/100)
R40 100
5V
L1 22uH
IC23 (2/4) SN74HC08APW-E05
Q5 XN6401-TW
Q4 2SC4177-T1L7
R15 100k 1/16W
R16 100k 1/16W
R17 4.7k 1/16W
R18 10k
R20 10k
R21 3.3k
MB. 23-12 (BVP-550)
MB. 16-12 (BVP-500)
13 PREBLKG IN
CN1 (13/100)
R19 10
Q4
Q5
D5 1SS302-TE85L
MB. 23-13 (BVP-550)
MB. 11-1/MB. 16-3 (BVP-500)
12 H CLP 1 IN
CN1 (12/100)
R22 10
MB. 16-14 (BVP-500)
11 DC LP
CN1 (11/100)
C20 10 10V :TA-CB
C21 0.1
R33 2.2k
C22 0.1
C23 0.1
R24 3.3k
MB. 6-49/MB. 23-4 (BVP-550)
MB. 10-49/MB. 16-4 (BVP-500)
7 A VD IN
CN1 (7/100)
C24 10 10V TA-CB
L2 22uH
C25 0.1
MB. 22-13 (BVP-550)
MB. 15-13 (BVP-500)
14 V CLP 1 IN
CN1 (14/100)
-2.5V



VA-163 (2/2)
BOARD NO. 1-657-438-21
LOT NO. 508-
B-¥BVP550-VA163-12

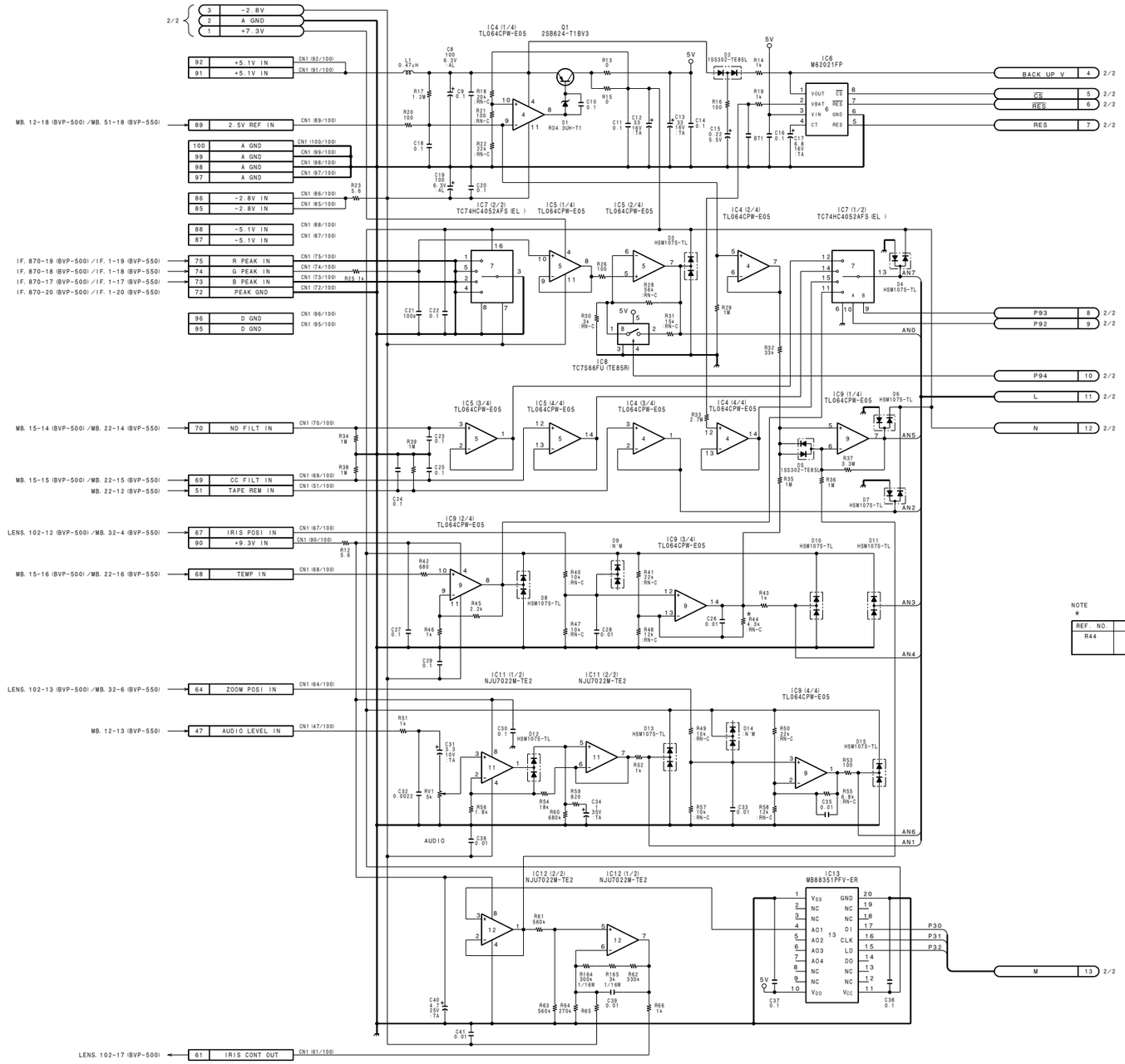
AT-95 BOARD

AT-95 (1-657-448-21)

*: B SIDE

	BT1	B-4
	CNI36	F-2
	CN1	C-1
	D1	A-2
	D2	B-4
*	D3	A-2
*	D4	A-2
*	D5	A-3
*	D6	B-3
*	D7	B-3
*	D8	A-3
*	D10	A-3
*	D11	A-3
*	D12	A-4
*	D13	B-4
*	D15	B-3
*	D16	G-4
*	D17	G-4
*	D18	G-4
*	D19	G-4
*	D20	G-1
*	D21	C-2
*	D22	G-3
	IC1	F-1
*	IC2	G-2
*	IC3	G-1
*	IC4	A-2
*	IC5	B-2
*	IC6	B-4
*	IC7	B-2
*	IC8	A-2
*	IC9	B-3
*	IC11	B-4
*	IC12	C-2
*	IC13	B-2
*	IC14	C-3
*	IC15	D-4
	IC16	D-2
*	IC17	D-4
*	IC18	D-4
*	IC19	D-4
*	IC20	D-4
*	IC21	D-4
*	IC22	D-4
*	IC23	E-3
*	IC24	E-3
	IC25	D-4
*	IC26	E-2
	IC27	E-4
	IC28	F-4
*	IC29	G-3
*	IC30	G-2
*	IC31	F-2
*	IC32	B-2
	IC33	B-2
	IC34	C-2
	IC35	C-4
*	IC37	E-4
	IC38	C-3
*	IC39	E-4
*	IC40	D-2
*	IC41	C-3
*	IC42	D-3
*	IC43	D-3
*	IC44	D-3
*	IC45	D-2
*	IC46	G-4
	IC47	E-2
*	IC48	G-2
	L1	B-1
	L2	F-1
	Q1	A-2
*	Q2	F-2
*	Q3	B-1
*	Q4	C-1
*	Q5	B-1
*	Q6	B-1
	RV1	C-3
	S1	E-3

BVP-550 (SY)

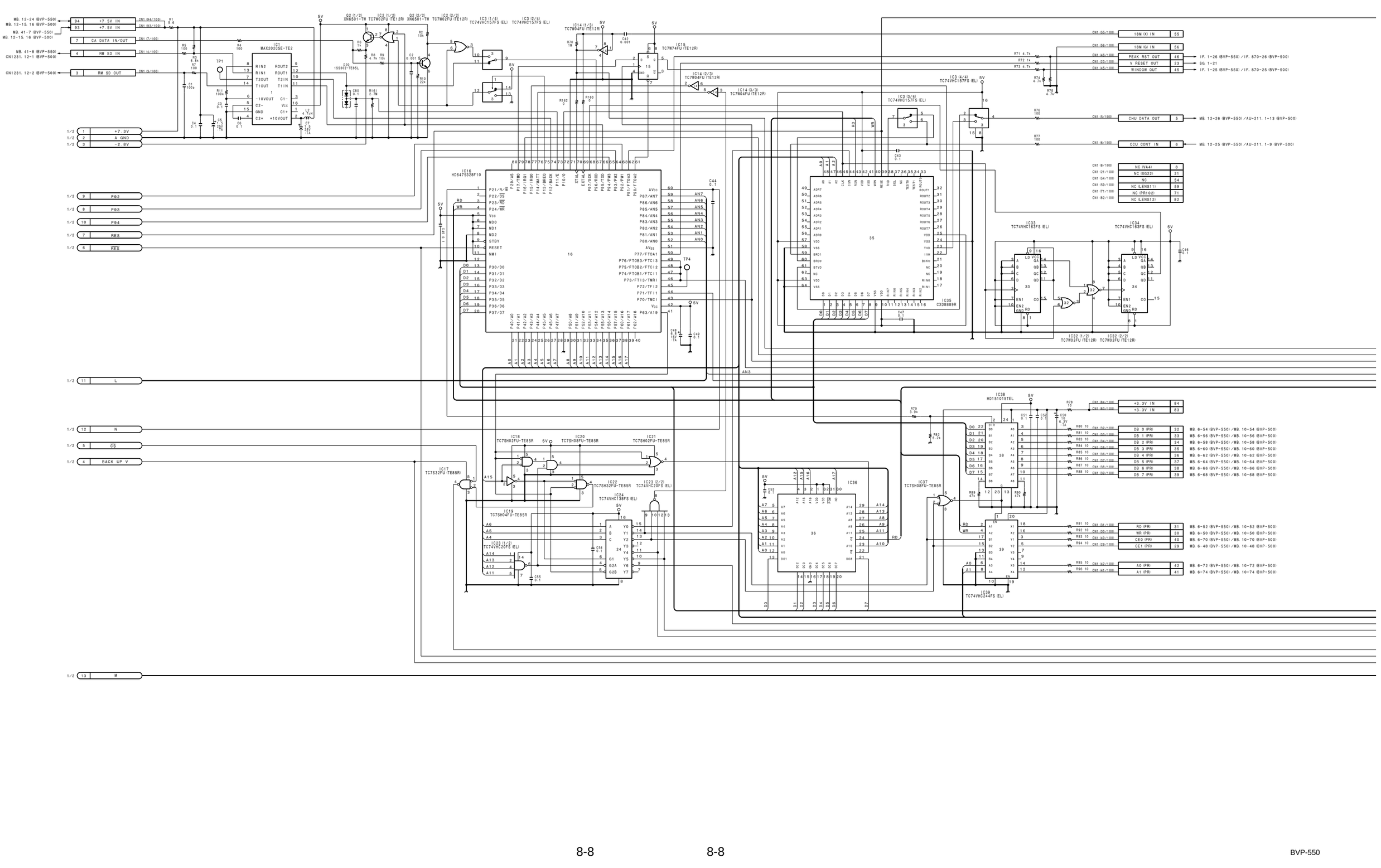


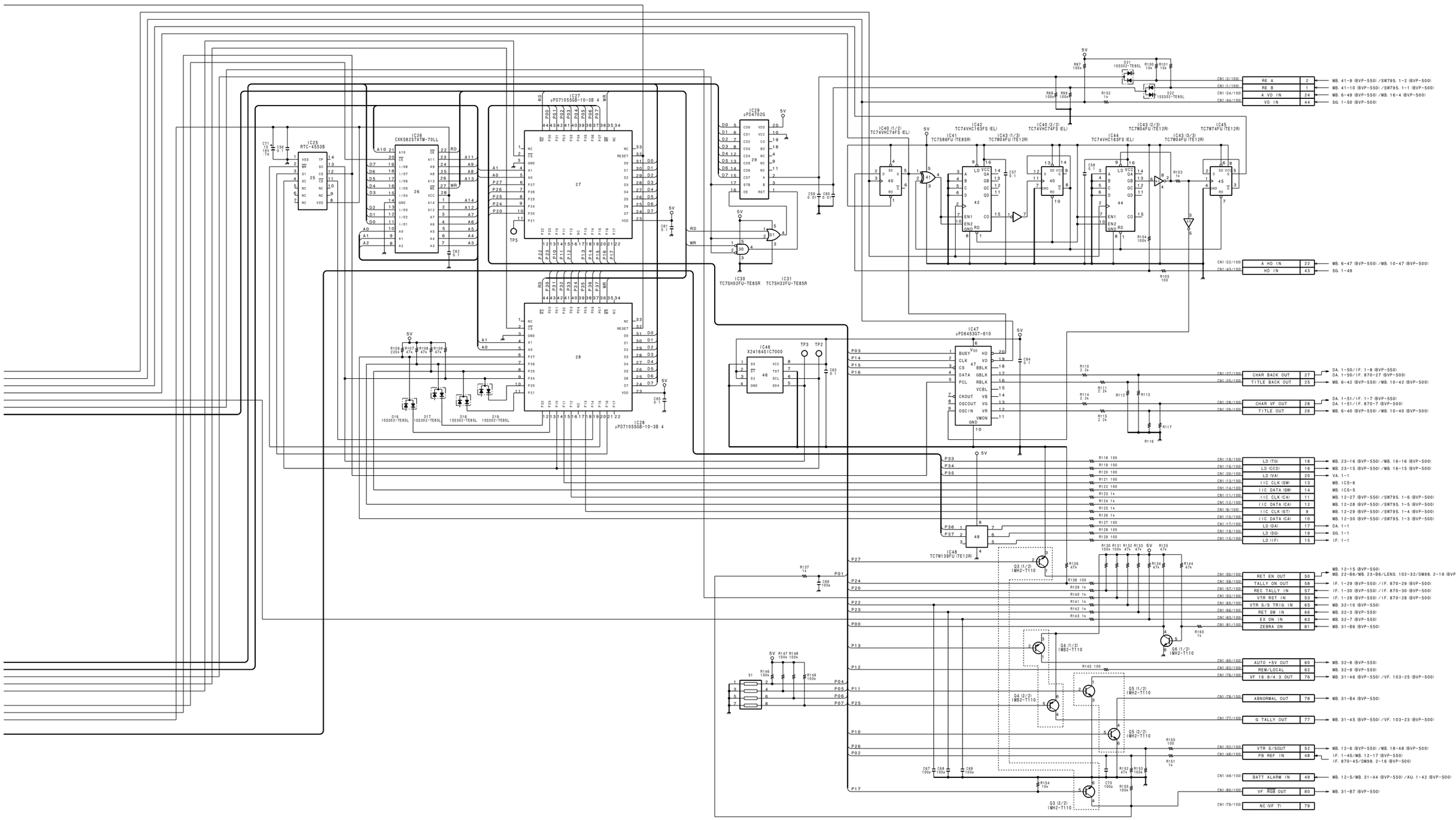
NOTE
*

REF. NO.	CHANGE INFORMATION	SERIAL NO.
R44	6.8k → 4.3k	15001- 50141-

AT-95 (1/2)
BOARD NO. 1-657-448-21
LOT NO. 508-
B-¥BVP550-AT95-12

BVP-550 (SY)


MB. 12-24 (BVP-550)
MB. 12-15. 16 (BVP-500)
MB. 41-7 (BVP-550)
MB. 12-15. 16 (BVP-500)
MB. 41-8 (BVP-550)
CN1231. 12-1 (BVP-500)
CN1231. 12-2 (BVP-500)
+7.5V IN
CA DATA IN/OUT
RM SD IN
RM SD OUT
IC1 MAX202CSE-TE2
IC2 (1/2) TC7W02FU (TE12R)
IC2 (2/2) TC7W02FU (TE12R)
IC3 (1/4) TC74VHC157FS (EL)
IC3 (2/4) TC74VHC157FS (EL)
IC14 (1/3) TC7W04FU (TE12R)
IC14 (2/3) TC7W04FU (TE12R)
IC14 (3/3) TC7W04FU (TE12R)
IC15 TC7W74FU (TE12R)
IC3 (3/4) TC74VHC157FS (EL)
18M (X) IN
18M (G) IN
PEAK RST OUT
V RESET OUT
WINDOW OUT
CHU DATA OUT
CCU CONT IN
IF. 1-26 (BVP-550) /IF. 870-26 (BVP-500)
SG. 1-21
IF. 1-25 (BVP-550) /IF. 870-25 (BVP-500)
MB. 12-26 (BVP-550) /AU-211. 1-13 (BVP-500)
MB. 12-25 (BVP-550) /AU-211. 1-9 (BVP-500)
NC (VA4)
NC (SG22)
NC
NC (LENS11)
NC (PR102)
NC (LENS12)
+7.3V
A GND
-2.8V
P92
P93
P94
RES
RES
IC16 HD6475328F10
IC35 CX88889R
IC33 TC74VHC163FS (EL)
IC34 TC74VHC163FS (EL)
IC32 (1/2) TC7W02FU (TE12R)
IC32 (2/2) TC7W02FU (TE12R)
L
N
CB
BACK UP V
M
IC38 H0151015TEL
IC37 TC7SH08FU-TE85R
IC39 TC74VHC244FS (EL)
+3.3V IN
DB 0 (PR)
DB 1 (PR)
DB 2 (PR)
DB 3 (PR)
DB 4 (PR)
DB 5 (PR)
DB 6 (PR)
DB 7 (PR)
RD (PR)
WR (PR)
CE0 (PR)
CE1 (PR)
A0 (PR)
A1 (PR)
MB. 6-54 (BVP-550) /MB. 10-54 (BVP-500)
MB. 6-56 (BVP-550) /MB. 10-56 (BVP-500)
MB. 6-58 (BVP-550) /MB. 10-58 (BVP-500)
MB. 6-60 (BVP-550) /MB. 10-60 (BVP-500)
MB. 6-62 (BVP-550) /MB. 10-62 (BVP-500)
MB. 6-64 (BVP-550) /MB. 10-64 (BVP-500)
MB. 6-66 (BVP-550) /MB. 10-66 (BVP-500)
MB. 6-68 (BVP-550) /MB. 10-68 (BVP-500)
MB. 6-52 (BVP-550) /MB. 10-52 (BVP-500)
MB. 6-50 (BVP-550) /MB. 10-50 (BVP-500)
MB. 6-70 (BVP-550) /MB. 10-70 (BVP-500)
MB. 6-48 (BVP-550) /MB. 10-48 (BVP-500)
MB. 6-72 (BVP-550) /MB. 10-72 (BVP-500)
MB. 6-74 (BVP-550) /MB. 10-74 (BVP-500)



AT-95 (2/2)

BOARD NO. 1-657-448-21
LOT NO. 508-
B-¥BVP550AT-95-12

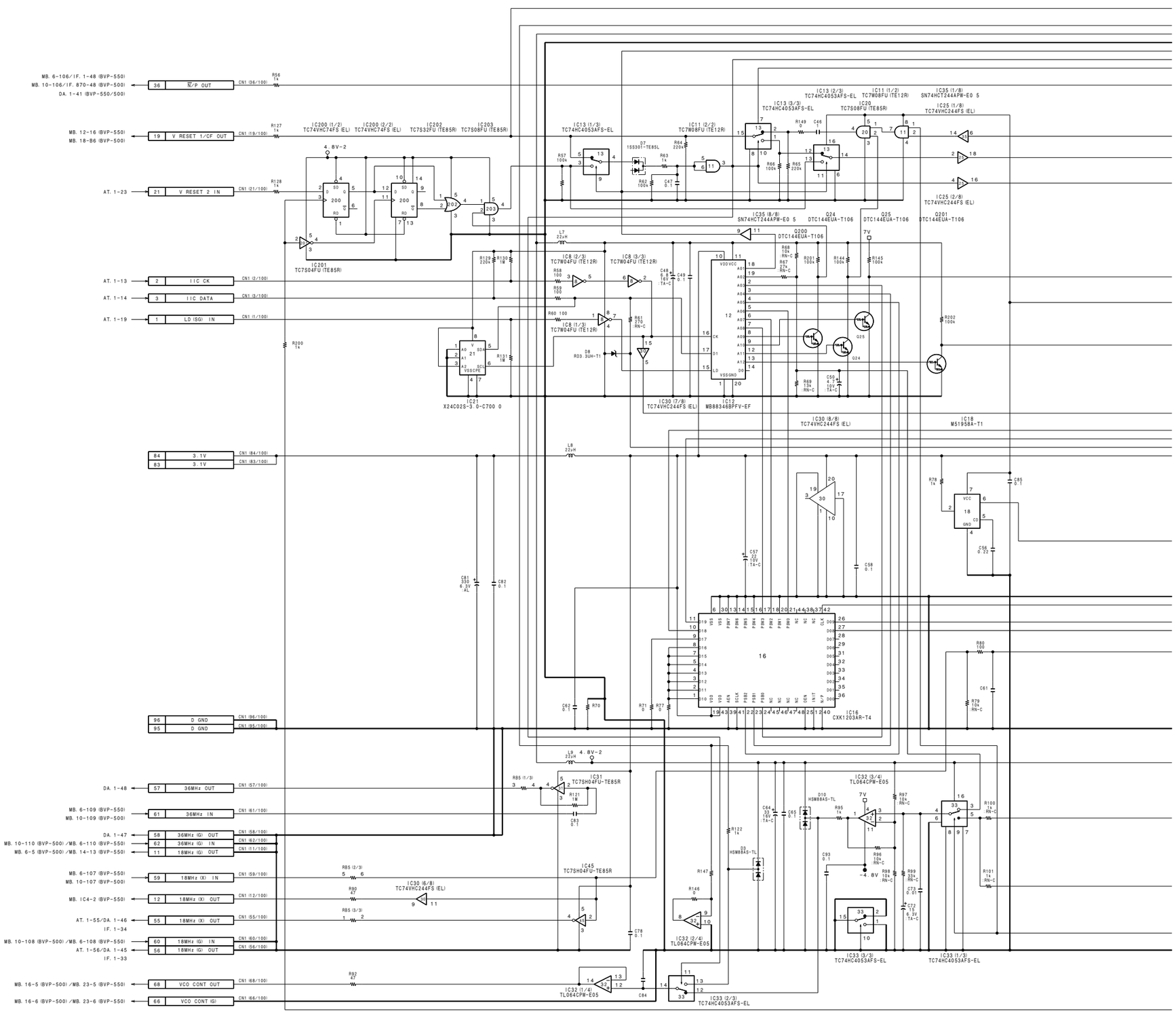
SG-234 BOARD

SG-234 (1-657-449-21)

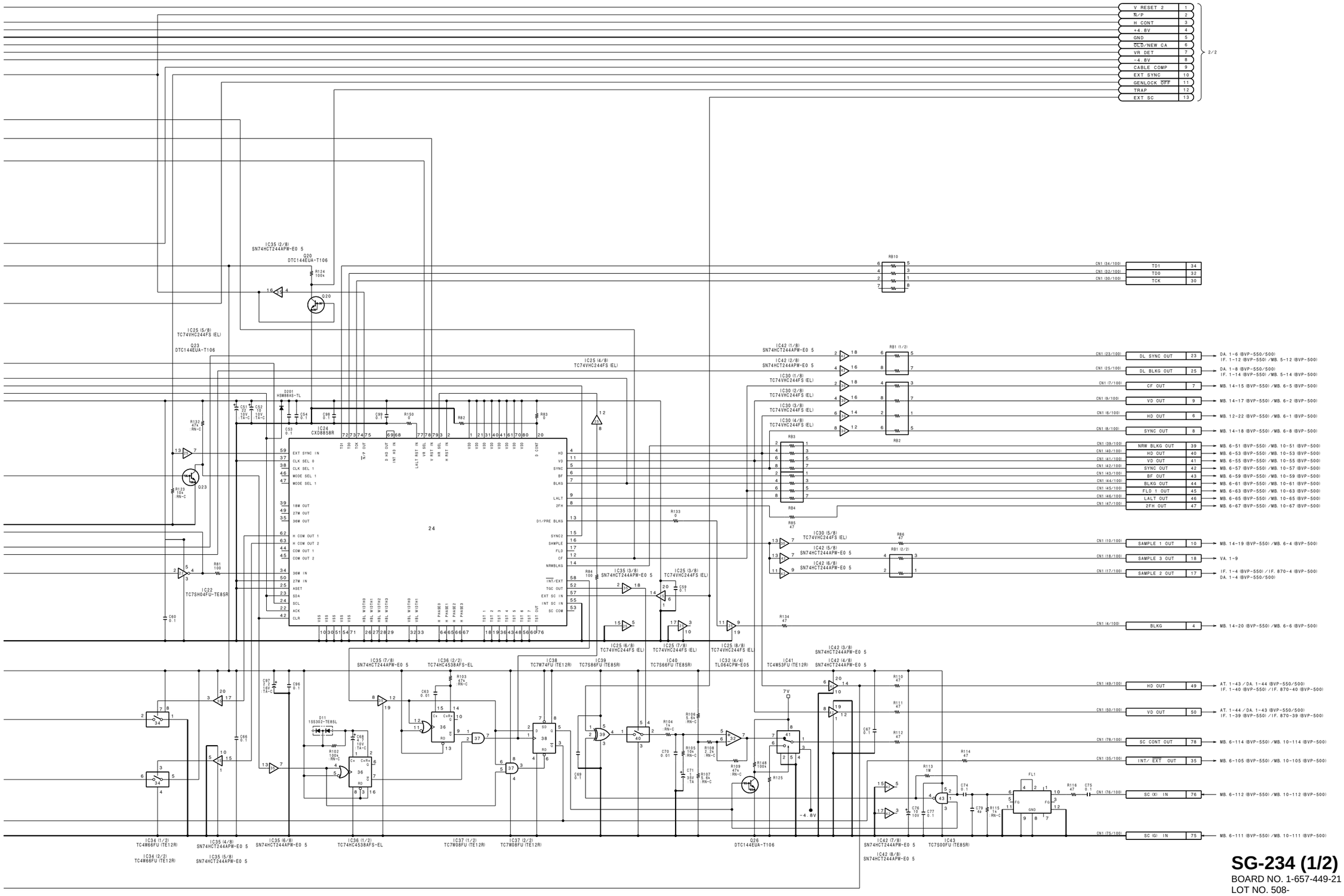
*: B SIDE

CN1	C-1	* Q20	D-4
		* Q21	A-3
D1	A-2	Q22	B-3
* D2	A-2	Q23	G-4
D3	E-2	* Q24	F-1
* D4	A-1	* Q25	F-1
D5	B-3	Q26	D-3
D6	B-4	* Q200	E-1
* D7	D-3	* Q201	F-2
D8	F-1	Q202	A-4
D10	C-2	Q203	A-4
D11	C-3	Q204	B-4
D12	A-3	* Q205	A-3
* D13	D-1		
D14	A-3	RB1	E-1
* D200	B-4	RB2	F-1
* D201	E-3	RB3	D-1
		RB4	D-1
FL1	C-2	RB5	C-1
		RB10	D-1
IC3	A-2		
IC5	B-4		
IC8	F-1		
* IC11	D-3		
IC12	F-1		
IC13	D-3		
IC16	F-2		
* IC17	A-2		
IC18	F-4		
* IC20	D-3		
* IC21	F-1		
* IC22	F-3		
IC24	F-4		
IC25	E-2		
IC30	E-2		
* IC31	C-2		
IC32	D-2		
IC33	D-3		
* IC34	D-4		
IC35	D-4		
IC36	C-4		
IC37	C-3		
IC38	D-3		
* IC39	D-3		
* IC40	C-3		
IC41	D-3		
IC42	D-2		
* IC43	C-3		
IC44	B-3		
* IC45	D-2		
IC46	A-3		
* IC47	B-3		
IC48	A-3		
* IC200	D-1		
* IC201	D-1		
* IC202	D-1		
* IC203	D-1		
* IC204	A-4		
* IC206	B-4		
IC207	B-4		
* L1	A-1		
* L2	A-1		
* L4	B-1		
* L5	B-4		
* L6	C-4		
* L7	F-1		
L8	B-2		
L9	B-2		
Q1	A-2		
* Q2	A-2		
* Q4	B-2		
Q5	A-4		
Q6	A-4		
* Q7	B-4		
Q8	A-4		
* Q9	A-4		
Q10	C-4		
* Q11	A-4		
* Q12	C-3		
* Q14	C-3		
Q15	C-4		
* Q16	A-3		
Q17	A-3		
* Q18	C-4		

BVP-550 (SY)

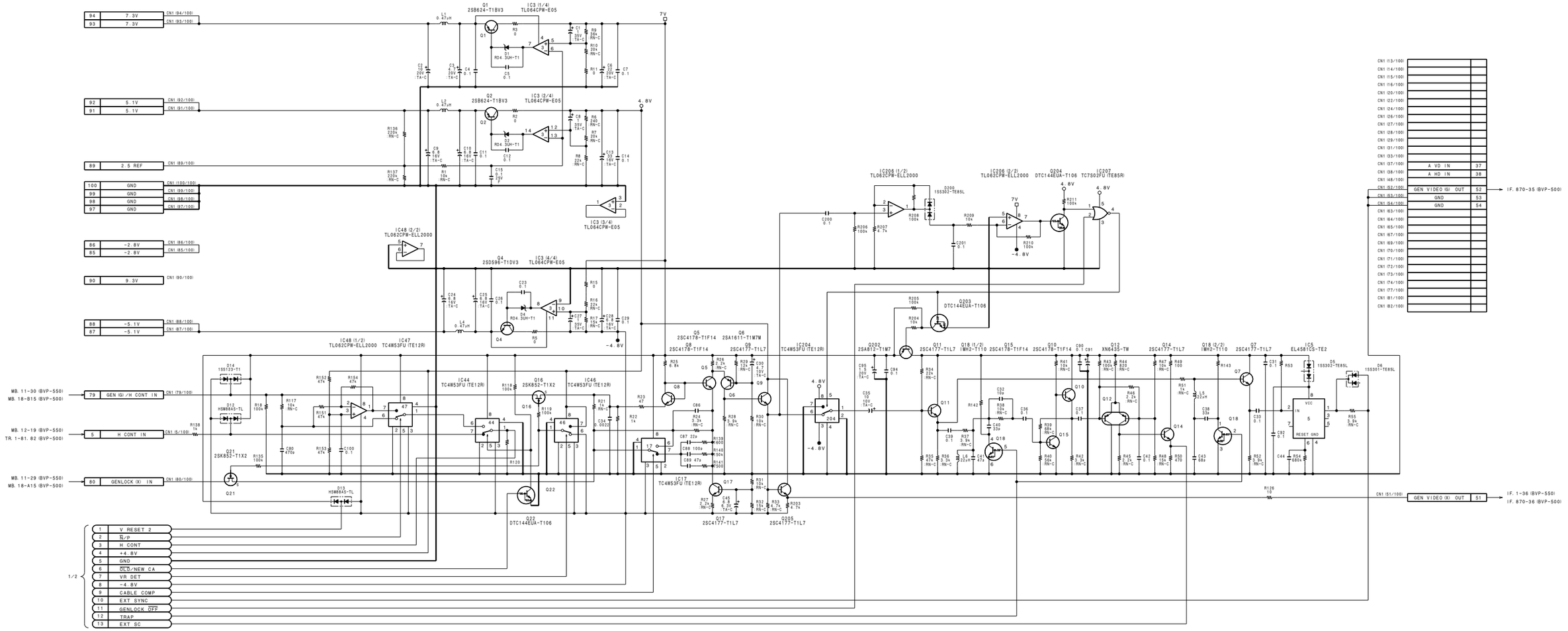


A B C D E F G H



SG-234 (1/2)
BOARD NO. 1-657-449-21
LOT NO. 508-
B-¥BVP550SG234-12

BVP-550 (SY)



SG-234 (2/2)
BOARD NO. 1-657-449-21
LOT NO. 508-
B-¥BVP550-SG234-12

BVP-550 (SY)

DA-88 BOARD

DA-88 (1-657-450-21)

*: B SIDE

CN1	C-1	L6	B-2	* Q103	C-2
		L7	A-3	* Q104	C-3
* D1	A-2	L8	A-3	Q105	G-2
* D2	B-1	L9	B-1	* Q106	G-1
* D3	B-1	L10	D-2	* Q107	B-3
* D5	A-4	L11	F-1	* Q108	C-3
* D6	G-2	L12	G-1	* Q109	C-3
D7	F-2	L13	G-3	* Q110	E-4
* D9	C-1	L14	A-3	* Q111	E-4
* D10	D-3	L15	B-3	* Q112	E-4
* D11	G-2	L16	B-2	* Q113	F-4
D12	E-4	L17	B-2	* Q114	G-4
D13	G-2	L18	D-4	* Q115	G-4
* D14	E-3	L19	D-4	Q117	D-3
D15	G-2	* L20	E-4		
D16	G-2	* L21	E-4	* RB1	D-2
* D17	G-3	* L22	F-4	* RB2	E-2
D24	B-3	L23	G-4	* RB3	E-2
D25	C-4	L24	G-1	RB4	F-2
D26	G-4	L25	F-1	RB5	F-1
* D100	A-3			* RB6	F-2
* D101	C-2	* Q1	A-2	* RB7	F-2
* D102	G-2	Q2	A-2		
		Q3	B-2	TP1	B-2
E1	F-4	* Q4	A-3	TP2	C-1
		* Q7	A-3	TP3	D-4
FL1	A-4	* Q8	A-3	TP4	E-4
FL2	A-3	* Q9	A-3	TP5	F-4
FL3	B-3	* Q10	A-2		
FL4	B-2	* Q11	B-3		
FL5	C-2	* Q12	A-4		
FL6	D-3	* Q13	B-4		
FL7	E-3	Q14	B-4		
FL8	F-3	Q15	A-4		
		* Q16	A-4		
* IC1	A-1	Q17	B-4		
* IC2	B-1	* Q18	B-4		
* IC3	A-2	* Q19	B-3		
* IC4	D-1	* Q20	A-2		
* IC5	E-1	* Q22	C-3		
* IC6	E-1	Q23	B-3		
* IC7	D-2	* Q25	C-4		
* IC8	D-1	* Q26	B-4		
IC9	E-2	* Q27	B-2		
* IC10	E-1	* Q28	B-1		
IC11	F-1	* Q29	C-2		
IC12	F-1	* Q30	B-2		
* IC13	E-2	* Q32	C-2		
IC14	F-2	* Q33	C-2		
* IC15	B-3	* Q34	C-2		
IC16	B-4	Q43	C-2		
* IC17	B-4	Q44	C-1		
* IC18	C-4	* Q45	F-1		
IC19	G-2	* Q46	G-1		
* IC20	C-2	* Q47	G-1		
IC23	C-3	* Q48	D-4		
* IC24	D-4	* Q49	D-3		
IC25	C-3	* Q50	D-4		
IC26	C-4	* Q51	D-4		
IC27	E-3	* Q52	D-4		
IC28	F-4	* Q53	D-4		
IC29	C-4	* Q54	D-4		
IC34	D-1	Q59	C-4		
* IC35	E-1	Q63	C-4		
* IC36	F-2	* Q67	D-3		
* IC37	C-3	* Q68	E-3		
IC100	F-2	* Q69	E-3		
IC101	C-3	* Q70	E-3		
IC102	C-3	* Q71	E-3		
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* IC104	G-2	* Q73	E-4		
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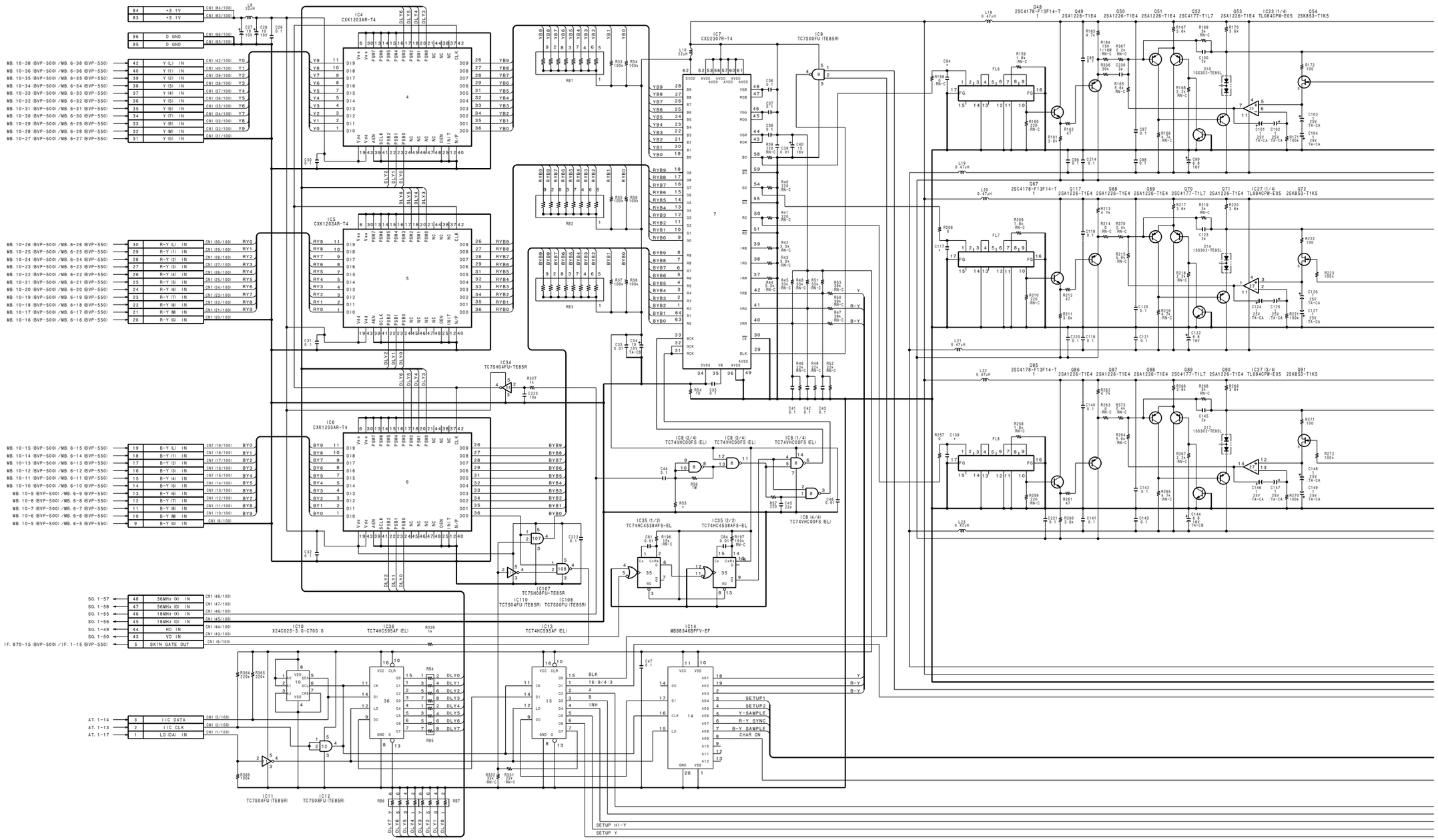
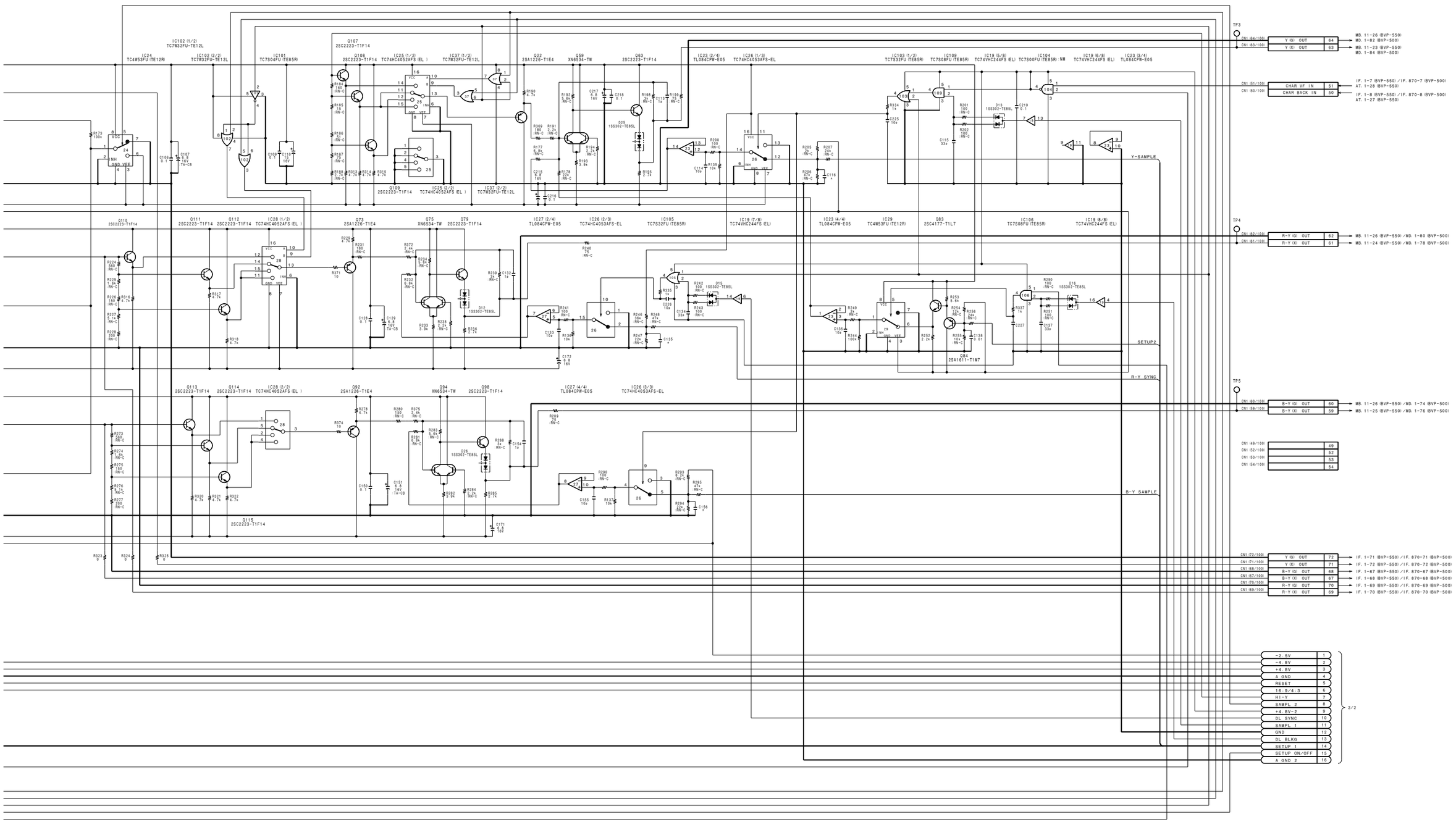
IC107	E-2	* Q83	C-4		
IC108	E-2	* Q84	C-4		
IC109	G-2	* Q85	F-3		
IC110	E-2	Q86	F-3		
		* Q87	G-3		
* JR1	B-4	* Q88	G-3		
* JR2	A-4	* Q89	G-3		
* JR3	C-2	* Q90	G-3		
* JR4	B-3	Q91	G-3		
		* Q92	F-4		
L1	A-1	Q94	G-4		
L2	A-2	Q98	G-4		
L3	A-1	* Q100	A-4		
L4	A-2	* Q101	A-4		
L5	B-1	* Q102	C-2		



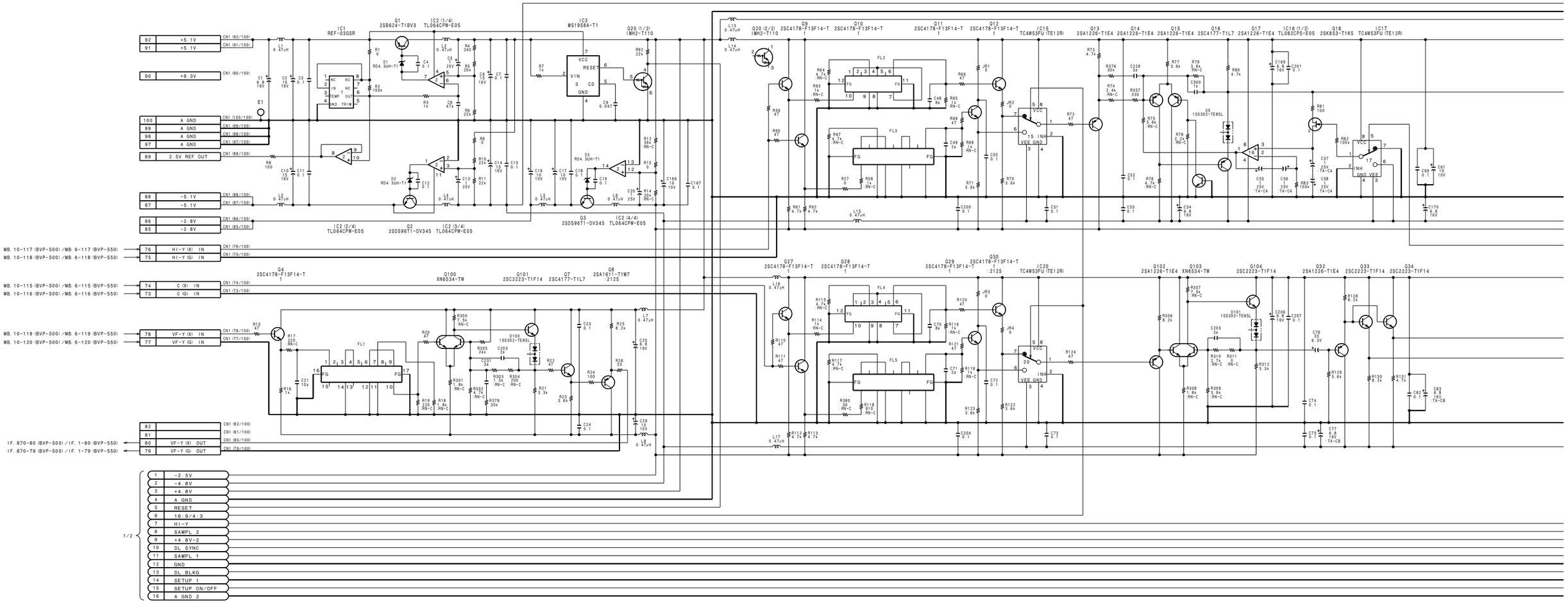


DA-88 (1/2)

BOARD NO. 1-657-450-21
LOT NO. 508-
B-¥BVP550-DA88-12

DA-88 (2/2)

BVP-550 (SY)



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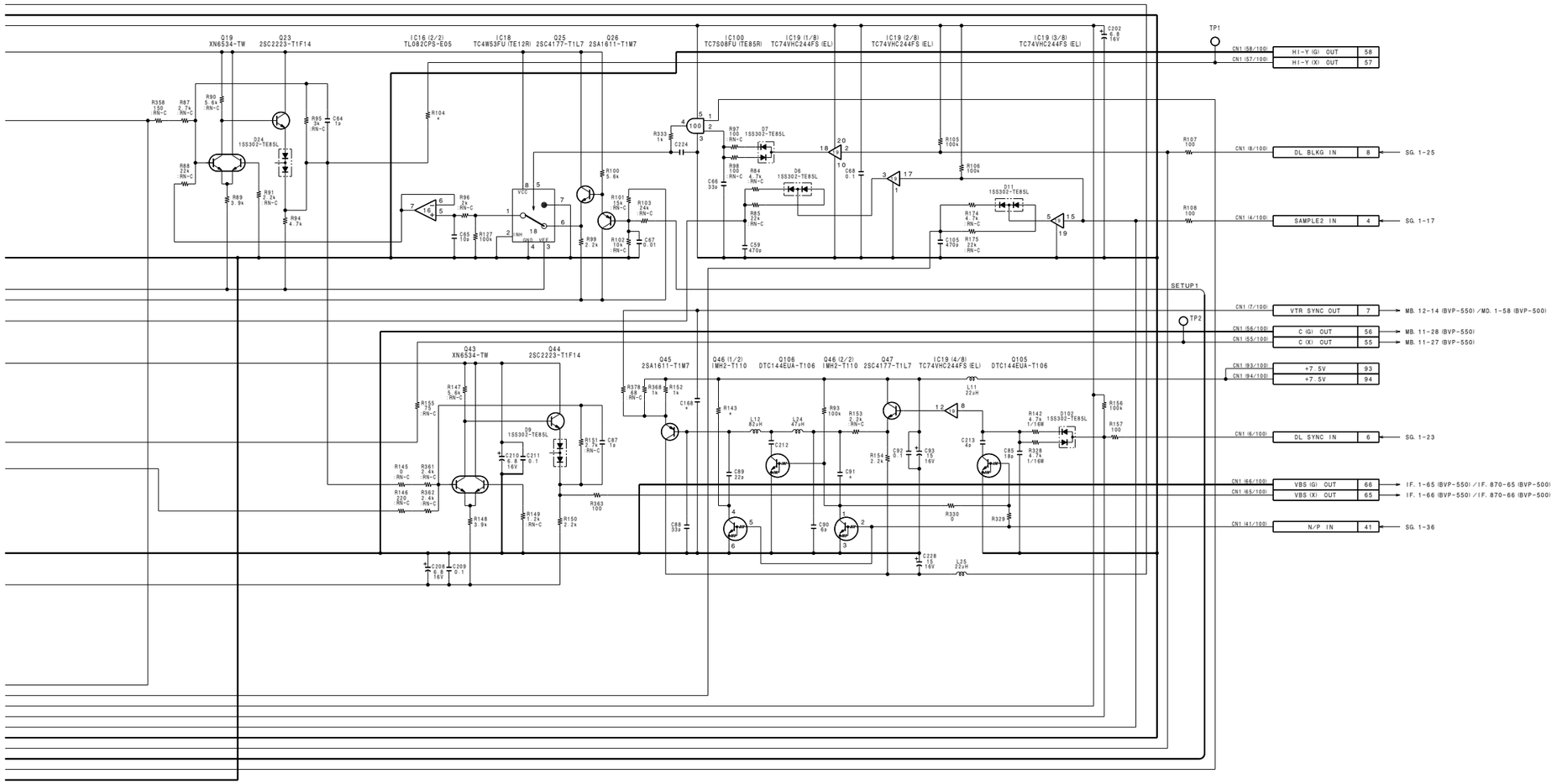
A B C D E F G H



DA-88 (2/2)

BOARD NO. 1-657-450-21
LOT NO. 508-
B-¥BVP550-DA88-12

I J K L M N O P

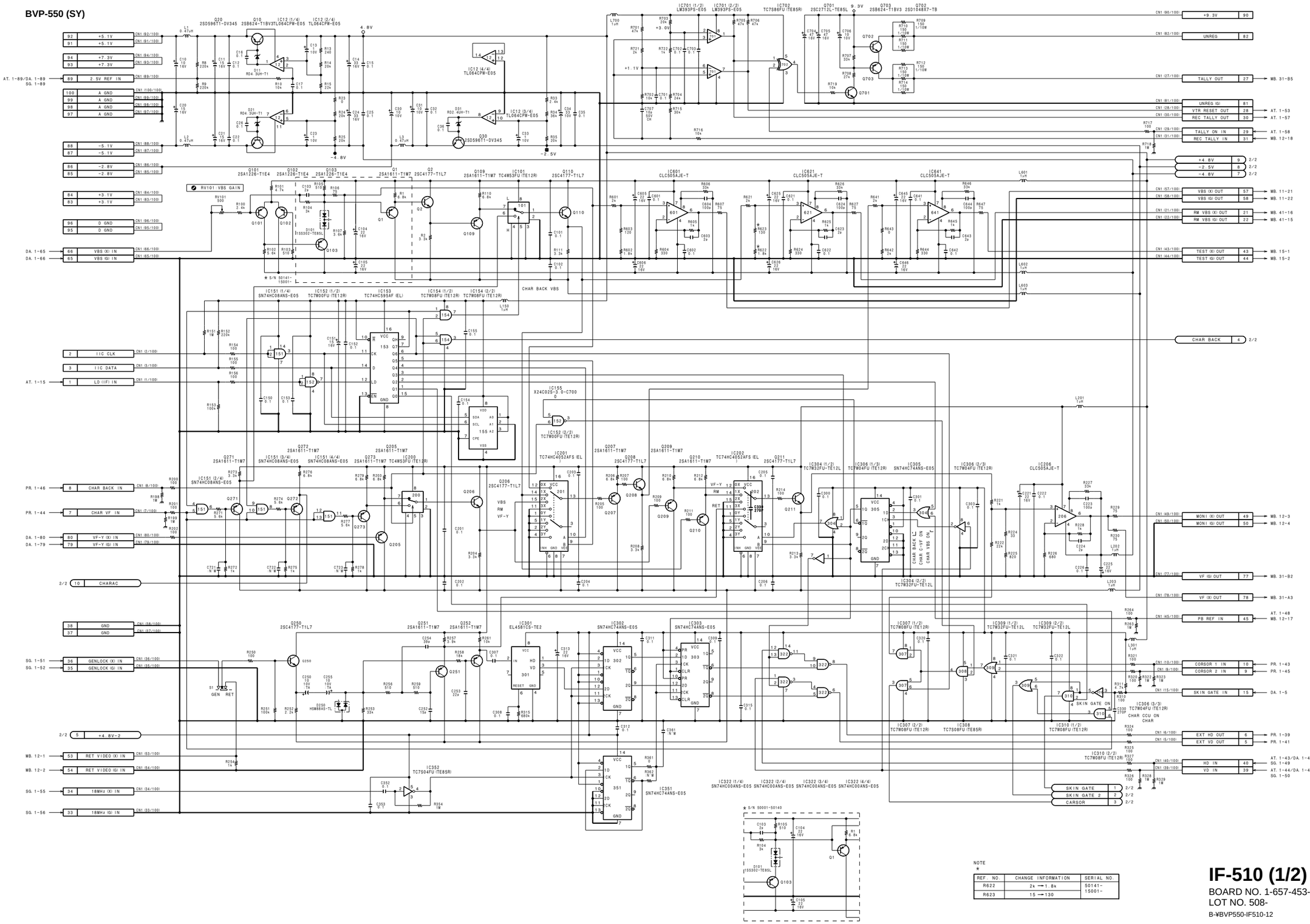
IF-510 BOARD

IF-510 (1-657-453-21)

*: B SIDE

CN1	C-1	* Q251	B-3
		* Q271	C-4
* D11	A-2	* Q272	C-4
* D21	A-2	* Q273	C-3
* D31	B-2	* Q352	G-3
* D101	D-3	* Q353	F-3
* D250	B-3	* Q354	G-3
* D400	C-2	* Q401	B-2
* D401	C-3	* Q402	B-3
* D402	D-3	* Q403	C-2
* D500	E-2	* Q404	C-3
		* Q405	C-3
* IC12	A-2	* Q406	B-3
* IC101	D-4	* Q410	C-2
IC151	F-4	* Q411	C-3
* IC152	F-3	* Q412	C-3
* IC153	F-3	* Q413	C-3
* IC154	F-3	* Q414	C-3
IC155	G-4	* Q420	D-2
IC200	B-4	* Q421	D-3
* IC201	B-4	* Q422	D-3
* IC202	A-4	* Q423	D-3
* IC206	A-3	* Q424	D-3
* IC301	G-2	Q430	C-3
* IC302	F-2	Q431	C-4
IC303	F-2	* Q500	C-2
* IC304	G-2	* Q501	B-2
IC305	F-3	* Q502	B-2
* IC306	F-1	* Q503	C-2
* IC307	G-2	* Q504	C-2
* IC308	G-1	* Q505	C-2
IC309	G-1	* Q506	D-2
* IC310	G-1	* Q507	D-2
IC322	F-1	* Q508	D-2
* IC351	F-2	Q509	E-2
* IC352	F-2	Q510	E-1
IC400	C-3	* Q701	A-3
* IC404	C-4	* Q702	A-3
IC410	C-3	* Q703	A-3
IC420	D-3		
* IC500	E-1	RV101	D-4
* IC501	C-1		
* IC502	D-1	S1	C-3
* IC601	E-3		
* IC621	E-2		
* IC641	E-2		
IC701	A-3		
IC702	A-2		
L1	A-1		
L2	A-1		
L3	B-1		
L150	E-4		
L201	A-3		
L202	A-3		
L203	A-4		
L250	B-3		
L301	F-2		
L400	D-2		
L401	D-3		
L402	C-3		
L500	D-2		
L501	C-1		
L502	D-1		
L601	D-4		
L602	E-3		
L603	D-3		
L700	A-2		
* Q1	E-4		
* Q2	E-4		
* Q10	A-2		
* Q20	A-2		
* Q30	B-2		
Q101	D-4		
Q102	D-4		
Q103	D-4		
* Q109	E-4		
* Q110	D-3		
* Q205	B-4		
Q206	B-4		
Q207	B-4		
Q208	B-4		
Q209	A-4		
Q210	A-4		
Q211	A-4		
* Q250	B-4		

BVP-550 (SY)



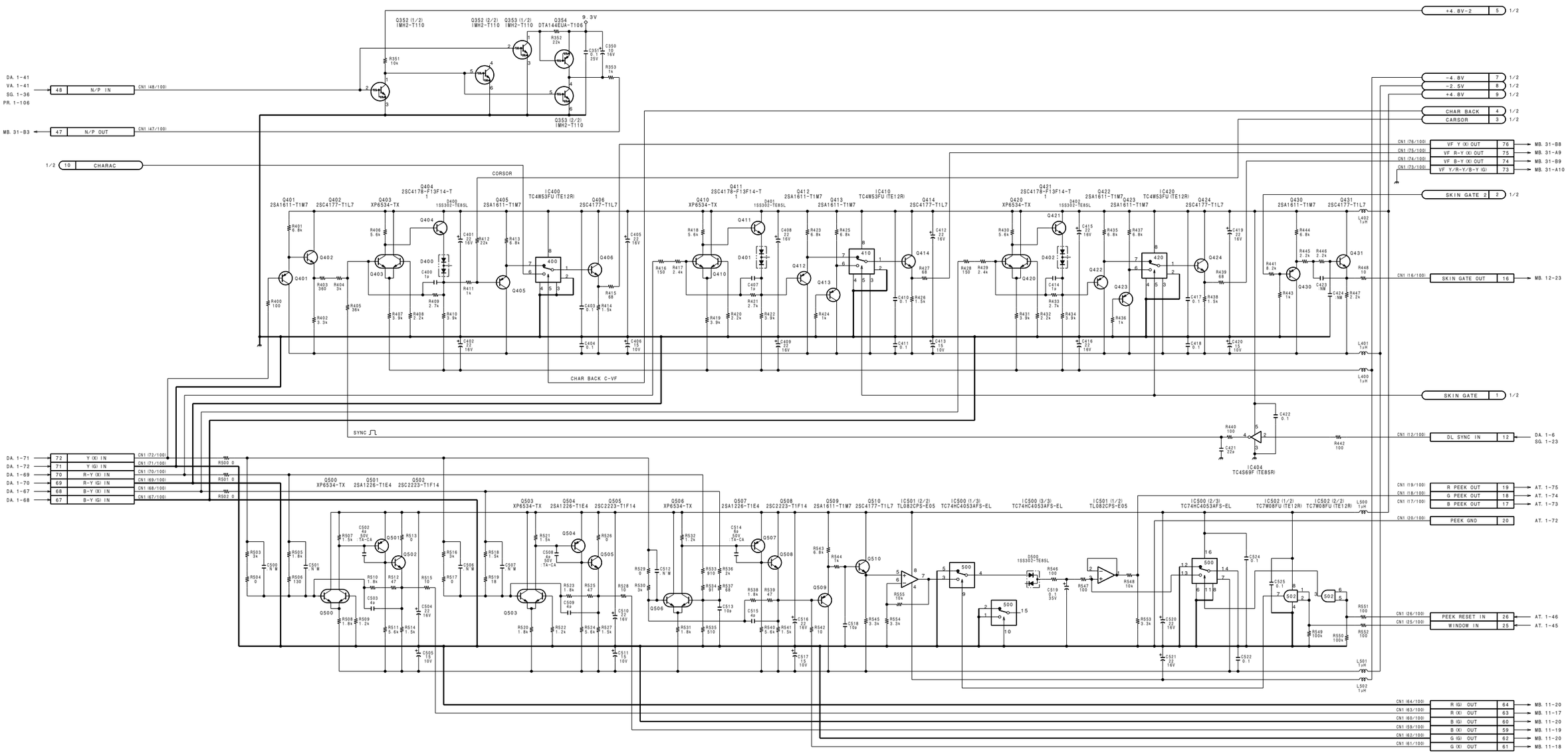
NOTE
*

REF. NO.	CHANGE INFORMATION	SERIAL NO.
R622	2k → 1.8k	50141- 15001-
R623	15 → 130	

IF-510 (1/2)

BOARD NO. 1-657-453-21
LOT NO. 508-
B-¥BVP550-IF510-12

BVP-550 (SY)

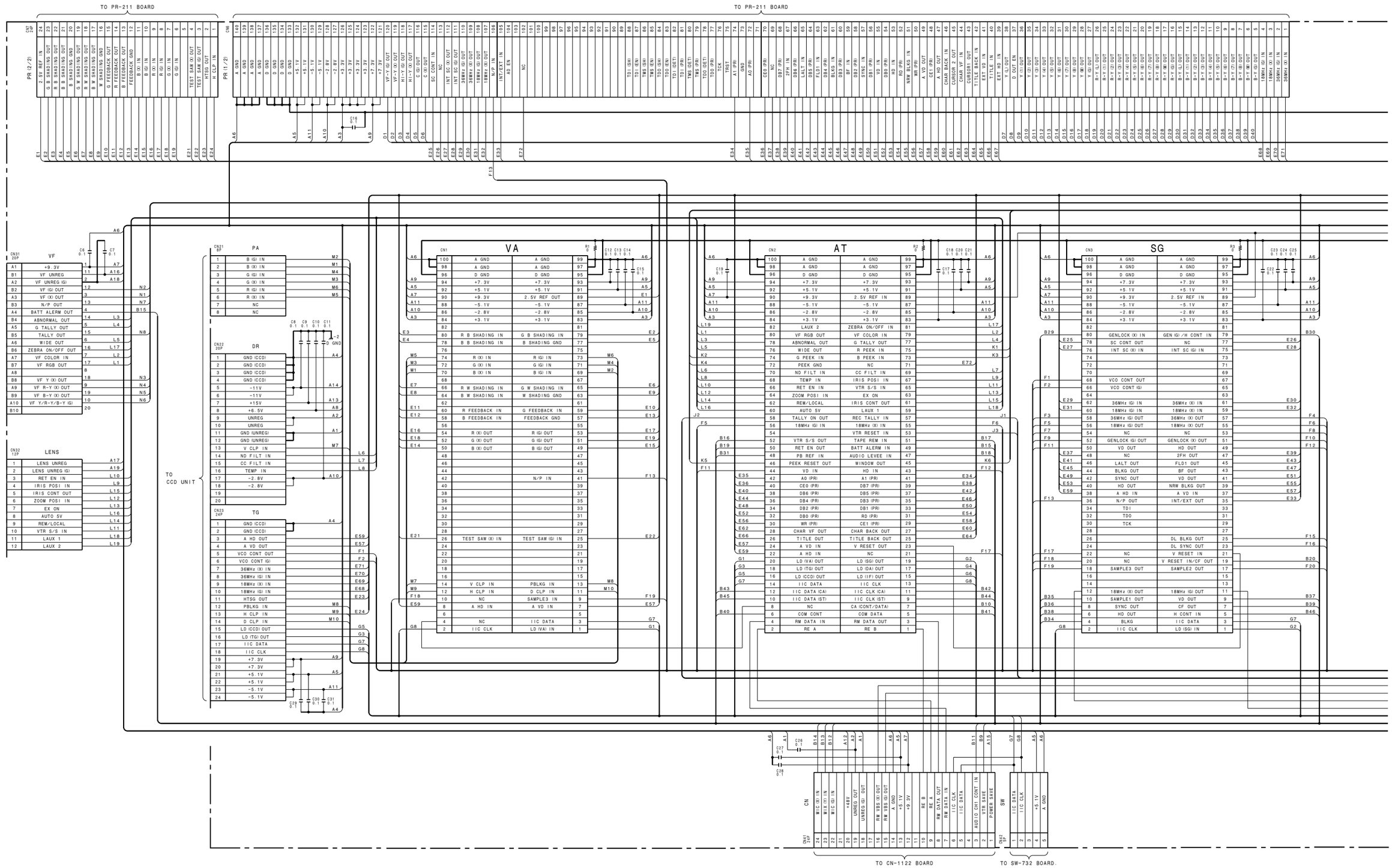


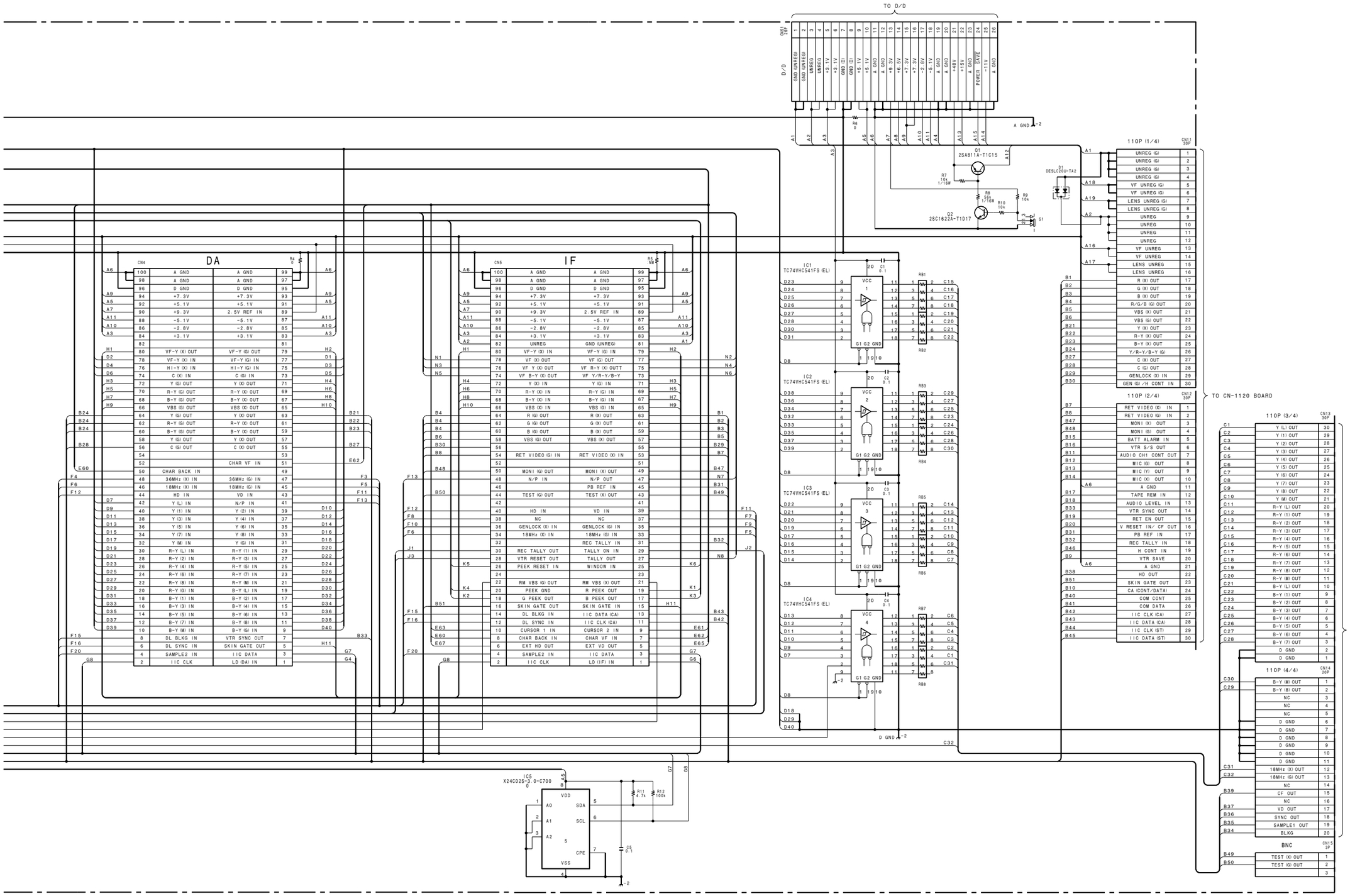
IF-510 (2/2)

BOARD NO. 1-657-453-21
LOT NO. 508-
B-¥BVP550-IF510-12

MB-602 BOARD

BVP-550 (SY)





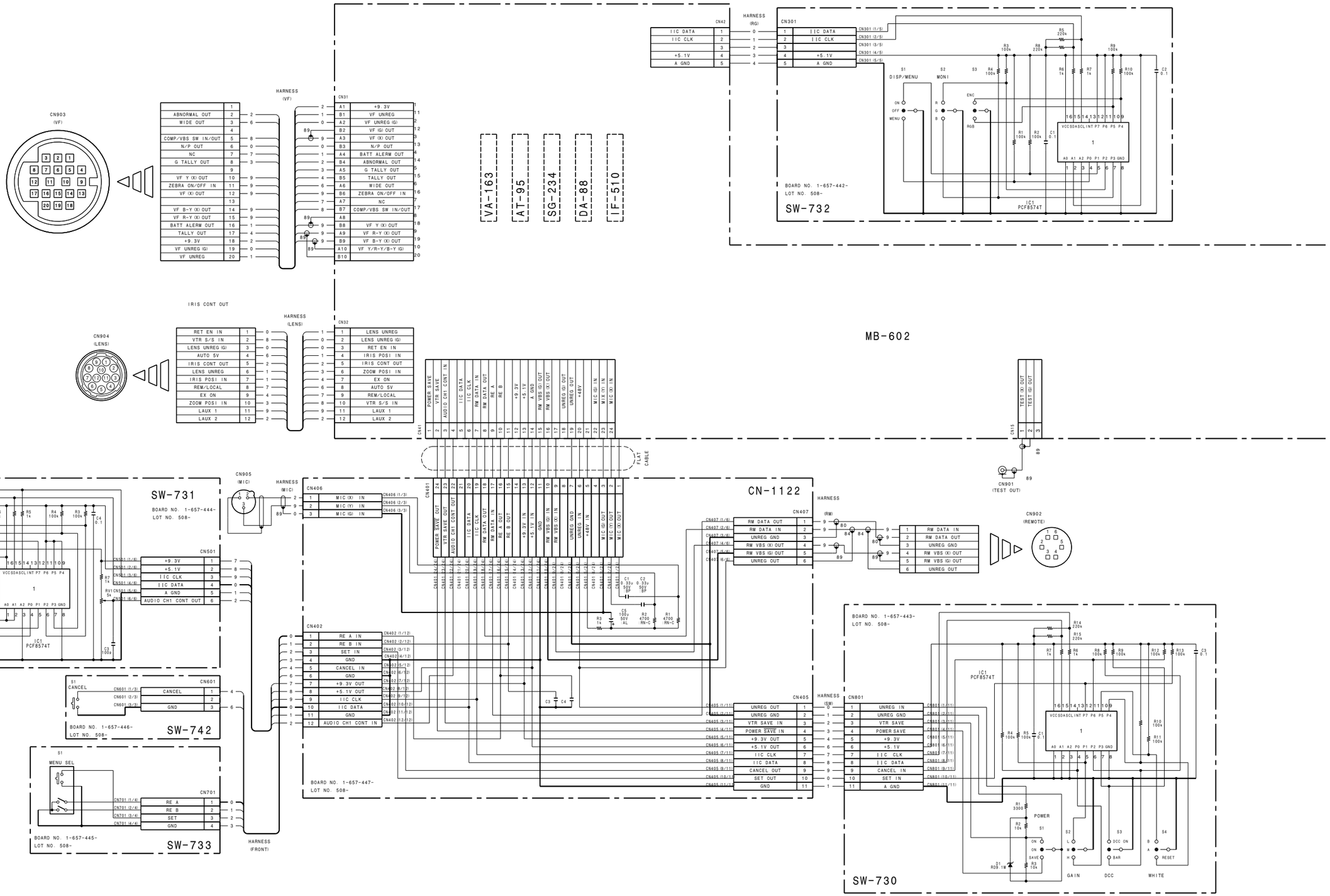
MB-602

BOARD NO. 1-657-437-21
LOT NO. 508-
B-¥BVP550-MB602-11

FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

FRAME WIRING

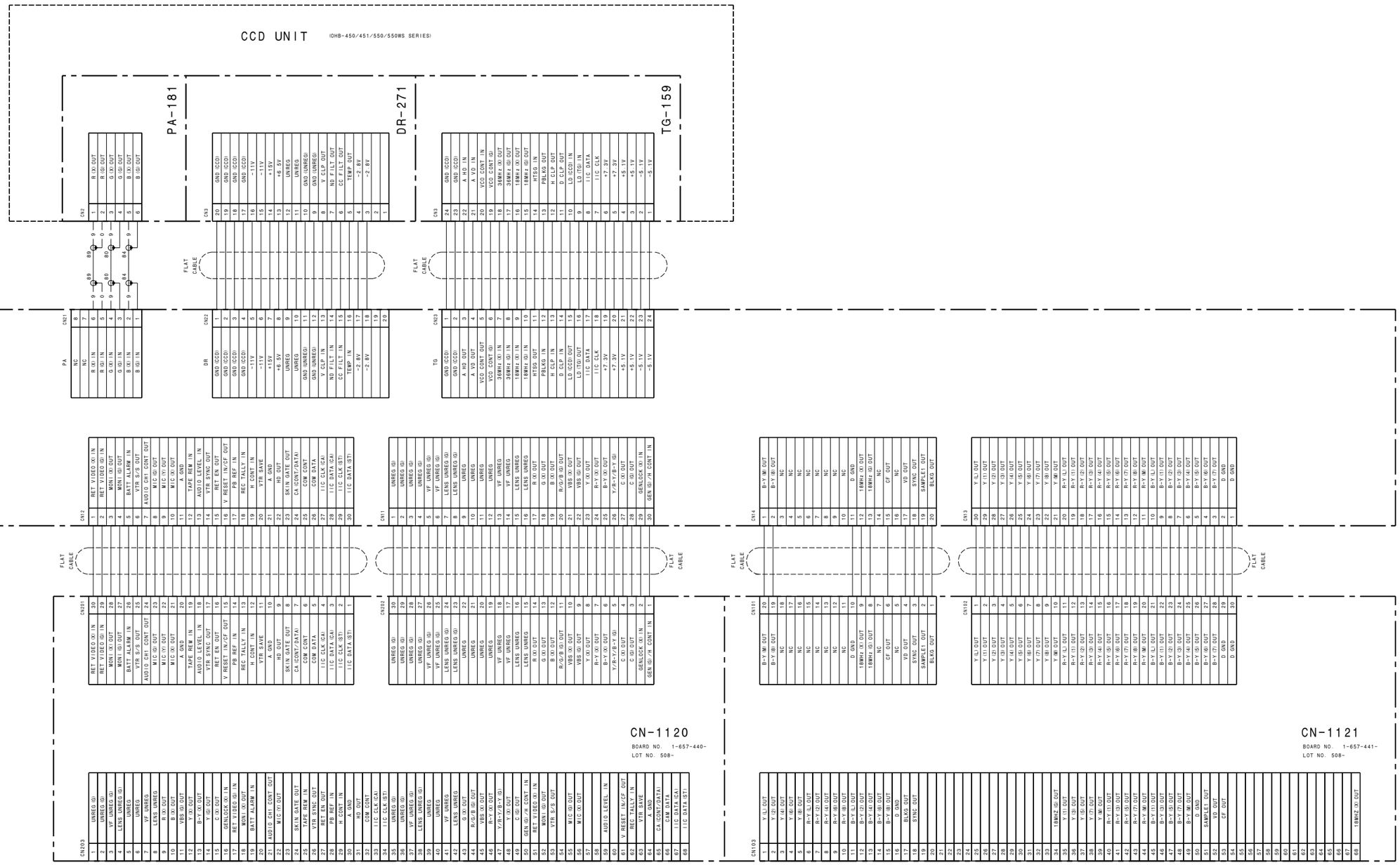
BVP-550 (SY)



8-22

BVP-550

FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

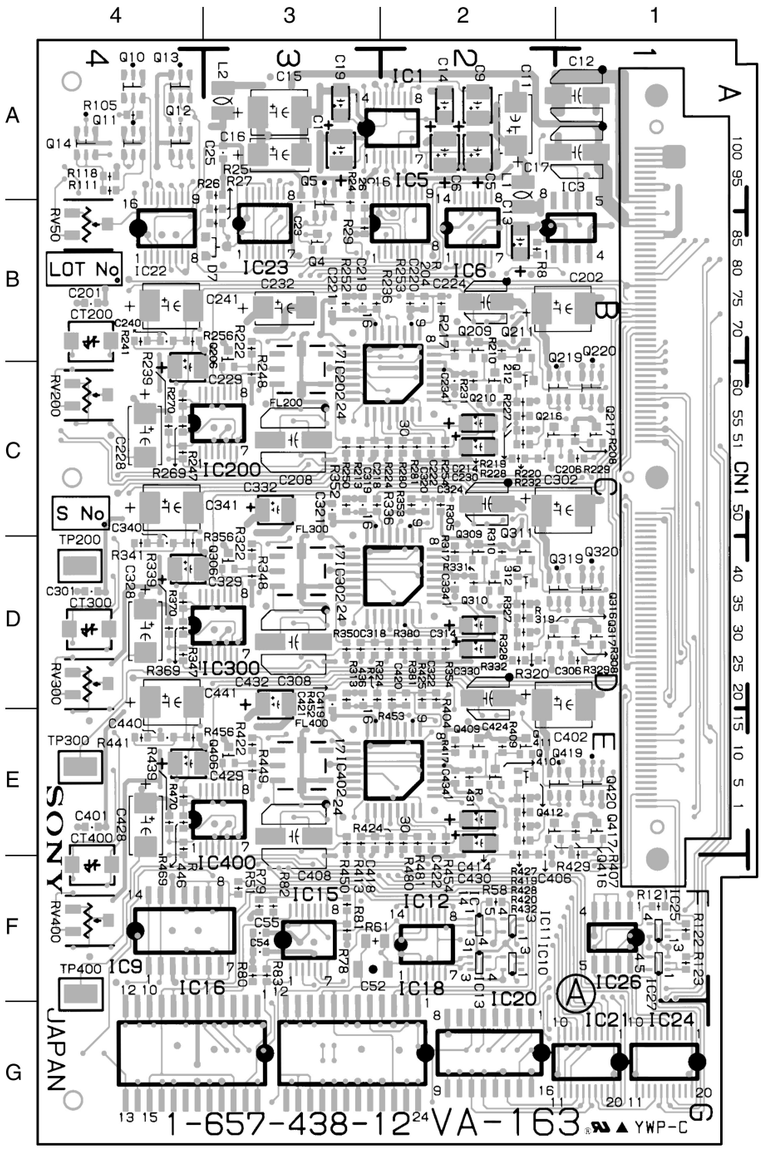


FRAME WIRING
CN-1120/1121/1122/1142
SW-730/731/732/733/742

A-¥BVP550-FRAME/M
- B-¥BVP550-FRAME/M
- B-¥BVP550-CN1122/M
- B-¥BVP550-SW730/M
- B-¥BVP550-SW731/M
- B-¥BVP550-SW732/M
- B-¥BVP550-SW733/M
- B-¥BVP550-SW742/M

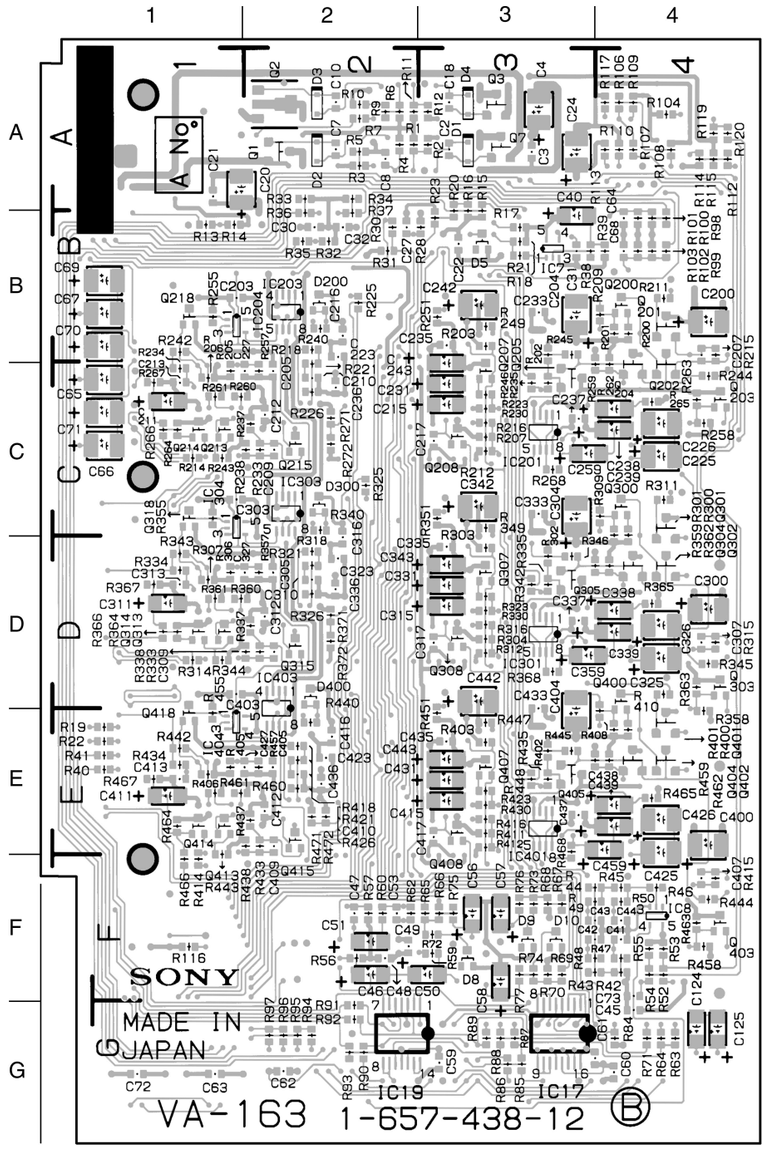
Section 9
Board Layouts

VA-163 BOARD



VA-163 - A SIDE -

1-657-438-12, 21



VA-163 - B SIDE -

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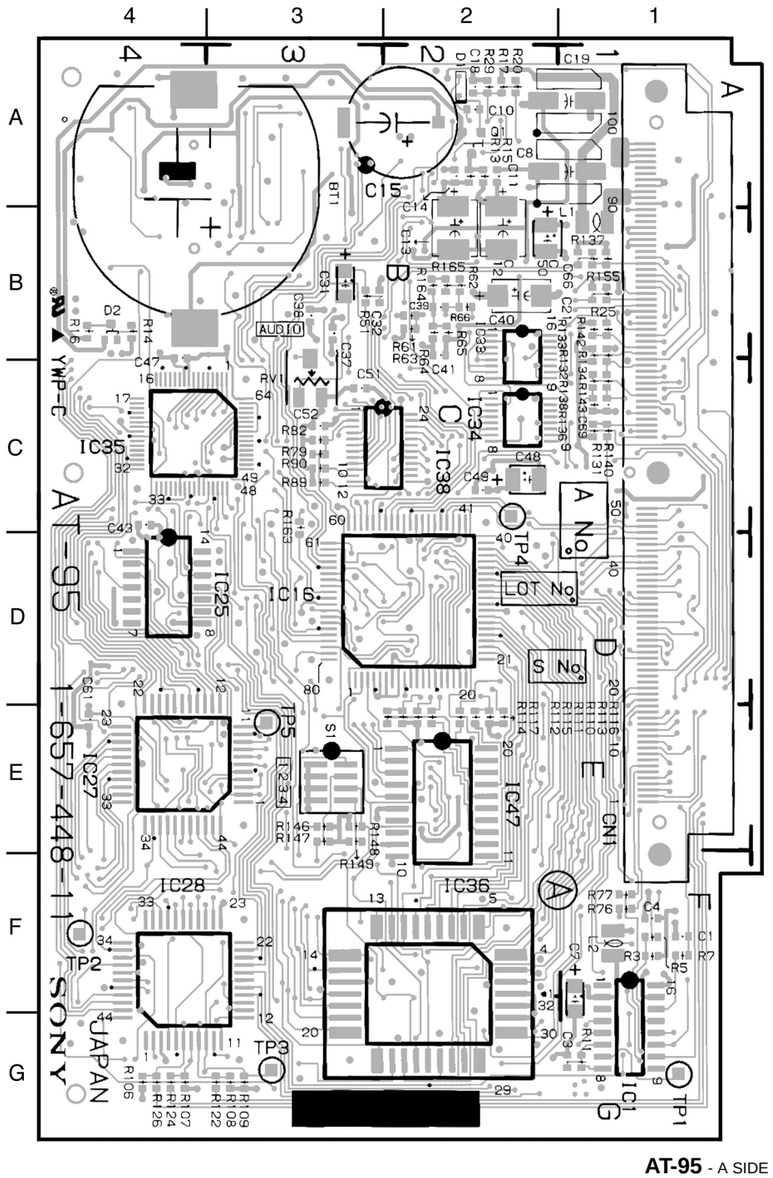
AT-95 BOARD



AT-95 - A SIDE -

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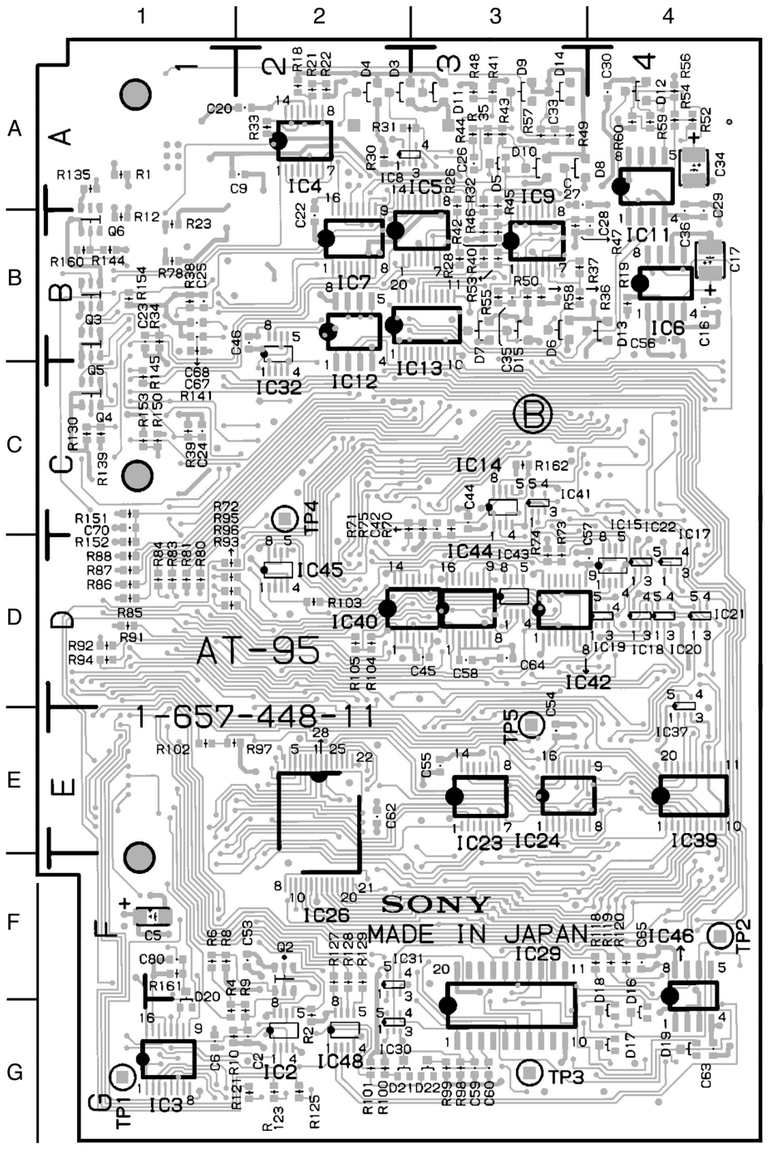

AT-95 - B SIDE -

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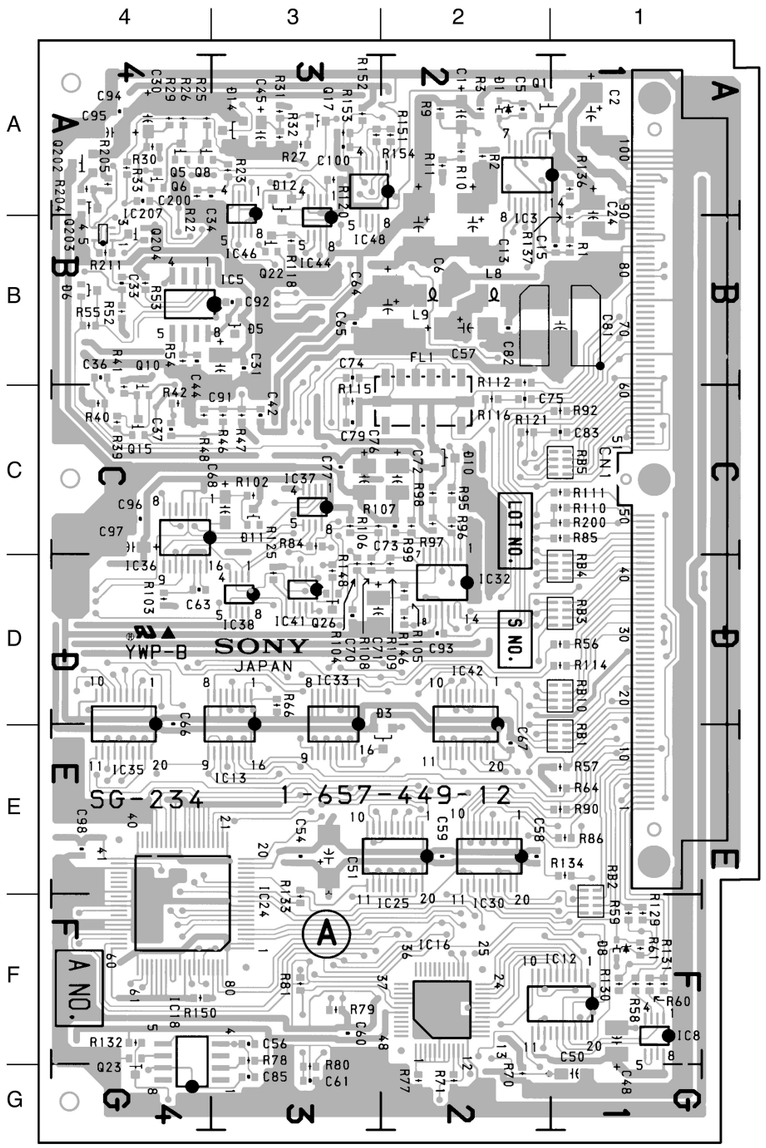
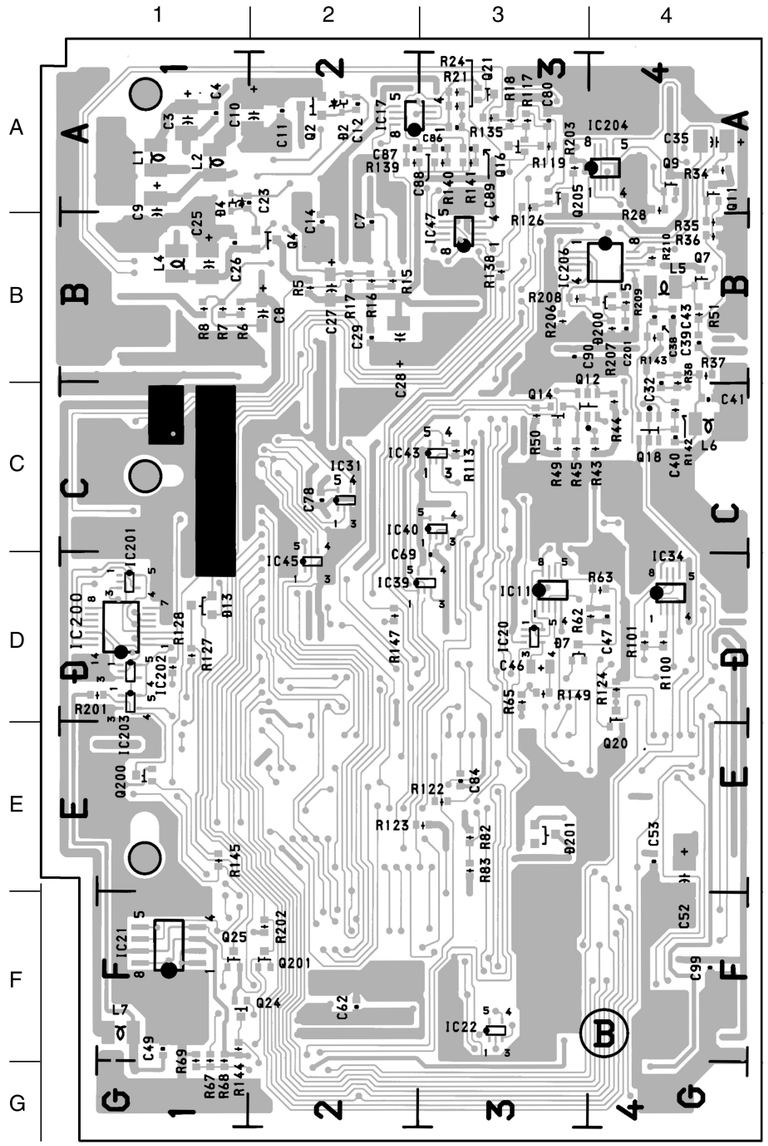
SG-234 BOARD



SG-234 - A SIDE -

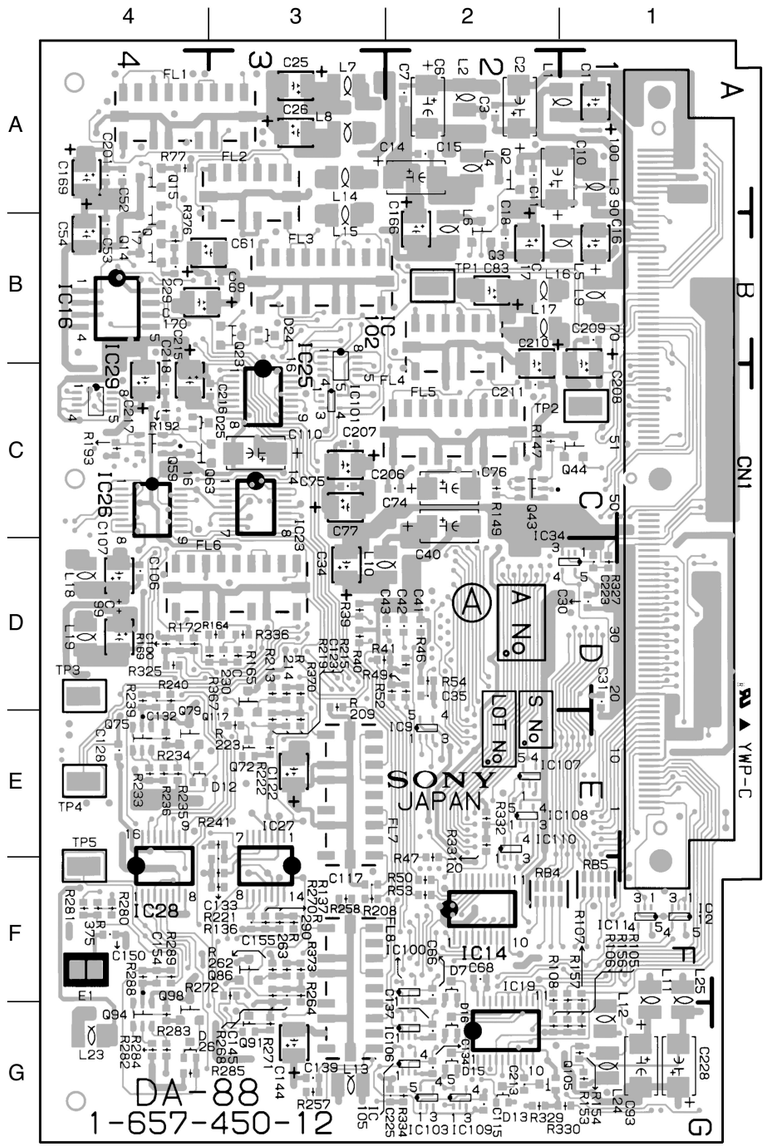
1-657-449-12, 21



SG-234 - B SIDE -

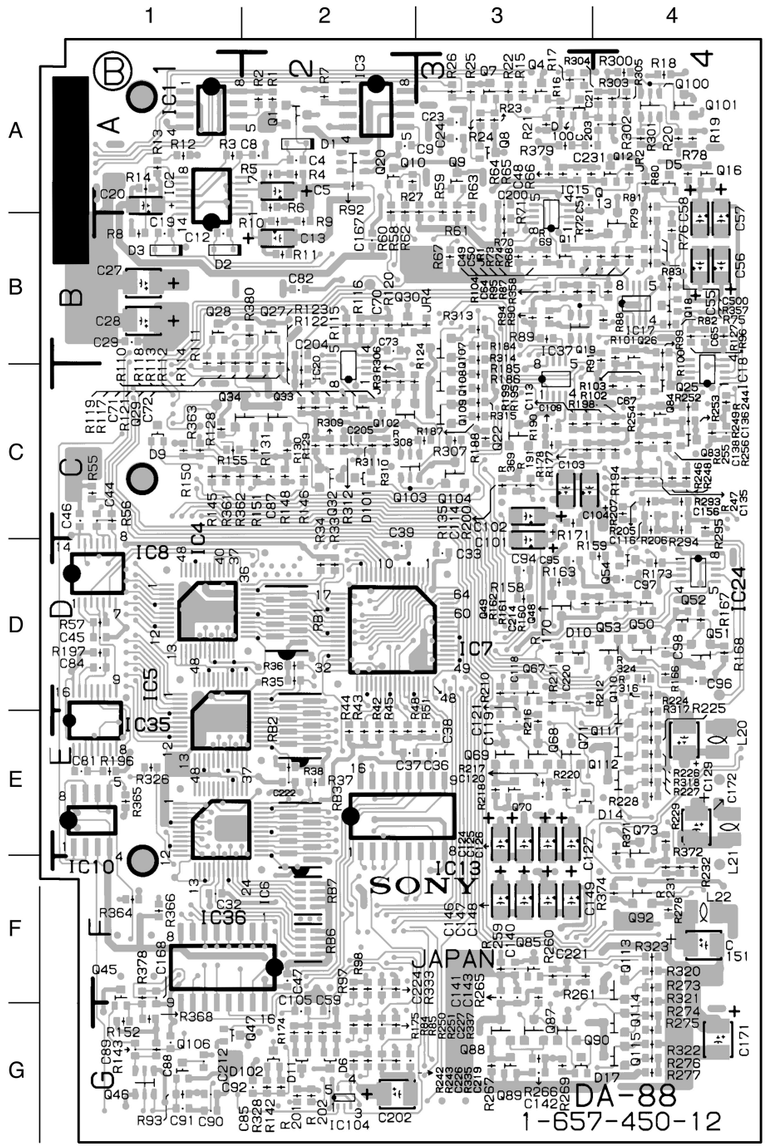
1-657-449-12, 21

DA-88 BOARD



DA-88 - A SIDE -

1-657-450-12, 21

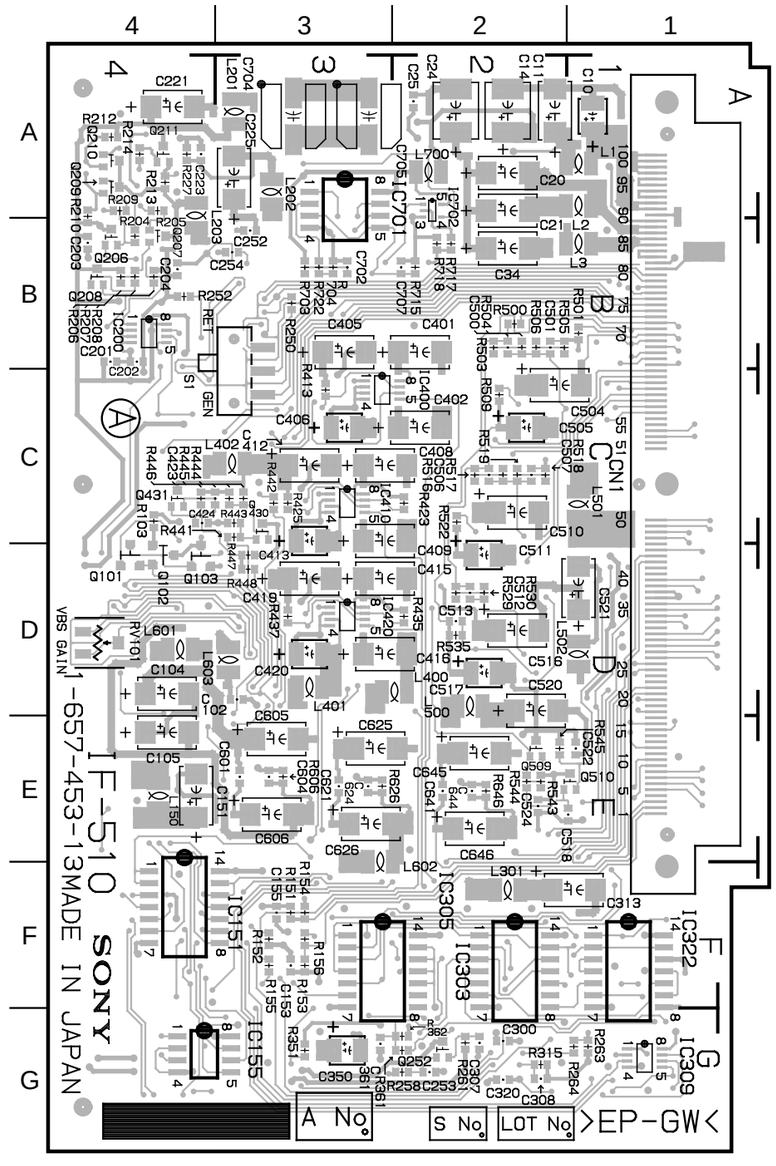


DA-88 - B SIDE -

1-657-450-12, 21

BVP-550 (SY) : S/N 15441 and Higher

IF-510 BOARD



IF-510 - A SIDE -

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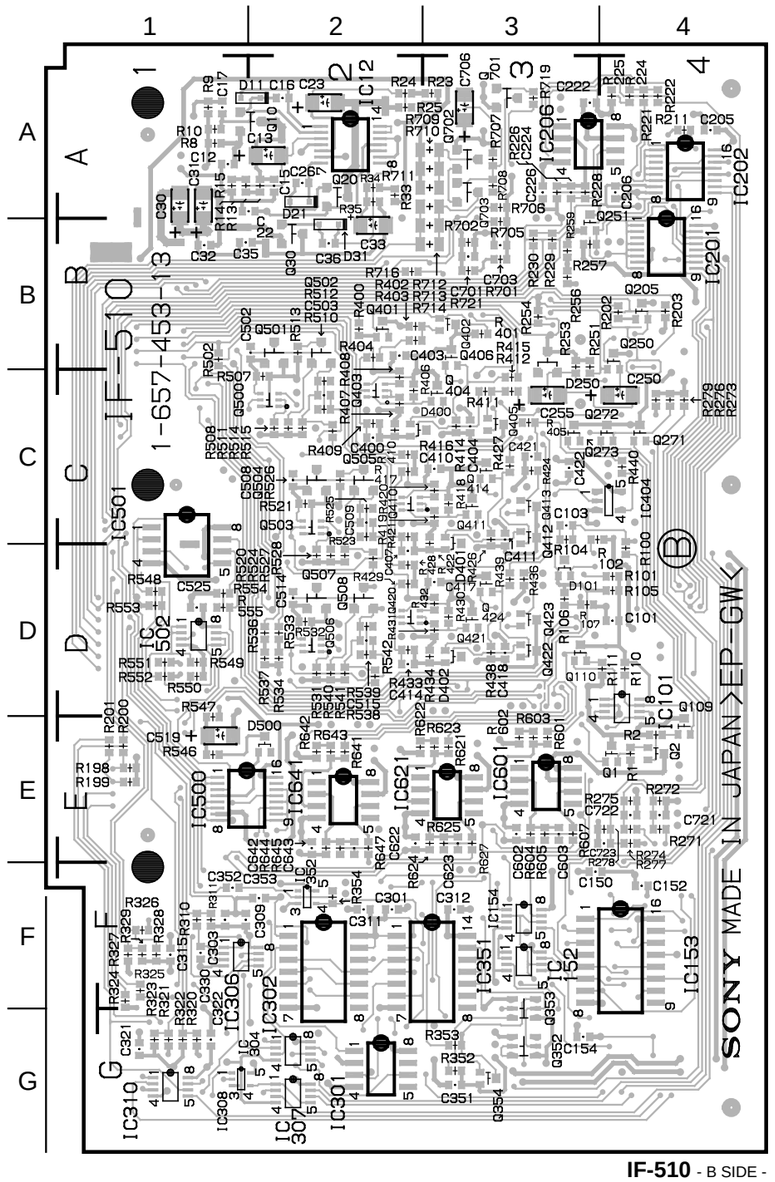

IF-510 - B SIDE -

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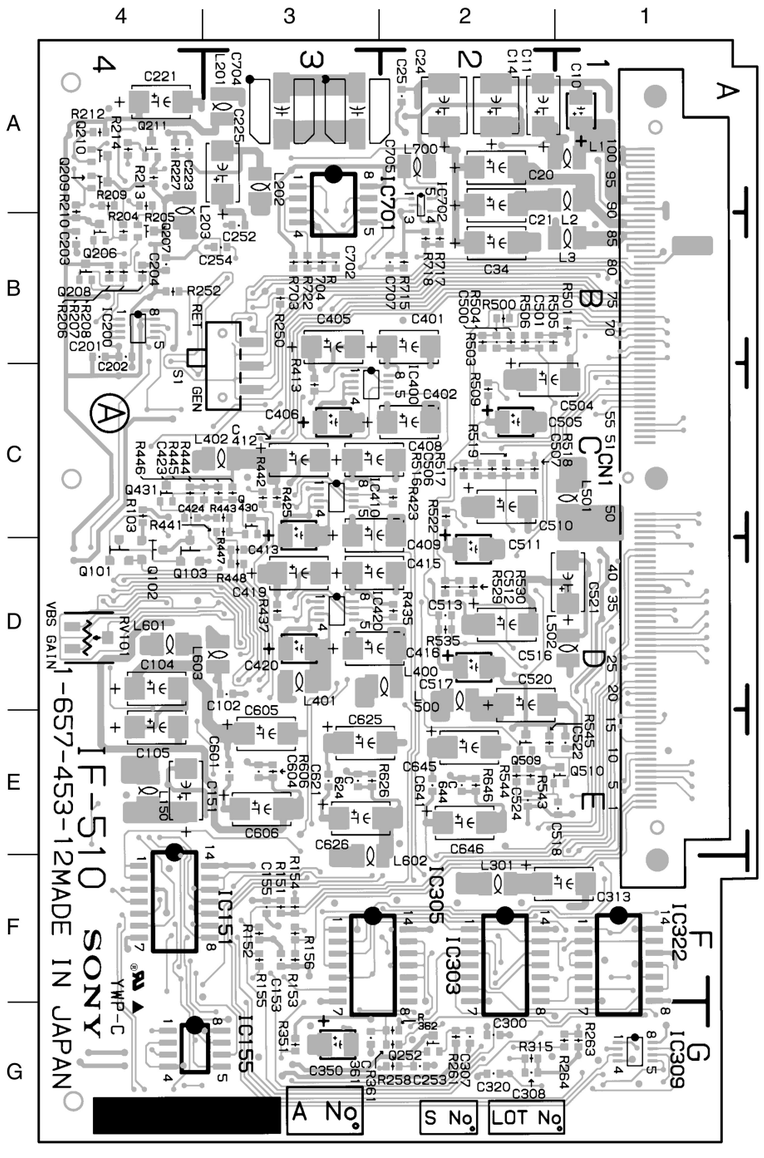
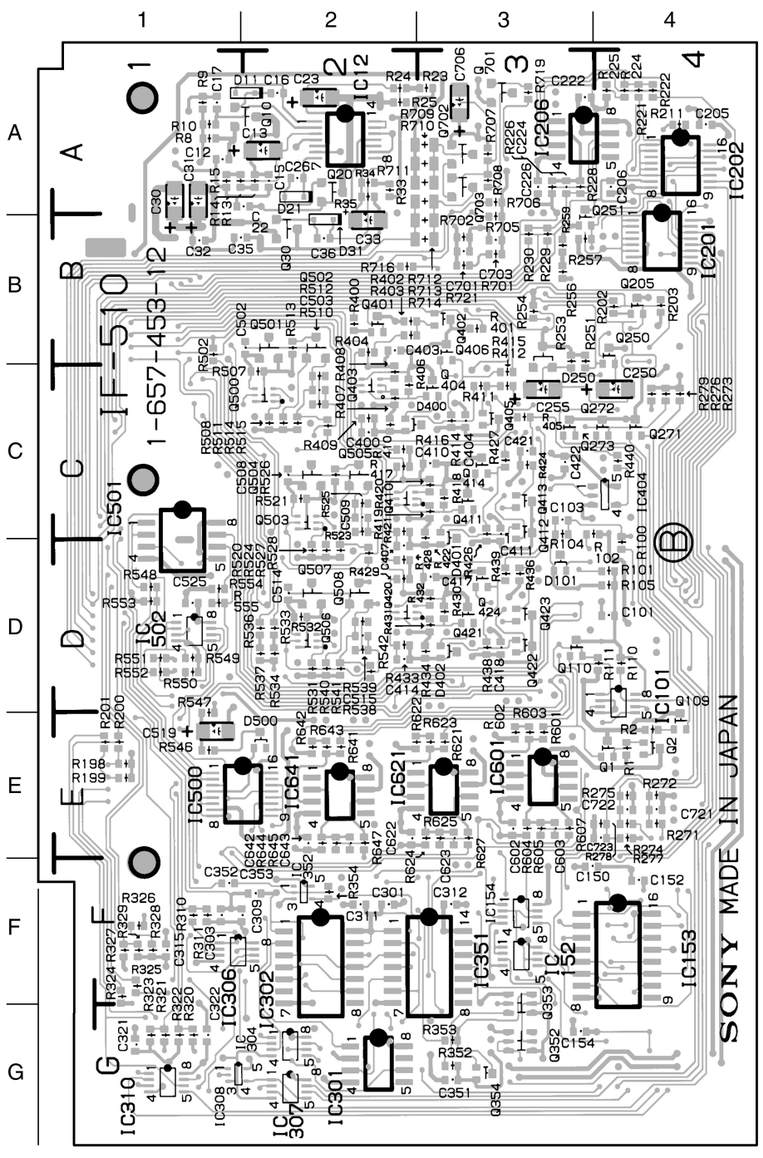
BVP-550 (SY) : S/N 50001 through 50440
: S/N 15001 through 15440

IF-510 BOARD



IF-510 - A SIDE -

1-657-453-12, 21



IF-510 - B SIDE -

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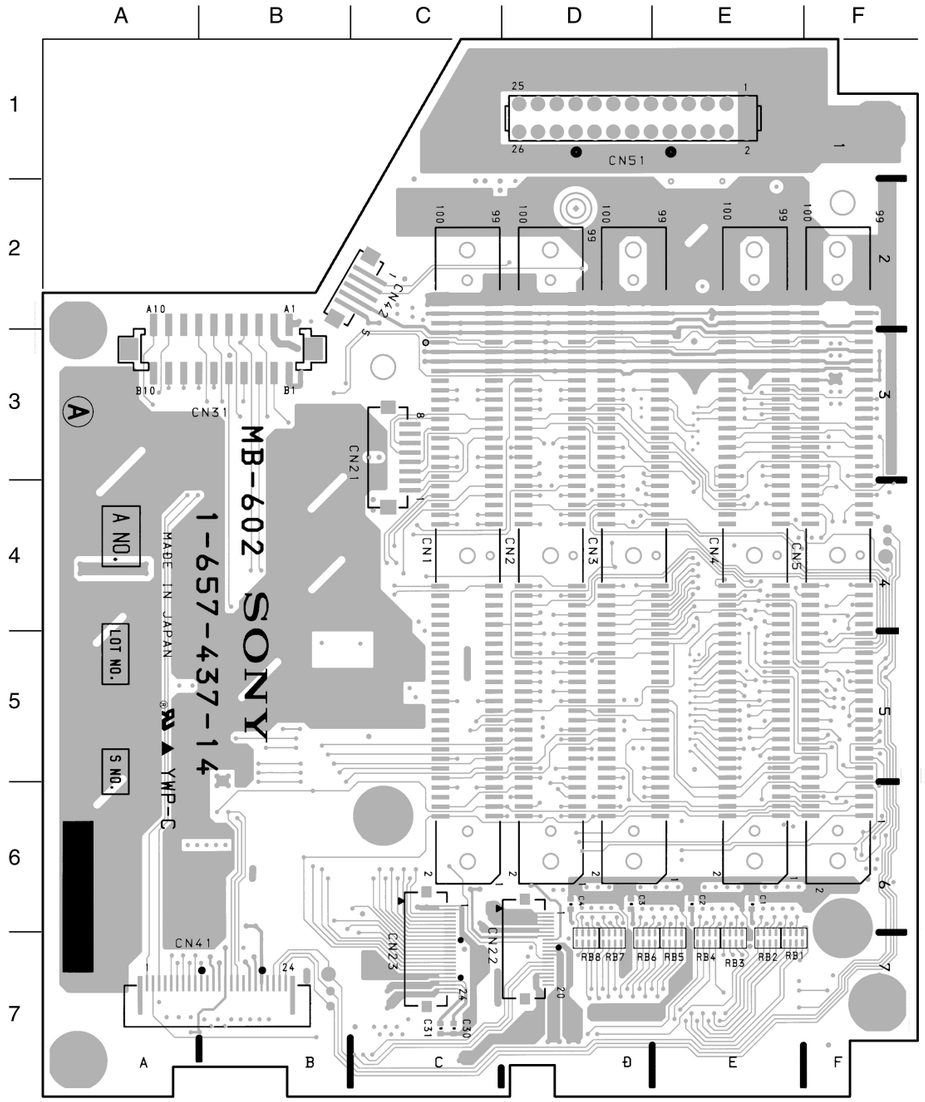
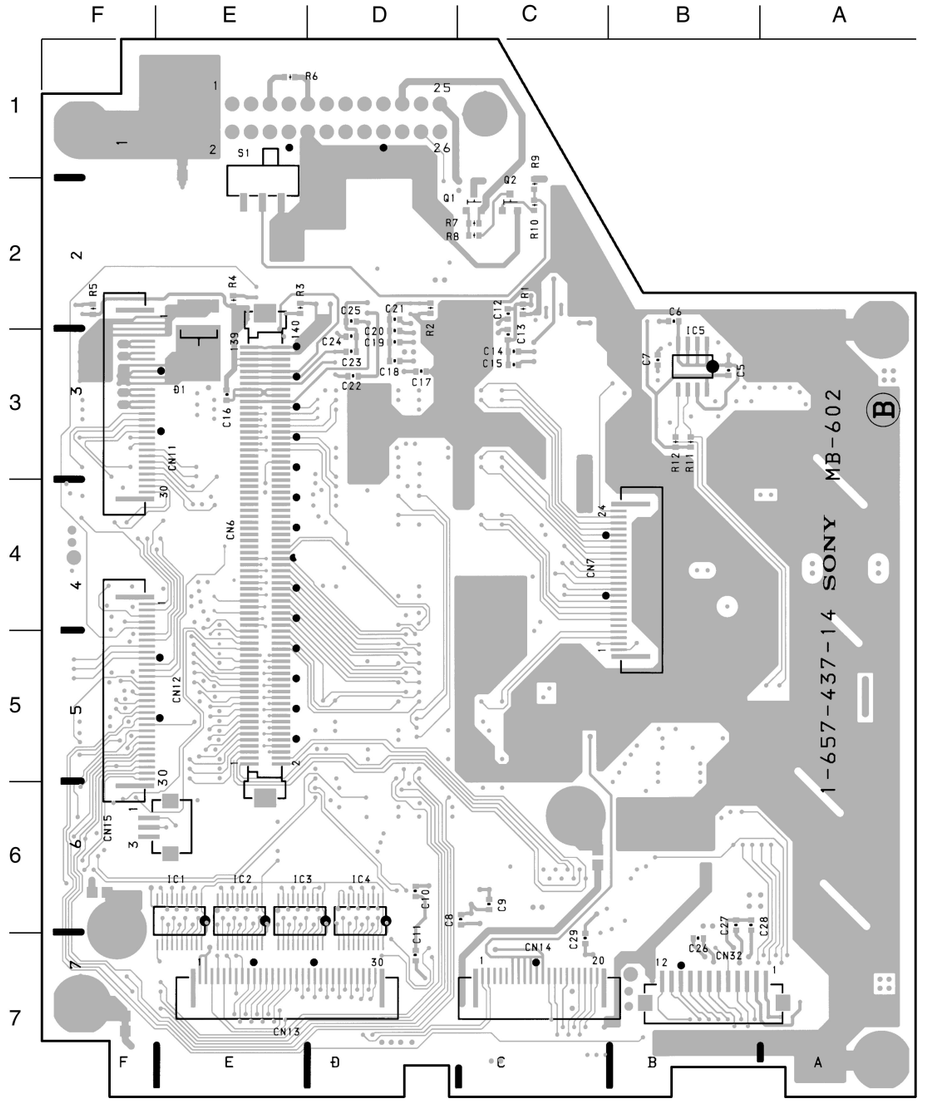
MB-602 BOARD



MB-602 - A SIDE -

1-657-437-14, 21



MB-602 - B SIDE -

1-657-437-14, 21

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BVP-550 (SY) J, E
3-190-368-02

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Broadcast Products Company

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SONY

COLOR VIDEO CAMERA

BVP-550

Digital 1000

MAINTENANCE MANUAL

2nd Edition

Serial No. 11001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Color Video Camera BVP-550.
This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1. Installation

Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2. Service Overview

Describes information about board locations, circuit description, replacement of part and notes on services.

Section 3. Setup menu

Describes information about setup menu and self-diagnosis mode.

Section 4. Electrical Alignment

Describes electrical adjustment.

Section 5. Spare Parts

Describes parts list, exploded views, supplied accessories and fixtures list used in the unit.

Section 6. Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 7. Block Diagrams

Describes overall block diagram and the block diagrams for every circuit board.

Section 8. Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 9. Board Layouts

Describes board layouts for every circuit board.

Relative manuals

Besides this maintenance manual the following manuals are available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

- **System manual (Not supplied with this unit)**
  This manual is necessary for connection and operation of this unit and other peripheral equipments.
  If this manual is required, please contact Sony service organization

Section 1
Installation

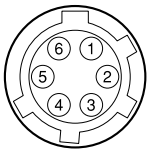
1-1. Connectors and Cables

1-1-1. Connector Input/Output Signals

Output Signal

- TEST OUT
  BNC 75 Ω 1.0 Vp-p

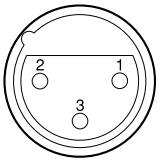
REMOTE (6P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	SERIAL DATA IN	Serial data for camera control
2	SERIAL DATA OUT	
3	UNREG (G)	
4	VBS (X) OUT	VBS 1 Vp-p, Zo = 75 Ω
5	VBS (G) OUT	
6	UNREG OUT	+10.5 V to +17 V

MIC IN (3P FEMALE)

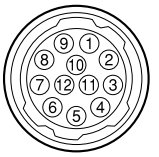


(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	MIC IN (G)	–60 dBu High impedance balanced
2	MIC IN (X)	
3	MIC IN (Y)	

(0 dBu=0.775 Vrms)

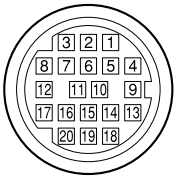
LENS (12P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	RET VIDEO ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
2	RET 2 ENABLE IN	ENABLE: 0 V DISABLE: +5 V or OPEN
3	GND	GND for UNREG
4	AUTO +5 V OUT	AUTO: +5 V MANU: 0 V or OPEN
5	IRIS CONT OUT	+3.4 V (F16) to +6.2 V (F2.8)
6	UNREG OUT	+10.5 V to +17 V
7	IRIS POSITION IN	+3.4 V (F16) to +6.2 V (F2.8)
8	AUTO/MANU OUT	AUTO IRIS: 0 V MANUAL IRIS: +5 V
9	EXTENDER ON/OFF IN	EX 2 ON: 0 V EX 0.8 ON: +1.8 V OFF: +4.8 V
10	ZOOM POSITION IN	WIDE: 2 V TELE: 7 V
11	NC	No connection
12	NC	No connection

VF (20P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	NC	No connection
2	ABNORMAL IND OUT	H: Indicator lights L: Indicator goes out
3	16:9 MODE OUT	H: NORMAL (4:3) L: WIDE (16:9)
4	NC	No connection
5	COMP/VBS SW IN/OUT	*Note1
6	CCIR/EIA OUT	H:CCIR, L:EIA
7	NC	No connection
8	G TALLY OUT	H: Indicator lights L: Indicator goes out
9	NC	No connection
10	Y (X) OUT	1 Vp-p, VF:Zi = 1 kΩ
11	ZEBRA $\overline{\text{ON}}$ IN	H: OFF, L:ON
12	VF VIDEO OUT (X)	1.0 Vp-p, VF:Zi = 1 kΩ
13	NC	No connection
14	B-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
15	R-Y (X) OUT	700 mVp-p, VF:Zi = 1 kΩ, 75% color-bars
16	BATT IND OUT	H: Indicator lights L: Indicator goes out
17	TALLY IND OUT	H: Indicator lights L: Indicator goes out
18	+9.3 V (VF) OUT	REG +9.3 V
19	GND	GND
20	UNREG OUT	+10.5 V to 17 V

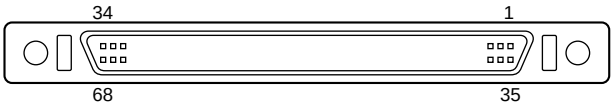
Note1: Specification of COMP/VBS SW Signal

When powering on, the microcomputer of the camera identifies a viewfinder in use by detecting the voltage at pin 5.

H: Color VF, L: B/W VF

- In use of B/W VF
  Voltage control of pin 5 is disabled during operation. Switching between the return video signal and monochrome signal for the viewfinder is done by the camera and selected signal is output at pin 12 to the viewfinder.
- In use of Color VF
  By controlling the voltage at pin 5 during operation, switching between the decoded return video signal and the camera component signal is done in the viewfinder.
  H: Camera, L: Return video

ANALOG CA (68P FEMALE)



(EXTERNAL VIEW)

*: In connection with CCU, **: In connection with VTR

No.	SIGNAL	SPECIFICATIONS
1	UNREG GND	GND for UNREG
2	UNREG GND	GND for UNREG
3	VF UNREG GND	GND for VF UNREG
4	LENS UNREG GND	GND for LENS UNREG
5	UNREG IN	10.5 V to 17 V
6	UNREG IN	10.5 V to 17 V
7	VF UNREG IN	10.5 V to 17 V
8	LENS UNREG IN	10.5 V to 17 V
9	R OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
10	B OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
11	VBS OUT (G)	GND for VBS VIDEO
12	Y OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
13	B-Y OUT (X)	700 mVp-p, with sample 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
14	NC	No connection
15	C OUT (X)	SC for S connector
16	VBS GENLOCK IN (X)	1.0 Vp-p ±6 dB
17	RET VIDEO IN (G)	GND for RET VIDEO
18	MONITOR VIDEO OUT (X)	VS 1.0 Vp-p, Zo = 75 Ω
19	BATTERY ALARM IN	Zi = 300 Ω *Note 2
20	NC	No connection
21	AUDIO CH1 CONT OUT	0 V (0 dB) to 7 V (–50 dB or less)
22	MIC 1 OUT (Y)	Zo ≤ 600 Ω, –60 dBu balanced
23	NC	No connection
24	SKIN TONE GATE OUT	1.0 Vp-p
25	TAPE REM IN	*Note 4
26	VTR SYNC OUT	+5.0 Vp-p Negative pulse, Zo ≤ 100 Ω
27	RET EN OUT	ENABLE; 0 V, DISABLE; +5 V or OPEN
28	PB REF IN	PB; +4.5 V, CAM; 0 V or OPEN
29	H CONT IN	0 V to 5 V, Analog
30	ANALOG GND	
31	DIGITAL HD OUT	3 Vp-p for Digital
32	COM CONT IN	5 Vp-p
33	IIC CLOCK OUT (CA)	5 Vp-p
34	IIC CLOCK OUT (ST)	5 Vp-p

No.	SIGNAL	SPECIFICATIONS
35	UNREG GND	GND for UNREG
36	UNREG GND	GND for UNREG
37	VF UNREG GND	GND for VF UNREG
38	LENS UNREG GND	GND for LENS UNREG
39	UNREG IN	10.5 V to 17 V
40	UNREG IN	10.5 V to 17 V
41	VF UNREG IN	10.5 V to 17 V
42	LENS UNREG IN	10.5 V to 17 V
43	G OUT (X)	700 mVp-p ±2%, DC 0 ±200 mV, Zo = 75 Ω
44	R/G/B GND	GND for R/G/B VIDEO
45	VBS OUT (X)	1.0 Vp-p ±10%, Zo = 75 Ω
46	R-Y OUT (X)	700 mVp-p, with sync 350 mV* 756 mVp-p (J) 700 mVp-p (UC) 525 mVp-p (CE) } ** **: 700 mVp-p, with sync 350 mV
47	Y/R-Y/B-Y GND	GND for Y/R-Y/B-Y
48	NC	No connection
49	C OUT (G)	GND for C
50	VBS GENLOCK IN (G)	GND for GENLOCK/H CONT IN
51	RET VIDEO IN (X)	1.0 Vp-p, Zi = 1 kΩ
52	MONITOR VIDEO OUT (G)	GND for MONITOR VIDEO
53	VTR START/STOP OUT	Zo ≤ 10 kΩ
54	NC	No connection
55	MIC 1 OUT (G)	GND for CAM MIC
56	MIC 1 OUT (X)	Zo ≤ 600 Ω, –60 dBu balanced
57	NC	No connection
58	NC	No connection
59	AUDIO LEVEL IN	Zi ≥ 1 kΩ (–15 dBu at 0 VU)
60	NC	No connection
61	V RESET IN/CF OUT	V Reset;0 V to +5 V, CF; 0 V to –5 V
62	REC TALLY IN	ON; +5 V, OFF; +2.5 V or 0 V, Zi ≥ 20 kΩ *Note 3
63	VTR SAVE OUT	SAVE; +4.5 V, STANDBY; 0 V, Zo ≤ 10 kΩ
64	GND	
65	SD IN/OUT	Serial data for camera control
66	COM DATA OUT	5 Vp-p
67	IIC DATA IN/OUT (CA)	5 Vp-p, 4700 Ω, Pull up
68	IIC DATA IN/OUT (ST)	5 Vp-p, 4700 Ω, Pull up

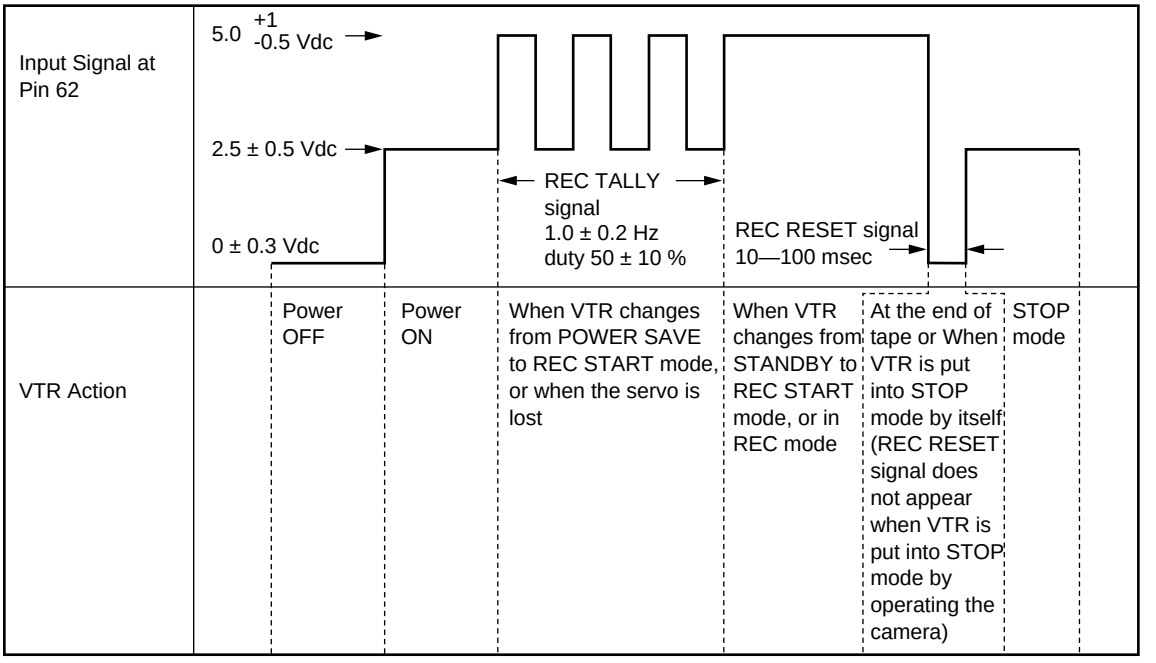
(0 dBu=0.775 Vrms)

Note 2 : Specifications of BATT ALARM Signal

VTR has a battery voltage detection and waring signal generation circuits and it sends the signal shown below to the camera.

Battery Terminal Voltage (VTR internal battery)	12.0—11.1 Vdc	11.1—10.8 Vdc	10.8 Vdc—
Input Signal at Pin 19	0 V	1.0 ± 0.2 Hz duty 50 ± 10 %	2—3 Vdc across 300 Ω
LED on Viewfinder	Stays out	Blinks at 1 Hz	Lights up

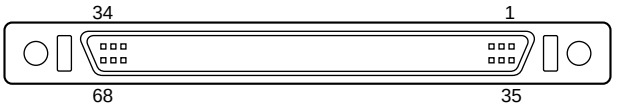
Note 3 : Specifications of REC TALLY Signal



Note 4 : Specifications of TAPE REM Signal

Tape Remaining (VTR)		Input Signal at Pin 25	Remark
TAPE1	TAPE2		
+5 V	+5 V	+3.4 V	
+5 V	0 V	+3.1 V	G TALLY lamp lights at +3.1 V
0 V	+5 V	+2.2 V	
0 V	0 V	0 V	

DIGITAL CA (68P FEMALE)



(EXTERNAL VIEW)

No.	SIGNAL	SPECIFICATIONS
1	Y (L) OUT	
2	Y (2) OUT	
3	Y (4) OUT	3.3 Vp-p
4	Y (6) OUT	
5	Y (8) OUT	
6	R-Y (L) OUT	
7	R-Y (2) OUT	
8	R-Y (4) OUT	3.3 Vp-p
9	R-Y (6) OUT	
10	R-Y (8) OUT	
11	B-Y (L) OUT	
12	B-Y (2) OUT	
13	B-Y (4) OUT	3.3 Vp-p
14	B-Y (6) OUT	
15	B-Y (8) OUT	
16	DIGITAL GND	GND for DIGITAL
17	DIGITAL BLANKING OUT	3.3 Vp-p
18	DIGITAL SYNC OUT	3.3 Vp-p
19	NC	No connection
20	NC	No connection
21	NC	No connection
22	NC	No connection
23	NC	No connection
24	NC	No connection
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	NC	No connection
29	NC	No connection
30	NC	No connection
31	NC	No connection
32	NC	No connection
33	NC	No connection
34	18 MHz OUT (G)	GND for 18 MHz

No.	SIGNAL	SPECIFICATIONS
35	Y (1) OUT	
36	Y (3) OUT	
37	Y (5) OUT	3.3 Vp-p
38	Y (7) OUT	
39	Y (M) OUT	
40	R-Y (1) OUT	
41	R-Y (3) OUT	
42	R-Y (5) OUT	3.3 Vp-p
43	R-Y (7) OUT	
44	R-Y (M) OUT	
45	B-Y (1) OUT	
46	B-Y (3) OUT	
47	B-Y (5) OUT	3.3 Vp-p
48	B-Y (7) OUT	
49	B-Y (M) OUT	
50	DIGITAL GND	GND for DIGITAL
51	DIGITAL SAMPLE OUT	3.3 Vp-p
52	DIGITAL VD OUT	3.3 Vp-p
53	DIGITAL CF OUT	3.3 Vp-p
54	NC	No connection
55	NC	No connection
56	NC	No connection
57	NC	No connection
58	NC	No connection
59	NC	No connection
60	NC	No connection
61	NC	No connection
62	NC	No connection
63	NC	No connection
64	NC	No connection
65	NC	No connection
66	NC	No connection
67	NC	No connection
68	18 MHz OUT (X)	3.3 Vp-p

1-1-2. Connection Connector

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Connection Connectors/Cables
TEST OUT (BNC)	1-560-069-11 Plug, BNC or B-B Cable assembly (cable length 1.5 m, option)
REMOTE (6P FEMALE)	1-560-078-00 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
MIC IN (3P FEMALE)	1-508-084-00 XLR, 3P Male or CANNON XLR-3-12C equivalent

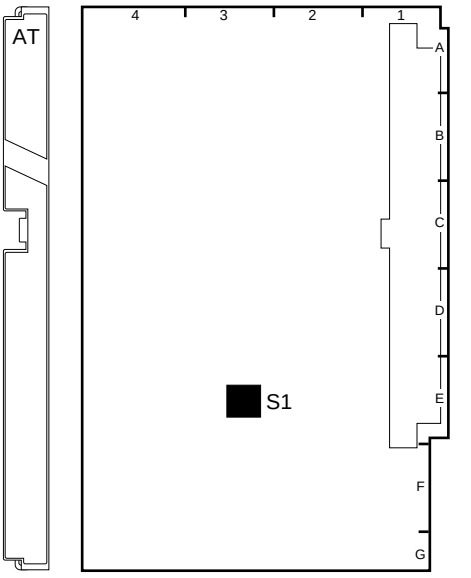
1-2. Installaton Conditions

Operating Temparature : –20°C to +45°C
Storage Temparature : –20°C to +50°C
Humidity : No condence

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temparature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric fields
  A place subjected to direct sunlight or strong light

1-3. Function of Internal Switches

AT-95 Board



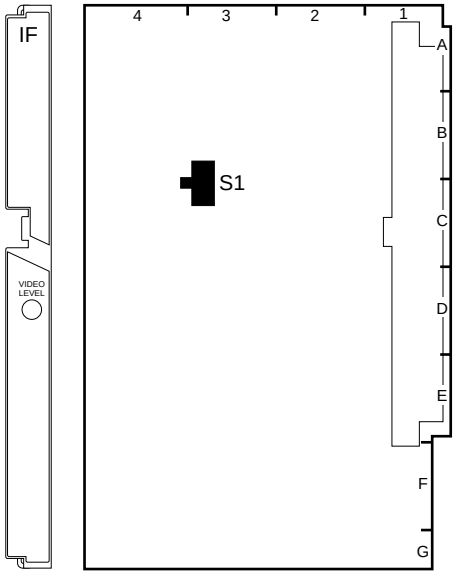
S1 : Setup menu select switch (S1-1 to S1-4)
Setup menu indicated on the viewfinder can be selected in combination of switches S1-1 to S1-4.

( ) in parentheses: Factory-set positions

				Setup Menu					
S1-1	S1-2	S1-3	S1-4	Operation	Paint	Maintenance	Reference	Triming	Config
OFF	OFF	OFF	OFF	YES	NO	NO	NO	NO	NO
(ON)	(OFF)	(OFF)	(OFF)	YES	YES	NO	NO	NO	NO
OFF	ON	OFF	OFF	YES	YES	YES	NO	NO	NO
ON	ON	OFF	OFF	YES	YES	YES	YES	NO	NO
OFF	OFF	ON	OFF	YES	YES	YES	YES	YES	NO
ON	OFF	ON	OFF	YES	YES	YES	YES	YES	YES

For details on the setup menu, refer to Section 3.

IF-510 Board



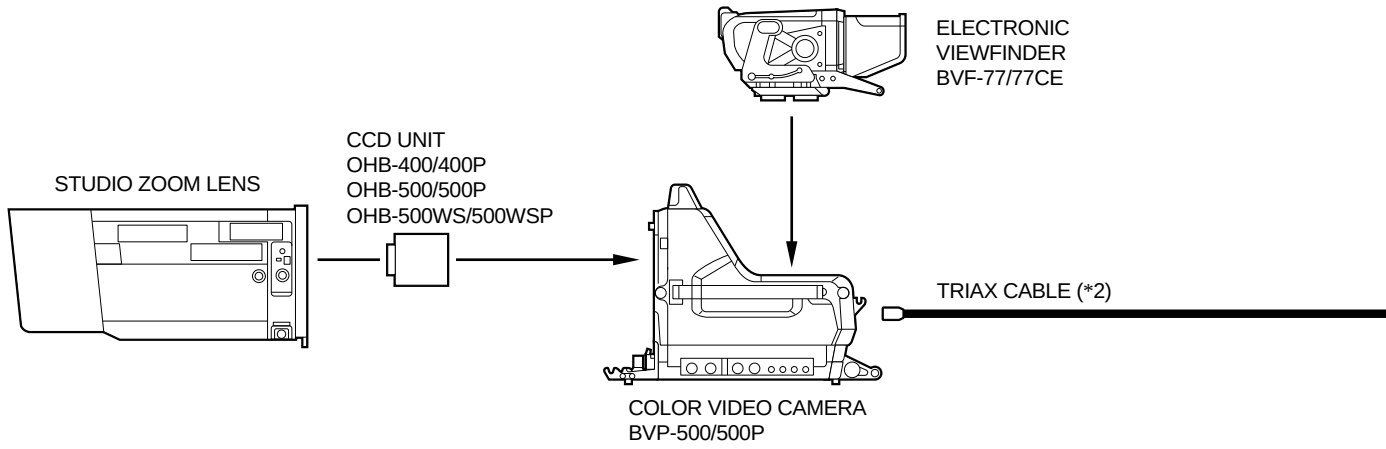
S1 : VF connector signal select switch
Selects an output signal at VF connector.
RET: Return video signal from CCU
GEN: Reference signal for external synchronization which is input at GENLOCK IN connector of CA
Factory-set position: RET

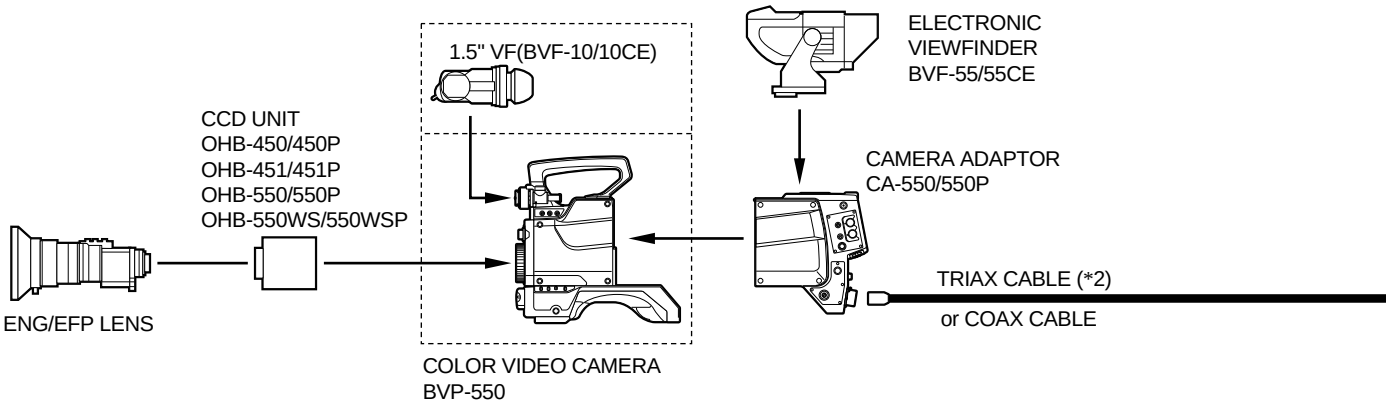
MB-602 Board

In setting a switch on MB-602 board, open the left side panel.

S1 : PHANTOM POWER switch
Turn on when connecting the PHANTOM +48 V microphone to MIC connector.
Factory-set position: ON

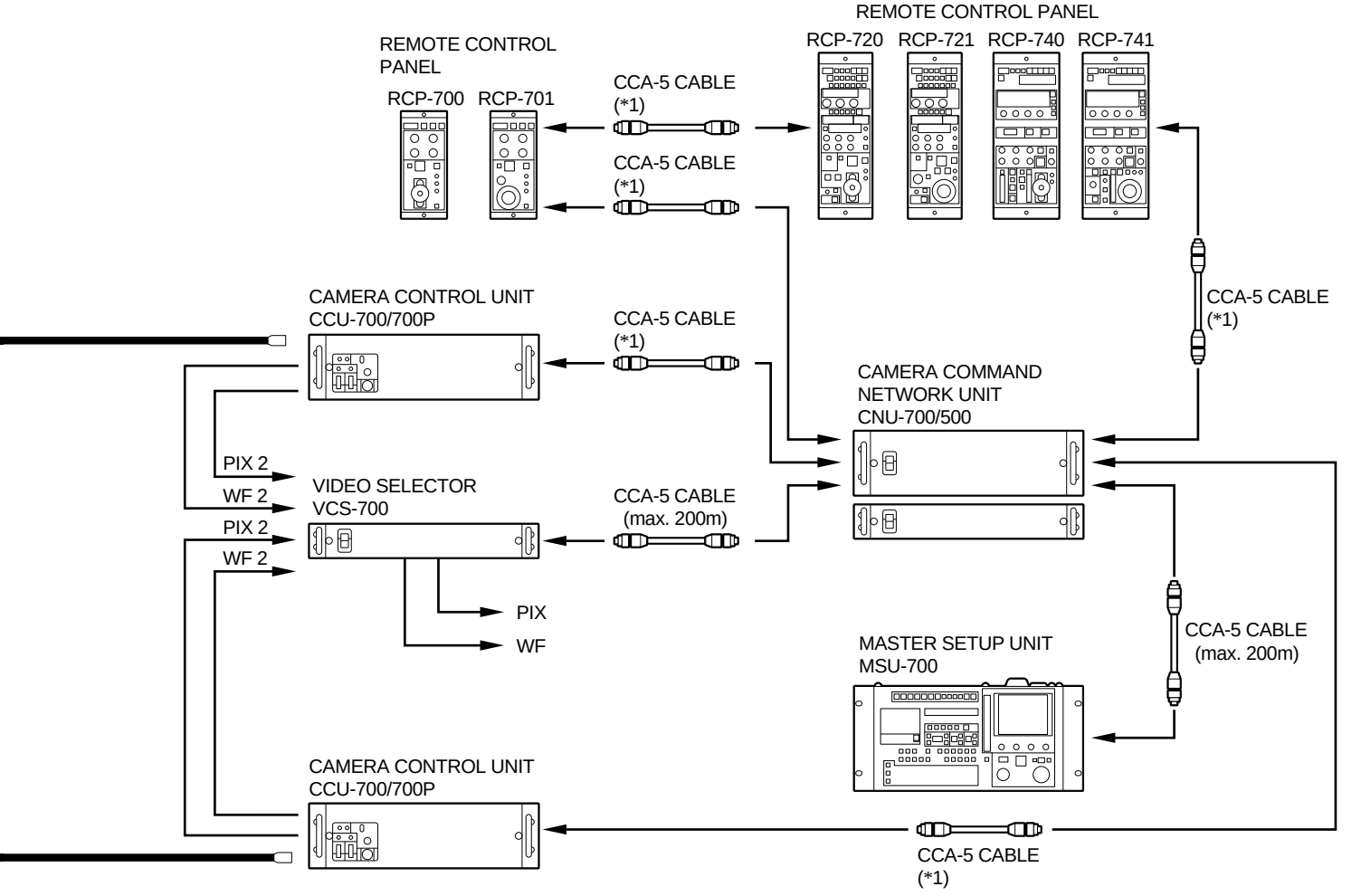
1-4. Instance of Sytem Configuration



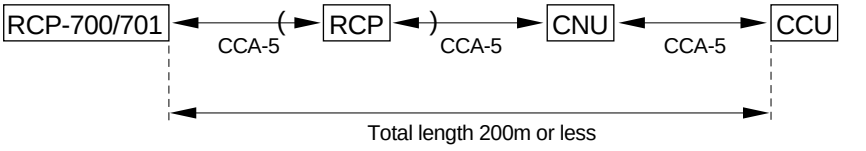


OTHER OPTIONAL ACCESSORIES

For BVP-500/500P	STANDALONE UNIT BKP-5910/5910P
	SCRIPT HOLDER BKP-7911/7912
For BVP-550	ELECTRET CONDENSER MICROPHONE ECM-MS5
	MICROPHONE C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION CRS-3P
	CARRYING CASE LC-303SFT
For CA-550/550P	TELEPROMPTER UNIT BKP-5971

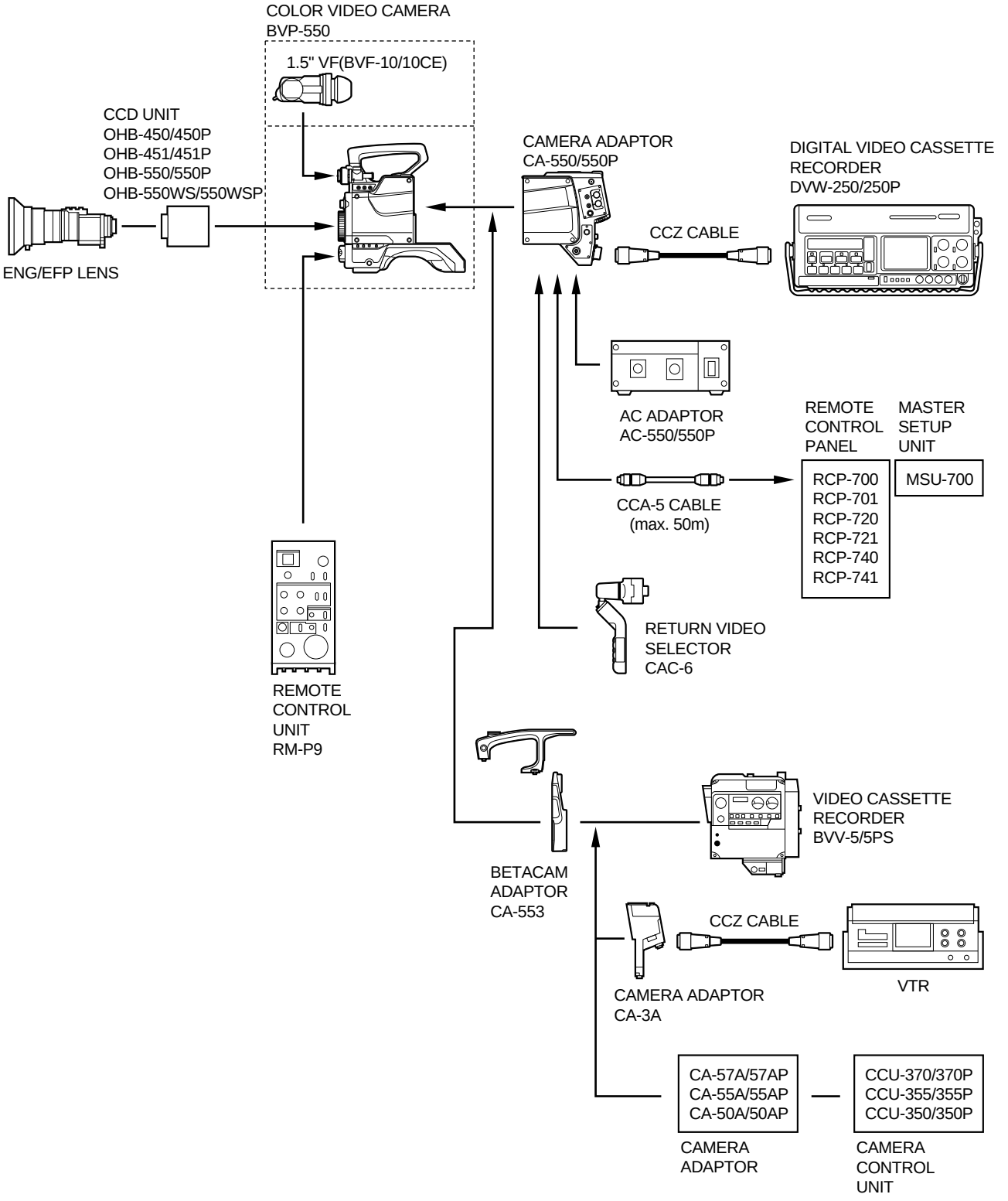


*1: CCA-5 CABLE LENGTH



*2: TRIAX CABLE LENGTH

Diameter	Maximum length
8.5 mm	1000 m
14.5 mm	2000 m


COLOR VIDEO CAMERA
BVP-550
1.5" VF(BVF-10/10CE)
CCD UNIT
OHB-450/450P
OHB-451/451P
OHB-550/550P
OHB-550WS/550WSP
ENG/EFP LENS
CAMERA ADAPTOR
CA-550/550P
DIGITAL VIDEO CASSETTE
RECORDER
DVW-250/250P
CCZ CABLE
AC ADAPTOR
AC-550/550P
REMOTE
CONTROL
PANEL
MASTER
SETUP
UNIT
RCP-700
RCP-701
RCP-720
RCP-721
RCP-740
RCP-741
MSU-700
CCA-5 CABLE
(max. 50m)
RETURN VIDEO
SELECTOR
CAC-6
REMOTE
CONTROL
UNIT
RM-P9
VIDEO CASSETTE
RECORDER
BVV-5/5PS
BETACAM
ADAPTOR
CA-553
CCZ CABLE
VTR
CAMERA ADAPTOR
CA-3A
CA-57A/57AP
CA-55A/55AP
CA-50A/50AP
CAMERA
ADAPTOR
CCU-370/370P
CCU-355/355P
CCU-350/350P
CAMERA
CONTROL
UNIT

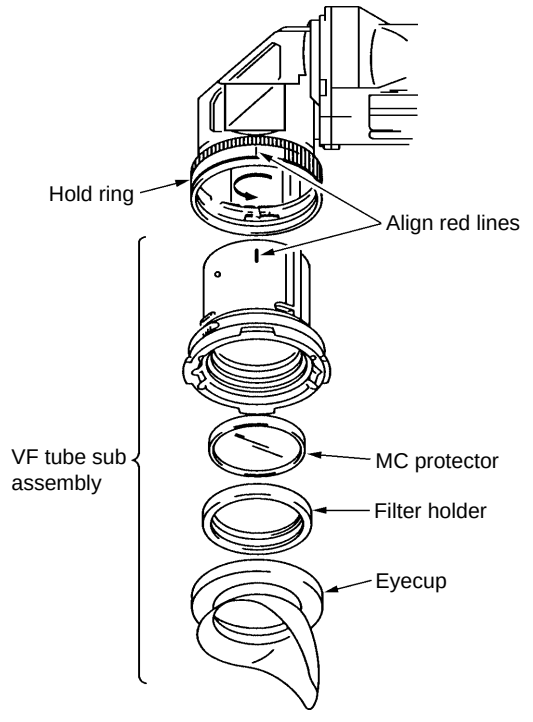
1-5. Optional Accessories for Viewfinder

The following accessories are available separately for the supplied viewfinder. Please order as necessary.

- VF Rotation Bracket BKW-401
  By fitting the BKW-401 to the camera, you can rotate the viewfinder out of the way so that your right leg does not hit the viewfinder while you are carrying the camera.

- Fog-proof Filter (Sony Part No. 1-547-341-11)
  Use in place of the MC protector shown in the figure.

- Lens Assembly for Aged Eye
  (Sony Part No. A-8262-537-A)
- Lens Assembly for Low Power
  (Sony Part No. A-8262-538-A)
- Lens Assembly (Standard magnification with special compensation for aberration)
  (Sony Part No. A-8267-737-A)
- High Performance (3X) Lens Assembly
  (Sony Part No. A-8314-798-A)
  Use in place of the VF tube sub assembly shown in the figure.



* To protect the viefinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.

Section 2
Service Overview

2-1. Notes on Service

2-1-1. Note on Replacement of Parts

Every component electrical part mounted on the PR-211 and CN-1142 boards cannot be replaced. And also a 68-pin connector on the CN-1120/1121 board cannot be. If there is any defective part, replace the mounted circuit board itself.
The PR-211 board is provided with a termination board CN-1142 on it. The CN-1142 board is necessary when the PR-212 board of OHB-550WS/550WSP is not installed. Unless the PR-212 board is installed, be sure to connect the CN-1142 board to the PR-211 board.

2-1-2. Description of EEPROM Data

The table below gives the holding data of EEPROM on every printed circuit board.

Board	Ref. No.	Holding data
VA-163	IC26	VA-163 adjustment data
AT-95	IC46	Triming/Reference files
SG-234	IC21	SG-234 adjustment data
DA-88	IC10	DA-88 adjustment data
IF-510	IC155	IF-510 adjustment data
MB-602	IC5	Model name, Serial number of the unit

Note

The IC listed above cannot be replaced because it is the EEPROM that is holding data inherent in the board. The part number listed in Section 5 “Spare Parts” is for an EEPROM which is not programmed. If replacement is needed, consult your Sony representatives.

2-1-3. Extension Boards

The extension boards and harness are available separately for check or adjustment of some printed circuit boards.

Extension Board/Harness	Sony P/N	To be extended
EX-464	J-6395-040-A	VA-163 AT-95 SG-234 DA-88 IF-510 Plug-in boards for CA

2-1-4. Notes on Repair Parts

1. WARNING

Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

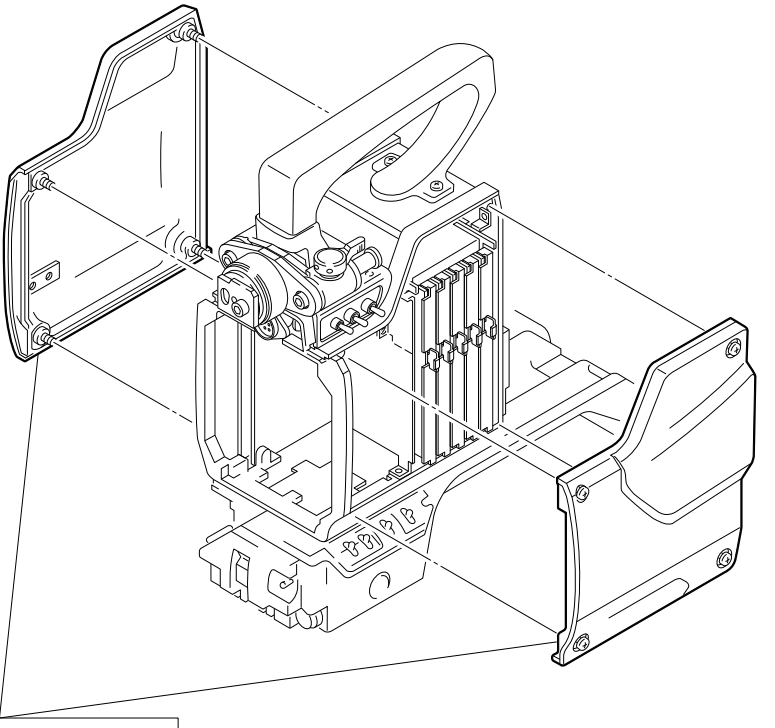
Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

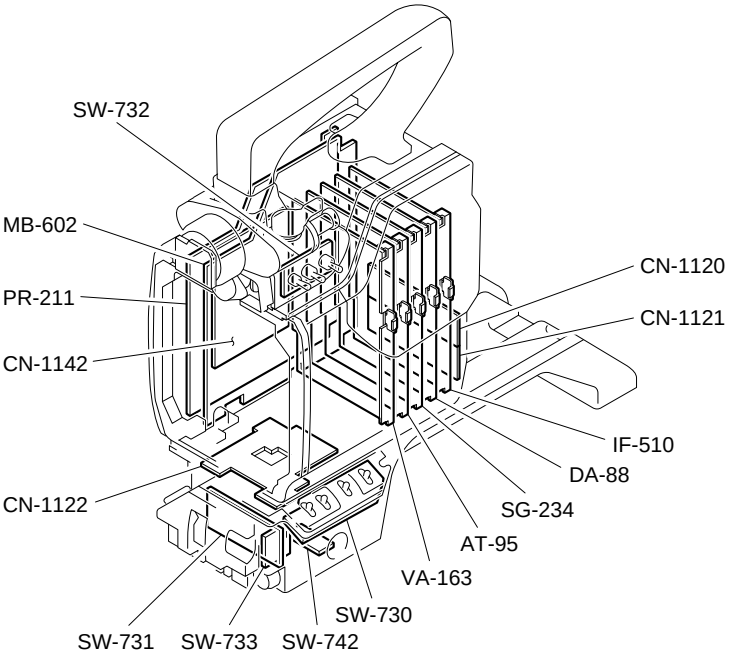
Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

2-2. Removal of Cabinet



To remove the both side panels
Loosen the four screws respectively.

2-3. Location of Printed Circuit Boards



2-4. Circuit Description

Circuit description for the BVP-550 and CCD unit OHB-450/451/550/550W series (available separately) is described here. The BVP-550 is called as BVP, and OHB-450/451/550/550W series is called as OHB in this section.

(1) CCD Drive System (OHB)

TG-159 board

The TG-159 outputs the pulses for driving the CCD to the DR-271 board and outputs the pulses for sampling the CCD output to the PA-181 board.
The driving pulses are synchronized with the HD and VD pulses input from the BVP and are output.
Pulses are generated from the VCO clock (36 MHz) of the board. The clocks for the digital processing circuit (36 MHz, 18 MHz)are also output to the BVP.
CCD V-sub voltage, white shading data and so on are also stored in the EEPROM of the TG-159 board.

DR-271 board

The DR-271 board converts the pulses from the TG-159 board to directly drive the CCD. The converted pulses are transmitted to the CCD via the BI-91(R)/91(G)/91(B) board respectively. The board also has a circuit which makes +29 V from +15 V for the V-sub voltage. Furthermore, the board also has an interface circuit for the optical filter.

BI-91(R)/91(G)/91(B) boards

The CCDs are mounted on the BI-91(R)/91(G) /91(B) boards. These boards supply the driving pulses and control voltages to the CCD.
The signals output from the CCD are sent to the PA-181 board via the emitter follower.

PA-181 board

The PA-181 board extracts video signals from the CCD signals output from the BI-91(R) /91(G)/91(B) boards by a correlated double sampling circuit, and amplifies the R and G signals by one time, and the B signal by three times. The resultant signals are output to the VA-163 board of the BVP.

DR-302 board (OHB-451/451P only)

The DR-302 is a driving board for one optical filter disk, which motor-drives a filter selected by the RCP or MSU. The DR-302 board consists of a motor-drive circuit, and a servo circuit comprised of a selected filter detection and filter position voltage generation circuits.

(2) Video Signal System

VA-163 board

The VA-163 board amplifies the video signals output from the OHB and performs the following processings:

- Black shading correction
- Gain-up control
- Blanking cleaning
- White shading correction
- Feedback clamping
- White balancing
- Flare compensation, and
- Pre-knee

In addition, it also switches between the video signals, TEST SAW(TEST1) signal and 3-STEP TEST(TEST2) signal.

PR-211 board

The PR-211 board converts the analog R, G, and B video signals into digital signals with an A/D converter having sampling/holding functions.
It generates clocks required for the A/D conversion and the digital processings from the clocks generated by the OHB.
In addition, the PR-211 board adds a linear matrix and detail signals to the analog-to-digital-converted R, G and B signals.
It performs the processings such as pedestal control, gamma correction, knee correction and white clipping for the signals. It also performs the followings.

- Generates an internal color-bar signal and switches between this signal and the main line signals.
- Creates detail and aperture signals from digital R and G signals.
- Creates a skin tone singal.
- Detects signals for an auto iris, flare compensation, DCC, and auto white/black balancings.
- Detects black/white shadings, generates a waveform to compensate them and outputs the wavefoem to the VA-163 board.
- Detects black levels and outputs the feedback clamp voltage to the VA-163 board.
- Generates TEST SAW waveforms and output them to the VA-163 board.

- Generates a 27-MHz clock signal required for the VTR control.

The video signals that has thus been digital-processed, are then converted to Y, R-Y and B-Y signals. Some signals are output to the DA-88 board and the others are output via the MB board as a digital video signal output at the same time. The Y/C signals are generated from the Y, R-Y and B-Y signals with a color encoder IC on the PR-211 board. These signals, that were sampled at 36-MHz rate and quantized by 10 bits, are digital-to-analog converted. And the resultants are then output to the DA-88 board as a monochrome signal for VF, wide-band luminance signal, or modulated chroma signal. The monochrome signal for VF has a zebra signal for level indication, and character signal and center marker signal on it.

DA-88 board

The monochrome signal for VF (VF Y) sent from the PR-211 board goes through a lowpass filter and is output to the MB-602 board. The wide-band luminance signal Hi-Ys is output via a lowpass filter to the IF-510 board. The modulated chroma signal C goes through a black clamp circuit and lowpass filter and is added to the Hi-Ys. The resultant is output to the IF-510 board as a VBS signal.
The Y, R-Y and B-Y signals, that are input from the PR-211 board as the digital video signals, are aligned in phase with video signals in another channels by a digital delay line. The resultant is digital-to-analog converted and is then output via a lowpass filter to the IF-510 board. On the other hand, an analog component signal is generated in combination with the above-mentioned Hi-Ys signal, R-Y and B-Y signals. The analog component signal is controlled, on the level adjustment and reference signal addition, by the AT-95 board according to equipment connected to the camera (VTR or CCU). The analog component signal is output to external equipment via the 68P interface connector .

IF-510 board

Input signals at the IF-510 board are as follows;
Signals from the DA-88 board: VF Y, VBS, Y, R-Y and B-Y
Signals from external equipment: Reference signal for external synchronization, Return video signal
By combination with these signals, the IF-510 board outputs the following signals.

- VBS OUT signal
  Output via a buffer amplifier to external equipment.
- VBS OUT signal for RM
  Output to an interface connector for a remote control unit RM-P9. Using the setup menu, a character signal to confirm the menu setting can be mixed to this signal.
- TEST OUT signal
  With the signal select switch at the right top of the camera, the above-mentioned VBS or the VF Y signal can be selected as a TEST OUT signal output at the TEST OUT connector.
- VF OUT/MONI OUT signal
  The same signal is output as the VF OUT signal and the MONI OUT signal. One of the VF Y, VBS, or return video or reference signal selected by S1 on the IF-510 board, is selected. The selected signal is mixed with a center marker and safety-zone pulse, and is then output. The VF OUT signal is output at the VF connector and the MONI OUT signal is output at the 68P interface connector.
- R/G/B output signals
  The Y, R-Y and B-Y signals are converted to the R, G and B signals by a matrix circuit. The converted signals are output at the 68P interface connector.
- Y/R-Y/B-Y output signals for VF
  These signals are for a color viewfinder. A character signal and SKIN GATE signal are mixed with the above-mentioned Y, R-Y and B-Y signals. The resultants are output to the VF.
  In addition, the IF-510 board is equipped with the following circuits.
- HD/VD external sync circuit
  When displaying the return video or reference signal on the viewfinder screen, it is necessary to synchronize the cursor signal with those signals. And a sync signal is separated from those signals to generate the external HD and VD signals, and the resultant is sent to the cursor signal generation circuit on the PR-211 board.
- Peak-detects the G signal and outputs to the AT-95 board.
- Transmits the SKIN GATE signal from DA-88 board to the CCU via the 68P interface connector.

(3) Auto system

AT-95 board

The AT-95 board consists of a microcomputer which controls the camera according to the instructions stored in a ROM. Operations of the board are listed below;

- Analyzes instructions of the function switches, video system detection data and analog data.
- Outputs various control signals and compensation signals to the boards.
- Outputs status information and self-diagnosis infomation as character data from the character generator.
- Incorporates the interface function with the RM-P9 or the CCU-700/700P.

(4) Pulse system

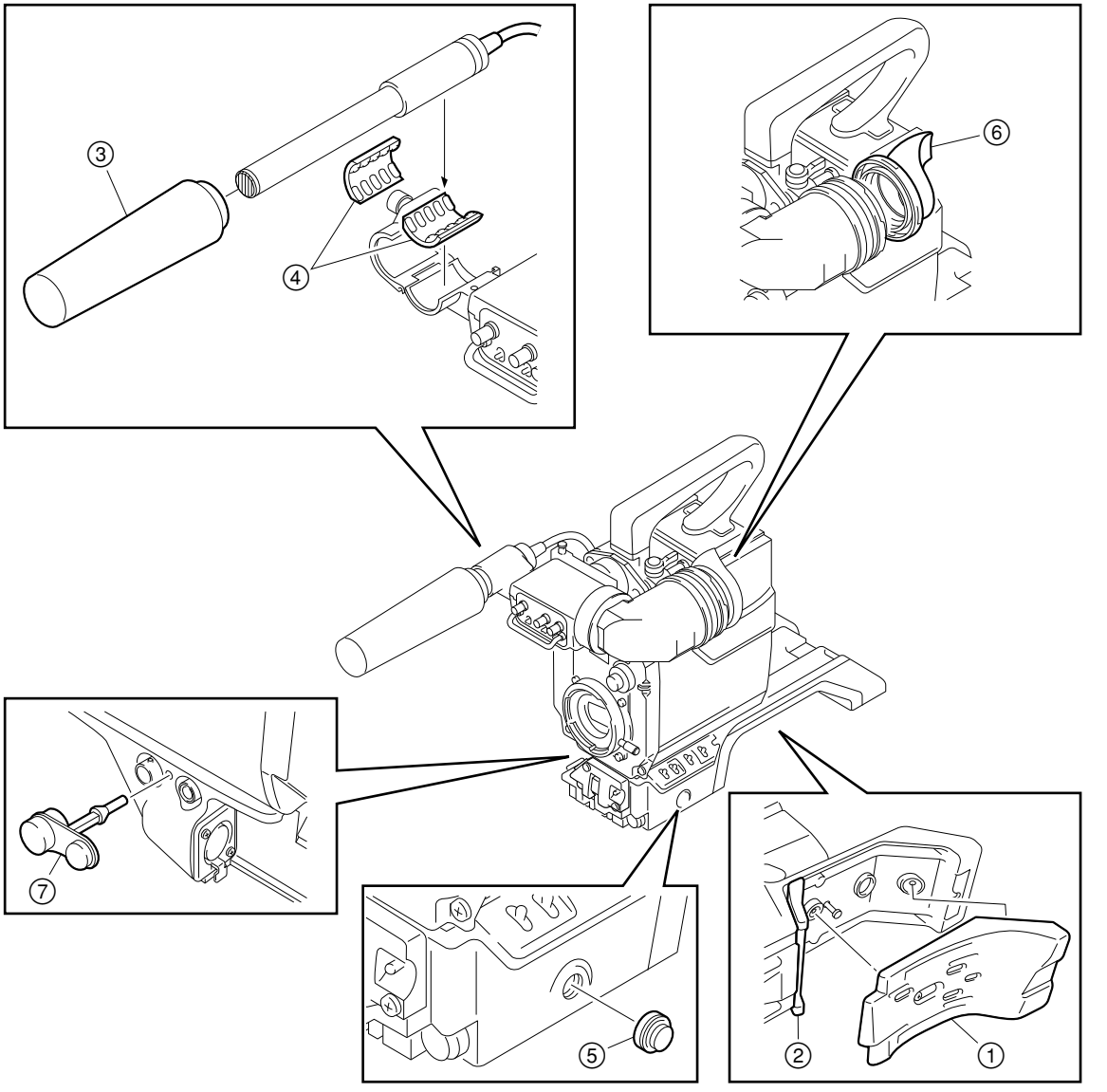
SG-234 board

The SG-234 board has a sync signal generator which generates various sync signals for the camera. The sync signals are generated from the clock pulse input from the OHB via the PR-211 board. They are output to the board of the camera, OHB and the camera adaptor (CA) respectively. This generator has two modes to synchronize with a reference signal input for external synchronization. One is a VBS input mode when the camera is used alone and the other is V RESET/H CONT mode when the CCU is connected to the camera. Input channels of the V RESET and H CONT signals differ depending on the type of CA in connection with the camera.

2-5. Periodic Replacement Part

Parts listed below are periodic replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N	Remarks
①	PAD ASSY (LARGE)	A-8278-237-A	
②	PAD ASSY (SMALL)	A-8278-238-A	
③	WIND SCREEN	3-708-875-0X	Supplied with VF
④	MIC CUSHION, RUBBER	3-692-138-0X	Supplied with VF
⑤	COVER, SW	3-676-244-1X	
⑥	EYE CUP	3-723-079-0X	Supplied with VF
⑦	CAP, CONNECTOR	3-692-914-1X	



2-6. Cleaning

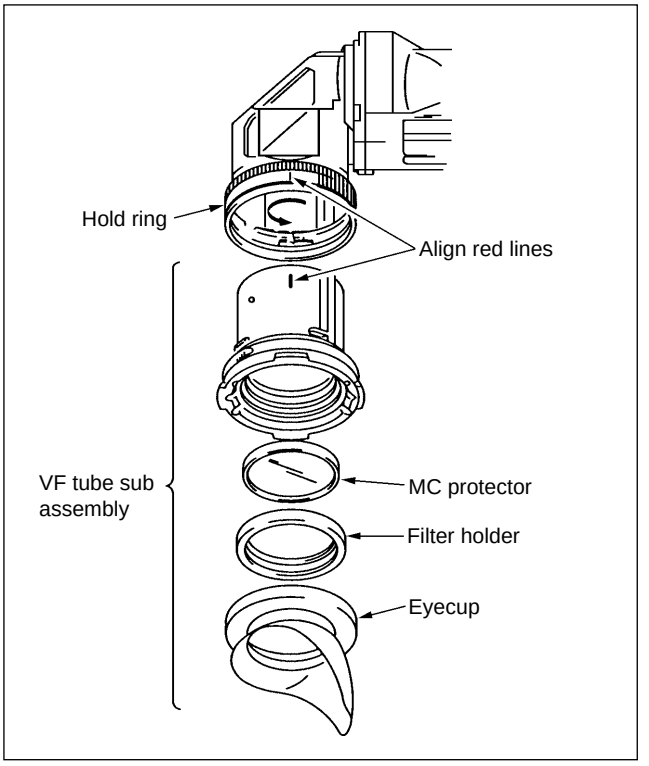
2-6-1. Cleaning of Viewfinder (Option)

By extracting VF tube sub assy, lens and MC protector can be easily cleaned. And also dust on the CRT surface or mirror can be easily cleaned off.

1. Turn the hold ring to the left and extract the VF tube sub assy.
2. Detach the eyecup.
3. Remove the MC protector with a commercially available camera lens cleaner. Blow off dust with a blower carefully so as not to flaw the mirror.
5. After the cleaning is completed, install by reversing the preceding steps. Align red lines of the VF tube and VF tube sub assy when inserting, and turn the hold ring to the right until it locks.

Notes

- Do not use any type of solvent, such as alcohol, benzine or thinner to remove stains.
- Be sure to attach the eyecup to the VF, or the MC protector may come off.
- To protect the viewfinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.



2-6-2. Cares After Using at Special Environment

It is recommended to check the following items after gathering the news at seaside, dust area or spa.

1. Clean off sand and other dust in the unit carefully.
2. Do not allow salt in seawater or sulfur in spa to contact a not-painted surface of the cabinet. They may cause to corrode. Clean with alcohol immediately if contacted.
3. Clean the connection surface of connectors.
4. Carry out the common operation check and check that the unit has not an abnormal sound or operation.

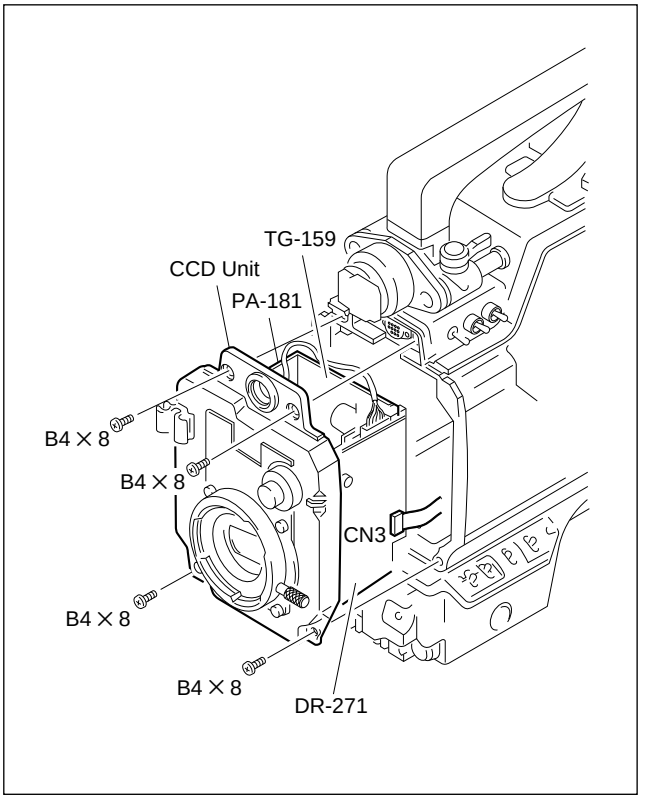
2-7. Replacement of External Connectors

2-7-1. VF Connector

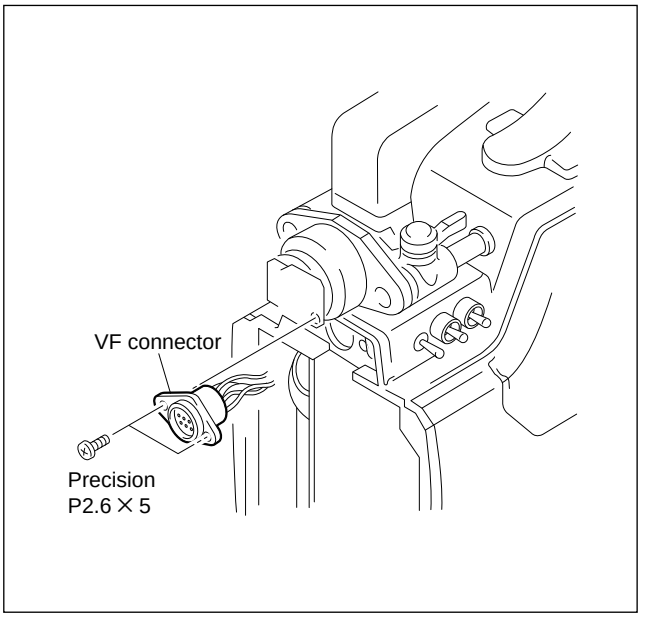
1. Remove the four screws and remove the CCD unit.
2. Disconnect the three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board of the CCD unit.

Note

When disconnecting the flexible card wires, refer to "2-8. Disconnecting/Connecting of Flexible Card Wires".



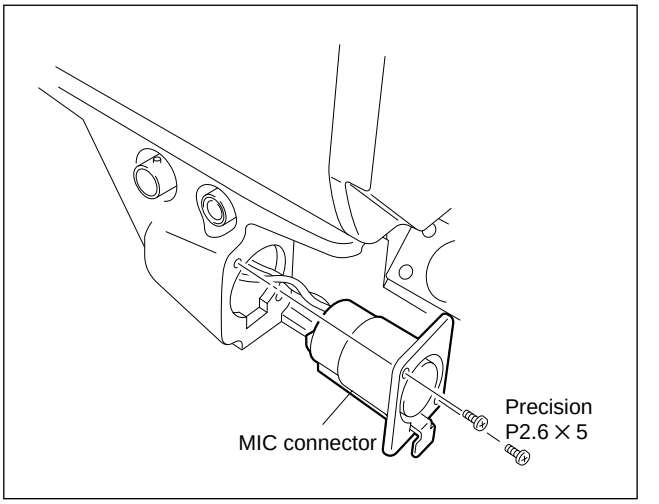
3. Remove the two screws and remove the VF connector. Then unsolder it.



4. Install a new connector in the reverse procedures of removal.

2-7-2. MIC Connector

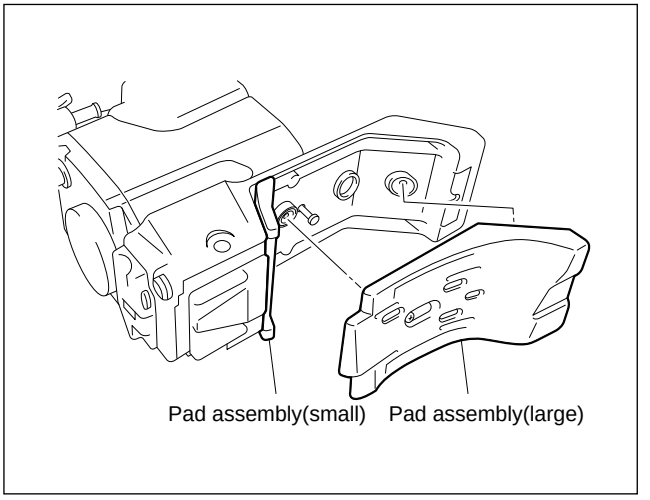
1. Remove the two screws and remove the MIC connector.
   Then unsolder it.



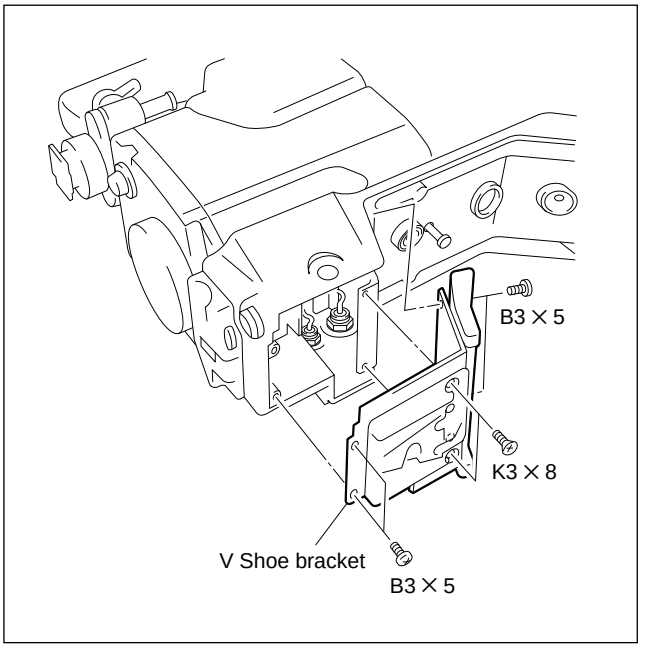
2. Install a new connector in the reverse procedures of removal.

2-7-3. TEST OUT/REMOTE Connector

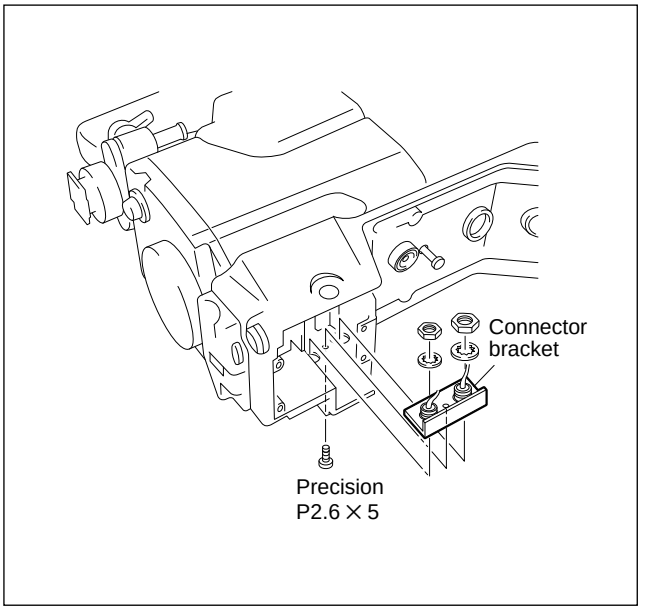
1. Remove the three screws and remove the Pad Assembly (Large).



2. Remove the seven screws and remove the V shoe bracket.



3. Remove the screw and remove the connector bracket.Unsolder the TEST OUT/REMOTE connector. Remove the each nut and remove the TEST OUT/ REMOTE connector.



4. Install a new connector in the reverse procedures of removal.

2-8. Disconnecting/Connecting of Flexible Card Wires

The flexible card wires are used between the MB-602 board and the CCD unit, the MB-602 board and the CN-1120/1121/1122/PR-211 boards. Be careful not to bend these wires. This shortens the wire life.

Disconnecting

1. Turn off the power of the camera.

Type A

(between the MB-602 board and CCD unit)

2. Lift up the portion A in the direction of the arrow and disconnect the flexible card wire.

Type B

(between the MB-602 board and CN-1120/1121/1122/PR-211 boards)

2. Slide portion B in the direction of the arrow and disconnect the flexible card wire.

Connecting

Notes

- Be careful not to insert the flexible card wires obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

Type A

(between the MB-602 board and CCD unit)

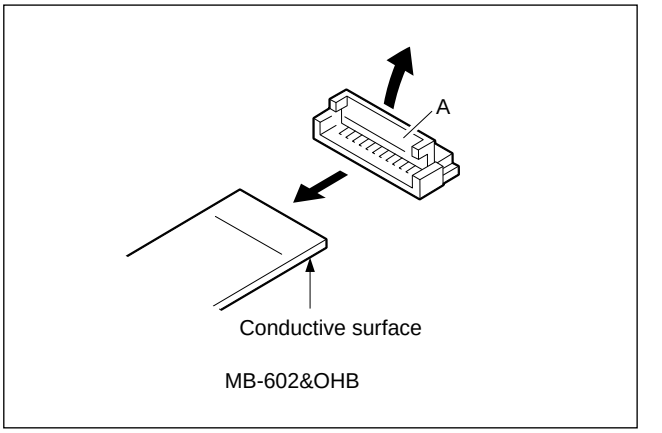
1. Lift up the portion A in the direction of the arrow. Insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Push down the portion A to secure the flexible card wire.

Type B

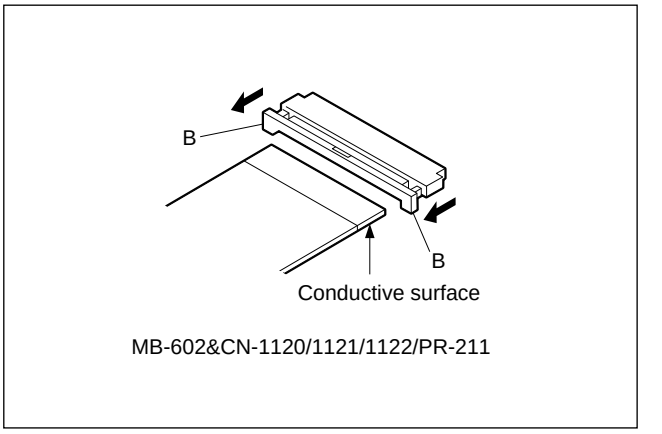
(between the MB-602 board and CN-1120/1121/1122/PR-211boards)

1. Slide portion B in the direction of the arrow and insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Slide portion B in the opposite direction of the arrow and lock each connector.

Type A



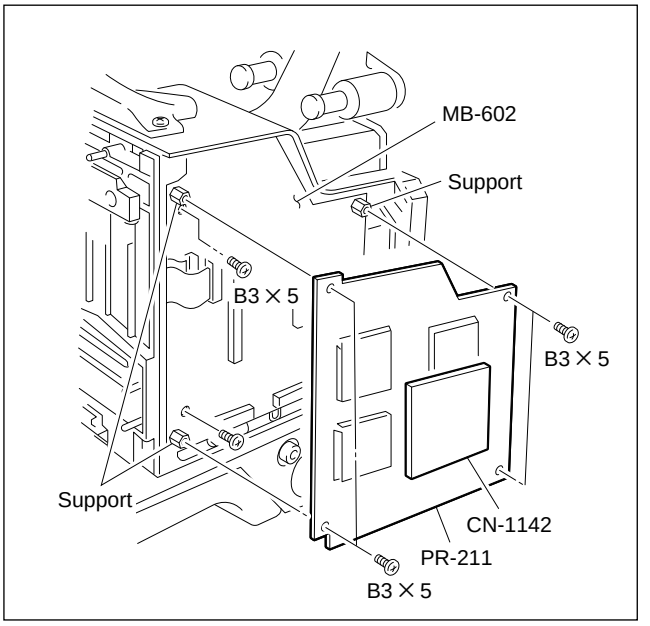
Type B



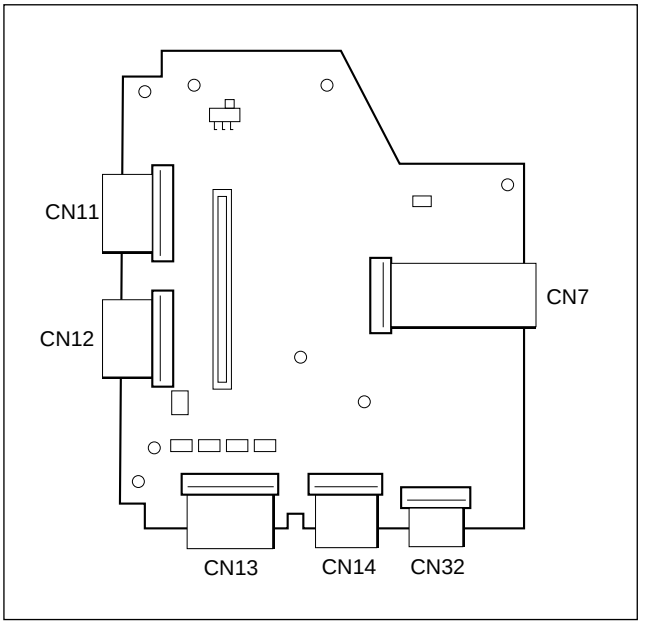
2-9. Board Replacement

2-9-1. MB-602 Board

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards.
3. Remove the four screws and remove the PR-211 board.
4. Disconnect the four connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.
5. Remove the four screws and remove the four supports. Remove the MB-602 board.



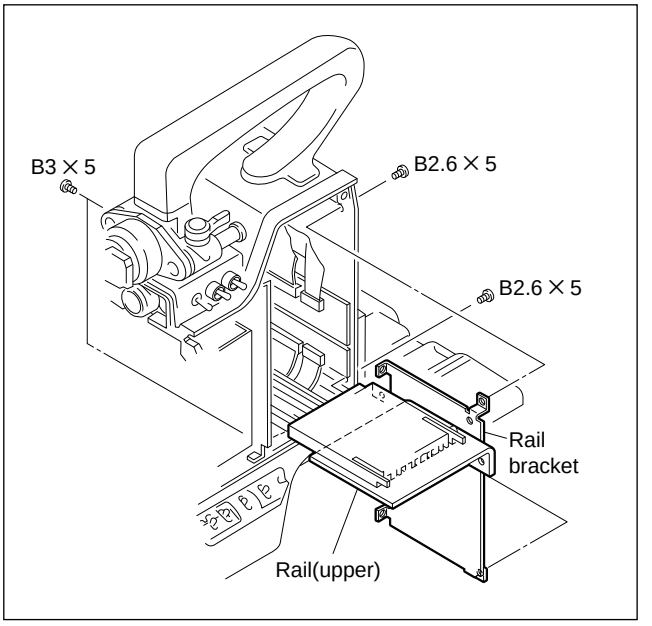
6. Disconnect the connectors.
   Note
   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.



7. Install a new board in the reverse procedures of removal.

2-9-2. CN-1120/1121 Board

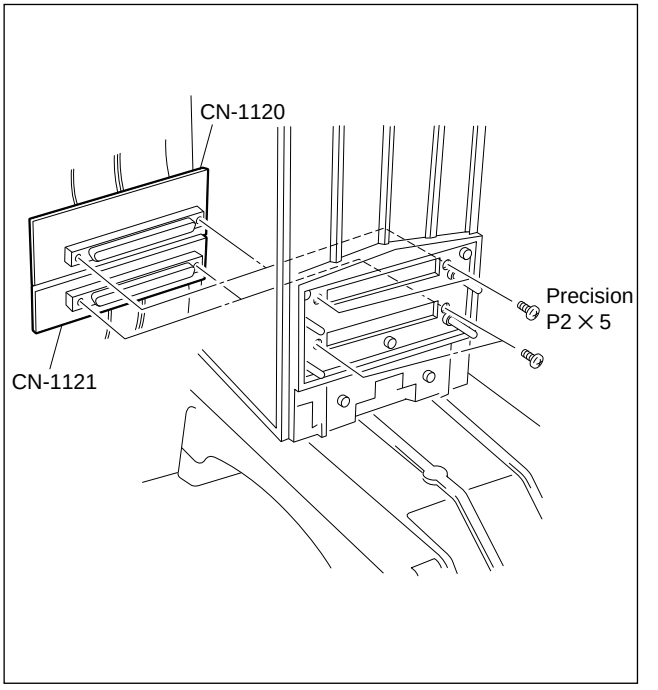
1. Remove the right side panel of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Pull out the five plug-in boards and the four shielding plates.
3. Remove the DC/DC convertor unit.
   (Refer to “2-11. Replacement of DC/DC Convertor Unit”.)
4. Remove the rail(upper).
5. Remove the four screws and remove the rail bracket.



6. Remove the two screws and remove the CN-1120/1121 board.
7. Disconnect the connector.

   Note

   When disconnecting the flexible card wires, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires”.

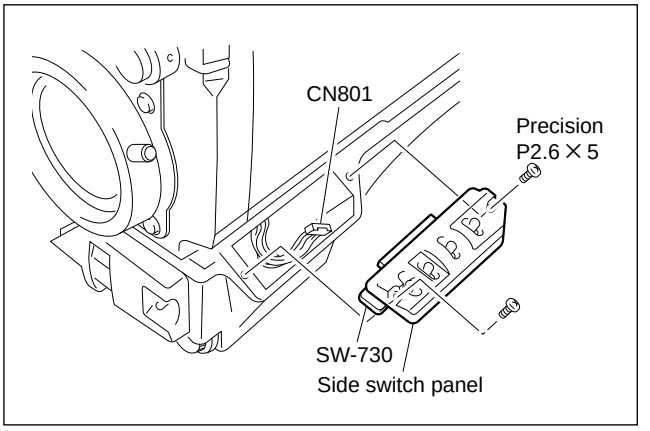


8. Install a new board in the reverse procedures of removal.

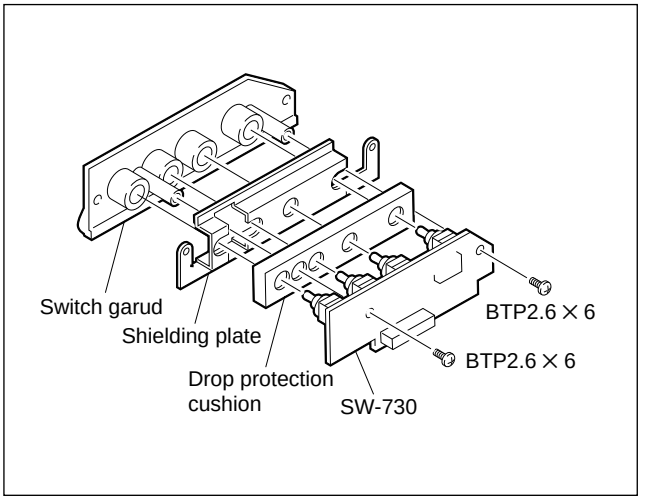
2-10. Replacement of Function Switches

2-10-1. Side Switch Panel Block

1. Remove the two screws and remove the side switch panel.
2. Disconnect the connector CN801 on the SW-730 board.



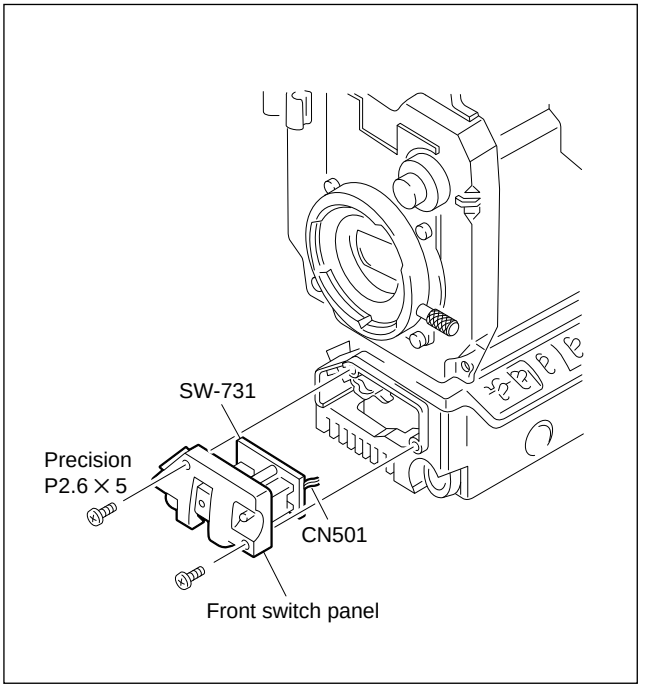
3. Remove the two screws.Remove the SW-730 board, shielding plate and drop protection cushion.
4. Unsolder the terminals and remove the switch to be replaced.



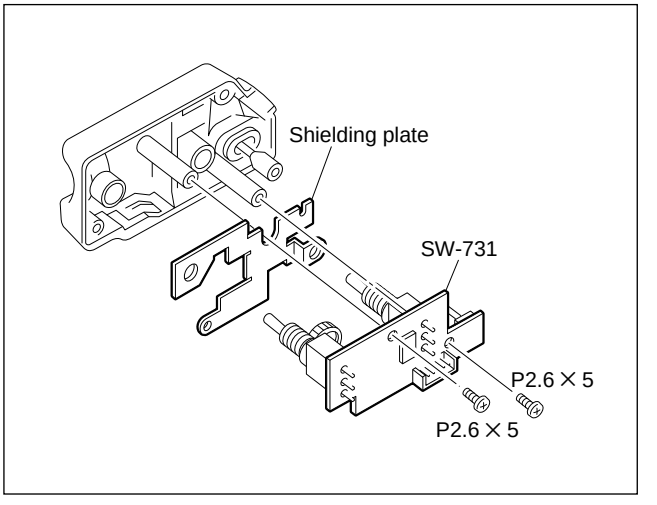
5. Install a new switch in the reverse procedures of removal.

2-10-2. Front Switch Panel Block

1. Remove the two screws and remove the front switch panel.
2. Disconnect the connector CN501 on the SW-731 board.



3. Remove the two screws.Remove the SW-731 board, knob packing, VR knob and shielding plate.
4. Unsolder the terminals and remove the switch to be replaced.



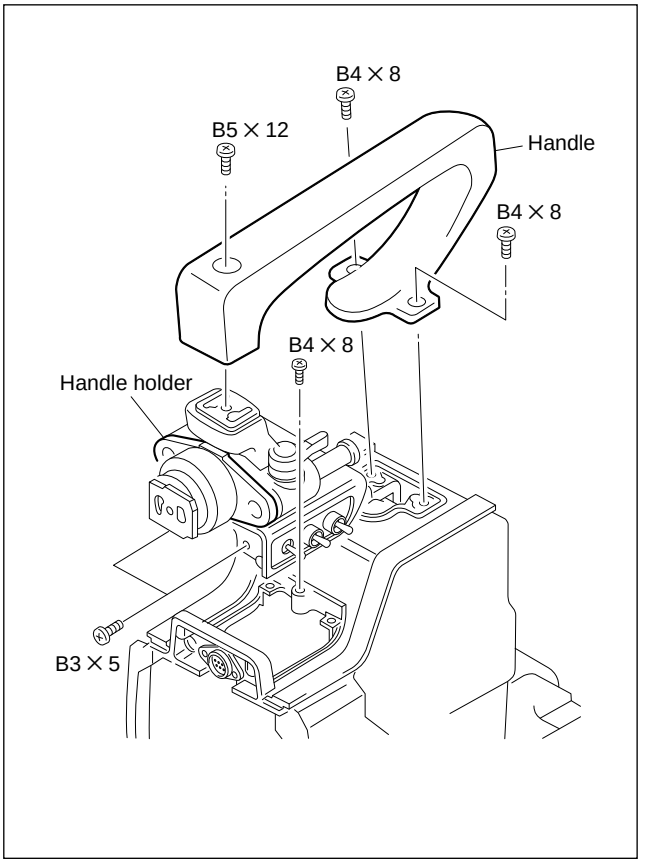
5. Install a new switch in the reverse procedures of removal.

2-10-3. VF DISP Switch

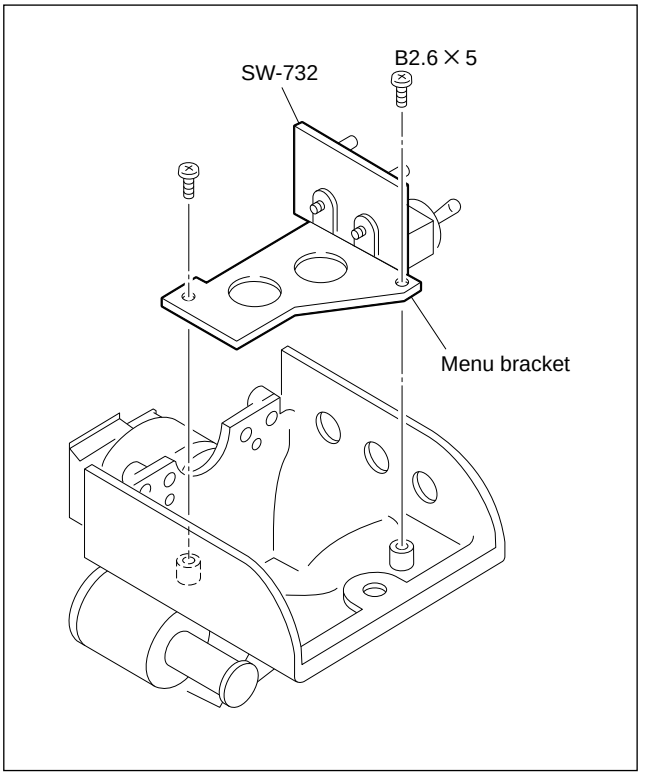
1. Remove the four screws and remove the CCD unit referring to “2-7-1. VF Connector”.
2. Disconnect three connectors CN3 on the DR-271 board, CN3 on the TG-159 board and CN2 on the PA-181 board.

   Note

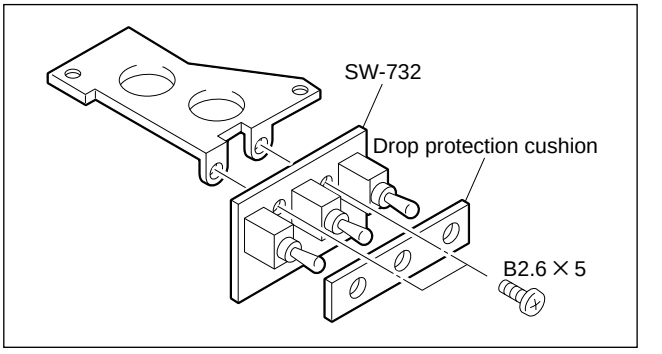
   When disconnecting the connectors, refer to “2-8. Disconnecting/Connecting of Flexible Card Wires” and “2-7-1. VF Connector”.
3. Remove the three screws and remove the handle.
4. Remove the three screws and remove the handle holder.



5. Remove the two screws and remove the menu bracket.



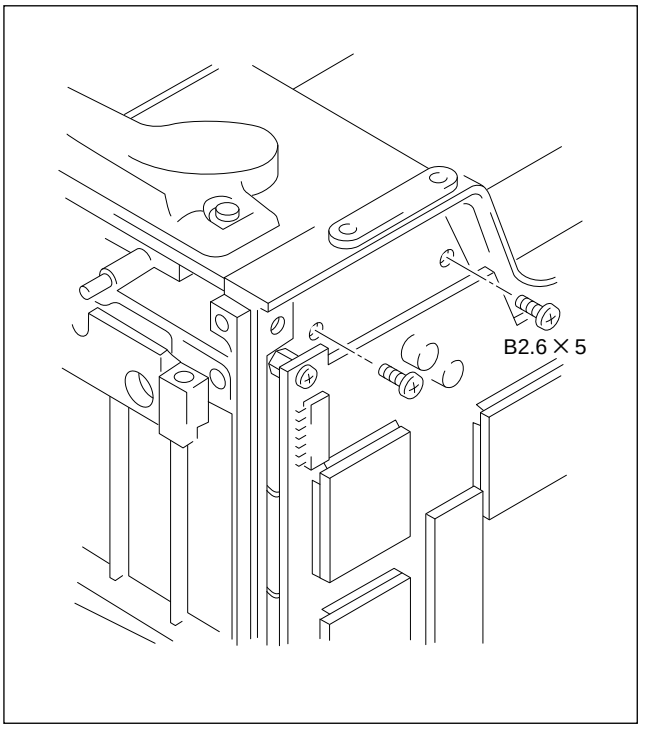
6. Remove the two screws and remove the SW-732 board and the drop protection cushion.
7. Unsolder the terminals and remove the switch to be replaced.



8. Install a new switch in the reverse procedures of removal.

2-11. Replacement of DC/DC Convertor Unit

1. Remove the right and left side panels of the camera. (Refer to “2-2. Removal of Cabinet”.)
2. Remove the two screws on the left side of the camera shown in the figure.

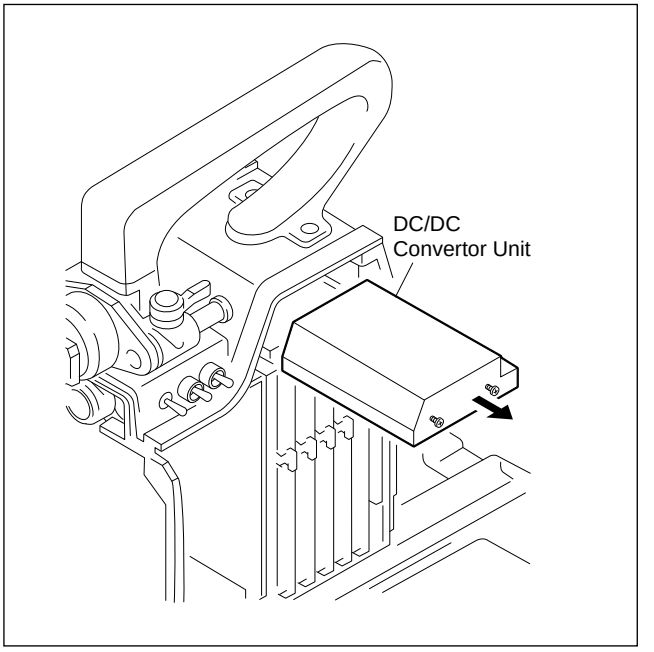


3. Thread the two screws that were removed in Step 2, into the holes of the DC/DC convertor unit three turns.

Note

Never turn the two screws more than three turns.

4. Hold the two screws with hands and remove the DC/DC convertor unit.



5. Install a new DC/DC convertor unit pushing with hands.
   Secure it to the MB-602 board with the two screws that were removed in Step 2.

Section 3
Setup Menu

3-1. Setup Menu

The Setup menu is used to select settings of camera operation, select items to be displayed on the viewfinder screen, and select the way the items are displayed.
It is also used for adjustment. The menu appears on the viewfinder screen.
By changing a setting through this menu, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

• Configuration of the Setup Menu

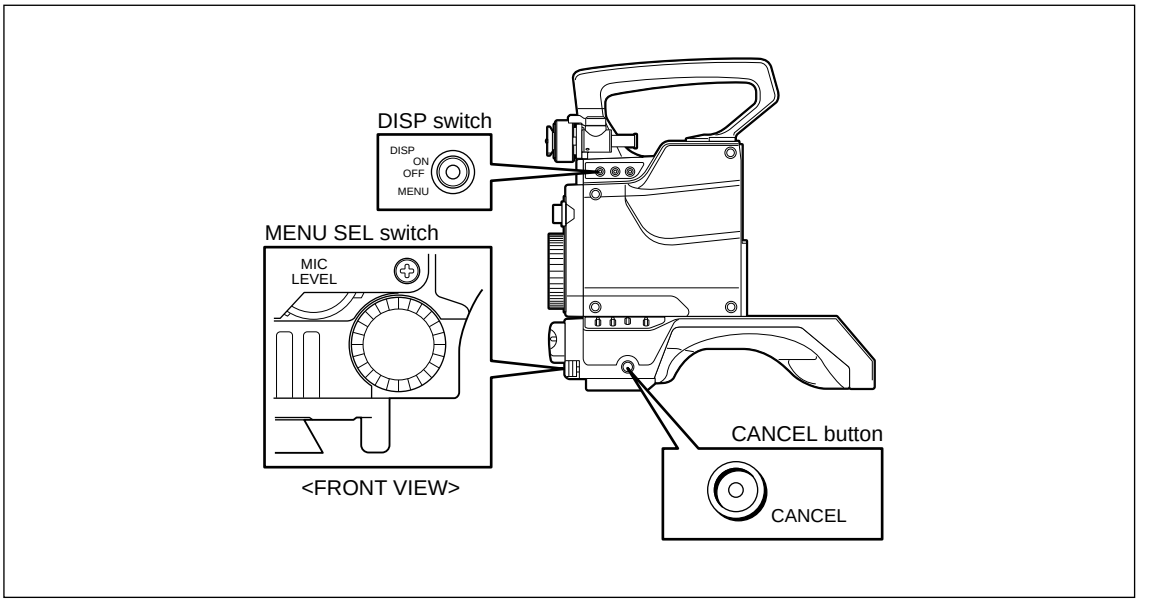
The setup menu consists of the following menus
- Operation menu
- Paint menu
- Maintenance menu
- Reference menu
- Triming menu
- System config menu

Operation and Paint menus are normally accessible. To display the other menus, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”

• Equipment required

CCD Unit OHB-450/550 series
Camera Adaptor CA-550/550P
Supply power from a camera control unit CCU-700/700P, AC adaptor AC-550/550CE or VTR.

• Switches and Button



DISP switch

ON : Displays characters and messages indicating the video camera settings and operation status.
OFF : No character or marker display appears on the viewfinder screen.
MENU : The setup menu appears on the viewfinder screen.

MENU SEL switch

Selects the menu item or setting value displayed on the viewfinder screen.

CANCEL button

Cancels the contents of a menu setting, or returns to the page select mode or TOP menu.

Note

The TOP menu screen indicates the entire configuration of menu items.
To display the TOP menu, set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch.

- **Basic Operation**

1. Displaying the menu
   To display the Operation menu, set the DISP switch to MENU.
   To display the other menus than the Operation menu, first of all, the TOP menu shall be displayed.
   To display the TOP menu, set the DISP switch to MENU while holding down the MENU SEL switch. Then turn the MENU SEL switch to move the cursor to a menu item which you want and press the MENU SEL switch.
2. To shift the page, turn the MENU SEL switch with a page scroll bar displayed at the top-right of the screen until the desired page is displayed and press the MENU SEL switch.
   The menu enters the item select mode and the page scroll bar disappears.
3. To shift the item, turn the MENU SEL switch until the → cursor points the item to be set and press the MENU SEL switch.
4. To change the value, turn the MENU SEL switch. You can change the values quickly by turning the MENU SEL switch fast. You can make very fine adjustments by turning the switch slowly. By pressing the MENU SEL switch, the setting is entered.
5 The menu page is returned to the item select mode or page select mode every time the CANCEL button is pressed.
6. To exit from the setup menu, set the DISP switch to OFF.

- **ROM version**
  Contents in the menu and factory settings may differ from the descriptions in this manual depending on the version of ROM on the AT-95 board.

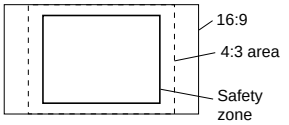
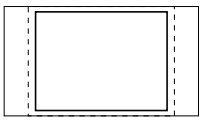
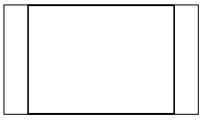
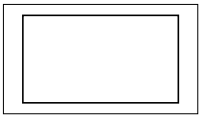
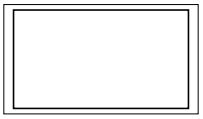
3-1-1. Operation Menu

This menu contains items contained for changing camera settings to suit shooting conditions during normal camera operations.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VF DISPLAY	ZOOM	[ON], OFF	Turns on and off the indications of zoom position and lens extender.
	SHUTTER	[ON], OFF	Turns on and off the indications of shutter speed and mode.
	IRIS	[ON], OFF	Turns the iris setting indication on and off.
	AUDIO	[ON], OFF	Turns the audio level indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	TAPE	[ON], OFF	Turns the tape-remaining indication on and off. (Automatically turned OFF in connection with CCU/RCP)
	ZEBRA	ON, OFF	Turns the zebra indication on and off. (Corresponds to the ZEBRA switch of VF connected to the camera.)
	MESSAGE	[ON], OFF	Turns on and off the indication of message in changing each setting of filter, white balance memory, gain value, DCC(auto knee) and shutter speed. The indication is displayed within three seconds in the center of the viewfinder screen.
	MODE	CHG, [USR]	CHG : The indications of the optical filter, white balance memory and gain value are displayed only when they differ from the standard settings (FILTER:1B, WHITE:A, GAIN:0dB) USR : The indications are displayed corresponding to the settings on the VF DISPLAY page.
	FILTER	*, [ON], OFF	Turns the optical filter indication on and off.
	WHITE	*, [ON], OFF	Turns the white balance memory indication on and off.
	GAIN	*, [ON], OFF	Turns the gain value indication on and off.
MARKER	CENTER	[ON], OFF	Turns the center marker indication on and off.
	SAFETY ZONE	80%, [90%] , OFF	Turns the safety zone marker indication on and off and selects the area indicated by that marker. f)
	BOX CURSOR	ON, [OFF]	Turns the box cursor indication on and off.
	BOX H POS	-99 to 99 ([0])	Shifts horizontally the location of the box cursor on the screen.
	BOX V POS	-99 to 99 ([0])	Shifts vertically the location of the box cursor on the screen.
	BOX WIDTH	00 to 99 ([41])	Sets the width of the box cursor.
	BOX HEIGHT	00 to 99 ([10])	Sets the height of the box cursor.

f) In the 16:9 mode, the following kinds of safety zone marker can be selected in combination of the settings of “SAFETY ZONE” and “4:3 SAFETY”.

		SAFETY ZONE		
		80%	90%	OFF
4:3 SAFETY	ON			
	OFF			Not indicated

Page	Item	Settings	Contents
GAIN SW	LOW	-3, [0], 3, 6, 9, 12, 18, 24, 30 dB	Selects the gain value for each gain switch position. (LOW, MIDDLE, HIGH)
	MID	-3, 0, 3, 6, [9], 12, 18, 24, 30dB	
	HIGH	-3, 0, 3, 6, 9, 12, [18], 24, 30dB	
WIDE SCREEN (For OHB-550WS /550WSP)	16:9/4:3 MODE	[16:9], 4:3	Selects the aspect ratio for the video signal output. (This setting is valid only when the camera is used alone.) * Corresponds the CCU's setting when the CCU is connected.
	VF ASPECT	[AUTO], 4:3	Selects the aspect ratio for the viewfinder indication. AUTO : Automatically selects according to the aspect ratio selected by 16:9/4:3 MODE on the WIDE SCREEN page. 4:3 : Selects 4:3 regardless of the 16:9/4:3 MODE setting.
	4:3 SAFETY	ON, [OFF]	Selects whether the safety zone marker showing the 4:3 area is indicated in the 16:9 mode, or not. [1]
	16:9 ID ON VF	ON, [OFF]	Turns on and off the 16:9 indication in the 16:9 mode on the viewfinder screen. (This setting is valid only when the DISP switch is set to on or off.)
	16:9 ID ON BARS	ON, [OFF]	Selects whether the 16:9 indication is displayed on the internal color-bar in the16:9 mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
MON OUT	BNC TEST OUT	[VBS], RM, VF Y	Selects a video signal to be output at TEST OUT connector. VBS : Color composite signal RM : The same as a signal ouput to RM-P9 Y : Y(monochrome) signal
	RM/MON CHAR	[ON], OFF	Selects whether character signals displayed on the viewfinder screen are mixed with the VBS signal to be output to RM-P9, or not. Turning on is convenient to operate the setup menu by RM-P9.
	VBS LOCK	ON, [OFF]	Used to prevent misoperation by ENC/RGB switch. ON : ENC signal is output at TEST OUT connector regardless of ENC/ RGB switch setting. OFF : A signal selected by ENC/RGB switch is output.
	VF VIDEO MODE	[Y], MIX, NAM	Selects a video signal to be output to the viewfinder. Y : Y=0.3R+0.59G+0.11B; The same as a camera output signal MIX : Y=0.33R+0.33G+0.33B NAM : Selects one of the R, G, and B signal that is maximum in level.
	[RGB]-G	ON, [OFF]	Sets signals selectable by RGB switch. ON : R-G, B-G OFF : R, G, B
AUTO IRIS AUTO KNEE (DCC)	IRIS OVERRIDE	-99 to 99 ([0])	Sets the reference value for automatic iris adjustment. -99 (further closed) ↔ 99 (further opened)
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
	AUTO KNEE POINT	-99 to 99 ([XX])	Sets the point on which the knee function starts to have effect in the auto-knee mode.
	AUTO KNEE SLOPE	-99 to 99 ([XX])	Sets the volume of the effect of the knee function in the auto-knee mode.

Page	Item	Settings	Contents
STAND ALONE	H PHASE	-99 to 99 ([XX])	Sets the horizontal phase of the camera in the genlock mode.
	SC PHASE	0 to 360([XX])	Sets the subcarrier phase of the camera in the genlock mode.
	CABLE COMP	ON, [OFF]	Turns on and off the cable compensation circuit for the external sync signal in the genlock mode.
	SNG BARS	ON, [OFF]	Turns the color-bar signal for SNG on and off.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the MASTER BLACK level.
	IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
	CF PULSE	[ON], OFF	Turns on and off the color framing pulse supplied to the VTR.
	SKIN DETAIL	ON, [OFF]	Turns the skin tone detail function on and off.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)
AUTO SETUP	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output.
DIAGNOSIS	OHB	[OK], NG	Displays a state of communication for control data between the OHB block and CPU on AT board.
	PR	[OK], NG	Displays a state of communication for control data between the PR board and CPU on AT board.
	VA	[OK], NG	Displays a state of communication for control data between the VA board and CPU on AT board.
	AT	[OK], NG	Displays a state of communication for control data between the CPU and memory on AT board.
	SG	[OK], NG	Displays a state of communication for control data between the SG board and CPU on AT board.
	DA	[OK], NG	Displays a state of communication for control data between DA board and CPU on AT board.
	IF	[OK], NG	Displays a state of communication for control data between IF board and CPU on AT board.
	MD	[OK], NG	Displays a self-diagnosis result of MD board (of camera adaptor).
	AU	[OK], NG	Displays a self-diagnosis result of AU board (of camera adaptor).
	TR	[OK], NG	Displays a self-diagnosis result of TR board (of camera adaptor).
CAMERA ID	ID: [ ][ ][ ][ ][ ][ ][ ]		Sets a camera ID of up to ten alphanumerics, symbols, and spaces.
	ID ON BARS	ON, [OFF]	Selects whether the camera ID is mixed with a camera output signal only in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
1. Lens is automatically closed and the black balance is automatically adjusted.
2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

Note

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

3-1-2. Paint Menu

The Paint menu is used for white and other paint adjustments items. To activate the Paint menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting.)

Page	Item	Settings	Contents
VIDEO LEVEL	WHITE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B gain level.
	BLACK R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master black level.
	FLARE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B flare level.
	GAMMA R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master gamma correction curve.
	FLARE	[ON], OFF	Turns the flare correction circuit on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the VIDEO LEVEL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL1	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding the detail signal.
	LEVEL	–99 to 99 ([0])	Adjusts the master level for the detail signal.
	LIMITTER	–99 to 99 ([0])	Adjusts the clipping level against the maximum detail level.
	CRISPENING	–99 to 99 ([0])	Adjusts the level at which the detail signal is crispened.
	LEVEL DEP	–99 to 99 ([0])	Adjusts the level to control the detail signal used at lower signal level.
	LEVEL DEP	[ON], OFF	Turns the level depend function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the DETAIL 1 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL2	DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding detail signal.
	H/V RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H and V detail signal.
	FREQUENCY	–99 to 99 ([0])	Adjusts the boost frequency for H detail signal.
	MIX RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H detail signal used before and after the gamma compensation circuit.
	W.LIMITTER	–99 to 99 ([0])	Adjust the clipping level adainst the higher detail signal at the maximum level.
	B.LIMITTER	–99 to 99 ([0])	Adjusts the clippping level against the lower detail signal at the minimum level.
	COMB	–99 to 99 ([0])	Sets the effect volume of the comb filter 99 (Causes less cross colors.) ↔ –99 (Yields clear pictures, but causes more cross colors.) * For a PAL model, this function has the effect on not every object but a specified object.
	KNEE APRT.	ON, [OFF]	Turns the knee aperture function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL2 page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
SKIN DETAIL	SKIN DETAIL	ON, [OFF]	Turns the skin detail function on and off.
	LEVEL	–99 to 99 ([0])	Adjusts the level of the skin detail.
	PHASE	100° to 170°([0])	Adjusts the hue for the skin detail function.
	WIDTH	0° to 90° ([0])	Adjusts the color width for the skin detail function.
	SATURATION	–99 to 99 ([0])	Adjusts the color saturation of the skin detail function.
	GATE	ON, [OFF]	Turns the area display of the skin detail function in the viewfinder screen.
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Sets the range of skin detail hue function automatically. (Does not function at preset.)
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the SKIN DETAIL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
GAMMA	GAMMA, R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B and master gamma level.
	COARSE	0.40, [0.45], 0.50	Selects the gamma value in steps.
	GAMMA	[ON], OFF	Turns the gamma value on and off.
	BLACK GAMMA	–99 to 99 ([0])	Adjusts the black gamma (master). (Note: A noise appears on the screen during operation.)
	BLACK GAMMA	ON, [OFF]	Turns the black gamma function on and off. (Note: A noise appears on the screen during operation.)
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Resets all settings on the GAMMA page to the factry settings. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
KNEE/W.CLIP	POINT	–99 to 99 ([0])	Adjusts the knee point level when the function is OFF.
	SLOPE	–99 to 99 ([0])	Adjusts the knee slope level when the function is OFF.
	KNEE	[ON], OFF	Turns the knee function on and off.
	AUTO KNEE	ON, [OFF]	Turns the auto knee function on and off.
	KNEE MAX	ON, [OFF]	Turns on and off the knee max function which changes the slope to completely collapsed form.
	WHITE CLIP	–99 to 99 ([0])	Adjusts the white clip level.
	WHITE CLIP	[ON],OFF	Turn the white clip function on and off.
	TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute.	Sets all settings on the KNEE/W.CLIP page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Item	Settings	Contents
MATRIX	R-G, R-B	–99 to 99 (0)	Compensates the user's matrix (sets an optional value as the constant for R-G, R-B, G-R, G-B, B-R, and B-G).
	G-R, G-B	–99 to 99 (0)	
	B-R, B-G	–99 to 99 (0)	
	MATRIX	ON, OFF	Turns the matrix compensation on and off.
	USER[a]	ON, OFF	Turns the user's matrix compensation on and off.
	PRESET[a]	ON, OFF	Turns on and off only the preset matrix compensation (fixed constant compensation).
	TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step form test signal OFF : No test signal is output
	CLEAR	Press MENU SEL switch to execute	Sets all settings on the MATRIX page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
SCENE FILE	1	Storing and recalling a scene file (painting data corresponding to a shot scene)	
	2	**Storing a scene file**	
	3	1 Turn MENU SEL switch to move the → cursor to "FILE STORE," then press MENU SEL switch. "FILE STORE" flashes on the viewfinder screen.	
	4		
	5	2 Select the file number (1 to 5) to be stored to.	
	FILE STORE	(If data is already stored at the selected location, the new data replaces the current data.) **Recalling a scene file** Turn MENU SEL switch to move the → cursor to the file number whose data is to be recalled, then press MENU SEL switch. • When MENU SEL switch is pressed, the scene file data replaces the current settings. • When the scene file is recalled, an asterisk appears next to the number.	
	STANDARD	Returns the current amount of paint adjustments and switch setting to their reference value stored as a reference file.	

a) When both USER and PRESET are set to ON, the matrix constant compensation is total value of the USER and PRESET matrix.

3-1-3. Maintenance Menu

The Maintenance menu is used for encoder output level and other adjustments items necessary for camera's maintenance. The Maintenance menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required.
For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board".
To activate the Maintenance menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Item	Settings	Contents
VBS	SYNC LEVEL	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal.
	Y LEVEL	-99 to 99 ([XX])	Adjusts the Y level of camera's encoder output signal.
	BURST LEVEL	-99 to 99 ([XX])	Adjusts the burst level of camera's encoder output signal.
	CHROMA LEVEL	-99 to 99 ([XX])	Adjusts the chroma level of camera's encoder output signal.
	Q/V LEVEL	-99 to 99 ([XX])	Adjusts the Q (or V) level of camera's encoder output signal.
	SET UP	-99 to 99 ([XX])	Adjusts the sync level of camera's encoder output signal. (This setting is valid only for NTSC.)
	BF PHASE	-99 to 99 ([XX])	Adjusts the burst phase of camera's encoder output signal.
	SC-H PHASE	-99 to 99 ([XX])	Adjusts the SC-H phase of camera's encoder output signal.
	V BLANKING	19,[20],21H	Adjusts the V blanking width of camera's encoder output signal. (This setting is valid only for NTSC.) In connection with CCU, the width is fixed to 19H. * For a PAL model, the width is fixed to 25H at all times.
WHITE SHADING	V SAW R/G/B/M	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, B or master white shading.
	V PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.PARA compensation for the R, G, or B white shading.
	H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B white shading.
	H PARA R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.PARA compensation for the R, G, or B white shading.
	WHITE R/G/B	-99 to 99 ([XX])	Adjusts the R, G, or B white level.
	V MOD R/G/B/M	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, B or master modulation shading of the lens and prism.[b]
	V MOD	ON, [OFF]	Turns the V modulation shading on and off.
	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the WHITE SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)
BLACK SHADING	V SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of V.SAW compensation for the R, G, or B black shading.
	H SAW R/G/B	-99 to 99 ([XX])	Adjusts the volume of H.SAW compensation for the R, G, or B black shading.
	BLK SET R/G/B	-99 to 99 ([XX])	Adjusts the volume of BLACK SET compensation for the R, G, or B.
	BLACK R/G/B/M	-99 to 99 ([XX])	Adjusts the R, G, B or master black level.
	MASTER GAIN	-3,0,3,6,9,12,18, 24,30 dB ([X])	Selects the master gain value.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the BLACK SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)

b) When the master modulation shading is adjusted, the V. SAW component for the R and B V-modulation shadings of the prism is simultaneously compensated.

Page	Item	Settings	Contents
AUTO SET UP	AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
	AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
	LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c)
	AUTO HUE DETECT	Press MENU SEL switch to execute.	Starts to automatically adjust the volume of effect of the skin detail auto hue function. (Does not function at present.)
	COLOR MATCH	Press MENU SEL switch to execute.	Starts to automatically perform the COLOR MATCH adjustment to match in color between two or more cameras. (Does not function at present.)
	WHITE SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the white shading. (Does not function at present.)
	BLACK SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the black shading. d)
DATE/TIME	DD/MM/YY HH:MM:SS		Adjusts a built-in timer. (HH;hour/MM;minute only)
	DATE ON BARS	ON, [OFF]	Selects whether the date characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
	TIME ON BARS	ON, [OFF]	Selects whether the time characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
OTHERS	S/N MEASURE	ON, [OFF]	ON : Set to ON in mesuring the S/N ratio. And settings of the DETAIL, CHROMA, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MOD MEASURE	ON, [OFF]	ON : Set to ON in mesuring the modulation depth. And settings of the DETAIL, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF: Settings of DETAIL and so on are returned as they were.
	MASTER BLACK	-99 to 99 ([0])	Adjusts the master black in measuring the S/N ratio and modulation depth.
	DETAIL	[ON], OFF	
	CHROMA	[ON], OFF	
	GAMMA	[ON], OFF	
	MATRIX	[ON], OFF	
	FLARE	[ON], OFF	

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence. After the adjustment is complete, adjustment result is stored as a reference file.
   1. Lens is automatically closed and the black balance is automatically adjusted.
   2. The white balance is automatically adjusted using TEST 2 (3-step) signal.

   Note

   This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
   The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the LEVEL AUTO adjustment does not contain the gamma and knee adjustments unlike a conventional camera.

d) Before first using the camera with the OHB-450/451/550/550WS (or their PAL version) installed, or After replacing the CCD unit, be sure to execute the automatic black shading adjustment.

3-1-4. Reference Menu

The Reference menu stores the reference values used for automatic setup adjustment and the standard settings of the switches as the reference files. And the menu can clear the current reference files. The Reference menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the Reference menu, first display the TOP menu.

Notes

1. Executing the FILE STORE on the REFERENCE FILE page registers settings of items, which have been set through the Paint, Maintenance and System config menus just before the file store, as the reference values.
2. When changed numbers of items are returned to the reference values stored as the reference files, recall the standard file using an MSU/RCP or the setup menu.

Page	Item	Settings	Contents
REFERENCE FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the reference files. (Temporarily clears the current reference files[e)].)
LENS FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a lens to be used as the lens files. The standard values are stored at the factory. (Does not function at present.)

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-5. Triming Menu

The Triming menu stores the adjustment data in replacing parts as the triming files. And the menu can clear the current adjustment values. The Triming menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the Triming menu, first display the TOP menu.

Note

Executing the FILE STORE on the TRIMING FILE page registers settings of items, which have been set through the Maintenance and System config menus just before the file store, as the reference values.

Page	Item	Settings	Contents
TRIMING FILE	FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
	CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the triming files. (Temporarily clears the current triming files[e)].)
OHB FILE	FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a CCD unit to be used as the OHB files. The standard values are stored at the factory.

e) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-6. System Config Menu

The System config menu is used for adjustments items necessary to replace a printed circuit board or some parts of the camera. The System config menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the System config menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting. XX or XXX represents two or three digits in hexadecimal.)

Page	Item	Settings	Contents
DATE/TIME	YY/MM/DD HH:MM:SS		Adjusts the built-in calender and timer.
	RESET	Turn MENU SEL switch to execute.	Resets hour (HH), minute (MM) and second (SS) of the timer.
Y/CHROMA	SC FREQ	XXX ([XX])	Adjusts the camera’s subcarrier frequency.
	Y SYNC	XXX ([XX])	Adjusts the sync level of camera’s Y output signal.
	Y SETUP	XXX ([XX])	Adjusts the setup level of camera’s Y output signal.
	Y VIDEO	XXX ([XX])	Adjusts the Y level of camera’s Y output signal.
	TEST SETUP	XXX ([XX])	Adjusts the setup level of camera’s encoder output signal.
	BURST LVL	XXX ([XX])	Adjusts the burst level of camera’s encoder output signal.
	CHROMA LVL	XXX ([XX])	Adjusts the chroma level of camera’s encoder output signal.
	Q/V LEVEL	XXX ([XX])	Adjusts the Q(V) level of camera’s encoder output signal.
	SC-H PHASE	XXX ([XX])	Adjusts the SC-H phase of camera’s encoder output signal.
	REG LVL	XXX ([XX])	Adjusts the level of the R, G and B output signals.
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the Y/CHROMA page.
PR/VA/TEST	PR ADG R/G/B	XXX ([XX])	Adjusts the reference level of the AD converter for R/G/B signals on the PR board.
	VA MOD R/G/B	XXX ([XX])	Adjusts the R, G or B modulation balance for the VA board.
	G CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for G signal on the PR board. (Note: In replacing OHB, readjustment is required to set the maximum value of the modulation depth.)
	R/B CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for R/B signals on the PR board. (Note: In replacing OHB, readjustment is required to set the minimum level of a pseudo signal.)
	M.BLACK	XXX ([XX])	Adjusts the master black signal.
	TEST2 HI	XXX ([XX])	Adjusts the high level of the TEST2 (3-STEP) signal on the VA board.
	TEST2 MID	XXX ([XX])	Adjusts the middle level of the TEST2 (3-STEP) signal on the VA board.
	TEST CLIP	XXX ([XX])	Adjusts the clip level of the TEST1 (sawtooth) signal on the VA board.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PR/VR/TEST page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
PRE KNEE/ZEBRA	PREKNEE1 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 1 level on the VA board.
(Continued)	PREKNEE2 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 2 level on the VA board.
	APERTURE	XXX ([XX])	Adjusts the aperture compensation signal level.

Page	Item	Settings	Contents
PRE KNEE/ZEBRA	WHITE CLIP	XXX ([XX])	Adjusts the white clip level.
	WHITE CLIP	[ON], OFF	Turns the white clip function on and off.
	ZEBRA1 LEVEL,WIDE	XXX ([XX])	Sets the center value and range for the zebra 1 signal detection.
	ZEBRA2 LEVEL	XXX ([XX])	Sets the detection value for the zebra 2 signal.
	Z.DISP	1,2, [1&2]	Selects a zebra signal to be displayed on the viewfinder. 1: Zebra 1 signal 2: Zebra 2 signal 1&2: Both zebra 1 and 2 signals are displayed at the same time.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PREKNEE/ ZEBRA page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
VTR/CCU	VTR R-Y	XXX ([XX])	Adjusts the R-Y color-difference signal level.
	VTR B-Y	XXX ([XX])	Adjusts the B-Y color-difference signal level.
	CCU Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the Y signal.
	CCU R-Y SYNC	XXX ([XX])	Adjusts the level of the sync pulse to be mixed with the R-Y signal.
	CCU B-Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the B-Y signal.
	RGB OFFSET	XXX ([XX])	Adjusts the G signal level.
	TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the VTR/CCU page. 1: Outputs the sawtooth test signal 2: Outputs the 3-step waveform test signal OFF: No test signal is output
	CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the VTR/CCU page.
IRIS	LEVEL	XXX ([XX])	Adjusts the auto-iris level.
	APL RATIO	XXX ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
OTHERS 1	FILTER,WHT MEM	[ON], OFF	ON: A total of 8 settings of the white balance value can be saved in conbination with the CC filter and WHITE BAL switch settings. OFF: One white balance value can be saved for the WHITE BAL switch setting A or B, for a total of 2 settings.
	NTSC ENC	[WIDE], NRW	Sets the band width of the Q signal for the NTSC color encoder.
	ROTARY	[STD], RVS	Selects the mode of MENU SEL switch (as turned counterclockwise when viewed from the front.) STD: Cursor moves downwards and a numeric value increases. RVS: Cursor moves upwards and a numeric value decreases.
	OWN CALL	R, [F&R], OFF	Selects whether one or two TALLY lamps are lit corresponding to the CALL button of camera adaptor pressed, or not. Or selects which TALLY lamp is lit when the CALL button is pressed. (This setting is valid in connection with CCU. When the camera is used alone, it is always set to OFF.) R: Rear TALLY lamp is lit. F&R: Rear and front TALLY lamps are lit. OFF: No TALLY lamp is lit corresponding to the CALL button.
	CENTER H POS	XXX ([XX])	Shifts horizontally the location of the center marker on the screen.
	CENTER V POS	XXX ([XX])	Shifts vertically the location of the center marker on the screen.
	LENS VTR S/S	TALK, [RET2]	Selects the mode of VTR S/S SW of the lens and camera. TALK: VTR S/S SW of lens functions as INCOM TALK SW (momentary) and that of the camra as RET2 SW. RET2: VTR S/S SW of lens functions as RET2 SW and that of the camera as INCOM TALK SW.
	VF ? DISPLAY	[ON], OFF	Turns on and off the indication of ? mark at the top-right of the VF screen with the DISP switch set to ON when the self-diagnosis result is NG (no good)and so on.

(Continued)

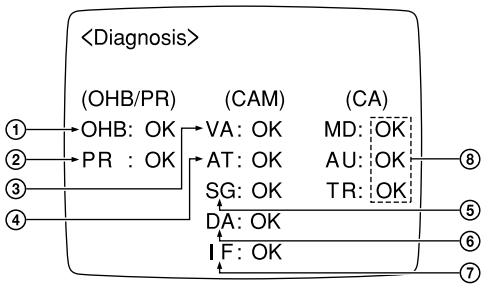
Page	Item	Settings	Contents
OTHERS 1	PinP RET RVS	[RVS1], RVS 2, OFF	Selects the indication mode of VF display in PinP mode. (Does not function in the unit.)
OTHERS 2	F TALLY RVS	[ON], OFF	Selects the operation mode of TALLY lamps corresponding to a CALL button of MSU or RCP pressed when a TALLY signal is input to the camera from CCU or VTR. ON: Rear and front TALLY lamps go out. OFF: Rear TALLY lamp alone goes out.

3-2. Self-Diagnosis

The BVP-550 has a diagnosis mode used for self-diagnosis of every plug-in board and the OHB.
The diagnosis page is displayed on the viewfinder screen.

- Operation
  Select “Diagnosis” page of the Operation menu referring to Section 3-1.

- Viewfinder Screen



- Display Descriptions

Marks	Board/Block	Judging Point for NG
①	OHB(CCD UNIT)	Error in communication with IC18, IC19/TG-159
②	PR-211	Error in communication with IC49
③	VA-163	Error in communication with IC26
④	AT-95	Error in communication with IC46
⑤	SG-234	Error in communication with IC21
⑥	DA-88	Error in communication with IC10
⑦	IF-510	Error in communication with IC155

Refer to CA-550/550P maintenance manual for descriptions on columns of CA.

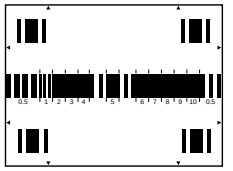
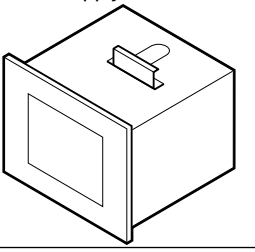
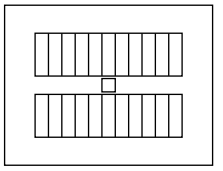
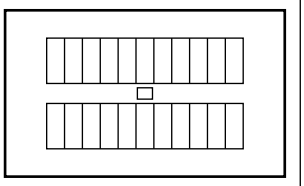
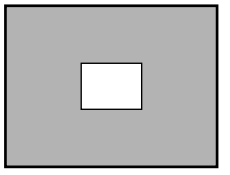
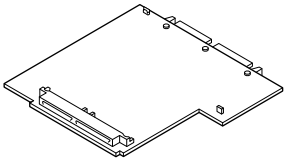
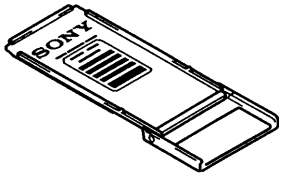
Note

When other equipment than the CA-550/550P is connected to the camera, or when the CA-550/550P is connected to the camera but is not connected to the CCU, the columns ⑧ will display “– –”.

Section 4
Electrical Alignment

4-1. Preparation

4-1-1. Equipment Required

Multiburst Chart	Pattern box PTB-500
Sony P/N: J-6026-110-A 	**Sony P/N: J-6029-140-B** • Light source for test chart Power supply AC90 to 240V 
Grayscale Chart	**Grayscale Chart (16:9)**
Sony P/N: J-6026-130-B 	**Sony P/N: J-6394-080-A** 
White Window Chart	**Extension board EX-464 (option)**
Make a square hole at the center of a black sheet of paper. 	**Sony P/N: J-6395-040-A** For BVP-550 plug-in boards 
Extension board BKP-7900 (option)	
For CCU-700/700P plug-in boards 	

Measuring Equipment

- Frequency counter
  Advantest TR5821AK or equivalent
- Oscilloscope
  Tektronix 2465 or equivalent
- Waveform monitor/Vectorscope
  Tektronix 1750 or equivalent (for NTSC)
  Tektronix 1751 or equivalent (for PAL)
- Digital voltmeter
  Advantest TR6845 or equivalent
- Video signal generator
  Tektronix 1410 or equivalent (for NTSC)
  Tektronix 1411 or equivalent (for PAL)
- Color monitor
  Sony BVM-1911/2811 or equivalent (for NTSC)
  Sony BVM-2011P/3011P or equivalent (for PAL)

Peripheral Equipment

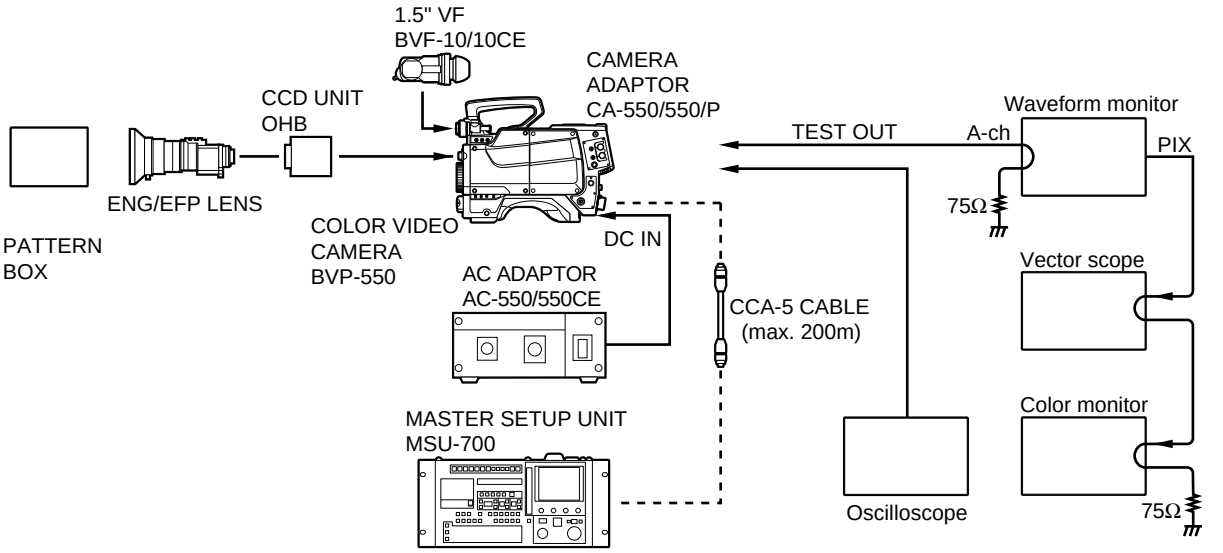
- CCD unit OHB-450/550 series
- Camera adaptor CA-550/550P
- AC adaptor AC-550/550CE
- Master setup unit MSU-700

4-1-2. Notes on Adjustment

When performing the adjustment, read throughly the following comments.

1. The calibration of all measuring equipment should be completed.
2. The alignment of OHB-450/550 series, CA-550/550P and MSU-700 should be also completed.
3. “4-1-5. Initial Setting” should be completed.
4. Turn off the power before extending the plug-in board using the extension board.
5. When using the camera as 16:9 mode together with the OHB-550WS/550WSP, use the specified grayscale chart (J-6394-080-A).
6. Paste a black colored velvets (around 3×3 cm) to both sides of the full white portion in the center of the grayscale chart.
   (For more details, consult your Sony service represen tative.)
7. When connecting MSU-700 to BVP-550, use MSU-700 for various settings, because the switches on the side panel of the camera become invalid.

4-1-3. Connections



4-1-4. Description of Setup Menu

A part of adjustments given in this section uses the setup menu. The setup menu consists of the following menus. Besides there is a TOP menu indicating the entire configuration of menu items.

Operation
Paint
Maintenance
Reference File
Triming File
System config

To display all of the menus, switch setting of the AT-95 board is required. And for details on the setup menu, refer to Section 3.

In this manual, describes the setup menu operation as follows.

Title of the selected page (top right corner display)

For reference:
When Paint → Skin Detail is selected:
MENU : Paint
PAGE : Skin Detail (P4)

Displaying Setup Menu

1. Set the internal switches of the AT-95 board as follows.
   S1-1 → ON
   S1-2 → OFF
   S1-3 → ON
   S1-4 → OFF
2. DISP switch (on the side panel) → OFF
3. POWER switch (on the camera adaptor) → ON
4. Set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch (on the front panel). (TOP menu will be displayed.)

Note

If the power switch is turned off once, perform the above operations again to display the setup menu (steps 2 to 4).

How to change the setting values

To enter or cancel the setting value of items, which can be changed by turning the MENU SEL switch, proceed as follows.

To enter the setting value;
Press the MENU SEL switch to ENTER.

To cancel the setting value;
Before pressing the MENU SEL switch, press the CANCEL button. The original setting is restored.
After pressing the MENU SEL switch, the setting can not be canceled.

File Store

If the adjustments in this section are suspended or the power is turned off to extend a printed circuit board and so on, be sure to execute the FILE STORE before being powered off.

4-1-5. Initial Setting

Internal Switches:

Note

When switching the following switches from a customer-set position, it is recommended to record the setting state of the customer in the table below.
After adjustment is complete, be sure to return the switches to their customer-set position.

Board	Switch	Initial setting	Customer-set position
AT-95	S1-1	ON	
	S1-2	OFF	
	S1-3	ON	
	S1-4	OFF	

Setup Menu:

MENU : Operation
- PAGE : Gain Sw (?3)
- ITEM : Low → 0 dB
- ITEM : Middle → 9 dB
- ITEM : High → 18 dB
- PAGE : Wide Screen (?4)
- ITEM : 16:9/4:3 MODE → 16:9 (For OHB-550WS/550WSP)

MENU : Paint
- PAGE : Video Level (P1)
- ITEM : Test → Off
- PAGE : Detail 1 (P2)
- ITEM : Detail → On
- PAGE : Skin Detail (P4)
- ITEM : Skin Detail → Off
- PAGE : Gamma (P5)
- ITEM : Gamma → On
- PAGE : Knee/W.Clip (P6)
- ITEM : Knee → Off
- ITEM : White Clip → Off
- PAGE : Matrix (P7)
- ITEM : Matrix → Off

Side Panel:

VTR SAVE/STBY switch → STBY
GAIN switch → L (0 dB)
OUTPUT/DCC switch → CAM/OFF
WHITE BAL switch → PRST

Front Panel:

SHUTTER switch → OFF

Filter Setting:3200 K

OHB-550/550WS series → 1B (FILTER selector)
OHB-450/451 series → 1 (FILTER selector)

Execution of Scene File Standard:

MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard
(Press the MENU SEL switch to execute.)

4-2. Adjustment for Installation of OHB

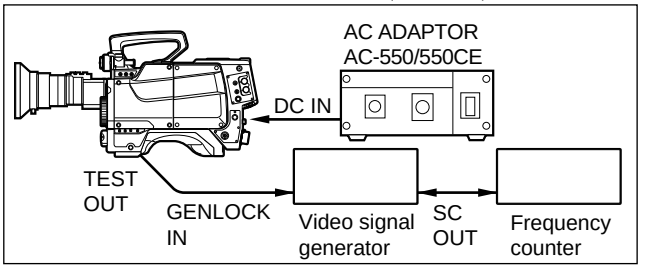
When the auto black adjustment is executed with the AUTO W/B BAL switch on the front panel for the first time after the OHB is replaced or a new OHB is installed, the black shading is automatically adjusted in succession to the auto black adjustment.
If the shading adjustment is correctly completed at that time, “4-2-3. Black Shading Adjustment” can be skipped.

4-2-1. VCO CONT Frequency Confirmation

Notes:
- Perform this confirmation only when the CCD unit is installed.
- Warm up the camera for about 10 minutes before performing this confirmation.

Preparation:
- RGB/ENC switch (on the side panel) → ENC

Equipment : Frequency counter, Video signal generator
Test Point : TEST OUT connector
Specifications: 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specification is not satisfied, perform the following adjustment.

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications: 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:
Execute the OHB file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-2-2. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:
- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

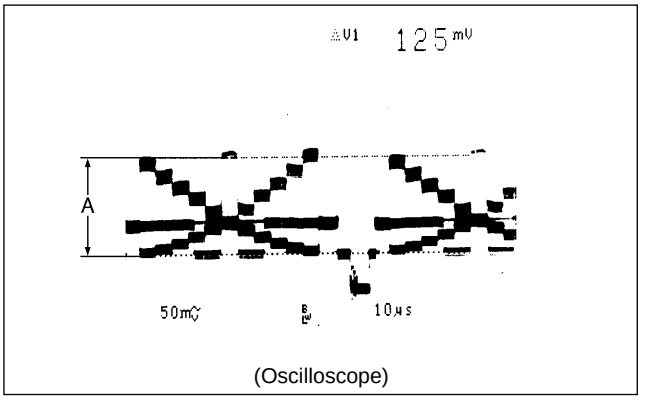
Note:
- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

Preparations:
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-2-5. Master Black Adjustment”.

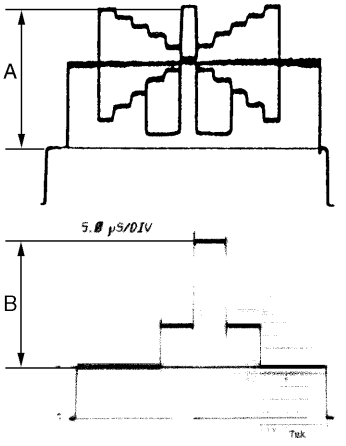
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

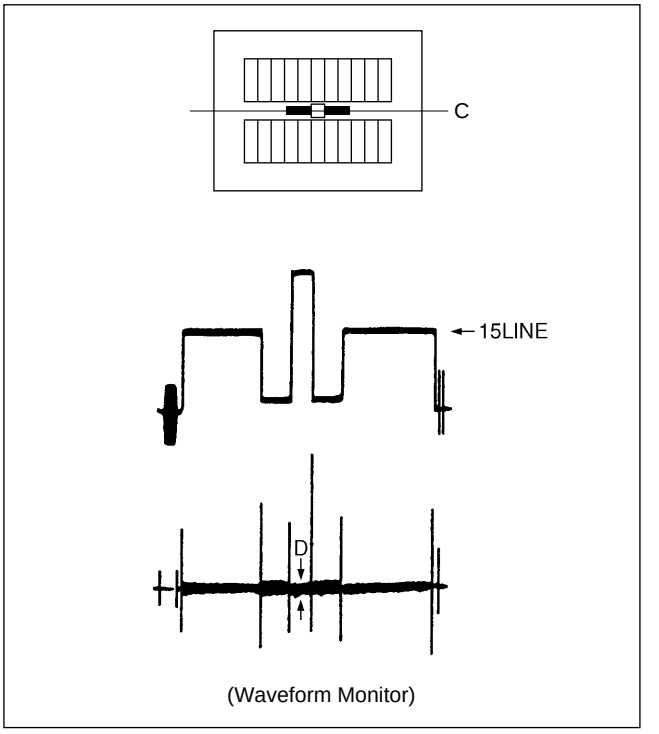
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

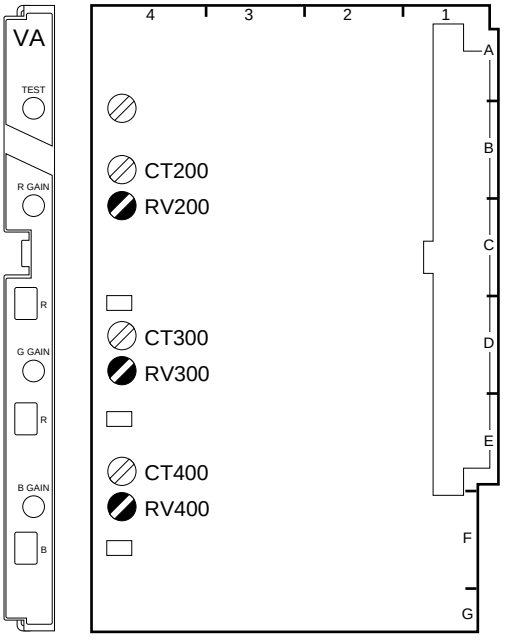


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-2-3. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

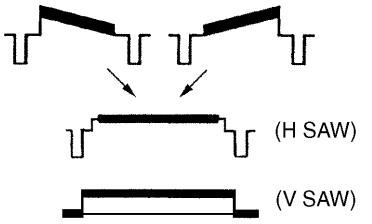
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-2-4. White Shading Adjustment

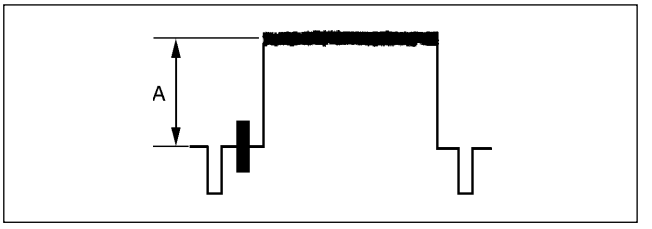
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

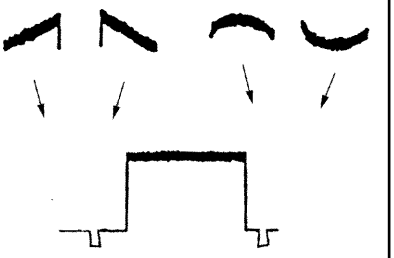
Preparations:

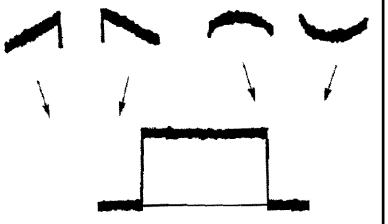
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-2-5. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

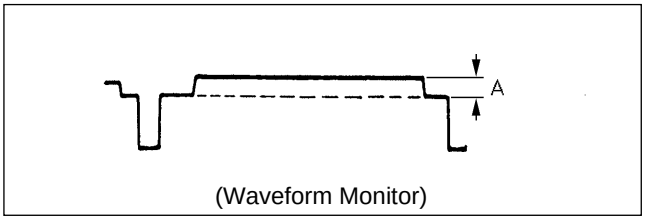
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-2-6. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

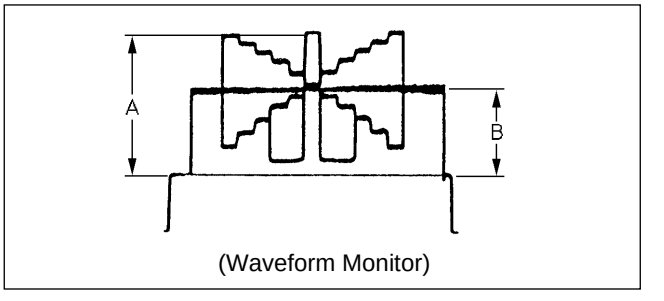
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

Adjustment Procedures:

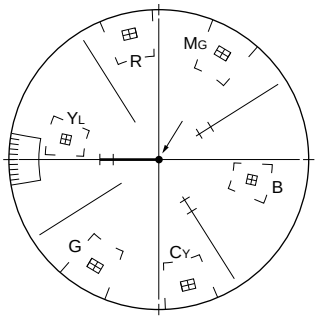
1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)



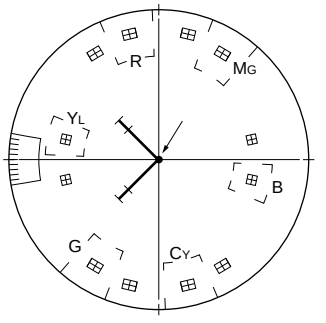
(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.

8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.



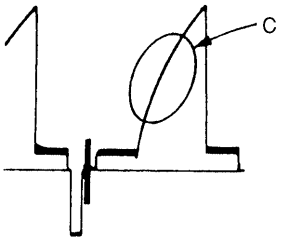
(For NTSC)



(For PAL)

(Vectorscope)

9. Confirm that the carrier leakage does not observed at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

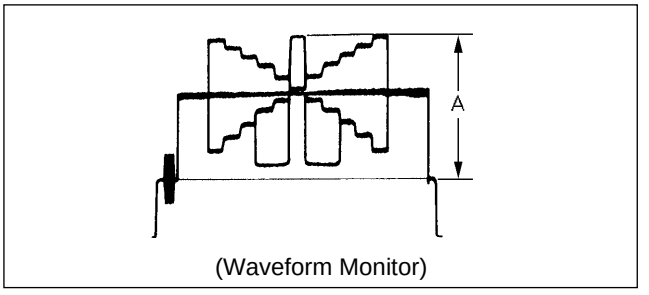
4-2-7. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

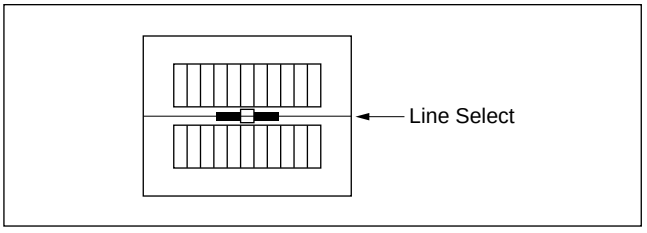
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



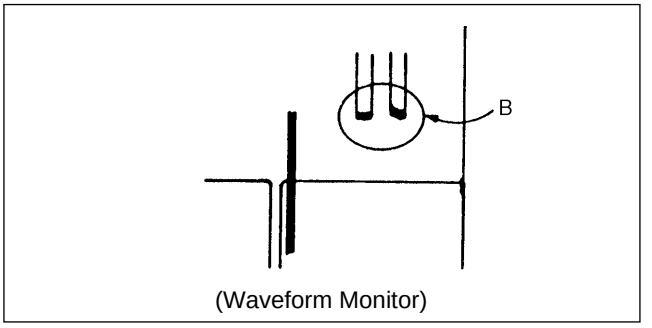
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC. Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

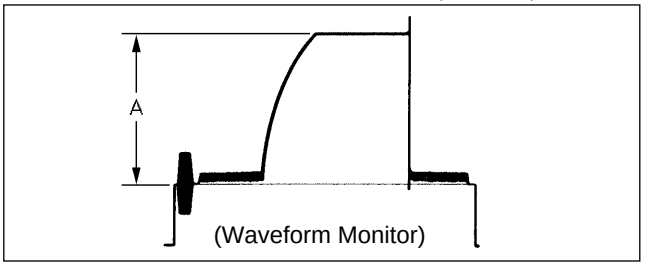
4-2-8. Knee and White Clip Adjustment

Note:
Perform this adjustment on the customer's preferences, if necessary.

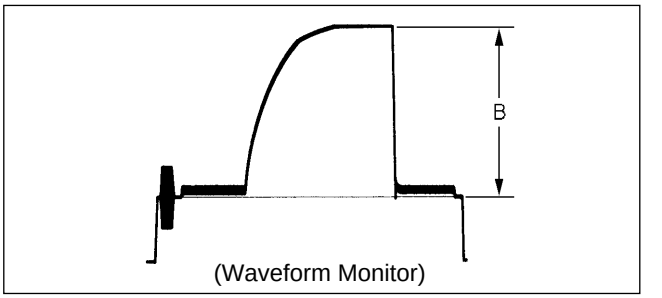
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

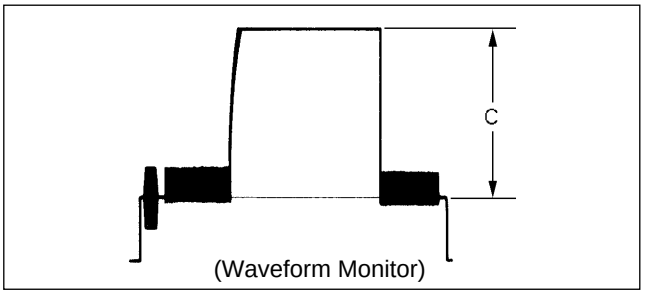
Adjustment Procedures:
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:
- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

Note:
The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-2-9. Crispening Adjustment

Note:

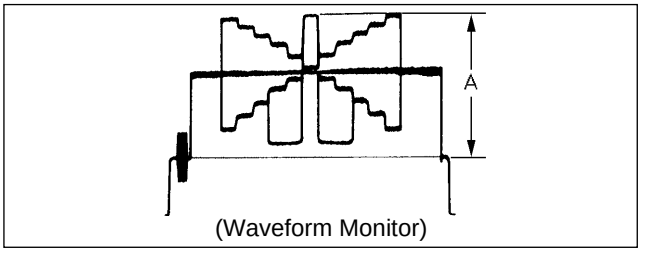
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Iris of the lens : A = 90 ±2 IRE (for NTSC)
A = 630 ±14 mV (for PAL)



(Waveform Monitor)

Adjustment Procedure:

Set the menu as follows, and adjust the crispening by using the MENU SEL switch.

MENU : Paint
PAGE : Detail 1(P2)
ITEM : Crispening
Specifications : Turn the MENU SEL switch (on the front panel) once to –99, and turn slowly for increment until the noise at the black level of the waveform is just decreased, or turn the MENU SEL switch so that the crispening level is an appropriate value.

4-2-10. Level Dependent Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

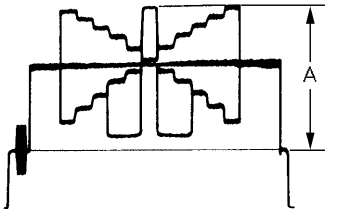
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On
  ITEM : Level Dep. → On

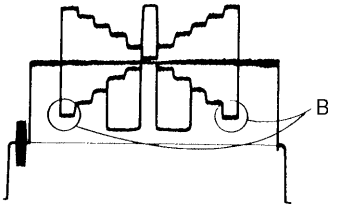
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the level dependent by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level Dep.
   Specifications: Turn the MENU SEL switch (on the front panel) once to –99, and slowly turn it for increment until spikes at portions B are just decreased.



(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-11. Detail Frequency Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

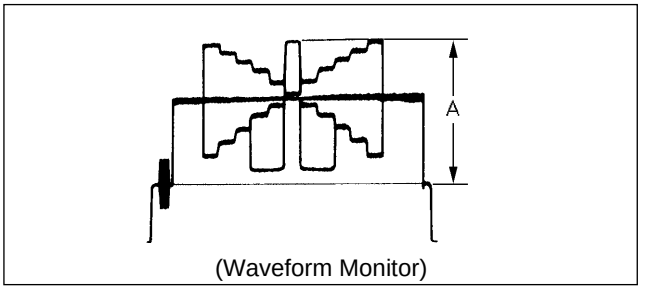
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

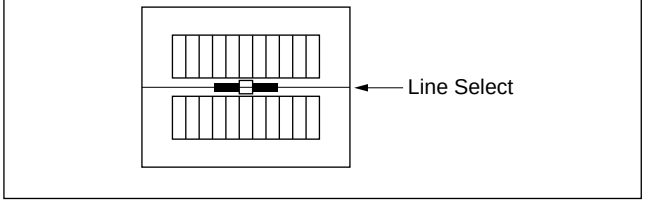
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

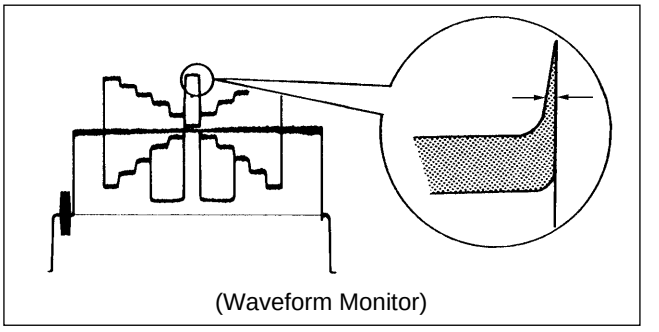


(Waveform Monitor)

2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the detail frequency by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : Frequency
   Specifications: Adjust the edge width at each end of the center white portion to the desired width.


(Waveform Monitor)

Note:

After this adjustment is completed, be sure to perform "4-2-12. H/V Ratio Adjustment" and "4-2-13. Detail Level Adjustment".

4-2-12. H/V Ratio Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

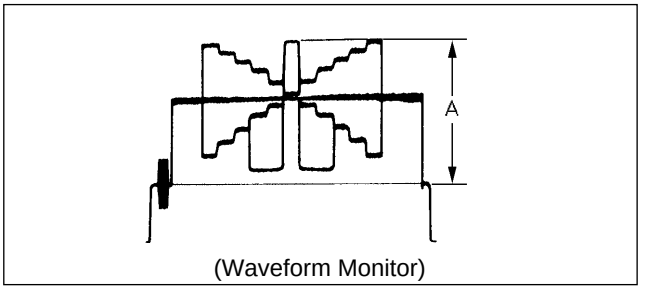
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

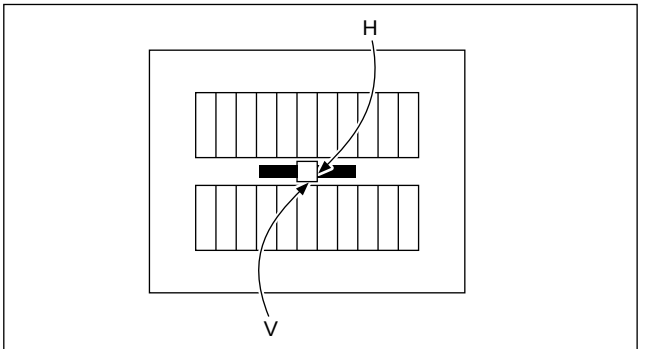
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the H/V ratio by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : H/V Ratio
   Specifications: The ratio between the H and V detail amounts (white) to be added shall be 1 : 1.



(Monitor Screen)

4-2-13. Detail Level Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

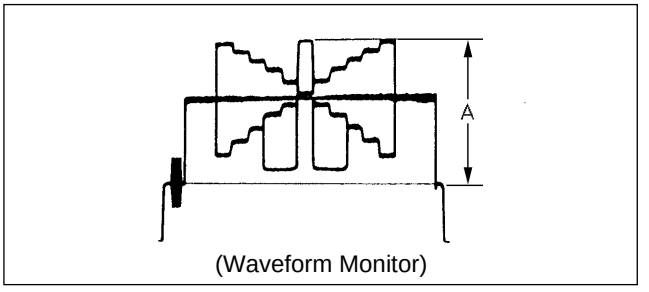
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 1 (P2)
  ITEM : Detail → On

Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)



(Waveform Monitor)

2. Set the menu as follows, and adjust the signal level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 1 (P2)
   ITEM : Level
   Specifications: Adjust the detail signal level to be added to each step in the grayscale chart for the desired level.

4-2-14. Detail Clip Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

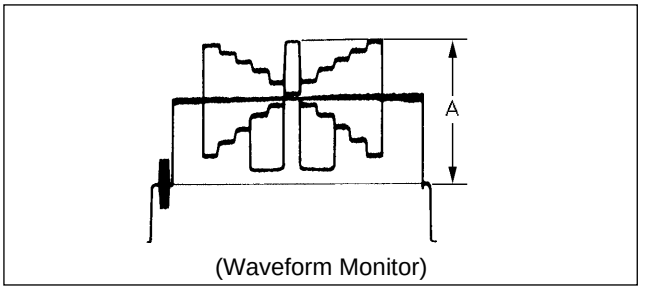
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Detail 2 (P3)
  ITEM : Detail → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

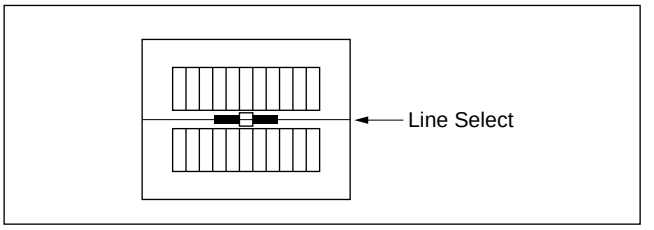
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ±2 IRE (for NTSC)
   A = 630 ±14 mV (for PAL)

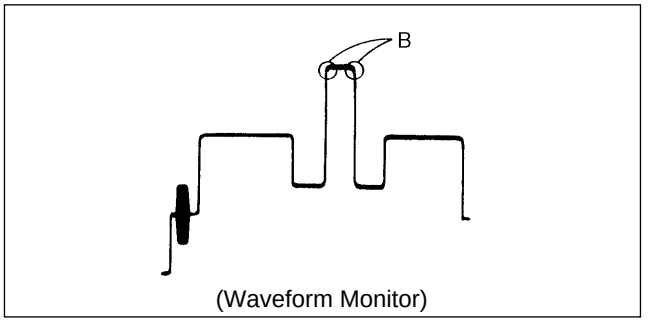


(Waveform Monitor)

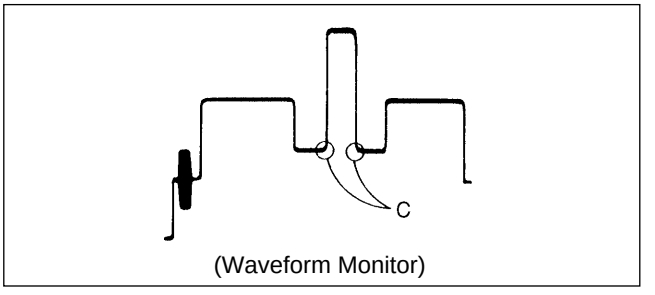
2. Make a selection of line at the center white portion of the grayscale chart.



3. Set the menu as follows, and adjust the white limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : W.Limitter
   Specifications: Adjust the edges of portions B to the desired clip level.



4. Set the menu as follows, and adjust the black limiter by using the MENU SEL switch.
   MENU : Paint
   PAGE : Detail 2 (P3)
   ITEM : B.Limitter
   Specifications: Adjust the edges of portions C to the desired clip level.



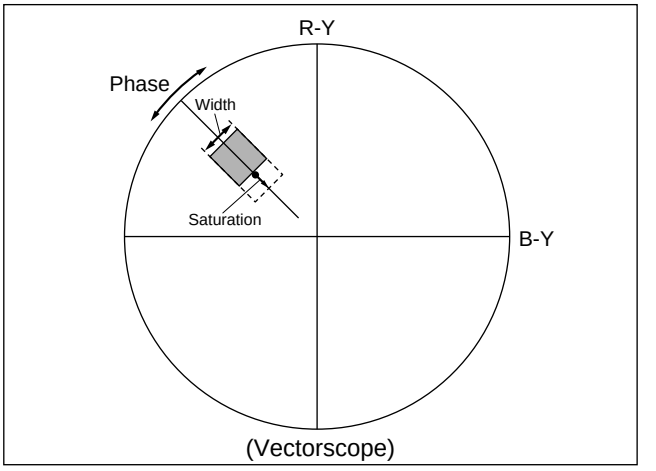
4-2-15. Skin Tone Adjustment

Note:
- Perform this adjustment on the customer's preferences, if necessary.

Equipment : Color monitor, Viewfinder or Vectorscope

Preparations:
- Connect the vectorscope to the TEST OUT connector.
- Shoot a person's face.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Skin Detail → On

Adjustment Procedures:
1. Set the menu as follows.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Gate → On
2. Set the menu as follows, and adjust the amount of the skin detail signal to the desired level according to the following items by using the MENU SEL switch.
   MENU : Paint
   PAGE : Skin Detail (P4)
   ITEM : Level (Detail level within the skin gate)
   ITEM : Phase (Hue)
   ITEM : Saturation
   (Component in the saturation direction)
   ITEM : Width (Component in the hue direction)
   (The effective area of the skin detail signal appears in a zebra pattern on the viewfinder screen. Set the desired level.)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Skin Detail (P4)
  ITEM : Gate → Off

4-2-16. Zebra Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

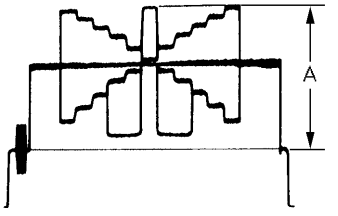
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- ZEBRA switch (on the viewfinder) → ON
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

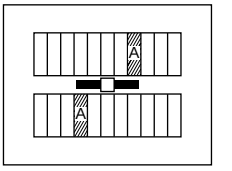
Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. **Iris of the lens**: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



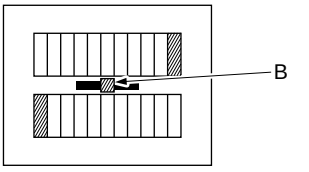
(Waveform Monitor)

3. Set the menu as follows, and adjust the zebra 1 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 1
   Adjustment Point:
   ITEM : Zebra1 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions A on the viewfinder screen.
   The area of the stripes can be changed by ITEM: Zebla 1 [RANGE].



(Monitor Screen)

4. Set the menu as follows, and adjust the zebra 2 level by using the MENU SEL switch.
   MENU : System config
   PAGE : Pre knee/Zebra (S4)
   ITEM : Z.Disp → 2
   Adjustment Point:
   ITEM : Zebra2 [LEVEL]
   Specifications: Adjust that the stripes appear at the center of the portions B on the viewfinder screen.



(Monitor Screen)

Resetting after Adjustment:

- ZEBRA switch (on the viewfinder) → OFF
- WHITE BAL switch (on the side panel) → PRST

4-2-17. Auto Iris Adjustment

Note:

- Perform this adjustment on the customer's preferences, if necessary.

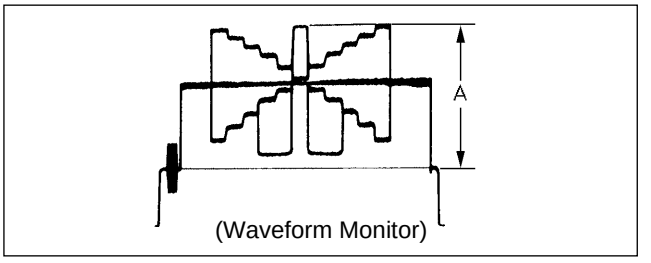
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- AUTO/MANU switch (on the lens) → AUTO
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Set the menu as follows, and adjust the APL ratio by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : APL Ratio
   Specifications: Adjust the auto-iris operation mode depending on the application.
   Note : Automatic iris operation mode setting can be done from the average level to peak-to-peak level of the video signal.
   99 → average level
   –99 → peak-to-peak level
3. Set the menu as follows, and adjust the auto-iris level by using the MENU SEL switch.
   MENU : Operation
   PAGE : Auto Iris/Auto Knee (?6)
   ITEM : Iris Override → Off
   Adjustment Point:
   MENU : System config
   PAGE : Iris (S6)
   ITEM : Level
   Specifications: A = 100 ±2 IRE (for NTSC)
   A = 700 ±14 mV (for PAL)



(Waveform Monitor)

Resetting after Adjustment:

- WHITE BAL switch (on the side panel) → PRST

4-2-18. Menu Settings After Finishing Adjustment

MENU : Paint
PAGE : Detail 1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On

4-2-19. File Store

Be sure to execute the file store after any one of the adjustments of Sections 4-2-1 through 4-2-17 is performed.

Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Execute the reference file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Reference File
   PAGE : Reference File (R1)
   ITEM : File Store
3. Execute the triming file store. Press the MENU SEL switch to execute.
   Menu Setting:
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store

4-3. Overall Electrical Alignment

Before beginning this adjustment, check the initial settings referring to Section 4-1-5. When a board was replaced or repaired, preset the compensation data, proceeding as follows. If the data is preset once, be sure to carry out all steps of 4-3-1 through 4-3-23. Because presetting clears all adjustment data of video and detail system.

(1) Execute the reference file clear.
Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : Clear File

(2) Execute the scene file standard.
Press the MENU SEL switch to execute.
MENU : Paint
PAGE : Scene File (P8)
ITEM : Standard

This section provides intructions to store the setting data on the reference or triming file in every adjustment item. This intends to prevent the data from being cleared when the unit is powered off to extend a board, and so on.
As the data is kept held unless powered off, however, more than one data can be stored at a time.
The file store may not necessarily be executed for every adjustment item.

4-3-1. VCO CONT Frequency Adjustment

Note:

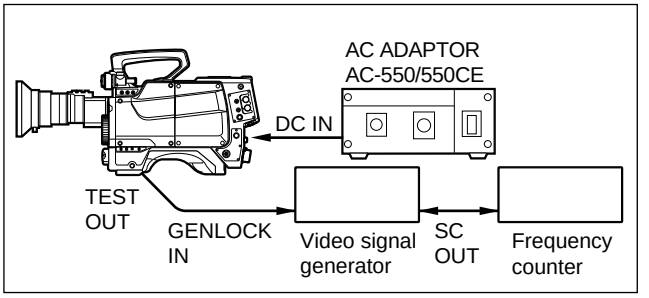
- Warm up the camera for about 10 minutes before this confirmation.

Equipment : Frequency counter,
Video signal generator

Test Point : TEST OUT connector

Preparation:

- RGB/ENC switch (on the side panel) → ENC



Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and adjust the frequency by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC FREQ
   Specifications : 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

File Store:

Execute the OHB file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : OHB File (T2)
ITEM : File Store

4-3-2. VTR Y Adjustment

Equipment : Oscilloscope
Test Point : TP3 (Y)/DA-88 panel

Preparations:

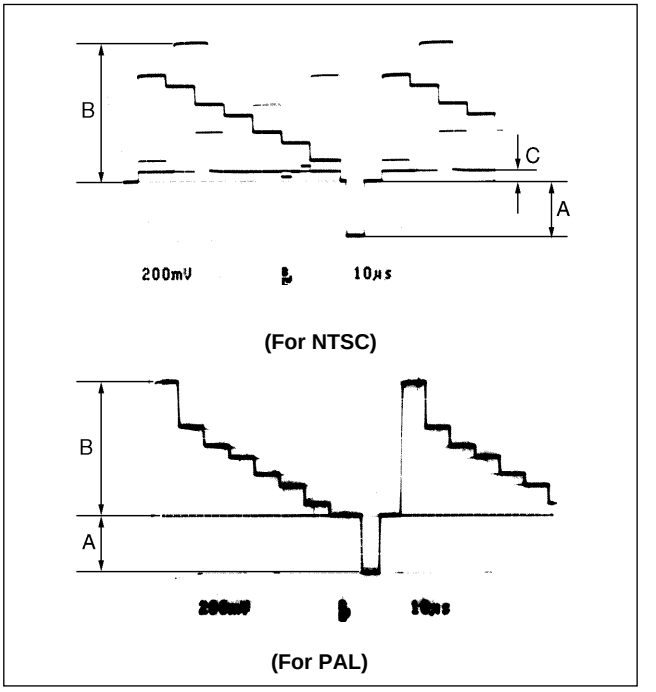
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the Y sync by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SYNC
   Specifications: A = 286 ±2 mV (for NTSC)
   A = 300 ±2 mV (for PAL)

3. (NTSC only)
   Set the menu as follows, and adjust the Y setup by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SETUP
   Specifications: C = 53.5 ±2 mV

4. Set the menu as follows, and adjust the Y video by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y Video
   Specifications: B = 714 ±7 mV (for NTSC)
   B = 700 ±7 mV (for PAL)



(20 MHz B/W LIMIT → ON)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-3. Test out Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

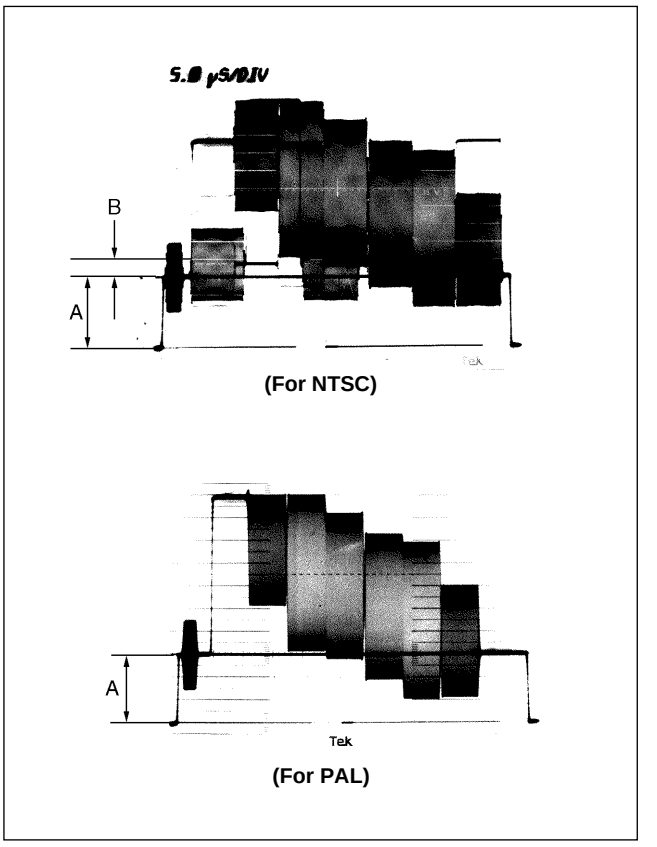
Preparations:

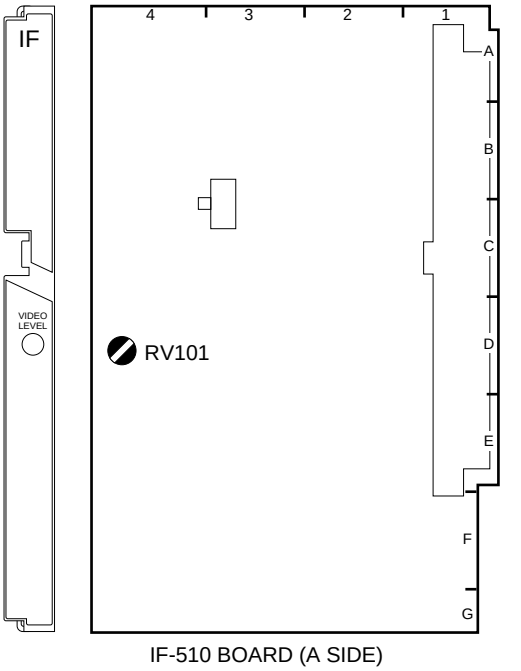
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. **Adjustment Point** : ⊘RV101 (VIDEO LEVEL)/ IF-510 panel
   Specifications : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)

2. (NTSC only)
   Set the menu as follows, and adjust the test setup by using the MENU SEL.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : TEST SETUP
   Specifications : B = 7.5 ±1 IRE
   File Store:
   Execute the file store. Press the MENU SEL switch to execute.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store





IF-510 BOARD (A SIDE)

4-3-4. Chroma Adjustment

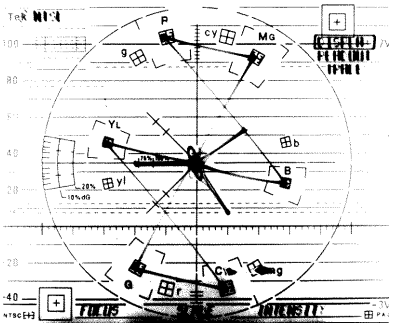
Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector

Preparations:

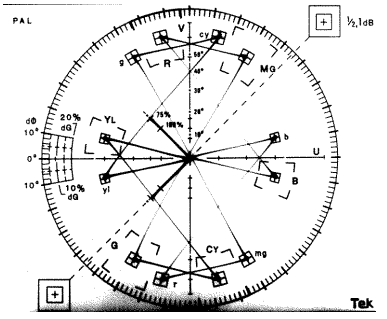
- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the chroma level and Q/V level alternately by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Chroma LVL
   ITEM : Q/V LVL
   Specifications: Place the beam spots inside the corresponding frames on the vectorscope.

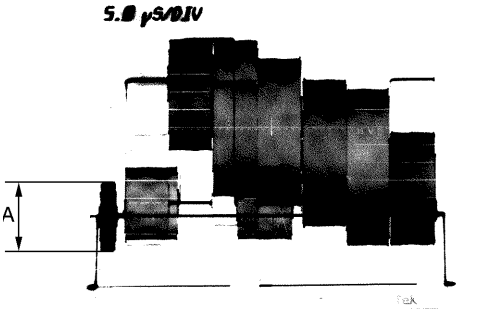


(For NTSC)

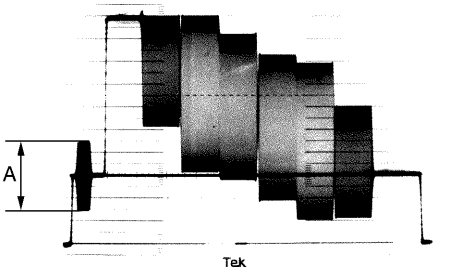


(For PAL)

3. Connect the waveform monitor to the TEST OUT connector.
4. Set the menu as follows, and adjust the burst level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Burst LVL
   Specifications: A = 40 ±1 IRE (for NTSC)
   A = 300 ±5 mV (for PAL)



(For NTSC)



(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-5. INT SC Phase Adjustment

Notes:

This adjustment precedures are stated below assuming that where the Tektronix 1750 (for NTSC) or1751 (for PAL) is used.

If any other measuring instrument is used, follow the instructions given in the operation manual attached to it.

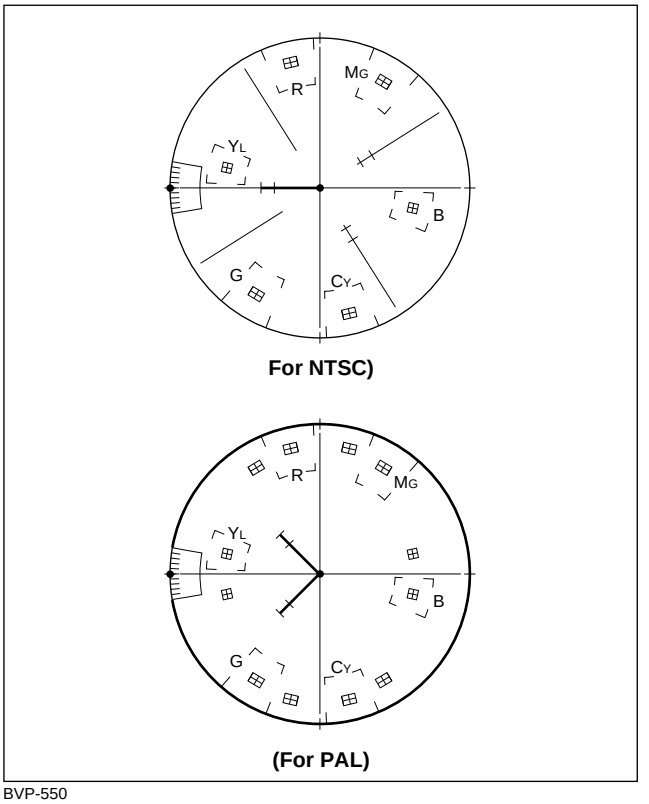
Equipment : Vectorscope (SC-H Phase measuring mode)
Test Point : TEST OUT connector

Preparations:

- Connect the vectorscope to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the SC-H phase by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC-H Phase
   Specifications: Position the luminous line of the burst (SC) and the beam spot of H as shown in the figure.



For NTSC)

(For PAL)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-6. REG Level Adjustment

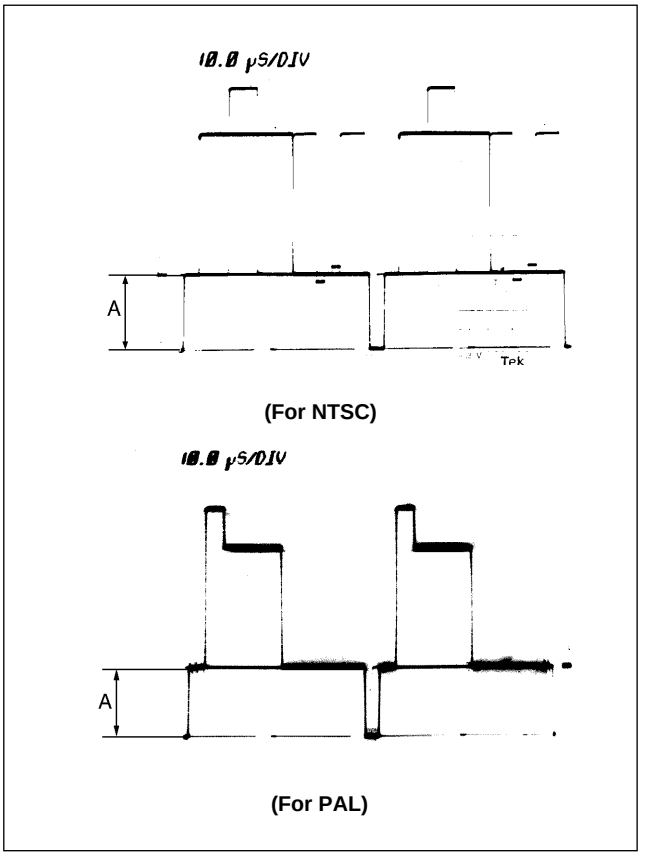
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → BARS
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the REG level by using the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : REG LVL
   Specifications:
   SYNC LEVEL : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-7. TEST1 Adjustment

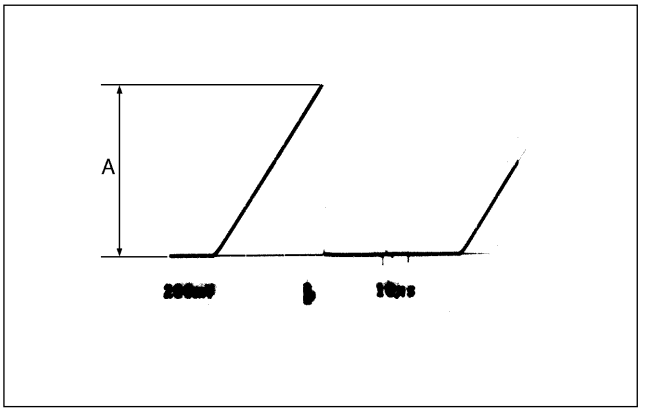
Equipment : Oscilloscope

Preparation:

- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. WHITE BAL switch (on the side panel) → PRST
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 1
4. **Test Point** : TP52 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point : ⊘RV50 (TEST)/VA-163 panel
   Specifications : A = 880 ±2 mV



5. Set the menu as follows, and adjust the white level for R by using the MENU SEL switch.
   Test Point : TP54 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [R]
   Specifications : A = 880 ±40 mV
6. Set the menu as follows, and adjust the white level for B by turning the MENU SEL switch.
   Test Point : TP50 (GND:GND (A))/
   Extension board
   (extending VA-163)
   Adjustment Point:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : White [B]
   Specifications : A = 880 ±40 mV

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-8. TEST2 Adjustment

Equipment : Oscilloscope
Test Point : TP52 (GND:GND (A))/
Extension board (extending VA-163)

Preparation:

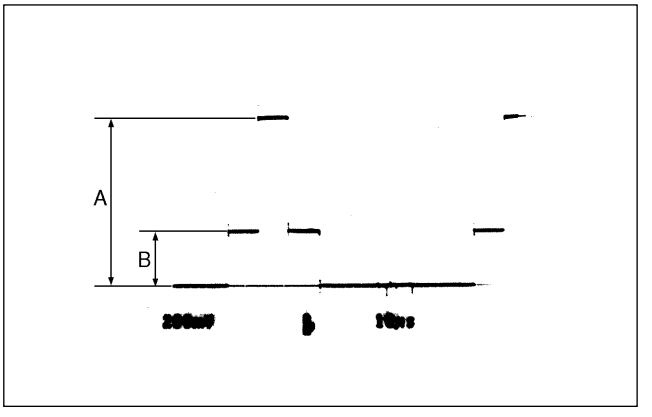
- Extend VA-163 board with EX-464 board.

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2

3. Set the menu as follows, and adjust the TEST2 high level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 HI
   Specifications: A = 880 ±5 mV

4. Set the menu as follows, and adjust the TEST 2 middle level by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 MID
   Specifications: B = 290 ±5 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-9. A/D Gain Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

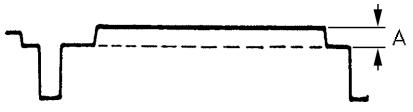
- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : Paint
  PAGE : Detail1 (P2)
  ITEM : Detail → Off
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
  ITEM : White Clip → Off

Iris of the lens : CLOSE

Adjustment Procedures:

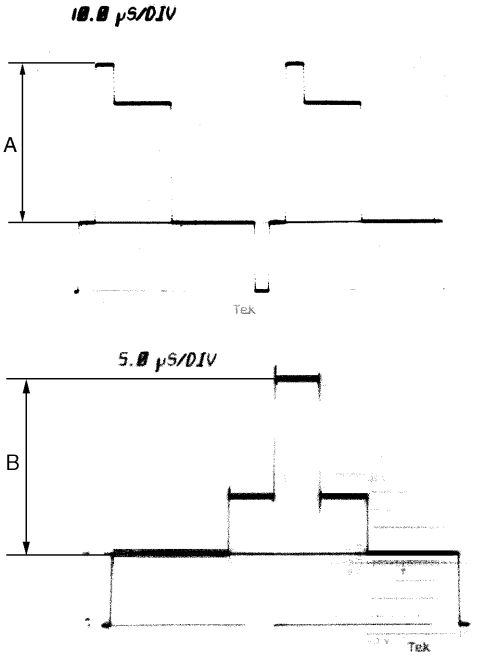
1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

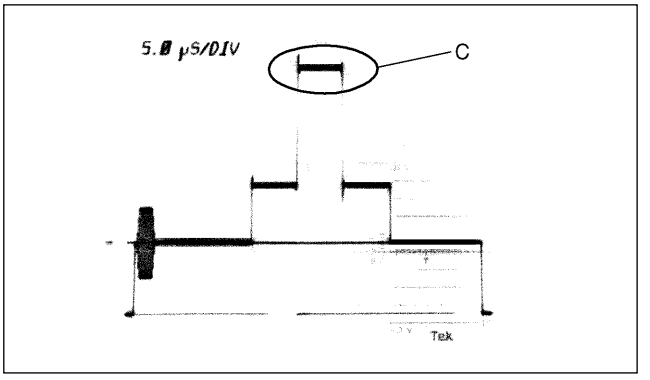
3. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK
4. Set the menu as follows.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST → 2
5. Set the menu as follows, and adjust the A/D gain for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [G]
   Specifications: The white level shall not be changed even if the OUTPUT/DCC switch (on the side panel) is changed over between CAM and BARS.
   A = B

(For NTSC)



(For PAL)

6. Set the R/G/B switch (on the side panelüj to ENC.
7. Set the OUTPUT/DCC switch (on the side panel) to CAM/OFF.
8. Set the menu as follows, and adjust the A/D gain for R by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [R]
   Specifications: Minimize the carrier leakage.
   C = Minimum
9. Set the menu as follows, and adjust the A/D gain for B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [B]
   Specifications: Minimize the carrier leakage.
   C = Minimum



10. Repeat the steps 8 and 9 alternately until the specifications are satisfied.

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : System config
  PAGE : PR/VA/TEST (S3)
  ITEM : TEST → Off

4-3-10. VA Gain Adjustment

Setting of Sensitivity and Standard Color Temperature:

- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminous intensity of the chart to 2000 lx and the color temperature to 3200 K.
- This adjustment shall be performed at F7.0 or more.

Note:

- Never change the setting of the following trimmer capacitors. These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

Equipment : Oscilloscope, Waveform monitor
Object : Grayscale chart

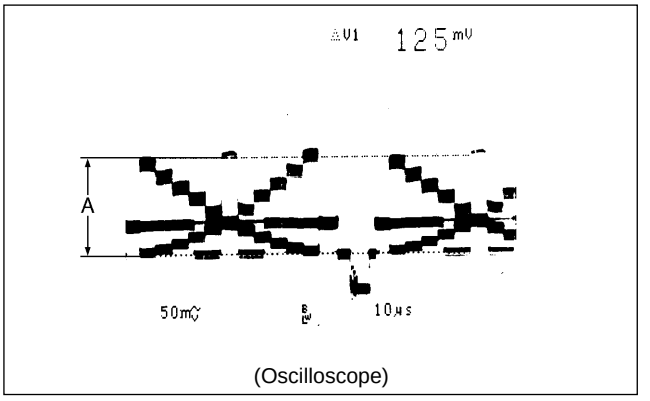
Preparations:

- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → L (0 dB)
- Extend VA-163 board with EX-464 board.
- RGB/ENC switch (on the side panel) → ENC

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → Off
3. Close the lens iris.
4. Execute the level auto setup.
   Press the MENU SEL switch to execute.
   MENU : Operation
   PAGE : Auto Setup
   ITEM : Level Auto
5. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL at the TEST OUT connector.
   If the black level is out of specs, carry out “4-3-14. Master Black Adjustment”.

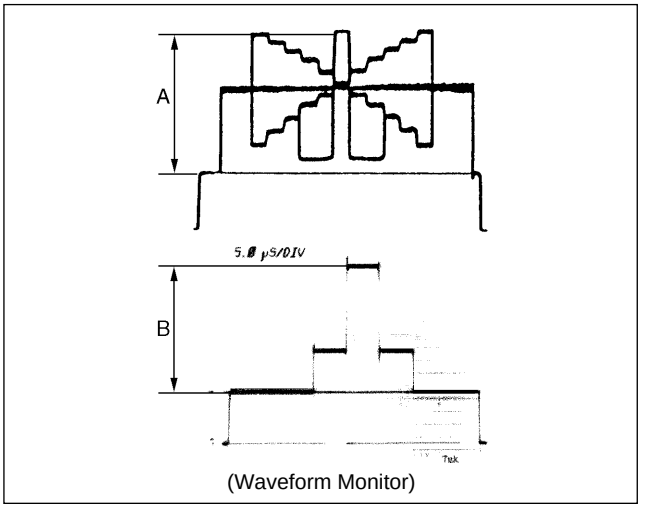
6. **Test Point** : TP72 (GND:TP71)/extension board (extending VA-163)
   Iris of the lens: A = 125 mV (at F7.0 or more)



(Oscilloscope)

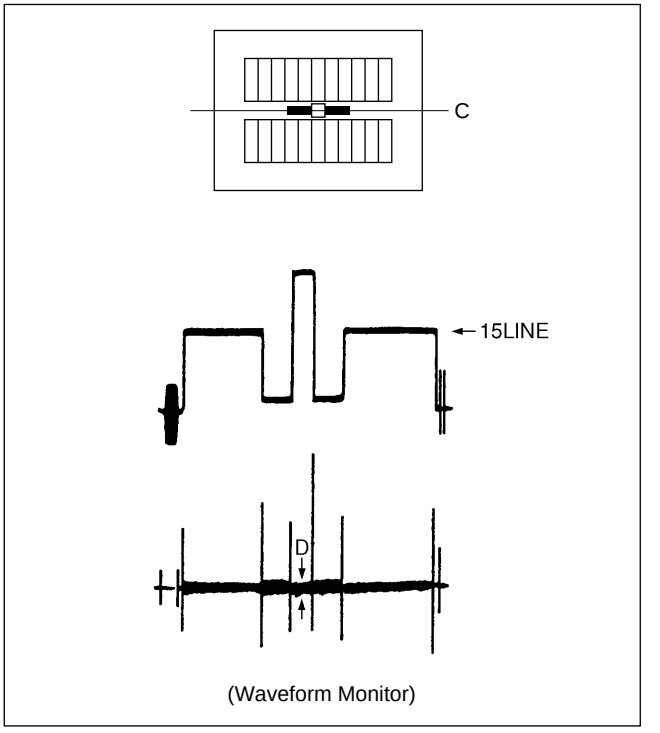
7. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
8. Adjust the VA gain for G.
   Test Point : TEST OUT connector
   Adjustment Point : ⊘RV300 (G GAIN)/VA-163 panel
   Specifications : The levels A and B are shall be equal when the test waveform is switched between 2 and off.

   Menu Setting:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test

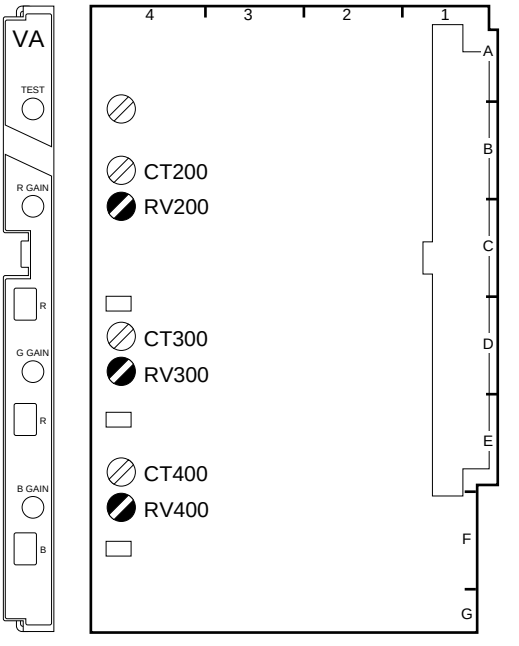


(Waveform Monitor)

9. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → Off
10. Select the 15 lines in the center of monitor screen C by using the 15 LINE SELECT on the waveform monitor.
11. Put the waveform monitor into the CHROMA mode.
12. Set the RGB/ENC switch (on the side panel) to ENC.
13. **Test Point** : TEST OUT connector
    Adjustment Point : ⊘RV200 (R GAIN)/VA-163 panel
    ⊘RV400 (B GAIN)/VA-163 panel
    Specifications : Carrier leakage D = Minimum



(Waveform Monitor)



VA-163 BOARD (A SIDE)

4-3-11. VA MOD Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

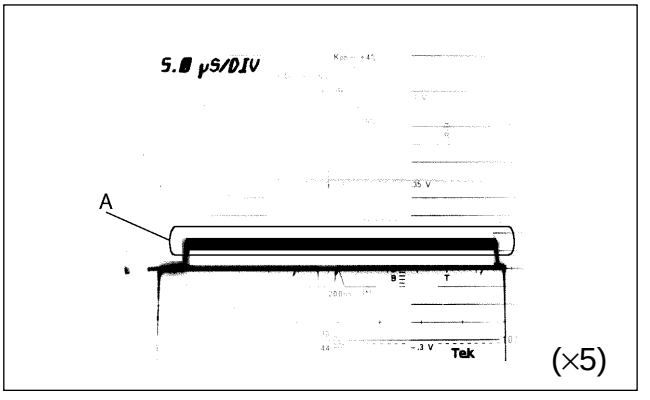
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → L (0 dB)
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → R

Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [R]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [R] varies from 99 to –99.



3. Set the R/G/B switch (on the side panel) to G.
4. Set the menu as follows, and adjust the V MOD for G by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [G] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [G]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [G] varies from 99 to –99.

5. Set the R/G/B switch (on the side panel) to B.
6. Set the menu as follows, and adjust the V MOD for R by using the MENU SEL switch.
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [B] → 99
   Adjustment Point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [B]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [B] varies from 99 to –99.

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows. Press the MENU SEL switch to execute.
  MENU : Maintenance
  PAGE : White Shading (M2)
  ITEM : Clear

4-3-12. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again referring to the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → ENC

Test Point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows and execute the auto black shading. Press the MENU SEL switch to execute.
   MENU : Maintenance
   PAGE : Auto Setup(M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again referring to this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

- **Manual Black Shading Adjustment (For reference)**

Note:

- Perform this adjustment only when "4-4-12. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

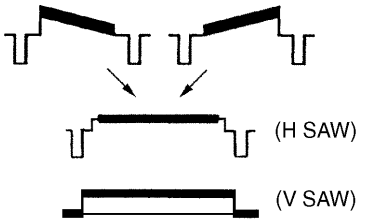
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
4. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 21 mV for PAL by using the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
5. If the shading is monitored, make the waveform flat referring to the following table.
6. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC
- GAIN switch (on the side panel) → L (0 dB)

4-3-13. White Shading Adjustment

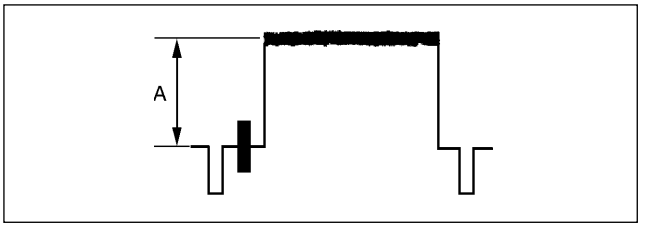
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Full white pattern

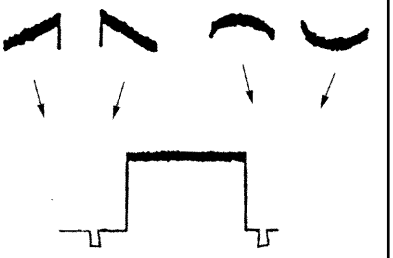
Preparations:

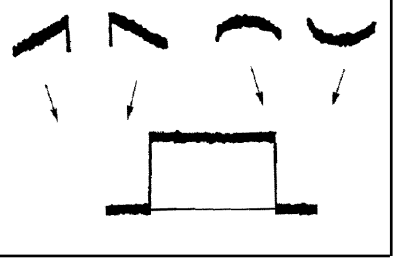
- Connect the waveform monitor to the TEST OUT connector.
- ENC/RGB switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off
- Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
  Iris of the lens : A = 80 ±5 IRE (for NTSC)
  A = 560 ±35 mV (for PAL)



Adjustment Procedures:

1. Set the WHITE BAL switch (on the side panel) to PRST.
2. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
3. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
4. If the white shading is monitored, make the waveform flat referring to the following tables.
5. Perform the adjustments for R-ch and B-ch with the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- ENC/RGB switch (on the side panel) → ENC

4-3-14. Master Black Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector

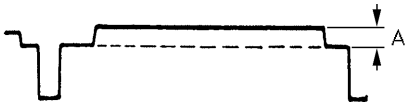
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- RGB/ENC switch (on the side panel) → RGB
- R/G/B switch (on the side panel) → G

Iris of the lens: CLOSE

Adjustment Procedures:

1. Set the waveform monitor as follows.
   - LUM mode
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the black level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black [M]
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 21 ±7 mV (for PAL)



(Waveform Monitor)

3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust the auto black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

4-3-15. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test Point : TEST OUT connector
Object : Grayscale chart

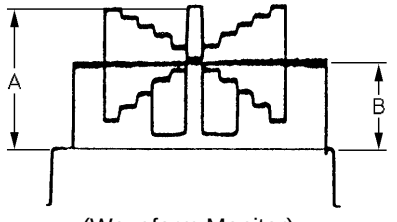
Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Gamma (P5)
  ITEM : Gamma → On
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

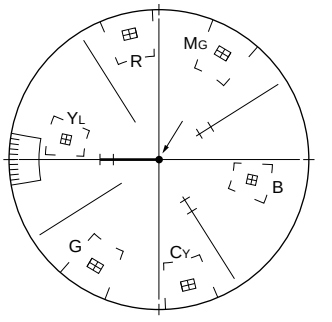
Adjustment Procedures:

1. Set the RGB/ENC switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the gamma correction for (M) by using the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma [M]
   Specifications: B = 55.5 ±2.0 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)

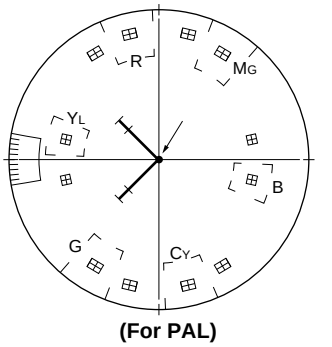


(Waveform Monitor)

3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test → 1
4. Set the RGB/ENC switch (on the side panel) to ENC.
5. Adjust the auto white balance.
   WHT BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panl) → WHT
6. Set the menu as follows, and adjust the gamma correction for (R) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [R]
   Specifications: Center the beam spot on the vectorscope.
7. Set the menu as follows, and adjust the gamma correction for (B) by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma [B]
   Specifications: Center the beam spot on the vectorscope.
8. Repeat the steps 6 and 7 alternately, until the beam spot is minimized on the vectorscope.

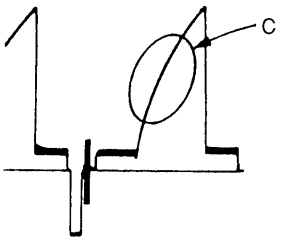


(For NTSC)



(For PAL)
(Vectorscope)

9. Confirm that the carrier leakage does not monitored at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Video Level (P1)
  ITEM : Test → Off
- WHITE BAL switch (on the side panel) → PRST

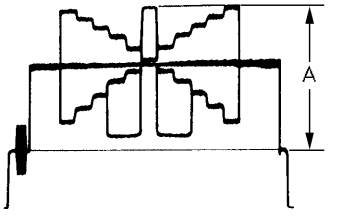
4-3-16. Flare Adjustment

Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Grayscale chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Knee → Off

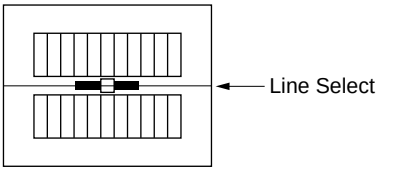
Iris of the lens : A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



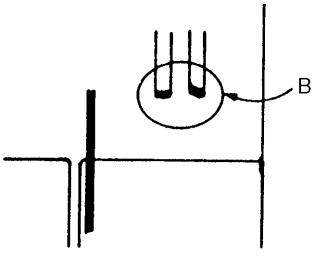
(Waveform Monitor)

Adjustment Procedures:

1. Adjust the auto white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Set the RGB/ENC switch (on the side panel) to ENC.
   Set the R/G/B switch (on the side panel) to G.
4. Select the 15 lines in the center of the monitor screen by using the 15 LINESELECT on the waveform monitor.



5. Confirm that the level at portion B does not fluctuate even if the flare turns On/Off. If fluctuates, turn Flare ON and adjust by Flare (G).
   Menu Setting:
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare → On/Off
   Adjustment Point:
   ITEM : Flare [G]
6. Set the ENC/RGB switch (on the side panel) to ENC.
7. Set the menu as follows, and adjust the flare for R by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [R]
   Specifications: Minimize the carrier leakage.
8. Set the menu as follows, and adjust the flare for B by using the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare [B]
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

9. Repeat the steps 7 and 8 alternately, until the carrier leakage is minimized.

File Store:
Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Resetting after Adjustment:
• WHITE BAL switch (on the side panel) → PRST

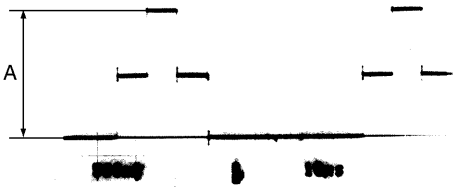
4-3-17. Pre Knee Adjustment

Equipment : Oscilloscope, Waveform monitor

Preparation:
• Extend VA-163 board with EX-464 board.

Iris of the lens : CLOSE

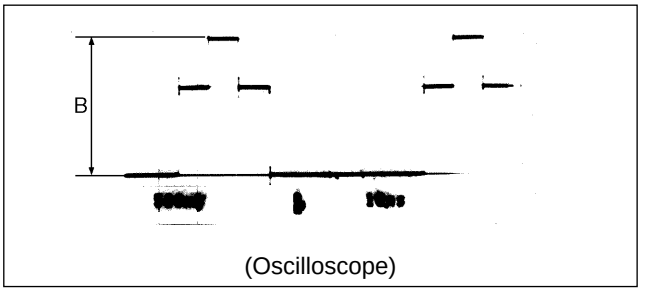
Adjustment Procedures:
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → On
3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Set the GAIN switch (on the side panel) to M (9 dB).
5. Set the WHITE BAL switch (on the side panel) to PRST.
6. Set the menu as follows.
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : Test → 2
7. Set the menu as follows, and adjust the pre knee 1 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[G]
   Specifications: A = 1.68 ±0.02 V p-p



(Oscilloscope)

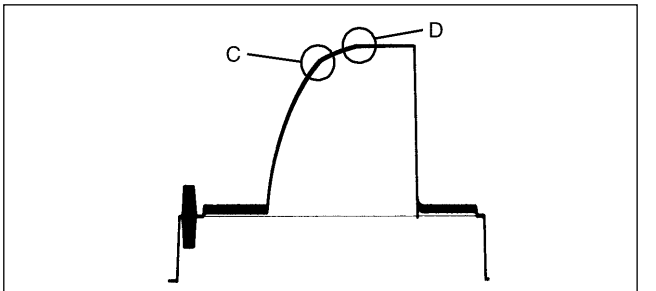
8. Set the menu as follows.
   MENU : Operation
   PAGE : Gain SW (?3)
   ITEM : Middle → 12 dB

9. Set the menu as follows, and adjust the pre knee 2 for G by using the MENU SEL switch.
   Test Point : TP52 (GND:GND (A))/
   Extension board (extending VA-163)
   Adjustment Point:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee2[G]
   Specifications: B = 1.80 ±0.02 V p-p



(Oscilloscope)

10. Set the menu as follows.
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : Test → 1
11. Set the GAIN switch (on the side panel) to H (18dB). Set the OUTPUT/DCC switch (on the side panel) to CAM/ON.
12. Set the menu as follows, and adjust the pre knee 1 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[R]
    Specifications: Minimize the carrier leakage C.
13. Set the menu as follows, and adjust the pre knee 1 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[B]
    Specifications: Minimize the carrier leakage C.
14. Set the menu as follows, and adjust the pre knee 2 for R by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications: Minimize the carrier leakage D.
15. Set the menu as follows, and adjust the pre knee 2 for B by using the MENU SEL switch.
    Test Point : TEST OUT connector
    Adjustment Point:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[B]
    Specifications: Minimize the carrier leakage D.



(Waveform Monitor)

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

Resetting after Adjustment:

- Set the menu as follows.
  MENU : Operation
  PAGE : Gain SW (?3)
  ITEM : Middle → 9 dB
  MENU : System config
  PAGE : Pre Knee/Zebra (S4)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB)

4-3-18. Knee and White Clip Adjustment

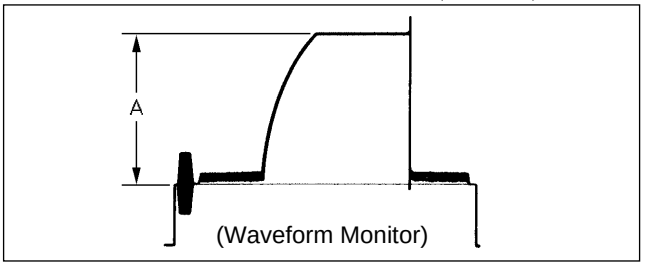
Equipment : Waveform monitor
Test Point : TEST OUT connector

Preparations:

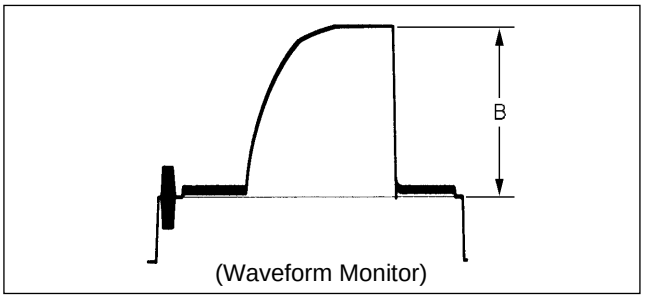
- Connect the waveform monitor to the TEST OUT connector.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- WHITE BAL switch (on the side panel) → PRST
- GAIN switch (on the side panel) → M(9 dB)

Adjustment Procedures:

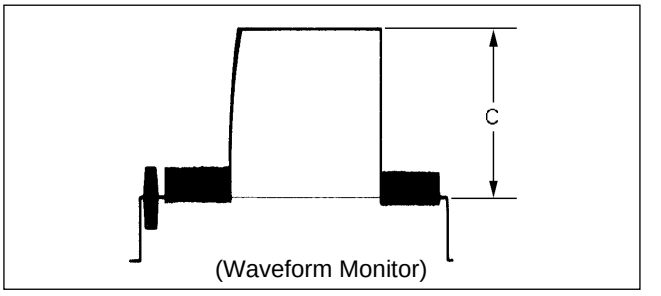
1. Confirm the black level is 3 IRE for NTSC and 21 mV for PAL.
2. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
3. Set the menu as follows, and adjust the knee point level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test → 1
   ITEM : White Clip → Off
   ITEM : Knee → On
   ITEM : Knee Max → On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



4. Set the menu as follows, and adjust the knee slope level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max → Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



5. Set the GAIN switch (on the side panel) to H (18 dB).
6. Set the menu as follows, and adjust the white clip level by using the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip → On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



Resetting after Adjustment:

- Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Test → Off
- GAIN switch (on the side panel) → L (0 dB).

File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store

Note:

The values used in the above adjustments are under the conditions that the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).

When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	109/763	107/750	107/750
White clip	109/763	107/749	105/735	103/721

4-3-19. A/D Clock Phase Adjustment

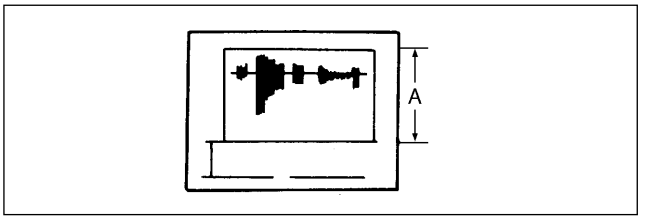
Equipment : Waveform monitor
Test Point : TEST OUT connector
Object : Multiburst chart

Preparations:

- Connect the waveform monitor to the TEST OUT connector.
- Shoot the multiburst chart so that the chart frame is aligned with the underscanned monitor frame with the zoom control.
- Pan so that the 9 MHz portion of the multiburst chart is positioned at the center of the monitor screen.
- OUTPUT/DCC switch (on the side panel) → CAM/OFF
- RGB/ENC switch (on the side panel) → ENC
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.
  MENU : Paint
  PAGE : Knee/W.Clip (P6)
  ITEM : Auto Knee → On

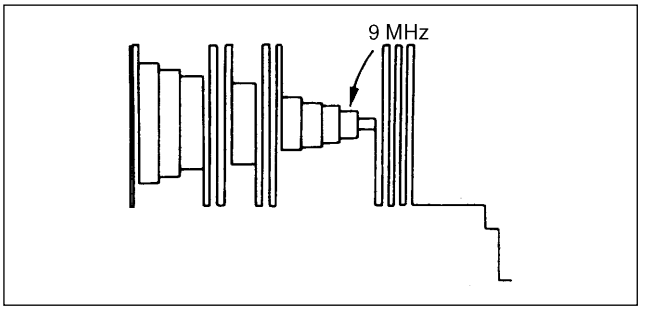
Adjustment Procedures:

1. **Iris of the lens**: A = 90 ± 2 IRE (for NTSC)
   A = 630 ± 10 mV (for PAL)



2. Set the menu as follows, and adjust the clock phase for G by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : G Clock
   Specifications: Maximize the 9 MHz signal portion.

3. Set the menu as follows, and adjust the clock phase for R/B by using the MENU SEL switch.
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : R/B Clock
   Specifications: Minimize the aliasing around the 9 MHz signal portion.



File Store:

Execute the file store. Press the MENU SEL switch to execute.
MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-20. VTR R-Y/B-Y Adjustment

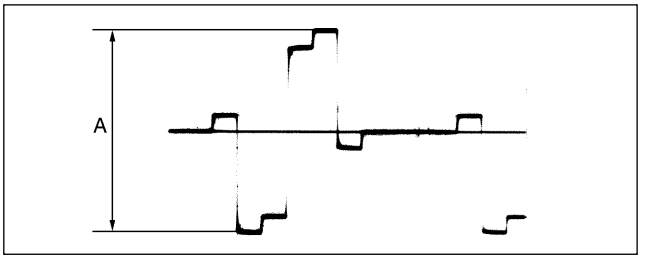
Equipment : Oscilloscope

Preparation:

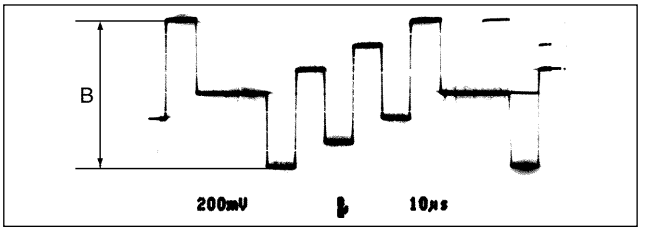
• OUTPUT/DCC switch (on the side panel) → BARS

Adjustment Procedures:

1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the VTR R-Y by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR R-Y
   Specifications: A = 700 ±5 mV (for NTSC)
   : A = 525 ±5 mV (for PAL)



3. Set the menu as follows, and adjust the VTR B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR B-Y
   Specifications: B = 700 ±5 mV (for NTSC)
   : B = 525 ±5 mV (for PAL)



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-21. CCU Y/R-Y/B-Y Adjustment

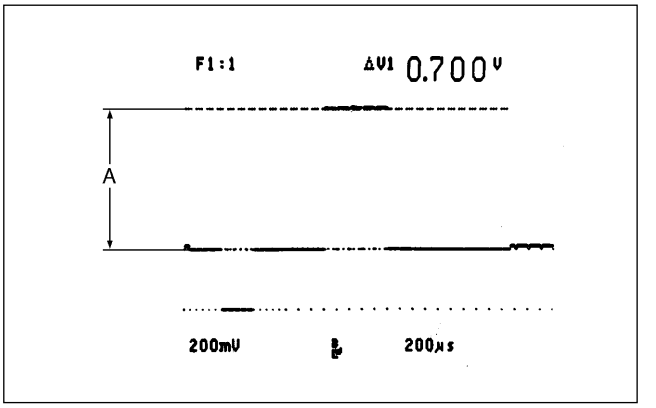
Equipment : Oscilloscope

Preparation:

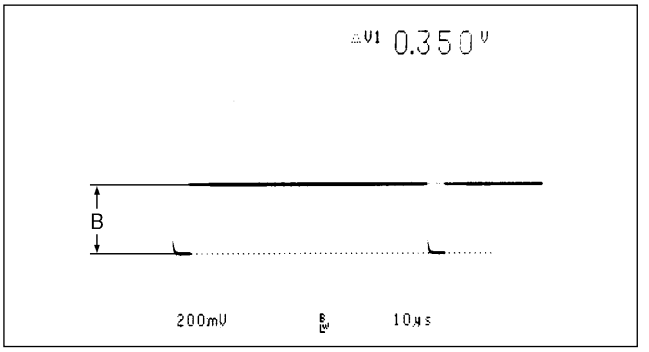
• Connect the CCU to the camera.

Adjustment Procedures:

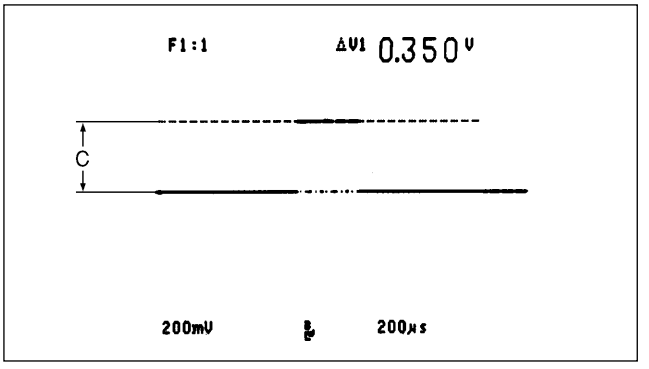
1. Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel).
2. Set the menu as follows, and adjust the CCU Y sample by using the MENU SEL switch.
   Test Point : TP3 (Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU Y SAMP
   Specifications: A = 700 ±2 mV



3. Set the menu as follows, and adjust the CCU R-Y sync by using the MENU SEL switch.
   Test Point : TP4 (R-Y) (GND:E1)/DA-88 panel
   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU R-Y SYNC
   Specifications: B = 350 ±2 mV



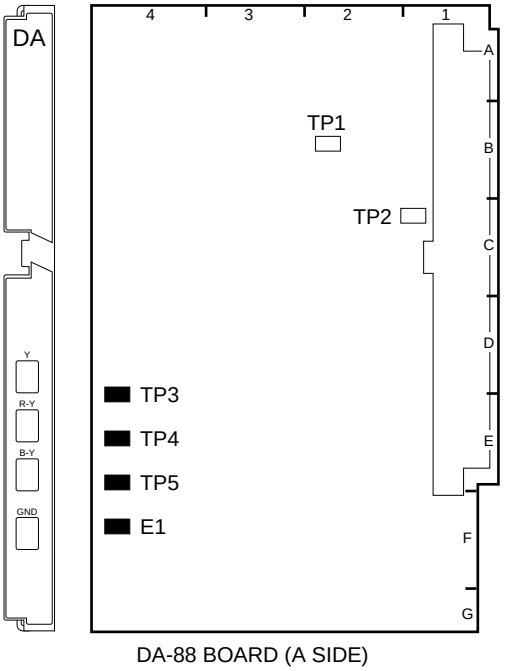
4. Set the menu as follows, and adjust the CCU B-Y by using the MENU SEL switch.
   Test Point : TP5 (B-Y) (GND:E1)/DA-88 panel
6. **Adjustment Point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU B-Y SAMP
   Specifications: C = 350 ±2 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store



DA-88 BOARD (A SIDE)

4-3-22. RGB Adjustment

Equipment : Oscilloscope

Preparations:

- Extend IF-510 board with EX-464 board.
- Set the DISP switch (on the side panel) to MENU while holding down the MENU SEL switch (on the front panel). Set the menu as follows.

  MENU : System config
  PAGE : VTR/CCU (S5)
  ITEM : CB → On

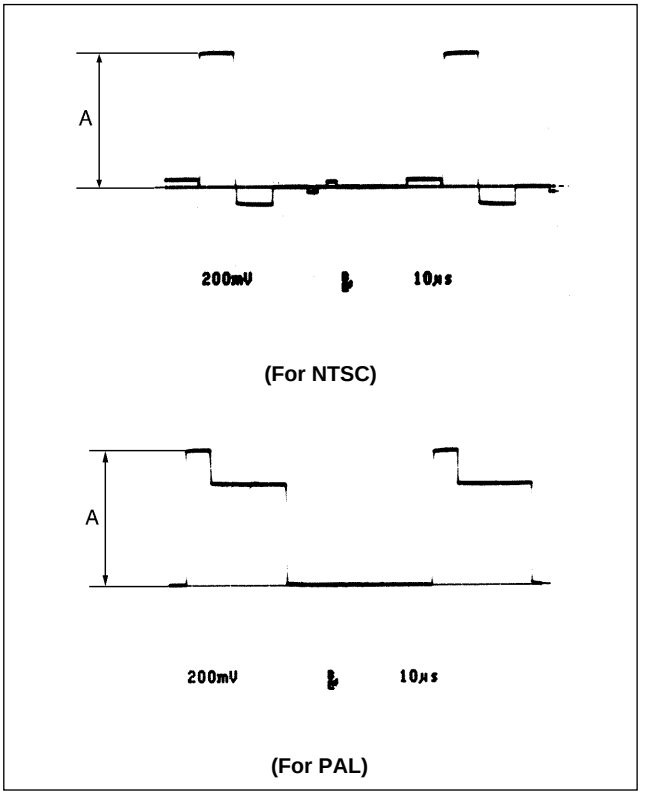
Adjustment Procedures:

1. Set the menu as follows, and adjust the G video level by using the MENU SEL switch.

   Test Point : TP61 (GND:GND (A))/
   Extension board (extending IF-510)

   Adjustment Point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : RGB OFFSET

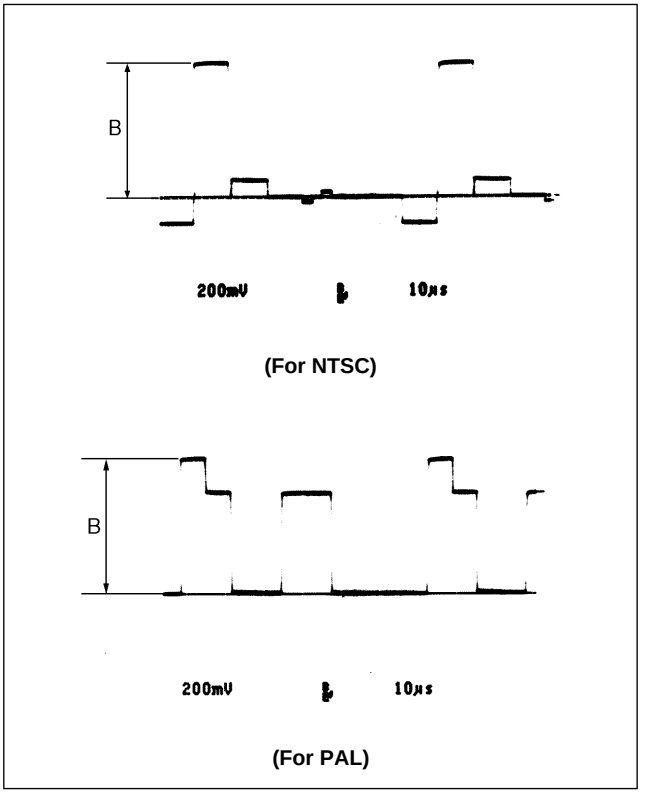
   Specifications: A = 700 ±5 mV



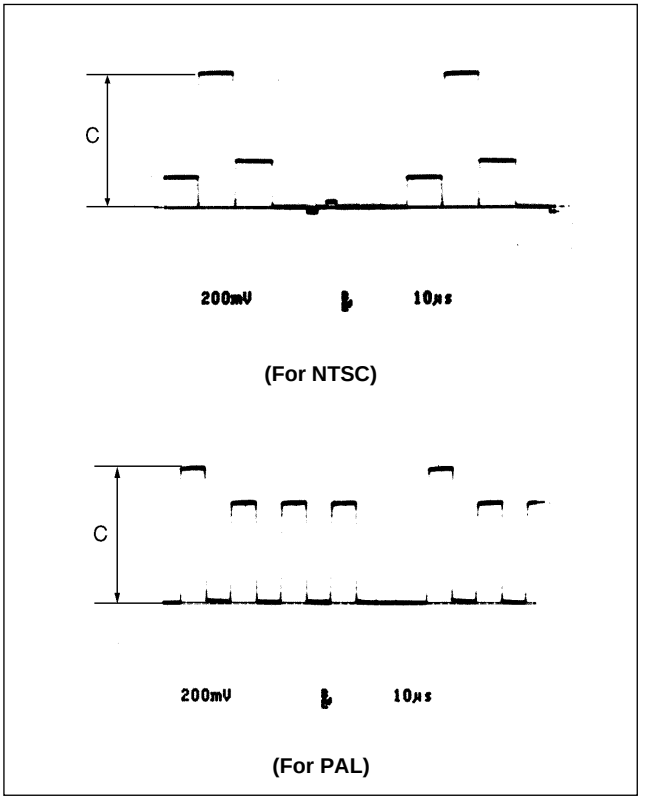
2. Confirm the R video level.

   Test Point : TP63 (GND:GND (A))/
   Extension board (extending IF-510)

   Specifications:B = 700 ±7 mV



3. Confirm the B video level.
   Test Point : TP59 (GND:GND (A))/
   Extension board (extending IF-510)
   Specifications: C = 700 ±7 mV



File Store:

Execute the file store. Press the MENU SEL switch to execute.

MENU : Triming File
PAGE : Triming File (T1)
ITEM : File Store

4-3-23. Menu Setting After Finishing Adjustment

MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail → On
PAGE : Gamma (P5)
ITEM : Gamma → On
PAGE : Knee/W.Clip (P6)
ITEM : Knee → On
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB→Off
MENU : Reference File
PAGE : Reference File (R1)
ITEM : File Store
(Press the MENU SEL switch to execute.)

Section 5
Spare Parts

5-1. Notes on Repair Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

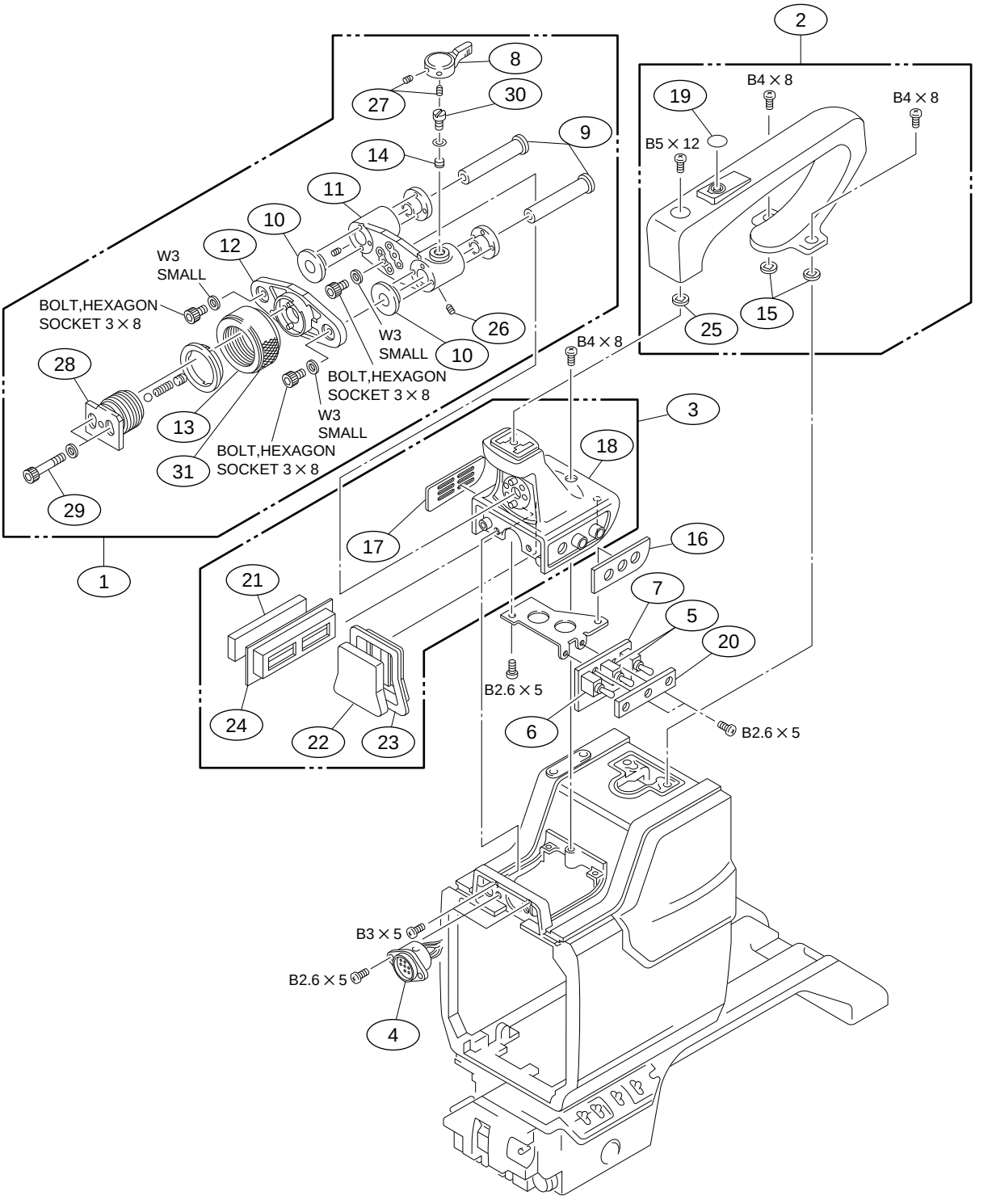
Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

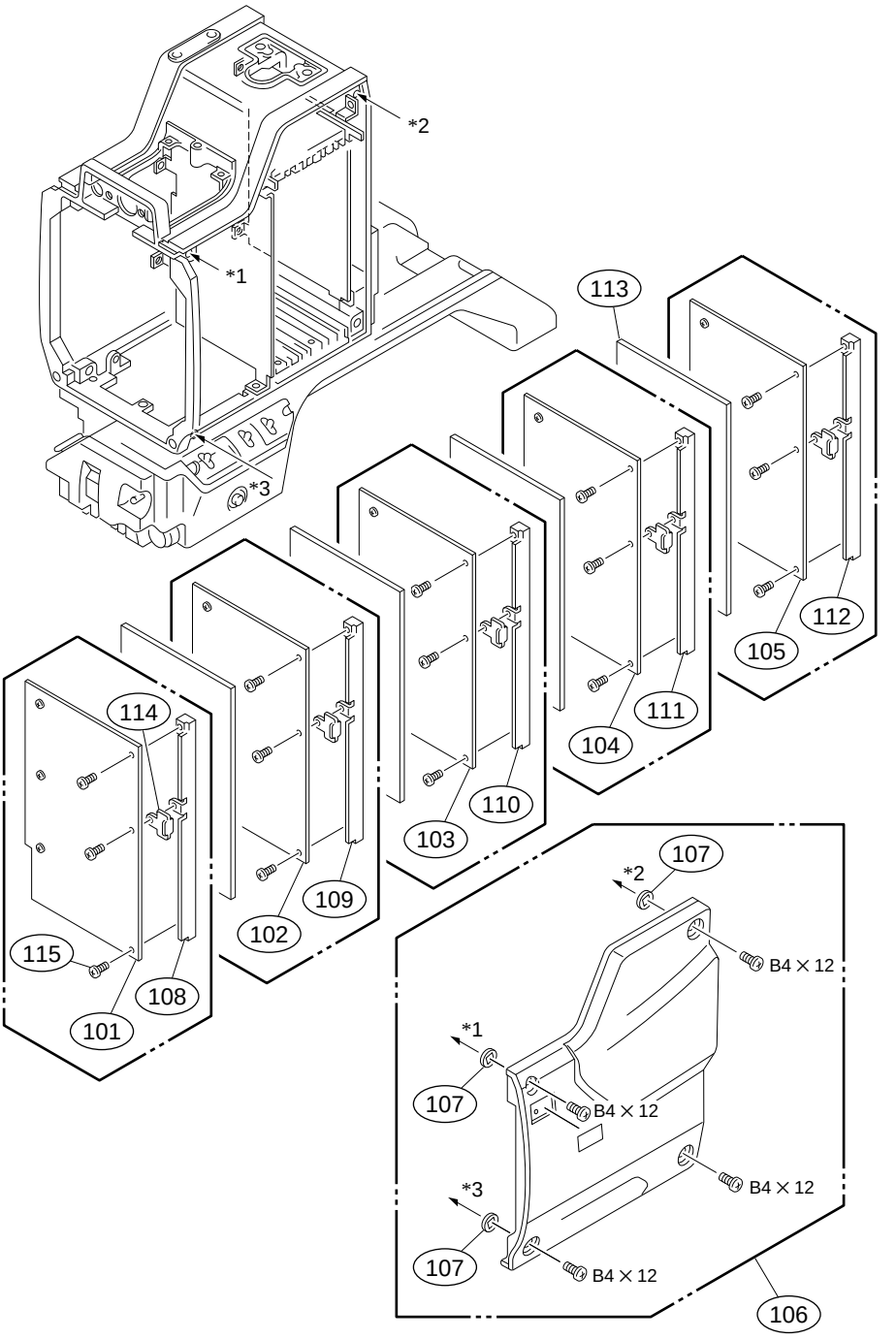
Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

5-2. Exploded Views

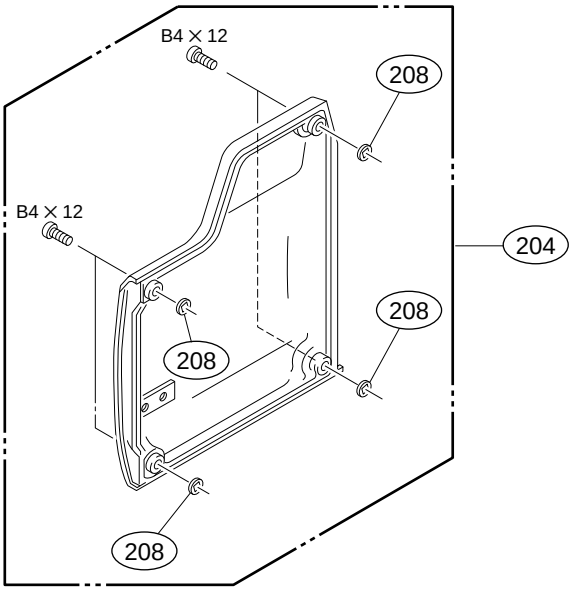


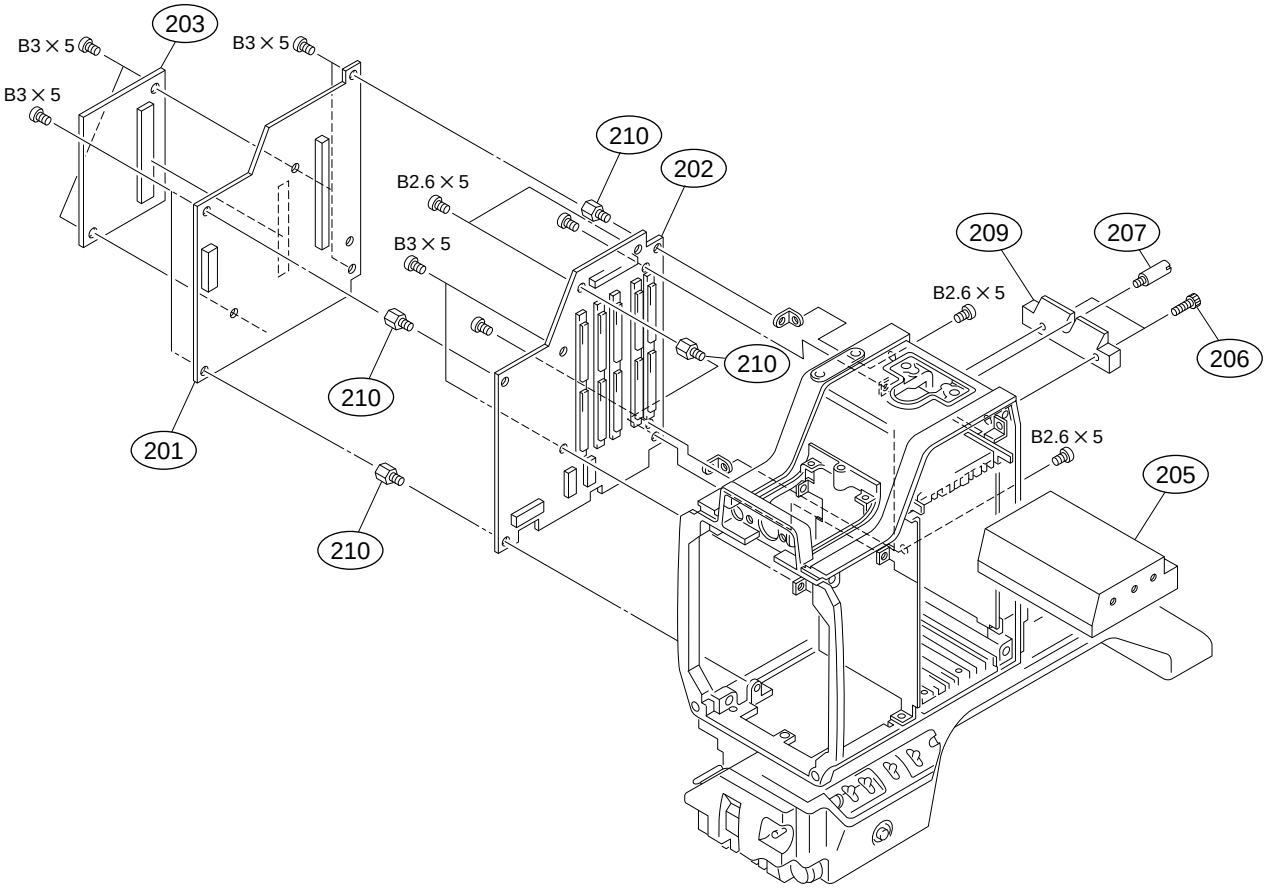
No.	Part No.	SP	Description
1	A-8278-029-A	o	SLIDE ASSY,VF
2	X-3678-451-1	o	HANDLE ASSY
3	X-3678-455-2	o	HOLDER SUB ASSY,HANDLE
4	1-565-051-21	o	CONNECTOR 20P, FEMALE “VF”
5	1-570-985-11	s	SWITCH TOGGLE “R/G/B” “ENC/RGB”
6	1-571-396-11	s	SWITCH TOGGLE “DIPS ON/OFF/MENU”
7	1-657-442-12	o	PRINTED CIRCUIT BOARD, SW-732
8	3-673-046-00	s	LEVER, LOCK
9	3-679-683-01	o	ARM,SLIDE
10	3-679-684-01	o	REST,ARM
11	3-679-685-01	o	TABEL,FIXED,VF SLIDE
12	3-679-686-01	o	TABEL,FIXED,VF SHOE
13	3-679-698-01	o	RING(C),LOCK
14	3-679-702-01	o	CUSION,STOPPER
15	3-687-116-01	o	WASHER(4), STOPPER
16	3-692-112-01	o	PLATE,MENU
17	3-692-150-01	o	SHEET,DROP PROTECTION
18	3-692-165-01	o	HOLDER,HANDOLE
19	3-692-649-01	s	SHEET, BLIND
20	3-693-984-01	s	CUSSHION, DROP PROTECTION (3)
21	3-694-196-01	s	SHEET, DUST PROTECTION (S)
22	3-694-197-01	o	SHEET, DUST PROTECTION (F)
23	3-694-198-01	s	RETAINER, DROP PROTECTION (F)
24	3-694-199-01	s	RETAINER DROP, PROTECTION (S)
25	3-701-442-21	s	WASHER, 4.5
26	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
27	3-701-508-00	s	SET SCREW, DOUBLE POINT 3X6
28	3-710-039-03	s	SHOE, SLIDE
29	3-711-765-01	s	BOLT (M3), HEXAGON SOCKET
30	3-711-794-01	o	PIN, STOPPER
31	3-720-919-01	o	RUBBER, LOCK RING

RIGHT PANEL AND PLUG-IN BOARDS

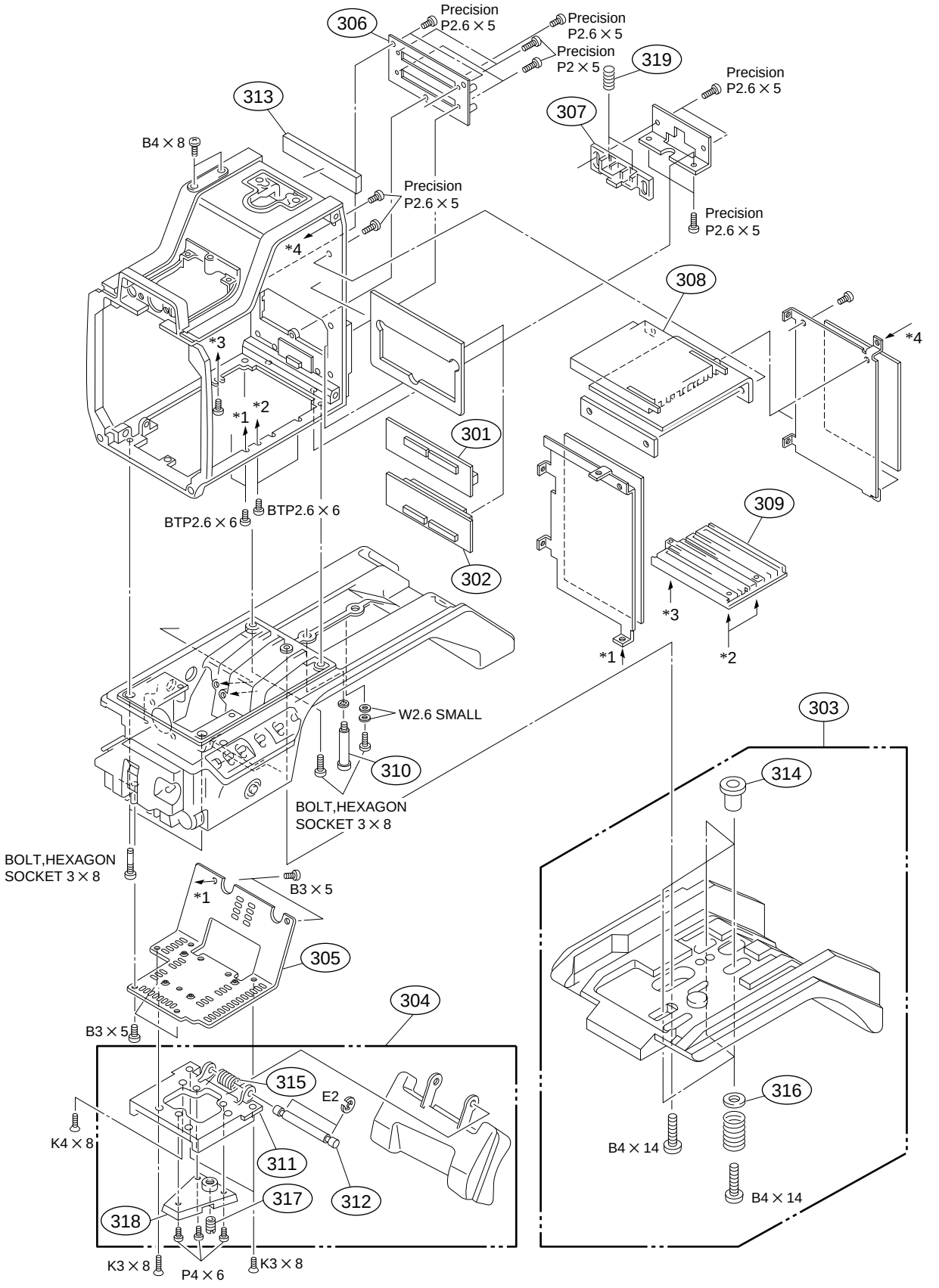


No.	Part No.	SP	Description
101	A-8269-359-A	o	MOUNTED CIRCUIT BOARD, VA-163
102	A-8269-360-A	o	MOUNTED CIRCUIT BOARD, AT-95
103	A-8269-361-A	o	MOUNTED CIRCUIT BOARD, SG-234
104	A-8269-362-A	o	MOUNTED CIRCUIT BOARD, DA-88
105	A-8269-363-A	o	MOUNTED CIRCUIT BOARD, IF-510
106	X-3678-450-1	o	PANEL ASSY, RIGHT
107	3-687-116-01	o	WASHER (4), STOPPER
108	3-692-125-02	o	PANEL,VA-163 PC BOARD
109	3-692-126-02	o	PANEL,AT-95 PC BOARD
110	3-692-127-02	o	PANEL,SG-234 PC BOARD
111	3-692-128-02	o	PANEL,DA-88 PC BOARD
112	3-692-129-02	o	PANEL,IF-510 PC BOARD
113	3-692-642-01	o	SHEET,SHIELD
114	3-724-753-01	o	RING
115	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)


B4 × 12
208
B4 × 12
204
208
208
208

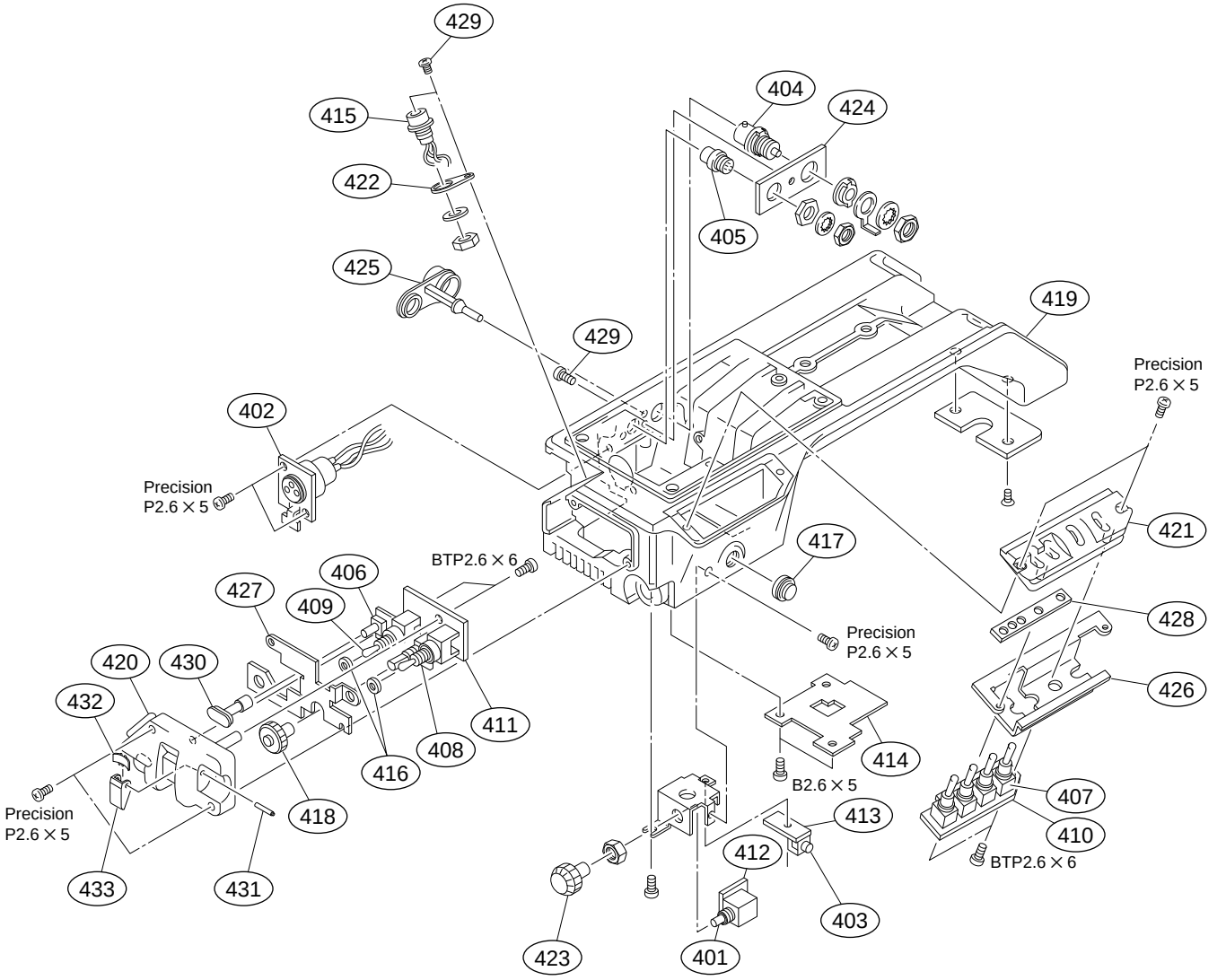

203
B3 × 5
B3 × 5
B3 × 5
210
202
B2.6 × 5
B3 × 5
209
207
B2.6 × 5
206
210
210
201
B2.6 × 5
205
210

No.	Part No.	SP	Description
201	A-8269-357-A	o	MOUNTED CIRCUIT BOARD, PR-211
202	A-8269-358-A	o	MOUNTED CIRCUIT BOARD, MB-602
203	A-8269-381-A	o	MOUNTED CIRCUIT BOARD, CN-1142
204	X-3678-452-1	o	PANEL ASSY, LEFT
205	⚠ 1-473-314-11	s	CONVERTER, D.C-D.C
206	2-623-773-11	s	BOLT (M3X8), STAINLESS
207	3-168-296-01	s	PIN, ID
208	3-687-116-01	o	WASHER (4), STOPPER
209	3-692-113-01	o	WEDGE,HANGER
210	4-924-260-01	o	BOSS (D)


306
Precision P2.6 × 5
Precision P2.6 × 5
Precision P2 × 5
319
Precision P2.6 × 5
313
307
B4 × 8
Precision P2.6 × 5
Precision P2.6 × 5
*4
308
*4
*3
*1
*2
301
BTP2.6 × 6
BTP2.6 × 6
309
302
*3
*1
*2
W2.6 SMALL
310
303
314
BOLT,HEXAGON SOCKET 3 × 8
BOLT,HEXAGON SOCKET 3 × 8
*1
B3 × 5
305
304
B3 × 5
315
E2
316
K4 × 8
311
B4 × 14
317
312
B4 × 14
318
K3 × 8
P4 × 6
K3 × 8

No.	Part No.	SP	Description
301	A-8269-369-A	o	MOUNTED PCB, CN-1120
302	A-8269-370-A	o	MOUNTED PCB, CN-1121
303	A-8278-237-A	s	PAD ASSY (LARGE)
304	A-8278-238-A	s	PAD ASSY (SMALL)
305	3-692-102-01	o	BRACKET V SHOE
306	3-692-114-02	o	PLATE,CONNECTOR(136P)
307	3-692-115-01	o	SHOE,LOCK
308	3-692-117-02	o	RAIL
309	3-692-119-01	o	RAIL,CAM
310	3-692-641-03	o	ROD,LOCK
311	3-692-643-02	o	BASE,V SHOE
312	3-692-645-01	o	ROD,ROTARY
313	3-692-646-01	o	SHEET,DUST PROTECTION (PS)
314	3-692-647-01	o	SPACER,PAD
315	3-693-973-01	s	SPRING, TORSION (SMALL)
316	3-701-444-21	s	WASHER, 6
317	3-742-011-01	s	SCREW, 1/4, 3/8 CONVERSION
318	3-742-015-01	o	WEDGE (B), MOUNTING
319	4-864-521-01	s	SPRING (PC BOARD GROUND)

BOTTOM BLOCK



No.	Part No.	SP	Description
401	1-473-315-11	s	ENCODER ROTARY “MENU SEL”
402	1-509-184-31	s	CONNECTOR 3P, FEMALE “MIC”
403	1-554-088-00	s	SWITCH, TACTILE “CANCEL”
404	1-561-781-11	s	CONNECTOR, BNC “TEST OUT”
405	1-562-222-41	s	CONNECTOR 6P, FEMALE “REMOTE”
406	1-570-282-21	s	SWITCH KEY BOARD “VTR START”
407	1-571-415-11	s	SWITCH TOGGLE “CAMERA/VTR” “GAIN” “OUTPUT” WHITE BAL”
408	1-571-416-11	s	SWITCH TOGGLE “AUTO W/B BAL”
409	1-571-679-11	s	SWITCH TOGGLE “SHUTTER”
410	1-657-443-01	o	PRINTED CIRCUIT BOARD, SW-730
411	1-657-444-12	o	PRINTED CIRCUIT BOARD, SW-731
412	1-657-445-11	o	PRINTED CIRCUIT BOARD, SW-733
413	1-657-446-11	o	PRINTED CIRCUIT BOARD, SW-742
414	1-657-447-12	o	PRINTED CIRCUIT BOARD, CN-1122
415	1-695-841-12	s	CONNECTOR 12P, FEMALE “LENS”
416	3-312-823-00	s	PACKING, KNOB
417	3-676-244-11	s	COVER, SW
418	3-679-679-03	s	KNOB,VR(AUDIO)
419	3-692-106-01	o	BASE,SHOULDER
420	3-692-107-02	o	COVER,FRONT SWITCH
421	3-692-108-01	o	GUARD,SWITCH
422	3-692-110-02	o	BRACKET,CONNECTOR
423	3-692-111-01	s	KNOB,RE “MIC LEVEL”
424	3-692-149-02	o	BRACKET,CONNECTOR(TEST OUT)
425	3-692-644-02	o	CAP,CONNECTOR
426	3-693-974-01	o	PLATE, SHIELD (SIDE)
427	3-693-976-01	o	PLATE, SHUTTER (FRONT)
428	3-693-983-01	o	CUSSHION, DROP PROTECTION (2)
429	3-694-181-01	s	TYPE1, AROCK PRECISION +P2.6
430	3-729-069-01	s	BUTTON, VTR START
431	3-742-065-01	o	SHAFT, SHUTTER
432	3-742-066-11	o	SPRING, SHUTTER
433	3-742-067-04	o	LID, SHUTTER

No.	Part No.	SP	Description
	7-621-770-87	s	SCREW +B 2.6X5
	7-623-208-22	o	SW 3,TYPE 2
	7-623-505-01	s	LUG, 2
	7-624-104-04	s	STOP RING 2.0, TYPE -E
	7-624-105-04	s	STOP RING 2.3, TYPE -E
	7-624-200-01	s	NUT, PUSH 1.5
	7-627-452-38	s	SCREW,PRECISION +K 2X5
	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
	7-627-553-78	s	SCREW,PRECISION +P 2X10
	7-627-554-18	s	SCREW,PRECISION +P 2X3.5 TYPE1
	7-627-556-57	s	PRECISION SCREW +P 2.6X5 TYPE1
	7-627-556-58	s	SCREW +P 2.6X5
	7-671-158-01	s	BALL, STAINLESS (2.5 DIA)
	7-682-160-09	s	SCREW +P 4X6
	7-682-247-04	s	SCREW +K 3X6
	7-682-248-09	s	SCREW +K 3X8
	7-682-261-09	s	SCREW +K 4X8
	7-682-545-04	s	SCREW +B 3X4
	7-682-546-04	s	SCREW +B 3X5
	7-682-546-09	s	SCREW +B 3X5
	7-682-561-09	s	SCREW +B 4X8
	7-682-563-09	s	SCREW +B 4X12
	7-682-564-09	s	SCREW +B 4X14
	7-682-576-09	s	SCREW +B 5X12
	7-683-404-04	s	BOLT,HEXAGON SOCKET 3X8
	7-683-405-04	s	BOLT,HEXAGON SOCKET 3X10
	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
	7-685-104-19	s	SCREW +P 2X6 TYPE2 NON-SLIT
	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT
	7-685-533-19	s	SCREW +BTP 2.6X6 TYPE2 N-S
	7-688-002-02	s	W2.6, SHALL
	7-688-003-02	s	W 3, SMALL

5-3. Electrical Parts List

AT-95 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-360-A	o	MOUNTED CIRCUIT BOARD, AT-95
1pc	3-692-126-02	o	PANEL,AT-95 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
BT1	1-550-104-32	s	HOLDER, BATTERY
C1	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C2	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C6	1-164-156-11	s	CERAMIC 0.1uF 25V
C7	1-107-688-11	s	CHIP,TANTALUM 1.5uF 20% 25V
C8	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C9	1-164-156-11	s	CERAMIC 0.1uF 25V
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C20	1-164-156-11	s	CERAMIC 0.1uF 25V
C21	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C27	1-164-156-11	s	CERAMIC 0.1uF 25V
C28	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-135-180-21	s	TANTALUM, CHIP 3.3uF 20% 6.3V
C32	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C35	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C36	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-085-21	s	TANTALUM, CHIP 4.7uF 10% 25V
C41	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C42	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-164-156-11	s	CERAMIC 0.1uF 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-164-156-11	s	CERAMIC 0.1uF 25V
C57	1-164-156-11	s	CERAMIC 0.1uF 25V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C60	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V
C66	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C67	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C68	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C69	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C70	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C71	1-131-360-00	s	TANTALUM 15uF 10% 10V
C80	1-164-156-11	s	CERAMIC 0.1uF 25V
C81	1-126-935-11	s	ELECT, CHIP 470uF 20% 16V
CNI36	1-540-197-11	o	SOCKET, IC
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-820-41	s	DIODE 1SS302
D3	8-719-974-76	s	DIODE HSM107S
D4	8-719-974-76	s	DIODE HSM107S
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-974-76	s	DIODE HSM107S
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-974-76	s	DIODE HSM107S
D10	8-719-974-76	s	DIODE HSM107S
D11	8-719-974-76	s	DIODE HSM107S
D12	8-719-974-76	s	DIODE HSM107S
D13	8-719-974-76	s	DIODE HSM107S
D15	8-719-974-76	s	DIODE HSM107S
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D18	8-719-820-41	s	DIODE 1SS302
D19	8-719-820-41	s	DIODE 1SS302
D20	8-719-820-41	s	DIODE 1SS302
D21	8-719-820-41	s	DIODE 1SS302
D22	8-719-820-41	s	DIODE 1SS302
IC1	8-759-252-59	s	IC MAX202CSE
IC2	8-759-242-78	s	IC TC7W02F
IC3	8-759-079-74	s	IC TC74VHC157FS(EL)
IC4	8-759-076-06	s	IC TL064CPW
IC5	8-759-076-06	s	IC TL064CPW
IC6	8-759-637-07	s	IC M62021FP
IC7	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-076-06	s	IC TL064CPW
IC11	8-759-711-50	s	IC NJU7022M
IC12	8-759-711-50	s	IC NJU7022M
IC13	8-759-059-50	s	IC MB88351PFV
IC14	8-759-082-57	s	IC TC7W04FU
IC15	8-759-083-94	s	IC TC7W74FU
IC17	8-759-058-64	s	IC TC7S32FU(TE85R)
IC18	8-759-271-84	s	IC TC7SH02FU
IC19	8-759-271-86	s	IC TC7SH04FU
IC20	8-759-196-96	s	IC TC7SH08FU-TE85R
IC21	8-759-271-84	s	IC TC7SH02FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC22	8-759-196-97	s	IC TC7SH32FU-TE85R
IC23	8-759-186-31	s	IC TC74VHC20F
IC24	8-759-079-70	s	IC TC74VHC138FS(EL)
IC25	8-759-065-20	s	IC RTC-4553B
IC26	8-752-337-91	s	IC CXK58257ATM-70LL
IC27	8-759-154-60	s	IC UPD71055GB-10-3B4
IC28	8-759-154-60	s	IC UPD71055GB-10-3B4
IC29	8-759-149-10	s	IC UPD4702G
IC30	8-759-271-84	s	IC TC7SH02FU
IC31	8-759-196-97	s	IC TC7SH32FU-TE85R
IC32	8-759-242-78	s	IC TC7W02F
IC33	8-759-186-53	s	IC TC74VHC163F
IC34	8-759-186-53	s	IC TC74VHC163F
IC35	8-759-277-99	s	IC CXD8889R
IC36	8-759-176-87	o	IC M27V201-200L6
IC37	8-759-196-96	s	IC TC7SH08FU-TE85R
IC38	8-759-182-95	s	IC HD151015T
IC39	8-759-079-85	s	IC TC74VHC244FS(EL)
IC40	8-759-079-61	s	IC TC74VHC74FS(EL)
IC41	8-759-195-81	s	IC TC7S86FU
IC42	8-759-186-53	s	IC TC74VHC163F
IC43	8-759-082-57	s	IC TC7W04FU
IC44	8-759-186-53	s	IC TC74VHC163F
IC45	8-759-083-94	s	IC TC7W74FU
IC46	8-759-165-37	s	IC X24164SIC7000
IC47	8-759-078-75	s	IC UPD6453GT-610
IC48	8-759-276-00	s	IC TC7W139FU(TE12R)
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-377-31	s	INDUCTOR CHIP 4.7uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-920-48	s	TRANSISTOR IMH2
Q4	8-729-925-47	s	TRANSISTOR IMB2
Q5	8-729-920-48	s	TRANSISTOR IMH2
Q6	8-729-920-48	s	TRANSISTOR IMH2
R1	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R4	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R5	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R8	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R9	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R10	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R17	1-216-858-11	s	METAL, CHIP 1.2M 5% 1/16W
R18	1-218-723-11	s	METAL 20K 0.50% 1/16W
R19	1-216-692-11	s	METAL, CHIP 1K 0.5% 1/16W
R20	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R21	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R22	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R23	1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R25	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R26	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R28	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R29	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R30	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R31	1-218-720-11	s	METAL 15K 0.50% 1/16W
R32	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R33	1-216-862-11	s	METAL 2.7M 5% 1/16W
R34	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R35	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R36	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R37	1-216-863-11	s	METAL 3.3M 5% 1/16W
R38	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-716-11	s	METAL 10K 0.50% 1/16W
R41	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R42	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R43	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R44	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R45	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R46	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R49	1-218-716-11	s	METAL 10K 0.50% 1/16W
R50	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R51	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R52	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R53	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R54	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R55	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R56	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R57	1-218-716-11	s	METAL 10K 0.50% 1/16W
R58	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R59	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R60	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R61	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R62	1-218-752-11	s	METAL 330K 0.50% 1/16W
R63	1-216-854-11	s	METAL, CHIP 560K 5% 1/16W
R64	1-218-750-11	s	METAL 270K 0.50% 1/16W
R66	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R70	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R71	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R72	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R75	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R76	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R77	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R78	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R79	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R80	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R81	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R82	1-218-866-11	s	CHIP, METAL 6.2K 0.50% 1/16W
R83	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R84	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R85	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R86	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R87	1-216-797-11	s	METAL, CHIP 10 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R88	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R89	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R90	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R91	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R92	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R93	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R94	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R95	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R96	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R97	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R98	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R99	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R100	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R101	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R102	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R103	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R104	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R107	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R108	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R109	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R110	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R111	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R114	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R115	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R118	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R119	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R120	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R124	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R125	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R127	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R128	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R129	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R130	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R131	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R132	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R133	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R134	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R135	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R136	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R137	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R138	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R139	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R140	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R141	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R142	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R143	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R144	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R145	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R146	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R147	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R150	1-216-809-11	s	METAL, CHIP 100 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R151	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R152	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R153	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R154	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R155	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R160	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R161	1-216-862-11	s	METAL 2.7M 5% 1/16W
R162	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R163	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R164	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R165	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
RV1	1-237-035-11	s	RES, ADJ METAL 5K
S1	1-692-270-21	s	SWITCH, SLIDE

CN-1120 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-369-A	o	MOUNTED CIRCUIT BOARD, CN-1120
C1	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C2	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C3	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C4	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C5	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C6	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
CN201	1-569-532-11	s	HOUSING, 30P
CN202	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-825-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-825-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-825-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-825-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-825-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-825-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-825-11	s	FILTER, CHIP EMI
FL19	1-239-825-11	s	FILTER, CHIP EMI
FL20	1-239-825-11	s	FILTER, CHIP EMI
FL21	1-239-825-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-825-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-825-11	s	FILTER, CHIP EMI
FL28	1-239-825-11	s	FILTER, CHIP EMI
FL29	1-239-825-11	s	FILTER, CHIP EMI
FL30	1-239-825-11	s	FILTER, CHIP EMI
FL31	1-239-825-11	s	FILTER, CHIP EMI
FL32	1-239-825-11	s	FILTER, CHIP EMI
FL33	1-239-825-11	s	FILTER, CHIP EMI
FL34	1-239-825-11	s	FILTER, CHIP EMI
FL35	1-239-825-11	s	FILTER, CHIP EMI
FL36	1-239-825-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-825-11	s	FILTER, CHIP EMI
FL40	1-239-719-11	s	FILTER, CHIP EMI
FL41	1-239-719-11	s	FILTER, CHIP EMI
FL42	1-239-719-11	s	FILTER, CHIP EMI
FL43	1-239-825-11	s	FILTER, CHIP EMI
FL44	1-239-825-11	s	FILTER, CHIP EMI

CN-1121 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-370-A	o	MOUNTED CIRCUIT BOAAD, CN-1121
CN101	1-569-531-11	s	HOUSING, 20P
CN102	1-569-532-11	s	HOUSING, 30P
FL1	1-239-719-11	s	FILTER, CHIP EMI
FL2	1-239-719-11	s	FILTER, CHIP EMI
FL3	1-239-719-11	s	FILTER, CHIP EMI
FL4	1-239-719-11	s	FILTER, CHIP EMI
FL5	1-239-719-11	s	FILTER, CHIP EMI
FL6	1-239-719-11	s	FILTER, CHIP EMI
FL7	1-239-719-11	s	FILTER, CHIP EMI
FL8	1-239-719-11	s	FILTER, CHIP EMI
FL9	1-239-719-11	s	FILTER, CHIP EMI
FL10	1-239-719-11	s	FILTER, CHIP EMI
FL11	1-239-719-11	s	FILTER, CHIP EMI
FL12	1-239-719-11	s	FILTER, CHIP EMI
FL13	1-239-719-11	s	FILTER, CHIP EMI
FL14	1-239-719-11	s	FILTER, CHIP EMI
FL15	1-239-719-11	s	FILTER, CHIP EMI
FL16	1-239-719-11	s	FILTER, CHIP EMI
FL17	1-239-719-11	s	FILTER, CHIP EMI
FL18	1-239-719-11	s	FILTER, CHIP EMI
FL19	1-239-719-11	s	FILTER, CHIP EMI
FL20	1-239-719-11	s	FILTER, CHIP EMI
FL21	1-239-719-11	s	FILTER, CHIP EMI
FL22	1-239-719-11	s	FILTER, CHIP EMI
FL23	1-239-719-11	s	FILTER, CHIP EMI
FL24	1-239-719-11	s	FILTER, CHIP EMI
FL25	1-239-719-11	s	FILTER, CHIP EMI
FL26	1-239-719-11	s	FILTER, CHIP EMI
FL27	1-239-719-11	s	FILTER, CHIP EMI
FL28	1-239-719-11	s	FILTER, CHIP EMI
FL30	1-239-719-11	s	FILTER, CHIP EMI
FL31	1-239-719-11	s	FILTER, CHIP EMI
FL32	1-239-719-11	s	FILTER, CHIP EMI
FL33	1-239-719-11	s	FILTER, CHIP EMI
FL34	1-239-719-11	s	FILTER, CHIP EMI
FL35	1-239-719-11	s	FILTER, CHIP EMI
FL37	1-239-825-11	s	FILTER, CHIP EMI
FL38	1-239-719-11	s	FILTER, CHIP EMI
FL39	1-239-719-11	s	FILTER, CHIP EMI
R1	1-216-295-11	s	CHIP, CONDUCTOR 0
R2	1-216-295-11	s	CHIP, CONDUCTOR 0

CN-1122 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-447-13	o	PRINTED CIRCUIT BOARD, CN-1122
C1	1-128-592-11	s	ELECT 0.33uF 20% 50V
C2	1-128-592-11	s	ELECT 0.33uF 20% 50V
C5	1-126-968-11	s	CHIP, ELECT 100uF 20% 50V
CN401	1-569-629-11	s	HOUSING, 24P
CN402	1-695-890-21	o	PIN, CONNECTOR (PC BOARD) 12P
CN405	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
CN406	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
CN407	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
R1	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R2	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R3	1-215-421-00	s	METAL 1K 1% 1/6W

CN-1142 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-381-A	o	MOUNTED CIRCUIT BOARD, CN-1142

DA-88 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-362-A	o	MOUNTED CIRCUIT BOARD, DA-88
1pc	3-692-128-02	o	PANEL,DA-88 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C2	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C6	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C9	1-165-176-11	s	CERAMIC, CHIP 0.047uF 10% 16V
C10	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C17	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C21	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-164-156-11	s	CERAMIC 0.1uF 25V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C27	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C28	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C34	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-164-156-11	s	CERAMIC 0.1uF 25V
C39	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C40	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C46	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C49	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C50	1-164-156-11	s	CERAMIC 0.1uF 25V
C51	1-164-156-11	s	CERAMIC 0.1uF 25V
C52	1-164-156-11	s	CERAMIC 0.1uF 25V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C55	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-315-11	s	CERAMIC 470PF 5% 50V
C61	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C64	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C65	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C66	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C67	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-913-11	s	CERAMIC 8PF 0.5PF 50V
C71	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-164-156-11	s	CERAMIC 0.1uF 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C77	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C81	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C84	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C85	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C87	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C88	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C89	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C90	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C95	1-164-156-11	s	CERAMIC 0.1uF 25V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-164-156-11	s	CERAMIC 0.1uF 25V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C100	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C101	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C102	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C103	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C104	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C105	1-164-315-11	s	CERAMIC 470PF 5% 50V
C106	1-164-156-11	s	CERAMIC 0.1uF 25V
C107	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C109	1-164-156-11	s	CERAMIC 0.1uF 25V
C110	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C113	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C114	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C115	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C118	1-164-156-11	s	CERAMIC 0.1uF 25V
C119	1-164-156-11	s	CERAMIC 0.1uF 25V
C120	1-164-156-11	s	CERAMIC 0.1uF 25V
C121	1-164-156-11	s	CERAMIC 0.1uF 25V
C122	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C123	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C124	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C125	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C126	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C127	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C128	1-164-156-11	s	CERAMIC 0.1uF 25V
C129	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C132	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C133	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C134	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C136	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C137	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C138	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C140	1-164-156-11	s	CERAMIC 0.1uF 25V
C141	1-164-156-11	s	CERAMIC 0.1uF 25V
C142	1-164-156-11	s	CERAMIC 0.1uF 25V
C143	1-164-156-11	s	CERAMIC 0.1uF 25V
C144	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C145	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C146	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C147	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C148	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C149	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C154	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C155	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C166	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C167	1-164-156-11	s	CERAMIC 0.1uF 25V
C169	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C170	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C171	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C172	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C203	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C206	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C207	1-164-156-11	s	CERAMIC 0.1uF 25V
C208	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C209	1-164-156-11	s	CERAMIC 0.1uF 25V
C210	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C211	1-164-156-11	s	CERAMIC 0.1uF 25V
C213	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C214	1-164-156-11	s	CERAMIC 0.1uF 25V
C215	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C225	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C226	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C228	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C229	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C230	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C231	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C500	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-820-41	s	DIODE 1SS302
D7	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-820-41	s	DIODE 1SS302
D13	8-719-820-41	s	DIODE 1SS302
D14	8-719-820-41	s	DIODE 1SS302
D15	8-719-820-41	s	DIODE 1SS302
D16	8-719-820-41	s	DIODE 1SS302
D17	8-719-820-41	s	DIODE 1SS302
D24	8-719-820-41	s	DIODE 1SS302
D25	8-719-820-41	s	DIODE 1SS302
D26	8-719-820-41	s	DIODE 1SS302
D100	8-719-820-41	s	DIODE 1SS302
D101	8-719-820-41	s	DIODE 1SS302
D102	8-719-820-41	s	DIODE 1SS302
FL1	1-239-754-11	s	FILTER, LOW PASS
FL2	1-239-753-11	s	FILTER, LOW PASS
FL3	1-233-240-21	s	FILTER, LOW PASS
FL4	1-239-753-11	s	FILTER, LOW PASS
FL5	1-233-240-21	s	FILTER, LOW PASS
FL6	1-239-754-11	s	FILTER, LOW PASS
FL7	1-239-754-11	s	FILTER, LOW PASS
FL8	1-239-754-11	s	FILTER, LOW PASS
IC1	8-759-066-68	s	IC REF-03GS
IC2	8-759-076-06	s	IC TL064CPW
IC3	8-759-632-39	s	IC M51958A-T1
IC4	8-752-360-44	s	IC CXK1203AR
IC5	8-752-360-44	s	IC CXK1203AR
IC6	8-752-360-44	s	IC CXK1203AR
IC7	8-752-363-60	s	IC CXD2307R-T4
IC8	8-759-079-46	s	IC TC74VHC00FS(EL)
IC9	8-759-058-54	s	IC TC7S00FU(TE85R)
IC10	8-759-086-42	s	IC X24C02S-3.0-C7000
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-058-62	s	IC TC7S08FU(TE85R)
IC13	8-759-237-79	s	IC TC74HC595AF(EL)
IC14	8-759-064-36	s	IC MB88346BPFV
IC15	8-759-082-61	s	IC TC4W53FU
IC16	8-759-981-48	s	IC TL082M
IC17	8-759-082-61	s	IC TC4W53FU
IC18	8-759-082-61	s	IC TC4W53FU
IC19	8-759-079-85	s	IC TC74VHC244FS(EL)
IC20	8-759-082-61	s	IC TC4W53FU
IC23	8-759-287-54	s	IC TL084CPW-E20
IC24	8-759-082-61	s	IC TC4W53FU
IC25	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC26	8-759-066-59	s	IC TC74HC4053AFS
IC27	8-759-287-54	s	IC TL084CPW-E20
IC28	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC29	8-759-082-61	s	IC TC4W53FU
IC34	8-759-271-86	s	IC TC7SH04FU
IC35	8-759-180-08	s	IC TC74HC4538AFS
IC36	8-759-237-79	s	IC TC74HC595AF(EL)
IC37	8-759-082-59	s	IC TC7W32FU

(DA-88 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC100	8-759-058-62	s	IC TC7S08FU(TE85R)
IC101	8-759-058-58	s	IC TC7S04FU(TE85R)
IC102	8-759-082-59	s	IC TC7W32FU
IC103	8-759-058-64	s	IC TC7S32FU(TE85R)
IC104	8-759-058-54	s	IC TC7S00FU(TE85R)
IC105	8-759-058-64	s	IC TC7S32FU(TE85R)
IC106	8-759-058-62	s	IC TC7S08FU(TE85R)
IC107	8-759-196-96	s	IC TC7SH08FU-TE85R
IC108	8-759-058-54	s	IC TC7S00FU(TE85R)
IC109	8-759-058-62	s	IC TC7S08FU(TE85R)
IC110	8-759-058-58	s	IC TC7S04FU(TE85R)
JR1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
JR4	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L6	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L7	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L8	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
L10	1-410-385-11	s	INDUCTOR, CHIP 22uH
L11	1-410-385-11	s	INDUCTOR, CHIP 22uH
L12	1-410-392-11	s	INDUCTOR, CHIP 82uH
L13	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L14	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L15	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L16	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L17	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L18	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L19	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L20	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L21	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L22	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L23	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L24	1-410-389-31	s	INDUCTOR CHIP 47uH
L25	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q9	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q12	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-117-32	s	TRANSISTOR 2SC4177
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q19	8-729-403-32	s	TRANSISTOR XN6534
Q20	8-729-920-48	s	TRANSISTOR IMH2

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Ref. No. or Q'ty	Part No.	SP	Description
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q25	8-729-117-32	s	TRANSISTOR 2SC4177
Q26	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q27	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q28	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q29	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q30	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q32	8-729-122-63	s	TRANSISTOR 2SA1226
Q33	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q34	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q43	8-729-403-32	s	TRANSISTOR XN6534
Q44	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q45	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q46	8-729-920-48	s	TRANSISTOR IMH2
Q47	8-729-117-32	s	TRANSISTOR 2SC4177
Q48	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q49	8-729-122-63	s	TRANSISTOR 2SA1226
Q50	8-729-122-63	s	TRANSISTOR 2SA1226
Q51	8-729-122-63	s	TRANSISTOR 2SA1226
Q52	8-729-117-32	s	TRANSISTOR 2SC4177
Q53	8-729-122-63	s	TRANSISTOR 2SA1226
Q54	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q59	8-729-403-32	s	TRANSISTOR XN6534
Q63	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q67	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q68	8-729-122-63	s	TRANSISTOR 2SA1226
Q69	8-729-122-63	s	TRANSISTOR 2SA1226
Q70	8-729-117-32	s	TRANSISTOR 2SC4177
Q71	8-729-122-63	s	TRANSISTOR 2SA1226
Q72	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q73	8-729-122-63	s	TRANSISTOR 2SA1226
Q75	8-729-403-32	s	TRANSISTOR XN6534
Q79	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q83	8-729-117-32	s	TRANSISTOR 2SC4177
Q84	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q85	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q86	8-729-122-63	s	TRANSISTOR 2SA1226
Q87	8-729-122-63	s	TRANSISTOR 2SA1226
Q88	8-729-122-63	s	TRANSISTOR 2SA1226
Q89	8-729-117-32	s	TRANSISTOR 2SC4177
Q90	8-729-122-63	s	TRANSISTOR 2SA1226
Q91	8-729-142-90	s	TRANSISTOR 2SK853-K5
Q92	8-729-122-63	s	TRANSISTOR 2SA1226
Q94	8-729-403-32	s	TRANSISTOR XN6534
Q98	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q100	8-729-403-32	s	TRANSISTOR XN6534
Q101	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-403-32	s	TRANSISTOR XN6534
Q104	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q105	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q106	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q107	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q108	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q109	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q110	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q111	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q112	8-729-102-08	s	TRANSISTOR 2SC2223-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q113	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q114	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q115	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q117	8-729-122-63	s	TRANSISTOR 2SA1226
R1	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R4	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R5	1-218-723-11	s	METAL 20K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R9	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R12	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R13	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R16	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R17	1-218-676-11	s	METAL 220 0.50% 1/16W
R18	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R19	1-218-676-11	s	METAL 220 0.50% 1/16W
R20	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R21	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R22	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R23	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R24	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R25	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R26	1-216-803-11	s	METAL, CHIP 33 5% 1/16W
R27	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R33	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R34	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R35	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R36	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R37	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R38	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R39	1-218-676-11	s	METAL 220 0.50% 1/16W
R40	1-218-676-11	s	METAL 220 0.50% 1/16W
R41	1-218-676-11	s	METAL 220 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R44	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R45	1-218-883-11	s	METAL 33K 0.50% 1/16W
R46	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R47	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R48	1-218-883-11	s	METAL 33K 0.50% 1/16W
R49	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R50	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R51	1-218-883-11	s	METAL 33K 0.50% 1/16W
R52	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R53	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R54	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R56	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R57	1-218-676-11	s	METAL 220 0.50% 1/16W
R58	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R59	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R60	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R61	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R62	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R65	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R66	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R67	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R70	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R71	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R72	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R73	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R74	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R75	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R76	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R77	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R78	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R79	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R82	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R83	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R84	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R85	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R87	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R88	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R89	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R90	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R91	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R92	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R93	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R94	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R95	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R96	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R97	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R98	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R99	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R100	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R101	1-218-720-11	s	METAL 15K 0.50% 1/16W
R102	1-218-716-11	s	METAL 10K 0.50% 1/16W
R103	1-218-725-11	s	METAL 24K 0.50% 1/16W
R105	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R106	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R107	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R108	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R113	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R114	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R115	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R116	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R117	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R118	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R119	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R120	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R121	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R122	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R123	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R124	1-216-805-11	s	METAL, CHIP 47 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R127	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R128	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R129	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R130	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R131	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R135	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R136	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R137	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R142	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R145	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R146	1-218-676-11	s	METAL 220 0.50% 1/16W
R147	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R148	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R149	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R150	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R151	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R152	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R153	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R154	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R155	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R156	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R157	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R158	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R159	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R160	1-218-676-11	s	METAL 220 0.50% 1/16W
R161	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R162	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R163	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R164	1-218-672-11	s	METAL 150 0.50% 1/16W
R165	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R166	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R167	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R168	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R169	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R170	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R171	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R172	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R173	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R174	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R175	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R177	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R178	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R184	1-218-828-11	s	METAL 160 0.50% 1/16W
R185	1-218-648-11	s	METAL 15 0.50% 1/16W
R186	1-218-661-11	s	CHIP, METAL 51 0.50% 1/16W
R187	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R188	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R190	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R191	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R192	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R193	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R194	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R195	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R196	1-218-720-11	s	METAL 15K 0.50% 1/16W
R197	1-218-740-11	s	METAL 100K 0.50% 1/16W
R198	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R199	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R202	1-218-720-11	s	CHIP, METAL 15K 0.50% 1/16W
R205	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R206	1-218-732-11	s	METAL 47K 0.50% 1/16W
R207	1-218-725-11	s	METAL 24K 0.50% 1/16W
R208	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R209	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R210	1-218-676-11	s	METAL 220 0.50% 1/16W
R211	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R212	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R213	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R214	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R215	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R216	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R217	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R218	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R219	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R220	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R221	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R222	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R223	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R224	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R225	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R226	1-218-672-11	s	METAL 150 0.50% 1/16W
R227	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R228	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R229	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R231	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R232	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R233	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R234	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R235	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R236	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R239	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R240	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R241	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R242	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R243	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R244	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R246	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R247	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R248	1-218-732-11	s	METAL 47K 0.50% 1/16W
R249	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R252	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R253	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R254	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R255	1-218-716-11	s	METAL 10K 0.50% 1/16W
R256	1-218-725-11	s	METAL 24K 0.50% 1/16W
R257	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R258	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R259	1-218-676-11	s	METAL 220 0.50% 1/16W
R260	1-220-158-91	s	CHIP,METAL 3.6K 5% 1/16W
R261	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R262	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R263	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R264	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R265	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R266	1-218-705-11	s	METAL 3.6K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R267	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R268	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R269	1-218-705-11	s	METAL 3.6K 0.50% 1/16W
R270	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R271	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R273	1-218-841-11	s	CHIP, METAL 560 0.50% 1/16W
R274	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R275	1-218-672-11	s	METAL 150 0.50% 1/16W
R276	1-218-864-11	s	CHIP, METAL 5.1K 0.50% 1/16W
R277	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R278	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R280	1-218-672-11	s	METAL 150 0.50% 1/16W
R281	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R282	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R283	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R284	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R285	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R288	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R289	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R290	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R293	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R294	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R295	1-218-732-11	s	METAL 47K 0.50% 1/16W
R300	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R301	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R302	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R303	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R304	1-218-675-11	s	CHIP, METAL 200 0.50% 1/16W
R305	1-218-725-11	s	METAL 24K 0.50% 1/16W
R306	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R307	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R308	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R309	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R310	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R311	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R312	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R313	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R314	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R315	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R316	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R317	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R318	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R320	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R321	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R322	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R323	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R324	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R325	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R326	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R327	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R328	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R330	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R331	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R332	1-218-883-11	s	METAL 33K 0.50% 1/16W
R333	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R334	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R335	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R336	1-218-727-11	s	METAL 30K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R337	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R357	1-218-680-11	s	METAL 330 0.50% 1/16W
R358	1-218-672-11	s	METAL 150 0.50% 1/16W
R361	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R362	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R363	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R364	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R365	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R366	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R367	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R368	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R369	1-218-829-11	s	CHIP, METAL 180 0.50% 1/16W
R370	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R371	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R372	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R373	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R374	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R375	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R376	1-218-727-11	s	METAL 30K 0.50% 1/16W
R378	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R379	1-218-727-11	s	METAL 30K 0.50% 1/16W
R380	1-218-655-91	s	CHIP, METAL 30 0.50% 1/16W
RB1	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB2	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB3	1-239-309-11	s	RESISTOR BLOCK, CHIP 100KX8
RB4	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB5	1-236-908-11	s	RESISTOR, NETWORK, CHIP 10k
RB6	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K
RB7	1-236-906-11	s	NETWORK RESISTOR (CHIP) 15K

IF-510 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-363-A	o	MOUNTED CIRCUIT BOARD, IF-510
1pc	3-692-129-02	o	PANEL,IF-510 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C10	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C11	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-208-11	s	TANTAL 1uF 20% 10V
C14	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C16	1-164-156-11	s	CERAMIC 0.1uF 25V
C17	1-164-156-11	s	CERAMIC 0.1uF 25V
C20	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C21	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-135-208-11	s	TANTAL 1uF 20% 10V
C24	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C31	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C33	1-135-208-11	s	TANTAL 1uF 20% 10V
C34	1-104-911-11	s	TANTALUM, CHIP 33uF 20% 10V
C35	1-164-156-11	s	CERAMIC 0.1uF 25V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C101	1-164-156-11	s	CERAMIC 0.1uF 25V
C102	1-164-156-11	s	CERAMIC 0.1uF 25V
C103	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C104	1-104-914-11	s	TANTAL 22uF 20% 16V
C105	1-104-914-11	s	TANTAL 22uF 20% 16V
C150	1-164-156-11	s	CERAMIC 0.1uF 25V
C151	1-135-160-21	s	CHIP, TANTALUM 15uF 10% 16V
C152	1-164-156-11	s	CERAMIC 0.1uF 25V
C153	1-164-156-11	s	CERAMIC 0.1uF 25V
C154	1-164-156-11	s	CERAMIC 0.1uF 25V
C155	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-164-156-11	s	CERAMIC 0.1uF 25V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-164-156-11	s	CERAMIC 0.1uF 25V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C206	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-104-914-11	s	TANTAL 22uF 20% 16V
C222	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C224	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C225	1-104-914-11	s	TANTAL 22uF 20% 16V
C226	1-164-156-11	s	CERAMIC 0.1uF 25V
C250	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C252	1-163-231-11	s	CERAMIC, CHIP 15PF 5% 50V
C253	1-162-919-11	s	CERAMIC 22PF 5% 50V
C254	1-162-922-11	s	CERAMIC 39PF 5% 50V
C255	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C300	1-164-156-11	s	CERAMIC 0.1uF 25V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-164-156-11	s	CERAMIC 0.1uF 25V
C308	1-164-156-11	s	CERAMIC 0.1uF 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C309	1-164-156-11	s	CERAMIC 0.1uF 25V
C311	1-164-156-11	s	CERAMIC 0.1uF 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C313	1-104-914-11	s	TANTAL 22uF 20% 16V
C315	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C322	1-164-156-11	s	CERAMIC 0.1uF 25V
C350	1-104-913-11	s	TANTALUM, CHIP 10uF 20% 16V
C351	1-164-156-11	s	CERAMIC 0.1uF 25V
C352	1-164-156-11	s	CERAMIC 0.1uF 25V
C353	1-164-156-11	s	CERAMIC 0.1uF 25V
C400	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C401	1-104-914-11	s	TANTAL 22uF 20% 16V
C402	1-104-914-11	s	TANTAL 22uF 20% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-164-156-11	s	CERAMIC 0.1uF 25V
C405	1-104-914-11	s	TANTAL 22uF 20% 16V
C406	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C407	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C408	1-104-914-11	s	TANTAL 22uF 20% 16V
C409	1-104-914-11	s	TANTAL 22uF 20% 16V
C410	1-164-156-11	s	CERAMIC 0.1uF 25V
C411	1-164-156-11	s	CERAMIC 0.1uF 25V
C412	1-104-914-11	s	TANTAL 22uF 20% 16V
C413	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C414	1-162-905-11	s	CERAMIC 1PF 0.25PF 50V
C415	1-104-914-11	s	TANTAL 22uF 20% 16V
C416	1-104-914-11	s	TANTAL 22uF 20% 16V
C417	1-164-156-11	s	CERAMIC 0.1uF 25V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-104-914-11	s	TANTAL 22uF 20% 16V
C420	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C421	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C422	1-164-156-11	s	CERAMIC 0.1uF 25V
C502	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C503	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C504	1-104-914-11	s	TANTAL 22uF 20% 16V
C505	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C508	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C509	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C510	1-104-914-11	s	TANTAL 22uF 20% 16V
C511	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C513	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C514	1-162-911-11	s	CERAMIC, CHIP 6PF 50V
C515	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C516	1-104-914-11	s	TANTAL 22uF 20% 16V
C517	1-104-910-11	s	CHIP,TANTALUM 15uF 10% 10V
C518	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C519	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C520	1-104-914-11	s	TANTAL 22uF 20% 16V
C521	1-104-914-11	s	TANTAL 22uF 20% 16V
C522	1-164-156-11	s	CERAMIC 0.1uF 25V
C524	1-164-156-11	s	CERAMIC 0.1uF 25V
C525	1-164-156-11	s	CERAMIC 0.1uF 25V
C601	1-164-156-11	s	CERAMIC 0.1uF 25V
C602	1-164-156-11	s	CERAMIC 0.1uF 25V
C603	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C604	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C605	1-104-914-11	s	TANTAL 22uF 20% 16V
C606	1-104-914-11	s	TANTAL 22uF 20% 16V
C621	1-164-156-11	s	CERAMIC 0.1uF 25V
C622	1-164-156-11	s	CERAMIC 0.1uF 25V
C623	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C624	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C625	1-104-914-11	s	TANTAL 22uF 20% 16V
C626	1-104-914-11	s	TANTAL 22uF 20% 16V
C641	1-164-156-11	s	CERAMIC 0.1uF 25V
C642	1-164-156-11	s	CERAMIC 0.1uF 25V
C643	1-162-907-11	s	CERAMIC, CHIP 2PF 50V
C644	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C645	1-104-914-11	s	TANTAL 22uF 20% 16V
C646	1-104-914-11	s	TANTAL 22uF 20% 16V
C701	1-164-156-11	s	CERAMIC 0.1uF 25V
C702	1-164-156-11	s	CERAMIC 0.1uF 25V
C703	1-164-156-11	s	CERAMIC 0.1uF 25V
C704	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C705	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C706	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C707	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
D11	8-719-029-63	s	DIODE RD4.3UH-T1
D21	8-719-029-63	s	DIODE RD4.3UH-T1
D31	8-719-029-57	s	DIODE RD2.4UH-T1
D101	8-719-820-41	s	DIODE 1SS302
D250	8-719-948-47	s	DIODE HSM88AS
D400	8-719-820-41	s	DIODE 1SS302
D401	8-719-820-41	s	DIODE 1SS302
D402	8-719-820-41	s	DIODE 1SS302
D500	8-719-820-41	s	DIODE 1SS302
IC12	8-759-076-06	s	IC TL064CPW
IC101	8-759-082-61	s	IC TC4W53FU
IC151	8-759-925-76	s	IC SN74HC08ANS
IC152	8-759-082-55	s	IC TC7W00FU
IC153	8-759-237-79	s	IC TC74HC595AF(EL)
IC154	8-759-082-58	s	IC TC7W08FU
IC155	8-759-086-42	s	IC X24C02S-3.0-C7000
IC200	8-759-082-61	s	IC TC4W53FU
IC201	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC202	8-759-089-61	s	IC TC74HC4052AFS(EL)
IC206	8-759-054-61	s	IC CLC505AJE
IC301	8-759-254-49	s	IC EL4581CS-TE2
IC302	8-759-925-90	s	IC SN74HC74ANS
IC303	8-759-925-90	s	IC SN74HC74ANS
IC304	8-759-082-59	s	IC TC7W32FU
IC305	8-759-925-90	s	IC SN74HC74ANS
IC306	8-759-082-57	s	IC TC7W04FU
IC307	8-759-082-58	s	IC TC7W08FU
IC308	8-759-058-62	s	IC TC7S08FU(TE85R)
IC309	8-759-082-59	s	IC TC7W32FU
IC310	8-759-082-58	s	IC TC7W08FU
IC322	8-759-032-01	s	IC MC74HC00AF
IC351	8-759-925-90	s	IC SN74HC74ANS
IC352	8-759-058-58	s	IC TC7S04FU(TE85R)
IC400	8-759-082-61	s	IC TC4W53FU
IC404	8-759-209-57	s	IC TC4S69F
IC410	8-759-082-61	s	IC TC4W53FU
IC420	8-759-082-61	s	IC TC4W53FU

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Ref. No. or Q'ty	Part No.	SP	Description
IC500	8-759-066-59	s	IC TC74HC4053AFS
IC501	8-759-981-48	s	IC TL082M
IC502	8-759-082-58	s	IC TC7W08FU
IC601	8-759-054-61	s	IC CLC505AJE
IC621	8-759-054-61	s	IC CLC505AJE
IC641	8-759-054-61	s	IC CLC505AJE
IC701	8-759-988-13	s	IC LM393PS
IC702	8-759-195-81	s	IC TC7S86FU
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L3	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L150	1-410-369-11	s	INDUCTOR CHIP 1uH
L201	1-410-369-11	s	INDUCTOR CHIP 1uH
L202	1-410-369-11	s	INDUCTOR CHIP 1uH
L203	1-410-369-11	s	INDUCTOR CHIP 1uH
L301	1-410-369-11	s	INDUCTOR CHIP 1uH
L400	1-410-369-11	s	INDUCTOR CHIP 1uH
L401	1-410-369-11	s	INDUCTOR CHIP 1uH
L402	1-410-369-11	s	INDUCTOR CHIP 1uH
L500	1-410-369-11	s	INDUCTOR CHIP 1uH
L501	1-410-369-11	s	INDUCTOR CHIP 1uH
L502	1-410-369-11	s	INDUCTOR CHIP 1uH
L601	1-410-369-11	s	INDUCTOR CHIP 1uH
L602	1-410-369-11	s	INDUCTOR CHIP 1uH
L603	1-410-369-11	s	INDUCTOR CHIP 1uH
L700	1-410-369-11	s	INDUCTOR CHIP 1uH
Q1	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q2	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q20	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q30	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q101	8-729-122-63	s	TRANSISTOR 2SA1226
Q102	8-729-122-63	s	TRANSISTOR 2SA1226
Q103	8-729-122-63	s	TRANSISTOR 2SA1226
Q109	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q110	8-729-117-32	s	TRANSISTOR 2SC4177
Q205	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q206	8-729-117-32	s	TRANSISTOR 2SC4177
Q207	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q210	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q211	8-729-117-32	s	TRANSISTOR 2SC4177
Q250	8-729-117-32	s	TRANSISTOR 2SC4177
Q251	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q252	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q271	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q272	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q273	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q352	8-729-920-48	s	TRANSISTOR IMH2
Q353	8-729-920-48	s	TRANSISTOR IMH2
Q354	8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q401	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q402	8-729-117-32	s	TRANSISTOR 2SC4177
Q403	8-729-026-32	s	TRANSISTOR XP6534
Q404	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q405	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q406	8-729-117-32	s	TRANSISTOR 2SC4177
Q410	8-729-026-32	s	TRANSISTOR XP6534

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Ref. No. or Q'ty	Part No.	SP	Description
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q413	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q414	8-729-117-32	s	TRANSISTOR 2SC4177
Q420	8-729-026-32	s	TRANSISTOR XP6534
Q421	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q422	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q423	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q424	8-729-117-32	s	TRANSISTOR 2SC4177
Q430	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q431	8-729-117-32	s	TRANSISTOR 2SC4177
Q500	8-729-026-32	s	TRANSISTOR XP6534
Q501	8-729-122-63	s	TRANSISTOR 2SA1226
Q502	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q503	8-729-026-32	s	TRANSISTOR XP6534
Q504	8-729-122-63	s	TRANSISTOR 2SA1226
Q505	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q506	8-729-026-32	s	TRANSISTOR XP6534
Q507	8-729-122-63	s	TRANSISTOR 2SA1226
Q508	8-729-102-08	s	TRANSISTOR 2SC2223-F14
Q509	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q510	8-729-117-32	s	TRANSISTOR 2SC4177
Q701	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q702	8-729-800-37	s	TRANSISTOR 2SD1048-X7
Q703	8-729-141-48	s	TRANSISTOR 2SB624-BV345
R1	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R2	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R8	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R9	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R10	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R14	1-218-723-11	s	METAL 20K 0.50% 1/16W
R15	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R23	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R24	1-218-723-11	s	METAL 20K 0.50% 1/16W
R25	1-218-723-11	s	METAL 20K 0.50% 1/16W
R33	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R34	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R35	1-218-723-11	s	METAL 20K 0.50% 1/16W
R100	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R101	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R102	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R103	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R104	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R105	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R110	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R111	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R151	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R152	1-218-748-11	s	CHIP, METAL 220K 0.50% 1/16W
R153	1-218-740-11	s	METAL 100K 0.50% 1/16W
R154	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R155	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R156	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R198	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R199	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R200	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R201	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R202	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R203	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R204	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R205	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R206	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R207	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R208	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R209	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R210	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R211	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R212	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R213	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R214	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R221	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R222	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R224	1-211-981-11	s	CHIP, METAL 33 0.50% 1/16W
R225	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R226	1-218-688-11	s	METAL 680 0.50% 1/16W
R227	1-218-883-11	s	METAL 33K 0.50% 1/16W
R228	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R229	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R230	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R250	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R253	1-218-883-11	s	METAL 33K 0.50% 1/16W
R254	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R256	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R257	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R258	1-218-722-11	s	CHIP, METAL 18K 0.50% 1/16W
R259	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R261	1-218-716-11	s	CHIP, METAL 10K 0.5% 1/16W
R263	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R264	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R271	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R272	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R273	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R274	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R275	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R276	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R277	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R278	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R279	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R310	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R311	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R315	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R320	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R321	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R322	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R323	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R324	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R325	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R326	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R327	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R328	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R329	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R351	1-218-716-11	s	METAL 10K 0.50% 1/16W
R352	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R353	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R354	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R361	1-216-864-11	s	METAL, CHIP 0 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R400	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R401	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R402	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R403	1-218-836-11	s	CHIP, METAL 360 0.50% 1/16W
R404	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R405	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R406	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R407	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R408	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R409	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R410	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R411	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R412	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R413	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R414	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R415	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R416	1-218-672-11	s	METAL 150 0.50% 1/16W
R417	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R418	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R419	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R420	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R421	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R422	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R423	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R424	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R425	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R426	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R427	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R428	1-218-672-11	s	METAL 150 0.50% 1/16W
R429	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R430	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R431	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R432	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R433	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R434	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R435	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R436	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R437	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R438	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R439	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R440	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R441	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R442	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R443	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R444	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R445	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R446	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R447	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R448	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R500	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R501	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R502	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R503	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R504	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R505	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R506	1-218-671-11	s	CHIP, METAL 130 0.50% 1/16W
R507	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R508	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R509	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R510	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R511	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R512	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R513	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R514	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R515	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R516	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R517	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R518	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R519	1-218-650-11	s	METAL, CHIP 18 0.50% 1/16
R520	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R521	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R522	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R523	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R524	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R525	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R526	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R527	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R528	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R529	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R530	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R531	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R532	1-218-694-11	s	CHIP, METAL 1.2K 0.50% 1/16W
R533	1-218-846-11	s	CHIP, METAL 910 0.50% 1/16W
R534	1-211-992-11	s	CHIP,METAL 91 0.50% 1/16W
R535	1-218-840-11	s	CHIP, METAL 510 0.50% 1/16W
R536	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R537	1-218-664-11	s	CHIP, METAL 68 0.50% 1/16W
R538	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R539	1-218-660-91	s	CHIP, METAL 47 0.50% 1/16W
R540	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R541	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R542	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R543	1-218-867-11	s	CHIP, METAL 6.8K 0.50% 1/16W
R544	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R545	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R546	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R547	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R548	1-218-716-11	s	METAL 10K 0.50% 1/16W
R549	1-218-740-11	s	METAL 100K 0.50% 1/16W
R550	1-218-740-11	s	METAL 100K 0.50% 1/16W
R551	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R552	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R553	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R554	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R555	1-218-716-11	s	METAL 10K 0.50% 1/16W
R601	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R602	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R603	1-218-670-11	s	METAL 120 0.50% 1/16W
R604	1-218-680-11	s	METAL 330 0.50% 1/16W
R605	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R606	1-218-883-11	s	METAL 33K 0.50% 1/16W
R607	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R621	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R622	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R623	1-218-648-11	s	METAL 15 0.50% 1/16W
R624	1-218-680-11	s	METAL 330 0.50% 1/16W
R625	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R626	1-218-883-11	s	METAL 33K 0.50% 1/16W

(IF-510 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R627	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R641	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R642	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R643	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R644	1-218-680-11	s	METAL 330 0.50% 1/16W
R645	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R646	1-218-883-11	s	METAL 33K 0.50% 1/16W
R647	1-211-990-11	s	CHIP, METAL 75 0.50% 1/16W
R701	1-218-732-11	s	METAL 47K 0.50% 1/16W
R702	1-218-716-11	s	METAL 10K 0.50% 1/16W
R703	1-218-723-11	s	METAL 20K 0.50% 1/16W
R704	1-218-725-11	s	METAL 24K 0.50% 1/16W
R705	1-218-732-11	s	METAL 47K 0.50% 1/16W
R706	1-218-732-11	s	METAL 47K 0.50% 1/16W
R707	1-218-883-11	s	METAL 33K 0.50% 1/16W
R708	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R709	1-216-631-11	s	METAL 150 0.50% 1/10W
R710	1-216-631-11	s	METAL 150 0.50% 1/10W
R711	1-216-631-11	s	METAL 150 0.50% 1/10W
R712	1-216-631-11	s	METAL 150 0.50% 1/10W
R713	1-216-631-11	s	METAL 150 0.50% 1/10W
R714	1-216-631-11	s	METAL 150 0.50% 1/10W
R715	1-218-727-11	s	METAL 30K 0.50% 1/16W
R716	1-218-716-11	s	METAL 10K 0.50% 1/16W
R717	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R718	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R719	1-218-716-11	s	METAL 10K 0.50% 1/16W
R721	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R722	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
RV101	1-241-260-11	s	METAL, ADJ 500
S1	1-572-272-11	s	SWITCH, SLIDE

MB-602 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc A-8269-358-A o MOUNTED CIRCUIT BOARD, MB-602
15pcs 3-729-061-01 s SCREW (M2X4.5) (TYPE 1)

C1 1-164-156-11 s CERAMIC 0.1uF 25V
C2 1-164-156-11 s CERAMIC 0.1uF 25V
C3 1-164-156-11 s CERAMIC 0.1uF 25V
C4 1-164-156-11 s CERAMIC 0.1uF 25V
C5 1-164-156-11 s CERAMIC 0.1uF 25V

C6 1-164-156-11 s CERAMIC 0.1uF 25V
C7 1-164-156-11 s CERAMIC 0.1uF 25V
C8 1-164-156-11 s CERAMIC 0.1uF 25V
C9 1-164-156-11 s CERAMIC 0.1uF 25V
C10 1-164-156-11 s CERAMIC 0.1uF 25V

C11 1-164-156-11 s CERAMIC 0.1uF 25V
C12 1-164-156-11 s CERAMIC 0.1uF 25V
C13 1-164-156-11 s CERAMIC 0.1uF 25V
C14 1-164-156-11 s CERAMIC 0.1uF 25V
C15 1-164-156-11 s CERAMIC 0.1uF 25V

C16 1-164-156-11 s CERAMIC 0.1uF 25V
C17 1-164-156-11 s CERAMIC 0.1uF 25V
C18 1-164-156-11 s CERAMIC 0.1uF 25V
C19 1-164-156-11 s CERAMIC 0.1uF 25V
C20 1-164-156-11 s CERAMIC 0.1uF 25V

C21 1-164-156-11 s CERAMIC 0.1uF 25V
C22 1-164-156-11 s CERAMIC 0.1uF 25V
C23 1-164-156-11 s CERAMIC 0.1uF 25V
C24 1-164-156-11 s CERAMIC 0.1uF 25V
C25 1-164-156-11 s CERAMIC 0.1uF 25V

C26 1-164-156-11 s CERAMIC 0.1uF 25V
C27 1-164-156-11 s CERAMIC 0.1uF 25V
C28 1-164-156-11 s CERAMIC 0.1uF 25V
C29 1-164-156-11 s CERAMIC 0.1uF 25V
C30 1-164-156-11 s CERAMIC 0.1uF 25V

C31 1-164-156-11 s CERAMIC 0.1uF 25V

CN7 1-569-629-11 s HOUSING, 24P
CN11 1-569-532-11 s HOUSING, 30P
CN12 1-569-532-11 s HOUSING, 30P
CN13 1-569-532-11 s HOUSING, 30P
CN14 1-569-531-11 s HOUSING, 20P

CN15 1-764-088-11 o PIN, CONNECTOR (PC BOARD) 3P
CN21 1-764-093-21 o PIN, CONNECTOR (PC BOARD) 8P
CN22 1-774-260-11 o CONNECTOR, FFC (ZIF) 20P
CN23 1-774-261-21 o CONNECTOR, FFC (ZIF) 24P
CN31 1-750-934-21 o PIN, CONNECTOR 20P

CN32 1-764-097-11 o PIN, CONNECTOR (PC BOARD) 12P
CN41 1-569-629-11 s HOUSING, 24P
CN42 1-750-635-21 o PIN, CONNECTOR (PC BOARD) 5P
CN51 1-770-580-11 o SOCKET, CONNECTOR(PCB-PCB) 26P

D1 8-719-042-14 s DIODE DE5LC20U-TA2

IC1 8-759-080-02 s IC TC74VHC541FS(EL)
IC2 8-759-080-02 s IC TC74VHC541FS(EL)
IC3 8-759-080-02 s IC TC74VHC541FS(EL)
IC4 8-759-080-02 s IC TC74VHC541FS(EL)
IC5 8-759-086-42 s IC X24C02S-3.0-C7000

Q1 8-729-119-61 s TRANSISTOR 2SA811A-C15
Q2 8-729-271-32 s TRANSISTOR 2SC2713-L

R1 1-216-864-11 s METAL, CHIP 0 5% 1/16W

(MB-602 BOARD)

Ref. No.
or Q'ty Part No. SP Description

R2 1-216-864-11 s METAL, CHIP 0 5% 1/16W
R3 1-216-864-11 s METAL, CHIP 0 5% 1/16W
R4 1-216-864-11 s METAL, CHIP 0 5% 1/16W
R6 1-216-864-11 s METAL, CHIP 0 5% 1/16W
R7 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

R8 1-216-842-11 s METAL, CHIP 56K 5% 1/16W
R9 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
R10 1-216-833-11 s METAL, CHIP 10K 5% 1/16W
R11 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W
R12 1-216-845-11 s METAL, CHIP 100K 5% 1/16W

RB1 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB2 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB3 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB4 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB5 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)

RB6 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB7 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)
RB8 1-239-409-11 s NETWORK, RESISTOR (CHIP TYPE)

S1 1-572-272-11 s SWITCH, SLIDE

PR-211 BOARD

Ref. No.
or Q'ty Part No. SP Description

1pc A-8269-357-A o MOUNTED CIRCUIT BOARD, PR-211

SG-234 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-361-A	o	MOUNTED CIRCUIT BOARD, SG-234
1pc	3-692-127-02	o	PANEL,SG-234 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C2	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C3	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
C5	1-164-156-11	s	CERAMIC 0.1uF 25V
C6	1-135-164-21	s	TANTALUM, CHIP 22uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C9	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C10	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C11	1-164-156-11	s	CERAMIC 0.1uF 25V
C12	1-164-156-11	s	CERAMIC 0.1uF 25V
C13	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C14	1-164-156-11	s	CERAMIC 0.1uF 25V
C15	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C25	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C26	1-164-156-11	s	CERAMIC 0.1uF 25V
C27	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C28	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C29	1-164-156-11	s	CERAMIC 0.1uF 25V
C30	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C31	1-164-156-11	s	CERAMIC 0.1uF 25V
C32	1-162-915-11	s	CERAMIC, CHIP 10PF 5PF 50V
C33	1-164-156-11	s	CERAMIC 0.1uF 25V
C34	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C35	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C36	1-164-156-11	s	CERAMIC 0.1uF 25V
C37	1-164-156-11	s	CERAMIC 0.1uF 25V
C38	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C39	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C41	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-162-925-11	s	CERAMIC, CHIP 68PF 5% 50V
C45	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C46	1-164-346-11	s	CERAMIC 1uF 16V
C47	1-164-156-11	s	CERAMIC 0.1uF 25V
C48	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C51	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C52	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C53	1-164-156-11	s	CERAMIC 0.1uF 25V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-165-128-11	s	CERAMIC 0.22uF 16V
C57	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C58	1-164-156-11	s	CERAMIC 0.1uF 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C64	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C65	1-164-156-11	s	CERAMIC 0.1uF 25V

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C66	1-164-156-11	s	CERAMIC 0.1uF 25V
C67	1-164-156-11	s	CERAMIC 0.1uF 25V
C68	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C69	1-164-156-11	s	CERAMIC 0.1uF 25V
C70	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C71	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C72	1-135-217-21	s	TANTAL 15uF 20% 6.3
C73	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C74	1-164-156-11	s	CERAMIC 0.1uF 25V
C75	1-164-156-11	s	CERAMIC 0.1uF 25V
C76	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C77	1-164-156-11	s	CERAMIC 0.1uF 25V
C78	1-164-156-11	s	CERAMIC 0.1uF 25V
C79	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C80	1-164-315-11	s	CERAMIC 470PF 5% 50V
C81	1-128-391-11	s	ELECT 330uF 20% 6.3V
C82	1-164-156-11	s	CERAMIC 0.1uF 25V
C83	1-164-156-11	s	CERAMIC 0.1uF 25V
C85	1-164-156-11	s	CERAMIC 0.1uF 25V
C87	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C88	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C89	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C90	1-164-156-11	s	CERAMIC 0.1uF 25V
C92	1-164-156-11	s	CERAMIC 0.1uF 25V
C93	1-164-156-11	s	CERAMIC 0.1uF 25V
C94	1-164-156-11	s	CERAMIC 0.1uF 25V
C95	1-135-178-11	s	TANTALUM CHIP 1.5uF 20% 20V
C96	1-164-156-11	s	CERAMIC 0.1uF 25V
C97	1-135-179-21	s	TANTAL 2.2uF 10% 16V
C98	1-164-156-11	s	CERAMIC 0.1uF 25V
C99	1-164-156-11	s	CERAMIC 0.1uF 25V
C100	1-164-156-11	s	CERAMIC 0.1uF 25V
C200	1-164-156-11	s	CERAMIC 0.1uF 25V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-948-47	s	DIODE HSM88AS
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D6	8-719-404-35	s	DIODE MA141WK
D7	8-719-404-35	s	DIODE MA141WK
D8	8-719-041-68	s	DIODE RD3.3UH-T1
D10	8-719-948-47	s	DIODE HSM88AS
D11	8-719-820-41	s	DIODE 1SS302
D12	8-719-948-47	s	DIODE HSM88AS
D13	8-719-948-47	s	DIODE HSM88AS
D14	8-719-948-47	s	DIODE HSM88AS
D200	8-719-820-41	s	DIODE 1SS302
D201	8-719-948-47	s	DIODE HSM88AS
FL1	1-239-756-11	s	FILTER, LOW PASS
IC3	8-759-076-06	s	IC TL064CPW
IC5	8-759-254-49	s	IC EL4581CS-TE2
IC8	8-759-082-57	s	IC TC7W04FU
IC11	8-759-082-58	s	IC TC7W08FU
IC12	8-759-064-36	s	IC MB88346BPFV
IC13	8-759-066-59	s	IC TC74HC4053AFS
IC16	8-752-360-44	s	IC CXK1203AR
IC17	8-759-082-61	s	IC TC4W53FU

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC18	8-759-632-39	s	IC M51958A-T1
IC20	8-759-058-62	s	IC TC7S08FU(TE85R)
IC21	8-759-086-42	s	IC X24C02S-3.0-C7000
IC22	8-759-271-86	s	IC TC7SH04FU
IC25	8-759-079-85	s	IC TC74VHC244FS(EL)
IC30	8-759-079-85	s	IC TC74VHC244FS(EL)
IC31	8-759-271-86	s	IC TC7SH04FU
IC32	8-759-076-06	s	IC TL064CPW
IC33	8-759-066-59	s	IC TC74HC4053AFS
IC34	8-759-184-64	s	IC TC4W66FU
IC35	8-759-049-86	s	IC SN74HCT244APW-E20
IC36	8-759-180-08	s	IC TC74HC4538AFS
IC37	8-759-082-58	s	IC TC7W08FU
IC38	8-759-083-94	s	IC TC7W74FU
IC39	8-759-195-81	s	IC TC7S86FU
IC40	8-759-082-60	s	IC TC7S66FU
IC41	8-759-082-61	s	IC TC4W53FU
IC42	8-759-049-86	s	IC SN74HCT244APW-E20
IC43	8-759-058-54	s	IC TC7S00FU(TE85R)
IC44	8-759-082-61	s	IC TC4W53FU
IC45	8-759-271-86	s	IC TC7SH04FU
IC46	8-759-082-61	s	IC TC4W53FU
IC47	8-759-082-61	s	IC TC4W53FU
IC48	8-759-173-16	s	IC TL062CPW
IC200	8-759-079-61	s	IC TC74VHC74FS(EL)
IC201	8-759-058-58	s	IC TC7S04FU(TE85R)
IC202	8-759-058-64	s	IC TC7S32FU(TE85R)
IC203	8-759-058-62	s	IC TC7S08FU(TE85R)
IC204	8-759-082-61	s	IC TC4W53FU
IC206	8-759-173-16	s	IC TL062CPW
IC207	8-759-058-55	s	IC TC7S02FU-TE85L
L1	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L2	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L4	1-410-737-31	s	INDUCTOR CHIP 0.47uH
L5	1-410-385-11	s	INDUCTOR, CHIP 22uH
L6	1-410-385-11	s	INDUCTOR, CHIP 22uH
L7	1-410-385-11	s	INDUCTOR, CHIP 22uH
L8	1-410-385-11	s	INDUCTOR, CHIP 22uH
L9	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q4	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q5	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q6	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q7	8-729-117-32	s	TRANSISTOR 2SC4177
Q8	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q9	8-729-117-32	s	TRANSISTOR 2SC4177
Q10	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q11	8-729-117-32	s	TRANSISTOR 2SC4177
Q12	8-729-403-29	s	TRANSISTOR XN6435
Q14	8-729-117-32	s	TRANSISTOR 2SC4177
Q15	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q16	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q17	8-729-117-32	s	TRANSISTOR 2SC4177
Q18	8-729-920-48	s	TRANSISTOR IMH2
Q20	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q21	8-729-118-56	s	TRANSISTOR 2SK852-X2
Q22	8-729-029-14	s	TRANSISTOR DTC144EUA-T106

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q23	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q24	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q25	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q26	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q200	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q201	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q202	8-729-216-22	s	TRANSISTOR 2SA1162
Q203	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q204	8-729-029-14	s	TRANSISTOR DTC144EUA-T106
Q205	8-729-117-32	s	TRANSISTOR 2SC4177
R1	1-218-716-11	s	METAL 10K 0.50% 1/16W
R2	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R3	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R5	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R6	1-218-677-11	s	CHIP, METAL 240 0.50% 1/16W
R7	1-218-723-11	s	METAL 20K 0.50% 1/16W
R8	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R9	1-218-729-11	s	CHIP, METAL 36K 0.50% 1/16W
R10	1-218-723-11	s	METAL 20K 0.50% 1/16W
R11	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R15	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R16	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R17	1-218-720-11	s	METAL 15K 0.50% 1/16W
R18	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R21	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R22	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R23	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R28	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R29	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W
R31	1-218-716-11	s	METAL 10K 0.50% 1/16W
R32	1-218-720-11	s	METAL 15K 0.50% 1/16W
R33	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R34	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R35	1-218-732-11	s	METAL 47K 0.50% 1/16W
R36	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R37	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R38	1-218-716-11	s	METAL 10K 0.50% 1/16W
R39	1-218-736-11	s	METAL 68K 0.50% 1/16W
R40	1-218-889-11	s	CHIP, METAL 56K 0.50% 1/16W
R41	1-218-716-11	s	METAL 10K 0.50% 1/16W
R42	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R43	1-218-740-11	s	METAL 100K 0.50% 1/16W
R44	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R45	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R46	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R47	1-218-716-11	s	METAL 10K 0.50% 1/16W
R48	1-218-720-11	s	METAL 15K 0.50% 1/16W
R49	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R50	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R54	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R55	1-218-706-11	s	METAL 3.9K 0.50% 1/16W
R56	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R57	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R58	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R59	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R60	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R61	1-218-833-11	s	CHIP, METAL 270 0.50% 1/16W
R62	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R63	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R64	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R65	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R66	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R67	1-218-881-11	s	CHIP, METAL 27K 0.50% 1/16W
R68	1-218-716-11	s	METAL 10K 0.50% 1/16W
R69	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R71	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R77	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R78	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R79	1-218-716-11	s	METAL 10K 0.50% 1/16W
R80	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R81	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R83	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R84	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R85	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R86	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R90	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R92	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R95	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R96	1-218-716-11	s	METAL 10K 0.50% 1/16W
R97	1-218-716-11	s	METAL 10K 0.50% 1/16W
R98	1-218-716-11	s	METAL 10K 0.50% 1/16W
R99	1-218-883-11	s	METAL 33K 0.50% 1/16W
R100	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R101	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R102	1-218-740-11	s	METAL 100K 0.50% 1/16W
R103	1-218-732-11	s	METAL 47K 0.50% 1/16W
R104	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R105	1-218-716-11	s	METAL 10K 0.50% 1/16W
R106	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R107	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R108	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R109	1-218-732-11	s	METAL 47K 0.50% 1/16W
R110	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R111	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R112	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R113	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R114	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R115	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R116	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R117	1-218-716-11	s	METAL 10K 0.50% 1/16W
R118	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R119	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R121	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R122	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R123	1-218-716-11	s	METAL 10K 0.50% 1/16W
R124	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R126	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R127	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R128	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R129	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R130	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W

(SG-234 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R131	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R132	1-218-732-11	s	METAL 47K 0.50% 1/16W
R133	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R134	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R135	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R136	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R137	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R138	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R139	1-218-697-11	s	METAL 1.6K 0.50% 1/16W
R140	1-218-899-11	s	CHIP, METAL 150K 0.50% 1/16W
R141	1-218-868-11	s	CHIP, METAL 7.5K 0.50% 1/16W
R144	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R145	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R146	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R148	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R149	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R150	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R151	1-218-732-11	s	METAL 47K 0.50% 1/16W
R152	1-218-732-11	s	METAL 47K 0.50% 1/16W
R153	1-218-732-11	s	METAL 47K 0.50% 1/16W
R154	1-218-732-11	s	METAL 47K 0.50% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R202	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R203	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R204	1-218-716-11	s	METAL 10K 0.50% 1/16W
R205	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R206	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R207	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R208	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R209	1-218-716-11	s	METAL 10K 0.50% 1/16W
R210	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R211	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RB1	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB2	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB3	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB4	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB5	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)
RB10	1-239-409-11	s	NETWORK, RESISTOR (CHIP TYPE)

SW-730 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-443-11	o	PRINTED CIRCUIT BOARD, SW-730
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
CN801	1-764-082-21	s	PIN, CONNECTOR (PC BOARD) 11P
D1	8-719-106-43	s	DIODE RD9.1M-B1
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R12	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R13	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R14	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R15	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
S1	1-571-415-11	s	SWITCH, TOGGLE
S2	1-571-415-11	s	SWITCH, TOGGLE
S3	1-571-415-11	s	SWITCH, TOGGLE
S4	1-571-415-11	s	SWITCH, TOGGLE

SW-731 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-444-12	o	PRINTED CIRCUIT BOARD, SW-731
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C4	1-164-156-11	s	CERAMIC 0.1uF 25V
CN501	1-695-207-21	o	PIN, CONNECTOR (PC BOARD) 6P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R8	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R9	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R10	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R11	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
RV1	1-223-686-11	s	RES, VAR, CARBON 5K/5K
S1	1-571-416-11	s	SWITCH, TOGGLE
S2	1-571-679-11	s	SWITCH, TOGGLE
S3	1-570-282-21	s	SWITCH, KEY BOARD

SW-732 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-442-12	o	PRINTED CIRCUIT BOARD, SW-732
C1	1-164-156-11	s	CERAMIC 0.1uF 25V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
CN301	1-750-635-21	o	PIN, CONNECTOR (PC BOARD) 5P
IC1	8-759-175-04	s	IC PCF8574T-T
R1	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R2	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R3	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R4	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R5	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R6	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R7	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R8	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R9	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R10	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-570-985-11	s	SWITCH, TOGGLE
S3	1-571-396-11	s	SWITCH, TOGGLE

SW-733 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-445-11	o	PRINTED CIRCUIT BOARD, SW-733
CN701	1-764-079-21	s	PIN, CONNECTOR (PC BOARD) 4P
S1	1-473-315-11	s	ENCODER, ROTARY

SW-742 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-657-446-11	o	PRINTED CIRCUIT BOARD, SW-742
CN601	1-764-078-11	s	PIN, CONNECTOR (PC BOARD) 3P
S1	1-554-088-00	s	SWITCH, TACTILE

VA-163 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-359-A	o	MOUNTED CIRCUIT BOARD, VA-163
1pc	3-692-125-02	o	PANEL,VA-163 PC BOARD
1pc	3-724-753-01	o	RING
6pcs	3-729-061-01	s	SCREW (M2X4.5) (TYPE 1)
C1	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C2	1-164-156-11	s	CERAMIC 0.1uF 25V
C3	1-164-156-11	s	CERAMIC 0.1uF 25V
C4	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C5	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C6	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C7	1-164-156-11	s	CERAMIC 0.1uF 25V
C8	1-164-156-11	s	CERAMIC 0.1uF 25V
C9	1-135-217-21	s	TANTAL 15uF 20% 6.3
C10	1-164-156-11	s	CERAMIC 0.1uF 25V
C11	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-126-391-11	s	ELECT 47uF 20% 6.3V
C13	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C14	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C15	1-135-125-21	s	TANTAL 33uF 20% 10V
C16	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C17	1-126-391-11	s	ELECT 47uF 20% 6.3V
C18	1-164-156-11	s	CERAMIC 0.1uF 25V
C19	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C20	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C21	1-164-156-11	s	CERAMIC 0.1uF 25V
C22	1-164-156-11	s	CERAMIC 0.1uF 25V
C23	1-164-156-11	s	CERAMIC 0.1uF 25V
C24	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C25	1-164-156-11	s	CERAMIC 0.1uF 25V
C26	1-164-217-11	s	CERAMIC 150PF 5% 50V
C27	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C30	1-164-156-11	s	CERAMIC 0.1uF 25V
C31	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C32	1-164-156-11	s	CERAMIC 0.1uF 25V
C40	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C41	1-164-156-11	s	CERAMIC 0.1uF 25V
C42	1-164-156-11	s	CERAMIC 0.1uF 25V
C43	1-164-156-11	s	CERAMIC 0.1uF 25V
C44	1-164-156-11	s	CERAMIC 0.1uF 25V
C45	1-164-156-11	s	CERAMIC 0.1uF 25V
C46	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C47	1-162-964-11	s	CERAMIC 0.001uF 10% 50V
C48	1-164-156-11	s	CERAMIC 0.1uF 25V
C49	1-164-156-11	s	CERAMIC 0.1uF 25V
C50	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C51	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C52	1-104-559-11	s	FILM, CHIP 0.047uF 5% 16V
C53	1-164-315-11	s	CERAMIC 470PF 5% 50V
C54	1-164-156-11	s	CERAMIC 0.1uF 25V
C55	1-164-156-11	s	CERAMIC 0.1uF 25V
C56	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C58	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C59	1-164-156-11	s	CERAMIC 0.1uF 25V
C60	1-164-156-11	s	CERAMIC 0.1uF 25V
C61	1-164-156-11	s	CERAMIC 0.1uF 25V
C62	1-164-156-11	s	CERAMIC 0.1uF 25V
C63	1-164-156-11	s	CERAMIC 0.1uF 25V
C64	1-164-156-11	s	CERAMIC 0.1uF 25V

(VA-163 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C65	1-135-217-21	s	TANTAL 15uF 20% 6.3
C66	1-135-217-21	s	TANTAL 15uF 20% 6.3
C67	1-135-217-21	s	TANTAL 15uF 20% 6.3
C68	1-164-156-11	s	CERAMIC 0.1uF 25V
C69	1-135-217-21	s	TANTAL 15uF 20% 6.3
C70	1-135-217-21	s	TANTAL 15uF 20% 6.3
C71	1-135-217-21	s	TANTAL 15uF 20% 6.3
C72	1-164-156-11	s	CERAMIC 0.1uF 25V
C73	1-162-918-11	s	CERAMIC, CHIP 18PF 5% 50V
C124	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C125	1-107-685-11	s	TANTALUM 15uF 20% 6.3V
C200	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C201	1-164-156-11	s	CERAMIC 0.1uF 25V
C202	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C203	1-164-156-11	s	CERAMIC 0.1uF 25V
C204	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C205	1-164-156-11	s	CERAMIC 0.1uF 25V
C207	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C208	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C209	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C211	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C212	1-164-156-11	s	CERAMIC 0.1uF 25V
C214	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C215	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C216	1-164-156-11	s	CERAMIC 0.1uF 25V
C217	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C218	1-164-156-11	s	CERAMIC 0.1uF 25V
C219	1-164-156-11	s	CERAMIC 0.1uF 25V
C220	1-164-156-11	s	CERAMIC 0.1uF 25V
C221	1-164-156-11	s	CERAMIC 0.1uF 25V
C223	1-164-156-11	s	CERAMIC 0.1uF 25V
C224	1-104-608-11	s	ELECT 33uF 20% 6.3V
C225	1-135-217-21	s	TANTAL 15uF 20% 6.3
C226	1-135-217-21	s	TANTAL 15uF 20% 6.3
C227	1-164-156-11	s	CERAMIC 0.1uF 25V
C228	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C229	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C230	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C231	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C232	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C233	1-164-156-11	s	CERAMIC 0.1uF 25V
C234	1-164-156-11	s	CERAMIC 0.1uF 25V
C235	1-164-156-11	s	CERAMIC 0.1uF 25V
C236	1-164-156-11	s	CERAMIC 0.1uF 25V
C237	1-164-156-11	s	CERAMIC 0.1uF 25V
C238	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C239	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C240	1-162-924-11	s	CERAMIC 56PF 5% 50V
C242	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C243	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C259	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C300	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C301	1-164-156-11	s	CERAMIC 0.1uF 25V
C302	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C303	1-164-156-11	s	CERAMIC 0.1uF 25V
C304	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C305	1-164-156-11	s	CERAMIC 0.1uF 25V
C307	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C308	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V

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Ref. No. or Q'ty	Part No.	SP	Description
C309	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C311	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C312	1-164-156-11	s	CERAMIC 0.1uF 25V
C314	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C315	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C316	1-164-156-11	s	CERAMIC 0.1uF 25V
C317	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C318	1-164-156-11	s	CERAMIC 0.1uF 25V
C319	1-164-156-11	s	CERAMIC 0.1uF 25V
C320	1-164-156-11	s	CERAMIC 0.1uF 25V
C321	1-164-156-11	s	CERAMIC 0.1uF 25V
C323	1-164-156-11	s	CERAMIC 0.1uF 25V
C324	1-104-608-11	s	ELECT 33uF 20% 6.3V
C325	1-135-217-21	s	TANTAL 15uF 20% 6.3
C326	1-135-217-21	s	TANTAL 15uF 20% 6.3
C327	1-164-156-11	s	CERAMIC 0.1uF 25V
C328	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C329	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C330	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C331	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C332	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C333	1-164-156-11	s	CERAMIC 0.1uF 25V
C334	1-164-156-11	s	CERAMIC 0.1uF 25V
C335	1-164-156-11	s	CERAMIC 0.1uF 25V
C336	1-164-156-11	s	CERAMIC 0.1uF 25V
C337	1-164-156-11	s	CERAMIC 0.1uF 25V
C338	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C339	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C340	1-162-924-11	s	CERAMIC 56PF 5% 50V
C342	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C343	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C359	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C400	1-135-214-21	s	TANTAL 4.7uF 20% 20V
C401	1-164-156-11	s	CERAMIC 0.1uF 25V
C402	1-135-165-11	s	TANTALUM, CHIP 33uF 10% 16V
C403	1-164-156-11	s	CERAMIC 0.1uF 25V
C404	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C405	1-164-156-11	s	CERAMIC 0.1uF 25V
C407	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C408	1-126-392-11	s	ELECT, CHIP 100uF 20% 6.3V
C409	1-162-908-11	s	CERAMIC 3PF 0.25PF 50V
C411	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C412	1-164-156-11	s	CERAMIC 0.1uF 25V
C414	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C415	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C416	1-164-156-11	s	CERAMIC 0.1uF 25V
C417	1-162-909-11	s	CERAMIC 4PF 0.25PF 50V
C418	1-164-156-11	s	CERAMIC 0.1uF 25V
C419	1-164-156-11	s	CERAMIC 0.1uF 25V
C420	1-164-156-11	s	CERAMIC 0.1uF 25V
C421	1-164-156-11	s	CERAMIC 0.1uF 25V
C423	1-164-156-11	s	CERAMIC 0.1uF 25V
C424	1-104-608-11	s	ELECT 33uF 20% 6.3V
C425	1-135-217-21	s	TANTAL 15uF 20% 6.3
C426	1-135-217-21	s	TANTAL 15uF 20% 6.3
C427	1-164-156-11	s	CERAMIC 0.1uF 25V
C428	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C429	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C430	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C431	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C432	1-104-852-11	s	TANTALUM, CHIP 22uF 20% 10V
C433	1-164-156-11	s	CERAMIC 0.1uF 25V
C434	1-164-156-11	s	CERAMIC 0.1uF 25V
C435	1-164-156-11	s	CERAMIC 0.1uF 25V
C436	1-164-156-11	s	CERAMIC 0.1uF 25V
C437	1-164-156-11	s	CERAMIC 0.1uF 25V
C438	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C439	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C440	1-162-924-11	s	CERAMIC 56PF 5% 50V
C442	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C443	1-135-210-11	s	TANTALUM 4.7uF 10% 10V
C459	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
CT200	1-141-311-11	s	CAP, VAR, TRIMMER
CT300	1-141-311-11	s	CAP, VAR, TRIMMER
CT400	1-141-311-11	s	CAP, VAR, TRIMMER
D1	8-719-029-63	s	DIODE RD4.3UH-T1
D2	8-719-029-63	s	DIODE RD4.3UH-T1
D3	8-719-029-63	s	DIODE RD4.3UH-T1
D4	8-719-029-63	s	DIODE RD4.3UH-T1
D5	8-719-820-41	s	DIODE 1SS302
D7	8-719-974-76	s	DIODE HSM107S
D8	8-719-820-41	s	DIODE 1SS302
D9	8-719-820-41	s	DIODE 1SS302
D10	8-719-820-41	s	DIODE 1SS302
FL200	1-402-639-11	s	FILTER, TRAP
FL300	1-402-639-11	s	FILTER, TRAP
FL400	1-402-639-11	s	FILTER, TRAP
IC1	8-759-076-06	s	IC TL064CPW
IC3	8-759-066-68	s	IC REF-03GS
IC5	8-759-180-08	s	IC TC74HC4538AFS
IC6	8-759-175-02	s	IC TL074CPW-ELM1000
IC7	8-759-058-64	s	IC TC7S32FU(TE85R)
IC8	8-759-082-60	s	IC TC7S66FU
IC9	8-759-085-67	s	IC LM339NS
IC10	8-759-058-58	s	IC TC7S04FU(TE85R)
IC11	8-759-058-58	s	IC TC7S04FU(TE85R)
IC12	8-759-175-02	s	IC TL074CPW-ELM1000
IC13	8-759-082-60	s	IC TC7S66FU
IC14	8-759-082-60	s	IC TC7S66FU
IC15	8-759-076-06	s	IC TL064CPW
IC16	8-759-326-65	s	IC MP7670AS-TE2
IC17	8-759-066-59	s	IC TC74HC4053AFS
IC18	8-759-326-65	s	IC MP7670AS-TE2
IC19	8-759-175-02	s	IC TL074CPW-ELM1000
IC20	8-759-237-79	s	IC TC74HC595AF(EL)
IC21	8-759-064-36	s	IC MB88346BPFV
IC22	8-759-066-59	s	IC TC74HC4053AFS
IC23	8-759-049-60	s	IC SN74HC08APW-E05
IC24	8-759-059-50	s	IC MB88351PFV
IC25	8-759-058-58	s	IC TC7S04FU(TE85R)
IC26	8-759-086-42	s	IC X24C02S-3.0-C7000
IC27	8-759-058-62	s	IC TC7S08FU(TE85R)
IC200	8-759-076-06	s	IC TL064CPW
IC201	8-759-082-61	s	IC TC4W53FU
IC202	8-752-068-64	s	IC CXA1486Q-TH
IC203	8-759-082-61	s	IC TC4W53FU
IC204	8-759-058-62	s	IC TC7S08FU(TE85R)

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Ref. No. or Q'ty	Part No.	SP	Description
IC300	8-759-076-06	s	IC TL064CPW
IC301	8-759-082-61	s	IC TC4W53FU
IC302	8-752-068-64	s	IC CXA1486Q-TH
IC303	8-759-082-61	s	IC TC4W53FU
IC304	8-759-058-62	s	IC TC7S08FU(TE85R)
IC400	8-759-076-06	s	IC TL064CPW
IC401	8-759-082-61	s	IC TC4W53FU
IC402	8-752-068-64	s	IC CXA1486Q-TH
IC403	8-759-082-61	s	IC TC4W53FU
IC404	8-759-058-62	s	IC TC7S08FU(TE85R)
L1	1-410-385-11	s	INDUCTOR, CHIP 22uH
L2	1-410-385-11	s	INDUCTOR, CHIP 22uH
Q1	8-729-141-48	s	TRANSISTOR 2SB624-BV345
Q2	8-729-820-86	s	TRANSISTOR 2SB1121-ST
Q3	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q4	8-729-117-32	s	TRANSISTOR 2SC4177
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q7	8-729-141-75	s	TRANSISTOR 2SD596DV345
Q10	8-729-402-78	s	TRANSISTOR XN6401
Q11	8-729-402-19	s	TRANSISTOR XN6501
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-402-78	s	TRANSISTOR XN6401
Q200	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q201	8-729-175-73	s	TRANSISTOR 2SC2757
Q202	8-729-122-63	s	TRANSISTOR 2SA1226
Q203	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q204	8-729-122-63	s	TRANSISTOR 2SA1226
Q205	8-729-122-63	s	TRANSISTOR 2SA1226
Q206	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q207	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q208	8-729-117-32	s	TRANSISTOR 2SC4177
Q209	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q210	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q211	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q212	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q213	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q214	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q215	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q216	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q217	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q218	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q219	8-729-402-19	s	TRANSISTOR XN6501
Q220	8-729-402-19	s	TRANSISTOR XN6501
Q300	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q301	8-729-175-73	s	TRANSISTOR 2SC2757
Q302	8-729-122-63	s	TRANSISTOR 2SA1226
Q303	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q304	8-729-122-63	s	TRANSISTOR 2SA1226
Q305	8-729-122-63	s	TRANSISTOR 2SA1226
Q306	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q307	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q308	8-729-117-32	s	TRANSISTOR 2SC4177
Q309	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q310	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q311	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q312	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q313	8-729-117-73	s	TRANSISTOR 2SC4178-F14

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Ref. No. or Q'ty	Part No.	SP	Description
Q314	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q315	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q316	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q317	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q318	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q319	8-729-402-19	s	TRANSISTOR XN6501
Q320	8-729-402-19	s	TRANSISTOR XN6501
Q400	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q401	8-729-175-73	s	TRANSISTOR 2SC2757
Q402	8-729-122-63	s	TRANSISTOR 2SA1226
Q403	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q404	8-729-122-63	s	TRANSISTOR 2SA1226
Q405	8-729-122-63	s	TRANSISTOR 2SA1226
Q406	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q407	8-729-143-07	s	TRANSISTOR 2SA1610-Y33
Q408	8-729-117-32	s	TRANSISTOR 2SC4177
Q409	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q410	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q411	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q412	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q413	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q414	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q415	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q416	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q417	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q418	8-729-117-16	s	TRANSISTOR 2SA1611-M6
Q419	8-729-402-19	s	TRANSISTOR XN6501
Q420	8-729-402-19	s	TRANSISTOR XN6501
R1	1-218-723-11	s	METAL 20K 0.50% 1/16W
R2	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R3	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R4	1-218-716-11	s	METAL 10K 0.50% 1/16W
R5	1-218-732-11	s	METAL 47K 0.50% 1/16W
R6	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R7	1-218-716-11	s	METAL 10K 0.50% 1/16W
R8	1-218-716-11	s	METAL 10K 0.50% 1/16W
R9	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R10	1-218-724-11	s	CHIP, METAL 22K 5% 1/16W
R11	1-218-716-11	s	METAL 10K 0.50% 1/16W
R12	1-218-716-11	s	METAL 10K 0.50% 1/16W
R13	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R14	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R15	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R16	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R17	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R18	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R19	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R20	1-218-716-11	s	METAL 10K 0.50% 1/16W
R21	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R22	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R23	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R24	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R25	1-218-716-11	s	METAL 10K 0.50% 1/16W
R26	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R27	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R28	1-218-716-11	s	METAL 10K 0.50% 1/16W
R29	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R30	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R31	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R35	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R36	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R37	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R38	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R39	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R40	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R41	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R42	1-218-873-11	s	CHIP, METAL 12K 0.50% 1/16W
R43	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R44	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R45	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R46	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R47	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R48	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R49	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R50	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R51	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R52	1-218-716-11	s	METAL 10K 0.50% 1/16W
R53	1-218-723-11	s	METAL 20K 0.50% 1/16W
R54	1-218-716-11	s	METAL 10K 0.50% 1/16W
R55	1-218-723-11	s	METAL 20K 0.50% 1/16W
R56	1-218-901-11	s	CHIP, METAL 180K 0.50% 1/16W
R57	1-218-732-11	s	METAL 47K 0.50% 1/16W
R58	1-218-716-11	s	METAL 10K 0.50% 1/16W
R59	1-218-732-11	s	METAL 47K 0.50% 1/16W
R60	1-218-732-11	s	METAL 47K 0.50% 1/16W
R61	1-208-854-11	s	CHIP,METAL 1M 0.50% 1/10W
R62	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R63	1-218-883-11	s	METAL 33K 0.50% 1/16W
R64	1-218-883-11	s	METAL 33K 0.50% 1/16W
R65	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R66	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R67	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R68	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R69	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R70	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R71	1-218-883-11	s	METAL 33K 0.50% 1/16W
R72	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R73	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R74	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R75	1-218-883-11	s	METAL 33K 0.50% 1/16W
R76	1-218-883-11	s	METAL 33K 0.50% 1/16W
R77	1-218-883-11	s	METAL 33K 0.50% 1/16W
R78	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R79	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R80	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R81	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R82	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R83	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R84	1-218-883-11	s	METAL 33K 0.50% 1/16W
R85	1-218-883-11	s	METAL 33K 0.50% 1/16W
R86	1-218-883-11	s	METAL 33K 0.50% 1/16W
R87	1-218-883-11	s	METAL 33K 0.50% 1/16W
R88	1-218-883-11	s	METAL 33K 0.50% 1/16W
R89	1-218-883-11	s	METAL 33K 0.50% 1/16W
R90	1-218-883-11	s	METAL 33K 0.50% 1/16W
R91	1-218-716-11	s	METAL 10K 0.50% 1/16W
R92	1-218-716-11	s	METAL 10K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R93	1-218-716-11	s	METAL 10K 0.50% 1/16W
R94	1-218-732-11	s	METAL 47K 0.50% 1/16W
R95	1-218-732-11	s	METAL 47K 0.50% 1/16W
R96	1-218-732-11	s	METAL 47K 0.50% 1/16W
R97	1-218-732-11	s	METAL 47K 0.50% 1/16W
R98	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R99	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R100	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R101	1-218-873-11	s	METAL 12K 0.50% 1/16W
R102	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R103	1-218-886-11	s	CHIP, METAL 43K 0.50% 1/16W
R104	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R105	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R106	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R107	1-218-700-11	s	METAL 2.2K 0.50% 1/16W
R108	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R109	1-218-716-11	s	METAL 10K 0.50% 1/16W
R110	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R111	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R112	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R113	1-218-668-11	s	CHIP, METAL 100 0.50% 1/16W
R114	1-218-723-11	s	METAL 20K 0.50% 1/16W
R115	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R116	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R117	1-218-702-11	s	CHIP, METAL 2.7K 0.50% 1/16W
R118	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R120	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R121	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R122	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R123	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R200	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R201	1-218-723-11	s	METAL 20K 0.50% 1/16W
R202	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R203	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R204	1-218-727-11	s	METAL 30K 0.50% 1/16W
R205	1-218-732-11	s	METAL 47K 0.50% 1/16W
R206	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R207	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R208	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R209	1-218-723-11	s	METAL 20K 0.50% 1/16W
R210	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R211	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R212	1-218-680-11	s	METAL 330 0.50% 1/16W
R213	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R214	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R215	1-218-680-11	s	METAL 330 0.50% 1/16W
R216	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R217	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R218	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R219	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R220	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R222	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R223	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R224	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R225	1-218-883-11	s	METAL 33K 0.50% 1/16W
R226	1-218-716-11	s	METAL 10K 0.50% 1/16W
R227	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R228	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R229	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R230	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R231	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R232	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R233	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R234	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R235	1-218-672-11	s	METAL 150 0.50% 1/16W
R236	1-218-732-11	s	METAL 47K 0.50% 1/16W
R237	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R238	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R239	1-218-723-11	s	METAL 20K 0.50% 1/16W
R240	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R241	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R242	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R243	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R244	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R245	1-218-751-11	s	METAL, CHIP 300K 0.50% 1/16
R246	1-218-716-11	s	METAL 10K 0.50% 1/16W
R247	1-218-723-11	s	METAL 20K 0.50% 1/16W
R248	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R249	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R250	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R251	1-218-740-11	s	METAL 100K 0.50% 1/16W
R252	1-218-716-11	s	METAL 10K 0.50% 1/16W
R253	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R254	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R255	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R256	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R257	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R258	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R259	1-218-723-11	s	METAL 20K 0.50% 1/16W
R260	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R261	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R262	1-218-727-11	s	METAL 30K 0.50% 1/16W
R263	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R264	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R265	1-218-723-11	s	METAL 20K 0.50% 1/16W
R266	1-218-716-11	s	METAL 10K 0.50% 1/16W
R267	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R268	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R269	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R270	1-218-883-11	s	METAL 33K 0.50% 1/16W
R271	1-218-740-11	s	METAL 100K 0.50% 1/16W
R272	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R280	1-218-883-11	s	METAL 33K 0.50% 1/16W
R281	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R300	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R301	1-218-723-11	s	METAL 20K 0.50% 1/16W
R302	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R303	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R304	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R305	1-218-727-11	s	METAL 30K 0.50% 1/16W
R306	1-218-732-11	s	METAL 47K 0.50% 1/16W
R307	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R308	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R309	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R310	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R311	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R312	1-218-680-11	s	METAL 330 0.50% 1/16W
R313	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R314	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R315	1-218-680-11	s	METAL 330 0.50% 1/16W
R316	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R317	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R318	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R319	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R320	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R322	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R323	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R324	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R325	1-218-883-11	s	METAL 33K 0.50% 1/16W
R326	1-218-716-11	s	METAL 10K 0.50% 1/16W
R327	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R328	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R329	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R330	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R331	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R332	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R333	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R334	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R335	1-218-672-11	s	METAL 150 0.50% 1/16W
R336	1-218-732-11	s	METAL 47K 0.50% 1/16W
R337	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R338	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R339	1-218-723-11	s	METAL 20K 0.50% 1/16W
R340	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R341	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R342	1-218-716-11	s	METAL 10K 0.50% 1/16W
R343	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R344	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R345	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R346	1-218-750-11	s	METAL 270K 0.50% 1/16W
R347	1-218-723-11	s	METAL 20K 0.50% 1/16W
R348	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R349	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R350	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R351	1-218-740-11	s	METAL 100K 0.50% 1/16W
R352	1-218-716-11	s	METAL 10K 0.50% 1/16W
R353	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R354	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R355	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R356	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R357	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R358	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R359	1-218-723-11	s	METAL 20K 0.50% 1/16W
R360	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R361	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R362	1-218-727-11	s	METAL 30K 0.50% 1/16W
R363	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R364	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R365	1-218-723-11	s	METAL 20K 0.50% 1/16W
R366	1-218-716-11	s	METAL 10K 0.50% 1/16W
R367	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R368	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R369	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R370	1-218-883-11	s	METAL 33K 0.50% 1/16W
R371	1-218-740-11	s	METAL 100K 0.50% 1/16W
R372	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R380	1-218-883-11	s	METAL 33K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R381	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R400	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R401	1-218-723-11	s	METAL 20K 0.50% 1/16W
R402	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R403	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R404	1-218-727-11	s	METAL 30K 0.50% 1/16W
R405	1-218-732-11	s	METAL 47K 0.50% 1/16W
R406	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R407	1-218-856-11	s	CHIP, METAL 2.4K 0.50% 1/16W
R408	1-218-874-11	s	CHIP, METAL 13K 0.50% 1/16W
R409	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R410	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R411	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R412	1-218-680-11	s	METAL 330 0.50% 1/16W
R413	1-218-851-11	s	CHIP, METAL 1.5K 0.50% 1/16W
R414	1-211-969-11	s	CHIP, METAL 10 0.50% 1/16W
R415	1-218-680-11	s	METAL 330 0.50% 1/16W
R416	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R417	1-216-797-11	s	METAL, CHIP 10 5% 1/16W
R418	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W
R419	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R420	1-218-844-11	s	CHIP, METAL 750 0.50% 1/16W
R422	1-218-845-11	s	CHIP, METAL 820 0.50% 1/16W
R423	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R424	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R425	1-218-883-11	s	METAL 33K 0.50% 1/16W
R426	1-218-716-11	s	METAL 10K 0.50% 1/16W
R427	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R428	1-218-714-11	s	METAL 8.2K 0.50% 1/16W
R429	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R430	1-218-730-11	s	CHIP, METAL 39K 0.50% 1/16W
R431	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R432	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R433	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R434	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R435	1-218-672-11	s	METAL 150 0.50% 1/16W
R436	1-218-732-11	s	METAL 47K 0.50% 1/16W
R437	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R438	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R439	1-218-723-11	s	METAL 20K 0.50% 1/16W
R440	1-218-710-11	s	CHIP, METAL 5.6K 0.50% 1/16W
R441	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R442	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R443	1-218-699-11	s	CHIP, METAL 2K 0.50% 1/16W
R444	1-218-842-11	s	CHIP, METAL 620 0.50% 1/16W
R445	1-218-740-11	s	METAL 100K 0.50% 1/16W
R446	1-218-723-11	s	METAL 20K 0.50% 1/16W
R447	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R448	1-218-716-11	s	METAL 10K 0.50% 1/16W
R449	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R450	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R451	1-218-740-11	s	METAL 100K 0.50% 1/16W
R452	1-218-716-11	s	METAL 10K 0.50% 1/16W
R453	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
R454	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R455	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R456	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R457	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R458	1-218-717-11	s	CHIP, METAL 11K 0.50% 1/16W

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Ref. No. or Q'ty	Part No.	SP	Description
R459	1-218-723-11	s	METAL 20K 0.50% 1/16W
R460	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R461	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R462	1-218-727-11	s	METAL 30K 0.50% 1/16W
R463	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R464	1-218-858-11	s	CHIP, METAL 3K 0.50% 1/16W
R465	1-218-723-11	s	METAL 20K 0.50% 1/16W
R466	1-218-716-11	s	METAL 10K 0.50% 1/16W
R467	1-218-698-11	s	METAL 1.8K 0.50% 1/16W
R468	1-218-704-11	s	METAL 3.3K 0.50% 1/16W
R469	1-218-692-11	s	CHIP, METAL 1K 0.50% 1/16W
R470	1-218-883-11	s	METAL 33K 0.50% 1/16W
R471	1-218-740-11	s	METAL 100K 0.50% 1/16W
R472	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R480	1-218-883-11	s	METAL 33K 0.50% 1/16W
R481	1-218-708-11	s	METAL 4.7K 0.50% 1/16W
RV50	1-241-263-11	s	RES, ADJ, METALT 5K
RV200	1-241-260-11	s	METAL, ADJ 500
RV300	1-241-260-11	s	METAL, ADJ 500
RV400	1-241-260-11	s	METAL, ADJ 500

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
⚠	1-473-314-11	s	CONVERTER, D.C-D.C
	1-775-774-11	o	FLEXIBLE CARD WIRE (20 CORE) (CN-1121 TO MB-602)
	1-775-775-11	o	FLEXIBLE CARD WIRE (24 CORE) (CN-1122 TO MB-602)
	1-775-776-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-775-777-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1121 TO MB-602)
	1-775-778-11	o	FLEXIBLE CARD WIRE (30 CORE) (CN1120 TO MB-602)
	1-777-000-11	s	FLEXIBLE CARD WIRE (20 CORE) (MB-602 TO CCD UNIT)
	1-777-001-11	s	FLEXIBLE CARD WIRE (24 CORE) (MB-602 TO CCD UNIT)
	1-955-080-12	o	HARNESS (VF)
	1-955-086-12	o	HARNESS (PA)
CN901	1-561-781-11	s	CONNECTOR BNC "TEST OUT"
CN902	1-562-222-41	s	CONNECTOR 6P FEMALE "REMOTE"
CN903	1-565-051-21	o	CONNECTOR, 20P FEMAL "VF"
CN904	1-695-841-12	s	CONNECTOR 12P FEMALE "LENS"
CN905	1-509-184-31	s	CONNECTOR 3P MALE "MIC"

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN2F(to PA-181 BOARD of CCD UNIT)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN15F(to MB602 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN21F(to MB-602 BOARD)			
	1-764-196-11	o	HOUSING, 8P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN31F(to MB-602 BOARD)			
	1-580-586-11	o	HOUSING, 20P
	1-573-176-11	o	CONTACT, FEMALE AWG22-26
	1-580-599-11	o	CONTACT, FEMALE AWG26-30
CN32F(to MB-602 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN42F(to MB-602 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN301F(to SW-732 BOARD)			
	1-764-195-11	o	HOUSING, 5P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN402F(to CN1122 BOARD)			
	1-695-892-11	o	HOUSING, 12P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN405F(to CN1122 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN406F(to CN1122 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN407F(to MB602 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN501F(to SW731 BOARD)			
	1-695-212-11	o	HOUSING, 6P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN601F(to SW742 BOARD)			
	1-764-193-11	o	HOUSING, 3P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN701F(to SW733 BOARD)			
	1-764-194-11	o	HOUSING, 4P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30
CN801F(to SW730 BOARD)			
	1-764-198-11	o	HOUSING, 11P
	1-695-215-11	o	CONTACT, FEMALE AWG26-30

5-4. Optional Fixtures

TOOLS AND FIXTURES		
Part No.	SP	Description
J-6026-110-A	o	MULTI-BURST CHART
J-6026-130-B	o	GRAYSCALE CHART
J-6029-140-B	o	PATTERN BOX PTB-500
J-6394-080-A	o	GRAYSCALE CHART (16:9)
J-6395-040-A	o	EXTENSION BOARD, EX-464

Section 6
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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2SC2712 6-2
2SC2713 6-2
2SC2714Y 6-2
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2SK853 6-3

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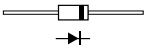
DIODE



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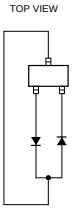

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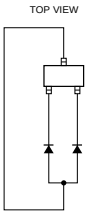
HSM88AS



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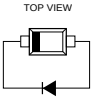

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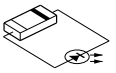
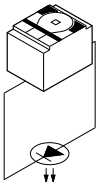
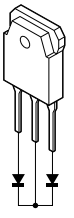


CL-150D-CD;ORANGE
CL-150PG-CD;GREEN
CL-150UR-CD;RED



CL-200HR;RED



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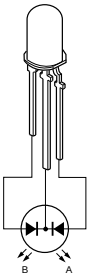
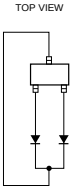


GL-5ED5;A=RED,B=YEL GRN



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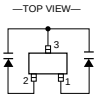

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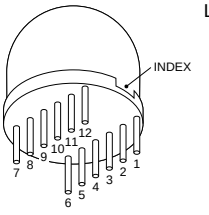

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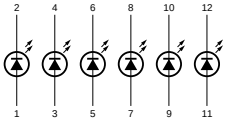
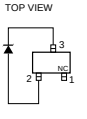
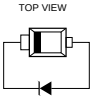
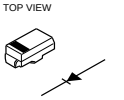




RD ? ?M-B
RD ? ?MB
RD ? ?M-B ?



RD ? ?UH
RD ? ?UJN



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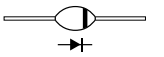
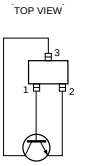


V09C
V09G
V11 ?

TRANSISTOR



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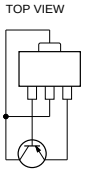

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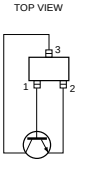

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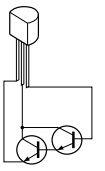
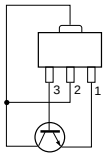
2SD596-DV5



2SD1111

Others

TOP VIEW



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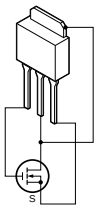
2SD1623



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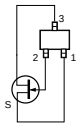
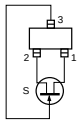


2SK663

TOP VIEW



2SK852-X2
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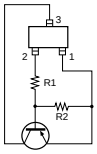
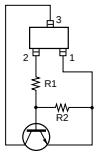


DTA143XKA(R1=4.7K R2=10K)
DTA144EE(R1=47K, R2=47K)
DTA144EUA(R1=47K, R2=47K)

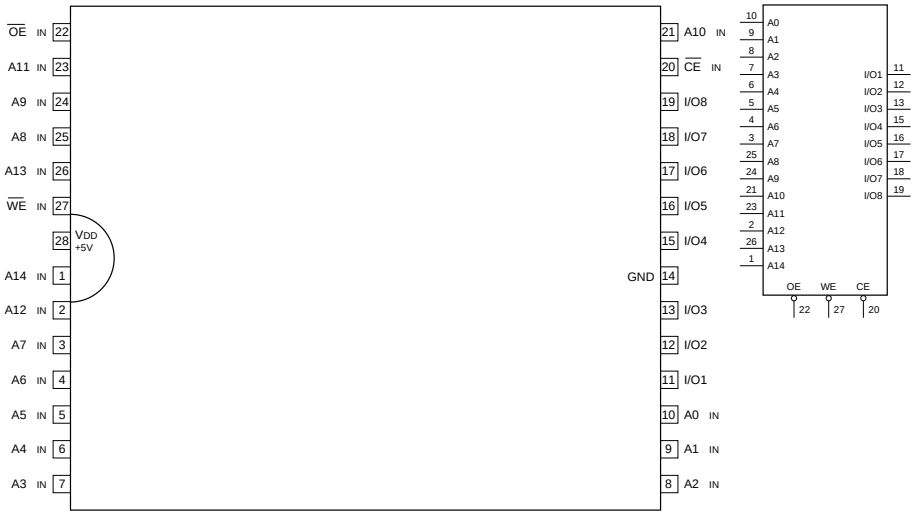
TOP VIEW



DTC143XKA(R1=4.7K, R2=10K)
DTC144EE(R1=47K, R2=47K)
DTC144EK(R1=47K, R2=47K)
DTC144EKA(R1=47K, R2=47K)
DTC144EUA(R1=47K, R2=47K)

CXK58257ATM-70LL(SONY)(ACCESS TIME=70ns)FLAT PACKAGE

C-MOS 256K (32768 x 8)-BIT STATIC RAM
—TOP VIEW—

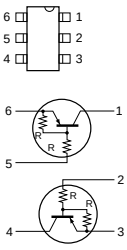


A0-A14 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
I/O1-I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

CE	OE	WE	MODE	I/O TERMINAL
1	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	X	0	WRITE	INPUT DATA

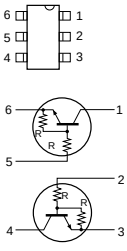
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

—TOP VIEW—

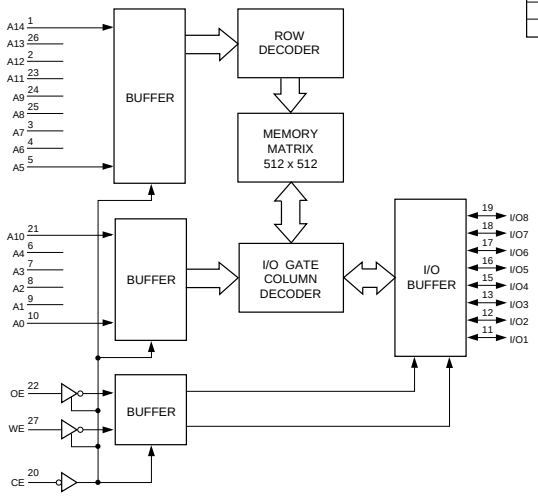


IMB2(R=47K)

TOP VIEW



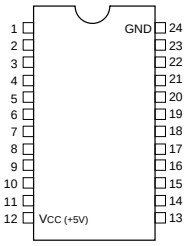
IMH2(R=47K)



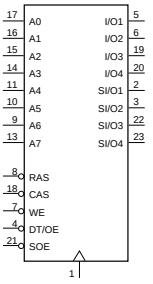
HM53461JP-12(HITACHI)(ACCESS TIME=120ns)PLCC

C-MOS 64K WORD x 4 BIT MULTI PORT RAM

—TOP VIEW—



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	SC	13	I	A7
2	I/O	SI/O1	14	I	A3
3	I/O	SI/O2	15	I	A2
4	—	$\overline{DT/OE}$	16	I	A1
5	I/O	I/O1	17	I	A0
6	I/O	I/O2	18	—	$\overline{CAS}$
7	—	$\overline{WE}$	19	I/O	I/O3
8	—	$\overline{RAS}$	20	I/O	I/O4
9	I	A6	21	—	$\overline{SOE}$
10	I	A5	22	I/O	SI/O3
11	I	A4	23	I/O	SI/O4
12	—	VCC	24	—	GND

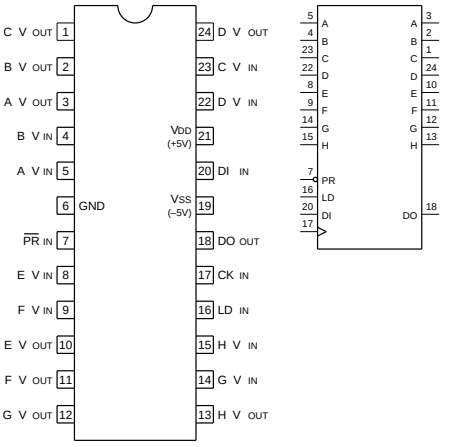


A0-A7 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE INPUT
DT/OE ; DATA TRANSMISSION/OUTPUT ENABLE INPUT
I/O1-I/O4 ; RAM PORT DATA INPUT/OUTPUT
RAS ; ROW ADDRESS STROBE INPUT
SC ; SERIAL CLOCK INPUT
SI/O1-SI/O4 ; SAM PORT DATA INPUT/OUTPUT
SOE ; SAM PORT ENABLE INPUT/OUTPUT
WE ; WRITE ENABLE INPUT

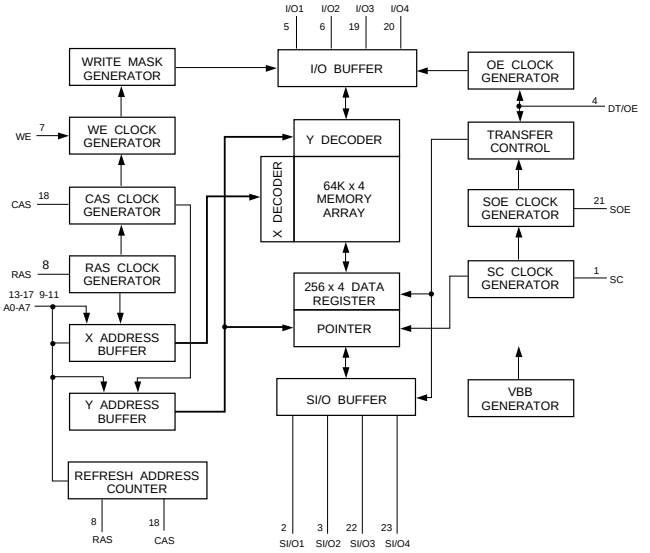
MP7670AS(MICRO POWER SYSTEMS)FLAT PACKAGE

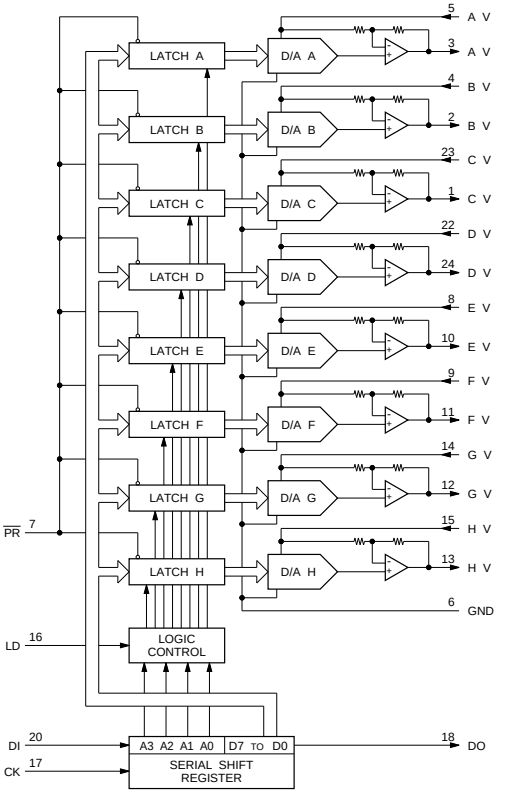
C-MOS 8-BIT 8CHANNEL D/A CONVERTER

— TOP VIEW —



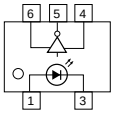
CK ; CLOCK INPUT
DI ; SERIAL DATA INPUT
DO ; DATA OUTPUT
LD ; DATA LOAD CONTROL INPUT
$\overline{PR}$; PRESET INPUT

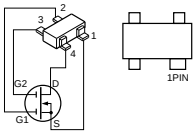




PC410(SHARP)FLAT PACKAGE

OPIC-OUTPUT PHOTO COUPLER
—TOP VIEW—

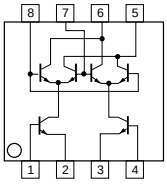


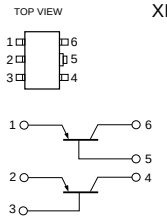


SGM2016M

UPA101G(NEC)FLAT PACKAGE

TRANSISTOR ARRAY
—TOP VIEW—

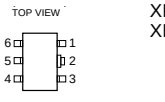




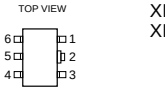
XP6435

XP6501

XP6534



XN6401
XN6435

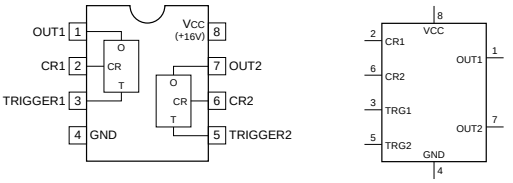


XN6501
XN6534

IC

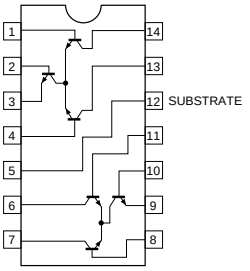
BA225F(ROHM)

CR TIMER
-TOP VIEW-



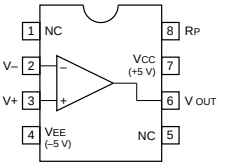
CA3102M(RCA)FLAT PACKAGE

HIGH FREQ.DIFFERENTIAL AMPLIFIER
—TOP VIEW—



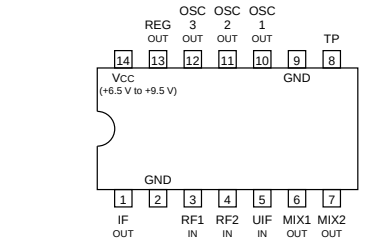
CLC505AJE(COMLINEAR)FLAT PACKAGE

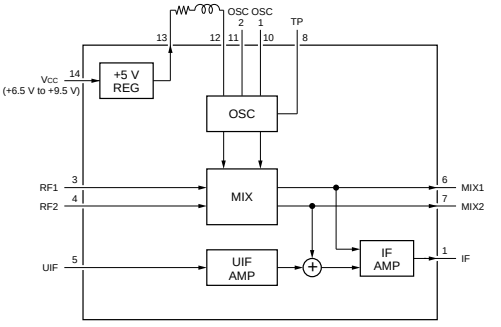
OPERATIONAL AMPLIFIER
— TOP VIEW —



CXA1165M(SONY)FLAT PACKAGE

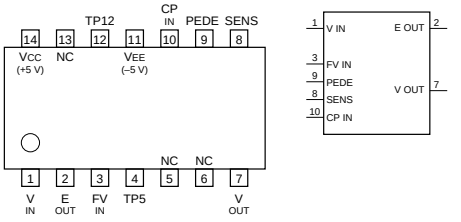
CATV VHF TUNER
— TOP VIEW —



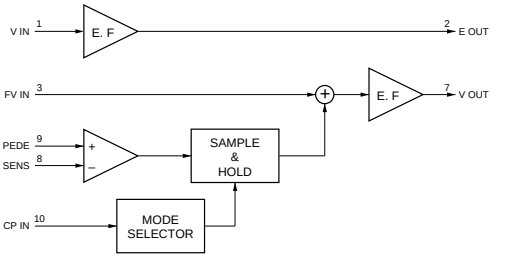


CXA1432M(SONY)FLAT PACKAGE

VIDEO SIGNAL CLAMPER
— TOP VIEW —



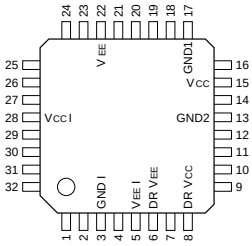
CP IN	; CLAMP PULSE INPUT
E OUT	; BUFFER AMP OUTPUT
FV IN	; FLOATING VIDEO SIGNAL INPUT
PEDE	; CLAMP LEVEL DC INPUT
SENS	; CLAMP POINT SIGNAL INPUT
TP5, TP12	; FOR TEST
V IN	; VIDEO SIGNAL INPUT
V OUT	; VIDEO SIGNAL OUTPUT



CXA1486Q (SONY)

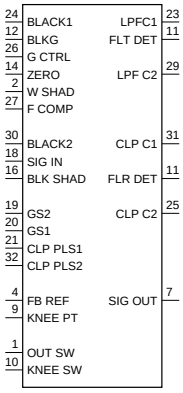
VIDEO AMPLIFIER FOR VIDEO CAMERA

- TOP VIEW -



VCC, VCC I, DR VCC, = (+5V)
VEE, VEE I, DR VEE, = (-2.5 to -5.5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	OUT SW	17	–	GND1
2	I	W SHAD	18	I	SIG IN
3	–	GND I	19	I	GS2
4	I	FB REF	20	I	GS1
5	–	VEE I	21	I	CLP PLS1
6	–	DR VEE	22	–	VEE
7	O	SIG OUT	23	O	LPF C1
8	–	DR VCC	24	I	BLACK1
9	I	KNEE PT	25	O	CLP C2
10	I	KNEE SW	26	I	G CTRL
11	O	FLR DET	27	I	F COMP
12	I	BLKG	28	–	VCC I
13	–	GND2	29	O	LPF C2
14	I	ZERO	30	I	BLACK2
15	–	VCC	31	O	CLP C1
16	I	BLK SHAD	32	I	CLP PLS2

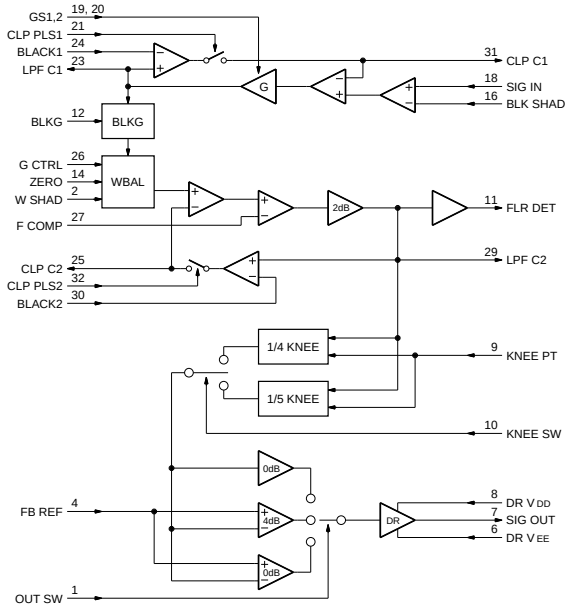


INPUT

BLACK1, 2	; FOR CLAMP DC COMPENSATION
BLKG	; BLANKING SIGNAL
BLK SHAD	; BLACK SHADING CORRECTION SIGNAL
CLP PLS1, 2	; CLAMP PULSE
F COMP	; FLARE COMPENSATION SIGNAL
FB REF	; OUTPUT 2 INVERT AMPLIFY DC ADJUST
G CTRL	; WHITE BALANCE GAIN CONTROL
GS1, 2	; GAIN SELECT
KNEE PT	; KNEE POINT
KNEE SW	; 1/4, 1/5 KNEE SELECT (4.5V=1/4 KNEE, 0V=1/5 KNEE)
OUT SW	; OUTPUT 3 AMPLIFY SELECT
SIG IN	; SIGNAL INPUT
W SHAD	; WHITE SHADING SIGNAL
ZERO	; VARIABLE GAIN AMPLIFY ZERO POINT ADJUST

OUTPUT

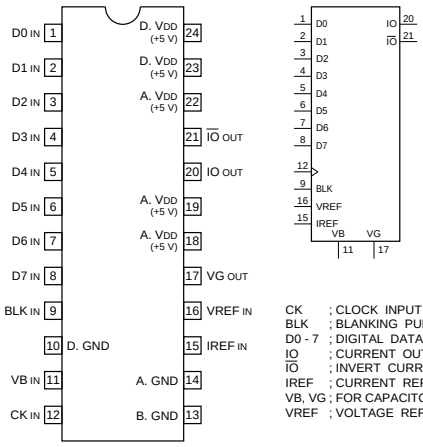
CLP C1, C2	; FOR CLAMP CAPACITANCE
FLR DET	; FLARE DETECT
LPF C1, C2	; CONNECT CAPACITANCE FOR LPF
SIG OUT	; SIGNAL OUTPUT



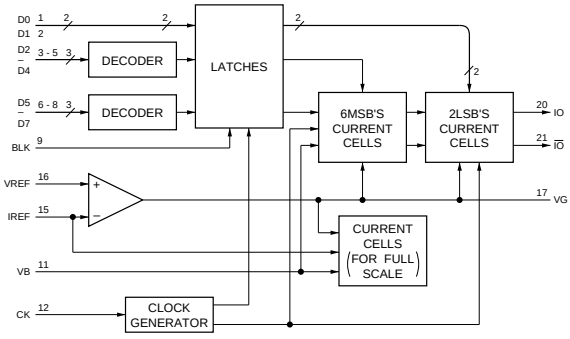
CXD1171M(SONY)FLAT PACKAGE

C-MOS 8-BIT D/A CONVERTER

— TOP VIEW —

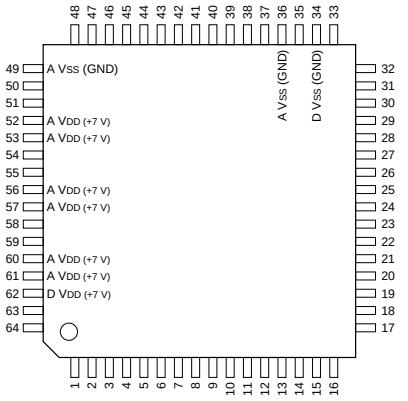


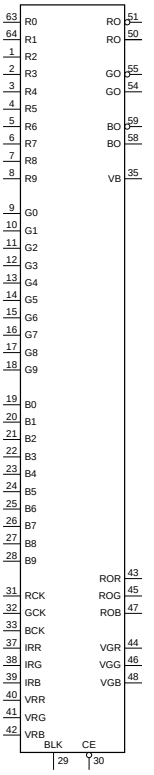
CK ; CLOCK INPUT
BLK ; BLANKING PULSE INPUT
D0 - 7 ; DIGITAL DATA INPUT
IO ; CURRENT OUTPUT
$\overline{IO}$; INVERT CURRENT OUTPUT
IREF ; CURRENT REFERENCE INPUT
VB, VG ; FOR CAPACITOR
VREF ; VOLTAGE REFERENCE INPUT



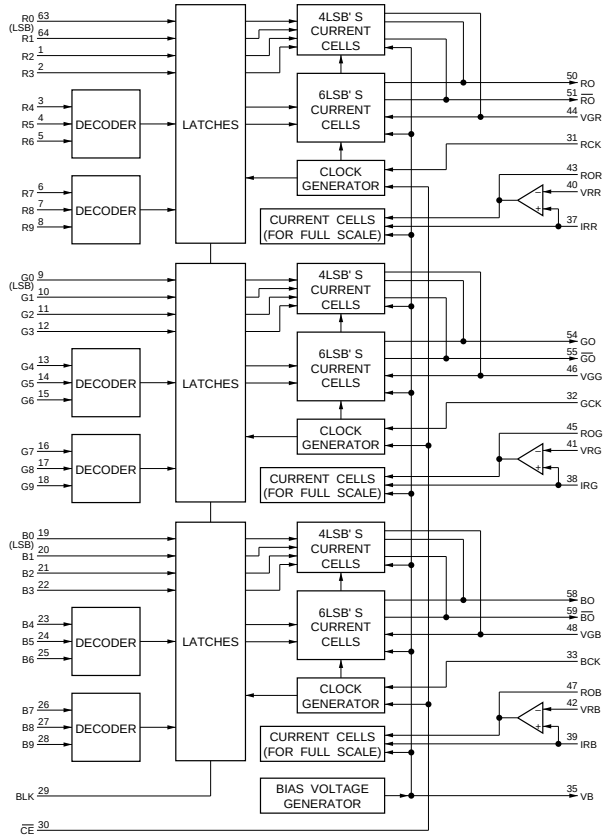
CXD2307R(SONY)FLAT PACKAGE

C-MOS 10-BIT 50MSPS RGB 3CHANNEL D/A CONVERTER
— TOP VIEW —



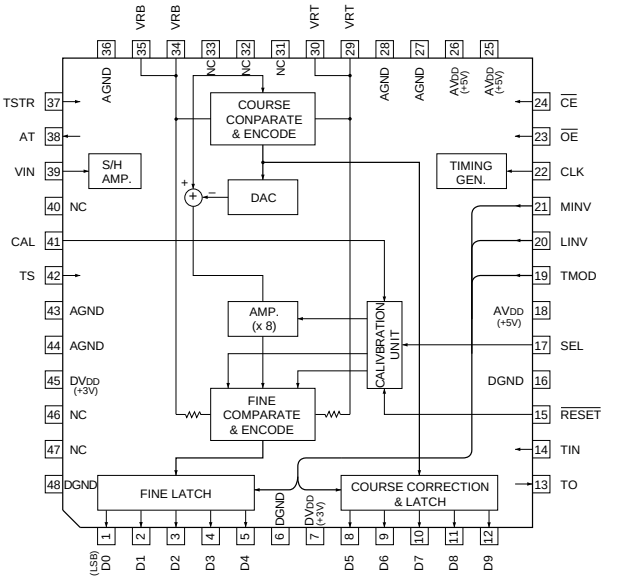


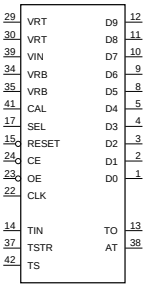
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	R2	17	I	G8	33	I	BCK	49	—	AVSS
2	I	R3	18	I	G9	34	—	DVSS	50	O	RO
3	I	R4	19	I	B0 (LSB)	35	O	VB	51	O	$\overline{RO}$
4	I	R5	20	I	B1	36	—	AVSS	52	—	AVDD
5	I	R6	21	I	B2	37	I	IRR	53	—	AVDD
6	I	R7	22	I	B3	38	I	IRG	54	O	GO
7	I	R8	23	I	B4	39	I	IRB	55	O	$\overline{GO}$
8	I	R9	24	I	B5	40	I	VRR	56	—	AVDD
9	I	G0 (LSB)	25	I	B6	41	I	VRG	57	—	AVDD
10	I	G1	26	I	B7	42	I	VRB	58	O	BO
11	I	G2	27	I	B8	43	I	ROR	59	O	$\overline{BO}$
12	I	G3	28	I	B9	44	I	VGR	60	—	AVDD
13	I	G4	29	I	BLK	45	I	ROG	61	—	AVDD
14	I	G5	30	I	$\overline{CE}$	46	I	VGG	62	—	DVDD
15	I	G6	31	I	RCK	47	I	ROB	63	I	R0 (LSB)
16	I	G7	32	I	GCK	48	I	VGB	64	I	R1



CXD2310R(SONY)

C-MOS 10-BIT 20MSPS VIDEO A/D CONVERTER
—TOP VIEW—





INPUT

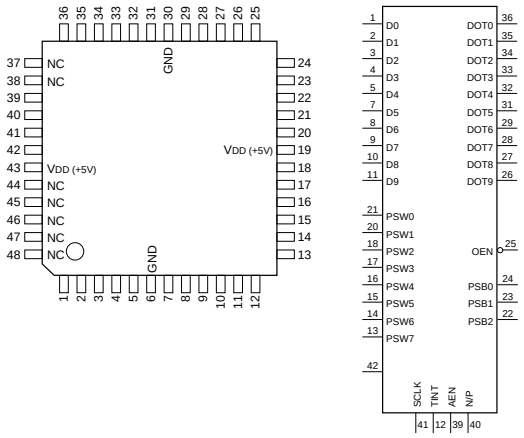
CAL	; CALIBRATION PULSE INPUT
CE	; CHIP ENABLE
CLK	; CLOCK
LINV	; OUTPUT (D0-D8) INVERSION
MINV	; OUTPUT (D9) INVERSION
OE	; DIGITAL DATA OUTPUT ENABLE
RESET	; CALIBRATION CIRCUIT RESET
SEL	; OUTPUT DATA (D5-D9) SELECT FOR CALIBRATION (4-CLOCK) HIGH; THROUGH OUTPUT, LOW; DATA FIXED AS WITH D0-D4
TIN	; TEST SIGNAL INPUT
TMOD	; TEST MODE
TS	; TEST SIGNAL INPUT
TSTR	; TEST SIGNAL INPUT
VRB	; REFERENCE BOTTOM VOLTAGE
VRT	; REFERENCE TOP VOLTAGE

OUTPUT

AT	; TEST SIGNAL OUTPUT
D0-D9	; DIGIRAL DATA OUTPUT
TO	; TEST PIN

CXK1203AR(SONY)FLAT PACKAGE

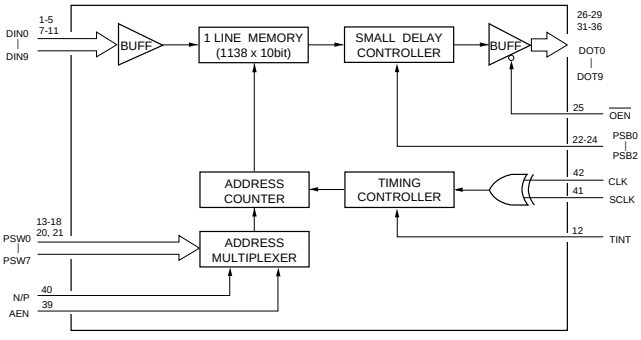
C-MOS DIGITAL LINE MEMORY
—TOP VIEW—



(VDD = +5V)

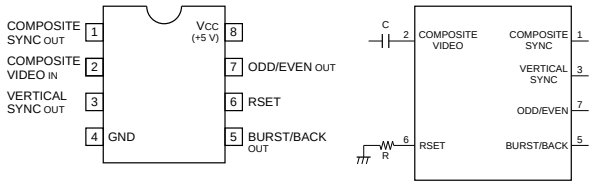
PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	D0	13	I	PSW7	25	I	OEN	37	—	N.C
2	I	D1	14	I	PSW6	26	O	DOT9	38	—	N.C
3	I	D2	15	I	PSW5	27	O	DOT8	39	I	AEN
4	I	D3	16	I	PSW4	28	O	DOT7	40	I	N/P
5	I	D4	17	I	PSW3	29	O	DOT6	41	I	SCLK
6	—	GND	18	I	PSW2	30	—	GND	42	I	CLK
7	I	D5	19	—	VDD	31	O	DOT5	43	—	VDD
8	I	D6	20	I	PSW1	32	O	DOT4	44	—	N.C
9	I	D7	21	I	PSW0	33	O	DOT3	45	—	N.C
10	I	D8	22	I	PSB2	34	O	DOT2	46	—	N.C
11	I	D9	23	I	PSB1	35	O	DOT1	47	—	N.C
12	I	TINT	24	I	PSB0	36	O	DOT0	48	—	N.C

AEN	;	LINE MEMORY SELECT
CLK	;	CLOCK
DIN0-DIN9	;	VIDEO DATA INPUT
DOT0-DOT9	;	VIDEO DATA OUTPUT
N/P	;	NTSC/PAL/SECAM SELECT
OEN	;	OUTPUT ENABLE
PSB0-PSB2	;	DELAY STEP SELECT (1 BITxN)
PSW0-PSW7	;	DELAY STEP SELECT (8 BITxN)
SCLK	;	CLOCK EDGE SELECT
TINT	;	TEST

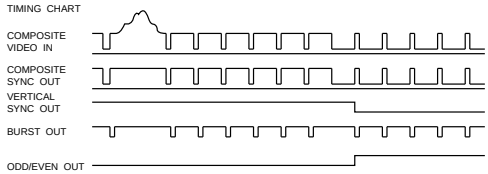


EL4581CS(ELT)FLAT PACKAGE

VIDEO SYNC SEPARATOR
— TOP VIEW —

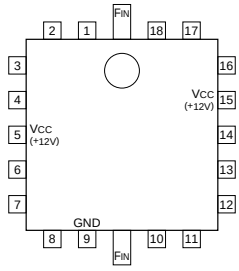


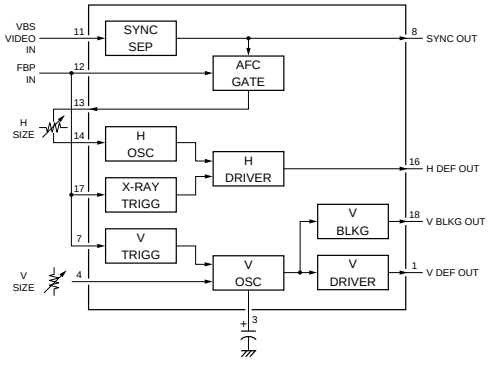
TIMING CHART



HA11423MP(HITACHI)FLAT PACKAGE

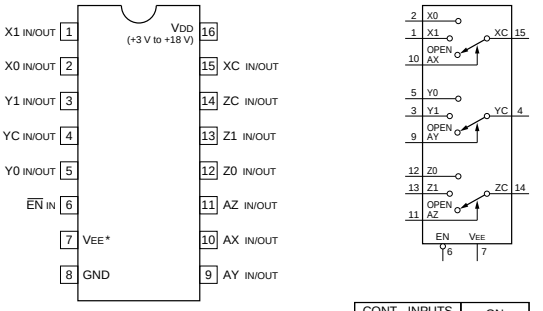
TV H/V SYNC SIGNAL PROCESSOR
-TOP VIEW-





HD14053BFP(HITACHI)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
— TOP VIEW —



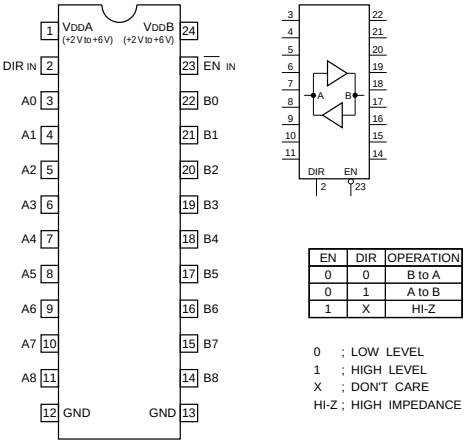
VEE*; VDD – VEE + 3 V + 18 V

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CONT. INPUTS		ON CHANNEL
EN	A (X, Y, Z)	
0	0	0
0	1	1
1	X	OPEN

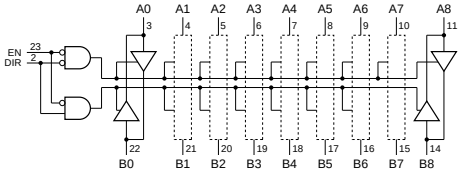
HD151015T(HITACHI)FLAT PACKAGE

C-MOS 9-BIT LEVEL SHIFTER/TRANSCEIVER WITH 3-STATE OUTPUTS
— TOP VIEW —



EN	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

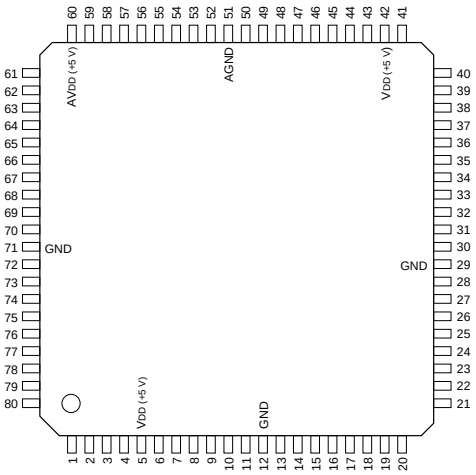
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



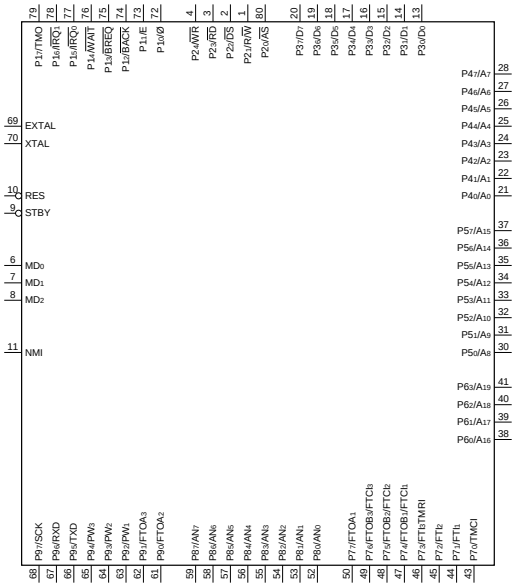
HD6475328F10(HITACHI)

C-MOS 16-BIT MICROPROCESSOR

— TOP VIEW —



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{DS}$	29	—	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{RD}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{WR}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	—	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	—	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{STBY}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{RES}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	—	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	—	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	—	VSS
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/ø
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{BACK}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{BREQ}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{WAIT}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{IRQ0}$
24	I/O	P43/A3	51	—	AGND	78	I/O	P12/$\overline{IRQ1}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{AS}$
27	I/O	P46/A6	54	I/O	P82/AN2			



INPUT

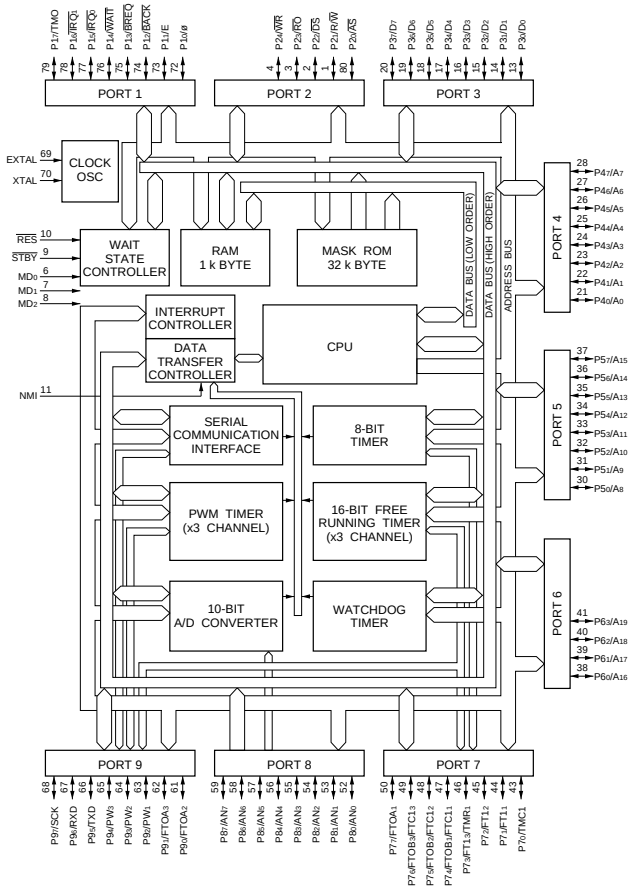
AN0-AN7	; ANALOG INPUT
BREQ	; BUS REQUEST
EXTAL	; CONNECTED TO CRYSTAL OSCILLATOR.
ETCI1-FTCI3	; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1-FTI3	; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1	; INTERRUPTION REQUEST 0 AND 1
MD0-MD2	; MODE SETTING
NMI	; NON MASKABLE INTERRUPTION
P80-P87	; PORT 8
RES	; RESET
RXD	; RECEIVE DATA
STBY	; STANDBY
TMCI	; 8-BIT TIMER CLOCK INPUT
TMRI	; 8-BIT TIMER COUNTER RESET INPUT
WAIT	; WAIT
XTAL	; CONNECTED TO CRYSTAL OSCILLATOR.

OUTPUT

A0-A19	; ADDRESS BUS
AS	; ADDRESS STROBE
BACK	; BUS REQUEST ACKNOWLEDGE
DS	; DATA STROBE
E	; ENABLE CLOCK
FTOA1-FTOA3	; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1-FTOB3	; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1-PW3	; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	; READ/WRITE
RD	; READ
TMO	; 8-BIT TIMER OUTPUT
TXD	; SEND DATA
WR	; WRITE
ø	; SYSTEM CLOCK

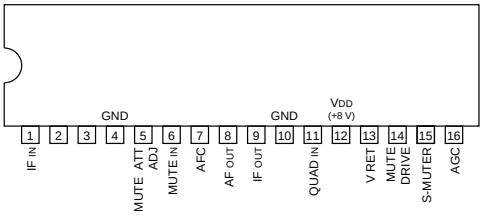
INPUT/OUTPUT

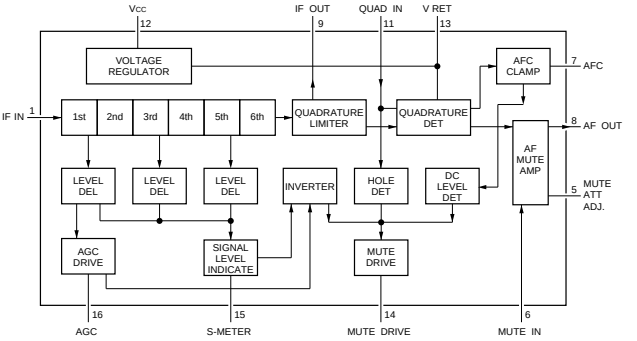
D0-D7	; DATA BUS
P10-P17	; PORT 1
P20-P24	; PORT 2
P30-P37	; PORT 3
P40-P47	; PORT 4
P50-P57	; PORT 5
P60-P63	; PORT 6
P70-P77	; PORT 7
P90-P97	; PORT 9
SCK	; SERIAL CLOCK INPUT/OUTPUT



LA1140(SANYO)

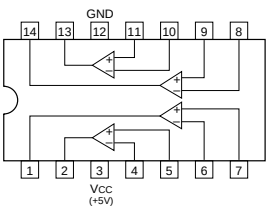
IF AMP, LIMITTER, DETECTOR, MUTING, + FM CS
— PRINTED SIDE VIEW —





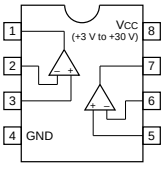
LM339NS(TI)FLAT PACKAGE
LM339PW(TI)FLAT PACKAGE–

QUAD COMPARATORS
—TOP VIEW—



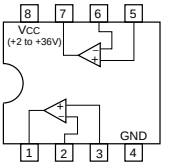
LM358PS(TI)FLAT PACKAGE
UPC358G2(NEC)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —



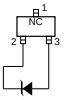
LM393PS(TI)FLAT PACKAGE
UPC393G2(NEC)FLAT PACKAGE

DUAL VOLTAGE COMPARATORS
—TOP VIEW—



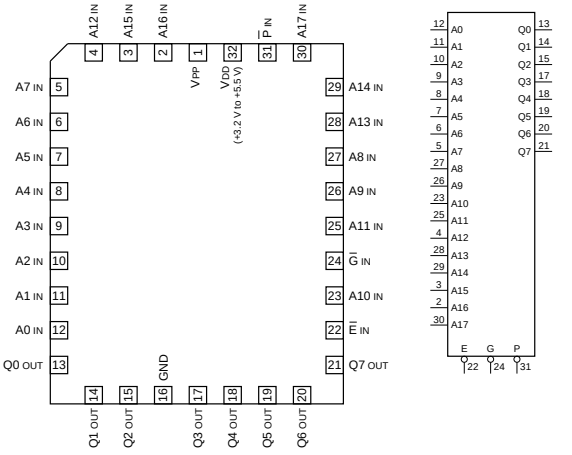
LM4040BIM3X(NS)

PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE
— TOP VIEW —



M27V201-200L6(SGS)CHIP CARRIER

C-MOS 2M (256×8) -BIT UV ERASABLE PROM AND OTP ROM
— TOP VIEW —



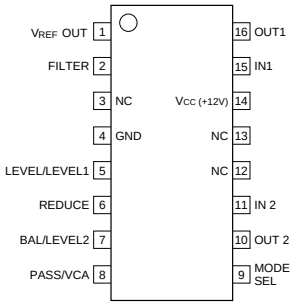
A0 - A17 ; ADDRESS INPUTS
Q0 - Q7 ; DATA OUTPUTS
$\overline{E}$; CHIP ENABLE INPUT
$\overline{G}$; OUTPUT ENABLE INPUT
$\overline{P}$; PROGRAM INPUT
VPP ; PROGRAM SUPPLY (12.75 V)

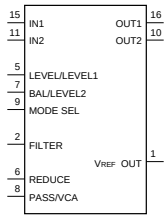
MODE	E	G	E	E	E	Q0 -Q7
READ	0	0	X	X	X	DATA OUT
OUTPUT DISABLE	0	1	X	X	X	HI-Z
PROGRAM	0	1	⊓	X	VPP	DATA IN
VERIFY	0	0	1	X	VPP	DATA OUT
PROGRAM INHIBIT	1	X	X	X	VPP	HI-Z
STANDBY	1	X	X	X	X	HI-Z
ELECTRONIC SIGNATURE	0	0	1	VID	VDD	CODES

0 ; INPUT LOW VOLTAGE
1 ; INPUT HIGH VOLTAGE
X ; DON'T CARE
VID ; 12 V ± 0.5 V
HI-Z ; HIGH IMPEDANCE

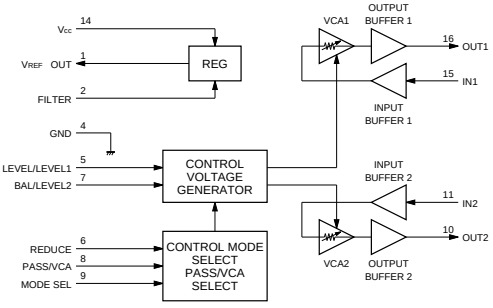
M51132FP(MITSUBISHI)FLAT PACKAGE

2-CHANNEL ELECTRONIC LEVEL CONTROL
—TOP VIEW—



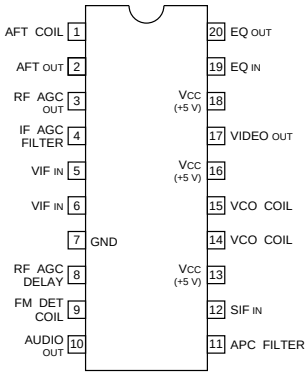


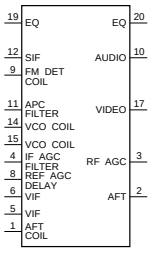
BAL/LEVEL2	; BALANCE/LEVEL2 CONTROL
FILTER	; FILTER
IN1	; INPUT 1
IN2	; INPUT 2
MODE SEL	; MODE SELECT
OUT1	; OUTPUT 1
OUT2	; OUTPUT 2
PASS/VCA	; PASS/VCA CONTROL SWITCH
REDUCE	; SWITCHING NOISE REDUCE
LEVEL/LEVEL1	; LEVEL/LEVEL1 CONTROL
V REF OUT	; REFERENCE VOLTAGE OUTPUT

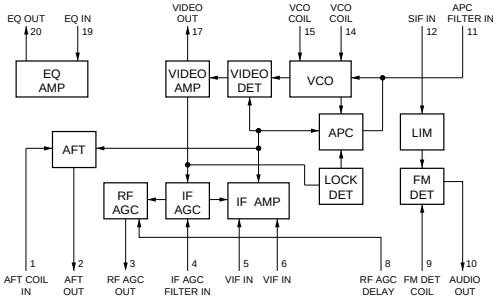


M52313SP(MITSUBISHI)

PLL VIF/SIF
— TOP VIEW —

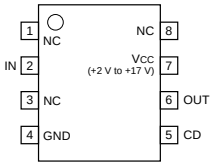


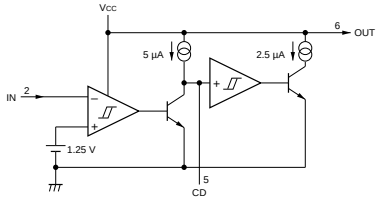




M51958A(MITSUBISHI)FLAT PACKAGE

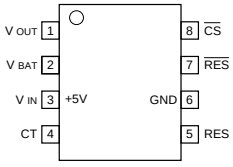
VOLTAGE DETECT DELAY
— TOP VIEW —

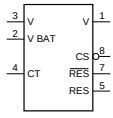




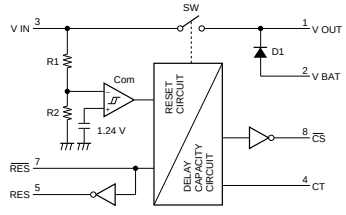
M62021FP(MITSUBISHI)FLAT PACKAGE

SELECTION SW BUILT-IN SYSTEM RESET
— TOP VIEW —



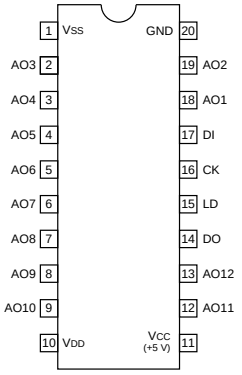


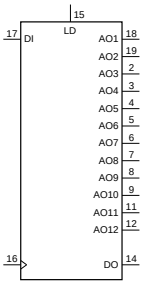
CS	; CHIP SELECT OUTPUT
CT	; DELAY CAPACITY INPUT
RES	; RESET OUTPUT
VBAT	; VIDEO SIGNAL BACKUP INPUT
VIN	; VIDEO SIGNAL INPUT
VOUT	; VIDEO SIGNAL OUTPUT



M62352GP(MITSUBISHI)FLAT PACKAGE

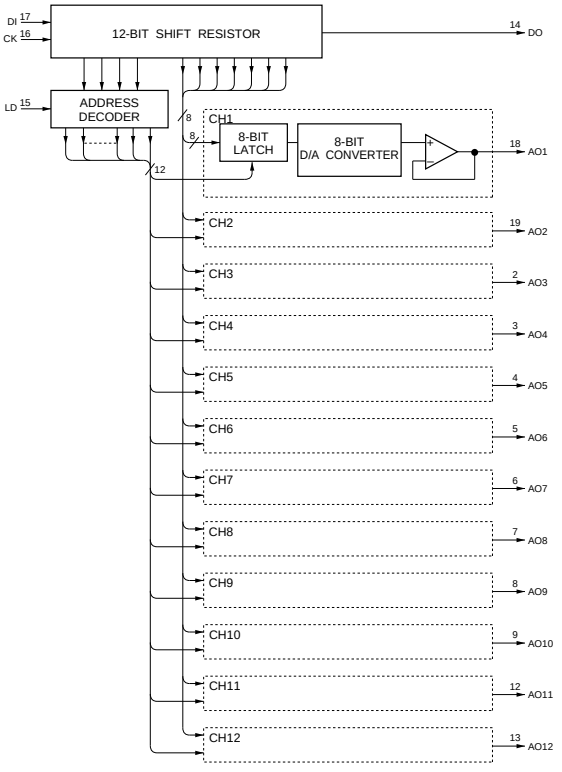
C-MOS 8-BITx12 CHANNEL D/A CONVERTER
(WITH BUFFER OPERATIONAL AMPLIFIER)
— TOP VIEW —





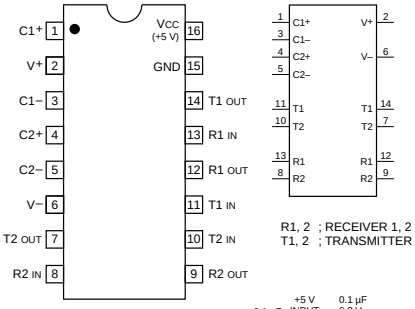
AO1-AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT

NOTE:
3.5 V < V_{DD} < V_{CC}
–3.5 V < V_{SS} < V_{CC}

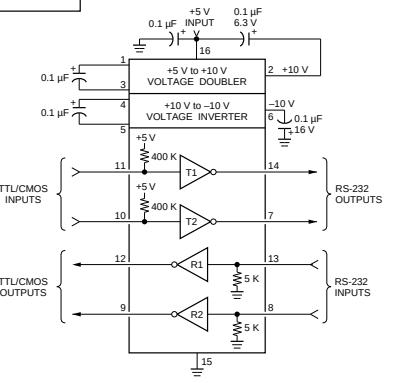


MAX202CSE(MAXIM)

RS-232 TRANSMITTER/RECEIVER
— TOP VIEW —

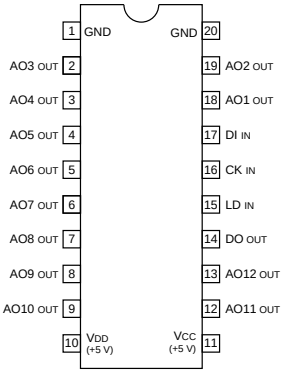


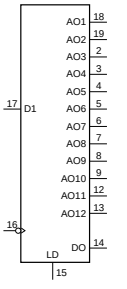
R1, 2 ; RECEIVER 1, 2
T1, 2 ; TRANSMITTER 1, 2



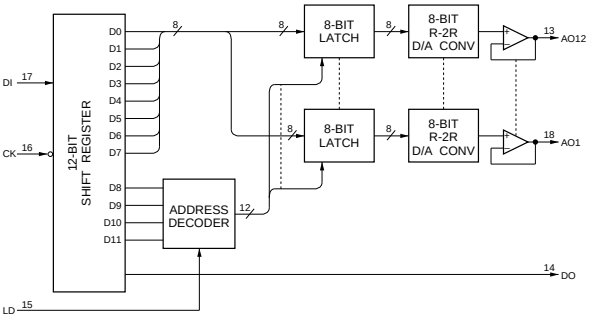
MB88346BPFV(FUJITSU)FLAT PACKAGE(SMALL)

C-MOS 8-BIT D/A CONVERTER
— TOP VIEW —



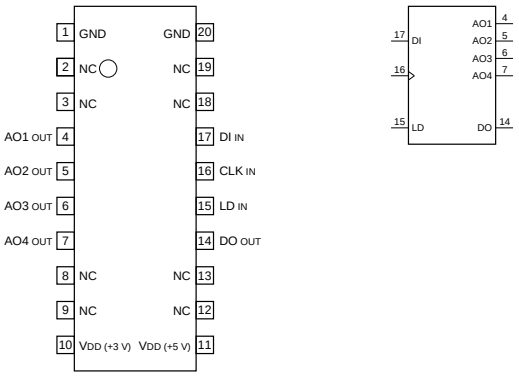


AO1 - AO12	; 8-BIT D/A OUTPUTS
CK	; CLOCK INPUT
DI	; SERIAL DATA INPUT
DO	; DATA OUTPUT
LD	; DATA LOAD CONTROL INPUT (H ; LOAD)



MB88351PFV(FUJITSU)FLAT PACKAGE

C-MOS 12-BIT D/A CONVERTER WITH OPERATIONAL AMPLIFIER
— TOP VIEW —

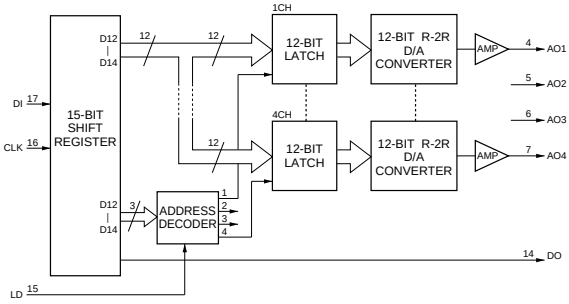


INPUT
CLK ; SHIFT CLOCK
DI ; SERIAL DATA
LD ; DECODER AND D/A REGISTER TO LOAD

OUTPUT
AO1-AO4 ; ANALOG DATA
DO ; MBS BIT DATA IN 15-BIT SHIFT REGISTER

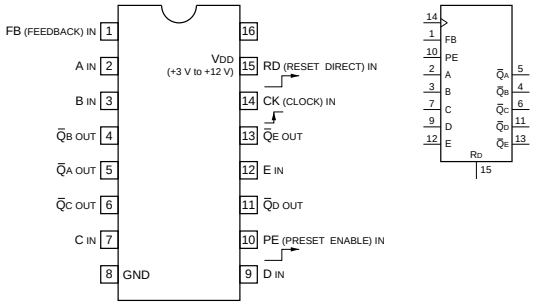
D12	D13	D14	ADDRESS SELECT
0	0	0	DON'T CARE
0	0	1	AO1 SELECT
0	1	0	AO2 SELECT
0	1	1	AO3 SELECT
1	0	0	AO4 SELECT
1	0	1	DON'T CARE
1	1	0	DON'T CARE
1	1	1	DON'T CARE

0 ; LOW LEVEL
1 ; HIGH LEVEL



MC14018BF(MOTOROL)FLAT PACKAGE

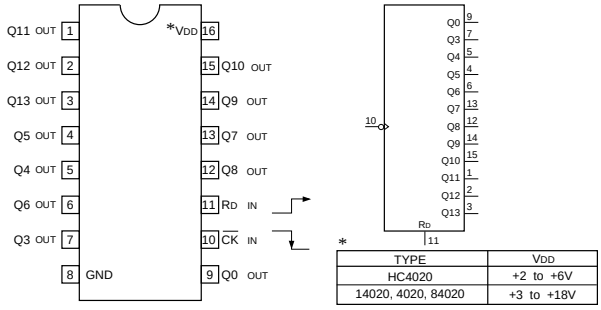
C-MOS PRESETTABLE DIVIDE-BY-N COUNTER
— TOP VIEW —



DIVIDE BY	CONNECT TO FB INPUT	VIA	RESULTS FROM EACH $\overline{Q}$ OUTPUT
10	$\overline{Q}_E$	DIRECT	5 COUNTS HIGH, 5 COUNTS LOW
9	$\overline{Q}_D$, $\overline{Q}_E$	AND GATE	5 COUNTS HIGH, 4 COUNTS LOW
8	$\overline{Q}_D$	DIRECT	4 COUNTS HIGH, 4 COUNTS LOW
7	$\overline{Q}_C$, $\overline{Q}_D$	AND GATE	4 COUNTS HIGH, 3 COUNTS LOW
6	$\overline{Q}_C$	DIRECT	3 COUNTS HIGH, 3 COUNTS LOW
5	$\overline{Q}_B$, $\overline{Q}_C$	AND GATE	3 COUNTS HIGH, 2 COUNTS LOW
4	$\overline{Q}_B$	DIRECT	2 COUNTS HIGH, 2 COUNTS LOW
3	$\overline{Q}_A$, $\overline{Q}_B$	AND GATE	2 COUNTS HIGH, 1 COUNTS LOW
2	$\overline{Q}_A$	DIRECT	1 COUNTS HIGH, 1 COUNTS LOW

MC14020BF(MOTOROLA)FLAT PACKAGE

C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER
—TOP VIEW—



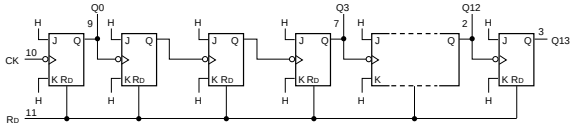
TYPE	VDD
HC4020	+2 to +6V
14020, 4020, 84020	+3 to +18V

COUNT		BINARY OUTPUTS											
		Q13	Q12	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q0
0	0000	0	0	0	0	0	0	0	0	0	0	0	0
1	0001	0	0	0	0	0	0	0	0	0	0	0	1
2	0002	0	0	0	0	0	0	0	0	0	0	0	0
3	0003	0	0	0	0	0	0	0	0	0	0	0	1
4	0004	0	0	0	0	0	0	0	0	0	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
16380	4FFC	1	1	1	1	1	1	1	1	1	1	1	0
16381	4FFD	1	1	1	1	1	1	1	1	1	1	1	1
16382	4FFE	1	1	1	1	1	1	1	1	1	1	1	0
16383	4FFF	1	1	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

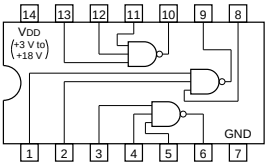
0 ; LOW LEVEL
1 ; HIGH LEVEL

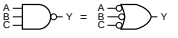
RD	Q13-Q0
1	ALL LOW
0	COUNT



MC14023BF(MOTOROLA)FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
— TOP VIEW —





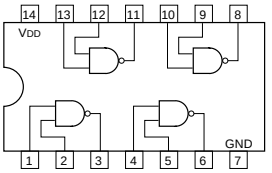
$Y = \overline{A \cdot B \cdot C} = \overline{A} + \overline{B} + \overline{C}$

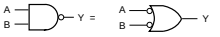
A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC74HC00AF(MOTOROLA)FLAT PACKAGE
TC74HC00AF(TOSHIBA)FLAT PACKAGE
TC74VHC00FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT NAND GATES
—TOP VIEW—





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

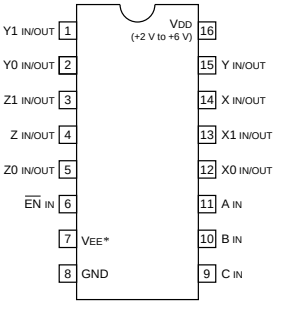
0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE:

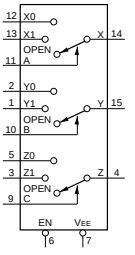
TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

MC74HC4053F(MOTOROLA)FLAT PACKAGE
TC74HC4053AFS(TOSHIBA)FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



VEE*; VDD – VEE = +3 V to +12 V
VEE ≦ GND

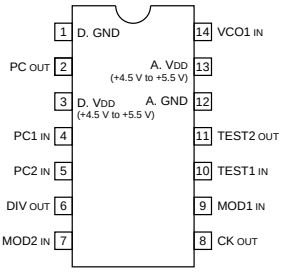


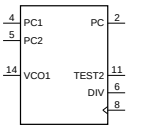
CONTROL INPUTS				ON CHANNEL		
EN	SELECT					
	C	B	A			
0	0	0	0	Z0	Y0	X0
0	0	0	1	Z0	Y0	X1
0	0	1	0	Z0	Y1	X0
0	0	1	1	Z0	Y1	X1
0	1	0	0	Z1	Y0	X0
0	1	0	1	Z1	Y0	X1
0	1	1	0	Z1	Y1	X0
0	1	1	1	Z1	Y1	X1
1	X	X	X	OPEN		

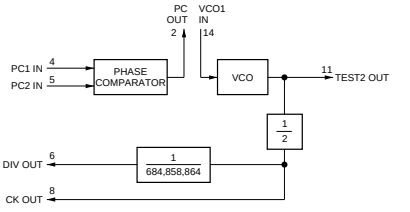
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MN6790S(MATSUSHITA)

C-MOS CLOCK GENERATOR
— TOP VIEW —







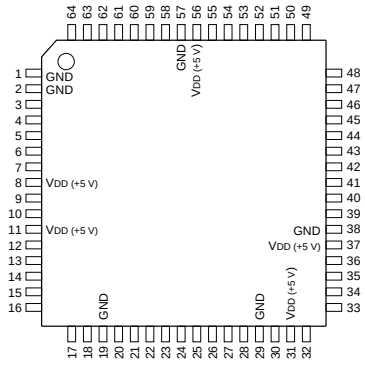
MOD1	MOD2	FREQUENCY RATIO	VCO	MOTE
0	0	1/684	OSCILLATION	——
1	0	1/858		
0	1	1/864		
1	1	——	STANDSTILL	CK = DIV = L

0 ; LOW LEVEL
1 ; HIGH LEVEL

MN8232A(MATSUSHITA)

PICTURE IN PICTURE/PICTURE OUT PICTURE CONTROLLER

— TOP VIEW —

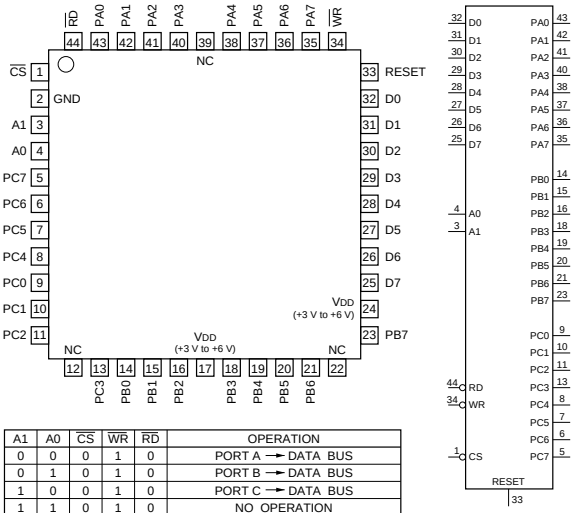


PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	GND	17	O	RY	33	O	YS	49	O	RAS
2	—	GND	18	O	BY	34	I	HP	50	O	WE
3	—	VRB	19	—	GND	35	O	PPC	51	O	DT
4	I	TEST0	20	I	RST	36	I	PVC	52	O	SC
5	I	Y	21	I	SCL	37	—	VDD	53	I	LEV1
6	I	RY	22	O	SDA	38	—	GND	54	I	LEV0
7	I	BY	23	I	VPD	39	O	A0	55	I	DI3
8	—	VDD	24	I	VCD	40	O	A1	56	—	VDD
9	—	VRT	25	I	CKCNT	41	O	A2	57	—	GND
10	I	TEST1	26	I	CVC	42	O	A3	58	I	DI2
11	—	VDD	27	O	CPC	43	O	A4	59	I	DI1
12	I	IREF	28	I	HC	44	O	A5	60	I	DI0
13	I	VREF	29	—	GND	45	O	A6	61	I/O	DO3
14	O	Y	30	I	IREFVC	46	O	A7	62	I/O	DO2
15	I	COMP	31	—	VDD	47	O	A8	63	I/O	DO1
16	I	VIB	32	O	CLAMP	48	O	CAS	64	I/O	DO0

MSM82C55A-2GS(OKI)FLAT PACKAGE

C-MOS PROGRAMMABLE PERIPHERAL INTERFACE

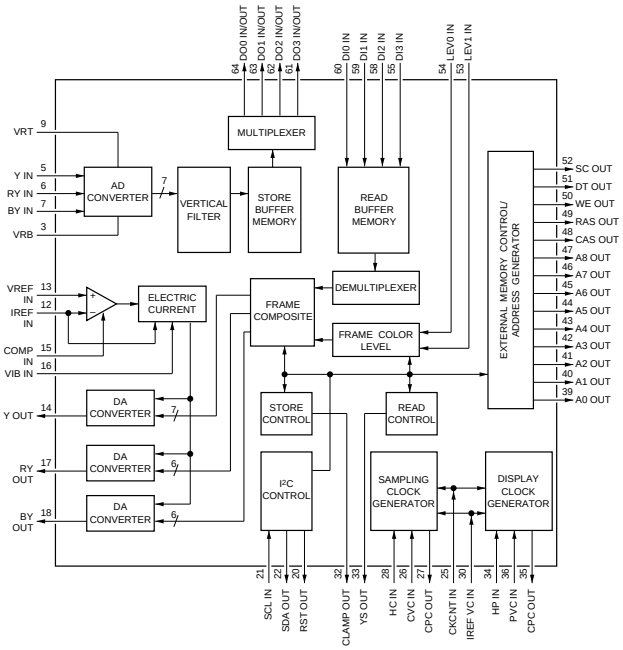
— TOP VIEW —

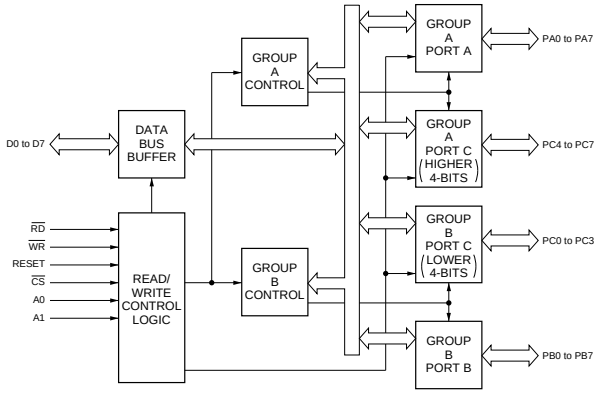


A1	A0	$\overline{CS}$	$\overline{WR}$	$\overline{RD}$	OPERATION
0	0	0	1	0	PORT A → DATA BUS
0	1	0	1	0	PORT B → DATA BUS
1	0	0	1	0	PORT C → DATA BUS
1	1	0	1	0	NO OPERATION
0	0	0	0	1	DATA BUS → PORT A
0	1	0	0	1	DATA BUS → PORT B
1	0	0	0	1	DATA BUS → PORT C
1	1	0	0	1	DATA BUS → CONTROL REGISTER
X	X	1	X	X	HIGH IMPEDANCE

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

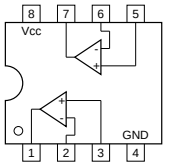
A0, A1 ; PORT SELECT ADDRESS
$\overline{CS}$; CHIP SELECT
D0 to 7 ; DATA BUS
PA0 to 7 ; PORT A IN/OUT
PB0 to 7 ; PORT B IN/OUT
PC0 to 7 ; PORT C IN/OUT
$\overline{RD}$; READ
$\overline{WR}$; WRITE





NJM3414AM(SNM)FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —

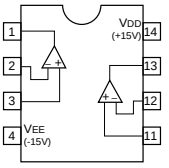


NOTE:

TYPE	Vcc
TA75358P	+12V
NJM3414M RC3414M	+15V
M5223FP	+36V

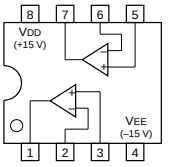
NJM4556AM-A(NEC)FLAT PACKAGE

OPERATIONAL AMPLIFIER
(WIDE BAND, DECOMPENSATED)
—TOP VIEW—



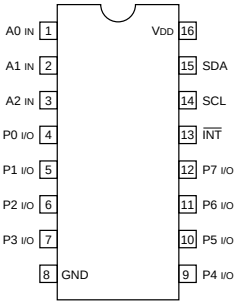
NJM4558V(JRC)FLAT PACKAGE
NJU7022M(JRC)FLAT PACKAGE

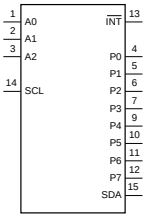
DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —



PCF8574AT(PHILIPS)
PCF8574T(PHILIPS)

C-MOS REMOTE 8-BIT I/O EXPANDER
— TOP VIEW —

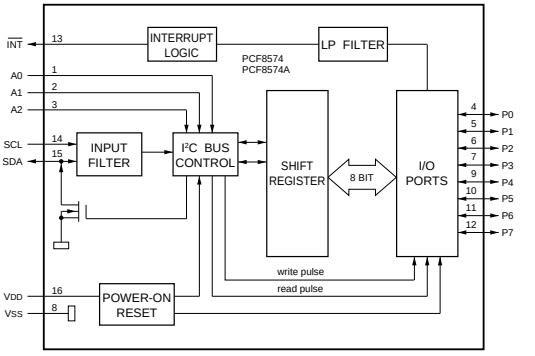




INPUT
A0 - A2 ; ADDRESS INPUTS
SCL ; SYSTEM CLOCK LINE

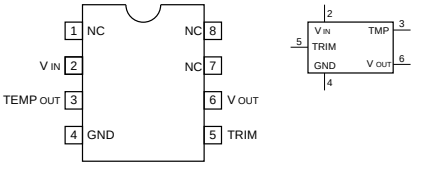
OUTPUT
$\overline{INT}$; INTERRUPT OUTPUT
SDA ; SERIAL DATA LINE

INPUT/OUTPUT
P0 - P7 ; 8-BITS QUASI-BIDIRECTIONAL I/O PORT



REF-03GS(PMI)

REFERENCE/TEMPERATURE TRANSDUCER
— TOP VIEW —

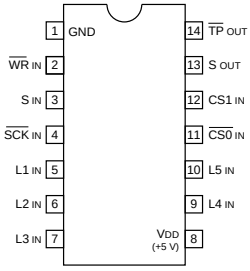


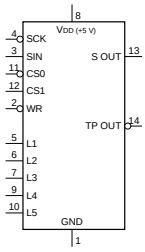
V IN ; INPUT VOLTAGE (+4.5 V to +33 V)
TEMP OUT ; TEMPERATURE TRANSDUCER VOLTAGE OUTPUT
TRIM IN ; OUTPUT SIGNAL TRIMMING
V OUT ; OUTPUT VOLTAGE (+2.5 V)

RTC4553B(EPSON)

C-MOS REAL TIME CLOCK

— TOP VIEW —



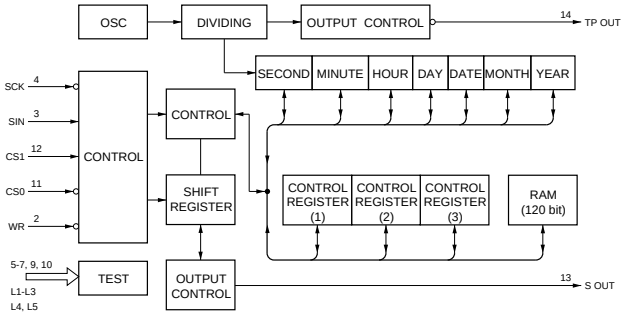


INPUT

$\overline{CS0}$	; CHIP SELECT (L: ACCESS ENABLE, H: SOUT HIGH Z)
CS1	; POWER DOWN DETECTION
L1-L5	; TEST IN
$\overline{SCK}$	; SERIAL SYNC SIGNAL
SIN	; SERIAL ADDRESS/DATA
$\overline{WR}$	; WRITING SELECT (L: WRITING, H: READING)

OUTPUT

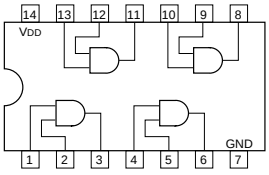
SOUT	; SERIAL ADDRESS/DATA
$\overline{TPOUT}$	; REFERENCE SIGNAL

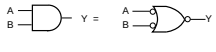


SN74HC08ANS(TI)FLAT PACKAGE
SN74HC08APW(TI)FLAT PACKAGE
TC74VHC08FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT AND GATES

—TOP VIEW—





$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

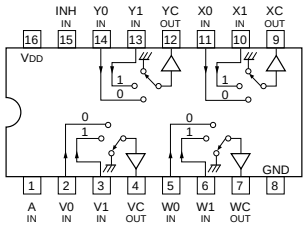
NOTE:

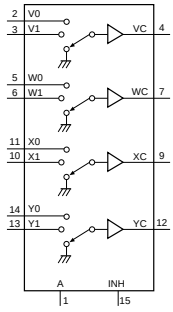
TYPE	VDD
TC74AC08 TYPE MC74ACT08M	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

SN74HC157APW(TI)FLAT PACKAGE
TC74VHC157FS(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/ DEMULTIPLEXER

—TOP VIEW—





NOTE:

TYPE	VDD
74ACT/74FCT	+5V
TC74AC157P TC74AC157	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

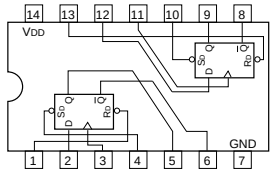
CONT.IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC74ANS(TI)FLAT PACKAGE
TC74VHC74F(TOSHIBA)FLAT PACKAGE
TC74VHC74FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

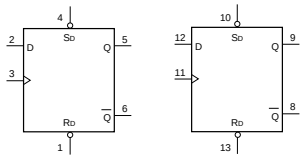
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET

—TOP VIEW—



INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



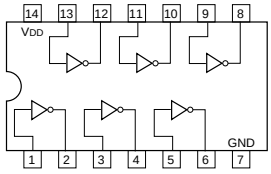
NOTE:

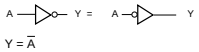
TYPE	VDD
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

SN74HCT04APW(TOSHIBA)FLAT PACKAGE
TC74VHC04FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

A	Y
0	1
1	0

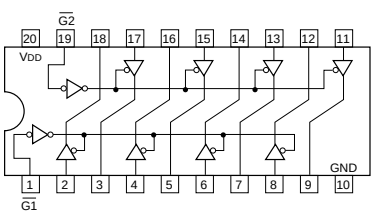
0 ; LOW LEVEL
1 ; HIGH LEVEL

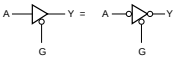
NOTE:

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HCT244APW-E05(TI)FLAT PACKAGE
TC74VHC244FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

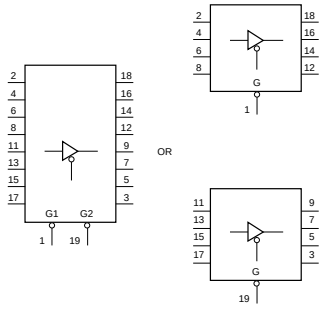
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
—TOP VIEW—





G	A	Y
0	0	0
0	1	1
X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

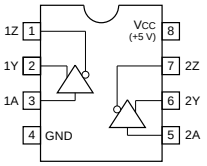


NOTE:

TYPE	VDD
AC HC 40H	+2 to +6V
ACT BCT FCT HCT	+5V
TC74AC244 TYPE TC74VHC244	+2 to +5.5V

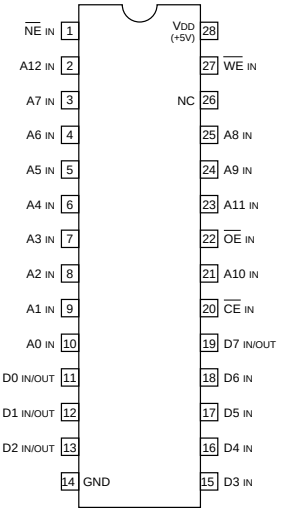
SN75158PS(TI)

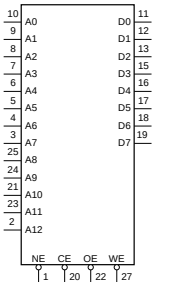
DUAL DIFFERENTIAL LINE DRIVE
— TOP VIEW —



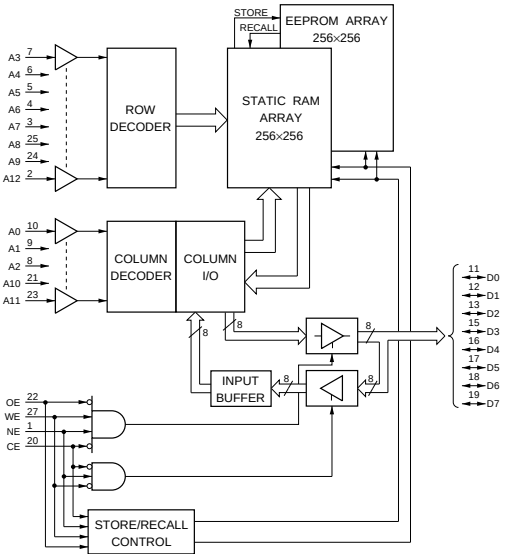
STK10C68-5S35(SIMTEK)FLAT PACKAGE

C-MOS 8K×8-BIT NONVOLATILE STATIC RAM
— TOP VIEW —



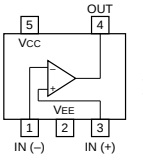


A0 - A12 ; ADDRESS INPUTS
$\overline{CE}$; CHIP ENABLE INPUT
D0 - D7 ; DATA INPUTS/OUTPUTS
$\overline{NE}$; NONVOLATILE ENABLE INPUT
$\overline{OE}$; OUTPUT ENABLE INPUT
$\overline{WE}$; WRITE ENABLE INPUT



TA75S393F(TOSHIBA)

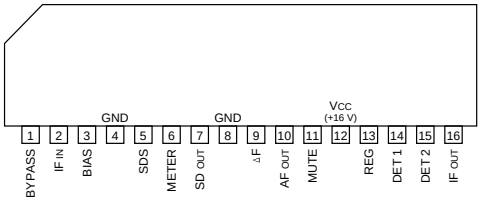
SINGLE COMPARATOR
— TOP VIEW —

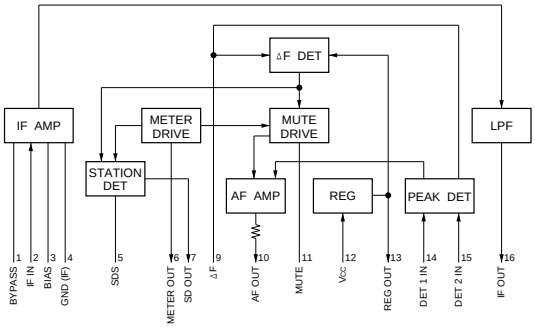


VCC ; +1 V to +18 V or +2 V to +36 V
VEE ; –1 V to –18 V

TA8129Z(TOSHIBA)

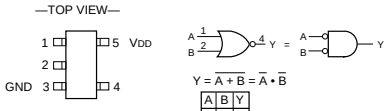
FM IF SYSTEM (DIFFERENTIAL PEAK DETECT)
— SIDE VIEW —





TC4S01F(TOSHIBA)CHIP PACKAGE
TC7S02FU(TOSHIBA)CHIP PACKAGE
TC7SH02FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NOR GATE



$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

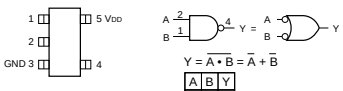
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
4S01F	+3 to +18V
7S02F 7S02FU 7SH02FU	+2 to +6V

TC4S11F(TOSHIBA)CHIP PACKAGE
TC7S00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
— TOP VIEW —



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

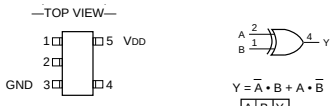
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S00F 7S00FU	+2 to +6 V
4S11F 4SU11F	+3 to +18 V
7SH00FU	+2 to +5.5 V

TC4S30F(TOSHIBA)CHIP PACKAGE
TC7S86FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT EXCLUSIVE OR GATE



$Y = \overline{A} \cdot B + A \cdot \overline{B}$

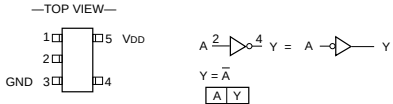
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S86FU 7S86F	+2 to +6V
4S30F	+3 to +18V

TC4S69F(TOSHIBA)CHIP PACKAGE
TC4SU69F(TOSHIBA)CHIP PACKAGE
TC7S04FU(TOSHIBA)CHIP PACKAGE
TC7SH04FU(TOSHIBA)CHIP PACKAGE

C-MOS INVERTER



$Y = \overline{A}$

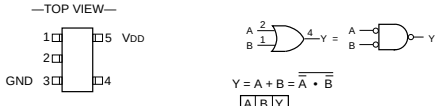
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S04F 7SU04F 7SU04FU	+2 to +6V
4S69F 4SU69F	+3 to +18V
7SH04FU	+2 to +5.5V

TC4S71F(TOSHIBA)CHIP PACKAGE
TC7S32FU(TOSHIBA)CHIP PACKAGE
TC7SH32FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT OR GATE



$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

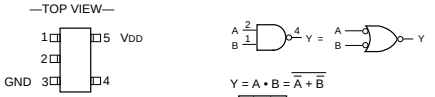
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S32F 7S32FU	+2 to +6V
4S71F	+3 to +18V
7SH32FU	−2 to +5.5V

TC4S81F(TOSHIBA)CHIP PACKAGE
TC7S08FU(TOSHIBA)CHIP PACKAGE
TC7SH08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE



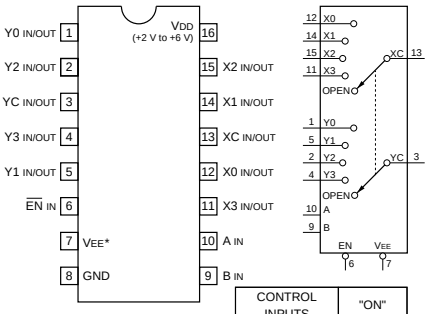
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S08F 7S08FU	+2 to +6V
4S81F 14S81F	+3 to +18V
7SH08FU	–2 to +5.5V

TC74HC4052AFS(EL)(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



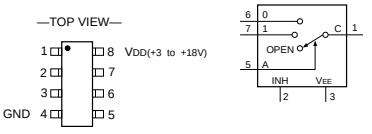
VEE* ; VDD – VEE = +3 V to +12 V

CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC4W53FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER

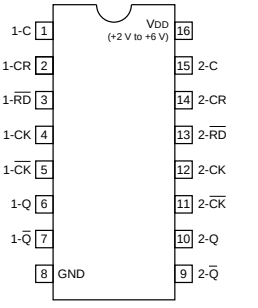


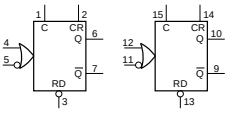
CONT.INPUT		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	OPEN

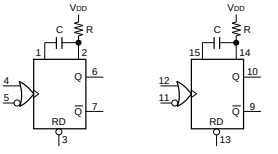
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC74HC4538AFS(TOSHIBA)FLAT PACKAGE

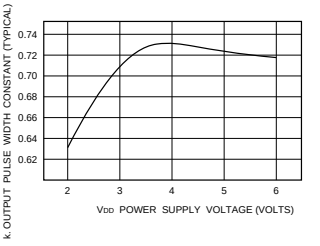
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



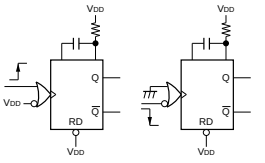




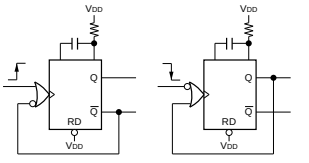
OUTPUT PULSE WIDTH = k · C · R



RETRIGGERABLE M. M. V

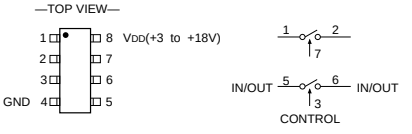


NON-RETRIGGERABLE M. M. V



TC4W66FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL BILATERAL SWITCH

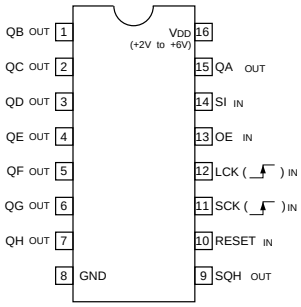


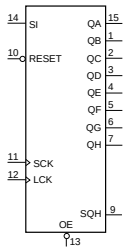
CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

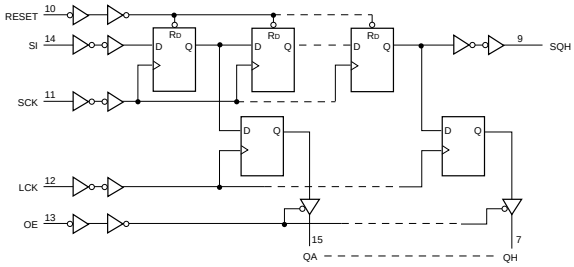
TC74HC595AF(TOSHIBA)FLAT PACKAGE

C-MOS 8-BIT SERIAL-INPUT/SERIAL- OR PARALLEL-OUTPUT
SHIFT REGISTER WITH LATCHED 3-STATE OUTPUT
—TOP VIEW—



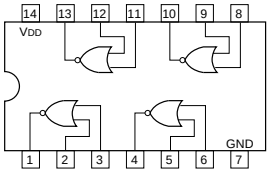


OE ; OUTPUT ENABLE INPUT
LCK ; LATCH CLOCK INPUT
SCK ; SHIFT CLOCK INPUT
RESET ; SHIFT-REGISTER RESET INPUT
SI ; SERIAL IN
QA-QH ; PARALLEL OUTPUT
SQH ; SERIAL OUT



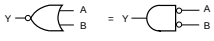
TC74VHC02F(TOSHIBA)FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES
—TOP VIEW—



NOTE:

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT	+5V



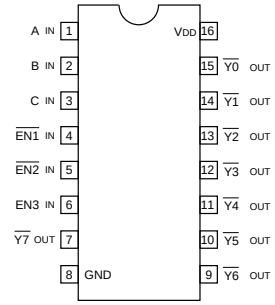
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

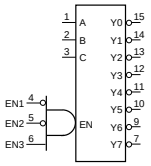
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74VHC138FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—





NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

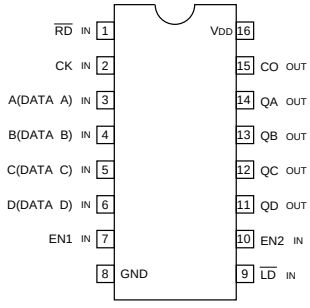
INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

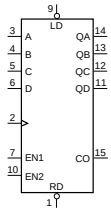
TC74VHC163F(TOSHIBA)FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
—TOP VIEW—



NOTE:

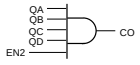
TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
HCT/ACT/FCT	+5V



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"



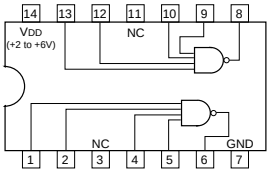
CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

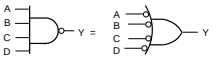
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

TC74VHC20F(TOSHIBA)FLAT PACKAGE

C-MOS 4-INPUT POSITIVE-NAND GATE
—TOP VIEW—





$Y = \overline{A \cdot B \cdot C \cdot D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
⋮	⋮	⋮	⋮	⋮
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

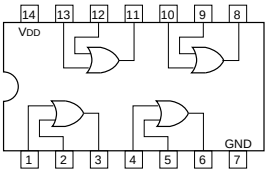
0 ; LOW LEVEL
1 ; HIGH LEVEL

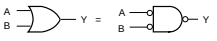
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC32FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

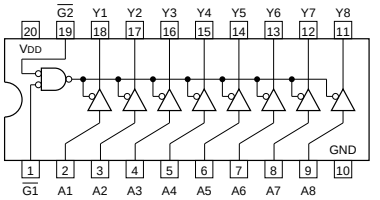
0 ; LOW LEVEL
1 ; HIGH LEVEL

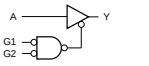
NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

TC74VHC541FS(EL)(TOSHIBA)FLAT PACKAGE(SMALL)

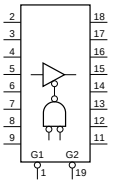
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
— TOP VIEW —





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

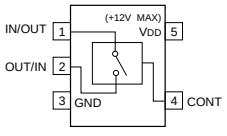


NOTE :

TYPE	VDD
AC/VHC	+2 V to +5.5 V
HC	+2 V to +6 V
ABT/ACT/BCT/HCT/VHCT	+5 V

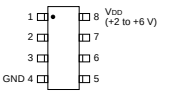
TC7S66FU(TOSHIBA)

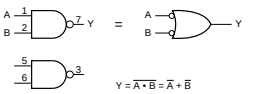
C-MOS ANALOG SWITCH
—TOP VIEW—



TC7W00FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –





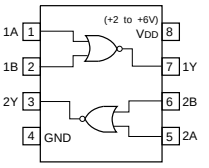
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

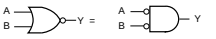
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC7W02F(TOSHIBA)FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE
—TOP VIEW—





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

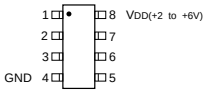
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

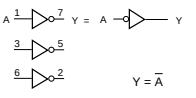
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W04FU(TOSHIBA)CHIP PACKAGE

C-MOS HEX INVERTERS

—TOP VIEW—





$Y = \overline{A}$

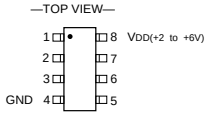
A	Y
0	1
1	0

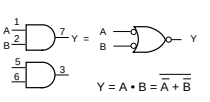
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W08FU(TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE

—TOP VIEW—





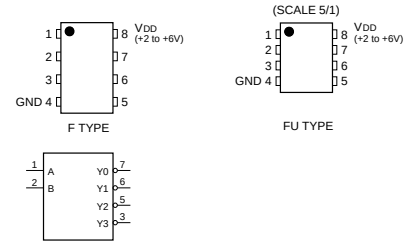
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7W139FU(TOSHIBA)CHIP PACKAGE

C-MOS 2 to 4 LINE DECODER WITH ENABLE
—TOP VIEW —

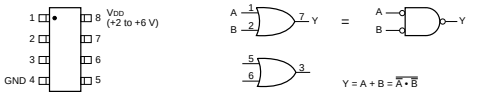


INPUTS		OUTPUTS				SELECTED OUTPUT
SELECT						
B	A	$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	
0	0	0	1	1	1	$\overline{Y0}$
0	1	1	0	1	1	$\overline{Y1}$
1	0	1	1	0	1	$\overline{Y2}$
1	1	1	1	1	0	$\overline{Y3}$

0 ; LOW LEVL
1 ; HIGH LEVEL

TC7W32FU(TOSHIBA)CHIP PACKAGE

C-MOS DUAL 2-INPUT OR GATE
—TOP VIEW—

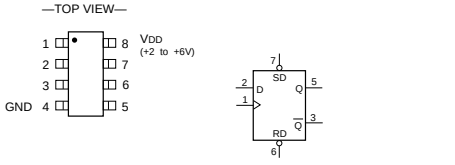


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC7W74FU(TOSHIBA)CHIP PACKAGE

C-MOS D-TYPE FLIP-FLOPS WITH DIRECT SET / RESET
—TOP VIEW—

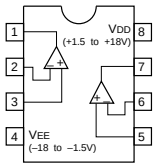


INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	↓	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

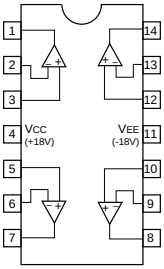
TL062CPW(TI)FLAT PACKAGE
TL082M(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



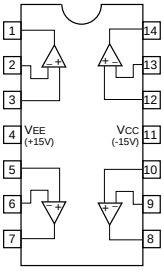
TL064CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



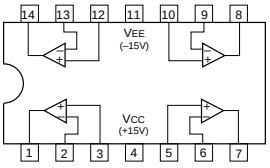
TL074CPW(TI)

OPERATIONAL AMPLIFIER
(LOW-NOISE, JFET-INPUT)
—TOP VIEW—



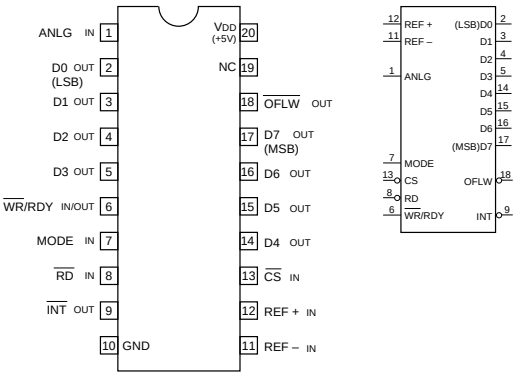
TL084CPW(TI)

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



TLC0820ACDW(TI)FLAT PACKAGE

C-MOS 8-BIT SEMIFLASH TYPE A / D CONVERTER
—TOP VIEW—



INPUT

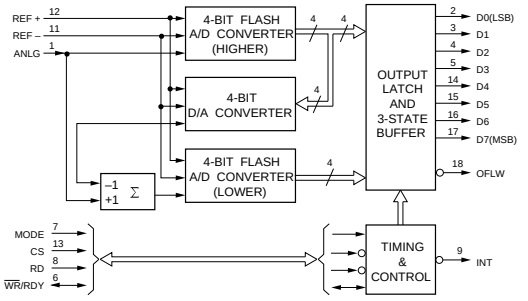
ANLG	;	ANALOG SIGNAL
$\overline{CS}$	;	CHIP SELECT
MODE	;	MODE
$\overline{RD}$	;	READ
REF+, REF–	;	REFERENCE VOLTAGE +, –

OUTPUT

D0-D7	;	DIGITAL SIGNAL
$\overline{INT}$	;	INTERRUPT
$\overline{OFLW}$	;	OVERFLOW

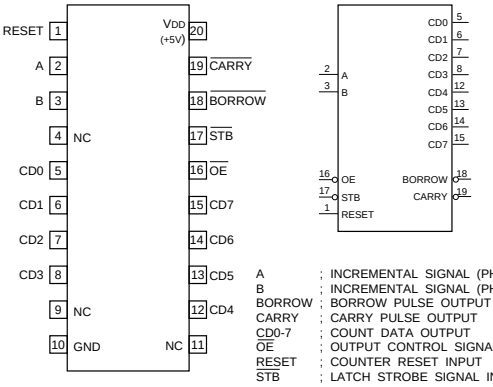
INPUT/OUTPUT

WR/RDY	;	L : WRITE/H : READY

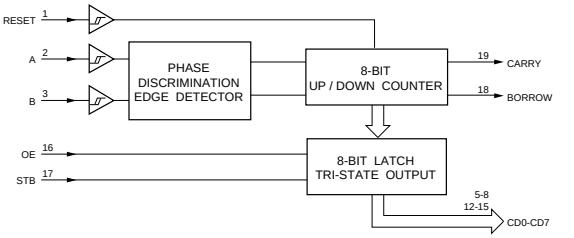


UPD4702G(NEC)

C-MOS INCREMENTAL ENCODER 8-BIT UP DOWN COUNTER
—TOP VIEW—

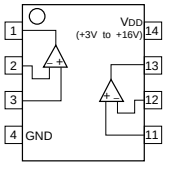


A	;	INCREMENTAL SIGNAL (PHASE A) INPUT
B	;	INCREMENTAL SIGNAL (PHASE B) INPUT
BORROW	;	BORROW PULSE OUTPUT
CARRY	;	CARRY PULSE OUTPUT
$\overline{CD}$0-7	;	COUNT DATA OUTPUT
$\overline{OE}$	;	OUTPUT CONTROL SIGNAL INPUT
$\overline{RESET}$	;	COUNTER RESET INPUT
$\overline{STB}$	;	LATCH STROBE SIGNAL INPUT



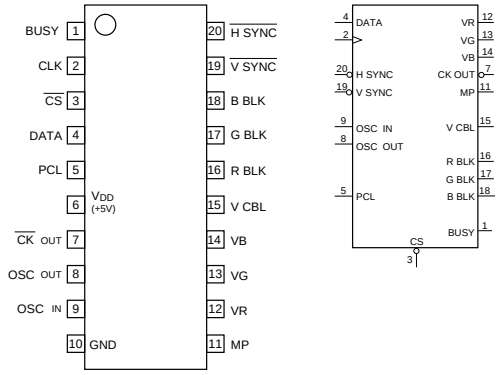
TLC272CP
TLC272CPW(TI)
TLC27L2CPS(TI)FLAT PACKAGE

OPERATIONAL AMPLIFIER
—TOP VIEW—



UPD6453GT-610(NEC)FLAT PACKAGE

C-MOS ON-SCREEN CHARACTER DISPLAY
—TOP VIEW—

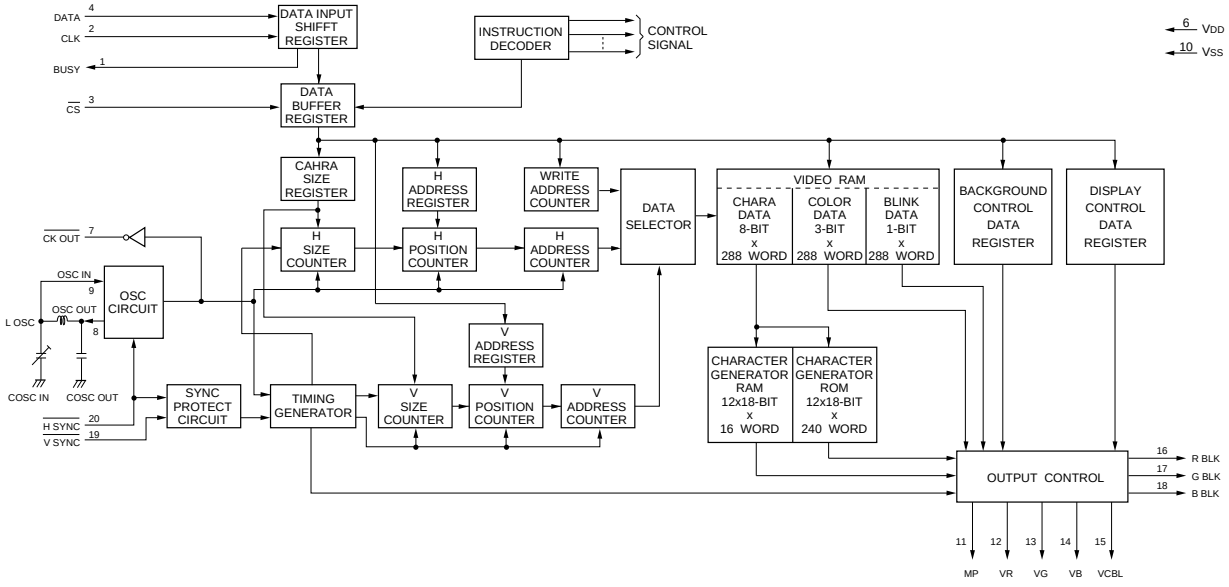


INPUT

CLK	;	CLOCK
$\overline{CS}$	;	CHIP SELECT
DATA	;	SERIAL DATA
$\overline{H\ SYNC}$	;	HORIZONTAL SYNC
OSC IN	;	OSCILLATOR IN
$\overline{PCL}$	;	POWER ON CLEAR
$\overline{V\ SYNC}$	;	VERTICAL SYNC

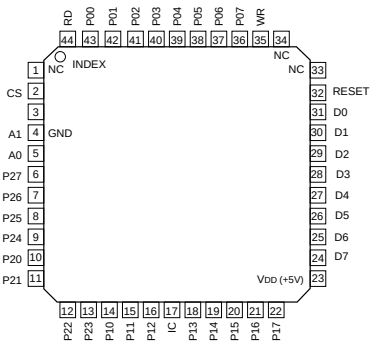
OUTPUT

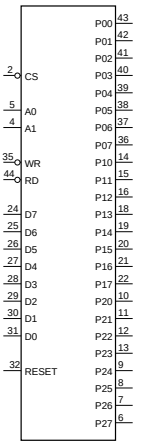
B_{BLK}, R_{BLK}, G_{BLK}	;	B, R, G, BLANKING
$\overline{BUSY}$	;	BUSY OUT
$\overline{CK\ OUT}$	;	CLOCK
MP	;	MASK PULSE
OSC OUT	;	OSCILLATOR OUT
V_R, V_G, V_B	;	R, G, B, CHARACTER DATA
V_{CBL}	;	VIDEO CUT BLANKING



UPD71055GB-10-3B4(NEC)FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
—TOP VIEW—



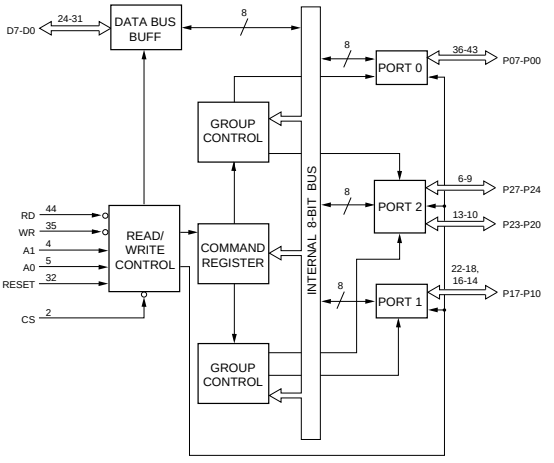


A1, A0	; ADDRESS	P17-P10	; PORT 1
CS	; CHIP SELECT	P27-P20	; PORT 2
D7-D0	; DATA BUS	RD	; READ STROBE
P07-P00	; PORT 0	WR	; WRITE STROBE

IC ; INTERNALLY CONNECTED

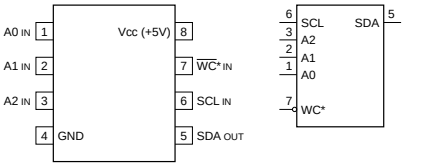
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PORT0→DATA • BUS	INPUT
0	0	1	0	1	PORT1→DATA • BUS	INPUT
0	0	1	1	0	PORT2→DATA • BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA • BUS→PORT0	OUTPUT
0	1	0	0	1	DATA • BUS→PORT1	OUTPUT
0	1	0	1	0	DATA • BUS→PORT2	OUTPUT
0	1	0	1	1	DATA • BUS→COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

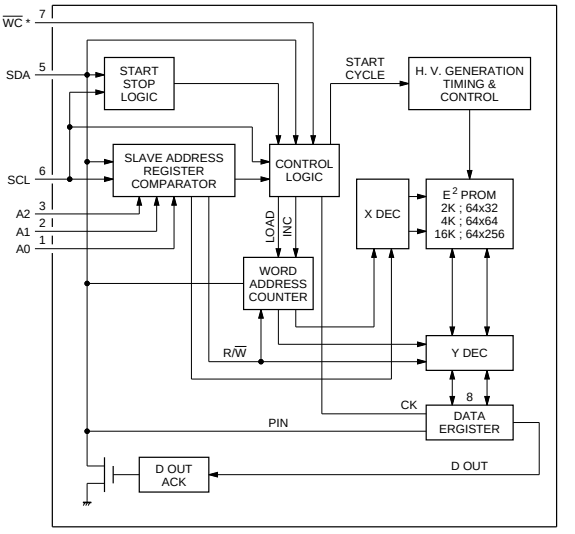
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



X24164SI(XICOR)(16K BIT)FLAT PACKAGE
X24C02S-3.0(XICOR)(2K BIT)FLAT PACKAGE

C-MOS SERIAL EEPROM
- TOP VIEW -



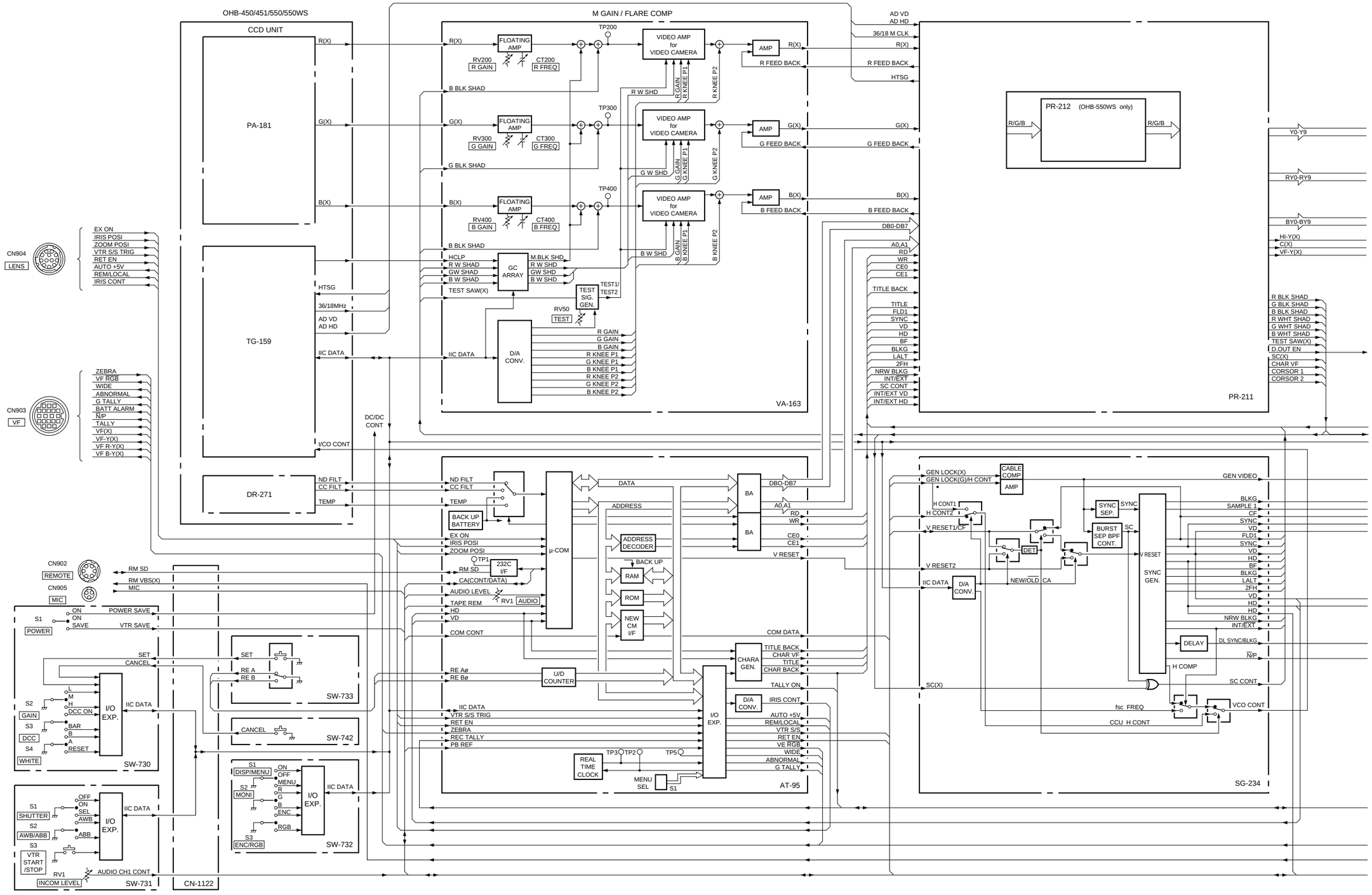


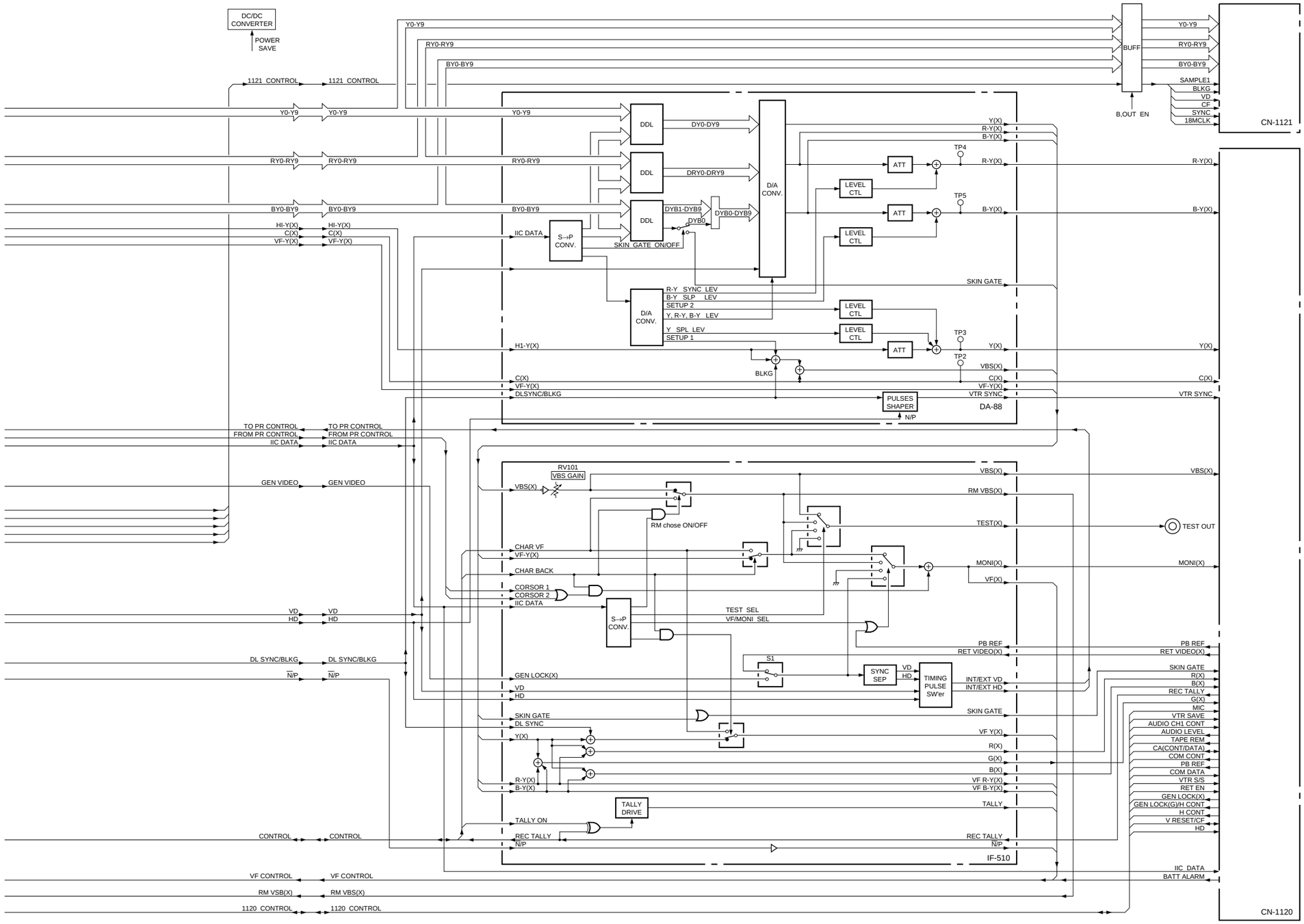
NOTE : * TEST (at X24164SIC7000)

Section 7
Block Diagrams

7-1

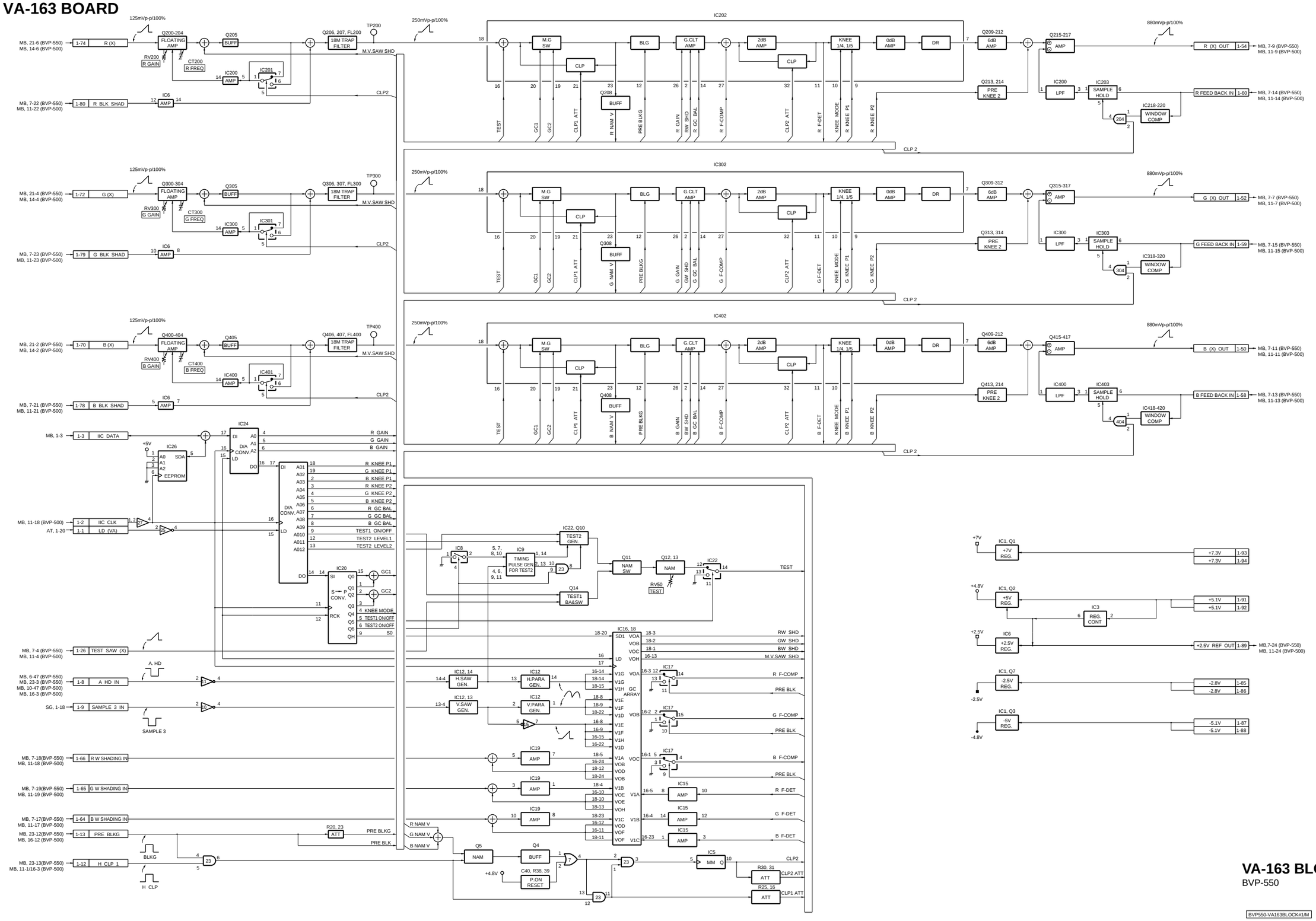
OVERALL BLOCK





OVERALL BLOCK
BVP-550

VA-163 BOARD

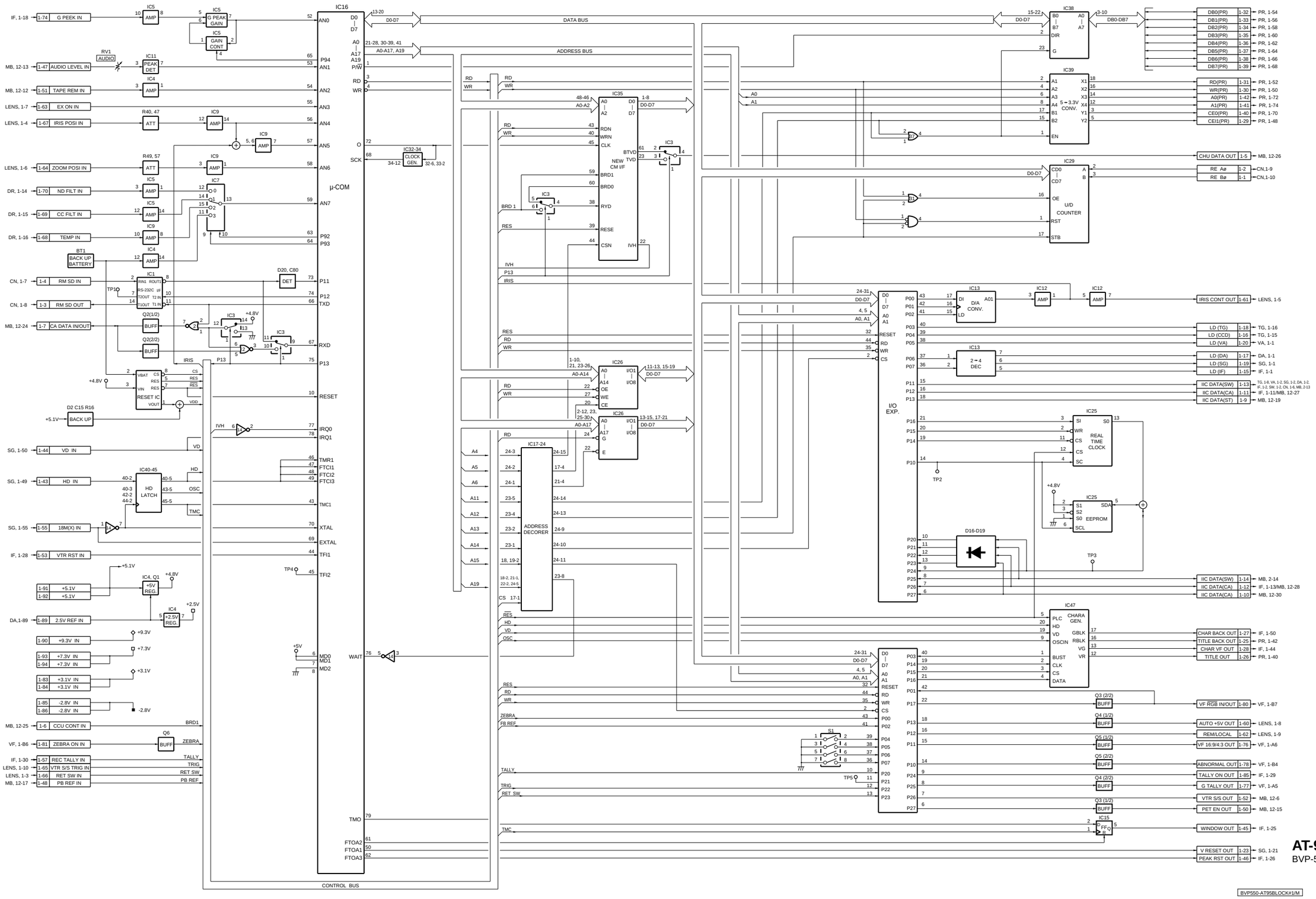


VA-163 BLOCK

BVP-550

BVP550-VA163BLOCK#1/M

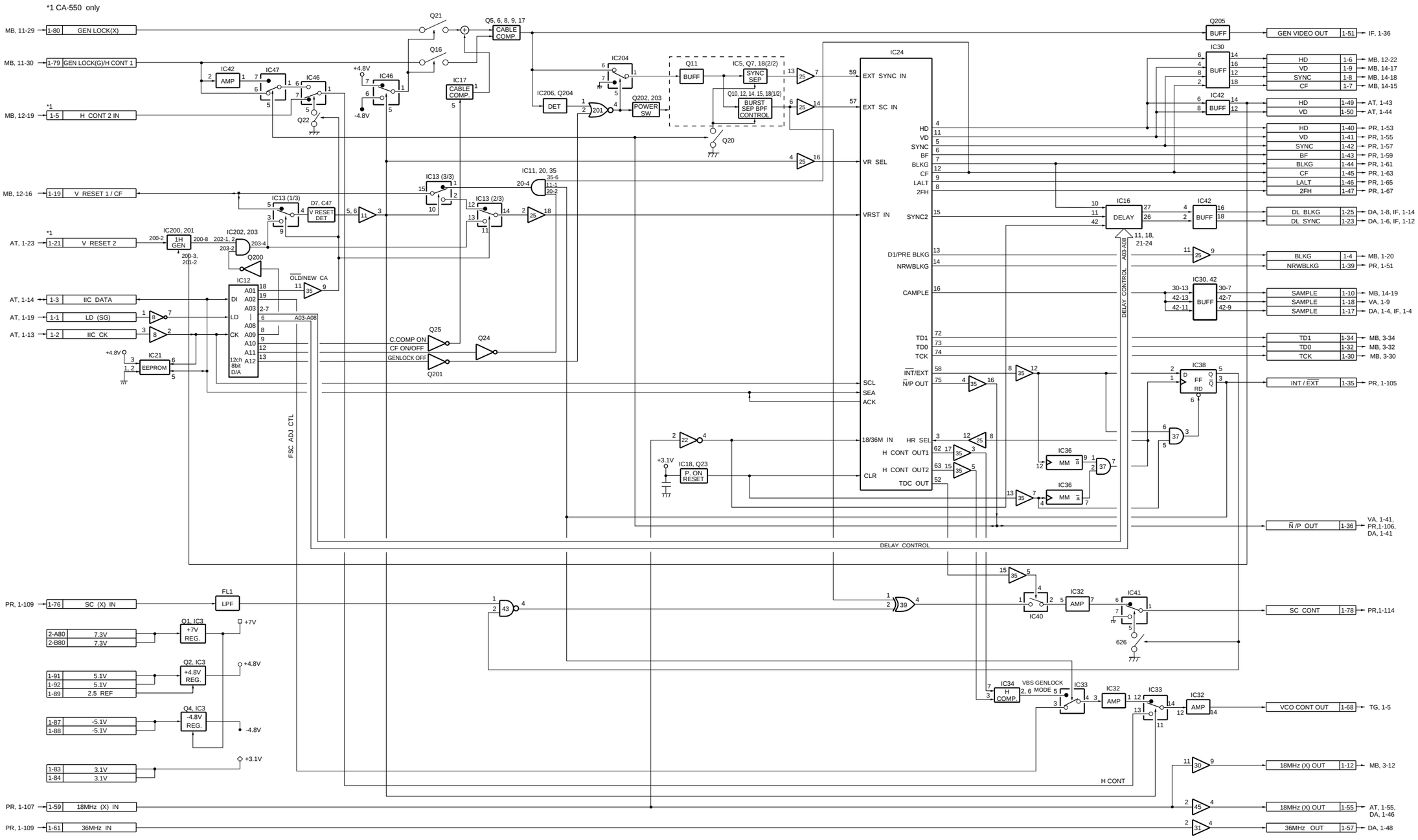
AT-95 BOARD



AT-95 BLOCK
BVP-550

BVP550-AT95BLOCK#1/M

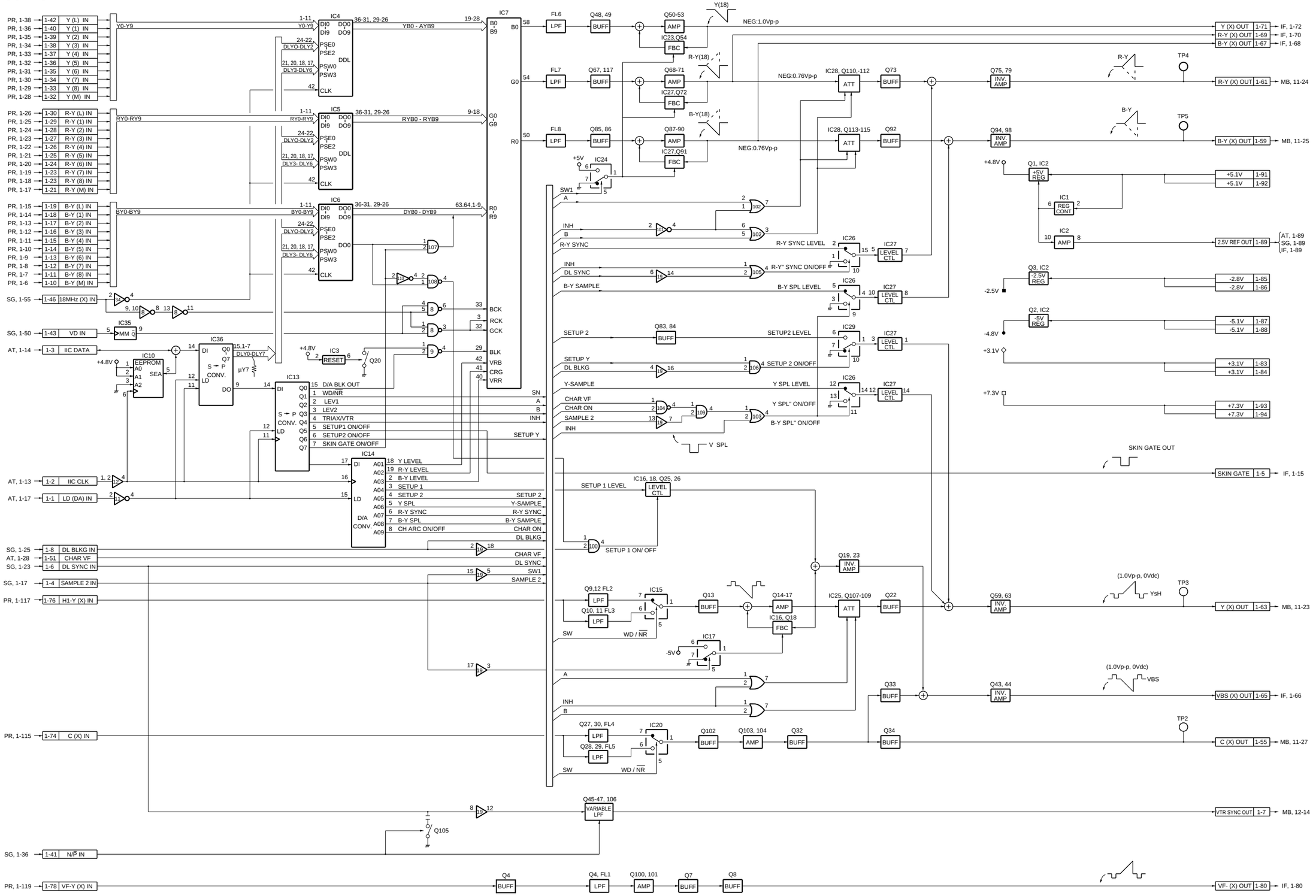
SG-234 BOARD



SG-234 BLOCK
BVP-550

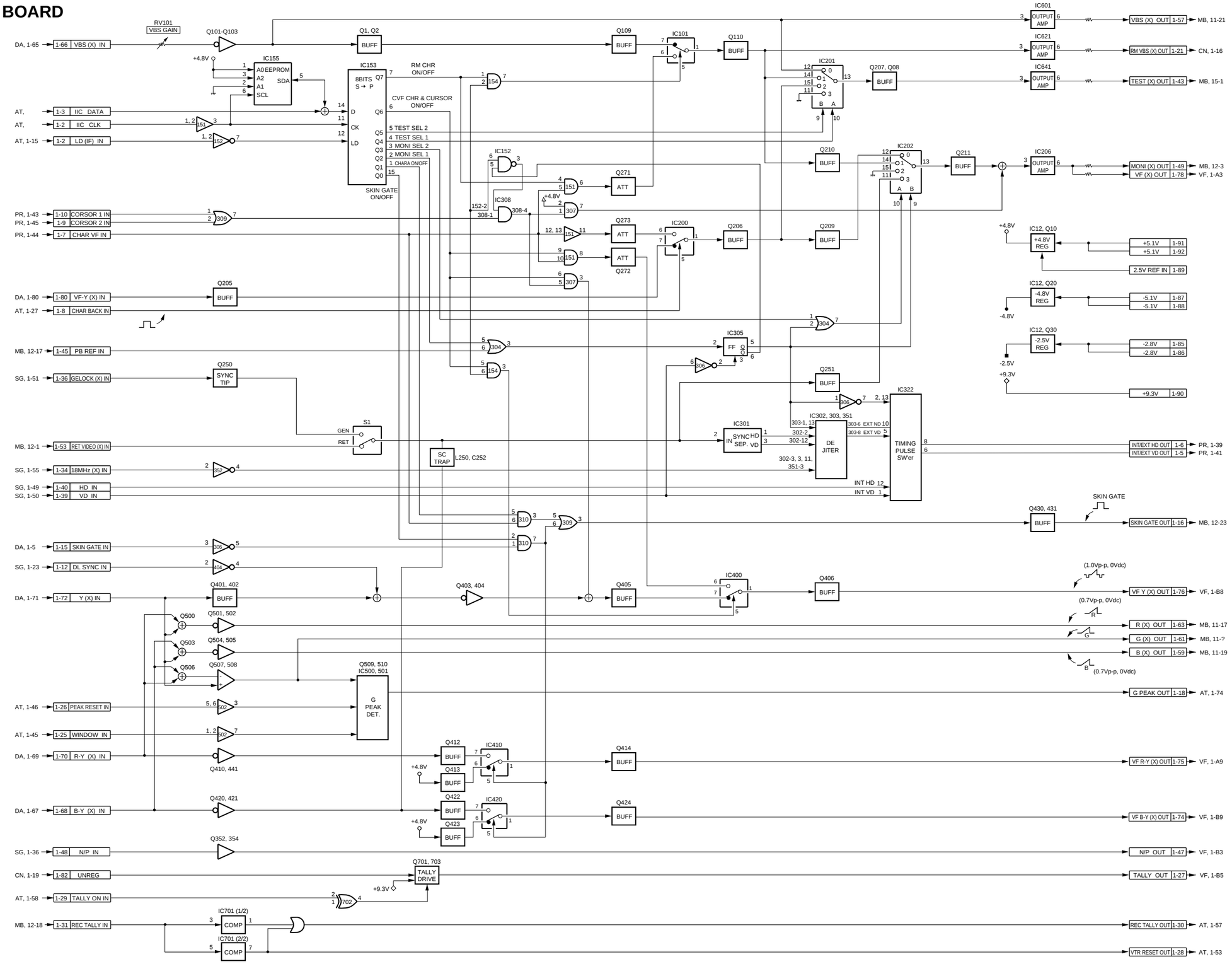
BVP550-SG234BLOCK#1/M

DA-88 BOARD



DA-88 BLOCK
BVP-550
BVP550-DA88BLOCK#1/M

IF-510 BOARD

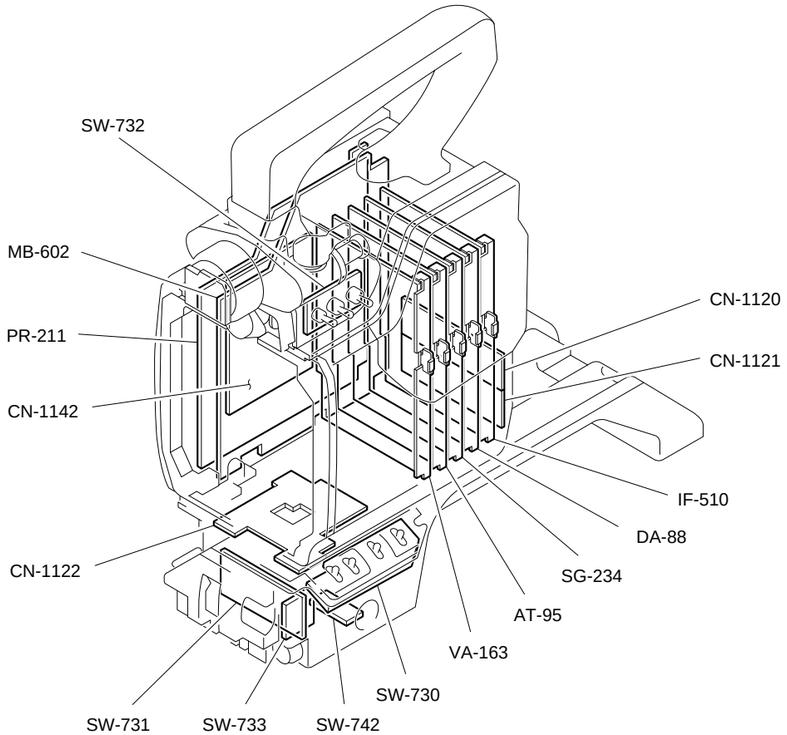


IF-510 BLOCK
BVP-550

BVP550-IF510BLOCK#1/M

Section 8
Schematic Diagrams

LOCATION OF PRINTED CIRCUIT BOARDS



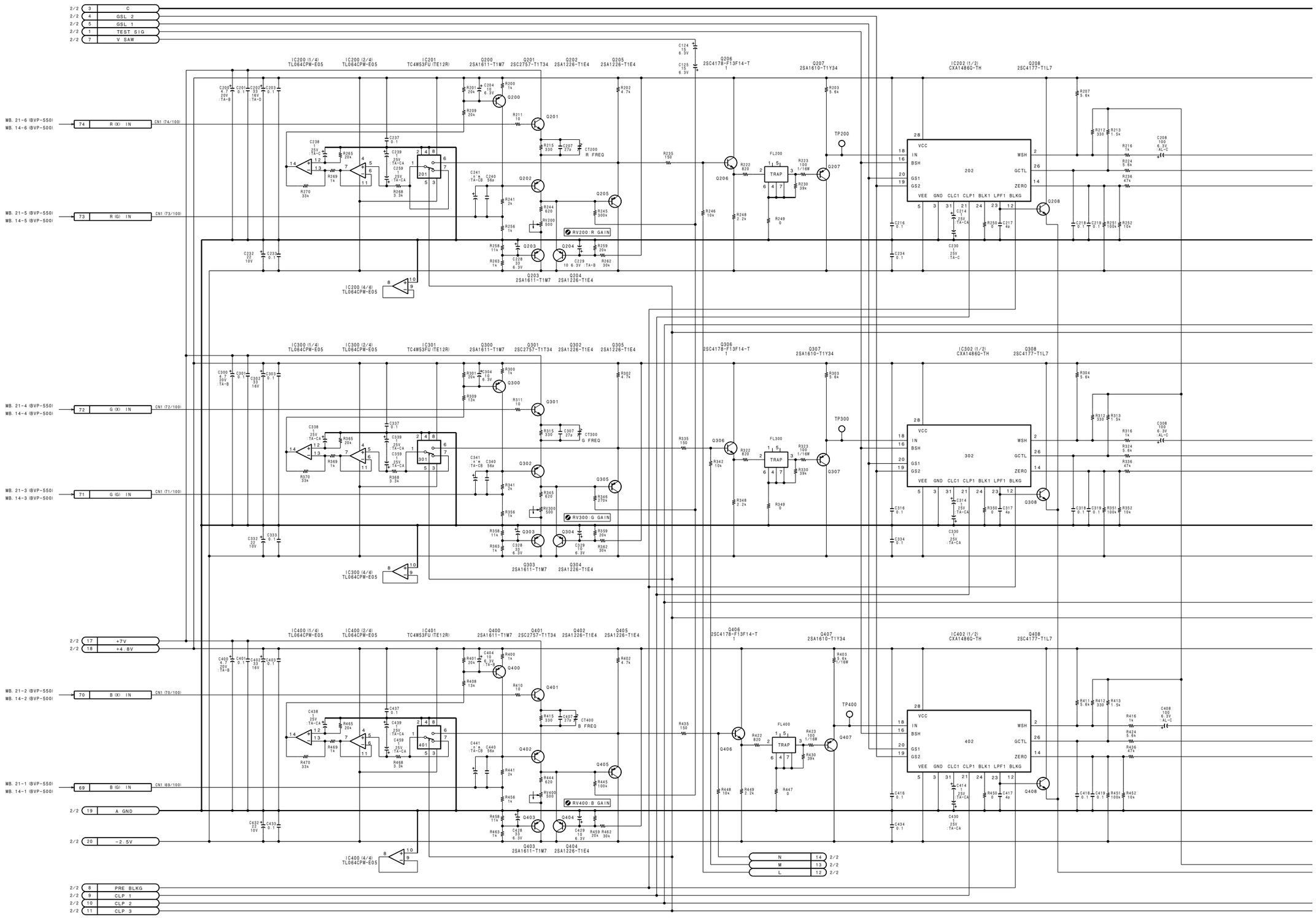
VA-163 BOARD

VA-163 (1-657-438-12)

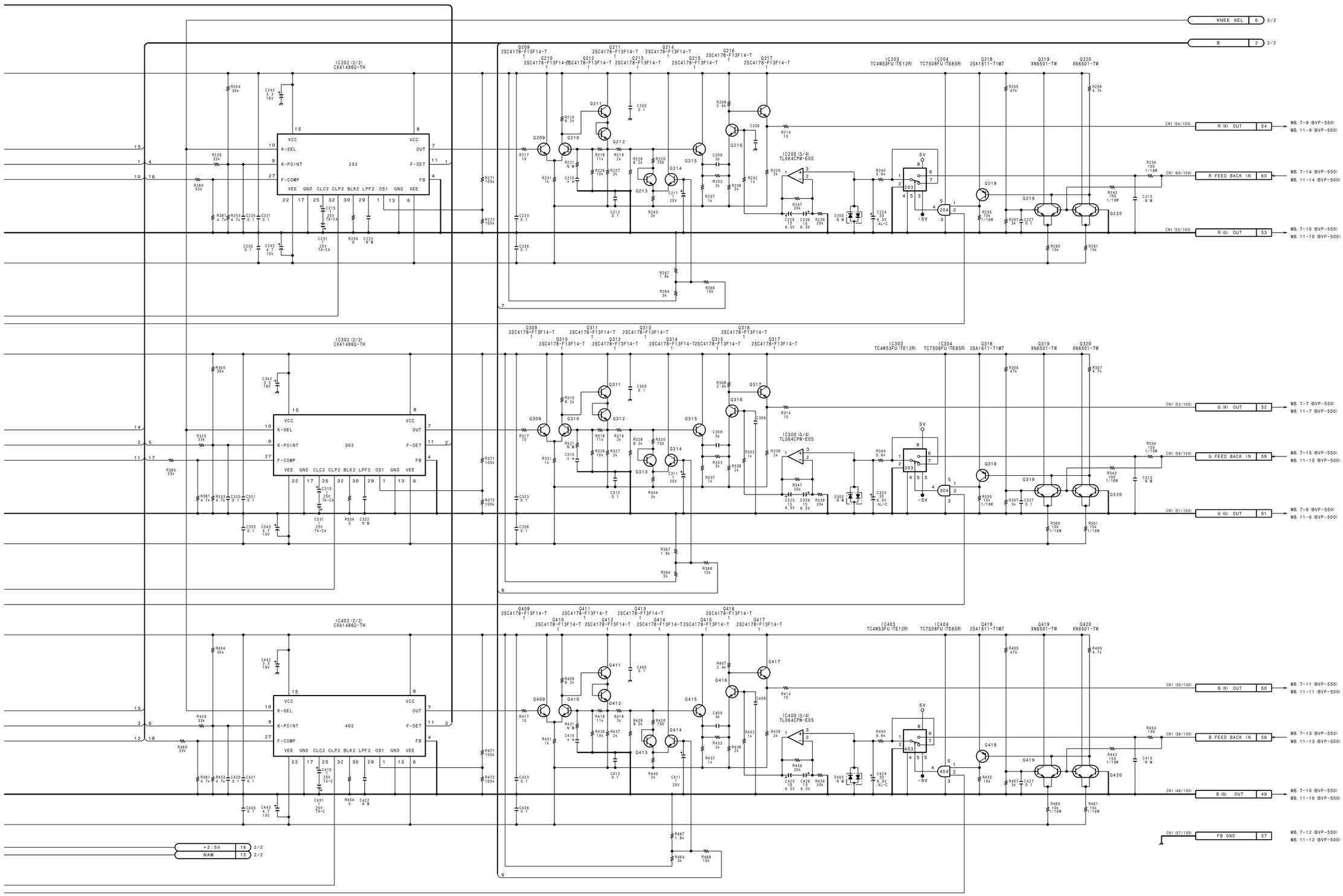
*: B SIDE

CN1	C-1	* Q213	C-1
		* Q214	C-1
CT200	B-4	* Q215	C-2
CT300	D-4	Q216	C-2
CT400	F-4	Q217	C-1
		* Q218	B-1
* D1	A-3	Q219	C-1
* D2	A-2	Q220	C-1
* D3	A-2	* Q300	C-4
* D4	A-3	* Q301	C-4
* D5	B-3	* Q302	D-4
D7	B-3	* Q303	D-4
* D8	F-3	* Q304	D-4
* D9	F-3	* Q305	D-3
* D10	F-3	Q306	D-3
		* Q307	D-3
FL200	C-3	* Q308	D-3
FL300	D-3	Q309	D-2
FL400	E-3	Q310	D-2
		Q311	D-2
IC1	A-3	Q312	D-2
IC3	B-2	* Q313	D-1
IC5	B-3	* Q314	D-1
IC6	B-2	* Q315	D-2
* IC7	B-3	Q316	D-2
* IC8	F-4	Q317	D-1
IC9	F-4	* Q318	C-1
IC10	F-2	Q319	D-1
IC11	F-2	Q320	D-1
IC12	F-2	* Q400	D-4
IC13	F-2	* Q401	E-4
IC14	F-2	* Q402	E-4
IC15	F-3	* Q403	F-4
IC16	G-3	* Q404	E-4
* IC17	G-3	* Q405	E-3
IC18	G-2	Q406	E-3
* IC19	G-3	* Q407	E-3
IC20	G-2	* Q408	E-3
IC21	G-1	Q409	E-2
IC22	B-4	Q410	E-2
IC23	B-3	Q411	E-2
IC24	G-1	Q412	E-2
IC25	F-1	* Q413	E-1
IC26	F-1	* Q414	E-1
IC27	F-1	* Q415	E-2
IC200	C-4	Q416	E-2
* IC201	C-3	Q417	E-1
IC202	C-2	* Q418	E-1
* IC203	B-2	Q419	E-1
* IC204	B-1	Q420	E-1
IC300	D-4		
* IC301	D-3	RV50	B-4
IC302	D-2	RV200	C-4
* IC303	C-2	RV300	D-4
* IC304	C-1	RV400	F-4
IC400	E-4		
* IC401	E-3	TP200	D-4
IC402	E-2	TP300	E-4
* IC403	D-2	TP400	F-4
* IC404	E-1		
L1	A-2		
L2	A-3		
* Q1	A-2		
* Q2	A-2		
* Q3	A-3		
Q4	B-3		
Q5	A-3		
* Q7	A-3		
Q10	A-4		
Q11	A-4		
Q12	A-4		
Q13	A-4		
Q14	A-4		
* Q200	B-4		
* Q201	B-4		
* Q202	C-4		
* Q203	C-4		
* Q204	C-4		
* Q205	C-3		
Q206	B-3		
* Q207	C-3		
* Q208	C-3		
Q209	B-2		
Q210	C-2		
Q211	B-2		
Q212	C-2		

BVP-550 (SY)



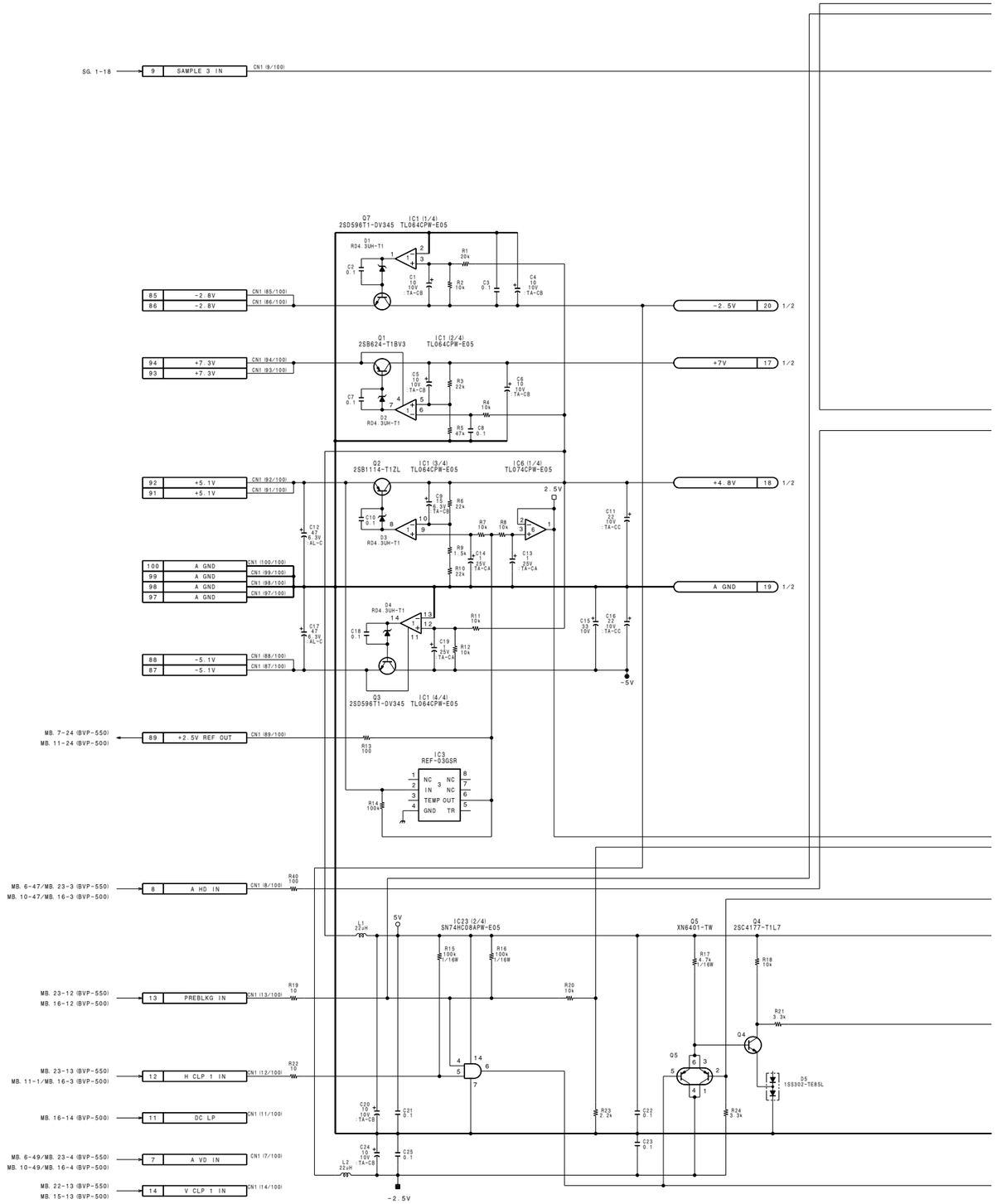
BVP-550

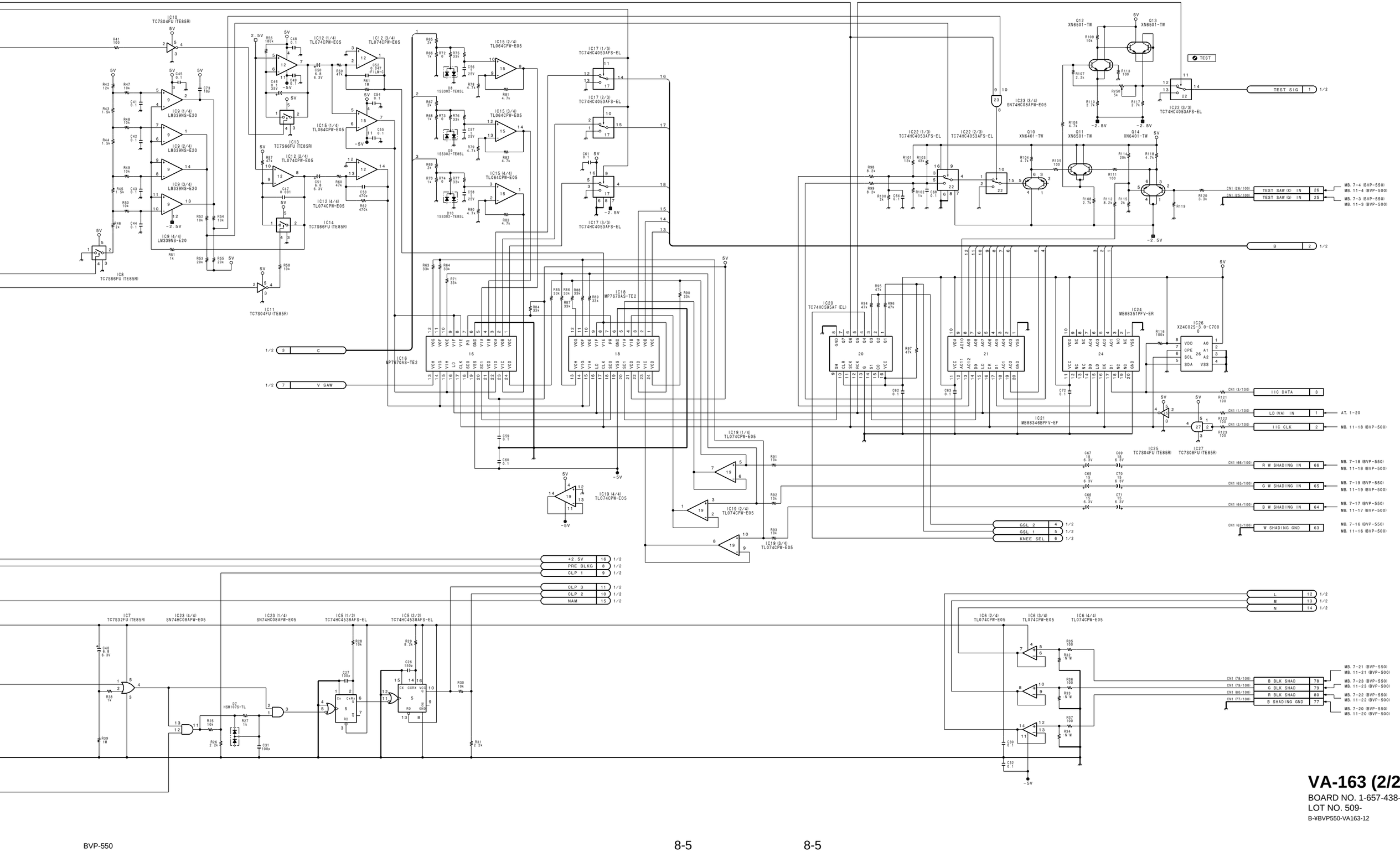


VA-163 (1/2)

BOARD NO. 1-657-438-12
LOT NO. 509-
B-¥BVP550-VA163-12

BVP-550 (SY)


SG. 1-18
9 SAMPLE 3 IN
CN1 (9/100)
Q7 2SD596T1-DV345
IC1 (1/4) TL064CPW-E05
D1 RD4.3UH-T1
R1 20k
C2 0.1
C1 10 10V :TA-CB
R2 10k
C3 0.1
C4 10 10V :TA-CB
85 -2.8V
86 -2.8V
CN1 (85/100)
CN1 (86/100)
-2.5V 20 1/2
Q1 2SB624-T1BV3
IC1 (2/4) TL064CPW-E05
94 +7.3V
93 +7.3V
CN1 (94/100)
CN1 (93/100)
+7V 17 1/2
C5 10 10V :TA-CB
R3 22k
C6 10 10V :TA-CB
C7 0.1
D2 RD4.3UH-T1
R4 10k
R5 47k
C8 0.1
92 +5.1V
91 +5.1V
CN1 (92/100)
CN1 (91/100)
Q2 2SB1114-T1ZL
IC1 (3/4) TL064CPW-E05
IC6 (1/4) TL074CPW-E05
2.5V
+4.8V 18 1/2
C9 15 6.3V :TA-CB
C10 0.1
D3 RD4.3UH-T1
R6 22k
R7 10k
R8 10k
R9 1.5k
C14 25V :TA-CA
R10 22k
C13 25V :TA-CA
C12 47 6.3V :AL-C
C11 22 10V :TA-CC
100 A GND
99 A GND
98 A GND
97 A GND
CN1 (100/100)
CN1 (99/100)
CN1 (98/100)
CN1 (97/100)
A GND 19 1/2
D4 RD4.3UH-T1
C17 47 6.3V :AL-C
C18 0.1
R11 10k
C19 1 25V :TA-CA
R12 10k
C15 33 10V
C16 22 10V :TA-CC
88 -5.1V
87 -5.1V
CN1 (88/100)
CN1 (87/100)
-5V
Q3 2SD596T1-DV345
IC1 (4/4) TL064CPW-E05
MB. 7-24 (BVP-550)
MB. 11-24 (BVP-500)
89 +2.5V REF OUT
CN1 (89/100)
R13 100
IC3 REF-03GSR
NC NC IN TEMP OUT GND TR
R14 100k
MB. 6-47/MB. 23-3 (BVP-550)
MB. 10-47/MB. 16-3 (BVP-500)
8 A HD IN
CN1 (8/100)
R40 100
5V
L1 22uH
IC23 (2/4) SN74HC08APW-E05
Q5 XN6401-TW
Q4 2SC4177-T1L7
R15 100k 1/16W
R16 100k 1/16W
R17 4.7k 1/16W
R18 10k
R20 10k
R21 3.3k
MB. 23-12 (BVP-550)
MB. 16-12 (BVP-500)
13 PREBLKG IN
CN1 (13/100)
R19 10
Q4
Q5
D5 1SS302-TE85L
MB. 23-13 (BVP-550)
MB. 11-1/MB. 16-3 (BVP-500)
12 H CLP 1 IN
CN1 (12/100)
R22 10
MB. 16-14 (BVP-500)
11 DC LP
CN1 (11/100)
C20 10 10V :TA-CB
C21 0.1
R33 2.2k
C22 0.1
C23 0.1
R24 3.3k
MB. 6-49/MB. 23-4 (BVP-550)
MB. 10-49/MB. 16-4 (BVP-500)
7 A VD IN
CN1 (7/100)
C24 10 10V TA-CB
L2 22uH
C25 0.1
MB. 22-13 (BVP-550)
MB. 15-13 (BVP-500)
14 V CLP 1 IN
CN1 (14/100)
-2.5V



VA-163 (2/2)
BOARD NO. 1-657-438-12
LOT NO. 509-
B-¥BVP550-VA163-12

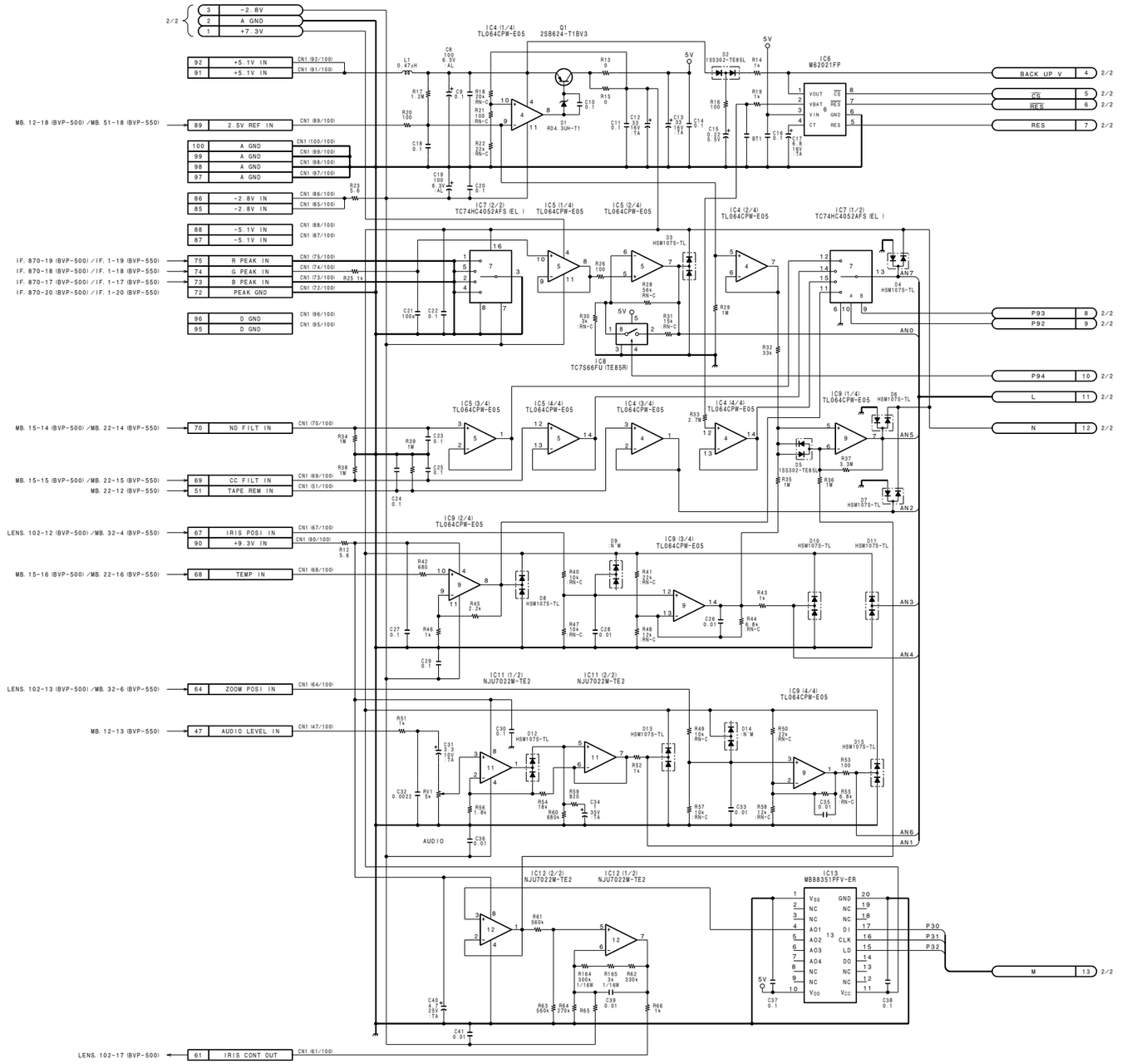
AT-95 BOARD

AT-95 (1-657-448-12)

*: B SIDE

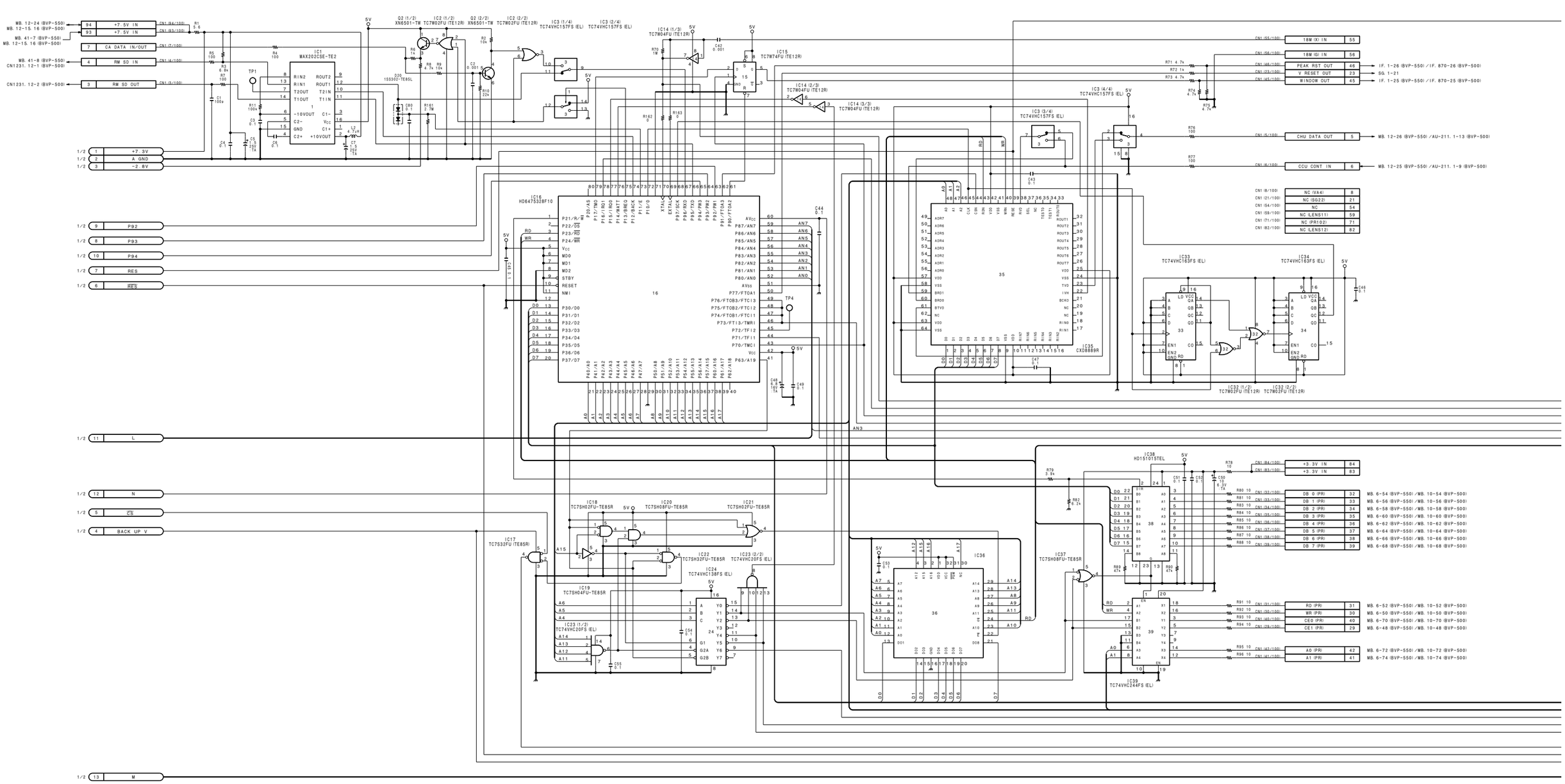
	BT1	B-4
	CNI36	F-2
	CN1	C-1
	D1	A-2
	D2	B-4
*	D3	A-2
*	D4	A-2
*	D5	A-3
*	D6	B-3
*	D7	B-3
*	D8	A-3
*	D10	A-3
*	D11	A-3
*	D12	A-4
*	D13	B-4
*	D15	B-3
*	D16	G-4
*	D17	G-4
*	D18	G-4
*	D19	G-4
*	D20	G-1
*	D21	C-2
*	D22	G-3
	IC1	F-1
*	IC2	G-2
*	IC3	G-1
*	IC4	A-2
*	IC5	B-2
*	IC6	B-4
*	IC7	B-2
*	IC8	A-2
*	IC9	B-3
*	IC11	B-4
*	IC12	C-2
*	IC13	B-2
*	IC14	C-3
*	IC15	D-4
	IC16	D-2
*	IC17	D-4
*	IC18	D-4
*	IC19	D-4
*	IC20	D-4
*	IC21	D-4
*	IC22	D-4
*	IC23	E-3
*	IC24	E-3
	IC25	D-4
*	IC26	E-2
	IC27	E-4
	IC28	F-4
*	IC29	G-3
*	IC30	G-2
*	IC31	F-2
*	IC32	B-2
	IC33	B-2
	IC34	C-2
	IC35	C-4
*	IC37	E-4
	IC38	C-3
*	IC39	E-4
*	IC40	D-2
*	IC41	C-3
*	IC42	D-3
*	IC43	D-3
*	IC44	D-3
*	IC45	D-2
*	IC46	G-4
	IC47	E-2
*	IC48	G-2
	L1	B-1
	L2	F-1
	Q1	A-2
*	Q2	F-2
*	Q3	B-1
*	Q4	C-1
*	Q5	B-1
*	Q6	B-1
	RV1	C-3
	S1	E-3

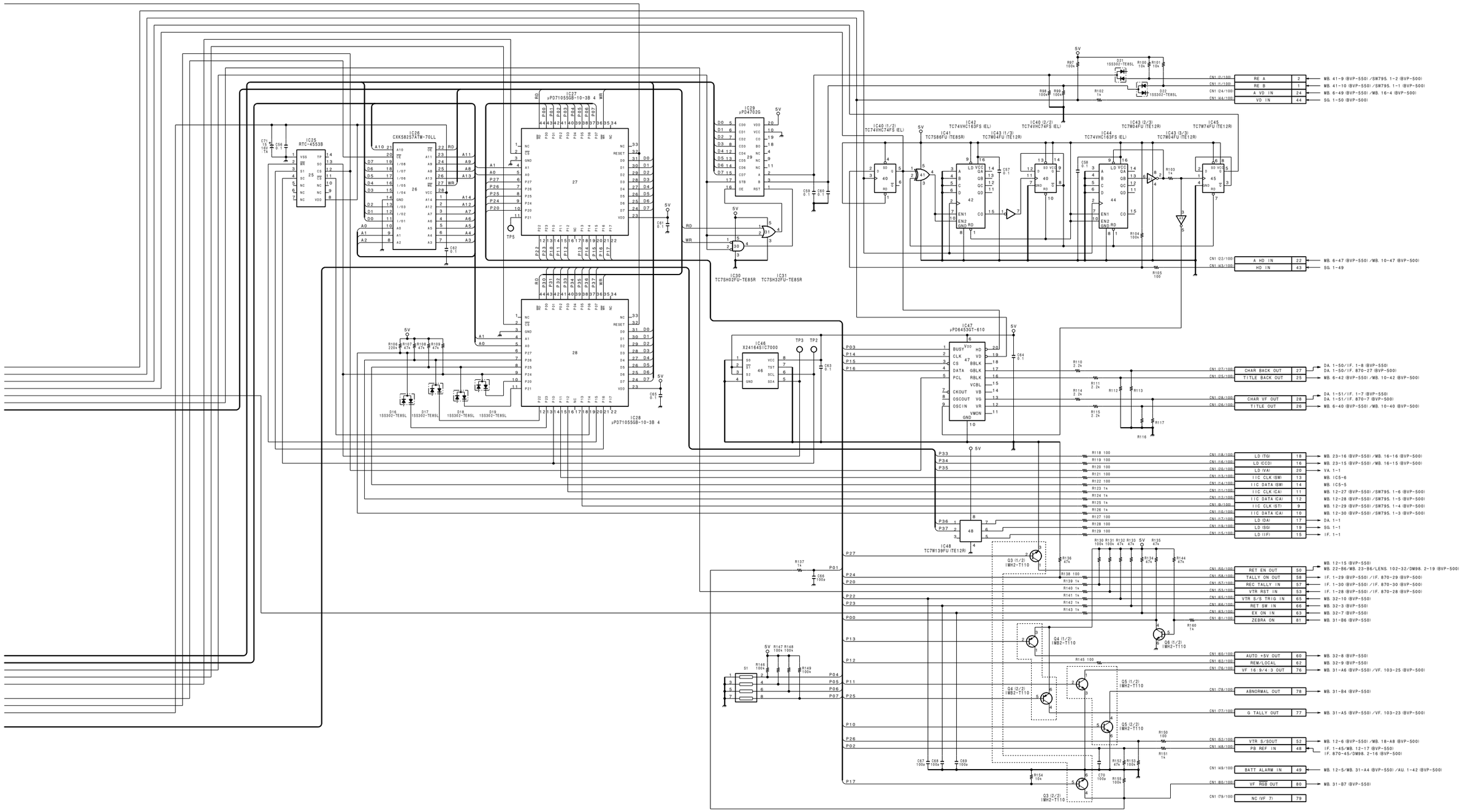
BVP-550 (SY)



AT-95 (1/2)
BOARD NO. 1-657-448-12
LOT NO. 509-
B-¥BVP550-AT95-12

BVP-550 (SY)


MB. 12-24 (BVP-550)
MB. 12-15. 16 (BVP-500)
+7.5V IN
MB. 41-7 (BVP-550)
MB. 12-15. 16 (BVP-500)
CA DATA IN/OUT
MB. 41-8 (BVP-550)
CN1231. 12-1 (BVP-500)
RM SD IN
CN1231. 12-2 (BVP-500)
RM SD OUT
+7.3V
A GND
-2.8V
P92
P93
P94
RES
RES
L
N
CS
BACK UP V
M
IC1 MAX202CSE-TE2
IC16 HD6475328F10
IC15 TC7W74FU (TE12R)
IC3 (4/4) TC74VHC157FS (EL)
IC3 (3/4) TC74VHC157FS (EL)
IC33 TC74VHC163FS (EL)
IC34 TC74VHC163FS (EL)
IC35 CXD8889R
IC36
IC37 TC7SH08FU-TE85R
IC38 HD15101STEL
IC39 TC74VHC244FS (EL)
18M (X) IN
18M (Q) IN
PEAK RST OUT
V RESET OUT
WINDOW OUT
CHU DATA OUT
CCU CONT IN
NC (VA4)
NC (SG22)
NC
NC (LENS11)
NC (PR102)
NC (LENS12)
+3.3V IN
+3.3V IN
DB 0 (PR)
DB 1 (PR)
DB 2 (PR)
DB 3 (PR)
DB 4 (PR)
DB 5 (PR)
DB 6 (PR)
DB 7 (PR)
RD (PR)
WR (PR)
CE0 (PR)
CE1 (PR)
A0 (PR)
A1 (PR)
IF. 1-26 (BVP-550) /IF. 870-26 (BVP-500)
SG. 1-21
IF. 1-25 (BVP-550) /IF. 870-25 (BVP-500)
MB. 12-26 (BVP-550) /AU-211. 1-13 (BVP-500)
MB. 12-25 (BVP-550) /AU-211. 1-9 (BVP-500)
MB. 6-54 (BVP-550) /MB. 10-54 (BVP-500)
MB. 6-56 (BVP-550) /MB. 10-56 (BVP-500)
MB. 6-58 (BVP-550) /MB. 10-58 (BVP-500)
MB. 6-60 (BVP-550) /MB. 10-60 (BVP-500)
MB. 6-62 (BVP-550) /MB. 10-62 (BVP-500)
MB. 6-64 (BVP-550) /MB. 10-64 (BVP-500)
MB. 6-66 (BVP-550) /MB. 10-66 (BVP-500)
MB. 6-68 (BVP-550) /MB. 10-68 (BVP-500)
MB. 6-52 (BVP-550) /MB. 10-52 (BVP-500)
MB. 6-50 (BVP-550) /MB. 10-50 (BVP-500)
MB. 6-70 (BVP-550) /MB. 10-70 (BVP-500)
MB. 6-48 (BVP-550) /MB. 10-48 (BVP-500)
MB. 6-72 (BVP-550) /MB. 10-72 (BVP-500)
MB. 6-74 (BVP-550) /MB. 10-74 (BVP-500)



AT-95 (2/2)
BOARD NO. 1-657-448-12
LOT NO. 509-
B-¥BVP550-AT95-12

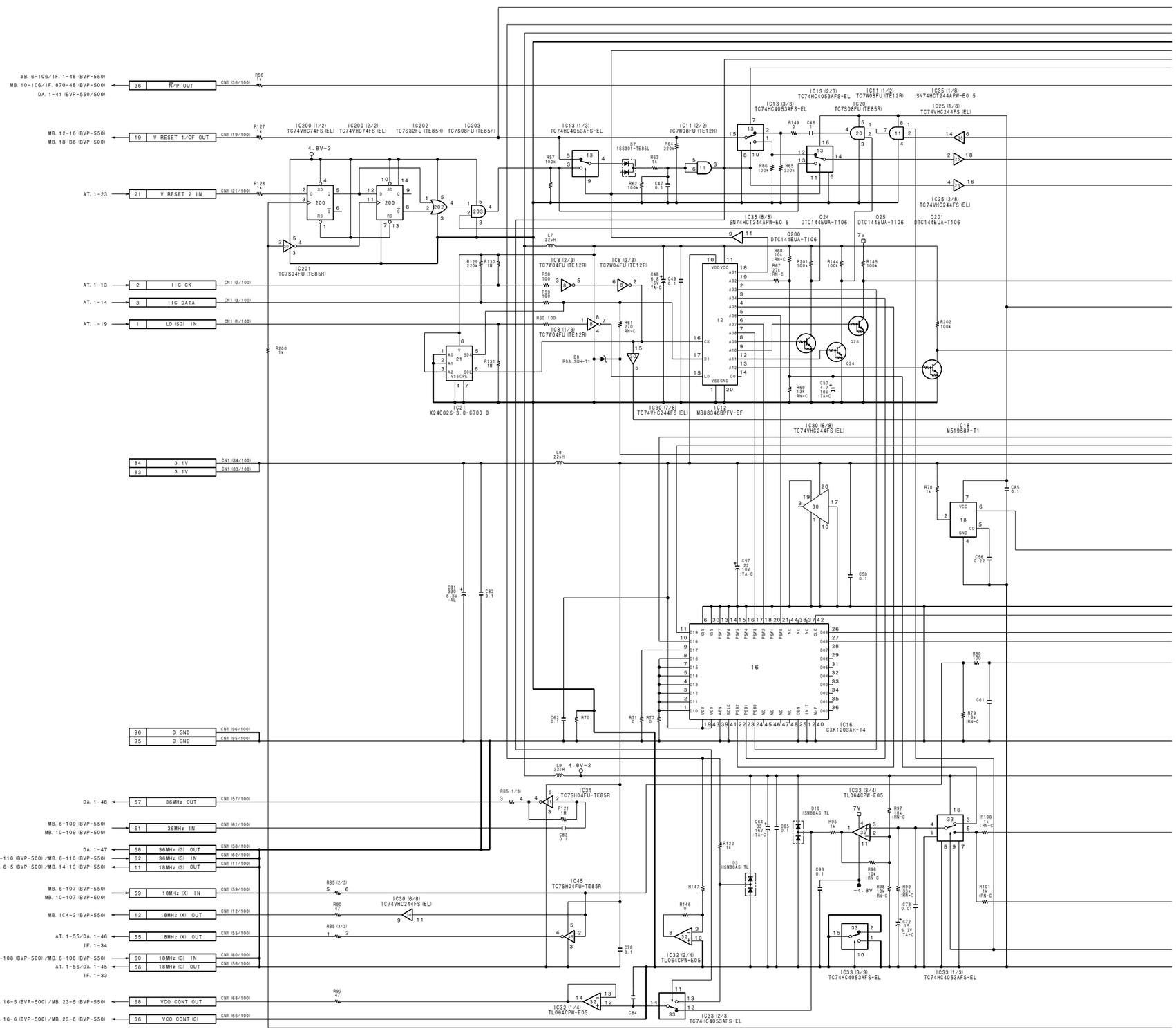
SG-234 BOARD

SG-234 (1-657-449-12)

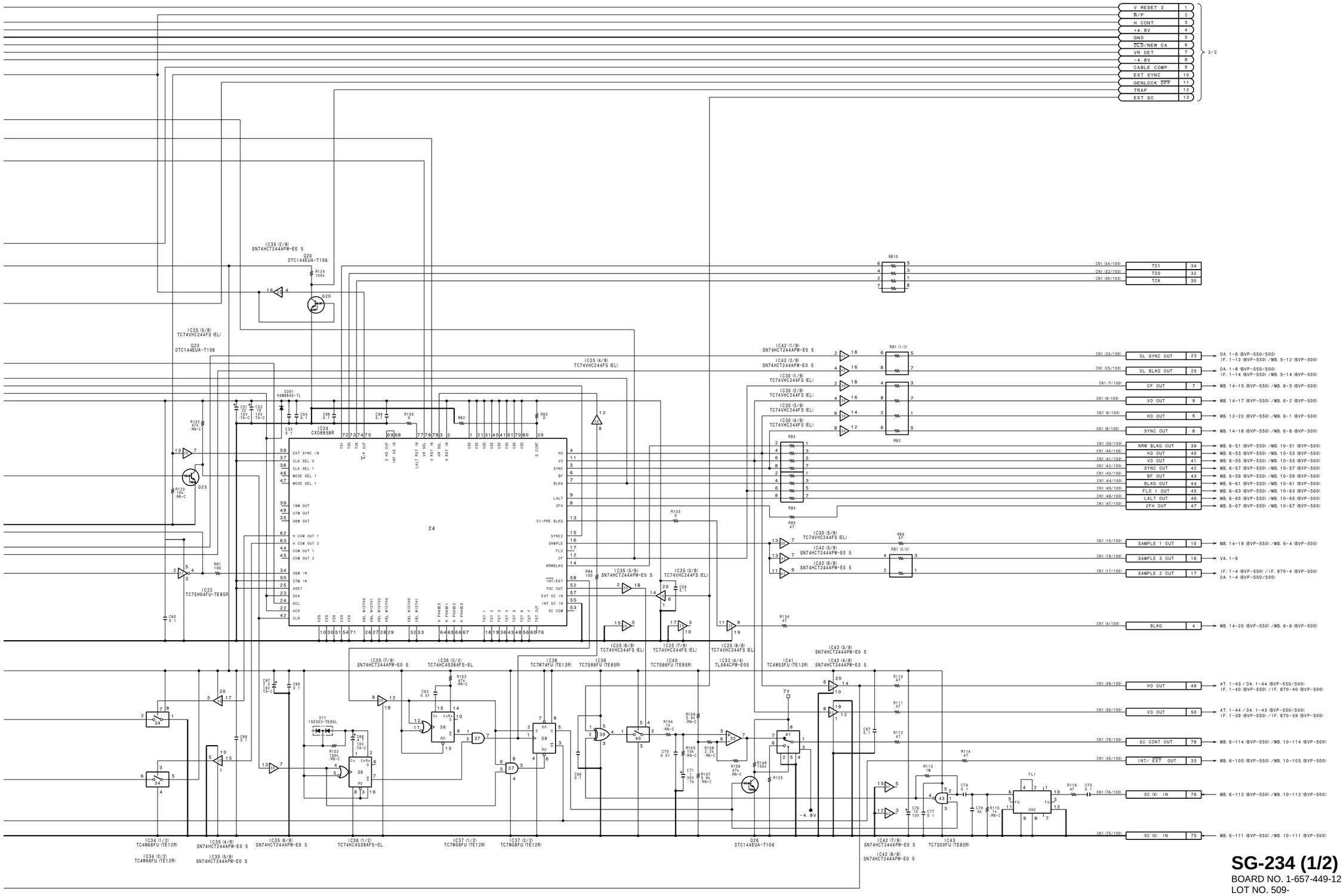
*: B SIDE

CN1	C-1	* Q20	D-4
		* Q21	A-3
D1	A-2	Q22	B-3
* D2	A-2	Q23	G-4
D3	E-2	* Q24	F-1
* D4	A-1	* Q25	F-1
D5	B-3	Q26	D-3
D6	B-4	* Q200	E-1
* D7	D-3	* Q201	F-2
D8	F-1	Q202	A-4
D10	C-2	Q203	A-4
D11	C-3	Q204	B-4
D12	A-3	* Q205	A-3
* D13	D-1		
D14	A-3	RB1	E-1
* D200	B-4	RB2	F-1
* D201	E-3	RB3	D-1
		RB4	D-1
FL1	C-2	RB5	C-1
		RB10	D-1
IC3	A-2		
IC5	B-4		
IC8	F-1		
* IC11	D-3		
IC12	F-1		
IC13	D-3		
IC16	F-2		
* IC17	A-2		
IC18	F-4		
* IC20	D-3		
* IC21	F-1		
* IC22	F-3		
IC24	F-4		
IC25	E-2		
IC30	E-2		
* IC31	C-2		
IC32	D-2		
IC33	D-3		
* IC34	D-4		
IC35	D-4		
IC36	C-4		
IC37	C-3		
IC38	D-3		
* IC39	D-3		
* IC40	C-3		
IC41	D-3		
IC42	D-2		
* IC43	C-3		
IC44	B-3		
* IC45	D-2		
IC46	A-3		
* IC47	B-3		
IC48	A-3		
* IC200	D-1		
* IC201	D-1		
* IC202	D-1		
* IC203	D-1		
* IC204	A-4		
* IC206	B-4		
IC207	B-4		
* L1	A-1		
* L2	A-1		
* L4	B-1		
* L5	B-4		
* L6	C-4		
* L7	F-1		
L8	B-2		
L9	B-2		
Q1	A-2		
* Q2	A-2		
* Q4	B-2		
Q5	A-4		
Q6	A-4		
* Q7	B-4		
Q8	A-4		
* Q9	A-4		
Q10	C-4		
* Q11	A-4		
* Q12	C-3		
* Q14	C-3		
Q15	C-4		
* Q16	A-3		
Q17	A-3		
* Q18	C-4		

BVP-550 (SY)

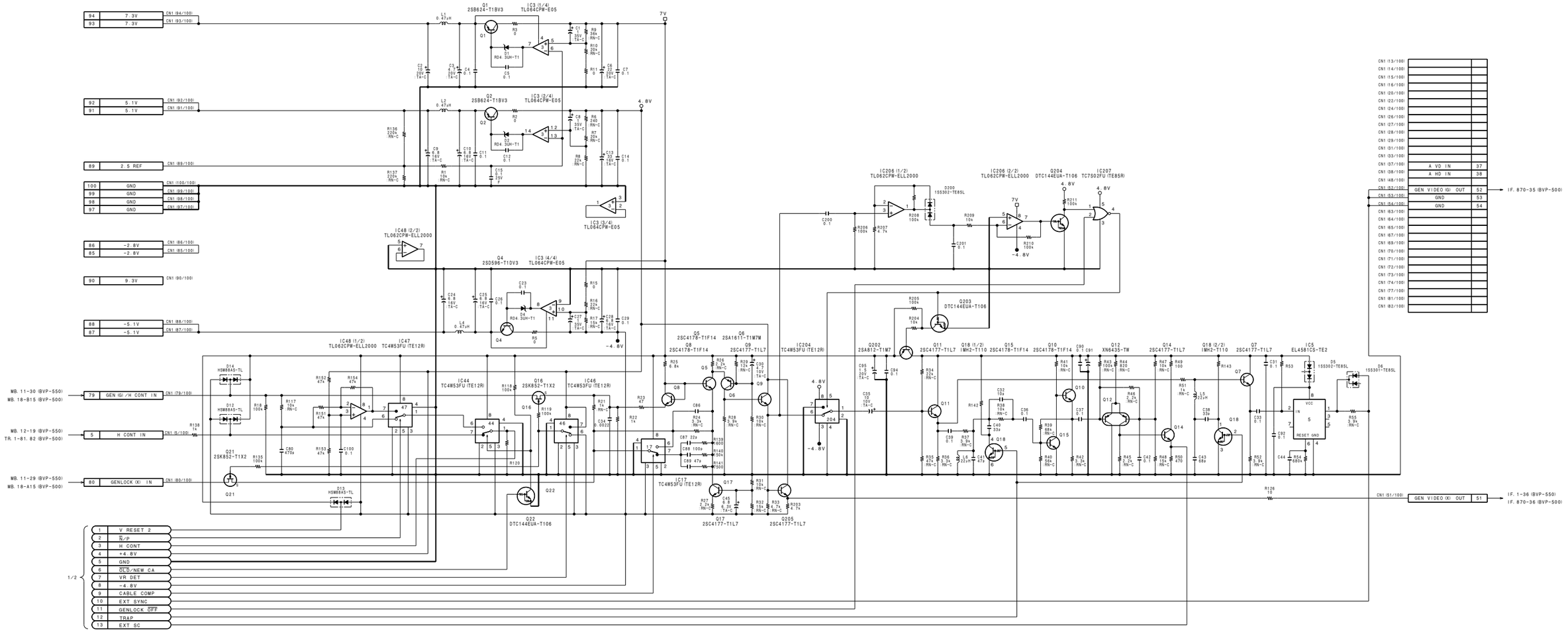


A B C D E F G H



SG-234 (1/2)
BOARD NO. 1-657-449-12
LOT NO. 509-
B-¥BVP550SG234-12

BVP-550 (SY)



SG-234 (2/2)

BOARD NO. 1-657-449-12
LOT NO. 509-
B-¥BVP550-SG234-12

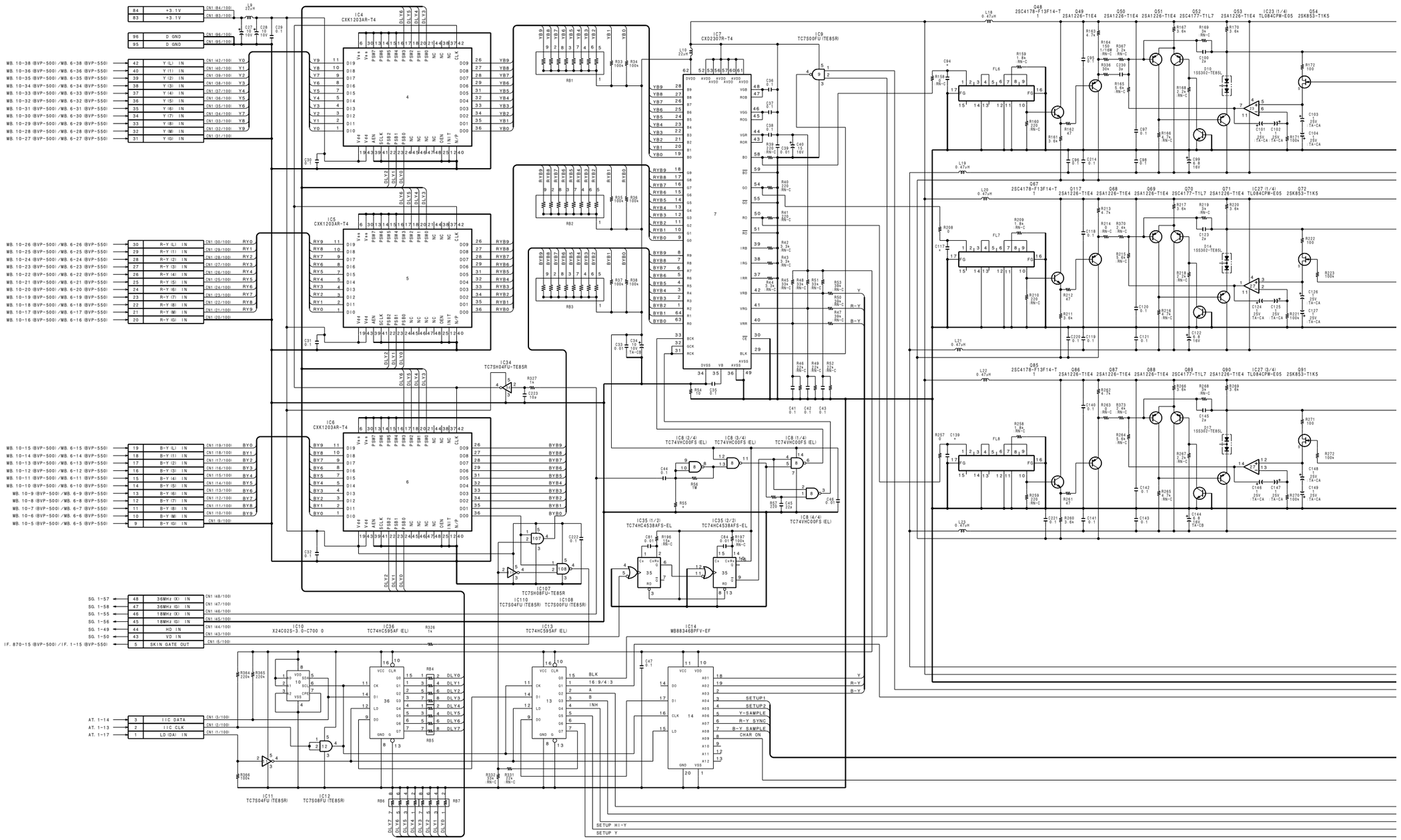
BVP-550 (SY)

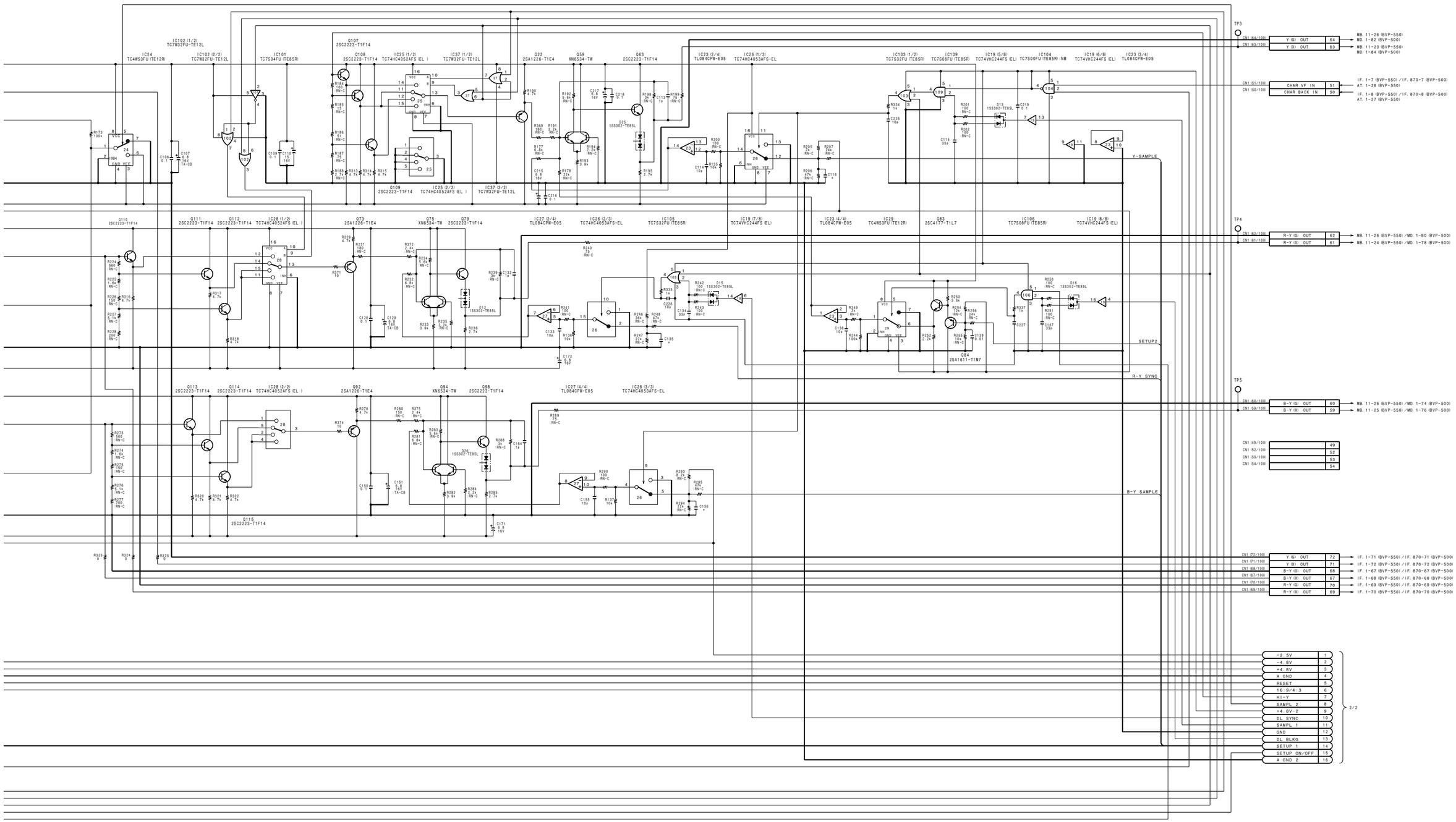
DA-88 BOARD

DA-88 (1-657-450-12)

*: B SIDE

CN1	C-1	L6	B-2	* Q103	C-2
		L7	A-3	* Q104	C-3
* D1	A-2	L8	A-3	Q105	G-2
* D2	B-1	L9	B-1	* Q106	G-1
* D3	B-1	L10	D-2	* Q107	B-3
* D5	A-4	L11	F-1	* Q108	C-3
* D6	G-2	L12	G-1	* Q109	C-3
D7	F-2	L13	G-3	* Q110	E-4
* D9	C-1	L14	A-3	* Q111	E-4
* D10	D-3	L15	B-3	* Q112	E-4
* D11	G-2	L16	B-2	* Q113	F-4
D12	E-4	L17	B-2	* Q114	G-4
D13	G-2	L18	D-4	* Q115	G-4
* D14	E-3	L19	D-4	Q117	D-3
D15	G-2	* L20	E-4		
D16	G-2	* L21	E-4	* RB1	D-2
* D17	G-3	* L22	F-4	* RB2	E-2
D24	B-3	L23	G-4	* RB3	E-2
D25	C-4	L24	G-1	RB4	F-2
D26	G-4	L25	F-1	RB5	F-1
* D100	A-3			* RB6	F-2
* D101	C-2	* Q1	A-2	* RB7	F-2
* D102	G-2	Q2	A-2		
		Q3	B-2	TP1	B-2
E1	F-4	* Q4	A-3	TP2	C-1
		* Q7	A-3	TP3	D-4
FL1	A-4	* Q8	A-3	TP4	E-4
FL2	A-3	* Q9	A-3	TP5	F-4
FL3	B-3	* Q10	A-2		
FL4	B-2	* Q11	B-3		
FL5	C-2	* Q12	A-4		
FL6	D-3	* Q13	B-4		
FL7	E-3	Q14	B-4		
FL8	F-3	Q15	A-4		
		* Q16	A-4		
* IC1	A-1	Q17	B-4		
* IC2	B-1	* Q18	B-4		
* IC3	A-2	* Q19	B-3		
* IC4	D-1	* Q20	A-2		
* IC5	E-1	* Q22	C-3		
* IC6	E-1	Q23	B-3		
* IC7	D-2	* Q25	C-4		
* IC8	D-1	* Q26	B-4		
IC9	E-2	* Q27	B-2		
* IC10	E-1	* Q28	B-1		
IC11	F-1	* Q29	C-2		
IC12	F-1	* Q30	B-2		
* IC13	E-2	* Q32	C-2		
IC14	F-2	* Q33	C-2		
* IC15	B-3	* Q34	C-2		
IC16	B-4	Q43	C-2		
* IC17	B-4	Q44	C-1		
* IC18	C-4	* Q45	F-1		
IC19	G-2	* Q46	G-1		
* IC20	C-2	* Q47	G-1		
IC23	C-3	* Q48	D-4		
* IC24	D-4	* Q49	D-3		
IC25	C-3	* Q50	D-4		
IC26	C-4	* Q51	D-4		
IC27	E-3	* Q52	D-4		
IC28	F-4	* Q53	D-4		
IC29	C-4	* Q54	D-4		
IC34	D-1	Q59	C-4		
* IC35	E-1	Q63	C-4		
* IC36	F-2	* Q67	D-3		
* IC37	C-3	* Q68	E-3		
IC100	F-2	* Q69	E-3		
IC101	C-3	* Q70	E-3		
IC102	C-3	* Q71	E-3		
IC103	G-2	Q72	E-3		
* IC104	G-2	* Q73	E-4		
IC105	G-2	Q75	E-4		
IC106	G-2	Q79	E-4		
IC107	E-2	* Q83	C-4		
IC108	E-2	* Q84	C-4		
IC109	G-2	* Q85	F-3		
IC110	E-2	Q86	F-3		
		* Q87	G-3		
* JR1	B-4	* Q88	G-3		
* JR2	A-4	* Q89	G-3		
* JR3	C-2	* Q90	G-3		
* JR4	B-3	Q91	G-3		
		* Q92	F-4		
L1	A-1	Q94	G-4		
L2	A-2	Q98	G-4		
L3	A-1	* Q100	A-4		
L4	A-2	* Q101	A-4		
L5	B-1	* Q102	C-2		



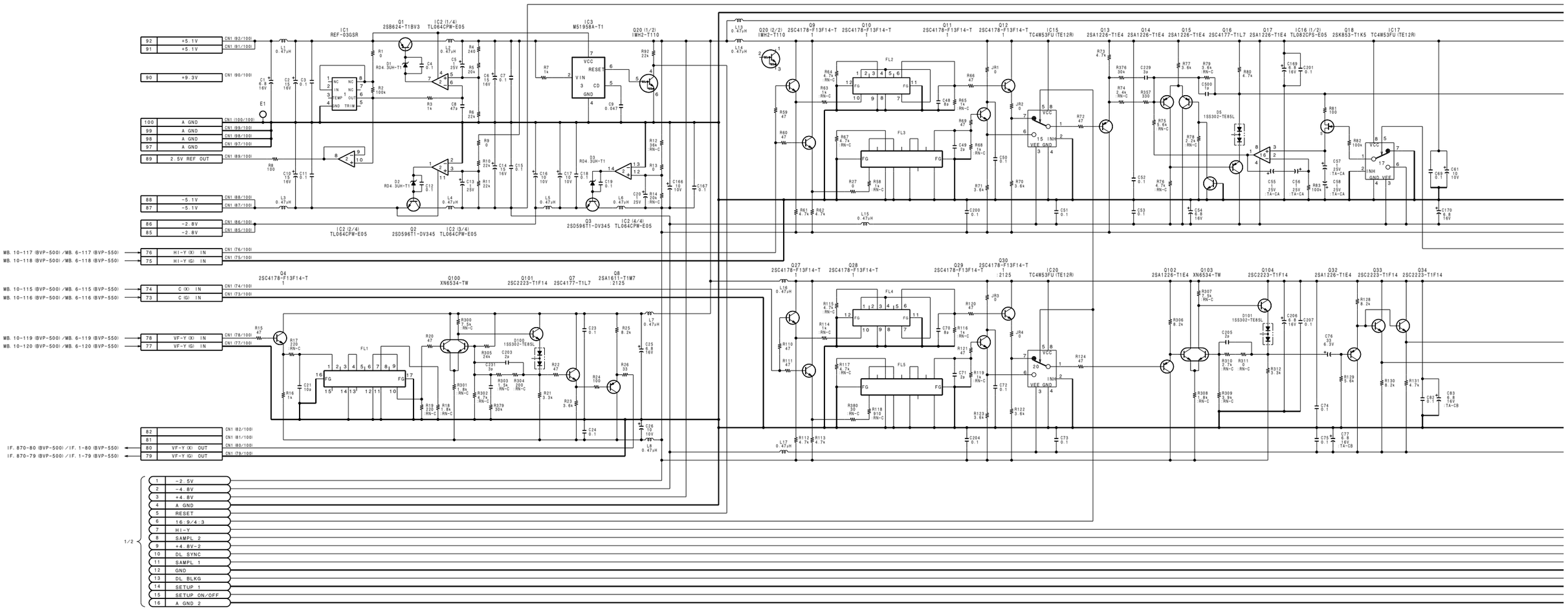


DA-88 (1/2)

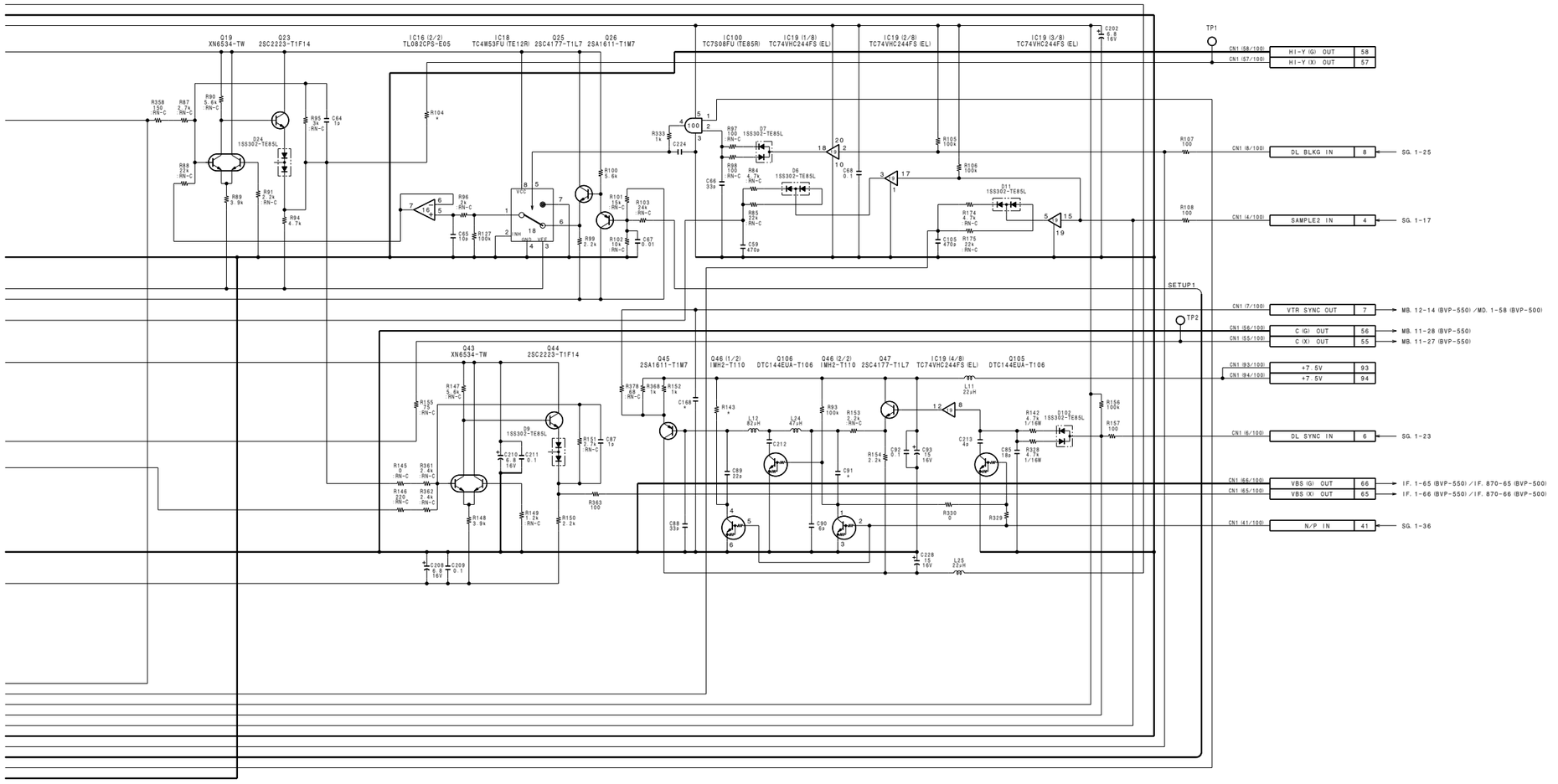
BOARD NO. 1-657-450-12
LOT NO. 509-
B-¥BVP550-DA88-12

DA-88 (2/2)

BVP-550 (SY)



8-16



DA-88 (2/2)

BOARD NO. 1-657-450-12
LOT NO. 509-
B-¥BVP550-DA88-12

I J K L M N O P

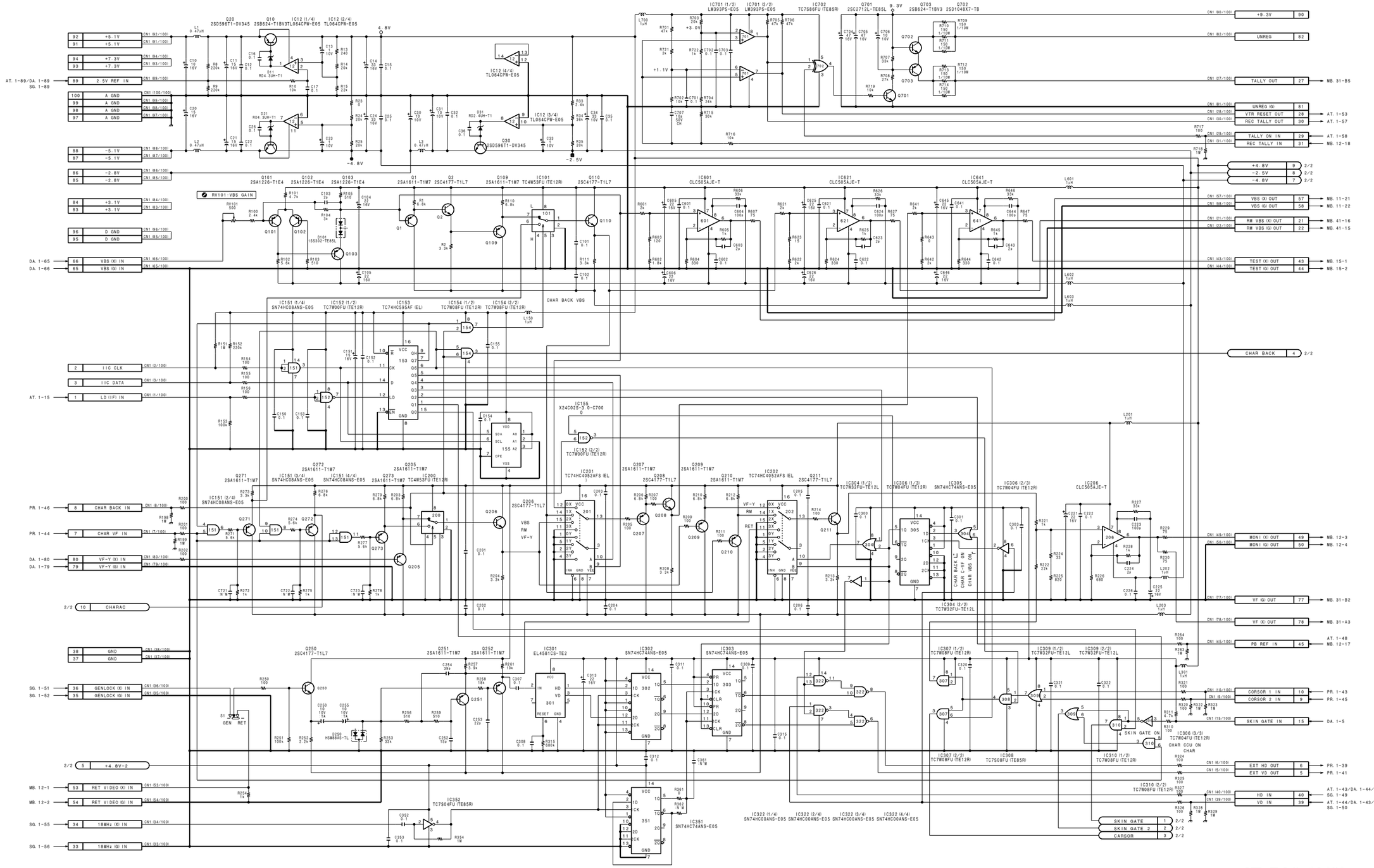
IF-510 BOARD

IF-510 (1-657-453-12)

*: B SIDE

CN1	C-1	* Q251	B-3
		* Q271	C-4
* D11	A-2	* Q272	C-4
* D21	A-2	* Q273	C-3
* D31	B-2	* Q352	G-3
* D101	D-3	* Q353	F-3
* D250	B-3	* Q354	G-3
* D400	C-2	* Q401	B-2
* D401	C-3	* Q402	B-3
* D402	D-3	* Q403	C-2
* D500	E-2	* Q404	C-3
		* Q405	C-3
* IC12	A-2	* Q406	B-3
* IC101	D-4	* Q410	C-2
IC151	F-4	* Q411	C-3
* IC152	F-3	* Q412	C-3
* IC153	F-3	* Q413	C-3
* IC154	F-3	* Q414	C-3
IC155	G-4	* Q420	D-2
IC200	B-4	* Q421	D-3
* IC201	B-4	* Q422	D-3
* IC202	A-4	* Q423	D-3
* IC206	A-3	* Q424	D-3
* IC301	G-2	Q430	C-3
* IC302	F-2	Q431	C-4
IC303	F-2	* Q500	C-2
* IC304	G-2	* Q501	B-2
IC305	F-3	* Q502	B-2
* IC306	F-1	* Q503	C-2
* IC307	G-2	* Q504	C-2
* IC308	G-1	* Q505	C-2
IC309	G-1	* Q506	D-2
* IC310	G-1	* Q507	D-2
IC322	F-1	* Q508	D-2
* IC351	F-2	Q509	E-2
* IC352	F-2	Q510	E-1
IC400	C-3	* Q701	A-3
* IC404	C-4	* Q702	A-3
IC410	C-3	* Q703	A-3
IC420	D-3		
* IC500	E-1	RV101	D-4
* IC501	C-1		
* IC502	D-1	S1	C-3
* IC601	E-3		
* IC621	E-2		
* IC641	E-2		
IC701	A-3		
IC702	A-2		
L1	A-1		
L2	A-1		
L3	B-1		
L150	E-4		
L201	A-3		
L202	A-3		
L203	A-4		
L250	B-3		
L301	F-2		
L400	D-2		
L401	D-3		
L402	C-3		
L500	D-2		
L501	C-1		
L502	D-1		
L601	D-4		
L602	E-3		
L603	D-3		
L700	A-2		
* Q1	E-4		
* Q2	E-4		
* Q10	A-2		
* Q20	A-2		
* Q30	B-2		
Q101	D-4		
Q102	D-4		
Q103	D-4		
* Q109	E-4		
* Q110	D-3		
* Q205	B-4		
Q206	B-4		
Q207	B-4		
Q208	B-4		
Q209	A-4		
Q210	A-4		
Q211	A-4		
* Q250	B-4		

BVP-550 (SY)

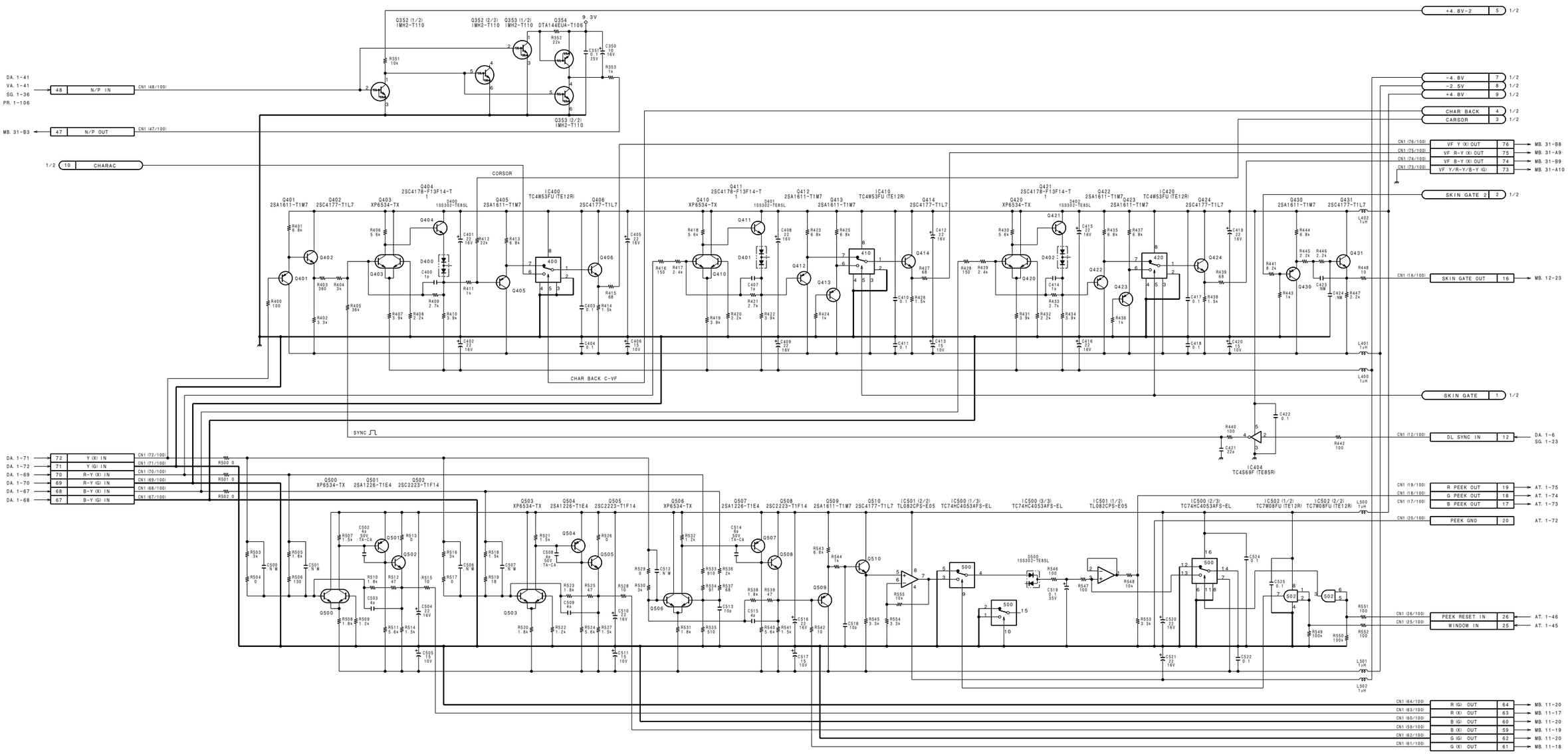


IF-510 (1/2)

BOARD NO. 1-657-453-12
LOT NO. 509-

B-¥BVP550-IF510-12

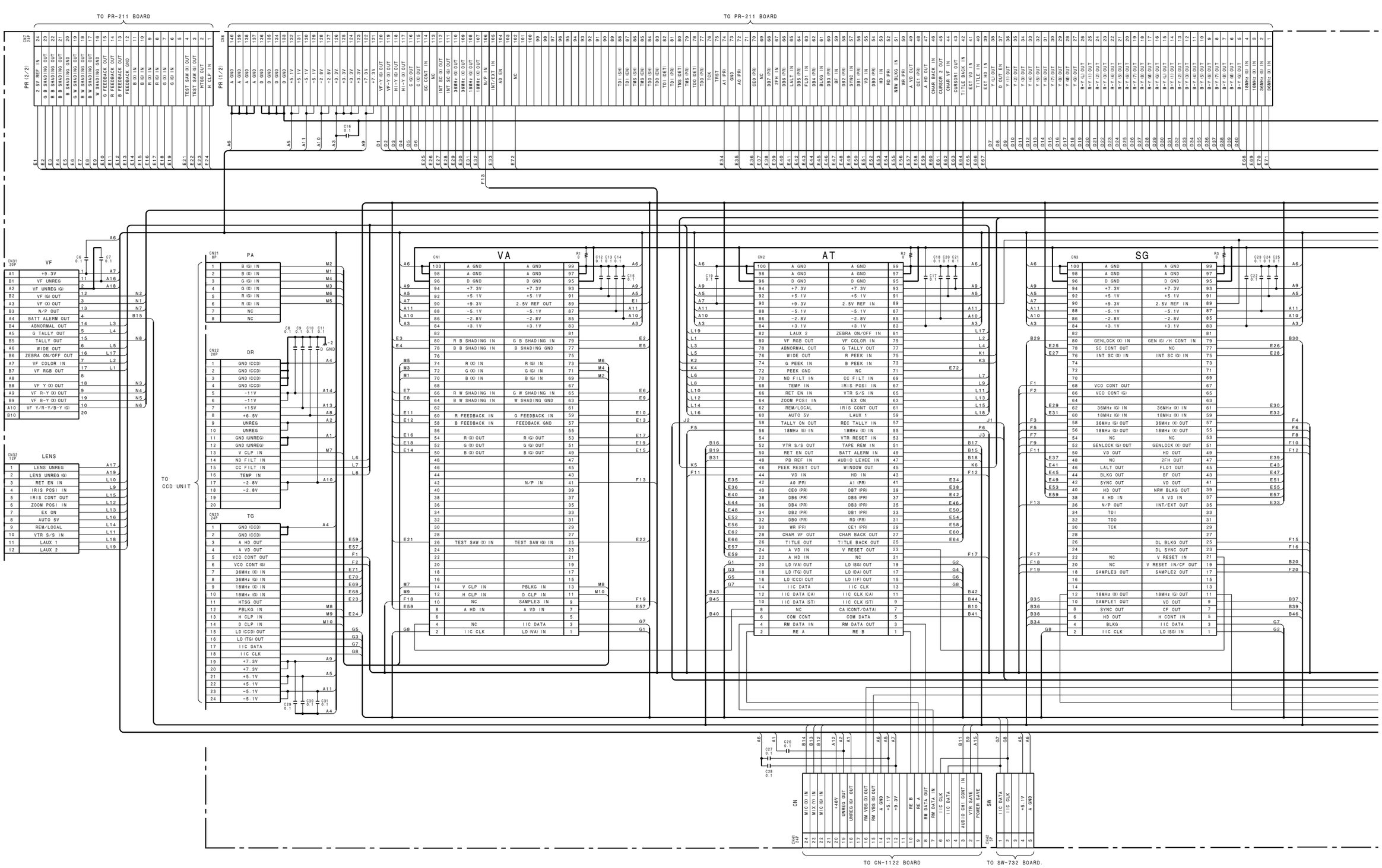
BVP-550 (SY)

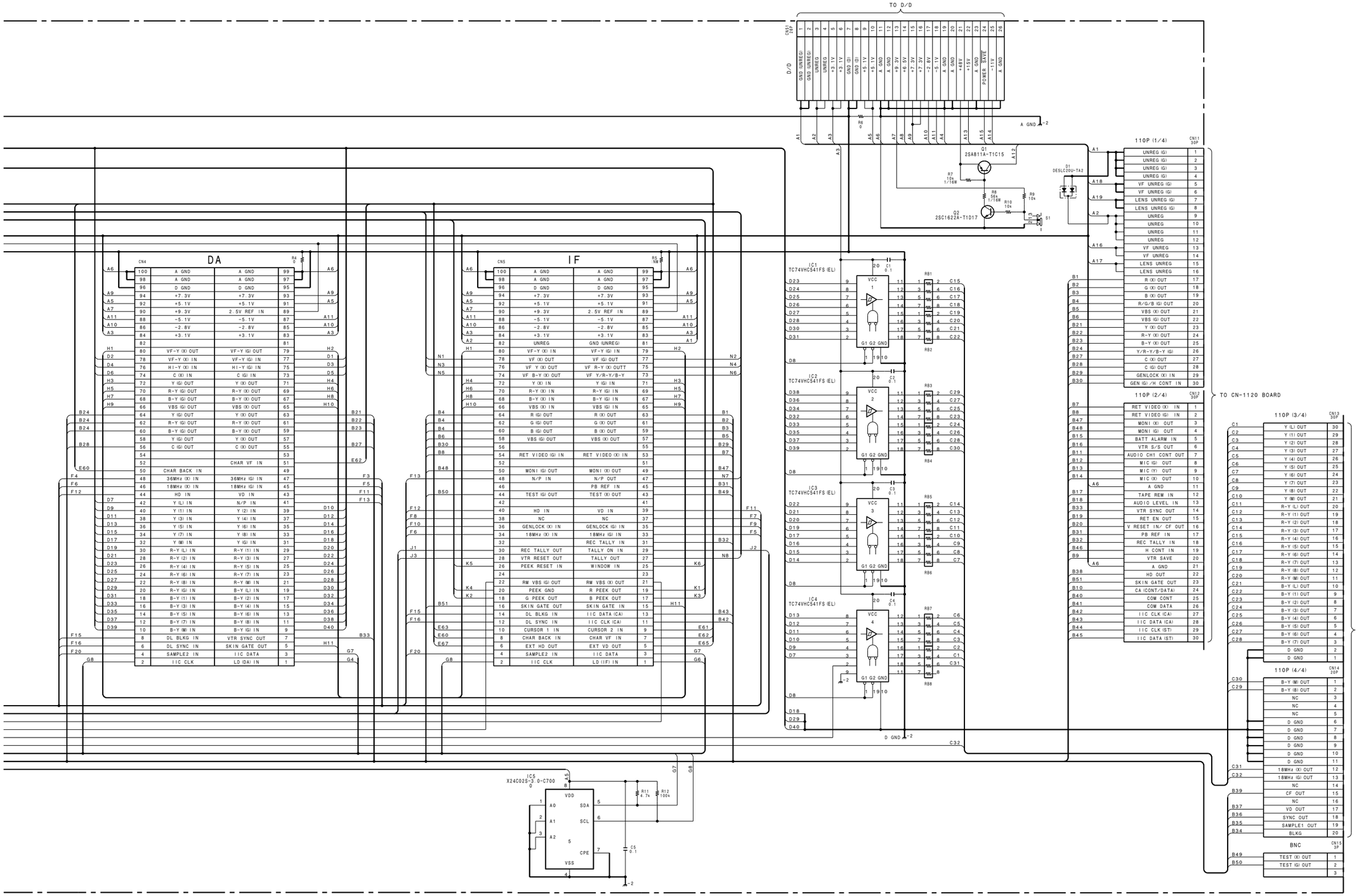


IF-510 (2/2)
BOARD NO. 1-657-453-12
LOT NO. 509-
B-¥BVP550-IF510-12

MB-602 BOARD

BVP-550 (SY)





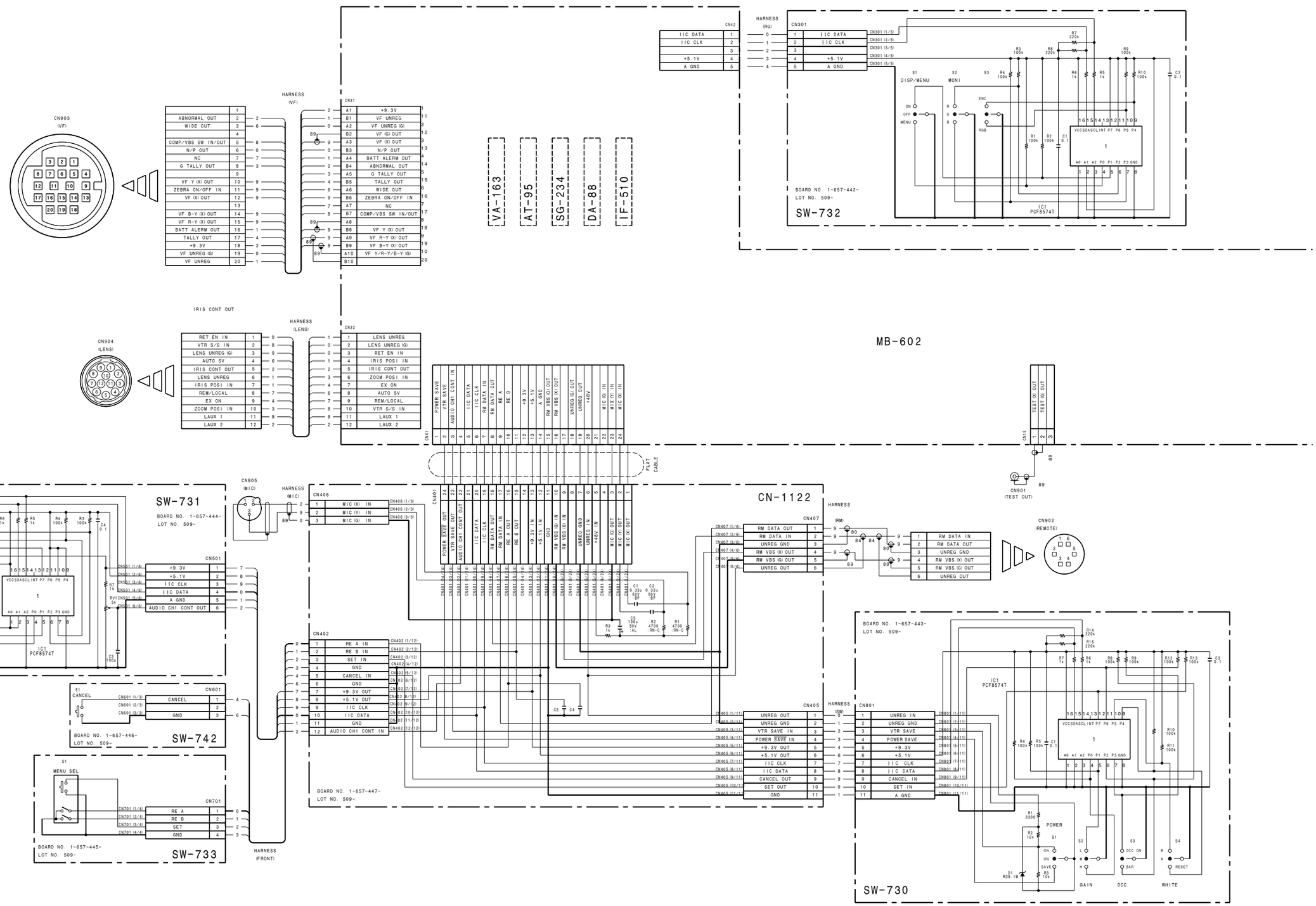
MB-602

BOARD NO. 1-657-437-14
LOT NO. 509-
B-¥BVP550-MB602-11

FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

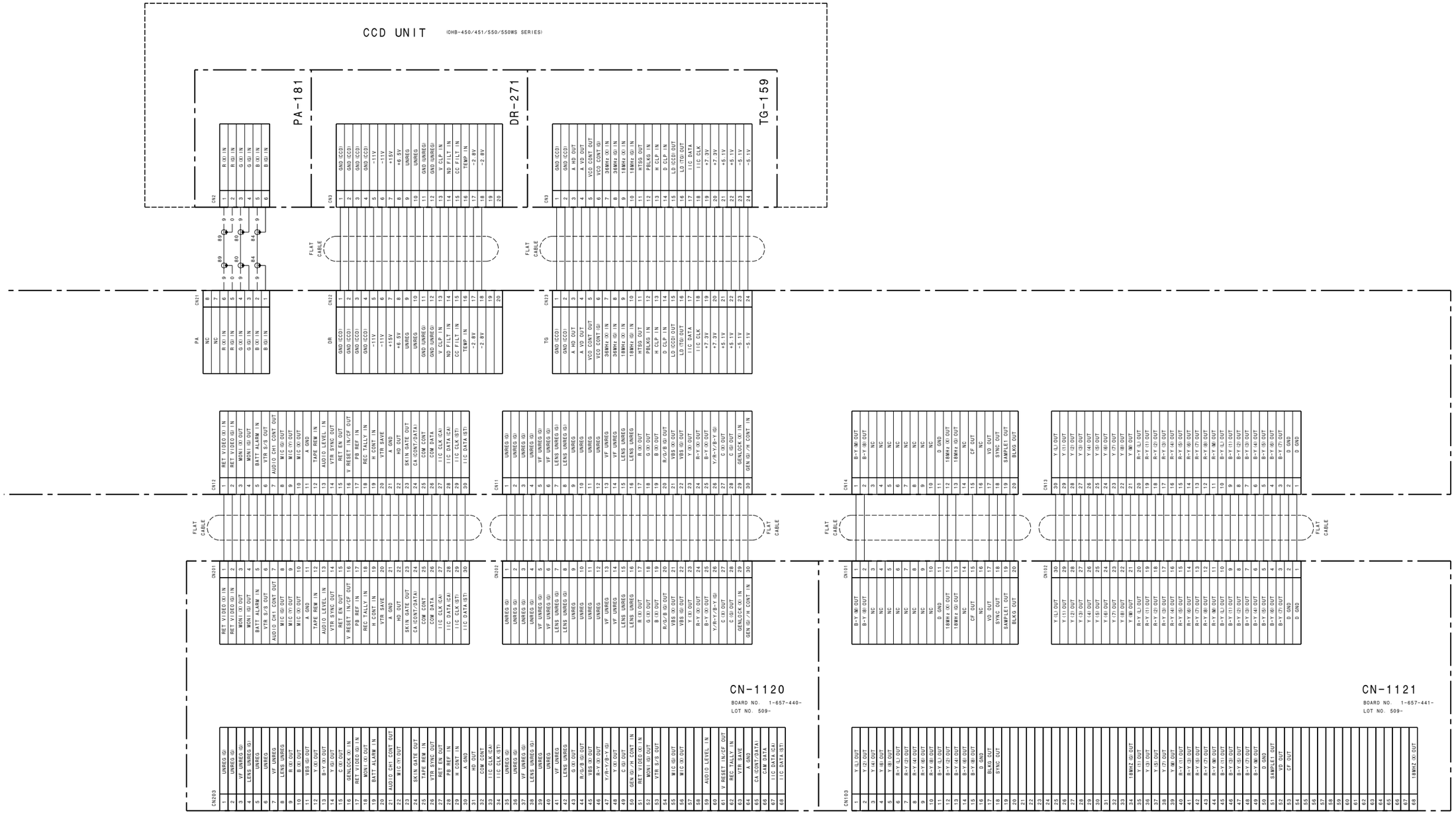
FRAME WIRING

BVP-550 (SY)



8-22

FRAME WIRING CN-1120/1121/1122/1142 SW-730/731/732/733/742

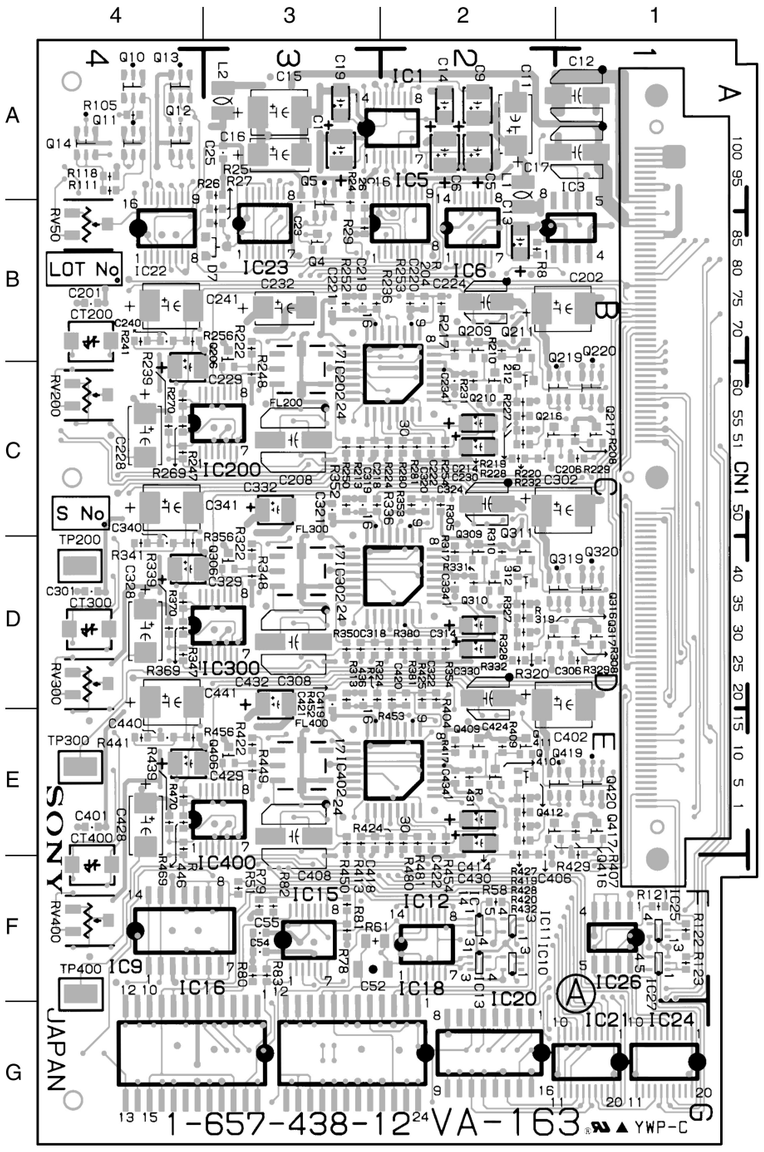


FRAME WIRING
CN-1120/1121/1122/1142
SW-730/731/732/733/742

A-¥BVP550-FRAME/M
- B-¥BVP550-FRAME/M
- B-¥BVP550-CN1122/M
- B-¥BVP550-SW730/M
- B-¥BVP550-SW731/M
- B-¥BVP550-SW732/M
- B-¥BVP550-SW733/M
- B-¥BVP550-SW742/M

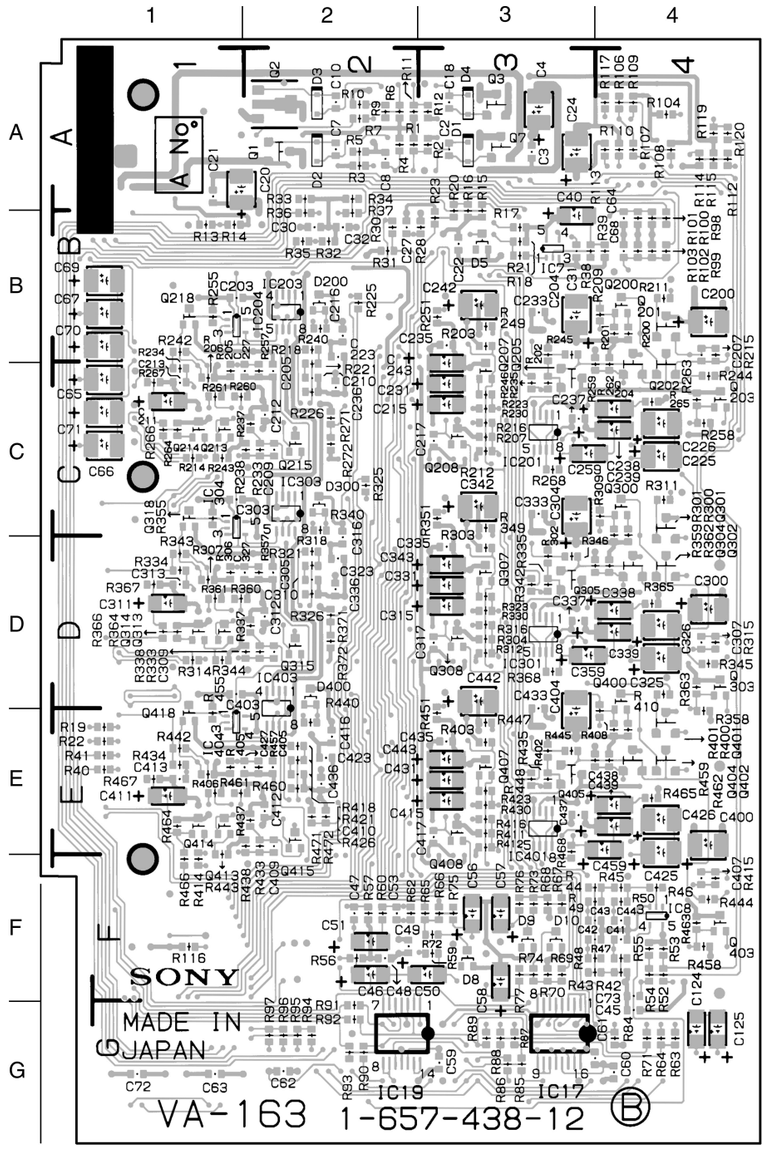
Section 9
Board Layouts

VA-163 BOARD



VA-163 - A SIDE -

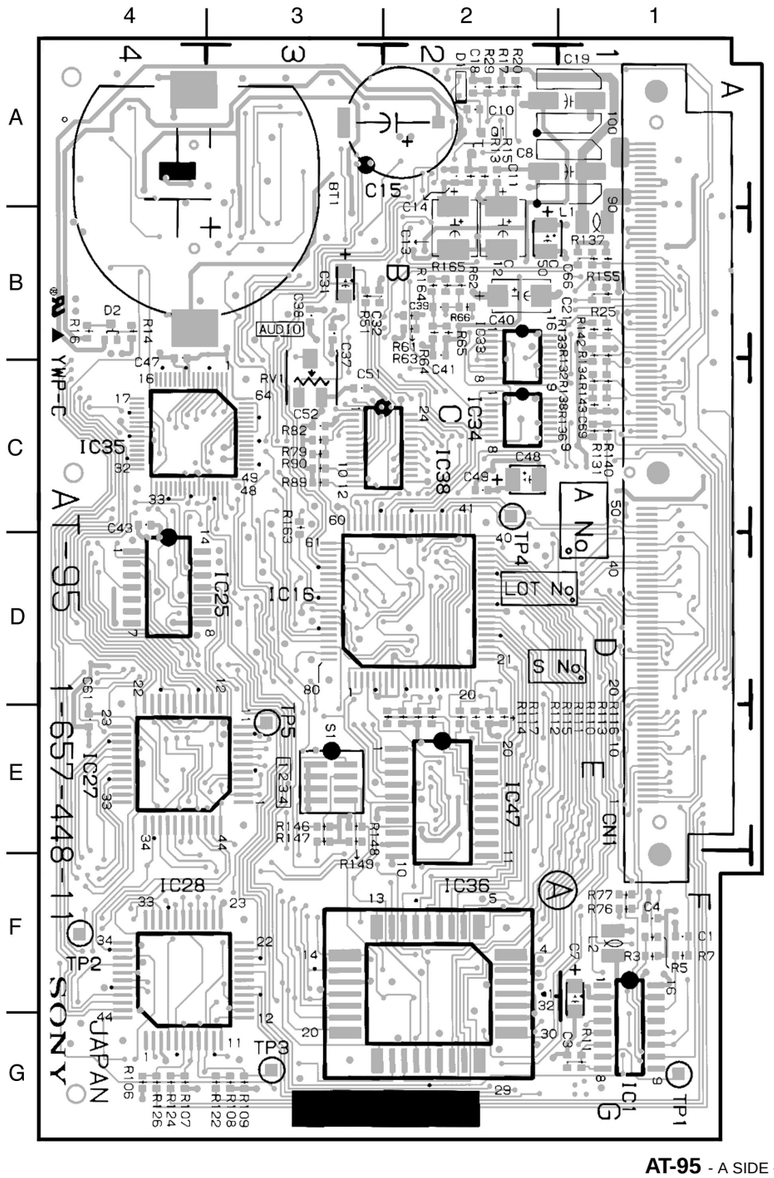
1-657-438-12



VA-163 - B SIDE -

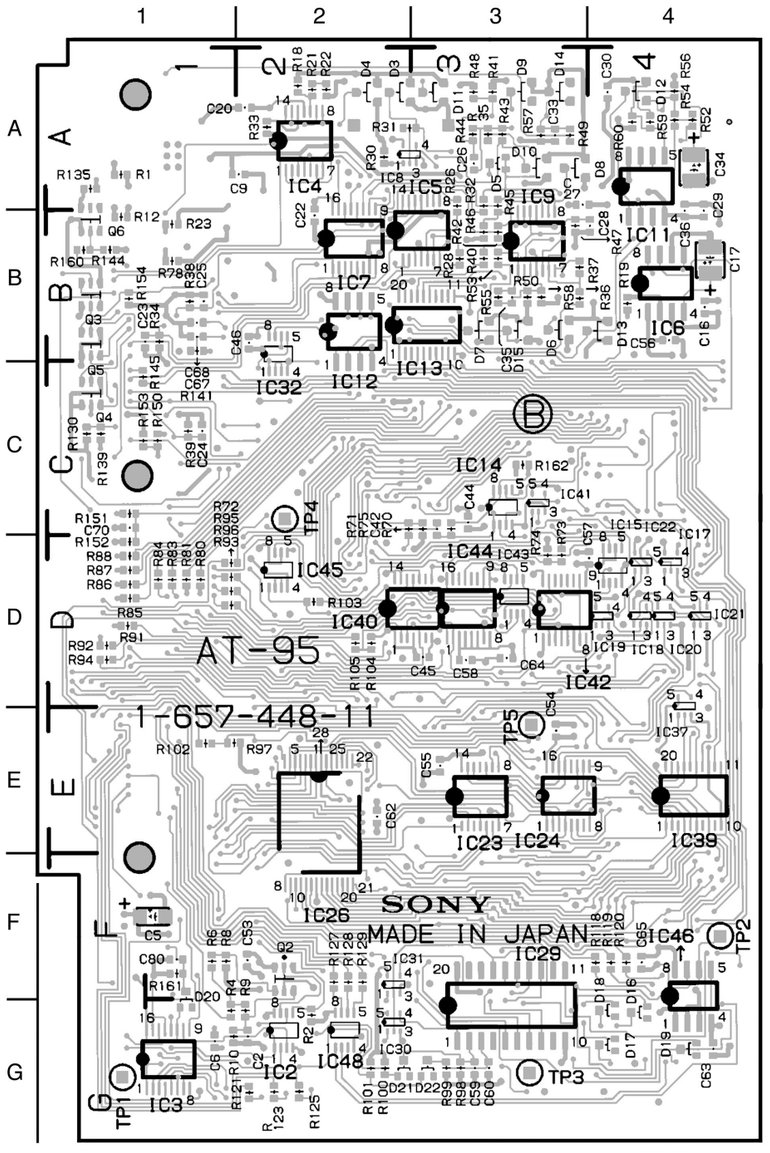
1-657-438-12

AT-95 BOARD



AT-95 - A SIDE -

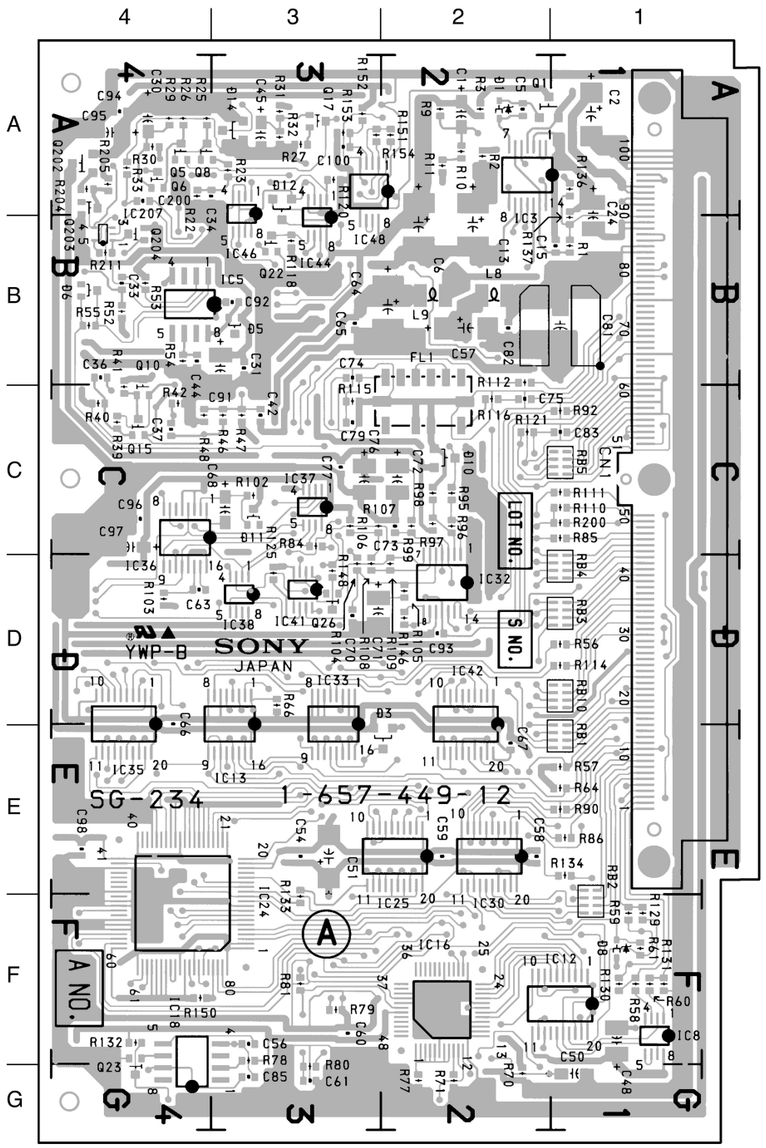
1-657-448-11, 12



AT-95 - B SIDE -

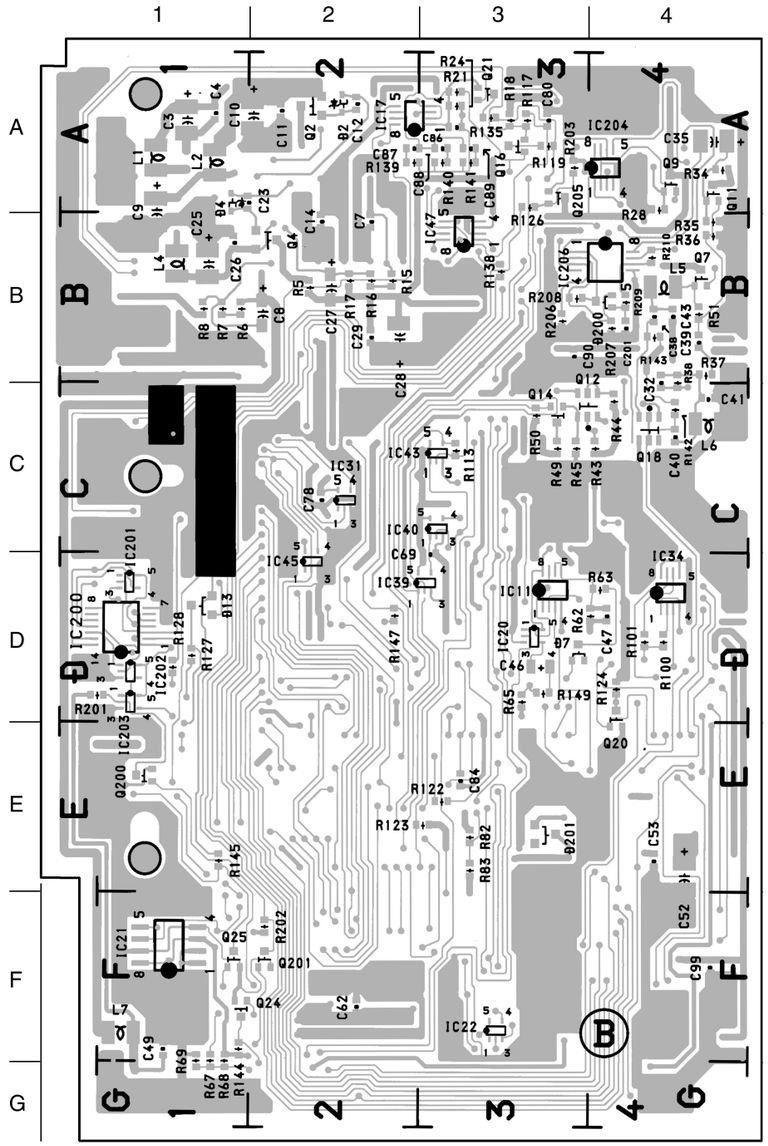
1-657-448-11, 12

SG-234 BOARD



SG-234 - A SIDE -

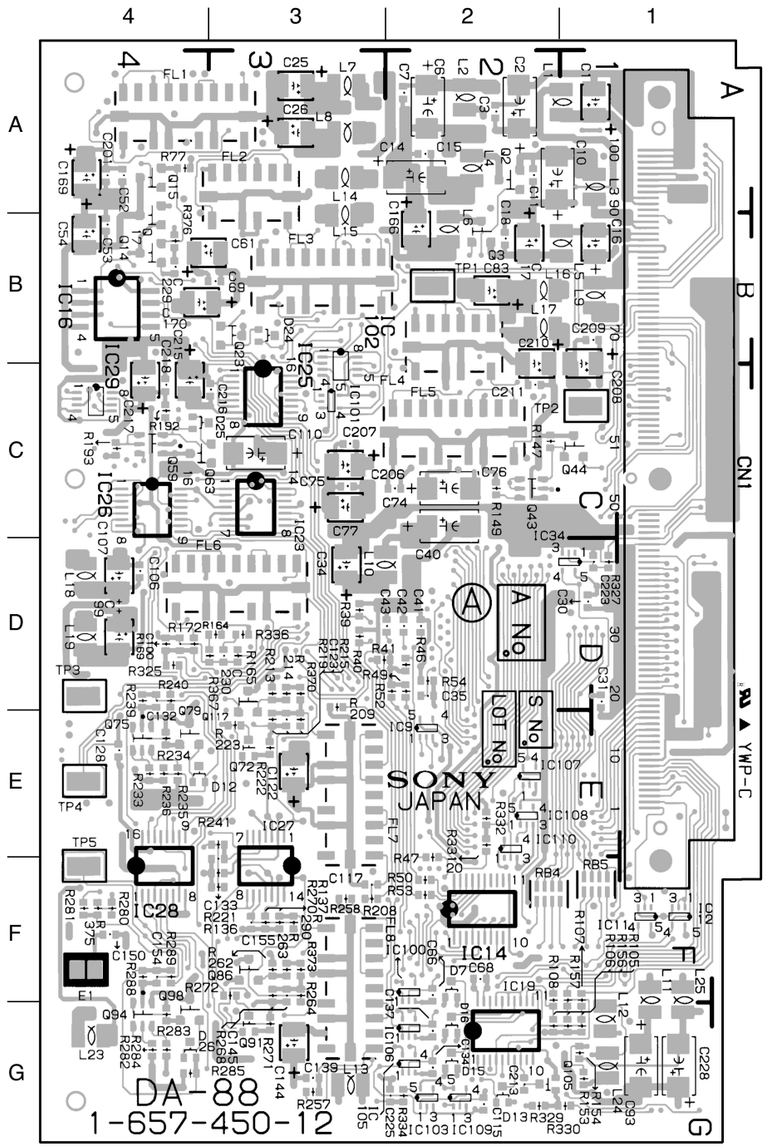
1-657-449-12



SG-234 - B SIDE -

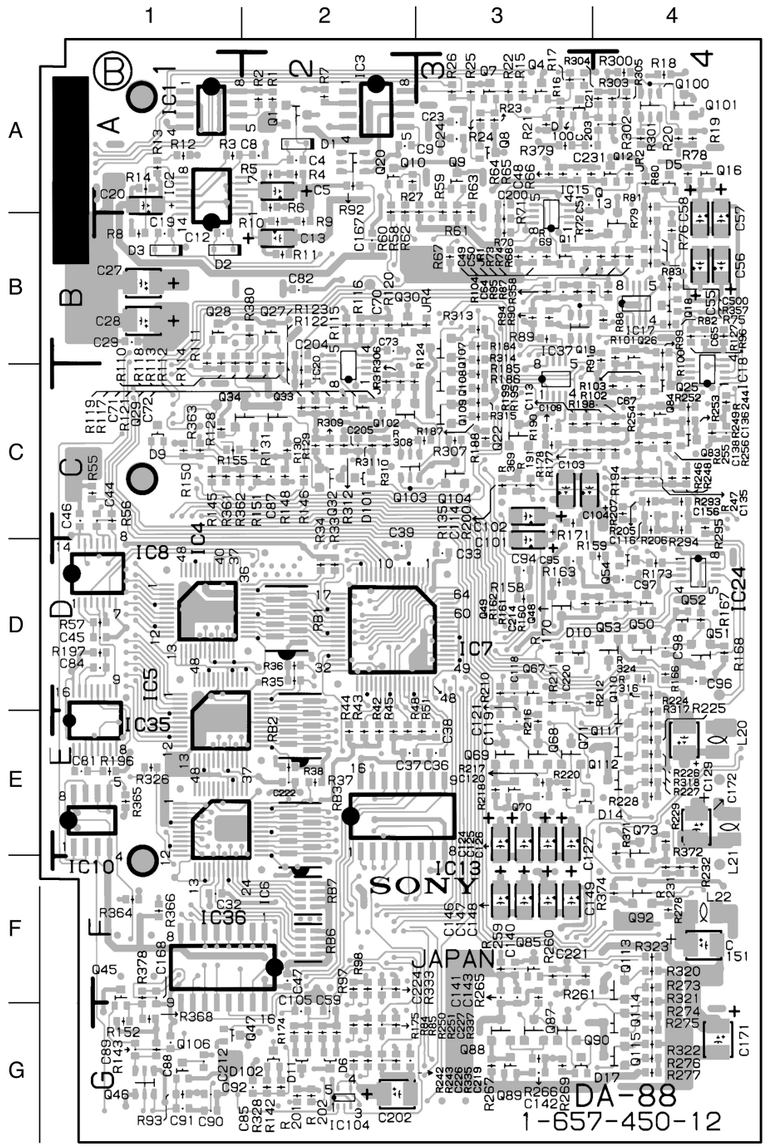
1-657-449-12

DA-88 BOARD



DA-88 - A SIDE -

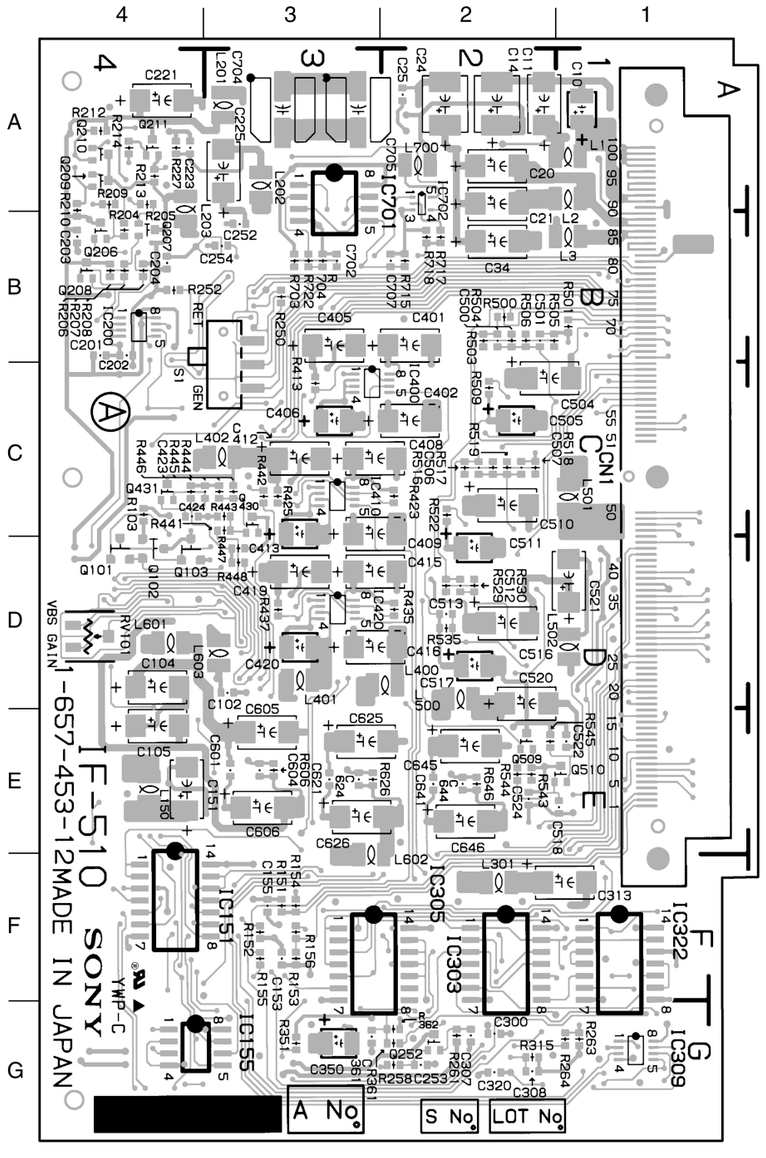
1-657-450-12



DA-88 - B SIDE -

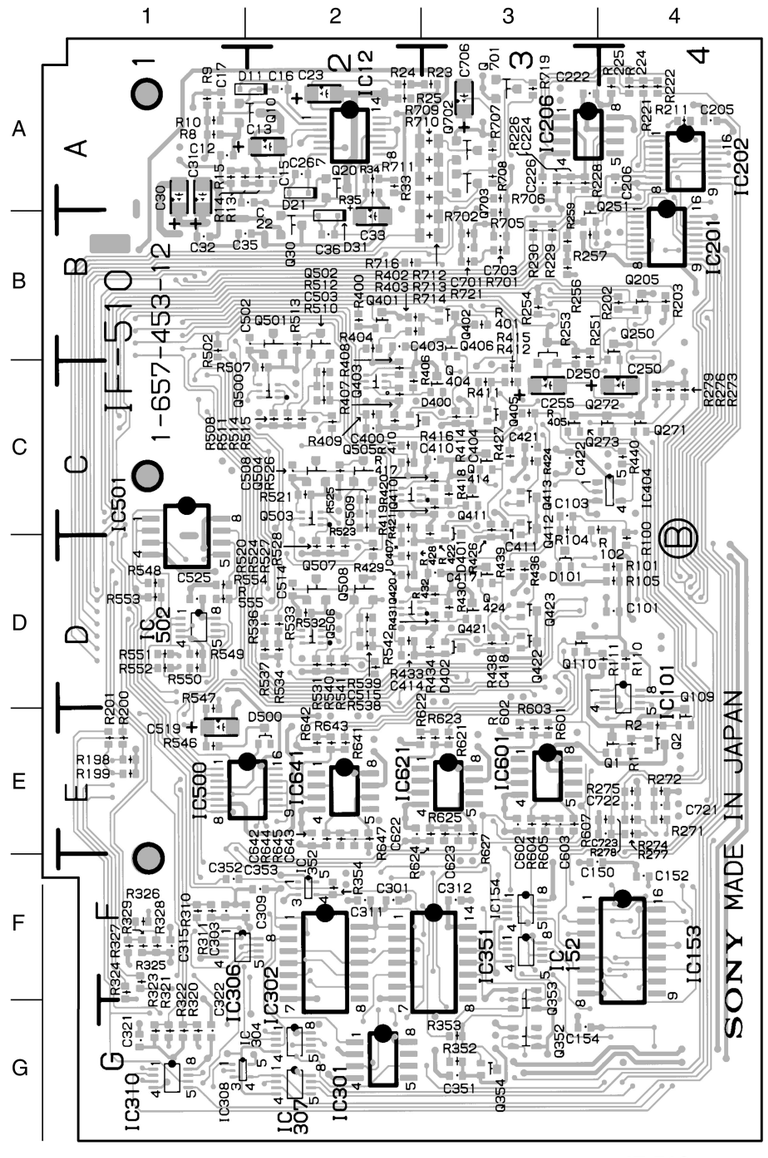
1-657-450-12

IF-510 BOARD



IF-510 - A SIDE -

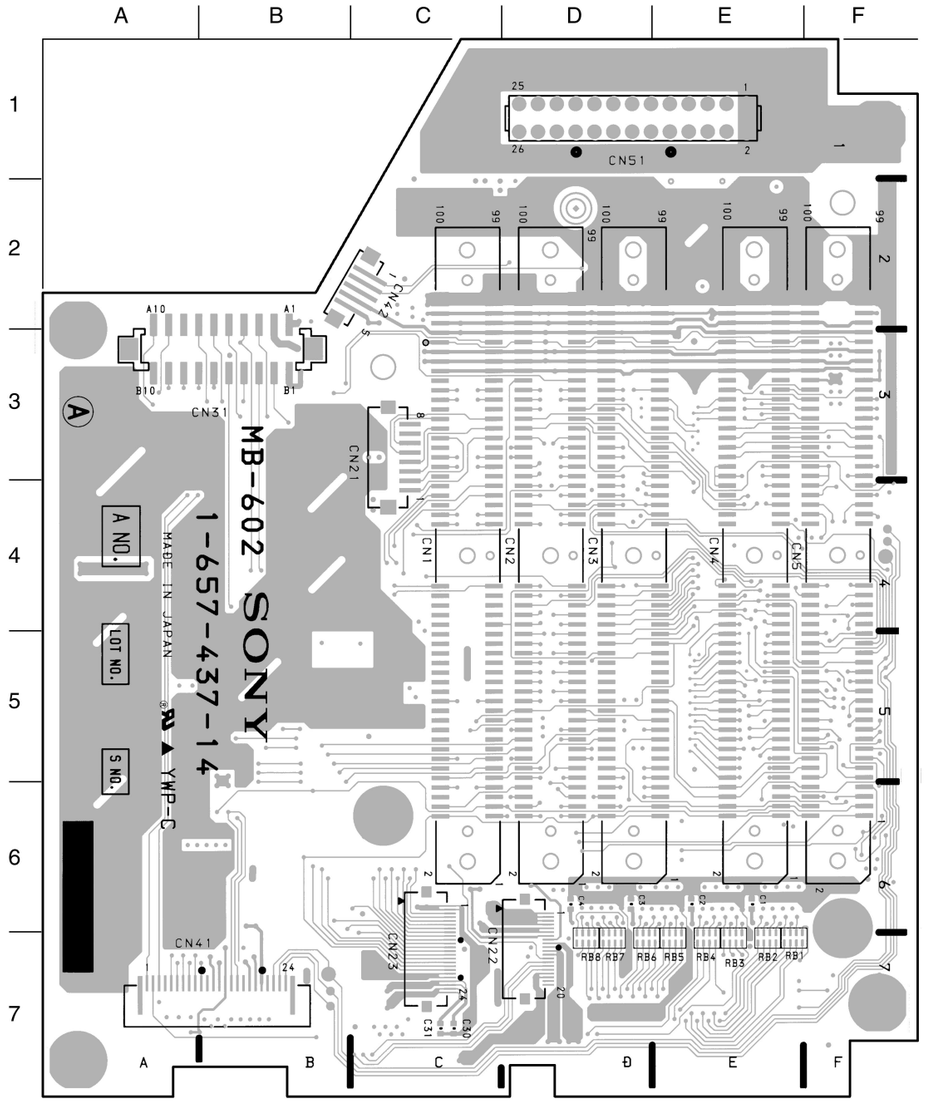
1-657-453-12



IF-510 - B SIDE -

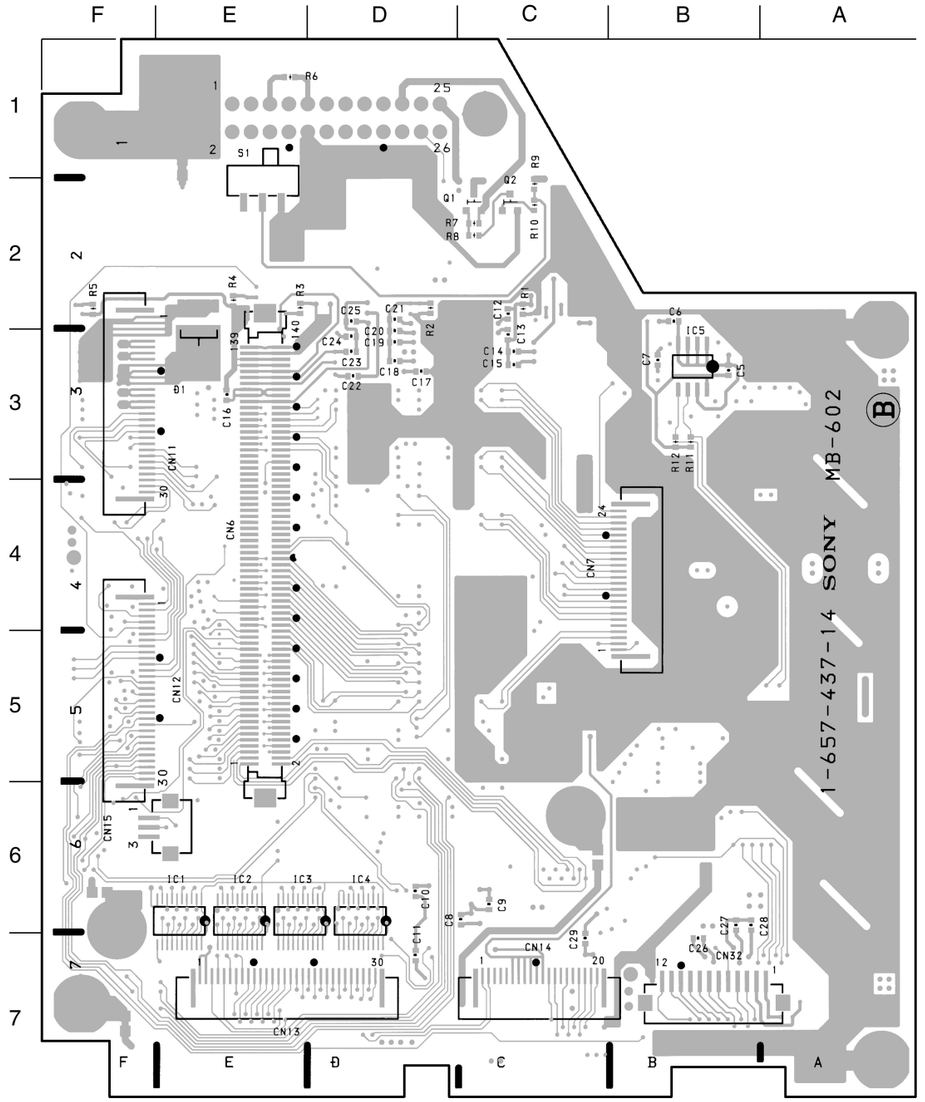
1-657-453-12

MB-602 BOARD



MB-602 - A SIDE -

1-657-437-14



MB-602 - B SIDE -

1-657-437-14

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BVP-550 (SY) J,E
3-189-412-11

Sony Corporation
Broadcast Products Company

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SONY

COLOR VIDEO CAMERA

BVP-550
BVP-550P

SUPPLEMENT-1

FOR MAINTENANCE MANUAL

Please replace and add this SUPPLEMENT-1 with your own manual.

Applicable Manual (Manual Code)

1st Edition (3-189-412-01)

Contents

Additional information for the overall electrical alignment.

Section 4 Electrical Alignment

BVP-550 (UCJ)
BVP-550P (CE) J,E
9-967-642-01

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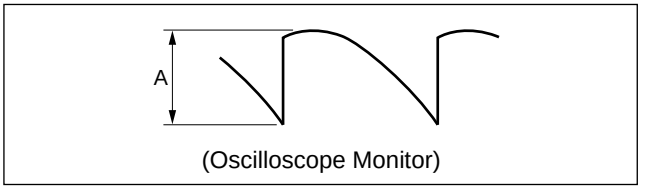
Step 5.

Test point : TP3/VF-60 board
GND : E1/VF-60 board

Measure and memorize the value A shown in the figure below.

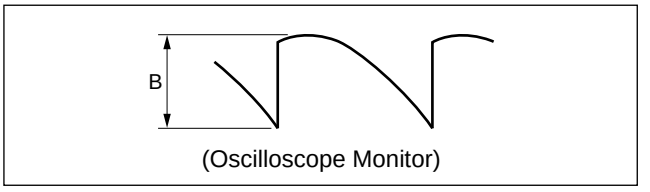


Step 6.

Extend the AT-95 board of BVP-550/550P using EX-464 extension board, and short between 76-pin and 100-pin on the EX-464 board using a shorting clip. (Turn into 16:9 mode.)

Step 7.

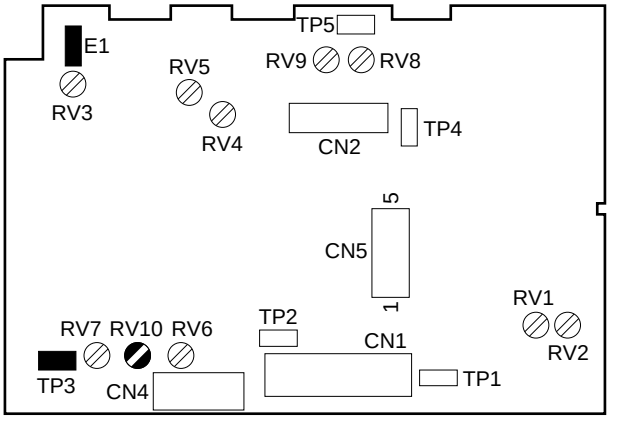
Test point : TP3/VF-60 board
GND : E1/VF-60 board
Adjustment point : ◓RV10 (V SIZE (WIDE))/VF-60
Specifications : Measure the value B, and adjust the ratio to A : B = 4 : 3.



Note:

When the centering magnet is turned, paint-lock it again.

After these adjustments are completed, disconnect the shorting clip, and connect the IF-510 board to the camera.



VF-60 BOARD (A SIDE)

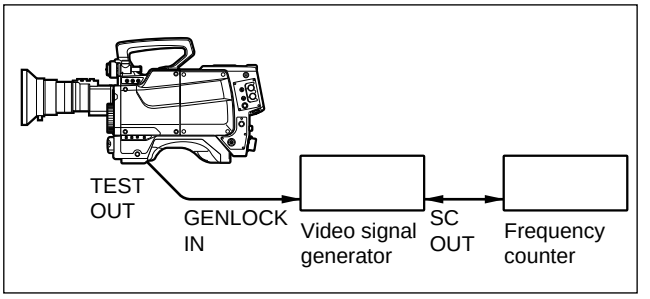
4-4. Overall Electrical Alignment

Notes:
If the adjustments in this section are suspended or the power is turned off to extend a printed circuit board and so on, be sure to execute the FILE STORE before turning off. (Refer to Section 4-4-23 “File Store”)

4-4-1. VCO CONT Frequency Adjustment

Note:
- Warm up the camera for about 10 minutes before this confirmation.

Preparations:
RGB/ENC switch (on the side panel) → ENC
Equipment : Frequency counter,
Video signal generator
Test point : SC out connector/
Video signal generator
Specifications : 3,579,545 ±10 Hz (for NTSC)
4,433,168 ±5 Hz (for PAL)



If the specifications are not satisfied, perform the following adjustment.

1. Set the menu as follows and adjust the frequency by turning the MENU SEL switch.
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC Freq
   Specifications : 3,579,545 ±10 Hz (for NTSC)
   4,433,168 ±5 Hz (for PAL)

- OHB File Store

2. Set the menu as follows.
   MENU : Triming file
   PAGE : OHB File (T2)
   ITEM : File Store

Press the MENU SEL switch (on the front panel) to perform the triming file store.

4-4-2. VTR Y Adjustment

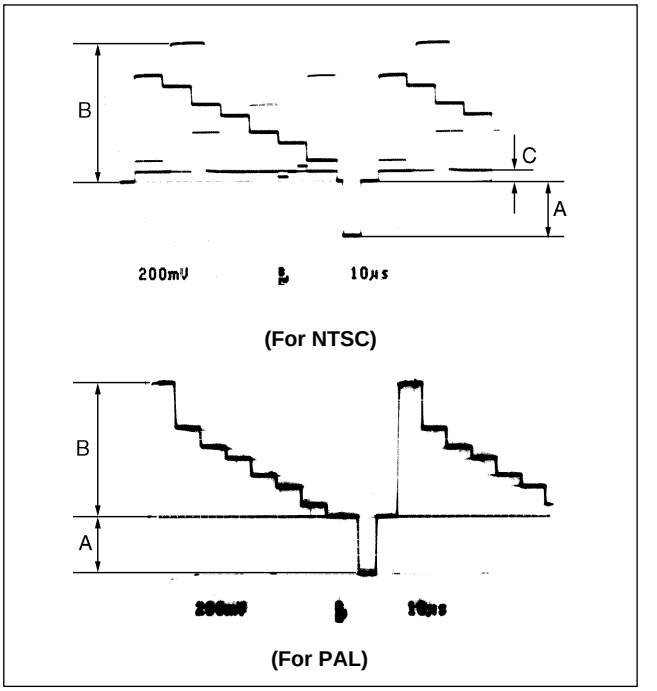
Equipment : Oscilloscope
Test point : TP3 (D4)/DA-88

Preparations:
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC
WHITE BAL switch (on the side panel)→PRST
Connect the Oscilloscope to the TP3 (D4) (GND:E1 (F4))/ DA-88 Board.

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SYNC
   Specifications: A = 286 ±2 mV (for NTSC)
   A = 300 ±2 mV (for PAL)

2. **Menu setting** : (NTSC only)
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y SETUP
   Specifications: C = 53.5 ±2 mV

3. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : Y VIDEO
   Specifications: B = 714 ±7 mV (for NTSC)
   B = 700 ±7 mV (for PAL)



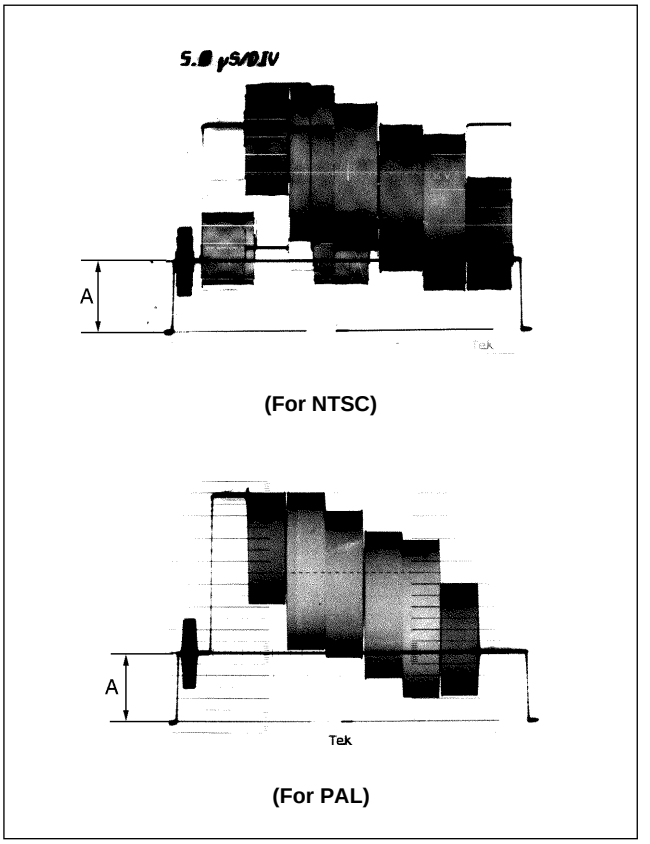
4-4-3. Test out Adjustment

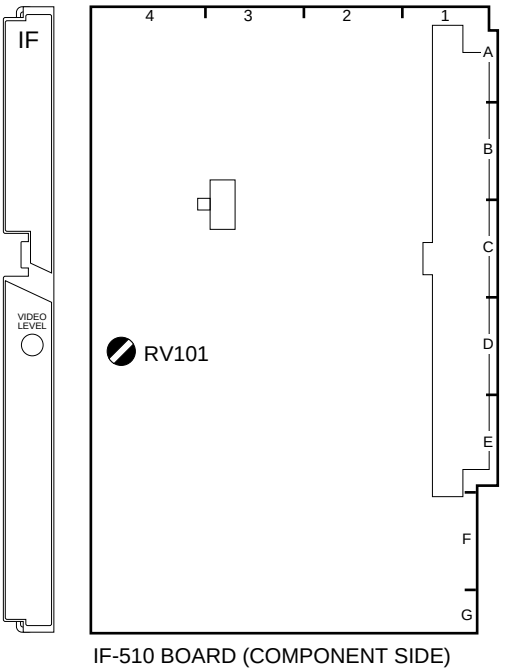
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

Adjustment procedures:
1. **Adjustment point** : ⊘RV101 (D4)/IF-510
   Specifications : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)

2. **Menu setting**: (NTSC only)
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : TEST SETUP
   Specifications : B = 7.5 ±1 IRE





IF-510 BOARD (COMPONENT SIDE)

4-4-4. Chroma Adjustment

Equipment : Waveform monitor, Vectorscope
Test point : TEST OUT connector

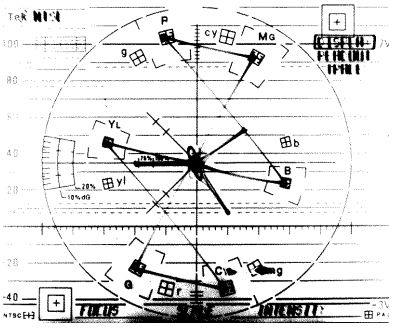
Preparations:

Connect the vectorscope to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

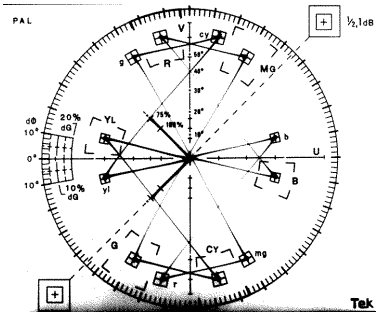
Adjustment procedures:

1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : CHROMA LVL
   Specifications: Place the beam spots inside the corresponding frames on the vectorscope.

2. Connect the waveform monitor to the TEST OUT connector.

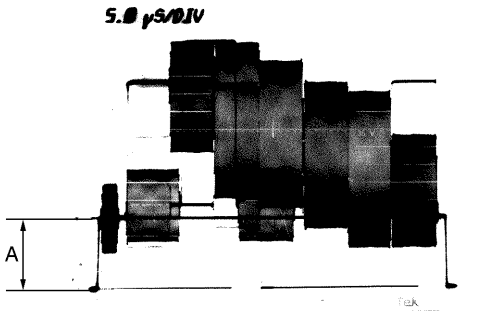


(For NTSC)

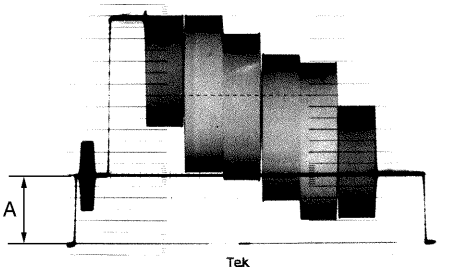


(For PAL)

3. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : BURST LVL
   Specifications: A = 40 ±1 IRE (for NTSC)
   A = 300 ±5 mV (for PAL)



(For NTSC)



(For PAL)

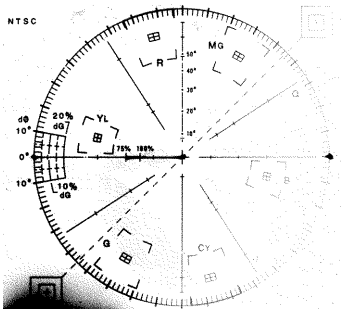
4-4-5. INT SC Phase Adjustment

Notes:
This adjustment precedures are stated below assuming that where the Tektronix 1750 (for BVP-550) or1751 (for BVP-550P) is used.
If any other measuring instrument is used, follow the instructions given in the operation manual attached to it.

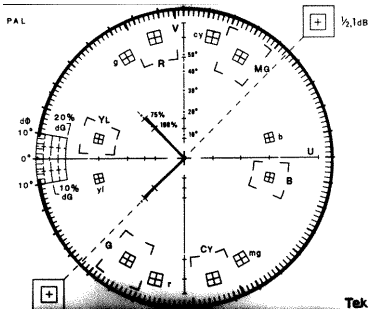
Equipment : SC-H Phase measuring instrument
Test point : TEST OUT connector

Preparations:
Connect the SC-H Phase measuring instrument to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → ENC

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : SC-H Phase
   Specifications: Position the luminous line of the burst (SC) and the beam spot of H as shown in the figure.



(For NTSC)



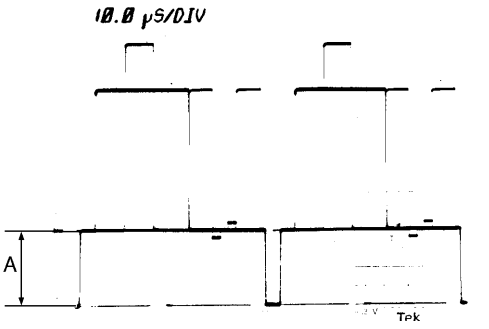
(For PAL)

4-4-6. REG Level Adjustment

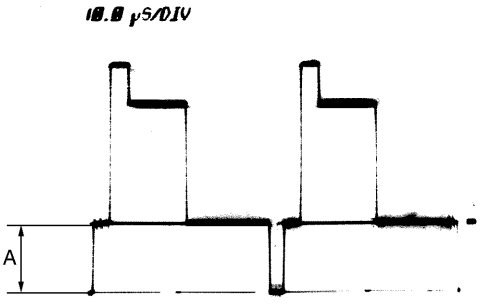
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → BARS
RGB/ENC switch (on the side panel) → RGB
R/B/B switch (on the side panel) → G

Adjustment procedures:
1. **Menu setting**:
   MENU : System config
   PAGE : Y/Chroma (S2)
   ITEM : REG LVL
   Specifications:
   SYNC LEVEL : A = 40 ±1 IRE (for NTSC)
   A = 300 ±2 mV (for PAL)



(For NTSC)



(For PAL)

4-4-7. TEST1 Adjustment

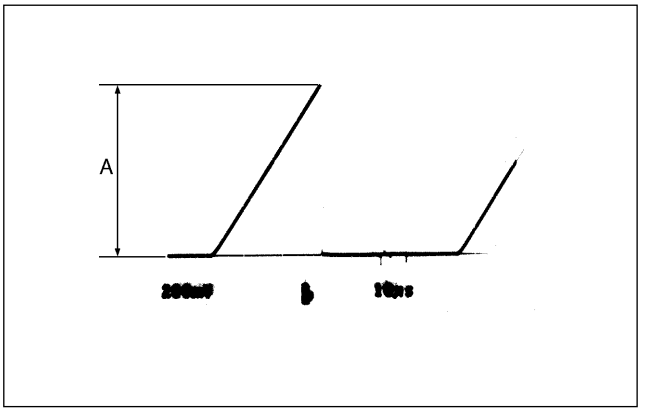
Equipment : Oscilloscope
Test points : TP50,52,54/Extension board extending VA-163

Preparations:

1. Extend VA-163 board with EX-464 board.
2. WHITE BAL switch (on the side panel)→PRST
3. Select the TEST SAW signal
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→1

Adjustment procedures:

1. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
2. G-ch signal adjustment
   Adjustment point : ⊘RV50 (B4)/VA-163
   Specifications : A = 880 ±2 mV



3. R-ch signal confirmation
   Connect the oscilloscope to the TP54 (GND:GND (A))/Extension board extending VA-163.
   Specifications: A = 880 ±40 mV

4. B-ch signal confirmation
   Connect the oscilloscope to the TP50 (GND:GND (A))/Extension board extending VA-163.
   Specifications: A = 880 ±40 mV

4-4-8. TEST2 Adjustment

Equipment : Oscilloscope
Test point : TP52/Extension board extending VA-163

Preparations:

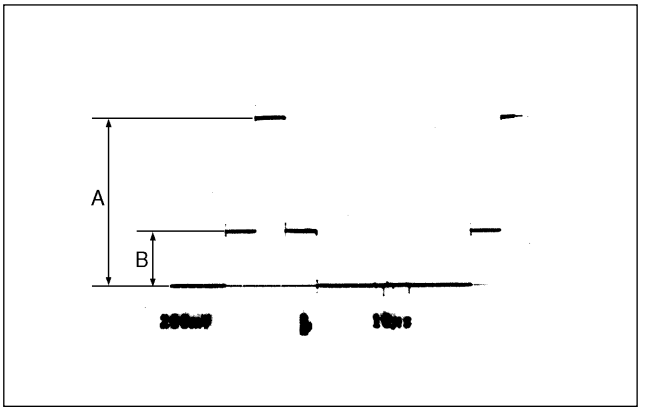
1. Extend VA-163 board with EX-464 board.
2. Select the TEST SAW signal
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→2

Adjustment procedures:

1. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.

2. TEST2 HIGH Level adjustment
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 HI
   Specifications: A = 880 ±5 mV

3. TEST2 MID Level adjustment
   MENU setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST2 MID
   Specifications: B = 283 ±5 mV



4-4-9. A/D Clock Phase Adjustment

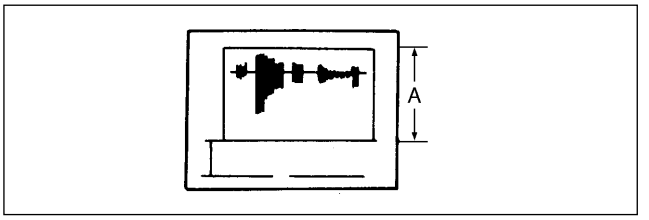
Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Multiburst chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Shoot the multiburst chart so that the chart frame is aligned with the underscaned monitor frame with the zoom control.
Pan so that the 9 MHz portion of the multiburst chart is positioned at the center of the monitor screen.
OUTPUT/DCC switch (on the side panel) → CAM/OFF
RGB/ENC switch (on the side panel) → ENC

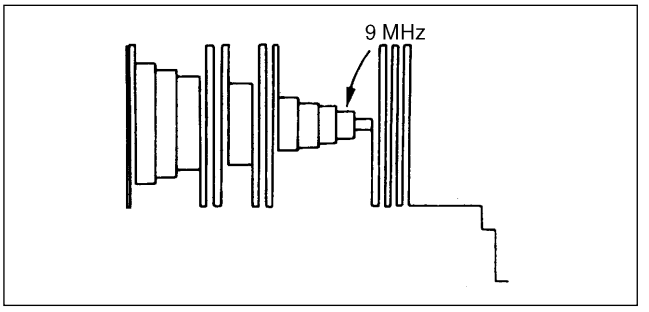
Adjustment procedures:

1. Adjust the iris control of the lens.
   A = 90 ± 2 IRE (for NTSC)
   A = 630 ± 10 mV (for PAL)



2. Clock Phase [G]
   Menu setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : G Clock
   Specifications: Maximize the 9 MHz signal portion.

3. Clock Phase [R/B]
   Menu setting:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : R/B Clock
   Specifications: Adjust the 9 MHz signal portion nearly horizontally.



4-4-10. VA Gain Adjustment

Notes:

- Use the reflective chart (reflection ratio:89.9%)in this adjustment, if possible.
- If a pattern box is used, it should be well-maintained.
- Set the luminouse intensity of the chart to 2000 lx.
- Never change the setting of the following trimmer capacitors.
  These capacitors are extremely difficult to adjust in the field.
  VA-163 board :⊘CT200, ⊘CT300, ⊘CT400

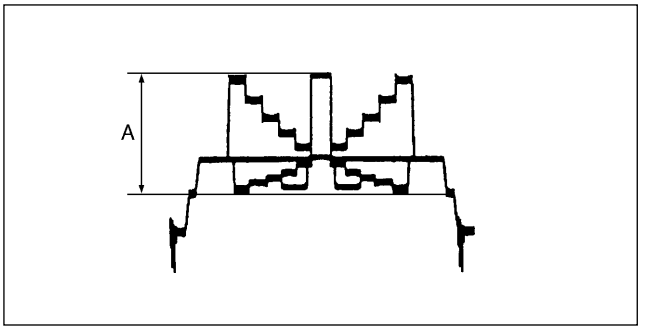
Equipment : Waveform monitor
Object : Grayscale chart

Preparations:

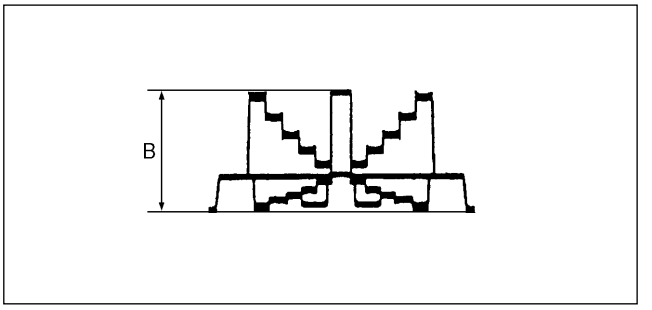
WHITE BAL switch (on the side panel)→PRST
GAIN switch (on the side panel)→L (0 dB)
Extend VA-163 board with EX-464 board.

Adjustment procedures:

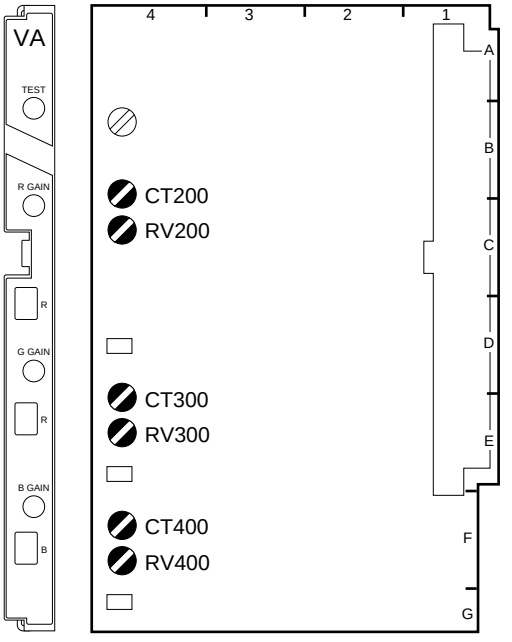
1. **MENU setting**:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee→Off
2. Adjust automatically the black balance.
   AUTO W/B BAL switch (on the front panel)→BLK
3. Connect the oscilloscope to the TP74 (GND:TP73)/ Extension board extending VA-163.
   Specifications: Adjust the iris control of the lens.
   A = 125 mV



4. Connect the oscilloscope to the TP54 (GND:TP53)/ Extension board extending VA-163.
   Adjustment point : ⊘RV200 (C4)/VA-163
   Specifications : B = 880 ±5 mV



5. Connect the oscilloscope to the TP72 (GND:TP71)/ Extension board extending VA-163.
   Specifications : Adjust the iris control of the lens.
   A = 125 mV
6. Connect the oscilloscope to the TP52 (GND:TP51)/ Extension board extending VA-163.
   Adjustment point : ⊘RV300 (D4)/VA-163
   Specifications : B = 880 ±5 mV
7. Connect the oscilloscope to the TP70 (GND:TP69)/ Extension board extending VA-163.
   Specifications : Adjust the iris control of the lens.
   A = 125 mV
8. Connect the oscilloscope to the TP50 (GND:TP49)/ Extension board extending VA-163.
   Adjustment point : ⊘RV400 (F4)/VA-163
   Specifications : B = 880 ±5 mV



VA-163 BOARD (COMPONENT SIDE)

4-4-11. VA MOD Adjustment

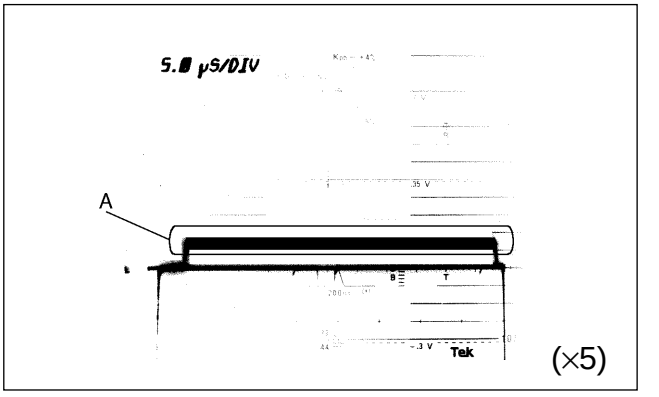
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → L (0 dB)
Iris of the lens : CLOSE
RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → R

Adjustment procedures:

1. VA MOD [R] Adjustment
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [R]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [R] varies from 99 to –99.



2. VA MOD [G] Adjustment
   R/G/B switch (on the side panel) → G
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [G] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [G]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [G] varies from 99 to –99.

3. VA MOD [B] Adjustment
   R/G/B switch (on the side panel) → B
   MENU setting:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [B] → 99
   Adjustment point:
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : VA MOD [B]
   Specifications: Flatten the portion A.
   Adjust so that the level at portion A does not fluctuate even if the setting value for H Saw [B] varies from 99 to –99.

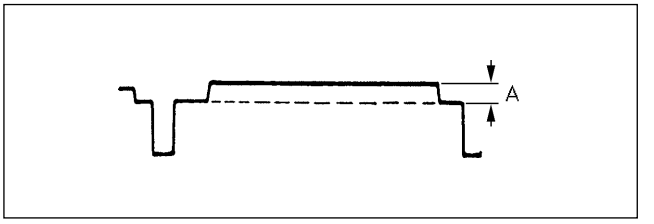
4. **MENU setting**:
   MENU : Maintenance
   PAGE : White Shading (M2)
   ITEM : H Saw [R] → 0
   ITEM : H Saw [G] → 0
   ITEM : H Saw [B] → 0

4-4-12. Master Black Adjustment

Equipment : Waveform monitor
Test point : TEST OUT connector
Iris of the lens : CLOSE

Preparations:
Connect the waveform monitor to the TEST OUT connector.

Adjustment procedures:
1. Set the RGB/ENC switch (on the side panel) to RGB.
   Set the R/G/B switch (on the side panel) to G.
2. Set the menu as follows, and adjust the black level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Black (M)
   Specifications: A = 3 ±1 IRE (for NTSC)
   A = 35 ±7 mV (for PAL)



3. Set the RGB/ENC switch (on the side panel) to ENC.
4. Adjust automatically the black balance.
   AUTO W/B BAL switch (on the front panel) → BLK

4-4-13. A/D Gain Adjustment

Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → L (0 dB)
RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → G

MENU Setting:

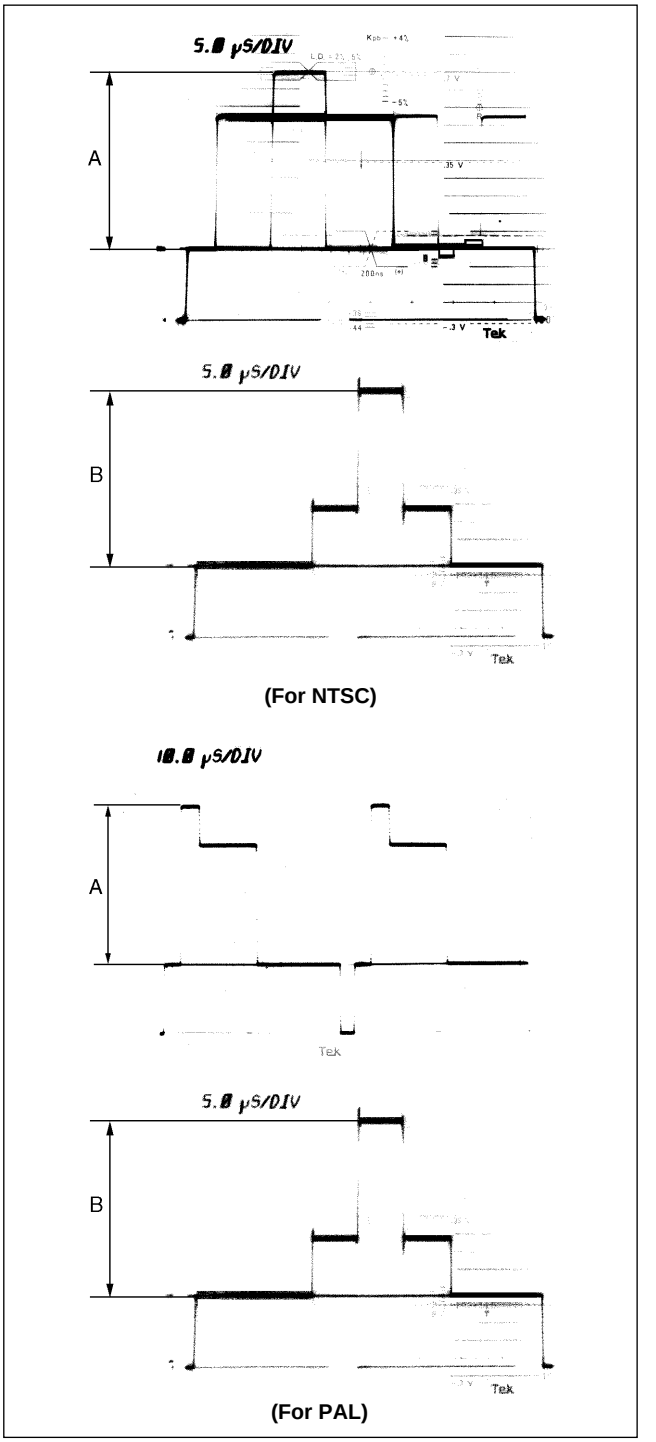
MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail→Off
PAGE : Gamma (P5)
ITEM : Gammma→Off
PAGE : Knee/W.Clip (P6)
ITEM : Knee→Off
ITEM : White Clip→Off
MENU : System config
PAGE : PR/VA/TEST (S3)
ITEM : TEST→2

Test point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment procedures:

• A/D Gain [G] Adjustment

1. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [G]
   Specifications: The white level shall not be changed even if the OUTPUT/DCC switch (on the side panel) is changed over between CAM and BARS.
   A = B

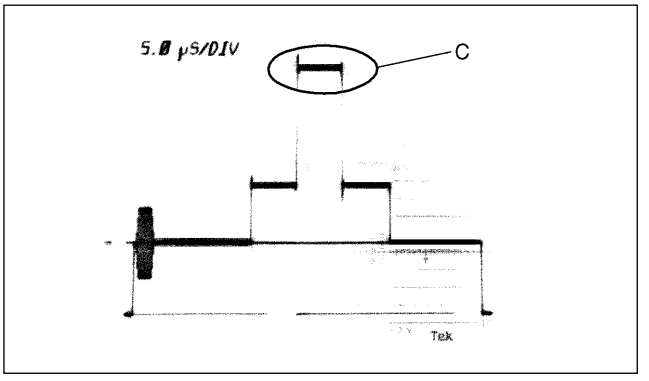


• A/D Gain [R] Adjustment

2. R/G/B switch (on the side panelüj→ ENC
3. OUTPUT/DCC switch (on the side panel) → CAM/OFF
4. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [R]
   Specifications: Minimize the carrier leakage.
   C = Minimum

• A/D Gain [B] Adjustment

5. MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : PR AD G [B]
   Specifications: Minimize the carrier leakage.
   C = Minimum



6. Repeat the steps 4 and 5 alternately until the specifications are satisfied.

7. **MENU Setting**:
   MENU : Paint
   PAGE : Detail1 (P2)
   ITEM : Detail→On
   PAGE : Gamma (P5)
   ITEM : Gammma→On
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip→On
   MENU : System config
   PAGE : PR/VA/TEST (S3)
   ITEM : TEST→Off

4-4-14. Black Shading Adjustment

Notes:

- The compensation data obtained by the black shading adjustment is not stored in the OHB File. Therefore, when the OHB is replaced or a new OHB is installed, be sure to perform this adjustment.
- If the shading adjustment is not completed, perform the adjustment again following the message displayed on the viewfinder or MSU.
  If the re-adjustment still is not completed, consult Sony service representative.

Preparations:

Connect the waveform monitor to the TEST OUT connector.
RGB/ENC switch (on the side panel) → ENC

Test point : TEST OUT connector
Iris of the lens: CLOSE

Adjustment procedures:

1. Set the DISP switch (on the side panel) to MENU.
2. Set the menu as follows and execute the auto black shading by pressing the MENU SEL switch (on the front panel).
   MENU : Maintenance
   PAGE : Auto Setup (M4)
   ITEM : Black Shading
3. Confirm the "OK" is displayed on the viewfinder or MSU. If the error message is displayed, perform the adjustment again following this message.

Message and its meaning

BLACK:OK	: Adjustment correctly completed.
LEVEL TOO HIGH	: Lens closing does not operate fully, and so on.
TIME LIMIT	: Black shading adjustment could not be completed within the specified number of attempts.
OVER FLOW	: The difference between the reference value and the current value is too great, and exceeds adjustment range. Adjustment is then not completed.

4. Confirm the carrier level satisfies the specification on the waveform monitor.
   Specifications: Less than 2 IRE (for NTSC)
   Less than 14 mV (for PAL)

• Manual Black Shading Adjustment (For reference)

Note:

• Perform this adjustment only when "4-2-3. Black Shading Adjustment" is not completed.

Equipment : Waveform monitor

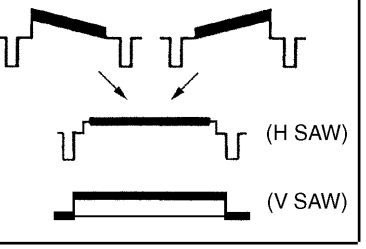
Preparations:

Connect the waveform monitor to the TEST OUT connector.
GAIN switch (on the side panel) → H (18 dB)

Test Point : TEST OUT connector
Iris of the lens : CLOSE

Adjustment procedures:

1. Set the waveform monitor as follows.
   • LUM mode
   • VOLTFULL SCALE range → 0.5
2. Set the ENC/RGB switch (on the side panel) to RGB. Set the R/G/B switch (on the side panel) to G.
3. Set the menu as follows, and adjust the master black level to 3 IRE for NTSC and 35 mV for PAL by turning the MENU SEL switch.
   MENU : Maintenance
   PAGE : Black Shading (M3)
   ITEM : Black M
4. If the shading is monitored, makes the waveform flat following the table.
5. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: Black Shading (M3)	V SAW PAGE: Black Shading (M3)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: V Saw (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: V Saw (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: V Saw (B)
TEST OUT connector			

6. After adjustments are completed, set the switches as follows.
   ENC/RGB switch (on the side panel) → ENC
   GAIN switch (on the side panel) → L (0 dB)

4-4-15. White Shading Adjustment

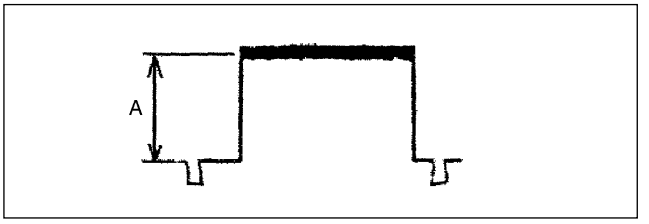
Note:

- This adjustment could not be correctly performed if the uneven white patten is used, luminance is not correct, or lens iris and lens zoom are not in good conditions.

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Full white pattern

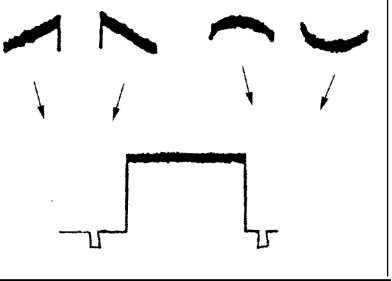
Preparations:

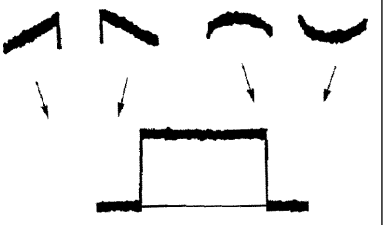
Connect the waveform monitor to the TEST OUT connector.
ENC/RGB (on the side panel)→ENC
Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee → Off
Zoom of the lens : Shoot the fully occupied white area of the pattern box in the full underscanned monitor frame adjusting the zoom control.
Iris of the lens : Adjust the iris control of the lens to satisfy the white level A.
A = 80 ±5 IRE (for NTSC)
A = 560 ±14 mV (for PAL)



Adjustmnet procedures:

1. Set the waveform monitor as follows.
   - LUM mode
   - VOLTFULL SCAN range → 0.5
2. Set the ENC/RGB switch (on the side panel) to R.G.B. Set the R/G/B switch (on the side panel) to G.
3. If the white shading is monitored, makes the waveform flat following the tables.
4. Perform the adjustments for R-ch and B-ch following the same procedures as for G-ch.

	Switch	H SAW PAGE: White Shading (M2)	H PARA PAGE: White Shading (M2)
G	ENC/RGB → RGB R/G/B → G	ITEM: H Saw (G)	ITEM: H Para (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: H Saw (R)	ITEM: H Para (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: H Saw (B)	ITEM: H Para (B)
TEST OUT connector			

	Switch	V SAW PAGE: White Shading (M2)	V PARA PAGE: White Shading (M2)
G	ENC/RGB → RGB R/G/B → G	ITEM: V Saw (G)	ITEM: V Para (G)
R	ENC/RGB → RGB R/G/B → R	ITEM: V Saw (R)	ITEM: V Para (R)
B	ENC/RGB → RGB R/G/B → B	ITEM: V Saw (B)	ITEM: V Para (B)
TEST OUT connector			

5. Set the menu as follows.
   MENU : Reference
   PAGE : Reference file (R1)
   ITEM : File Store
   Execute the Reference File Store by pressing the MENU SEL switch (on the front panel).
6. After adjustments are completed, set the switch as follows.
   ENC/RGB switch (on the side panel) → ENC

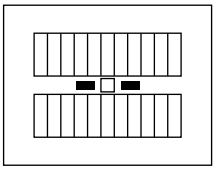
4-4-16. Gamma Correction Adjustment

Equipment : Waveform monitor, Vectorscope
Test point : TEST OUT connector
Object : Grayscale chart

Preparations:

Connect the waveform monitor to the TEST OUT connector.
Connect the vectorscope to the PIX OUT terminal on the waveform monitor.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.

- Adjust automatically the white balance.
  Set the WHT BAL switch (on the side panel) to A
  Set the AUTO W/B BAL switch (on the front panl) to WHT



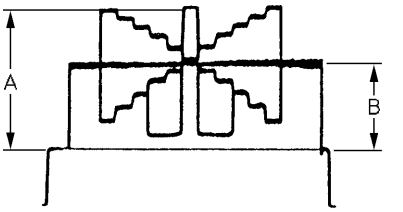
(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

RGB/ENC switch (on the side panel) → RGB
R/G/B switch (on the side panel) → G
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)

Adjustmnet procedures:

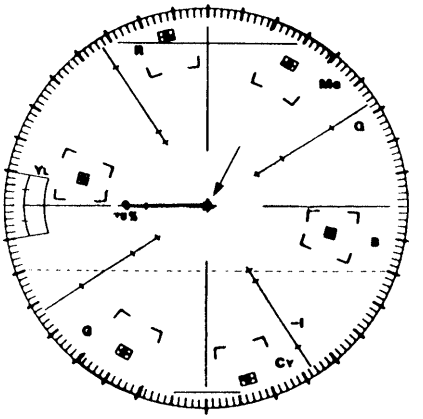
1. Set the RGB/ENC switch (on the side panel) to ENC.
2. Set the menu as follows, and adjust the gamma correction for (M) by turning the MENU SEL switch.
   PAGE : Video Level (P1)
   ITEM : Gamma (M)
   Specifications: B = 60 ±2 IRE (for NTSC)
   B = 420 ±14 mV (for PAL)



(Waveform Monitor)

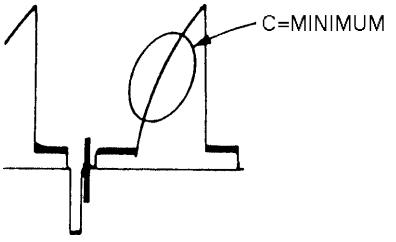
3. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→1
4. Gamma (R) Adjustment
   Set the menu as follows, and adjust the gamma correction for (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (R)
   Specifications: Center the beam spot on the vectorscope.
5. Gamma (B) Adjustment
   Set the menu as follows, and adjust the gamma correction for (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Gamma (B)
   Specifications: Center the beam spoe on the vectorscope.

6. Repeat the steps 4 and 5 alternately, until the beam spot is minimized on the vectorscope.



(Vector scope)

7. Confirm that the carrier leakage does not monitored at portion C on the waveform monitor.
   Specifications: C = Minimum



(Waveform Monitor)

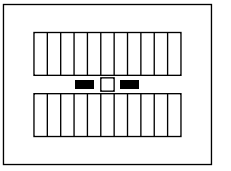
8. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Test→Off

9. WHITE BAL switch (on the side panel) → PRST

4-4-17. Flare Adjustment

Equipment : Waveform monitor
Test point : TEST OUT connector
Object : Grayscale chart

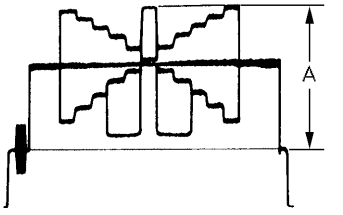
Preparations:
Connect the waveform monitor to the TEST OUT connector.
Shoot the grayscale chart so that the chart frame is aligned with the underscanned monitor frame.



(Waveform Monitor)

Set the menu as follows.
MENU : Paint
PAGE : Knee/W.Clip (P6)
ITEM : Knee→OFF

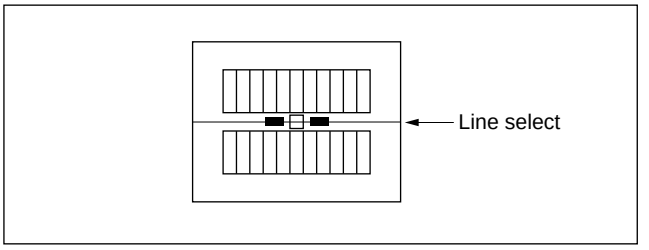
RGB/ENC switch (on the side panel) → ENC
Adjust the iris control of the lens to satisfy the white level A.
A = 100 ±2 IRE (for NTSC)
A = 700 ±14 mV (for PAL)



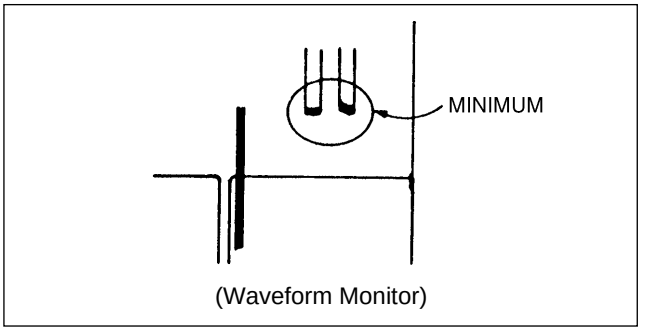
(Waveform Monitor)

Adjustmnet procedures:

1. Adjust the automatically the white balance.
   WHITE BAL switch (on the side panel) → A
   AUTO W/B BAL switch (on the front panel) → WHT
2. Open the iris control of the lens by two stops against the reference setup (corresponding above A).
3. Select the 15 lines in the center of the monitor screen by using the 15 LINE SELECT on the waveform monitor.



4. Set the menu as follows.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (G)
5. Confirm that the level at portion B does not fluctuate even if the flare is turned ON or OFF. If fluctuates, turn Flare ON and adjust by Flare (G).
6. Flare (R) Adjustment
   Set the menu as follows, and adjust the Flare (R) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (R)
   Specifications: Minimize the carrier leakage.
7. Flare (B) Adjustment
   Set the menu as follows, and adjust the Flare (B) by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Video Level (P1)
   ITEM : Flare (B)
   Specifications: Minimize the carrier leakage.



(Waveform Monitor)

8. Repeat the steps 6 and 7 alternately, until the carrier leakage is minimized.
9. WHITE BAL switch (on the side panel) → PRST

4-4-18. Pre Knee Adjustment

Equipment : Oscilloscope

Preparations:

Extend VA-163 board with an EX-464 board.

Test points : TP50,52,54/Extension board extending VA-163

Iris of the lens : CLOSE

Adjustment procedures:

1. **MENU Setting**:
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee → On
2. Set the RGB/ENC switch (on the side panel) to ENC.
3. Set the GAIN switch (on the side panel) to M (9 dB).
4. Set the WHITE BAL switch (on the side panel) to PRST.
5. Set the menu as follows.
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : TEST → 2

• Pre knee1 [G] Adjustement

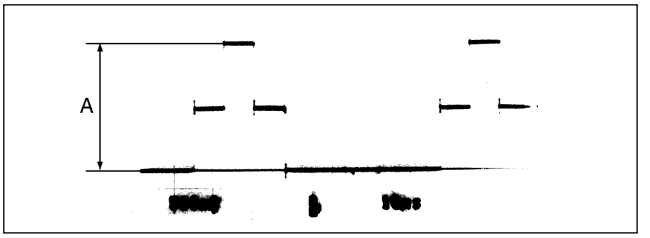
6. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
7. **MENU Setting**:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[G]
   Specifications:A = 1.68 ±0.02 V p-p

• Pre knee1 [R] Adjustement

8. Connect the oscilloscope to the TP54 (GND:GND (A))/Extension board extending VA-163.
9. **MENU Setting**:
   MENU : System config
   PAGE : Pre Knee/Zebra (S4)
   ITEM : PreKnee1[R]
   Specifications: A = 1.68 ±0.05 V p-p

• Pre knee1 [B] Adjustement

10. Connect the oscilloscope to the TP50 (GND:GND (A))/Extension board extending VA-163.
11. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee1[B]
    Specifications: A = 1.68 ±0.05 V p-p



12. Pre knee2 Adjustment
    MENU Setting:
    MENU : Operation
    PAGE : Gain SW (?3)
    ITEM : Middle → 12 dB

• Pre knee2 [G] Adjustment

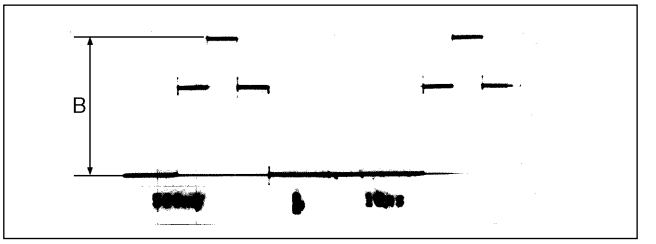
13. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
14. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[G]
    Specifications:B = 1.80 ±0.02 V p-p

• Pre knee2 [R] Adjustment

15. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
16. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications:B = 1.80 ±0.05 V p-p

• Pre knee2 [B] Adjustment

17. Connect the oscilloscope to the TP52 (GND:GND (A))/Extension board extending VA-163.
18. **MENU Setting**:
    MENU : System config
    PAGE : Pre Knee/Zebra (S4)
    ITEM : PreKnee2[R]
    Specifications : B = 1.80 ±0.05 V p-p



19. **MENU Setting**:
    MENU : Operation
    PAGE : Gain SW (?3)
    ITEM : Middle → 9 dB
20. Set the GAIN switch (on the side panel) to L (0 dB).

4-4-19. Knee and White Clip Adjustment

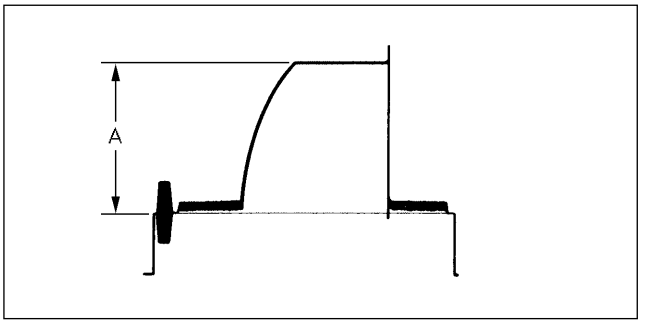
Equipment : Waveform monitor
Test point : TEST OUT connector

Preparations:

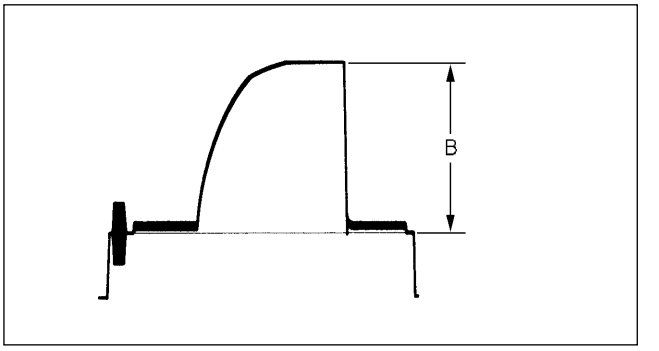
Connect the waveform monitor to the TEST OUT connector.
OUTPUT/DCC switch (on the side panel) → CAM/ON
RGB/ENC switch (on the side panel) → ENC
WHITE BAL switch (on the side panel) → PRST
GAIN switch (on the side panel) → M (9dB)

Adjustment procedures:

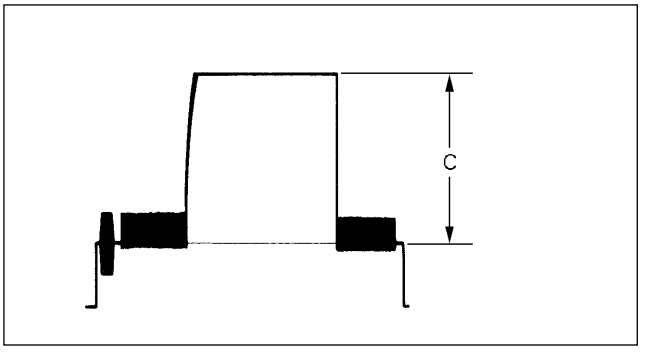
1. Knee Point Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test →1
   ITEM : White Clip →Off
   ITEM : Knee Max →On
   Adjustment Point:
   ITEM : Point
   Specifications: A = 98 ±2 IRE (for NTSC)
   A = 686 ±10 mV (for PAL)



2. Knee Slope Adjustment
   Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Knee Max →Off
   Adjustment Point:
   ITEM : Slope
   Specifications: B = 109 ±2 IRE (for NTSC)
   B = 763 ±10 mV (for PAL)



3. Set the GAIN switch (on the side panel) →H (18 dB).
4. Set the menu as follows, and adjust the level by turning the MENU SEL switch.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : White Clip →On
   Adjustment Point:
   ITEM : White Clip
   Specifications: C = 109 ±2 IRE (for NTSC)
   C = 750 ±10 mV (for PAL)



5. Set the menu as follows.
   MENU : Paint
   PAGE : Knee/W.Clip (P6)
   ITEM : Test →Off
6. Set the GAIN switch (on the side panel) →L (0 dB).

Note:

The values used in the above adjustments are under the conditions when the white clip level is set to 109 IRE (for NTSC) or 763 mV (for PAL).
When the white clip level is set to other value than 109 IRE or 763 mV, use the following table to set the levels of the knee point and knee slope.

	White Clip Level (Unit: IRE/mV)			
	109/763	107/749	105/735	103/721
Knee point	98/686	98/686	96/672	96/672
Knee slope	109/763	107/750	107/750	107/750
White clip	109/763	107/749	105/735	103/721

- As for the detail adjustments, refer to Sections 4-2-9 to 4-2-17. Adjust according to the customer's preferences.

4-4-20. VTR R-Y/B-Y Adjustment

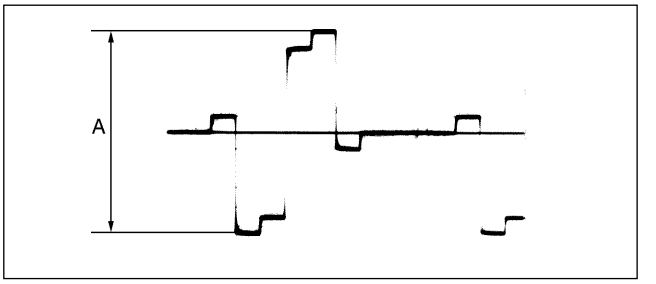
Equipment : Oscilloscope
Test points : TP4,TP5/DA-88

Preparations:

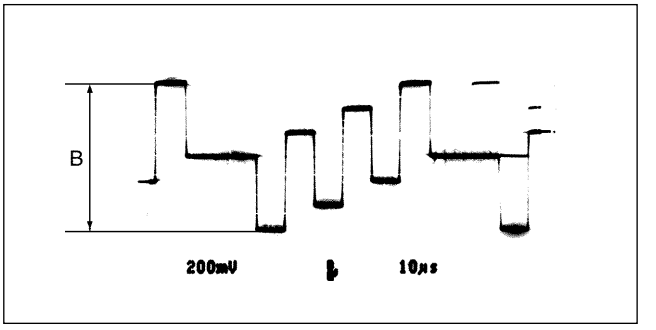
OUTPUT/DCC switch (on the side panel) → BARS

Adjustment procedures:

1. Connect the oscilloscope to the TP4 (E4) (GND:E1 (F4))/DA-88 Board.
2. VTR R-Y Adjustment
   Adjustment point:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR R-Y
   Specifications: A = 700 ±5 mV (for NTSC)
   : A = 525 ±5 mV (for PAL)



3. Connect the oscilloscope to the TP5 (F4) (GND:E1 (F4))/DA-88 Board.
4. VTR B-Y Adjustment
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : VTR B-Y
   Specifications: B = 700 ±5 mV (for NTSC)
   : B = 525 ±5 mV (for PAL)



5. **MENU Setting**:
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store
   Press the MENU SEL switch (on the front panel) to execute the triming file store.

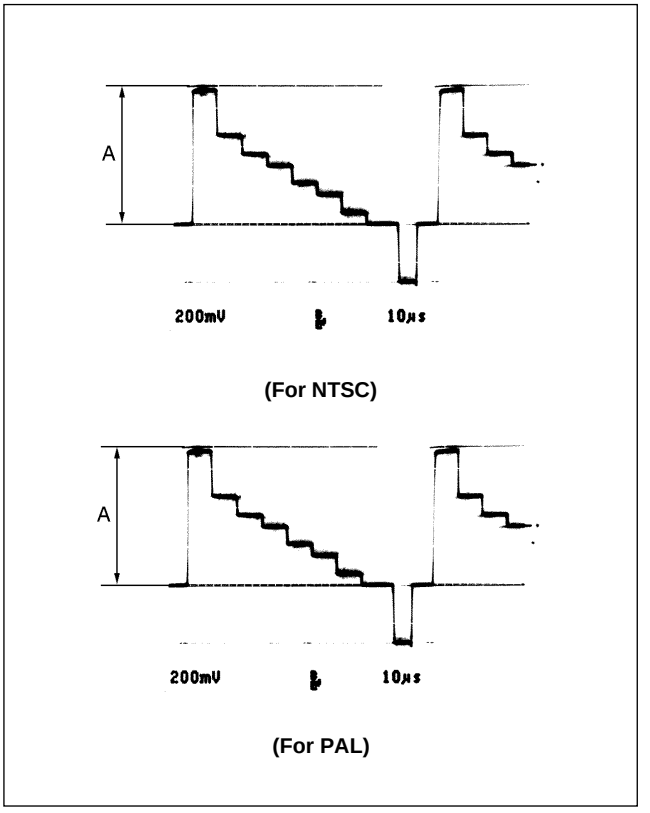
4-4-21. CCU Y/R-Y/B-Y Adjustment

Equipment : Oscilloscope
Test points : TP3,TP4,TP5/DA-88

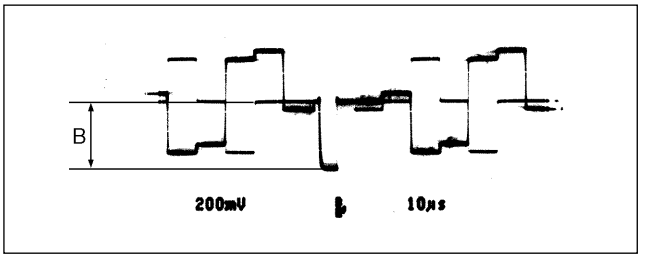
Preparations:
Connect the CCU to the camera.

MENU Setting:
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB →On

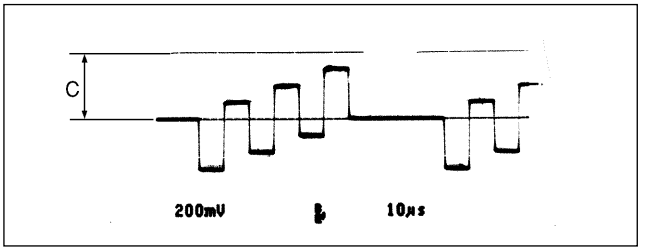
Adjustment procedures:
• CCU Y Sample adjustment
1. Connect the oscilloscope to the TP3 (D4) (GND:E1 (F4))/DA-88 Board.
2. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU Y SAMP
   Specifications: A = 700 ±2 mV

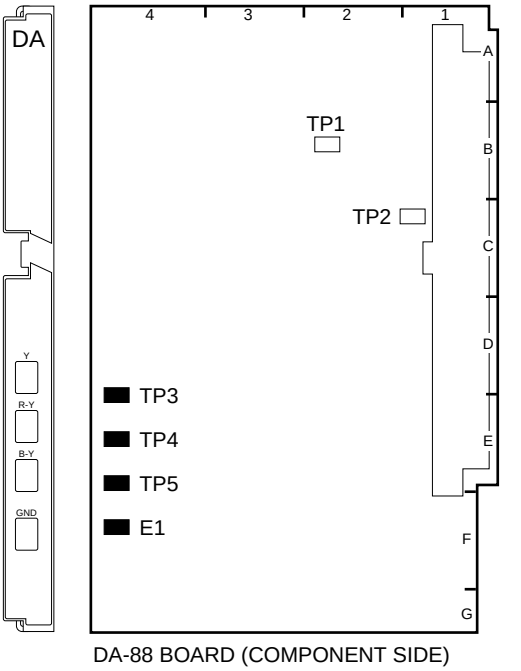


• CCU R-Y Sync adjustment
3. Connect the oscilloscope to the TP4 (E4) (GND:E1 (F4))/DA-88 Board.
4. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU R-Y SYNC
   Specifications: B = 350 ±2 mV



• CCU B-Y Sample adjustment
5. Connect the oscilloscope to the TP5 (F4) (GND:E1 (F4))/DA-88 Board.
6. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : CCU B-Y SYNC
   Specifications: C = 350 ±2 mV





DA-88 BOARD (COMPONENT SIDE)

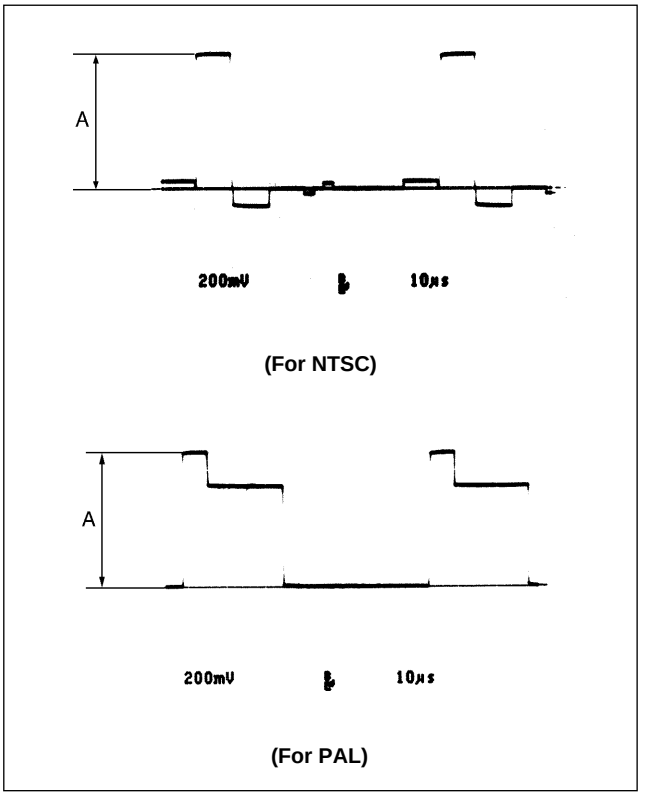
4-4-22. RGB Adjustment

Equipment : Oscilloscope
Test points : TP59,TP61,TP63/Extension board extending IF-510.

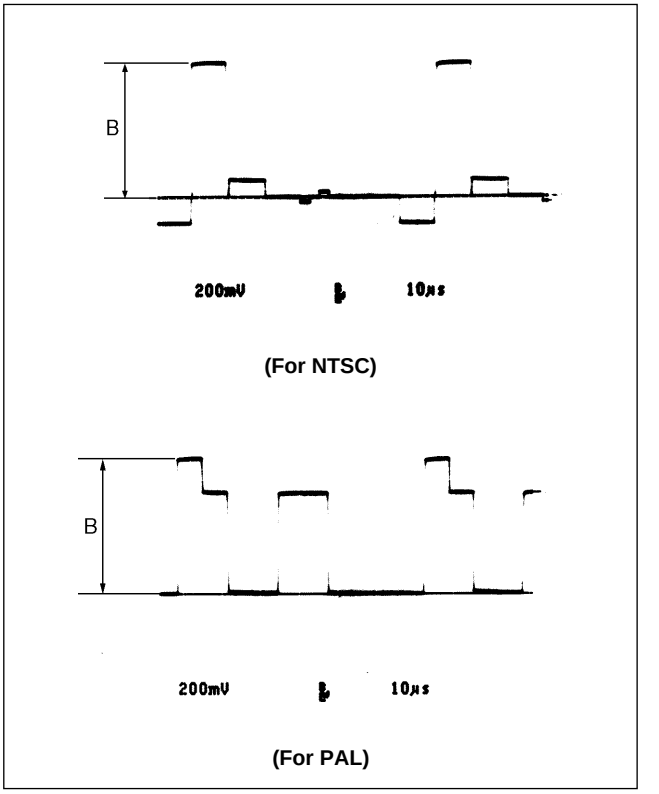
Preparations:
Extend IF-510 board with EX-464 board.

MENU Setting:
MENU : System config
PAGE : VTR/CCU (S5)
ITEM : CB→On

Adjustment procedures:
• G-ch Video adjustment
1. Connect the oscilloscope to the TP61 (GND:GND (A))/Extension board extending IF-510.
2. **Adjustment point**:
   MENU : System config
   PAGE : VTR/CCU (S5)
   ITEM : RGB OFFSET
   Specifications: A = 700 ±5 mV

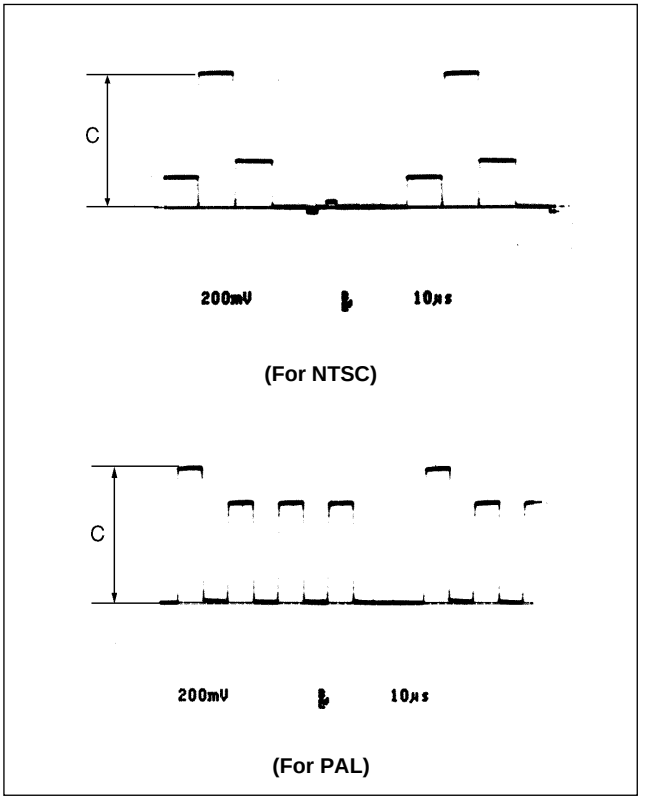


• R-ch Video confirmation
3. Connect the oscilloscope to the TP63 (GND:GND (A))/Extension board extending IF-510.
   Specifications:B = 700 ±7 mV



• R-ch Video confirmation

4. Connect the oscilloscope to the TP59 (GND:GND (A))/Extension board extending IF-510.
   Specifications: C = 700 ±7 mV



4-4-23. File Store

Note:

• Be sure to perform this item after any of the adjustments of sections 4-4-1 through 4-4-22 is performed.

• Reference File Store

1. Set the menu as follows.
   MENU : Reference
   PAGE : Referrence File (R1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel)to execute the reference file store.

• Triming File Store

1. Set the menu as follows.
   MENU : Triming File
   PAGE : Triming File (T1)
   ITEM : File Store
2. Press the MENU SEL switch (on the front panel)to execute the reference file store.

4-4-24. Menu Setting After Finishing Adjustment

Set the menu as follows.
MENU : Paint
PAGE : Detail1 (P2)
ITEM : Detail →ON
PAGE : Gamma (P5)
ITEM : Gamma →ON
PAGE : Knee/W.Clip (P6)
ITEM : Knee →ON

SONY

COLOR VIDEO CAMERA

BVP-550/550P

SUPPLEMENT-2

FOR MAINTENANCE MANUAL

Please replace this SUPPLEMENT-2 with your own manual.

Applicable Manuals (Manual Code)

1st Edition (3-189-412-01/3-190-368-01)

2nd Edition (3-189-412-11)

Contents

Revised setup menu due to ROM upgrade

Section 3 Setup Menu

BVP-550 (UCJ,SY)
BVP-550P (CE) J,E
9-967-642-02

Sony Corporation
Broadcast Products Company

Printed in Japan
1996. 4 08
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Published by Broadcast Products Company

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Section 3
Setup Menu

3-1. Setup Menu

The Setup menu is used to select settings of camera operation, select items to be displayed on the view-finder screen, and select the way the items are displayed.
It is also used for adjustment. The menu appears on the viewfinder screen.
By changing a setting through this menu, the same signal as output to the viewfinder is enabled to be output at the TEST OUT connector.

- **Configuration of the Setup Menu**

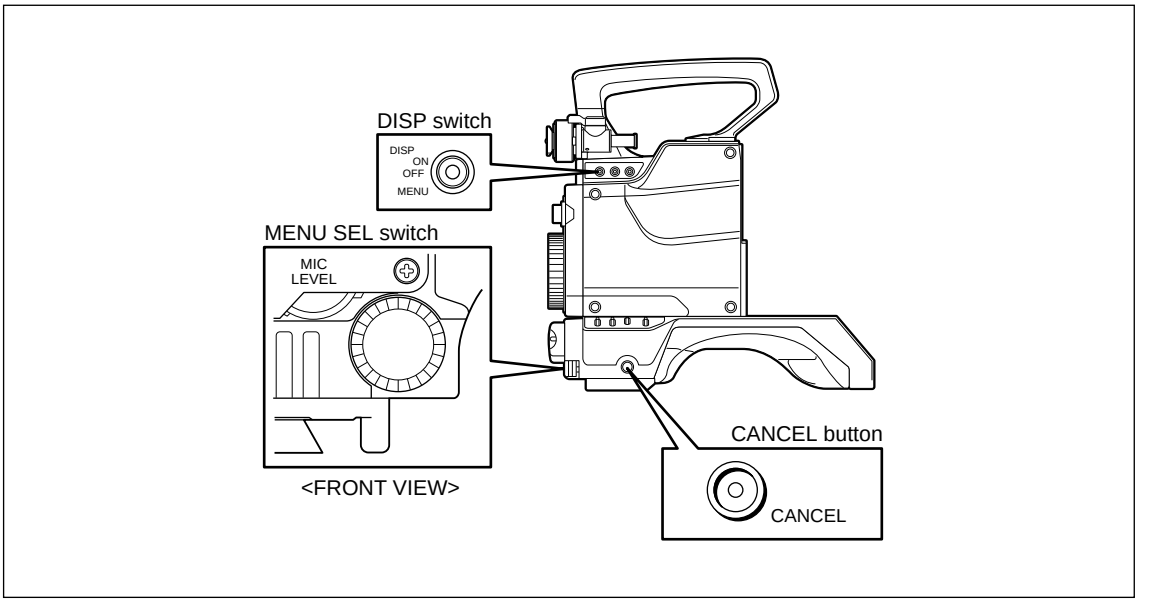
The setup menu consists of the following menus
- Operation menu
- Paint menu
- Maintenance menu
- Reference menu
- Triming menu
- System config menu

Operation and Paint menus are normally accessible. To display the other menus, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”

- **Equipment required**

CCD Unit OHB-450/550 series
Camera Adaptor CA-550/550P
Supply power from a camera control unit CCU-700/700P, AC adaptor AC-550/550CE or VTR.

- **Switches and Button**



DISP switch

ON : Displays characters and messages indicating the video camera settings and operation status.
OFF : No character or marker display appears on the viewfinder screen.
MENU : The setup menu appears on the viewfinder screen.

MENU SEL switch

Selects the menu item or setting value displayed on the viewfinder screen.

CANCEL button

Cancels the contents of a menu setting, or returns to the page select mode or TOP menu.

Note

The TOP menu screen indicates the entire configuration of menu items.
To display the TOP menu, set the DISP switch to MENU (from OFF) while holding down the MENU SEL switch.

- **Basic Operation**

1. Displaying the menu
   To display the Operation menu, set the DISP switch to MENU.
   To display the other menus than the Operation menu, first of all, the TOP menu shall be displayed.
   To display the TOP menu, set the DISP switch to MENU while holding down the MENU SEL switch. Then turn the MENU SEL switch to move the cursor to a menu item which you want and press the MENU SEL switch.
2. To shift the page, turn the MENU SEL switch with a page scroll bar displayed at the top-right of the screen until the desired page is displayed and press the MENU SEL switch.
   The menu enters the item select mode and the page scroll bar disappears.
3. To shift the item, turn the MENU SEL switch until the → cursor points the item to be set and press the MENU SEL switch.
4. To change the value, turn the MENU SEL switch. You can change the values quickly by turning the MENU SEL switch fast. You can make very fine adjustments by turning the switch slowly. By pressing the MENU SEL switch, the setting is entered.
5 The menu page is returned to the item select mode or page select mode every time the CANCEL button is pressed.
6. To exit from the setup menu, set the DISP switch to OFF.

- **ROM version**

Contents in the menu and factory settings may differ from the descriptions in this manual depending on the version of ROM (IC36) on the AT-95 board.
In this section, an item under “Ver.” in the table shows a ROM version. If any version is given, it shows that the function for the item is added or changed, and the ROM with that version or higher version supports the function. If no version is given, it shows that every ROM version supports the function.
To confirm the ROM version easily proceed as follows:

1. Set the DISP switch to OFF.
2. Power the unit on while holding down the MENU SEL switch. The indication of ROM version is displayed for about three seconds.

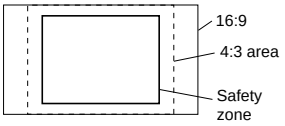
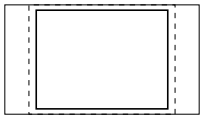
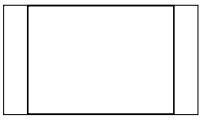
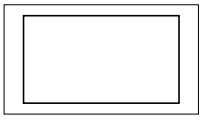
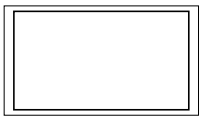
3-1-1. Operation Menu

This menu contains items contained for changing camera settings to suit shooting conditions during normal camera operations.

(Boxed items under “Settings” indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VF DISPLAY		ZOOM	[ON], OFF	Turns on and off the indications of zoom position and lens extender.
		SHUTTER	[ON], OFF	Turns on and off the indications of shutter speed and mode.
		IRIS	[ON], OFF	Turns the iris setting indication on and off.
		AUDIO	[ON], OFF	Turns the audio level indication on and off. (Automatically turned OFF in connection with CCU/RCP)
		TAPE	[ON], OFF	Turns the tape-remaining indication on and off. (Automatically turned OFF in connection with CCU/RCP)
		ZEBRA	ON, OFF	Turns the zebra indication on and off. (Corresponds to the ZEBRA switch of VF connected to the camera.)
		MESSAGE	[ON], OFF	Turns on and off the indication of message in changing each setting of filter, white balance memory, gain value, DCC(auto knee) and shutter speed. The indication is displayed within three seconds in the center of the viewfinder screen.
		MODE	CHG, [USR]	CHG : The indications of the optical filter, white balance memory and gain value are displayed only when they differ from the standard settings (FILTER:1B, WHITE:A, GAIN:0dB) USR : The indications are displayed corresponding to the settings on the VF DISPLAY page.
		FILTER	*, [ON], OFF	Turns the optical filter indication on and off.
		WHITE	*, [ON], OFF	Turns the white balance memory indication on and off.
		GAIN	*, [ON], OFF	Turns the gain value indication on and off.
MARKER		CENTER	[ON], OFF	Turns the center marker indication on and off.
		SAFETY ZONE	80%, [90%], OFF	Turns the safety zone marker indication on and off and selects the area indicated by that marker. a)
		BOX CURSOR	ON, [OFF]	Turns the box cursor indication on and off.
		BOX H POS	-99 to 99 ([0])	Shifts horizontally the location of the box cursor on the screen.
		BOX V POS	-99 to 99 ([0])	Shifts vertically the location of the box cursor on the screen.
		BOX WIDTH	00 to 99 ([41])	Sets the width of the box cursor.
		BOX HEIGHT	00 to 99 ([10])	Sets the height of the box cursor.

a) In the 16:9 mode, the following kinds of safety zone marker can be selected in combination of the settings of “SAFETY ZONE” and “4:3 SAFETY”.

		SAFETY ZONE		
		80%	90%	OFF
4:3 SAFETY	ON			
	OFF			Not indicated

Page	Ver.	Item	Settings	Contents
GAIN SW		LOW	-3, [0], 3, 6, 9, 12, 18, 24, 30 dB	Selects the gain value for each gain switch position. (LOW, MIDDLE, HIGH)
		MID	-3, 0, 3, 6, [9], 12, 18, 24, 30dB	
		HIGH	-3, 0, 3, 6, 9, 12, [18], 24, 30dB	
WIDE SCREEN (For OHB-550WS /550WSP)		16:9/4:3 MODE	[16:9], 4:3	Selects the aspect ratio for the video signal output. (This setting is valid only when the camera is used alone.) b)
		VF ASPECT	[AUTO], 4:3	Selects the aspect ratio for the viewfinder indication. AUTO: Automatically selects according to the aspect ratio selected by 16:9/4:3 MODE on the WIDE SCREEN page. 4:3 : Selects 4:3 regardless of the 16:9/4:3 MODE setting.
		4:3 SAFETY	ON, [OFF]	Selects whether the safety zone marker showing the 4:3 area is indicated in the 16:9 mode, or not. a)
		16:9 ID ON VF	ON, [OFF]	Turns on and off the 16:9 indication in the 16:9 mode on the viewfinder screen. (This setting is valid only when the DISP switch is set to on or off.)
		16:9 ID ON BARS	ON, [OFF]	Selects whether the 16:9 indication is displayed on the internal color-bar in the16:9 mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
MON OUT		BNC TEST OUT	[VBS], RM, VF Y	Selects a video signal to be output at TEST OUT connector. VBS : Color composite signal RM : The same as a signal ouput to RM-P9 Y : Y(monochrome) signal
		RM/MON CHAR	[ON], OFF	Selects whether character signals displayed on the viewfinder screen are mixed with the VBS signal to be output to RM-P9, or not. Turning on is convenient to operate the setup menu by RM-P9.
		VBS LOCK	ON, [OFF]	Used to prevent misoperation by ENC/RGB switch. ON : ENC signal is output at TEST OUT connector regardless of ENC/RGB switch setting. OFF : A signal selected by ENC/RGB switch is output.
		VF VIDEO MODE	[Y], MIX, NAM	Selects a video signal to be output to the viewfinder. Y : Y=0.3R+0.59G+0.11B; The same as a camera output signal MIX : Y=0.33R+0.33G+0.33B NAM : Selects one of the R, G, and B signal that is maximum in level.
		[RGB]-G	ON, [OFF]	Sets signals selectable by RGB switch. ON : R-G, B-G OFF : R, G, B
AUTO IRIS AUTO KNEE (DCC)		IRIS OVERRIDE	-99 to 99 ([0])	Sets the reference value for automatic iris adjustment. -99 (further closed) ↔ 99 (further opened)
		IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
		APL RATIO	-99 to 99 ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
		AUTO KNEE POINT	-99 to 99 ([XX])	Sets the point on which the knee function starts to have effect in the auto-knee mode.
		AUTO KNEE SLOPE	-99 to 99 ([XX])	Sets the volume of the effect of the knee function in the auto-knee mode.

b) The change of aspect ratio using this menu is disabled because the CCU' s setting has a priority when the CCU is connected. If you want to change the aspect ratio when the CCU is connected, use the OTHERS page of the Paint menu. When you attempt to change using this menu, a message "Use Paint MNU" is displayed.

Page	Ver.	Item	Settings	Contents
STAND ALONE		H PHASE	-99 to 99 ([XX])	Sets the horizontal phase of the camera in the genlock mode.
		SC PHASE	0 to 360([XX])	Sets the subcarrier phase of the camera in the genlock mode.
		CABLE COMP	ON, [OFF]	Turns on and off the cable compensation circuit for the external sync signal in the genlock mode.
		SNG BARS	ON, [OFF]	Turns the color-bar signal for SNG on and off.
		MASTER BLACK	-99 to 99 ([0])	Adjusts the MASTER BLACK level.
		IRIS OVERRIDE	ON, [OFF]	Turns the auto-iris override function on and off.
		CF PULSE	[ON], OFF	Turns on and off the color framing pulse supplied to the VTR.
		SKIN DETAIL	ON, [OFF]	Turns the skin tone detail function on and off.
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
AUTO SETUP		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance. (To abort a processing during execution, press MENU SEL switch.)
		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c) (To abort a processing during execution, press MENU SEL switch.)
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output.
DIAGNOSIS		OHB	[OK], NG	Displays a state of communication for control data between the OHB block and CPU on AT board.
		PR	[OK], NG	Displays a state of communication for control data between the PR board and CPU on AT board.
		VA	[OK], NG	Displays a state of communication for control data between the VA board and CPU on AT board.
		AT	[OK], NG	Displays a state of communication for control data between the CPU and memory on AT board.
		SG	[OK], NG	Displays a state of communication for control data between the SG board and CPU on AT board.
		DA	[OK], NG	Displays a state of communication for control data between DA board and CPU on AT board.
		IF	[OK], NG	Displays a state of communication for control data between IF board and CPU on AT board.
		MD	[OK], NG	Displays a self-diagnosis result of MD board (of camera adaptor).
		AU	[OK], NG	Displays a self-diagnosis result of AU board (of camera adaptor).
		TR	[OK], NG	Displays a self-diagnosis result of TR board (of camera adaptor).

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence, After the adjustment is complete, adjustment result is stored as a master setup data.
1. A reference file which is reference for adjustment is loaded .
2. Lens is autmatically closed and the black balance is automatically adjusted.
3. The white balance is automatically adjust using TEST 2 (3-step) signal.

Notes

This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the gamma and knee compensation values remains the values stored in the reference file.

Page	Ver.	Item	Settings	Contents
CAMERA ID		No.	1 to 96 (X)	Sets a camera number in the range of 1 to 96. (When no camera number is set, "- -" is displayed.)
		ID: □□□□□□□		Sets a camera ID of up to ten alphanumerics, symbols, and spaces.
	1.10	No. / ID ON BARS	CAM No., CAM ID, OFF	Selects whether the camera number or ID is mixed with a camera output signal only in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
LENS FILE	1.10	CENTER H POS	–20 to 20 (XX)	Shifts horizontally the location of the center marker on the screen. 20 (right) ↔ –20 (left)
	1.10	CENTER V POS	–20 to 20 (XX)	Shifts vertically the location of the center marker on the screen. 20 (up) ↔ –20 (down)
	1.10	CENTER POS STORE	Press MENU SEL switch to execute.	Stores the location of the center marker at present in the selected lens file number.
	1.10	No.	0 to 15	Selects a lens file. d) (Example) No. : 1 ← Lens file number (0 to15) Lens : 27 : A14x8BERM ← Lens name EX : 1.0 ← Lens extender value

d) Select a lens file appropriate for the mounted lens from 16 kinds of the lens files which are stored in the RAM IC26/AT-95 board.
An additional data such as a center marker is also stored in the selected lens file.

3-1-2. Paint Menu

The Paint menu is used for white and other paint adjustments items. To activate the Paint menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VIDEO LEVEL		WHITE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B gain level.
		BLACK R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master black level.
		FLARE R/G/B	–99 to 99 ([0])	Adjusts the R, G, B flare level.
		GAMMA R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B master gamma correction curve.
		FLARE	[ON], OFF	Turns the flare correction circuit on and off.
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the VIDEO LEVEL page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL1		DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding the detail signal.
		LEVEL	–99 to 99 ([0])	Adjusts the master level for the detail signal.
		LIMITTER	–99 to 99 ([0])	Adjusts the clipping level against the maximum detail level.
		CRISPENING	–99 to 99 ([0])	Adjusts the level at which the detail signal is crispened.
		LEVEL DEP	–99 to 99 ([0])	Adjusts the level to control the detail signal used at lower signal level.
		LEVEL DEP	[ON], OFF	Turns the level depend function on and off.
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL 1 page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
DETAIL2		DETAIL	[ON], OFF	Turns the function on and off to improve resolution by adding detail signal.
		H/V RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H and V detail signal.
		FREQUENCY	–99 to 99 ([0])	Adjusts the boost frequency for H detail signal.
		MIX RATIO	–99 to 99 ([0])	Adjusts the mix ratio of H detail signal used before and after the gamma compensation circuit.
		W.LIMITTER	–99 to 99 ([0])	Adjust the clipping level adainst the higher detail signal at the maximum level.
		B.LIMITTER	–99 to 99 ([0])	Adjusts the clippping level against the lower detail signal at the minimum level.
		COMB	–99 to 99 ([0])	Sets the effect volume of the comb filter 99 (Causes less cross colors.) ↔ –99 (Yields clear pictures, but causes more cross colors.) * For a PAL model, this function has the effect on not every object but a specified object.
		KNEE APRT.	ON, [OFF]	Turns the knee aperture function on and off.
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the DETAIL2 page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

Page	Ver.	Item	Settings	Contents
SKIN DETAIL		SKIN DETAIL	ON, [OFF]	Turns the skin detail function on and off.
		LEVEL	–99 to 99 ([0])	Adjusts the level of the skin detail.
		PHASE	100° to 170°([120])	Adjusts the hue for the skin detail function.
		WIDTH	0° to 90° ([60])	Adjusts the color width for the skin detail function.
		SATURATION	–99 to 99 ([0])	Adjusts the color saturation of the skin detail function.
		GATE	ON, [OFF]	Turns the area display of the skin detail function in the viewfinder screen.
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the range of skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the SKIN DETAIL page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
GAMMA		GAMMA, R/G/B/M	–99 to 99 ([0])	Adjusts the R, G, B and master gamma level.
		COARSE	0.40, [0.45], 0.50	Selects the gamma value in steps.
		GAMMA	[ON], OFF	Turns the gamma value on and off.
	1.07	BLACK GAMMA	–99 to 99 ([0])	Adjusts the black gamma (master). e)
	1.07	BLACK GAMMA	ON, [OFF]	Turns the black gamma function on and off. e)
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Resets all settings on the GAMMA page to the factry settings. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
KNEE/W.CLIP		POINT	–99 to 99 ([0])	Adjusts the knee point level when the function is OFF.
		SLOPE	–99 to 99 ([0])	Adjusts the knee slope level when the function is OFF.
		KNEE	[ON], OFF	Turns the knee function on and off.
		AUTO KNEE	ON, [OFF]	Turns the auto knee function on and off.
		KNEE MAX	ON, [OFF]	Turns on and off the knee max function which changes the slope to completely collapsed form.
		WHITE CLIP	–99 to 99 ([0])	Adjusts the white clip level.
		WHITE CLIP	[ON],OFF	Turn the white clip function on and off.
		TEST	1, 2, [OFF]	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step waveform test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the KNEE/W.CLIP page to 0. (When you press MENU SEL switch, the “CLEAR” indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)

e) This function is inhibited while TALLY lamps are lit or by the setting of the System Config menu.
A noise appears on the screen during operation.

Page	Ver.	Item	Settings	Contents
MATRIX		G-R, B-R	–99 to 99 (0)	Compensates the user's matrix (sets an optional value as the constant for G-R, B-R, R-G, B-G, R-B, and G-B).
		R-G, B-G	–99 to 99 (0)	
		R-B, G-B	–99 to 99 (0)	
		MATRIX	ON, OFF	Turns the matrix compensation on and off.
		USER f)	ON, OFF	Turns the user's matrix compensation on and off.
		PRESET f)	ON, OFF	Turns on and off only the preset matrix compensation (fixed constant compensation).
		TEST	1, 2, OFF	Selects the test signal. 1 : Outputs the sawtooth waveform test signal 2 : Outputs 3-step form test signal OFF : No test signal is output
		CLEAR	Press MENU SEL switch to execute.	Sets all settings on the MATRIX page to 0. (When you press MENU SEL switch, the "CLEAR" indication flashes. Press MENU SEL switch again to execute; press CANCEL button to cancel.)
SCENE FILE		1	Storing and recalling a scene file (painting data corresponding to a shot scene)	
		2	**Storing a scene file**	
		3	1 Turn MENU SEL switch to move the → cursor to "FILE STORE," then press MENU SEL	
		4	switch. "FILE STORE" flashes on the viewfinder screen.	
		5	2 Select the file number (1 to 5) to be stored to.	
		FILE STORE	(If data is already stored at the selected location, the new data replaces the current data.) **Recalling a scene file** Turn MENU SEL switch to move the → cursor to the file number whose data is to be recalled, then press MENU SEL switch. • When MENU SEL switch is pressed, the scene file data replaces the current settings. • When the scene file is recalled, an asterisk appears next to the number.	
		STANDARD	Returns the current amount of paint adjustments and switch setting to their reference value stored as a reference file.	
SHUTTER	1.10	SELECT	OFF, SHUTTER, EVS, ECS	Selects the shutter, EVS, or ECS mode. (Does not correspond to the setting of the SHUTTER switch in the camera front.)
	1.10	SHUTTER	$\frac{1}{100}$ (or $\frac{1}{60}$), $\frac{1}{125}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$, $\frac{1}{2000}$	Selects the shutter speed.
	1.10	ECS	h)	Sets the ECS (CLS) frequency.
	1.10	S-EVS	0 to 100%	Sets the desired resolution in %. (This setting is invalid with the OHB-450/450P/451/451P installed.)
OTHERS	1.09	16:9/4:3 MODE	16 : 9, 4:3	Selects the aspect ratio for the video signal output. i)

f) When both USER and PRESET are set to ON, the matrix constant compensation is total value of the USER and PRESET matrix.
h) Variable range differs depending on the OHB in use. For details refer to the operation manual supplied with the OHB.
i) The aspect ratio normally corresponds to the CCU's setting when the CCU is connected. To forcefully select, use this menu.

3-1-3. Maintenance Menu

The Maintenance menu is used for encoder output level and other adjustments items necessary for camera's maintenance. The Maintenance menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required.
For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board".
To activate the Maintenance menu, first display the TOP menu.

(Boxed items under "Settings" indicate the factory setting.)

Page	Ver.	Item	Settings	Contents
VBS		SYNC LEVEL	-99 to 99 (XX)	Adjusts the sync level of camera's encoder output signal.
		Y LEVEL	-99 to 99 (XX)	Adjusts the Y level of camera's encoder output signal.
		BURST LEVEL	-99 to 99 (XX)	Adjusts the burst level of camera's encoder output signal.
		CHROMA LEVEL	-99 to 99 (XX)	Adjusts the chroma level of camera's encoder output signal.
		Q/V LEVEL	-99 to 99 (XX)	Adjusts the Q (or V) level of camera's encoder output signal.
		SET UP	-99 to 99 (XX)	Adjusts the sync level of camera's encoder output signal. (This setting is valid only for NTSC.)
		BF PHASE	-99 to 99 (XX)	Adjusts the burst phase of camera's encoder output signal.
		SC-H PHASE	-99 to 99 (XX)	Adjusts the SC-H phase of camera's encoder output signal.
		V BLANKING	19,20,21H	Adjusts the V blanking width of camera's encoder output signal. (This setting is valid only for NTSC.) In connection with CCU, the width is fixed to 19H. * For a PAL model, the width is fixed to 25H at all times.
WHITE SHADING		V SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, or B white shading.
		V PARA R/G/B	-99 to 99 (XX)	Adjusts the volume of V.PARA compensation for the R, G, or B white shading.
		H SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of H.SAW compensation for the R, G, or B white shading.
		H PARA R/G/B	-99 to 99 (XX)	Adjusts the volume of H.PARA compensation for the R, G, or B white shading.
		WHITE R/G/B	-99 to 99 (XX)	Adjusts the R, G, or B white level.
		V MOD R/G/B/M	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, B or master modulation shading of the lens and prism. [j]
		V MOD	ON, OFF	Turns the V modulation shading on and off.
		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the WHITE SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)
BLACK SHADING		V SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of V.SAW compensation for the R, G, or B black shading.
		H SAW R/G/B	-99 to 99 (XX)	Adjusts the volume of H.SAW compensation for the R, G, or B black shading.
		BLK SET R/G/B	-99 to 99 (XX)	Adjusts the volume of BLACK SET compensation for the R, G, or B. (Adjusts for each gain.)
		BLACK R/G/B/M	-99 to 99 (XX)	Adjusts the R, G, B or master black level.
		MASTER GAIN	-3,0,3,6,9,12,18, 24,30 dB (X)	Selects the master gain value.
		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance.
		CLEAR	Press MENU SEL switch to execute.	Resets numeric settings to "0" on the BLACK SHADING page. (When you press the MENU SEL switch, the "CLEAR" indication flashes. Press the MENU SEL switch again to execute; press CANCEL button to cancel.)

j) When the master modulation shading is adjusted, the V. SAW component for the R and B V-modulation shadings of the prism is simultaneously compensated.

Page	Ver.	Item	Settings	Contents
AUTO SET UP		AUTO WHITE	Press MENU SEL switch to execute.	Starts to automatically adjust the white balance.
		AUTO BLACK	Press MENU SEL switch to execute.	Starts to automatically adjust the black balance. (To abort a processing during execution, press MENU SEL switch.)
		LEVEL AUTO	Press MENU SEL switch to execute.	Starts to automatically adjust the level in the internal circuits. c) (To abort a processing during execution, press MENU SEL switch.)
	1.10	AUTO HUE	Press MENU SEL switch to execute.	Sets the skin detail hue function automatically. (Locate the desired skin color within the gate marker of VF and measure.)
		WHITE SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the white shading. (To abort a processing during execution, press MENU SEL switch.)
		BLACK SHADING	Press MENU SEL switch to execute.	Starts to automatically adjust the black shading. k) (To abort a processing during execution, press MENU SEL switch.)
	1.10	COLOR REF (SELF)	Press MENU SEL switch to execute.	Makes a color reference to compensate the difference in colors between OHBs using a single camera. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) m)
	1.10	COLOR SETUP (SELF)	Press MENU SEL switch to execute.	Automatically calculates the color matrix from the reference. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) n)
DATE/TIME		DD/MM/YY HH:MM:SS		Adjusts a built-in timer. (HH;hour/MM;minute only)
		DATE ON BARS	ON, [OFF]	Selects whether the date characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
		TIME ON BARS	ON, [OFF]	Selects whether the time characters are mixed with a camera output signal in the color-bar mode, or not. (This setting is valid only when the DISP switch is set to on or off.)
OTHERS		S/N MEASURE	ON, [OFF]	ON : Set to ON in mesuring the S/N ratio. And settings of the DETAIL, CHROMA, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF : Settings of DETAIL and so on are returned as they were.
		MOD MEASURE	ON, [OFF]	ON : Set to ON in mesuring the modulation depth. And settings of the DETAIL, GAMMA, MATRIX, and FLARE will be temporarily turned OFF. OFF : Settings of DETAIL and so on are returned as they were.
		MASTER BLACK	-99 to 99 ([0])	Adjusts the master black in measuring the S/N ratio and modulation depth.
		DETAIL CHROMA GAMMA MATRIX FLARE	[ON], OFF [ON], OFF [ON], OFF [ON], OFF [ON], OFF	

c) When executing the LEVEL AUTO, data set through the menu is all cleared and the automatic level adjustment is performed in sequence, After the adjustment is complete, adjustment result is stored as a master setup data.
   1. A reference file which is reference for adjustment is loaded .
   2. Lens is autmatically closed and the black balance is automatically adjusted.
   3. The white balance is automatically adjust using TEST 2 (3-step) signal.

   Notes

   This white balance adjustment compensates a drift of the gain of an amplifier, does not compensate color temperature for an actual object.
   The gamma and knee compensation values do not change with a lapse of time because of the digital-processing camera. Therefore, the gamma and knee compensation values remains the values stored in the reference file.

k) Before first using the camera with the OHB-450/451/550/550WS (or their PAL version) installed, or After replacing the CCD unit, be sure to execute the automatic black shading adjustment.

m) When performing compensation between two or more cameras, use the MSU.

n) Differing from the color-setup operation by plural cameras, a data transfer is not performed.
   Execute to recalculate. After execution, the color matrix data is temporarily reflected in the OHB matrix of the System Config menu.
   Execute the OHB FILE STORE of the Triming menu to store the color matrix data.

3-1-4. Reference Menu

The Reference menu stores the reference values used for automatic setup adjustment and the standard settings of the switches as the reference files. And the menu can clear the current reference files. The Reference menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board". To activate the Reference menu, first display the TOP menu.

Notes

1. Executing the FILE STORE on the REFERENCE FILE page registers settings of items, which have been set through the Paint, Maintenance and System config menus just before the file store, as the reference values.
2. When changed numbers of items are returned to the reference values stored as the reference files, recall the standard file using an MSU/RCP or the setup menu.

Page	Ver.	Item	Settings	Contents
REFERENCE FILE		FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
		CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the reference files. (Temporarily clears the current reference files p).)

p) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-5. Triming Menu

The Triming menu stores the adjustment data in replacing parts as the triming files. And the menu can clear the current adjustment values. The Triming menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. "Function of Internal Switches—AT-95 board". To activate the Triming menu, first display the TOP menu.

Note

Executing the FILE STORE on the TRIMING FILE page registers settings of items, which have been set through the Maintenance and System config menus just before the file store, as the reference values.

Page	Ver.	Item	Settings	Contents
TRIMING FILE		FILE STORE	Press MENU SEL switch to execute.	Stores the adjustment value on each item as the reference value.
		CLEAR FILE	Press MENU SEL switch to execute.	Clears the adjustment values stored as the triming files. (Temporarily clears the current triming files p).)
OHB FILE		FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a CCD unit to be used as the OHB files. The standard values are stored at the factory. (Stores the offset value, OHB matrix data and so on.)
LENS FILE	1.10	LENS FILE STORE	Press MENU SEL switch to execute.	Stores specific data for a lens to be used as the lens files. The standard values are stored at the factory.
	1.10	SELECT CURRENT LENS	0 to 49	Loads a lens data into the lens file selected at present by the LENS FILE page of the Operation menu.
	1.10	RESET ALL LENS	Press MENU SEL switch to execute.	Resets all of 16 lens files. (Example) No. : 1 ← Lens stored number (0 to 49) Lens : 27 : A14x8BERM ← Lens name EX : 1.0 ← Lens extender value

p) If the power is turned off without execution of the FILE STORE after clearing the file, the original setting is restored.

3-1-6. System Config Menu

The System config menu is used for adjustments items necessary to replace a printed circuit board or some parts of the camera. The System config menu is not normally accessible. To display this menu, switch setting of the AT-95 board is required. For details, refer to Section 1-3. “Function of Internal Switches—AT-95 board”. To activate the System config menu, first display the TOP menu.

(Boxed items under “Settings” indicate the factory setting. XX or XXX represents two or three digits in hexadecimal.)

Page	Ver.	Item	Settings	Contents
DATE/TIME		YY/MM/DD HH:MM:SS		Adjusts the built-in calender and timer.
		RESET	Turn MENU SEL switch to execute.	Resets hour (HH), minute (MM) and second (SS) of the timer.
Y/CHROMA		SC FREQ	XXX ([XX])	Adjusts the camera’s subcarrier frequency.
		Y SYNC	XXX ([XX])	Adjusts the sync level of camera’s Y output signal.
		Y SETUP	XXX ([XX])	Adjusts the setup level of camera’s Y output signal.
		Y VIDEO	XXX ([XX])	Adjusts the Y level of camera’s Y output signal.
		TEST SETUP	XXX ([XX])	Adjusts the setup level of camera’s encoder output signal.
		BURST LVL	XXX ([XX])	Adjusts the burst level of camera’s encoder output signal.
		CHROMA LVL	XXX ([XX])	Adjusts the chroma level of camera’s encoder output signal.
		Q/V LEVEL	XXX ([XX])	Adjusts the Q(V) level of camera’s encoder output signal.
		SC-H PHASE	XXX ([XX])	Adjusts the SC-H phase of camera’s encoder output signal.
		REG LVL	XXX ([XX])	Adjusts the level of the R, G and B output signals.
		CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the Y/CHROMA page.
PR/VA/TEST		PR ADG R/G/B	XXX ([XX])	Adjusts the reference level of the AD converter for R/G/B signals on the PR board.
		VA MOD R/G/B	XXX ([XX])	Adjusts the R, G or B modulation balance for the VA board.
		G CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for G signal on the PR board. (Note: In replacing OHB, readjustment is required to set the maximum value of the modulation depth.)
		R/B CLOCK	XXX ([XX])	Adjusts the clock pulse in phase to be input to the AD converter for R/B signals on the PR board. (Note: In replacing OHB, readjustment is required to set the minimum level of a pseudo signal.)
		M.BLACK	XXX ([XX])	Adjusts the master black signal.
		TEST2 HI	XXX ([XX])	Adjusts the high level of the TEST2 (3-STEP) signal on the VA board.
		TEST2 MID	XXX ([XX])	Adjusts the middle level of the TEST2 (3-STEP) signal on the VA board.
		TEST CLIP	XXX ([XX])	Adjusts the clip level of the TEST1 (sawtooth) signal on the VA board.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PR/VR/TEST page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
PRE KNEE/ZEBRA		PREKNEE1 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 1 level on the VA board.
		PREKNEE2 R/G/B	XXX ([XX])	Adjusts the R, G or B pre-knee 2 level on the VA board.
(Continued)		APERTURE	XXX ([XX])	Adjusts the aperture compensation signal level.

Page	Ver.	Item	Settings	Contents
PRE KNEE/ ZEBRA		WHITE CLIP	XXX ([XX])	Adjusts the white clip level.
		WHITE CLIP	[ON], OFF	Turns the white clip function on and off.
		ZEBRA1 LEVEL, RANGE	XXX ([XX])	Sets the center value and range for the zebra 1 signal detection.
		ZEBRA2 LEVEL	XXX ([XX])	Sets the detection value for the zebra 2 signal.
		Z.DISP	1,2, [1&2]	Selects a zebra signal to be displayed on the viewfinder. 1 : Zebra 1 signal 2 : Zebra 2 signal 1&2 : Both zebra 1 and 2 signals are displayed at the same time.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the PREKNEE/ZEBRA page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
VTR/CCU		VTR R-Y	XXX ([XX])	Adjusts the R-Y color-difference signal level.
		VTR B-Y	XXX ([XX])	Adjusts the B-Y color-difference signal level.
		CCU Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the Y signal.
		CCU R-Y SYNC	XXX ([XX])	Adjusts the level of the sync pulse to be mixed with the R-Y signal.
		CCU B-Y SAMP	XXX ([XX])	Adjusts the level of the sample pulse to be mixed with the B-Y signal.
		RGB OFFSET	XXX ([XX])	Adjusts the G signal level.
		TEST	1, 2, [OFF]	Selects a TEST signal to be output in setting each item on the VTR/CCU page. 1 : Outputs the sawtooth test signal 2 : Outputs the 3-step waveform test signal OFF : No test signal is output
		CB	ON, [OFF]	Turns on and off the camera color-bar signal to be output in setting each item on the VTR/CCU page.
IRIS		LEVEL	XXX ([XX])	Adjusts the auto-iris level.
		APL RATIO	XXX ([0])	Sets the way the iris is automatically adjusted. -99 (PEAK) ↔ 99 (AVERAGE)
COLOR SETUP	1.10	COLOR REF (SELF)	Press MENU SEL switch to execute.	Makes a color reference to compensate the difference in colors between OHBs using a single camera. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) m)
	1.10	COLOR SETUP (SELF)	Press MENU SEL switch to execute.	Automatically calculates the color matrix from the reference. (Locate the desired colors of a Macbeth chart within the gate marker of VF and measure. To abort a processing during execution, press MENU SEL switch.) n)
	1.10	(OHB MATRIX) G-R, B-R R-G, B-G R-B, G-B	-99 to 99 ([0])	Compensates the OHB matrix to adjust the difference between OHBs or cameras (sets an optional value as the constant for G-R, B-R, R-G, B-G, R-B and G-B). r)
	1.10	OHB MTX	[ON], OFF	Turns the OHB matrix compensation on and off.
	1.10	CM ADD LVL	[0] to 16	For fine adjustment in color-setup operation. Compensates the caluculation value for the color selected by the CM ADD COLOR in 16 steps and recalculates the OHB matrix. (Selecting 0 turns off the function.) s) t)
	1.10	CM ADD COLOR	[0] to 17	For fine adjustment in color-setup operation. Select a color to be compensated from 18 colors of the Macbeth chart with the gate marker of VF. Recalculates the OHB matrix t)

m) When performing compensation between two or more cameras, use the MSU.
n) Differing from the color-setup operation by plural cameras, a data transfer is not performed.
Execute to recalculate. After execution, the color matrix data is temporarily reflected in the OHB matrix of the System Config menu.
Execute the OHB FILE STORE of the Triming menu to store the color matrix data.
r) Adjust with the MATRIX of the Paint menu turned OFF. Execute the OHB FILE STORE to store the adjustment values.
s) The compensation value is temporarily reflected in the OHB matrix of the System Config menu after execution of the COLOR SETUP(SELF). Execute the OHB FILE STORE of the Triming menu to store the value.
The higher you set the value of the CM ADD LVL, the more the weights are assigned to the color selected by the CM ADD COLOR.
The compensation is performed so as to entirely minimize the error, while reducing the error for the weights-assigned color.
t) After powered off once following the completion of color-setup operation, recalculation is not performed.

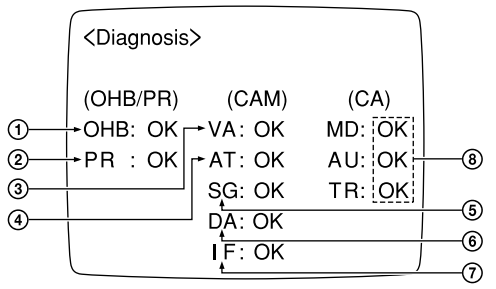
Page	Ver.	Item	Settings	Contents
OTHERS 1		FILTER, WHT MEM	[ON], OFF	ON : A total of 8 settings of the white balance value can be saved in conbination with the CC filter and WHITE BAL switch settings. OFF : One white balance value can be saved for the WHITE BAL switch setting A or B, for a total of 2 settings.
		NTSC ENC	[WIDE], NRW	Sets the band width of the Q signal for the NTSC color encoder.
		ROTARY	[STD], RVS	Selects the mode of MENU SEL switch (as turned counterclockwise when viewed from the front.) STD : Cursor moves downwards and a numeric value increases. RVS : Cursor moves upwards and a numeric value decreases.
		OWN CALL	R, [F&R], OFF	Selects whether one or two TALLY lamps are lit corresponding to the CALL button of camera adaptor pressed, or not. Or selects which TALLY lamp is lit when the CALL button is pressed. (This setting is valid in connection with CCU. When the camera is used alone and MSU/RCP is not connected to the camera, it is always set to OFF.) R : Rear TALLY lamp is lit. F&R : Rear and front TALLY lamps are lit. OFF : No TALLY lamp is lit corresponding to the CALL button.
		CENTER H POS	–20 to 20 ([XX])	Shifts horizontally the location of the center marker on the screen. 20 (right) ↔ –20 (left)
		CENTER V POS	–20 to 20 ([XX])	Shifts vertically the location of the center marker on the screen. 20 (up) ↔ –20 (down)
		LENS VTR S/S	TALK, [RET2]	Selects the mode of VTR S/S SW of the lens and camera. TALK : VTR S/S SW of lens functions as INCOM TALK SW (momentary) and that of the camra as RET2 SW. RET2 : VTR S/S SW of lens functions as RET2 SW and that of the camera as INCOM TALK SW.
		VF ? DISPLAY	[ON], OFF	Turns on and off the indication of ? mark at the top-right of the VF screen with the DISP switch set to ON when the self-diagnosis result is NG (no good) and so on.
		PinP RET RVS	[RVS1], RVS 2, OFF	Selects the indication mode of VF display in PinP mode. (Does not function in the unit.)
OTHERS 2		F TALLY RVS	[ON], OFF	Selects the operation mode of TALLY lamps corresponding to a CALL button of MSU or RCP pressed when a TALLY signal is input to the camera from CCU or VTR. ON : Rear and front TALLY lamps go out. OFF : Rear TALLY lamp alone goes out.
	1.07	BLK GAM INHIBIT	[ON], OFF	ON : Inhibits the black gamma adjustment and on/off function from the MSU or Paint manu. OFF : Enables the above operation.
	1.10	CHAR CAM No.	[1, 2, 3], A,B,C	Selects the indication mode of the camera number set by the CAMERA No. page of Operation menu. 1,2,3 : Indicates in numerics. A,B,C : Indicates camera numbers 1 to 27 in alphabetical order of A to Z. (When connecting 28 or more cameras, select “1,2,3”.)
	1.10	WHT SETUP MODE	[AWB], LEVEL	AWB : After executing the LEVEL AUTO, white balance adjustment data returns to the value before execution. LEVEL : After executing the LEVEL AUTO, white balance adjustment data changes to the value after the white balance is adjusted using TEST 2 signal.
	1.10	AW SHADING MODE	[RGB], RB ONLY	RGB : When automatically adjusting the white balance, R, G, and B signal waveforms are all flattened. RB ONLY : When automatically adjusting the white balance, R and B signal waveforms are flattened.

3-2. Self-Diagnosis

The BVP-550 has a diagnosis mode used for self-diagnosis of every plug-in board and the OHB.
The diagnosis page is displayed on the viewfinder screen.

- Operation
  Select “Diagnosis” page of the Operation menu referring to Section 3-1.

- Viewfinder Screen



- Display Descriptions

Marks	Board/Block	Judging Point for NG
①	OHB(CCD UNIT)	Error in communication with IC18, IC19/TG-159
②	PR-211	Error in communication with IC49
③	VA-163	Error in communication with IC26
④	AT-95	Error in communication with IC46
⑤	SG-234	Error in communication with IC21
⑥	DA-88	Error in communication with IC10
⑦	IF-510	Error in communication with IC155

Refer to CA-550/550P maintenance manual for descriptions on columns of CA.

Note

When other equipment than the CA-550/550P is connected to the camera, or when the CA-550/550P is connected to the camera but is not connected to the CCU, the columns ⑧ will display “– –”.