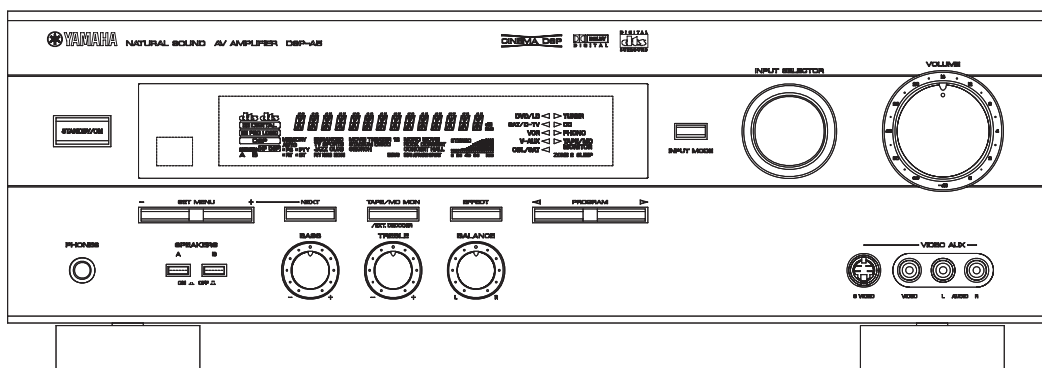


AV AMPLIFIER DSP-A5

SERVICE MANUAL



IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual of firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

CONTENTS

TO SERVICE PERSONNEL	1	AMP ADJUSTMENT	19
REMOTE CONTROL PANELS	1	IC DATA	20~28
REAR PANELS	2	DISPLAY DATA	29
SPECIFICATIONS	3~4	BLOCK DIAGRAM	30~31
INTERNAL VIEW	5	PRINTED CIRCUIT BOARD	32~47
DISASSEMBLY PROCEDURES	5	SCHEMATIC DIAGRAM	48~53
SELF DIAGNOSIS FUNCTION	6~17	PARTS LIST	54~69
FACTORY PRESET	18	REMOTE CONTROL TRANSMITTER	70



このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

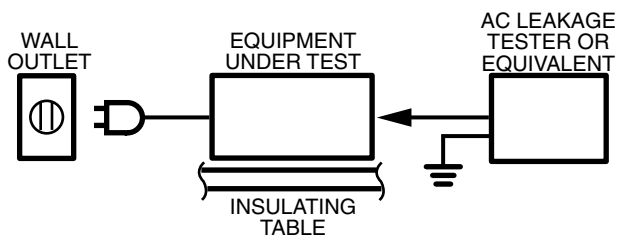
1. Critical Components information

Components having special characteristics are marked \triangle and must be replaced with parts having specifications equal to those originally installed.

2. Leakage Current Measurement (For 120V Model only)

When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

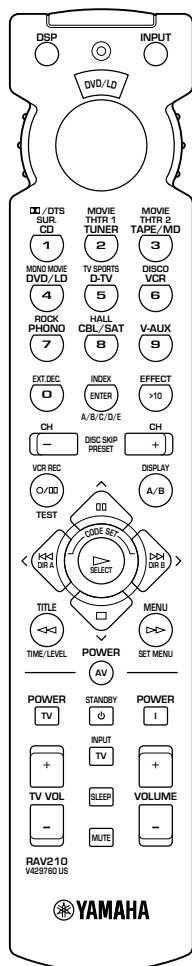
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

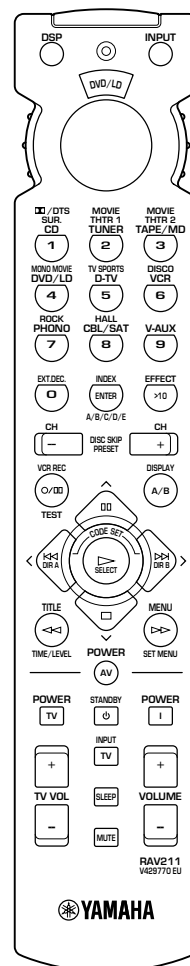
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REMOTE CONTROL PANELS

▼ R and T models

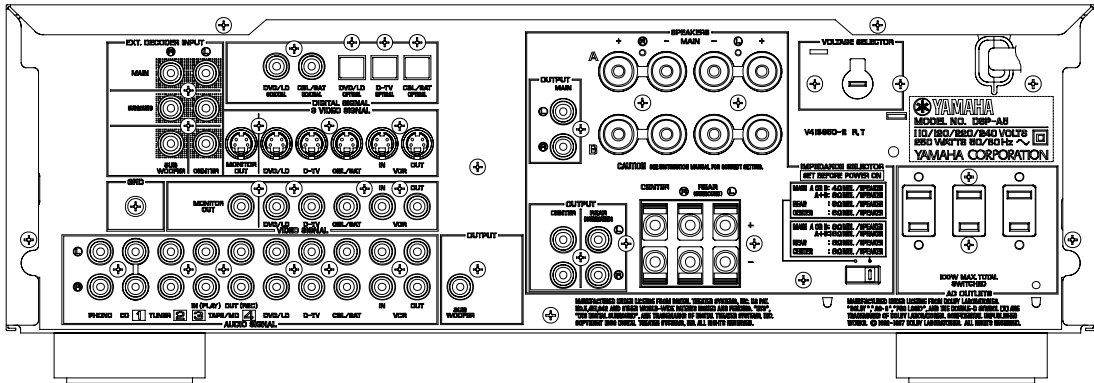


▼ B and G models

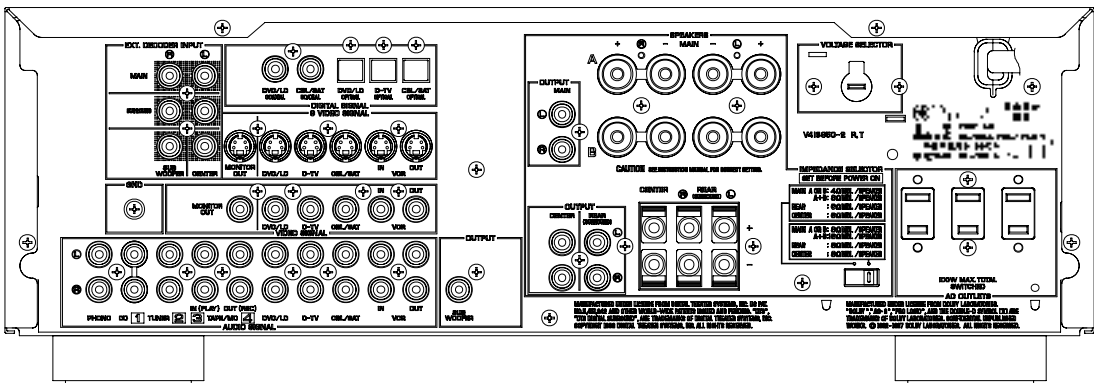


REAR PANELS

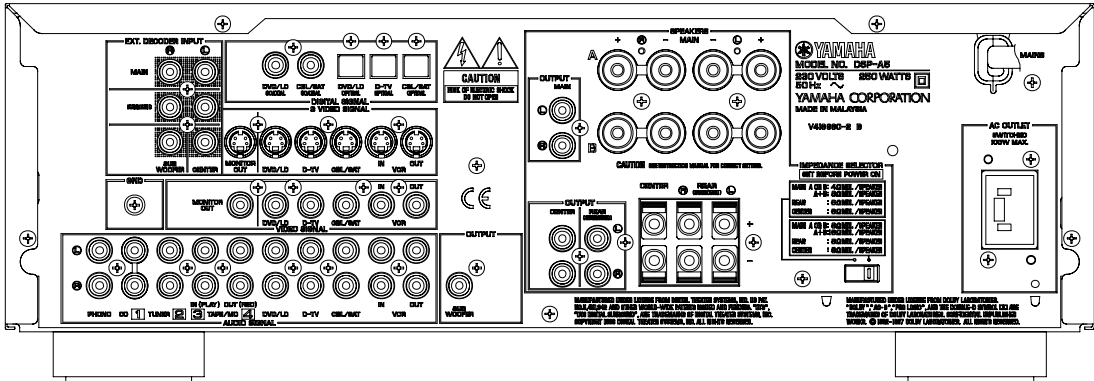
▼ R model



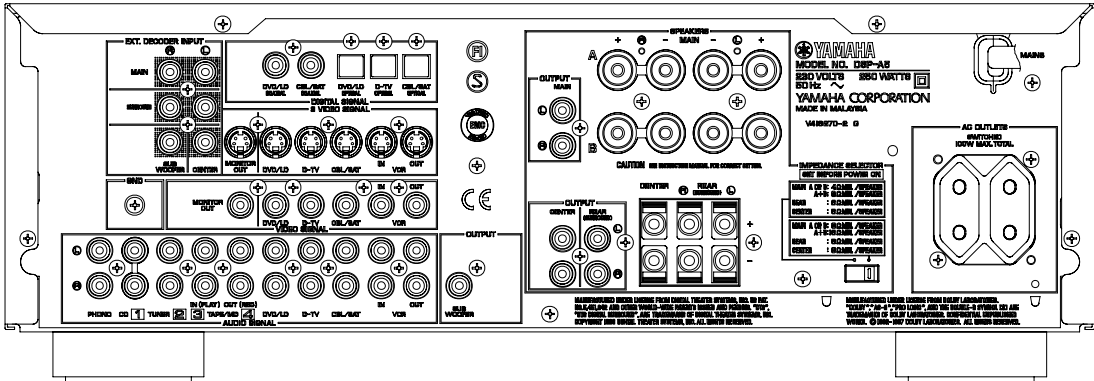
▼ T model



▼ B model



▼ G model



■ SPECIFICATIONS

■ AUDIO SECTION

Minimum RMS Output Power Per Channel (Power Amp. Section)

MAIN L/R, REAR L/R		
20Hz to 20kHz, 0.06% THD, 8Ω		70W+70W
1kHz, 0.09% THD, 8Ω		80W+80W
CENTER		
20Hz to 20kHz, 0.06% THD, 8Ω		70W
1kHz, 0.09% THD, 8Ω		80W

Maximum Power (EIAJ)

R, T models only		
MAIN L/R, REAR L/R		
1kHz, 10% THD, 8Ω		105W+105W
CENTER, 1kHz, 10% THD, 8Ω		105W

Dynamic Power Per Channel (IHF)

MAIN L/R		
8/6/4/2Ω		
90W+90W/110W+110W/135W+135W/160W+160W		

DIN Standard Output Power Per Channel

G model only		
MAIN L/R, REAR L/R		
1kHz, 0.7% THD, 4Ω		110W+110W
CENTER, 1kHz, 0.7% THD, 4Ω		110W

IEC Power

G model only		
MAIN L/R, 1kHz, 0.06% THD, 8Ω		75W+75W

Damping Factor (SPEAKER A)

MAIN L/R, 20Hz to 20kHz, 8Ω		80
-----------------------------	--	----

Input Sensitivity/Input Impedance

PHONO (MM)		2.5mV/47kΩ
CD etc.		150mV/47kΩ
MAIN L/R (EXTERNAL DECODER)		150mV/47kΩ
CENTER		150mV/40kΩ
SURROUND L/R		150mV/40kΩ
SUB WOOFER		150mV/40kΩ

Maximum Input Signal Level (1kHz)

PHONO (MM), 0.1% THD		100mV
CD etc. (EFFECT ON), 0.5% THD		2.2V

Output Level/Output Impedance

REC OUT		150mV/1.2kΩ
PRE OUT		2.1V/1.2KΩ
SUB WOOFER (MAIN SP : SMALL)		4V/1.2KΩ

Headphone Jack Rated Output/Impedance

CD etc., Input=1kHz, 150mV, RL=8Ω		0.34V/560Ω
-----------------------------------	--	------------

Frequency Response(10Hz to 100kHz)

CD etc., MAIN		0/-3dB
---------------	--	--------

RIAA Equalization Deviation

PHONO (MM)		0±0.5dB
------------	--	---------

Total Harmonic Distortion(20Hz to 20kHz)

PHONO (MM) to REC OUT (1V)		0.02%
CD etc.(EFFECT OFF) to MAIN SP OUT(35W/8Ω)		0.06%

Signal-to-Noise Ratio(IHF-A Network)

PHONO (MM), Input shorted, REC OUT		
R, T models		86dB
B, G models		81dB
CD etc.(EFFECT OFF), Input shorted, SP OUT		
		99dB

Residual Noise(IHF-A Network)

MAIN L/R, SP OUT		150μV
------------------	--	-------

Channel Separation(Vol. -30dB, EFFECT OFF)

PHONO, Input shorted, 1kHz/10kHz		60dB/55dB
CD etc, Input 5.1kΩ terminated, 1kHz/10kHz		60dB/45dB

Tone Control Characteristics

BASS : Boost/Cut		±10dB(50Hz)
: Turnover Frequency		350Hz
TREBLE : Boost/Cut		±10dB(20kHz)
: Turnover Frequency		3.5kHz

Filter Characteristics

MAIN, REAR SP SMALL : H.P.F.		fc=90Hz, 12dB/oct.
SUB WOOFER : L.P.F.		fc=90Hz, 18dB/oct.

■ VIDEO SECTION

Video Signal Type

R model		NTSC/PAL
T, B, G models		PAL

Video Signal Level

1Vp-p/75Ω

S-Video Signal Level

Y:1Vp-p/75Ω,C:0.286Vp-p/75Ω

Maximum Input Level

1.5Vp-p

Signal-to-Noise Ratio

50dB

Monitor Output Frequency Response(-3dB)

5Hz~10MHz

■ GENERAL

Power Supply

R model		AC110/120/220/240V, 50/60Hz
T model		AC220V, 50Hz
B, G models		AC230V, 50Hz

Power Consumption

R, T models		310W
B, G models		300W

Standby Power Consumption

B, G models		0.89W
-------------	--	-------

Maximum Power Consumption

R model only		
5CH Simultaneous output, 10% THD		510W

AC Outlet

R, T models, Switched x 3		100W max(Total)
B model, Switched x 1		100W max
G model, Switched x 2		100W max(Total)

Dimensions(W x H x D)

435 x 151 x 390.5mm
(17-1/8" x 5-15/16" x 15-3/8")

Weight

11.2kg(24lbs. 11 oz)

Accessories

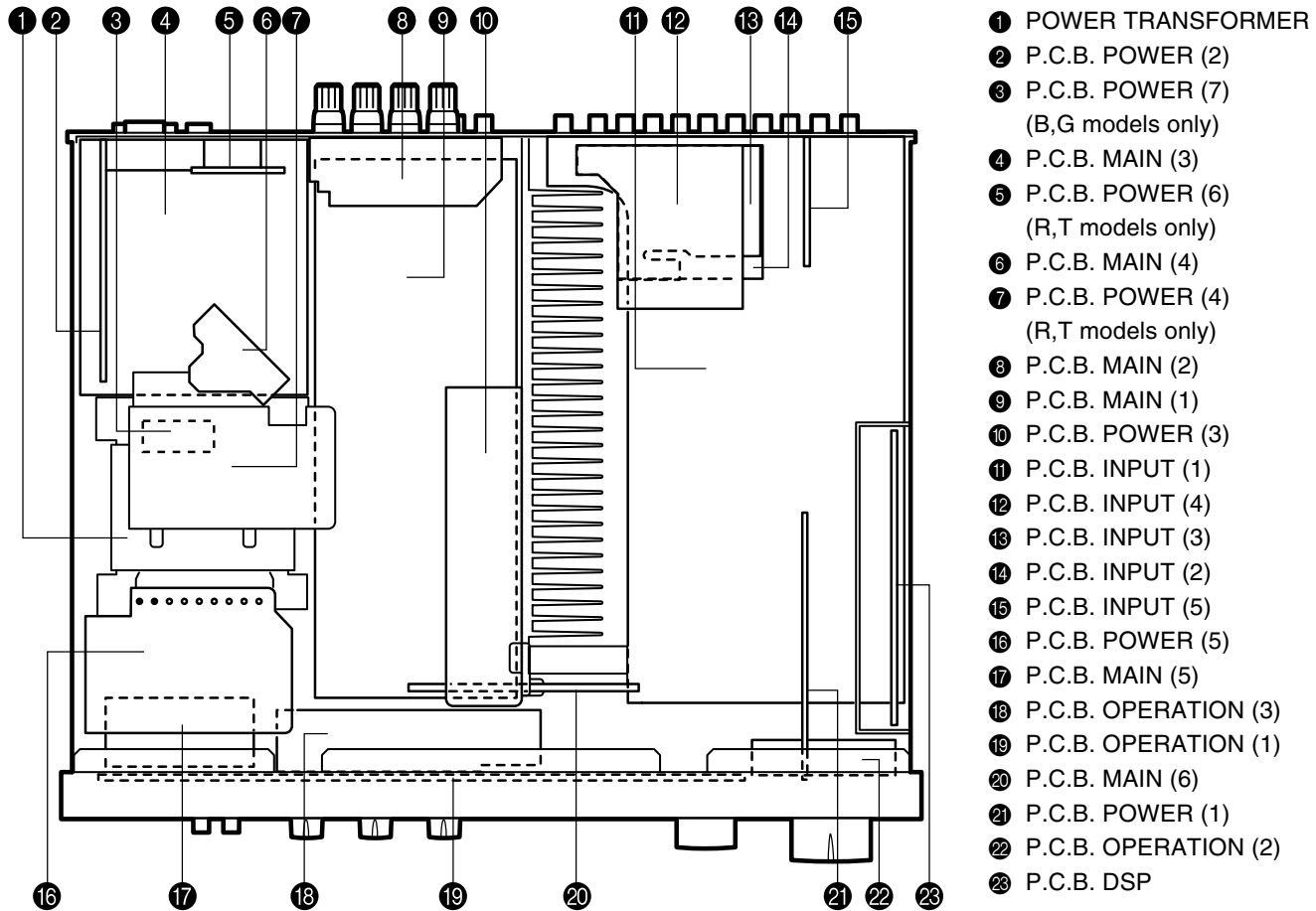
Remote Control Transmitter x 1
Battery (size "AAA", "R03") x 4

* Specifications subject to change without notice.

R General model B British model
T China model G European model

- R, T models → GD (Gold model)
- B model → BL (Black model)
- G model → BL (Black model) and TI (Titan model)

INTERNAL VIEW



DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

Remove 4 screws (1) and 4 screws (2) in Fig. 1.

2. Removal of Front Panel

- a. Remove 5 knobs.
- b. Remove 6 screws (3) in Fig. 1.

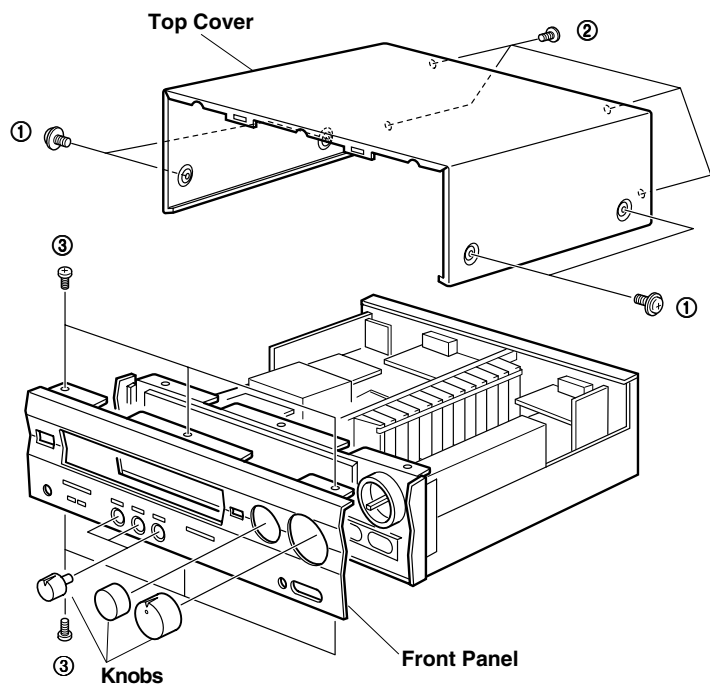


Fig.1

■ SELF DIAGNOSIS FUNCTION

1. PURPOSE AND OPERATION

The DSP-A5 has a Self Diagnosis Function to locate a faulty part, if any, by inspecting and taking measurements.

There are 12 main items in the diagnostic menu and have sub-menu items as listed below.

No.	MAIN MENU	SUB-MENU	REMOTE CONTROL CODE (KEY)
1	ANALOG THROUGH	1. MAIN BYPASS 2. DSP 0dB	7A-88 ("1" [DSP mode]) ---
2	DSP THROUGH	1. YSS+SRAM M 2. YSS M 3. DSP FULL BIT	7A-89 ("2" [DSP mode]) --- ---
3	AC-3/DTS THROUGH	1. STATUS (BINARY FORM)	---
4	PRO LOGIC	1. CENTER LARGE 2. EFFECT OFF	7A-8A ("3" [DSP mode]) ---
5	SPEAKERS SET	1. MAIN : SMALL 0dB 2. MAIN : LARGE 0dB 3. MAIN : LARGE -10dB 4. LFE/BASS : MAIN CENTER : NONE 5. LFE/BASS : MAIN 6. LFE/BASS : SUBWOOFER 7. CENTER : NONE 8. CENTER : SMALL REAR : SMALL 9. FRONT MIX	7A-8B ("4" [DSP mode]) 7A-8C ("5" [DSP mode]) 7A-8D ("6" [DSP mode]) 7A-8E ("7" [DSP mode]) 7A-8F ("8" [DSP mode]) 7A-90 ("9" [DSP mode]) 7A-91 ("0" [DSP mode]) --- 7A-12 ("ENTER" [DSP mode])
6	DISPLAY CHECK (EFFECT OFF)	1. (EFFECT OFF) 2. ALL SEGMENTS TURN OFF 3. ALL SEGMENTS TURN ON 4. ALTERNATE SEGMENTS TURN ON 5. SOFTWARE RELEASE DATE	7A-56 (">10" [DSP mode]) --- --- --- ---
7	MANUAL TEST	1. ALL 2. MAIN L 3. CENTER 4. MAIN R 5. REAR R 6. REAR L 7. LFE	--- --- --- --- --- --- ---
8	FACTORY PRESET	1. INHIBIT (Inhibit Memory Initialize) 2. RESERVED (Reserve Memory Initialize)	--- ---
9	AD DATA CHECK	1. --- 2. KEY1, KEY2 3. TUNER SIGNAL LEVEL 4. DC PROTECTION 5. PS PROTECTION	--- --- --- --- ---
10	STATUS INFORMATION FROM DSP	1./2. DSP STATUS (1)/(2) 3./4. CHANNEL STATUS (1)/(2) 5./6. BSI0 (1)/(2) 7./8. BSI1 (1)/(2) 9./10. BSI2 (1)/(2) 11./12. BSI3 (1)/(2) 13./14. BSI4 (1)/(2) 15./16. BSI5 (1)/(2)	--- --- --- --- --- --- --- ---
11	EEPROM WRITING FUNCTION	1. CHECK SUM MODIFICATION DATA EEPROM DATA 2. WRITING CONFIRMATION 3. START WRITING	--- --- ---
12	UNIT INFORMATION/ EXIT	1. VERSION and CHECK SUM 2. MODEL TYPE and DESTINATION 3. EXIT	--- --- ---

2. BEGINNING AND CANCELLATION

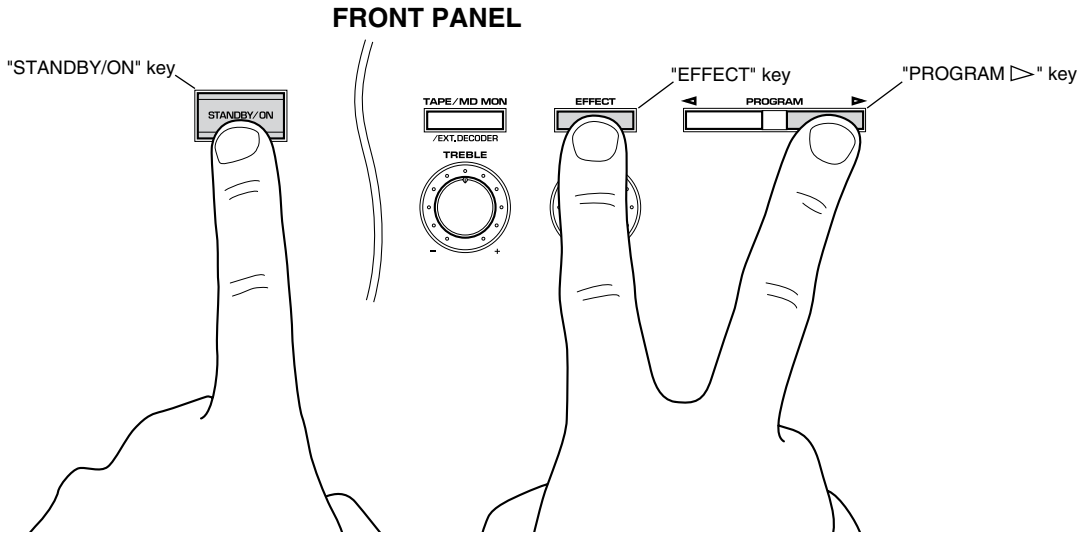
(1) Starting up the function and the display

After starting up, main menu No.1 is selected.

A. How to start diagnostic program

Using the front panel keys of the main unit

Plug in the AC power cord. With the Power OFF, hold down the "PROGRAM \blacktriangleleft " and "EFFECT" keys simultaneously (Step 1), then press the "STANDBY/ON" key (Step 2). Sub menu No. 1 of the diagnosis main menu No. 1 will start.



Step2. Press the "STANDBY/ON" key.

Step1. Hold down the "PROGRAM \blacktriangleleft " and "EFFECT" key simultaneously.

B. Settings for start-up of diagnostic program

The settings used when starting the diagnostic program are as follows.

1. EFFECT LEVEL :

CHANNEL	CENTER	R SUR	L SUR	SWFR
LEVEL (dB)	0	0	0	0

- 2. MUTING : OFF
- 3. INPUT (VIDEO) : DVD/LD (DVD/LD)
- 4. CENTER SPEAKER : LARGE
- 5. REAR SPEAKER : LARGE
- 6. MAIN SPEAKER : LARGE
- 7. LFE/BASS OUT : SWFR

C. Start-up display

The protection history information appears on the front panel display.

● FL display at start-up of diagnostic program

When the diagnostic program has started, the check sum of the main microcomputer or the protection history (*1) is displayed. If the protection function has been activated in the past, the type and voltage value are displayed. After a few seconds the diagnosis function menu will appear.

(*1) If a faulty condition is detected such as excessive current, a bad power supply or excessive amplifier DC offset, the Power will be switched OFF automatically.

Note) For the voltages of the power and DC protection functions, see the diagnosis main menu No. 9, which will be described later. The protection history will be cleared when "RESERVED" is selected in the diagnosis main menu No. 8 and FACTORY PRESET is engaged.

● Protection history

The following examples show how the protection history is displayed:

CHK SUM : XXXX X

Appears when the protection function has not been activated. Displayed the check sum (4-digit, hexadecimal) and the version (one letter) of the main microcomputer.

I PROTECTION

Appears when the current protection function has been activated. When power is turned on in an abnormal condition, the power relay will come on, protection will operate immediately, and power will turn off.

PS PRT : XX%

Appears when the power supply protection function has been activated. For the % value, the voltage at that point is shown by 5V/100%. When power is turned on in an abnormal condition, power will turn off after half a second.

DC PRT : XX%

Appears when the power amp DC protection function has been activated. For the % value, the voltage at that point is shown by 5V/100%. When power is turned on in an abnormal condition, power will turn off after two seconds.

(2) Exiting method

The diagnosis function can be exited by any of the following procedures. Take care with the setting of backup memory initialization menu (diagnosis No. 8) when releasing the diagnosis function.

1. Select sub-menu No. 3 "EXIT" of the diagnosis main menu No. 12.
2. Press the "STANDBY/ON" key on the main unit or "STANDBY" key on the remote control to turn Power OFF.

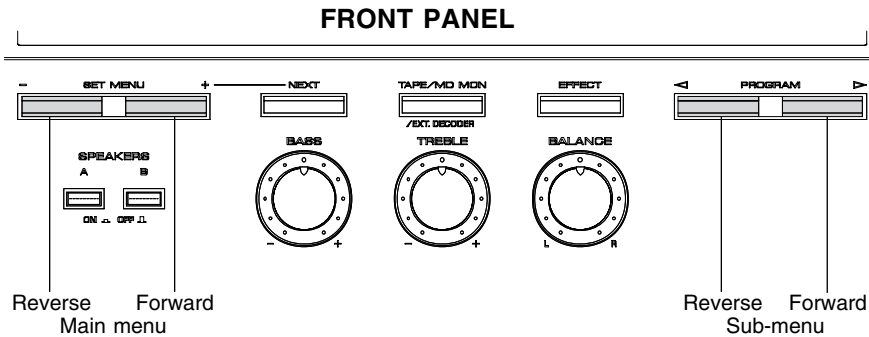
3. OPERATION AND DISPLAY WHEN STARTING DIAGNOSIS FUNCTION

(1) Selection of diagnostic menu

The diagnostic menu and the sub-menu can be selected by using the front panel keys of the main unit or the remote control unit.

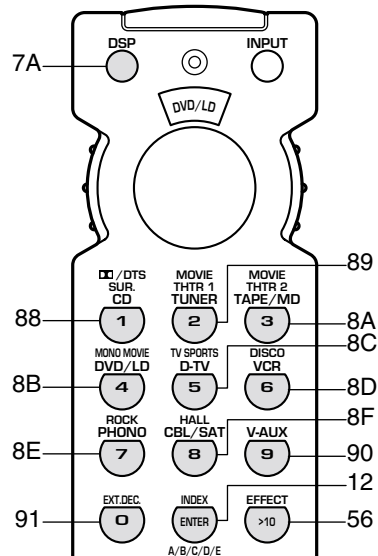
● Selection by using the front panel keys of the main unit

The main menu can be changed cyclically by using the "SET MENU -/+ " keys, and the sub-menu, by using the "PROGRAM </>" keys. The ">" key will increase the main or sub-menu number.



● Selection by using the remote control unit

The remote control codes in the menu list (see right column on page 8) correspond to the DSP program, test and effect keys. See the figure on the right.



(2) Other functions available while diagnosis function is active

Listed below are the other functions available while the diagnosis function is active.

- Selection of the input (include TAPE MONITOR/EXTERNAL DECODER)
- Effect level control (CENTER, REAR, SUBWOOFER)
- Master volume control
- Muting on/off
- Power on/off

(3) Diagnosis default status

When not otherwise specified, default settings and values in each menu are as follows:

- SPEAKERS : All "LARGE"
- Electronic Volumes : All "0dB"
- DYNAMIC RANGE : MAX
- LFE LEVEL : 0dB (-10dB in AC-3(DOLBY DIGITAL))
- CENTER DELAY : 0ms

4. CONTENTS OF DIAGNOSIS FUNCTION

This section describes the contents of the Self Diagnosis Function in detail.

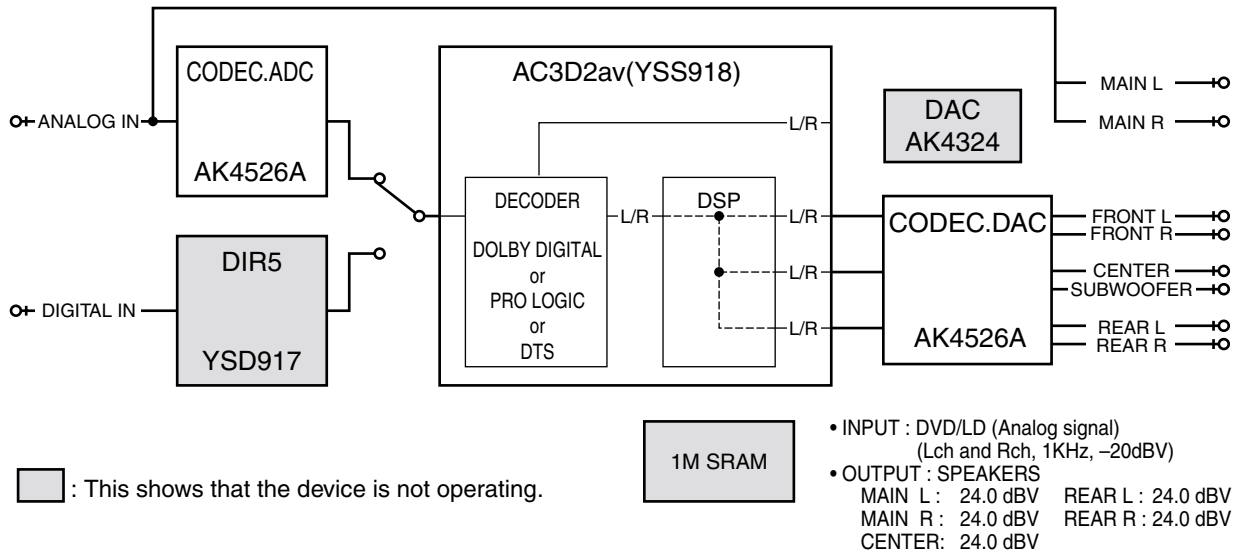
No.1 ANALOG THROUGH

The input is fixed to analog (A/D). There are two sub-menus.

1. MAIN BYPASS **1 MAIN BYPASS**

The L/R signals bypass the digital circuit, and are output to the MAIN L/R.

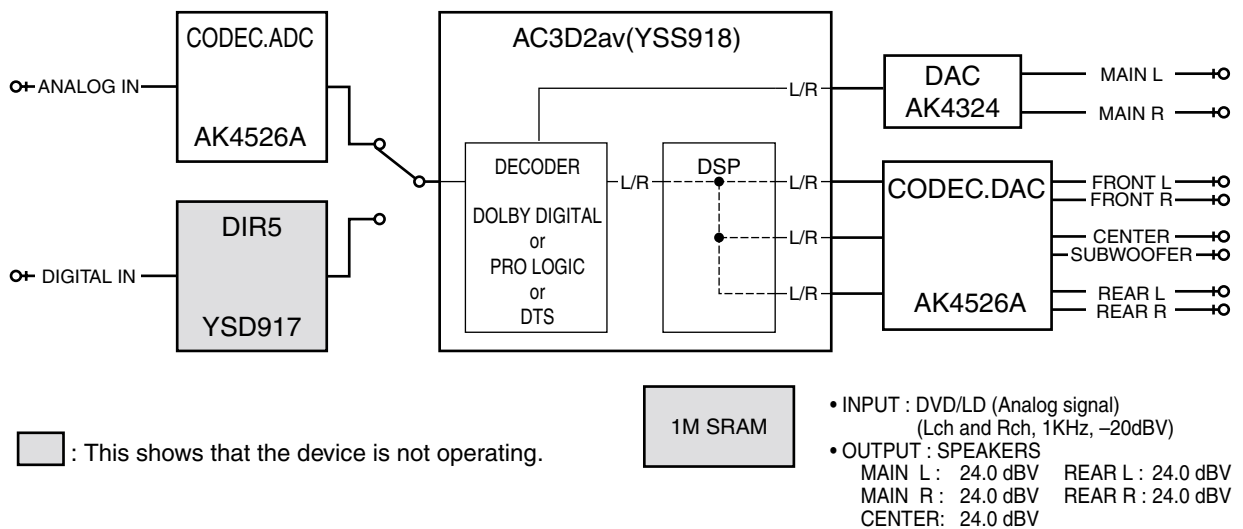
The L/R signals are output without being processed to the CENTER/SUBWOOFER, FRONT L/R and REAR L/R through the DSP. (Remote control code 7A-88: "1" key [DSP mode])



2. DSP 0dB **1 DSP 0dB**

The L/R signals are output without being processed to the MAIN L/R through the AC3D2av.

The L/R signals are output without being processed to the CENTER/SUBWOOFER, FRONT L/R and REAR L/R through the DSP.

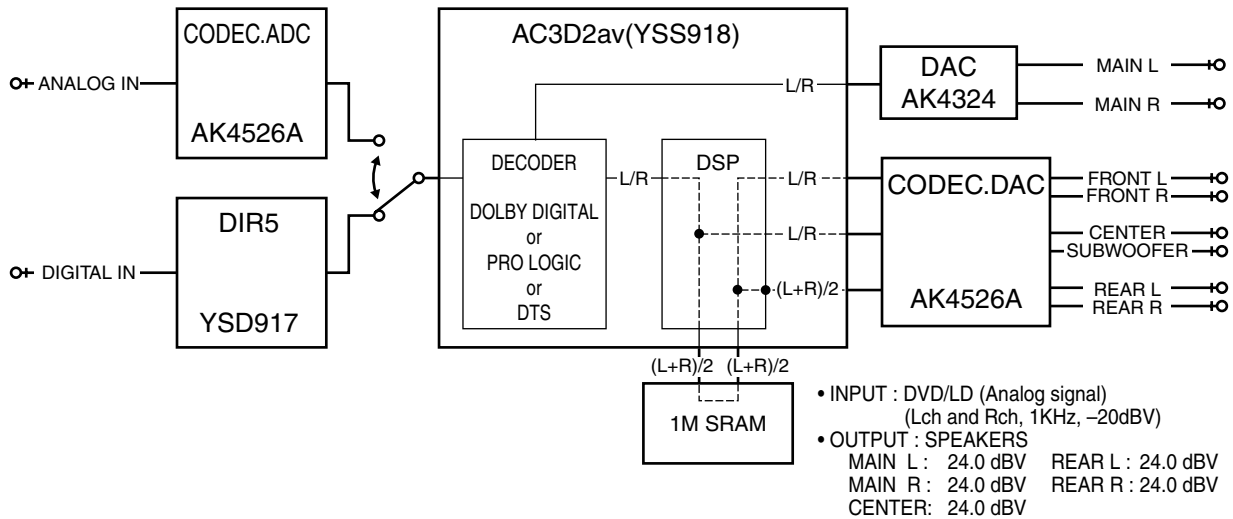


No.2 DSP THROUGH

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog.
There are the following three sub-menus.

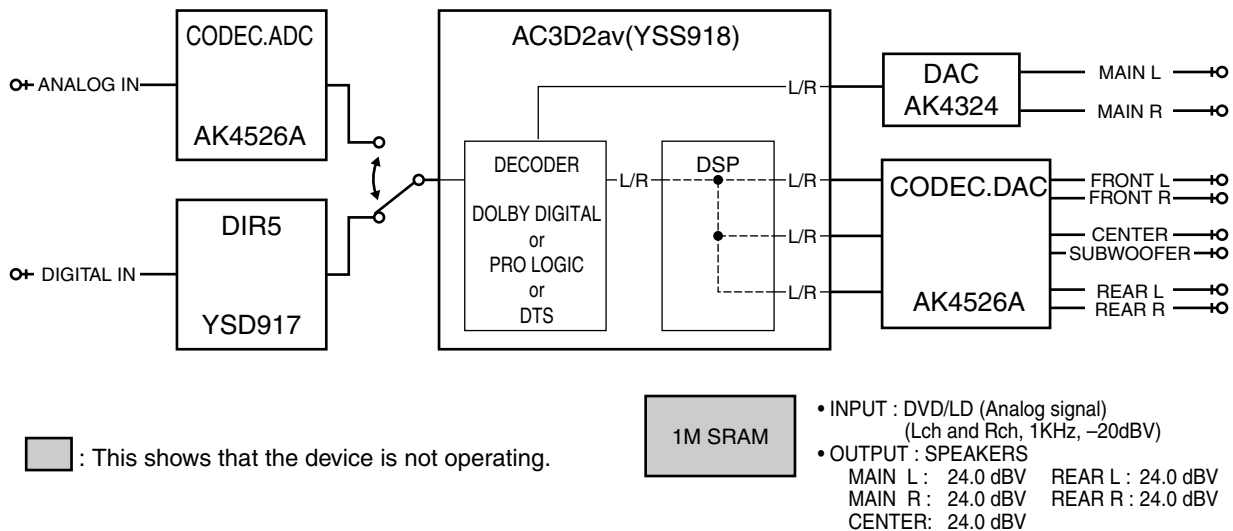
1. YSS+SRAM **2 YSS+SRAM M**

The L/R signals are output without being processed to the MAIN L/R through the AC3D2av.
The L/R signals are output without being processed to the CENTER/SUBWOOFER through the DSP.
The (L+R)/2 signals are output to the FRONT L/R and REAR L/R through the DSP and the SRAM.
When one of the L/R signals is not input, the output level is -6dB. (Remote control code 7A-89:"2" key [DSP mode])



2. YSS M **2 YSS M**

Same as "2. DSP 0dB" of "No.1 ANALOG THROUGH", except for the input switching.



3. DSP FULL BIT **2 DSP FULL BIT**

Same as the above menu, except that the head margin is disabled, and the digital data is output with full bits from AC3D2av to DAC.

- INPUT : DVD/LD (Analog signal)
(Lch and Rch, 1kHz, -30dBV)
- OUTPUT : SPEAKERS
MAIN L : 14.0 dBV REAR L : 23.3 dBV
MAIN R : 14.0 dBV REAR R : 23.3 dBV
CENTER: 17.2 dBV

No.3 AC-3/DTS THROUGH

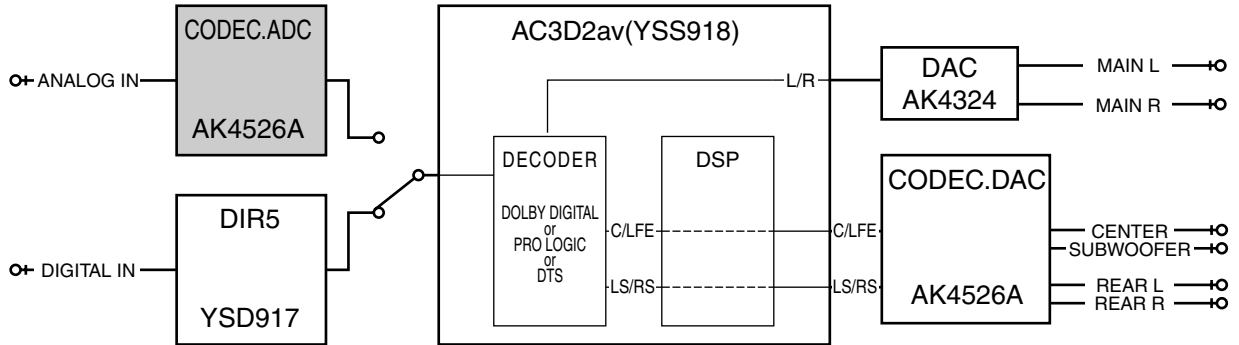
The input is digital signal only. AC-3 (DOLBY DIGITAL) or DTS Digital Surround decoding operation is executed, according to the input source.

1. STATUS(BINARY FORM)

bit 7 bit 1
3 ST:10001001

AC-3 (DOLBY DIGITAL) decoded signals are output to each channel via AC3D2av.

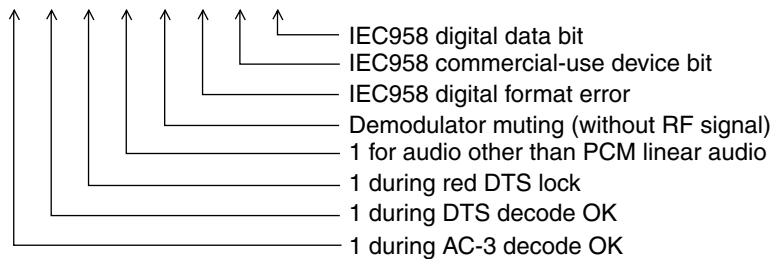
The AC-3 (DOLBY DIGITAL) signal status data will be displayed in the FL display using a binary number.



: This shows that the device is not operating.

1M SRAM

AC-3 Status Info. : bit 7 6 5 4 3 2 1 0
 (Invalid in DTS) 1 0 0 0 1 0 0 1



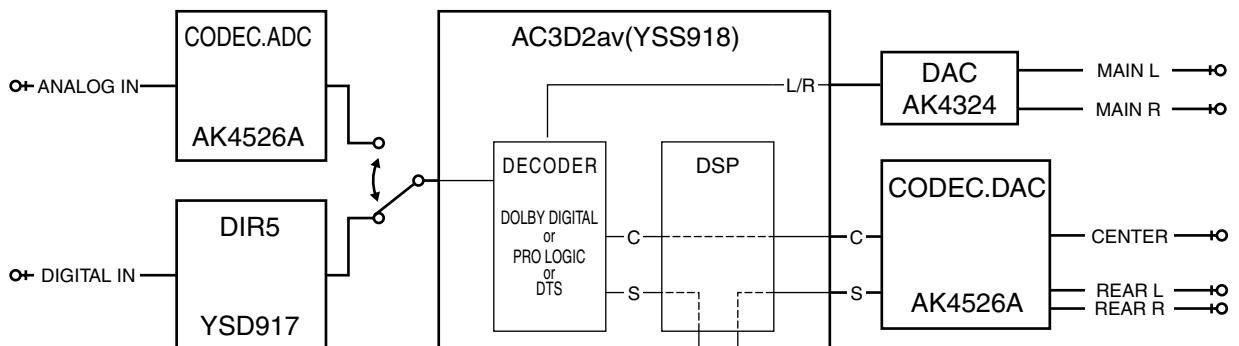
No.4 PRO LOGIC

The submenu is switched between PRO LOGIC (AUTO BALANCE OFF) and EFFECT OFF.

1. CENTER LARGE

4 PRO CNTR:LRG

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog. DTS Digital Surround is disabled. The input signals are PRO LOGIC decoded and output.
 (Remote control code 7A-8A: "3" key [DSP mode])



- INPUT : DVD/LD (Analog signal)
 (Lch and Rch, or Lch only, 1KHz, -20dBV)
- OUTPUT : SPEAKERS
 (INPUT : Lch and Rch) (INPUT : Lch only)
- MAIN L : -12.5 dBV MAIN L : 24.0 dBV
- MAIN R : -12.5 dBV MAIN R : -19.0 dBV
- CENTER: 27.0 dBV CENTER : -10.0 dBV
- REAR L : -9.0 dBV REAR L : -9.0 dBV
- REAR R : -9.0 dBV REAR R : -9.0 dBV

2. EFFECT OFF

4 PRO EFCT:OFF

The input is only for analog signal. The L/R signals bypass the digital circuit and are output to the MAIN L/R.

No.5 SPEAKERS SET

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog. The L/R signals are output to channels specified by the sub-menu without being processed.

There are the following nine sub-menus items. Signal routes of the sub-menu 1-4 are the same as EFFECT OFF. But MAIN L/R are signals through the digital circuit.

Signal routes of the sub-menu 5-9 are the same as "2. YSS M" of "No. 2 DSP THROUGH".

However, only MAIN L/R are output in the sub-menu 1-4.



The analog switches in each sub-menu are set as follows:

	SUB MENU	REMOTE CONTROL CODE	SETTING					OUTPUT					
			CENTER SP	REAR SP	MAIN SP	MAIN LEVEL	LFE/BASS	MAIN L	MAIN R	CENTER	REAR L	REAR R	SUB WOOFER
1	MAIN:SML 0DB	7A-8B	LARGE	LARGE	SMALL	0dB	SWFR	L	R	NONE	NONE	NONE	L+R
2	MAIN:LRG 0DB	7A-8C	LARGE	LARGE	LARGE	0dB	SWFR	L	L	NONE	NONR	NONE	NONE
3	MAIN:LRG -10	7A-8D	LARGE	LARGE	LARGE	-10dB	SWFR	L	L	NONE	NONE	NONE	NONE
4	B:MAIN C:NONE	7A-8E	NONE	LARGE	LARGE	0dB	MAIN	L	L	NONE	NONE	NONE	NONE
5	LFE/B:MAIN	7A-8F	LARGE	LARGE	LARGE	0dB	MAIN	LFE+FL	LFE+FR	NONE	NONE	NONE	NONE
6	LFE/B:SWFR	7A-90	LARGE	LARGE	LARGE	0dB	SWFR	NONE	NONE	NONE	NONE	NONE	LFE
7	C:NONE	7A-91	NONE	LARGE	LARGE	0dB	SWFR	C+L	C+R	NONE	NONE	NONE	NONE
8	C:S REAR:S	---	SMALL	SMALL	LARGE	0dB	SWFR	FL	FR	C	RL	RR	C+RL+RR+LFE
9	FRONT MIX	7A-12	LARGE	LARGE	LARGE	0dB	SWFR	FL	FR	NONE	NONE	NONE	NONE

LARGE: Mode in which speakers with high bass-sound playback capability (large unit) are used. Full-range signals present on the channel are output from the speaker.

SMALL: Mode in which speakers with low bass-sound playback capability (small unit) are used. Low bass signals (below 90Hz) on the channel are mixed into the channel selected by the LFE/BASS setting.

NONE: Mode in which center speaker is not used. The center channel signal is reduced by 3 dB and mixed into MAIN L/R.

LFE/B:MAIN

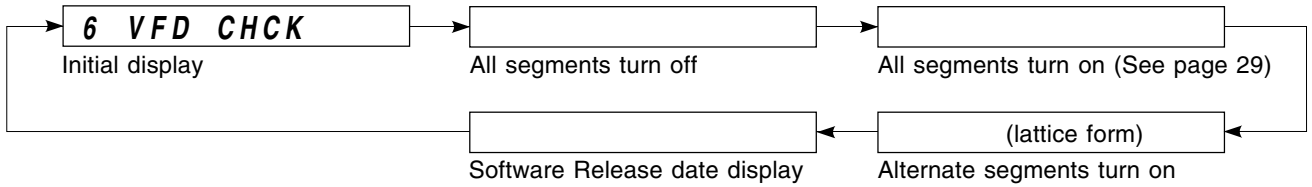
: Mode in which subwoofer speaker is not used. The LFE channel signal is reduced by 4.5 dB and mixed into MAIN L/R. But because of the phase difference, the MAIN L/R output is not simply summed.

Description of the submenu as follows:

	SUB MENU	DESCRIPTION
1	MAIN:SML 0DB	Verification of the High and low pass filter response and gain in the bass redirection mode.
2	MAIN:LRG 0DB	Reference of the sub menu No. 1 and 3.
3	MAIN:LRG -10	Verification of the effect in the main level function.
4	B:MAIN C:NONE	Verification of the mixing circuit effect to the main channel.
5	LFE/B:MAIN	Verification of the bass mix gain.
6	LFE/B:SWFR	Verification of the LFE maximum output.
7	C:NONE	Verification of the center mix gain.
8	C:S REAR:S	Verification of the high and low pass filter response and gain in the bass redirection mode.
9	FRONT MIX	Verification of the front mix gain.

No.6 DISPLAY CHECK

Check program for FL display. The display status will change as follows with sub-menu operation. signal route is the same as "2. EFFECT OFF" of "No. 4 PRO LOGIC".

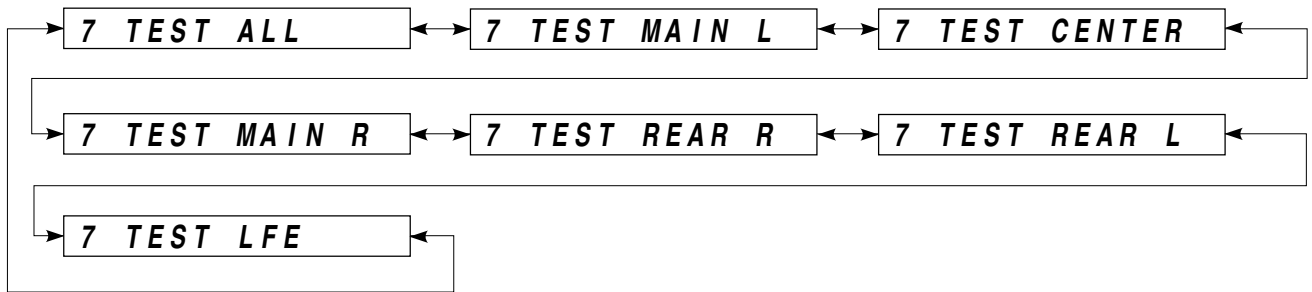


A defect of the FL drive port and FL display segments can be detected by using "All segments turn off" and "All segments turn on".

A short-circuit between adjacent segments can be detected by using "Alternate segments turn on" (lattice form).

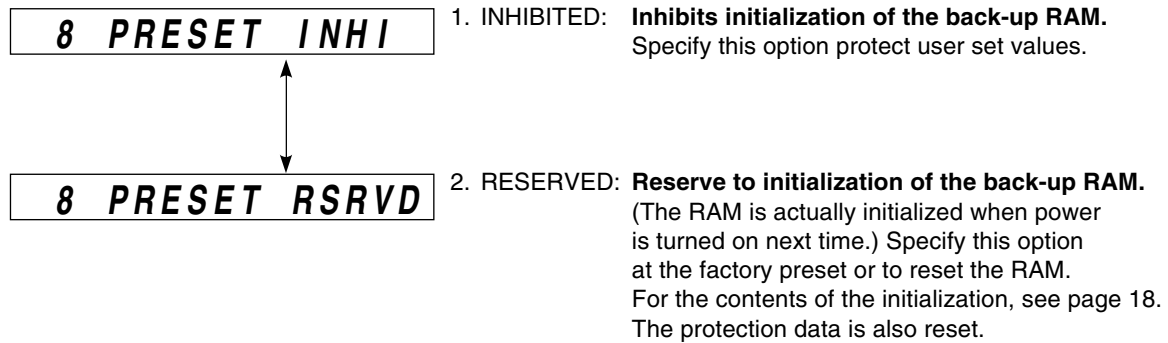
No.7 MANUAL TEST

By using the noise generator built into the DSP, a test noise outputs to the channel specified by the sub-menu.



No.8 FACTORY PRESET

The initialization of the back-up RAM, which contains, the DSP program, set menu contents, etc. is reserved or inhibited. Signal route is the same as "2. EFFECT OFF" of "No.4 PRO LOGIC".



No.9 AD DATA CHECK

The A/D conversion values of the microcomputer which detects key scan port, protection detection port, etc. are displayed in % (100%:5V). Signal route is the same as "2. EFFECT OFF" of "No. 4 PRO LOGIC".

The keys on the main unit cannot be operated to detect the values of all keys in the K1/K2 and SI.

Operating the "PROGRAM ◀, ▶"key and turning the rotary encoder ("INPUT SELECTOR" on the main unit) will switch the sub-menu.

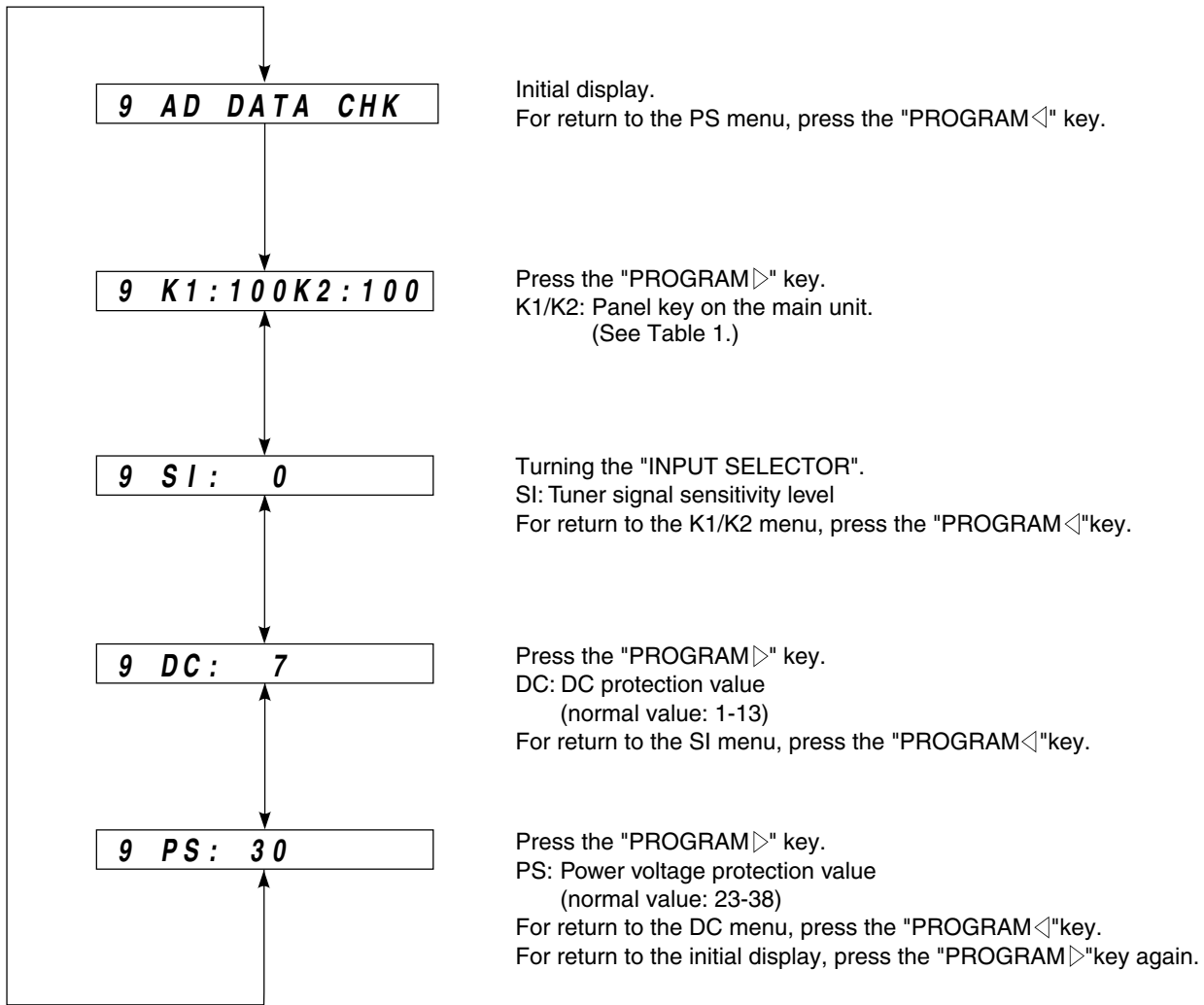


Table 1

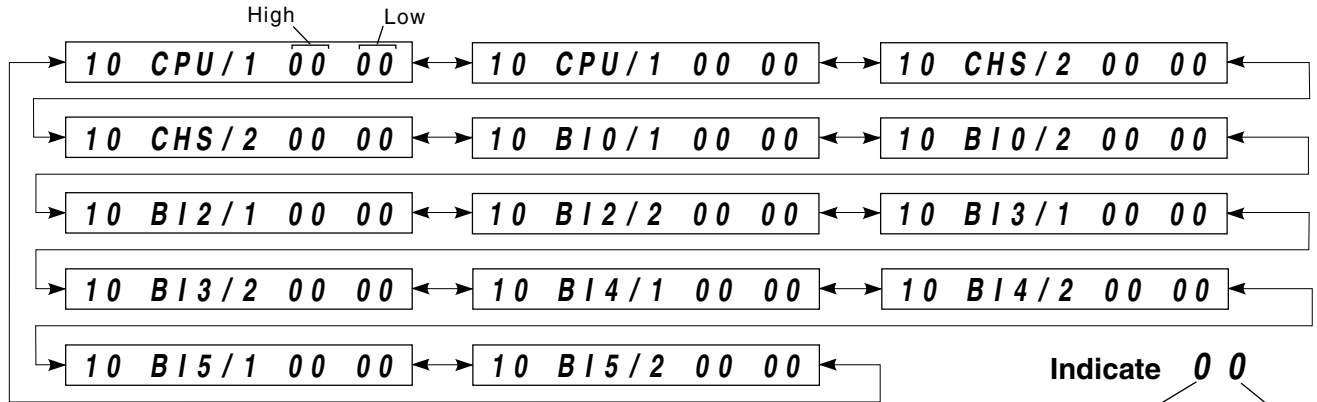
AD Value	0	15	25	35	45	55	65	75	85
K1	SET MENU		NEXT	TAPE/MD MON /EXT DECODER	EFFECT	—	—	—	—
	-	+							
K2	PROGRAM		INPUT MODE	—	—	—	—	—	—
	◀	▶							

Cautions:

1. If K1 and K2 are more than ±4% from the reference values, normal operation will not be executed.
2. If DC and PS are outside the normal values, the protection function will operate and power will turn off.

No.10 STATUS INFORMATION FROM DSP

The status data from the DSP block is sequentially displayed in a hexadecimal number.
Signal route is the same as "2. EFFECT OFF" of "No. 4 PRO LOGIC".



[CPU/1]

<High Byte>

bit7	Mute request	bit3	acmod
bit6	fs 000B:Analog 001B:32kHz 010B:44.1kHz 011B:48kHz 100B:64kHz 101B:88.2kHz 110B:96kHz 111B:undefined	bit2	0000B:1+1 0001B:1/0 0010B:2/0 0011B:3/0
bit5		bit1	0100B:2/1 0101B:3/1 0110B:2/2 0111B:3/2
bit4		bit0	1000B:7.1

[Note]

When acmod is beyond 1000B, it is DTS 7.1 signal. And the DSP block will be muted.
The acmod of DTS 2/0 is as 0000B:1+1.

<Low Byte>

bit7	AC-3 DECODE OK	bit3	DEM (Demodulator) MUTE (without RF signal)
bit6	DTS DECODE OK	bit2	IEC958 digital format error
bit5	Red DTS record (Flashes and lights)	bit1	IEC958 commercial-use device bit
bit4	1 for audio other than PCM linear audio	bit0	IEC958 digital data bit

[Note]

IEC958: Standard to identify the PCM bit stream signal. Digital format error refers to a digital signal with the sampling frequency undefined (neither 32k,44.1k,48k,64k,88.2k nor 96k). Since the operation of each device cannot be assured at fs outside specifications, this status handled as the forced analog mode (ignored even if decoding is OK from the detection terminal level), and the signals from the analog input terminal will be selected. Bits 4-6 of "CPU/1" will be 000B (Analog), and the microcomputer operates in the same way as with digital unlocking.

Indicate	0 0			
	bit 7	bit 6	bit 5	bit 4
Indicate	bit			
	3	2	1	0
0	7	6	5	4
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
A	1	0	1	0
B	1	0	1	1
C	1	1	0	0
D	1	1	0	1
E	1	1	1	0
F	1	1	1	1

[CPU/2]

<High Byte>

bit7	AC3 KARAOKE	bit3	1
bit6	DIR2 LOCKN	bit2	0
bit5	DIR2 ERR	bit1	DSP is AC3D2 (DTS present)
bit4	AC3D MUTE	bit0	RF DEM (Demodulator) present

<Low Byte> Always "00"

[CHS/1,/2] IEC958 channel status bits 00-31 available from DIR5.

- <CHS/1 High Byte> bits 00-07
- <CHS/1 Low Byte> bits 08-15
- <CHS/2 High Byte> bits 16-23
- <CHS/2 Low Byte> bits 24-31

[BI0/1,/2] Displays the bit stream information contained in AC-3(DOLBY DIGITAL)/DTS Digital Surround signal from the first byte.

[BI1-5/1,/2] Displays the bit stream information contained in AC-3(DOLBY DIGITAL) signal from the first byte.

No.11 EEPROM WRITING FUNCTION

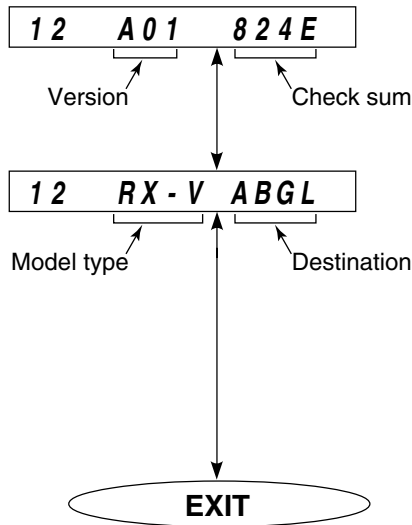
The check sum value confirmation of EEPROM and data writing.
Signal route is the same as "2. EFFECT OFF" of "No. 4 PRO LOGIC".

M:XXXX E:XXXX

- M:XXXX: The check sum value is displayed when the microcomputer has ROM modification data.
0000 is displayed when there is no data.
- E:XXXX: The check sum value is displayed when the EEPROM is installed on and it has the ROM data .
000 is displayed when EEPROM is not mounted on or data is unusual.
If you want to write ROM modification data of the microcomputer into the EEPROM, change to the next sub-menu.

No.12 UNIT INFORMATION/EXIT

The version of the microcomputer and the check sum, the model type and the destination are displayed.
Signal route is the same as "2. EFFECT OFF" of "No.4 PRO LOGIC".
By the sub-menu operation, the set exits the self-diagnosis mode and returns to the normal operation mode.



The version and the check sum of the microcomputer software are displayed.
A01: Microcomputer software version.
824E: Microcomputer software check sum.

The model type and the destination are displayed.
RX-V: Model type.
DSP-A= DSP-A5
RX-V = RX-V596, HTR-5250
RDS = RX-V596RDS
ABGL: Destination.
J = J model
UC = U and C models
ABGL = A,B,G and L models
R = R and T model

■ FACTORY PRESET

All of the system settings are initially set from the factory as follows.

● INPUT SELECTOR

	INPUT	FACTORY PRESET PROGRAM
ROTARY ENCODER	PHONO	CONCERT HALL
	CD	DISCO
	TUNER	ROCK CONCERT
	DVD/LD	SCI-FI
	D-TV	TV SPORTS
	VCR	DOLBY NORMAL
	V-AUX	DOLBY ENHANCED
	CBL/SAT	ROCK CONCERT
MONITOR	TAPE/MD	EFFECT OFF
EXTERNAL	EXT. DECODER	NONE

● EFFECT LEVEL

EFFECT CHANNEL	PRESET VALUE
CENTER	0 dB
RIGHT SURROUND	0 dB
LEFT SURROUND	0 dB
SUBWOOFER	0 dB

● DSP PROGRAM

No.	PROGRAM	SUB-PROGRAM	DELAY PRESET VALUE
1.	DOLBY/DTS SURROUND	NORMAL	PRO LOGIC : 20ms,
		ENHANCED	DOLBY DIGITAL/DTS DIGITAL SUR : 5ms
2.	MOVIE THEATER 1	SPECTACLE	70mm : 23ms, DGTL/DTS : 15ms
		SCI-FI	70mm : 20ms, DGTL/DTS : 16ms
3.	MOVIE THEATER 2	ADVENTURE	70mm : 20ms, DGTL/DTS : 15ms
		GENERAL	
4.	MONO MOVIE	–	49ms
5.	TV SPORTS	–	9ms
6.	DISCO	–	40ms
7.	ROCK CONCERT	–	16ms
8.	CONCERT HALL	–	44ms

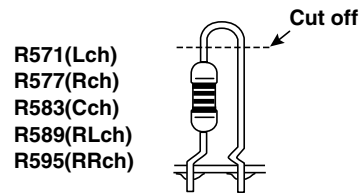
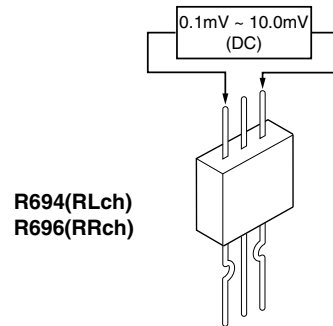
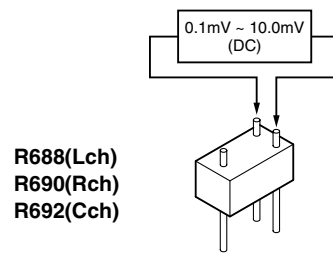
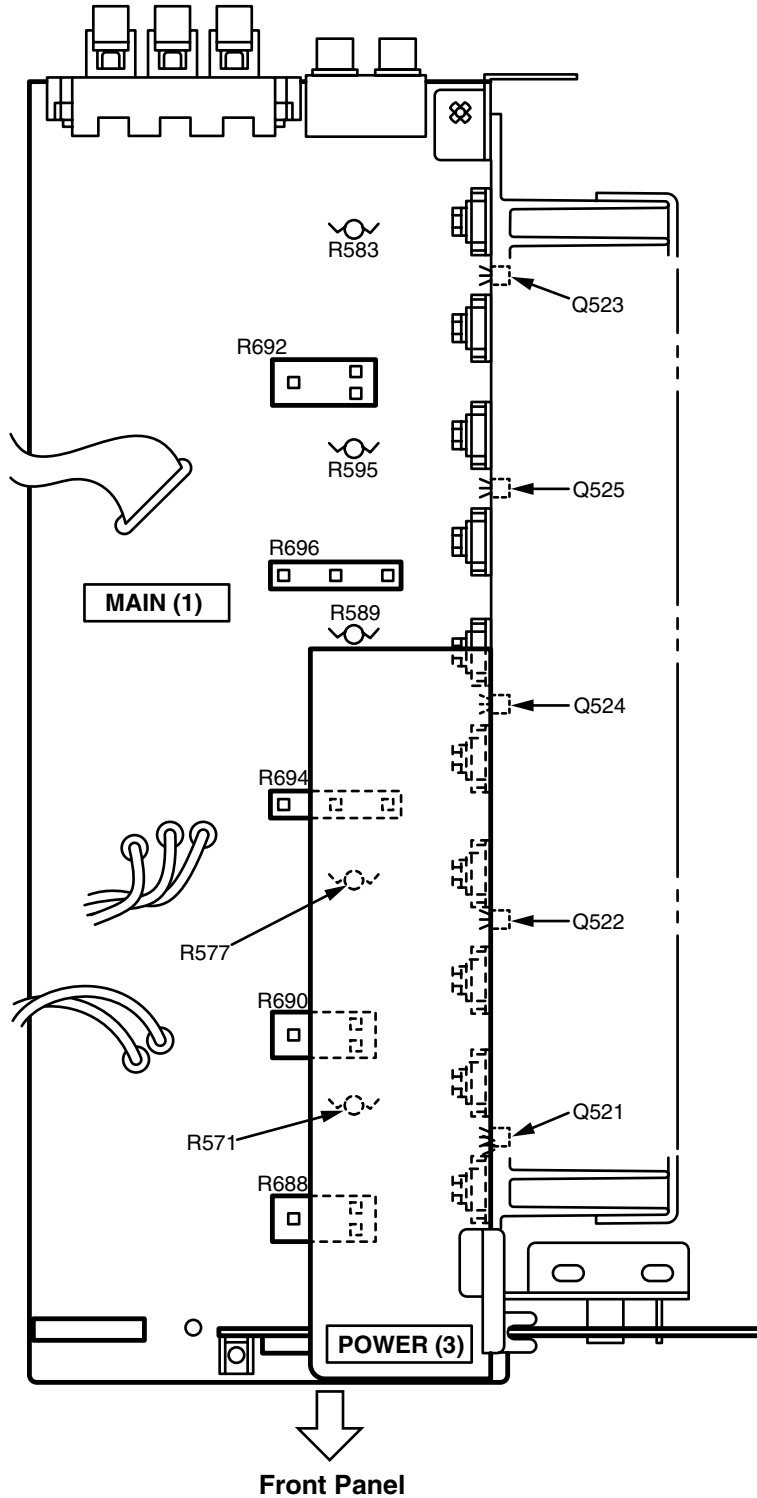
● SET MENU

No.	SET MENU	PRESET VALUE
1.	CENTER SP SIZE	CENTER SP : LRG(LARGE)
2.	REAR SP SIZE	REAR SP : LARGE
3.	MAIN SP SIZE	MAIN SP : LARGE
4.	BASS OUT MODE	BASS OUT : BOTH
5.	M. LVL CHOICE	MAIN LVL : NRML (NORMAL)
6.	D. D. LFE OUT LEVEL	D. D. LFE 0 dB
7.	D. RNG CHOICE	D-RANGE : MAX
8.	DTS LFE OUT LEVEL	DTS LFE 0 dB
9.	C. DELAY CHANGE	CENTER DELAY 0ms
10.	MEMORY GUARD	MEM. GUARD : OFF
11.	INPUT MODE D-TV	TV INPUT : AUTO
12.	INPUT MODE CBL/SAT	CBL INPUT : AUTO

AMP ADJUSTMENT

Confirmation of Idling Current of Main Amplifier

- Right after power is turned on, confirm that the voltage across the terminals of R688(Main Lch), R690(Main Rch), R692(Center), R694(Rear Lch), R696(Rear Rch) are between 0.1mV and 10.0mV.
- If it exceeds 10.0mV, open (cut off) R571 (Main Lch), R577 (Main Rch), R583 (Center), R589 (Rear Lch), R595 (Rear Rch) and reconfirm the voltage.
- Confirm that the voltage is 0.20mV ~ 15.0mV after 60 minutes.



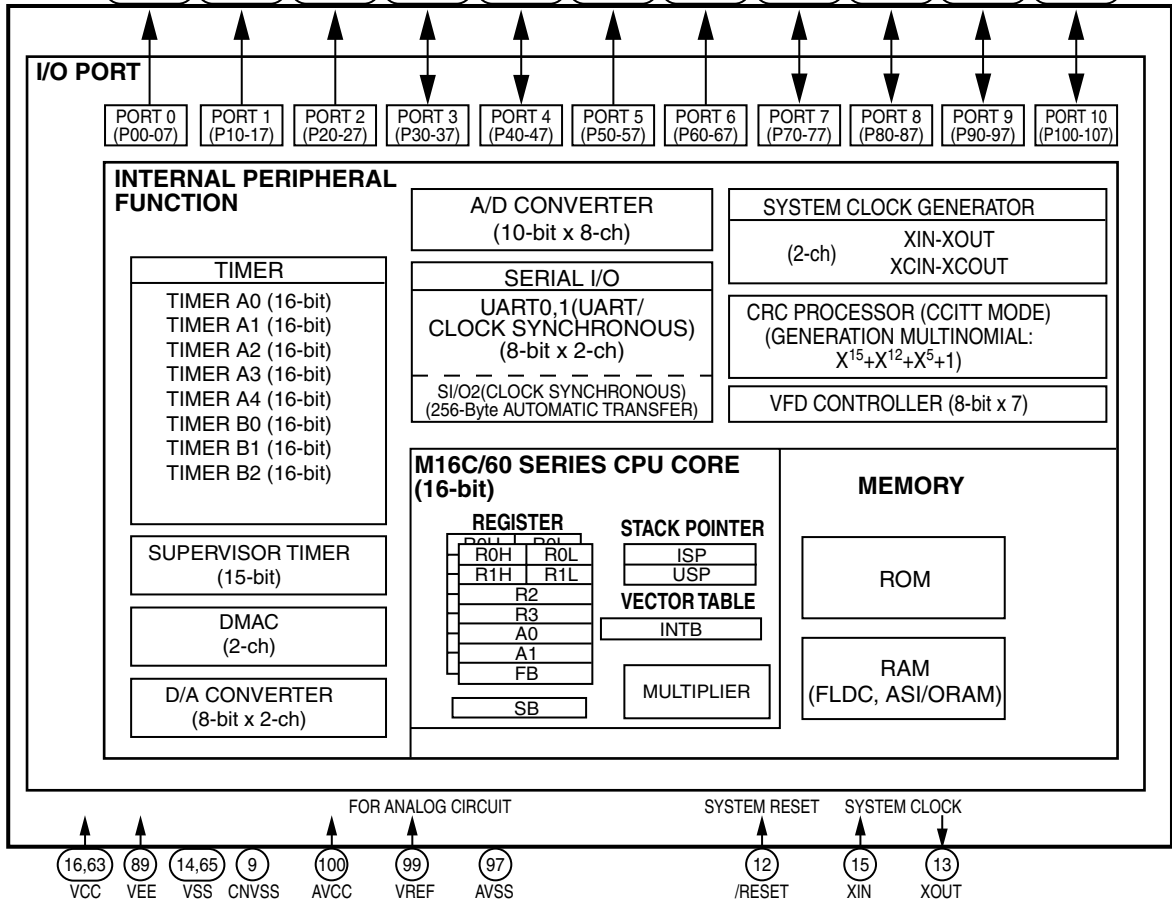
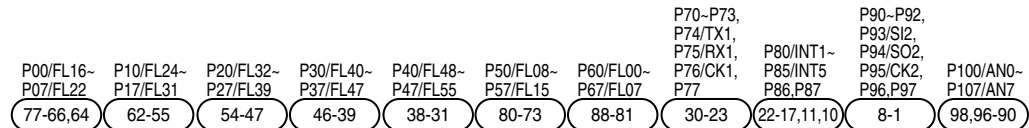
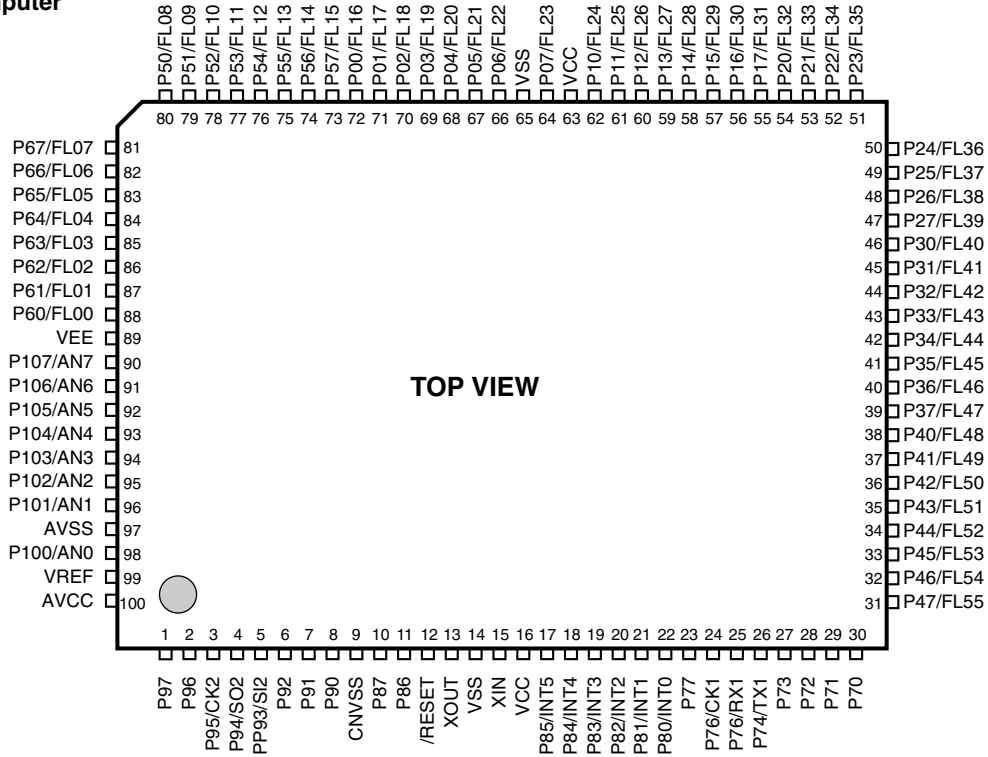
Note)

- If R571, R577, R583, R589 and R595 have already been cut off and idling current does not flow, reconnect R571, R577, R583, R589 and R595.
- Q521 ~ Q525 are transistors for temperature correction. Apply silicone grease to contact surface with the heat sink.

IC DATA

IC501 : M30217MA-A203FP

16-bit Microcomputer



IC501 : M30217MA-A203FP

16-bit Microcomputer

Pin No.	Port	Pin Name	I/O	Function
1	P97	SCK	O	Serial Clock output
2	P96	SDT	O	Serial Data output
3	P95	RCK	O	Clock output for model type distinction (*1)
4	P94	RDT	O	Data output for destination distinction of Tuner (*2)
5	P93	DEST	O	Data input for destination distinction of Tuner (*2)
6	P92	RCE	O	Chip enable output for model type distinction (*1)
7	P91	SCKD	O	Serial Clock output for DIR5
8	P90	SID	O	Serial data output for DIR5
9	CNVSS	CNVSS		For flash μ -COM write connector
10	P87	CKB	O	Clock output for output port expansion IC
11	P86	DTB	O	Data output for output port expansion IC
12	/RESET	/RES		System reset
13	XOUT	XOUT		Crystal oscillator connected (10MHz)
14	VSS	MG		Ground
15	XIN	MU		Crystal oscillator connected (10MHz)
16	VCC	+5BU		+5V Power supply
17	P85/INT5	INTD	I	Interrupt factor detect input from DIR5
18	P84/INT4	ERRA	I	Data mute detect input from AC3D2av
19	P83/INT3	REM	I	Remote control input
20	P82/INT2	PDT	I	Power down detect input
21	P81/INT1	PSW	I	Standby switch input
22	P80/INT0	DBL	I	Double speed sampling mode selection data input DIR5
23	P77	CEAC2	O	Chip enable output 2 for AC3D2av
24	P76/CK1	CLKAC	O	Serial clock output for AC3D2av
25	P75/RX1	RXAC	I	Serial data input from AV3D2av
26	P74/TX1	TXAC	O	Serial data output for AC3D2av
27	P73	CEAC1	O	Chip enable output 1 for AC3D2av
28	P72	TCE	O	Chip enable output for Tuner
29	P71	CELC	O	Chip enable output for Input Selector
30	P70	CETC	O	Chip enable output for Input Selector

Pin No.	Port	Pin Name	I/O	Function
31	P47/FL55	F-CE	O	Chip enable output
32	P46/FL54	F-CK	O	Serial clock output
33	P45/FL53	F-RX	I	Serial data input
34	P44/FL52	F-TX	O	Serial data output
35	P43/FL51	VUP	O	Volume up output
36	P42/FL50	VDN	O	Volume down output
37	P41/FL49	SOD	I	Serial data input from DIR5
38	P40/FL48	CECOD	O	Chip enable output for CODEC
39	P37/FL47	/CSD	O	Chip select output for DIR5
40	P36/FL46	PRI	I	I (Over current) protection detect input
41	P35/FL45	POT-A	I	Rotary encoder input A
42	P34/FL44	POT-B	I	Rotary encoder input B
43	P33/FL43	/ST	I	Stereo input from Tuner
44	P32/FL42	DO	I	Serial data input from Tuner
45	P31/FL41	/ICD	O	Initial clear output for DIR5
46	P30/FL40	PRY	O	Power relay output
47	P27/FL39	SRY	O	Speaker relay output
48	P26/FL38	ERY	O	Effect relay output
49	P25/FL37	G1	O	Grid 1 for FL display
50	P24/FL36	G2	O	Grid 2 for FL display
51	P23/FL35	G3	O	Grid 3 for FL display
52	P22/FL34	G4	O	Grid 4 for FL display
53	P21/FL33	G5	O	Grid 5 for FL display
54	P20/FL32	G6	O	Grid 6 for FL display
55	P17/FL31	G7	O	Grid 7 for FL display
56	P16/FL30	G8	O	Grid 8 for FL display
57	P15/FL29	G9	O	Grid 9 for FL display
58	P14/FL28	G10	O	Grid 10 for FL display
59	P13/FL27	G11	O	Grid 11 for FL display
60	P12/FL26	G12	O	Grid 12 for FL display
61	P11/FL25	G13	O	Grid 13 for FL display
62	P10/FL24	G14	O	Grid 14 for FL display
63	VCC	+5VBU		+5V power supply
64	P07/FL23	G15	O	Grid 15 for FL display
65	VSS	MG		Ground
66	P06/FL22	G16	O	Grid 16 for FL display

*1 Model type distinction (H=1, L=0)

DSP-A (Pin 3)	0	DSP-A5	0	DSP-E	1	RX-V596	1	RX-V596RDS
RDS (Pin 6)	0		1		0	HTR-5250	1	

*2 Destination distinction of Tuner (H=1, L=0)

V1 (Pin 4)	0	J model	0	U,C models	1	A,B,G,L models	1	R,T models
V2 (Pin 5)	0		1		0	1		

IC501 : M30217MA-A203FP

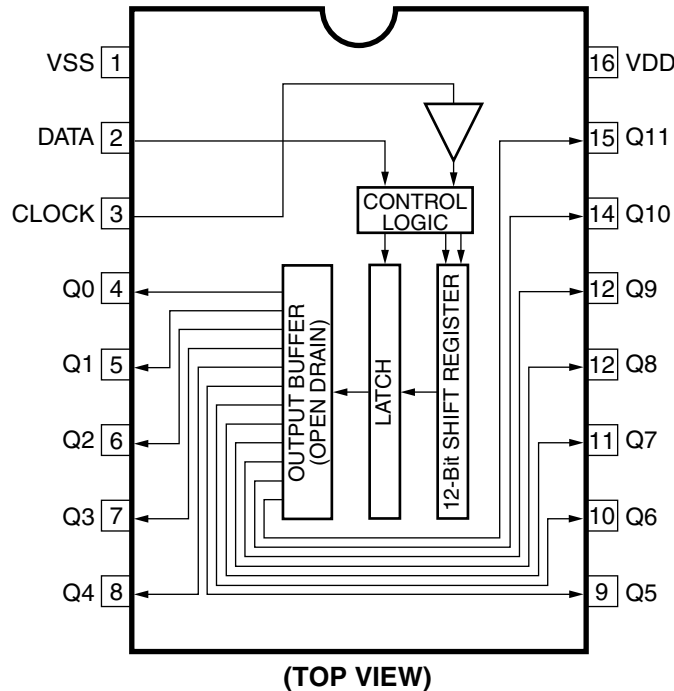
16-bit Microcomputer

Pin No.	Port	Pin Name	I/O	Function
67	P05/FL21	P1	O	Segment 1 for FL display
68	P04/FL20	P2	O	Segment 2 for FL display
69	P03/FL19	P3	O	Segment 3 for FL display
70	P02/FL18	P4	O	Segment 4 for FL display
71	P01/FL17	P5	O	Segment 5 for FL display
72	P00/FL16	P6	O	Segment 6 for FL display
73	P57/FL15	P7	O	Segment 7 for FL display
74	P56/FL14	P8	O	Segment 8 for FL display
75	P55/FL13	P9	O	Segment 9 for FL display
76	P54/FL12	P10	O	Segment 10 for FL display
77	P53/FL11	P11	O	Segment 11 for FL display
78	P52/FL10	P12	O	Segment 12 for FL display
79	P51/FL09	P13	O	Segment 13 for FL display
80	P50/FL08	P14	O	Segment 14 for FL display
81	P67/FL07	P15	O	Segment 15 for FL display
82	P66/FL06	P16	O	Segment 16 for FL display
83	P65/FL05	P17	O	Segment 17 for FL display
84	P64/FL04	P18	O	Segment 18 for FL display

Pin No.	Port	Pin Name	I/O	Function
85	P63/FL03	P19	O	Segment 19 for FL display
86	P62/FL02	P20	O	Segment 20 for FL display
87	P61/FL01	P21	O	Segment 21 for FL display
88	P60/FL00	P22	O	Segment 22 for FL display
89	VEE	VP	O	Power supply for FL display
90	P107/AN7	LIMDT	I	Limiter DC detect input
91	P106/AN6	PRV	I	PS (power voltage) protection AD value detect input
92	P105/AN5	PRD	I	DC (power amp voltage) protection AD value detect input
93	P104/AN4	METER	I	Tuner meter AD value input
94	P103/AN3	NC	O	No connection
95	P102/AN2	/FMT	O	Full mute output (L: ON)
96	P101/AN1	KEY2	I	Key 2 AD data value input
97	AVSS	MG		Ground
98	P100/AN0	KEY1	I	Key 1 AD data value input
99	VREF	+5M		Standard power supply for AD input
100	AVCC	+5BU		+5V power supply

IC107 : BU2090

Serial Input/Parallel Output Driver for Output port expansion



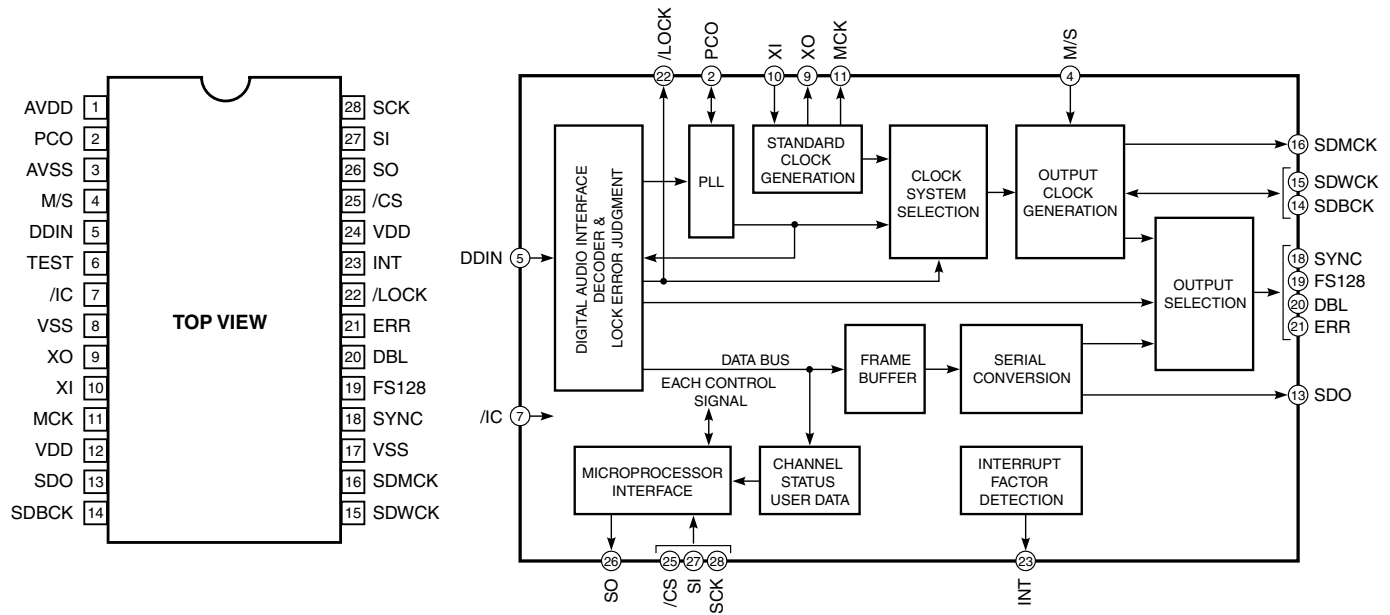
Pin No.	Port	Pin Name	I/O	Function
1	VSS	VSS		Ground
2	DATA	DTB	I	Control data input
3	CLOCK	CKB	I	Control clock input
4	Q0	SW1	O	Video select data output 1-5(*) for video input selector
5	Q1	SW2	O	
6	Q2	SW3	O	
7	Q3	SW4	O	
8	Q4	SW5	O	
9	Q5	/CONT1	O	Limiter control data output 1,2
10	Q6	/CONT2	O	
11	Q7	/-10dB	O	-10dB control data output (L : -10dB)
12	Q8	/ICAC	O	Initial clear output for AC3D2av
13	Q9	NC	O	Unconnected
14	Q10	NC	O	Unconnected
15	Q11	/T-MUTE	O	Tuner mute data output (L : Mute on)
16	VDD	VDD		+5V power supply

* Video input Selector Control (H=High, L=Low, X=Don't care)

Video Input	SW1 (Pin4)	SW2 (Pin5)	SW3 (Pin6)	SW4 (Pin7)	SW5 (Pin8)
CBL/SAT	H	L	X	L	H
D-TV	H	H	X	L	H
DVD/LD	H	L	L	H	H
VCR	L	H	X	X	H
V-AUX	H	L	H	H	H
OFF	L	L	X	X	L

IC3 : YSD917 (DIR5)

Digital Format Interface Receiver

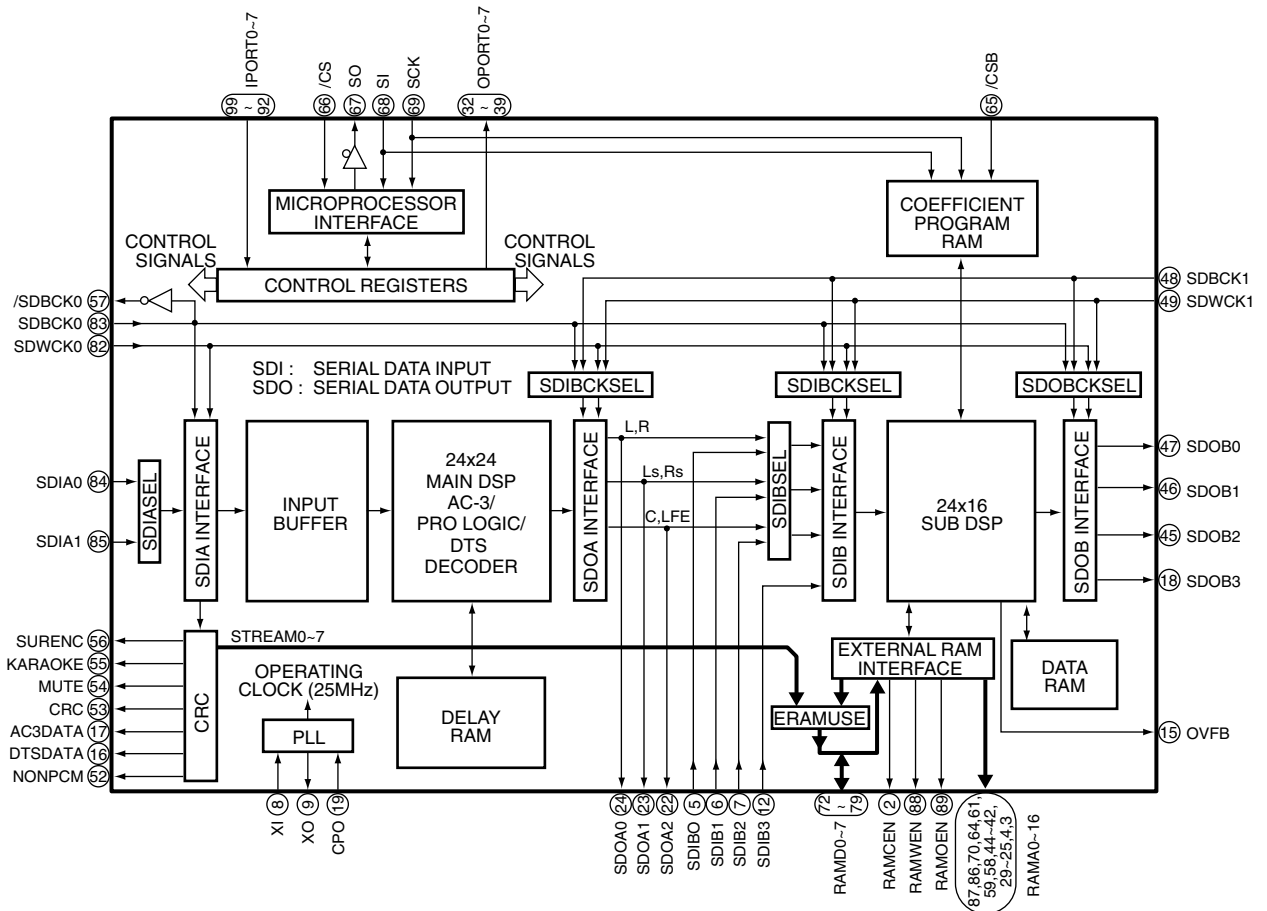
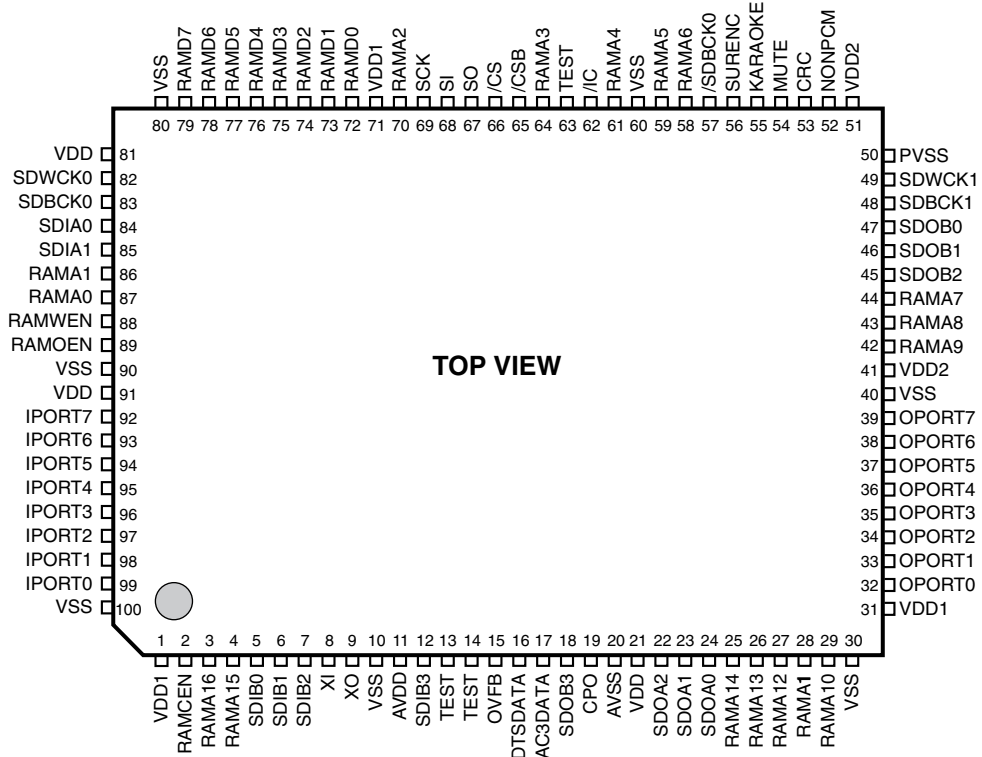


Pin No.	Pin Name	I/O	Function
1	AVDD		Power supply
2	PCO	I/O	PLL phase comparison output
3	AVSS		Ground
4	M/S	I	Unconnected
5	DDIN	I	Digital audio data input
6	TEST		Unconnected
7	/IC	I	Initial clear input from microcomputer
8	VSS		Ground
9	XO	O	Crystal oscillator connection (24.576MHz)
10	XI	I	Crystal oscillator connection (24.576MHz)
11	MCK	O	Master clock output for AC3D2av
12	VDD		Power supply
13	SDO	O	Serial audio data output for AC3D2av
14	SDBCK	I/O	64fs bit clock output for microcomputer, CODEC, DAC
15	SDWCK	I/O	1fs word clock output for microcomputer, CODEC, DAC
16	SDMCK	O	256fs bit clock output for microcomputer, CODEC, DAC

Pin No.	Pin Name	I/O	Function
17	VSS		Ground
18	SYNC	O	Unconnected
19	FS128	O	Unconnected
20	DBL	O	Double speed sampling mode selection data output for microcomputer, CODEC, DAC
21	ERR	O	Unconnected
22	/LOCK	O	Unconnected
23	INT	O	Interrupt factor detect output for microcomputer
24	VDD		Power supply
25	/CS	I	Chip select input from microcomputer
26	SO	O	Serial data output for microcomputer
27	SI	I	Serial data input for microcomputer
28	SCK	I	Serial clock input from microcomputer

IC4 : YSS918D-F (AC3D2av)

DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder



IC4 : YSS918D-F (AC3D2av)

DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder

No.	Name	I/O	Function
1	VDD1		+5V power supply
2	RAMCEN	O	RAM chip enable output terminal (normally unconnected)
3	RAMA16	O	RAM address output terminal 16, connected to external 1M SRAM address
4	RAMA15	O	RAM address output terminal 15, connected to external 1M SRAM address
5	SDIB0	I	Serial data input B terminal 0 (normally connected to ground)
6	SDIB1	I	Serial data input B terminal 1 (normally connected to ground)
7	SDIB2	I	Serial data input B terminal 2 (normally connected to ground)
8	XI	I	Crystal oscillator connection or external clock input terminal, connected to external DIR5 master clock output
9	XO	O	Crystal oscillator connection (normally unconnected)
10	VSS		Ground
11	AVDD		+3V power supply
12	SDIB3	I	Serial data input B terminal 3 (normally unconnected)
13	TEST		Test terminal (normally unconnected)
14	TEST		Test terminal (normally unconnected)
15	OVFB	O	Overflow detect terminal (normally unconnected)
16	DTSDATA	O	DTS data detect terminal (normally unconnected)
17	AC3DATA	O	AC-3 data detect terminal (normally unconnected)
18	SDOB3	O	Serial data output B terminal 3 (normally unconnected)
19	CPO	O	PLL output terminal (connected to AVSS through external analog filter)
20	AVSS		Ground
21	VDD		+3V power supply
22	SDOA2	O	Serial data output A terminal 2 (normally unconnected)
23	SDOA1	O	Serial data output A terminal 1 (normally unconnected)
24	SDOA0	O	Serial data output A terminal 0 connected to external ADC serial data input
25	RAMA14	O	RAM address terminal 14 output terminal, connected to external 1M SRAM address
26	RAMA13	O	RAM address terminal 13 output terminal, connected to external 1M SRAM address
27	RAMA12	O	RAM address terminal 12 output terminal, connected to external 1M SRAM address
28	RAMA11	O	RAM address terminal 11 output terminal, connected to external 1M SRAM address
29	RAMA10	O	RAM address terminal 10 output terminal, connected to external 1M SRAM address
30	VSS		Ground
31	VDD1		+5V power supply
32	OPORT0	O	Output expansion port terminal 0, digital input selector A output (DIA *)
33	OPORT1	O	Output expansion port terminal 1, digital input selector B output (DIB *)
34	OPORT2	O	Output expansion port terminal 2 (normally unconnected)
35	OPORT3	O	Output expansion port terminal 3, compulsive analog performance mode (KM1) output
36	OPORT4	O	Output expansion port terminal 4, connected to external CODEC initial clear input
37	OPORT5	O	Output expansion port terminal 5, PRO LOGIC decode output (H:PRO LOGIC decode)
38	OPORT6	O	Output expansion port terminal 6 (normally unconnected)
39	OPORT7	O	Output expansion port terminal 7 (normally unconnected)
40	VSS		Ground
41	VDD2		+3V power supply
42	RAMA9	O	RAM address output terminal 9, connected to external 1M SRAM address
43	RAMA8	O	RAM address output terminal 8, connected to external 1M SRAM address
44	RAMA7	O	RAM address output terminal 7, connected to external 1M SRAM address
45	SDOB2	O	Serial data output B terminal 2, connected to external CODEC PCM audio data output
46	SDOB1	O	Serial data output B terminal 1, connected to external CODEC PCM audio data output
47	SDOB0	O	Serial data output B terminal 0, connected to external CODEC PCM audio data output
48	SDBCK1	I	Serial data bit clock input terminal 1, connected to external DIR5 64fs bit clock output
49	SDWCK1	I	Serial data word clock input terminal 1, connected to external DIR5 1fs word clock output
50	VSS		Ground

* Digital Input Selector Control (H=1, L=0)

Digital Input	DIB(Pin33)	DIA(Pin32)
NONE	0	0
DVD/LD	0	1
CBL/SAT	1	0
D-TV	1	1

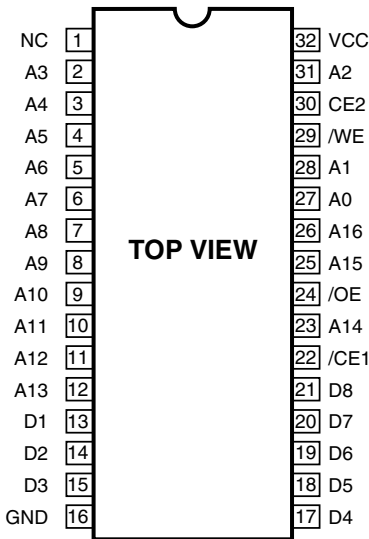
IC4 : YSS918D-F (AC3D2av)

DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder

No.	Name	I/O	Function
51	VDD2		+3V power supply
52	NONPCM	O	Non-PCM data output terminal, non-PCM data detect output
53	CRC	O	CRC output terminal (normally unconnected)
54	MUTE	O	Mute output terminal, connected to external microcomputer data mute detect input
55	KARAOKE	O	Karaoke output terminal (normally unconnected)
56	SURENC	O	Surround encoder output terminal (normally unconnected)
57	/SDBCK0	O	Inverted signal of serial data bit clock output terminal 0 (normally unconnected)
58	RAMA6	O	RAM address output terminal 6, connected to external 1M SRAM address
59	RAMA5	O	RAM address output terminal 5, connected to external 1M SRAM address
60	VSS		Ground
61	RAMA4	O	RAM address output terminal 4, connected to external 1M SRAM address
62	/IC	I	Initial clear input terminal, connected to external output port expansion IC initial clear output
63	TEST		Test terminal (normally unconnected)
64	RAMA3	O	RAM address output terminal 3, connected to external 1M SRAM address
65	/CSB	I	Chip select B input terminal, connected to external microcomputer chip enable output 2
66	/CS	I	Chip select input terminal, connected to external microcomputer chip enable output 1
67	SO	O	Serial data output terminal, connected to external microcomputer serial data input
68	SI	I	Serial data input terminal, connected to external microcomputer serial data output
69	SCK	I	Serial clock input terminal, connected to external microcomputer serial clock output
70	RAMA2	O	RAM address output terminal 2, connected to external 1M SRAM address
71	VDD1		+5V power supply
72	RAMD0	I/O	RAM data bus terminal 0, connected to external 1M SRAM data
73	RAMD1	I/O	RAM data bus terminal 1, connected to external 1M SRAM data
74	RAMD2	I/O	RAM data bus terminal 2, connected to external 1M SRAM data
75	RAMD3	I/O	RAM data bus terminal 3, connected to external 1M SRAM data
76	RAMD4	I/O	RAM data bus terminal 4, connected to external 1M SRAM data
77	RAMD5	I/O	RAM data bus terminal 5, connected to external 1M SRAM data
78	RAMD6	I/O	RAM data bus terminal 6, connected to external 1M SRAM data
79	RAMD7	I/O	RAM data bus terminal 7, connected to external 1M SRAM data
80	VSS		Ground
81	VDD2		+3V power supply
82	SDWCK0	I	Serial data word clock input terminal 0, connected to external DIR5 1fs word clock output
83	SDBCK0	I	Serial data bit clock input terminal 0, connected to external DIR5 64fs bit clock output
84	SDIA0	I	Serial data input A terminal 0, AC-3/DTS bit stream (or PCM) data input, connected to external DIR5 audio data output
85	SDIA1	I	Serial data input A terminal 1, connected to external CODEC audio data output
86	RAMA1	O	RAM address output terminal 1, connected to external 1M SRAM address
87	RAMA0	O	RAM address output terminal 0, connected to external 1M SRAM address
88	RAMWEN	O	RAM write enable output terminal, connected to external 1M SRAM write enable
89	RAMOEN	O	RAM output enable output terminal, connected to external 1M SRAM output enable
90	VSS		Ground
91	VDD		+3V power supply
92	IPOINT7	I	Input expansion port terminal 7, DVD coaxial/optical select
93	IPOINT6	I	Input expansion port terminal 6, DBS coaxial/optical select
94	IPOINT5	I	Input expansion port terminal 5 (normally connected to ground)
95	IPOINT4	I	Input expansion port terminal 4, digital sampling frequency select (H:96kHz, L:Non 96kHz)
96	IPOINT3	I	Input expansion port terminal 3, Front mix select (H: Outside, L: Inside)
97	IPOINT2	I	Input expansion port terminal 2, RF select (H: Exist, L:None)
98	IPOINT1	I	Input expansion port terminal 1, DTS select (H: DTS (YSS918), L: Non DTS (YSS908))
99	IPOINT0	I	Input expansion port terminal 0, SRAM select (H: 1M, L: 256k)
100	VSS		Ground

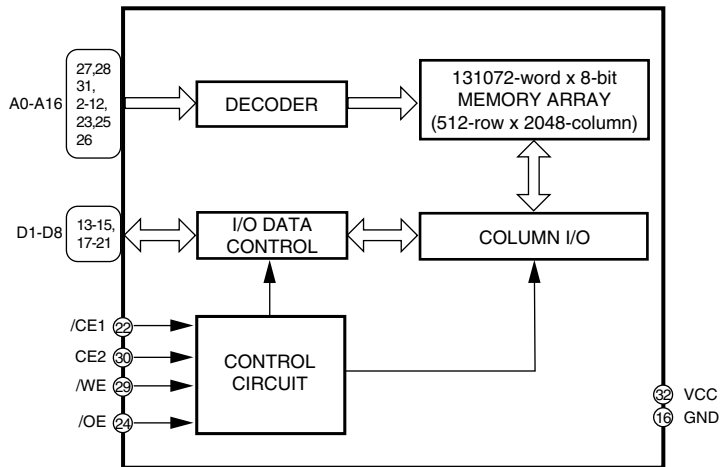
IC5 : IS61C1024-20J (1M SRAM)

131072-word x 8-bit High Speed Static RAM



NOTE)

- A0-A16: Address input
- D1-D8: Data input/output
- /CE1,CE2: Chip enable input 1,2
- /OE: Output enable input
- /WE: Write enable input

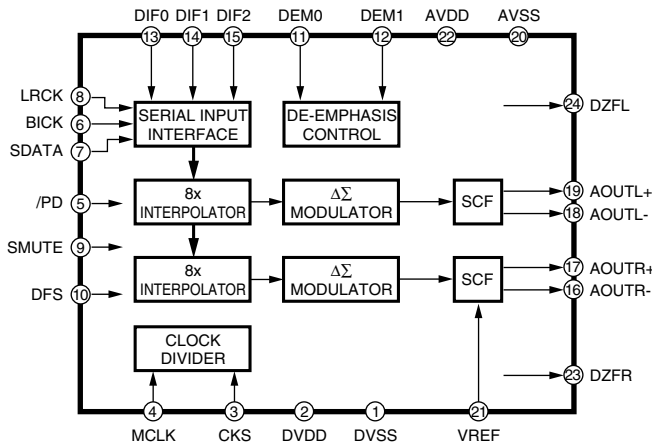
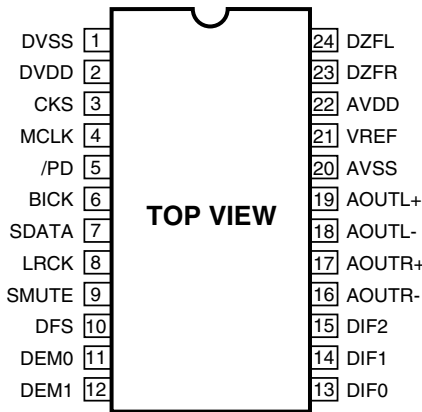


Mode	/WE	/CE1	/CE2	/OE	Data I/O	Power
Not Selected (Power-down)	X	H	X	X	High impedance	Standby
	X	X	L	X	High impedance	On
Output Disabled	H	L	H	H	High impedance	On
Read	H	L	H	L	Output	On
Write	L	L	H	X	Input	On

NOTE) H: High Level L: Low level X: Don't care

IC7 : AK4324-VF-E2 (DAC)

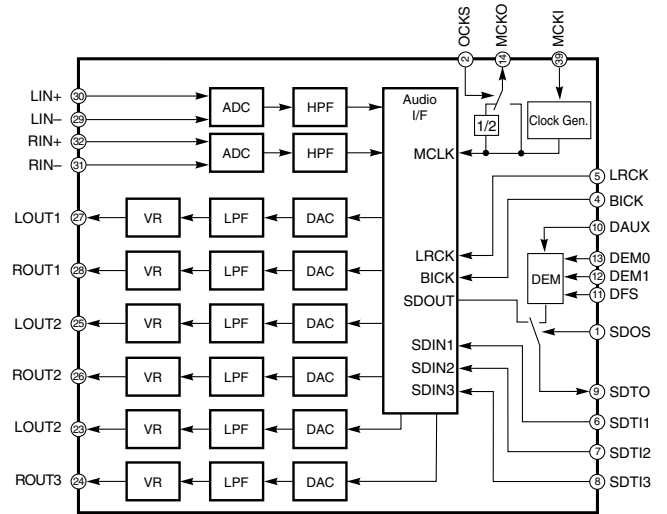
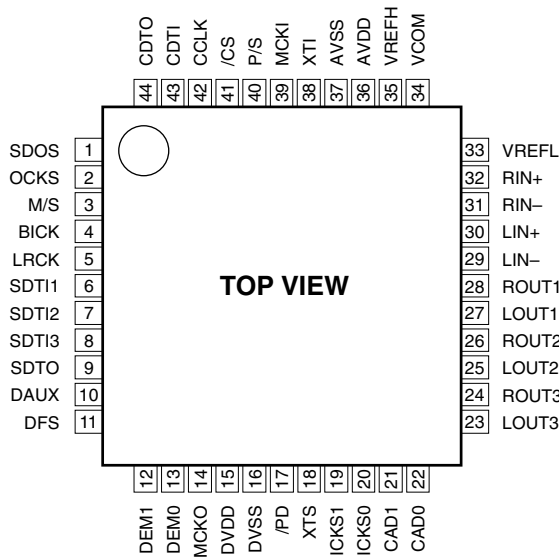
1-bit D/A Converter



Pin No.	Pin Name	I/O	Function
1	DVSS		Ground (digital)
2	DVDD		Power supply (digital)
3	CKS	I	Master clock (MCLK) select input (Fixed L) Normal speed (L:256fs, H:384fs) High speed (L:128fs, H:192fs)
4	MCLK	I	256fs bit clock input from DIR5
5	/PD	I	Power-down and reset, initial clear input from AC3D2av (L:Reset)
6	BICK	I	64fs bit clock input from DIR5
7	SDATA	I	Serial data input from AC3D2av
8	LRCK	I	1fs word clock input from DIR5
9	SMUTE	I	Soft mute detect input (H:Soft mute, L:off)
10	DFS	I	Double speed sampling mode select input from DIR5 (L:Normal speed, H:High speed)

Pin No.	Pin Name	I/O	Function
11	DEM0	I	De-emphasis frequency select input 0 (Fixed H)
12	DEM1	I	De-emphasis frequency select input 1 (Fixed L)
13	DIF0	I	Digital input format input 0 (Fixed L)
14	DIF1	I	Digital input format input 1 (Fixed H)
15	DIF2	I	Digital input format input 2 (Fixed L)
16	AOUTR-	O	Rch negative analog output
17	AOUTR+	O	Rch positive analog output
18	AOUTL-	O	Lch negative analog output
19	AOUTL+	O	Lch positive analog output
20	AVSS		Ground (analog)
21	VREF	I	Reference voltage input
22	AVDD		Power supply (analog)
23	DZFR	O	Rch zero input detect output
24	DZFL	O	Lch zero input detect output

IC6 : AK4526A-VQ (CODEC. ADC/DAC)
20-bit 6-channel A/D, D/A Converter

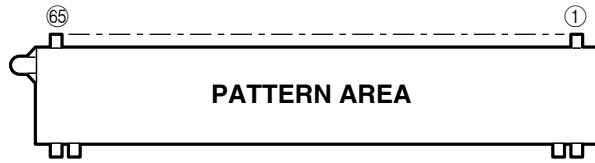


Pin No.	Pin Name	I/O	Function
1	SDOS	I	Fixed L
2	OCKS	I	Fixed L
3	M/S	I	Fixed L
4	BICK	I	Audio serial data clock, 64fs bit clock input from microcomputer
5	LRCK	I	L/R channel clock, 1fs word clock input from microcomputer
6	SDT11	I	DAC Audio serial data input 1-3, PCM input from AC3D2av
7	SDT12	I	
8	SDT13	I	
9	SDTO	O	Audio serial data output, audio data for AC3D2av
10	DAUX	I	Fixed L
11	DFS	I	Double speed sampling mode selection data input from DIR5
12	DEM1	I	De-emphasis frequency select input 1 (Fixed L)
13	DEM0	I	De-emphasis frequency select input 0 (Fixed L)
14	MCKO	O	Unconnected
15	DVDD		Power supply (digital)
16	DVSS		Ground (digital)
17	/PD	I	Power-down and reset, initial clear input from AC3D2av
18	XTS	I	Connected to ground (analog)
19	ICKS1	I	Connected to ground (analog)
20	ICKS0	I	Connected to ground (analog)
21	CAD1	I	Connected to ground (analog)
22	CAD0	I	Connected to ground (analog)

Pin No.	Pin Name	I/O	Function
23	LOUT3	O	Lch analog output 3, for CENTER
24	ROUT3	O	Rch analog output 3, for LFE
25	LOUT2	O	Lch analog output 2, for REAR
26	ROUT2	O	Rch analog output 2, for REAR
27	LOUT1	O	Lch analog output 1, for FRONT
28	ROUT1	O	Rch analog output 1, for FRONT
29	LIN-	I	Lch negative analog input, from MAIN
30	LIN+	I	Lch positive analog input, from MAIN
31	RIN-	I	Rch negative analog input, from MAIN
32	RIN+	I	Rch positive analog input, from MAIN
33	VREFL	I	Reference voltage (Low) input (analog)
34	VCOM	O	Common voltage output
35	VREFH	I	Reference voltage (High) input (analog)
36	AVDD		Power supply (analog)
37	AVSS		Ground (analog)
38	XTI		Unconnected
39	MCKI	I	External master clock input, 256fs bit clock input from DIR5
40	P/S	I	Fixed L
41	/CS	I	Chip select in serial mode, chip enable from microcomputer
42	CCLK	I	Control data clock in serial mode, serial clock from microcomputer
43	CDTI	I	Control data input in serial mode, serial data from microcomputer
44	CDTO	O	Unconnected

■ DISPLAY DATA

● V501 : 16-BT-71GK (V4193300)

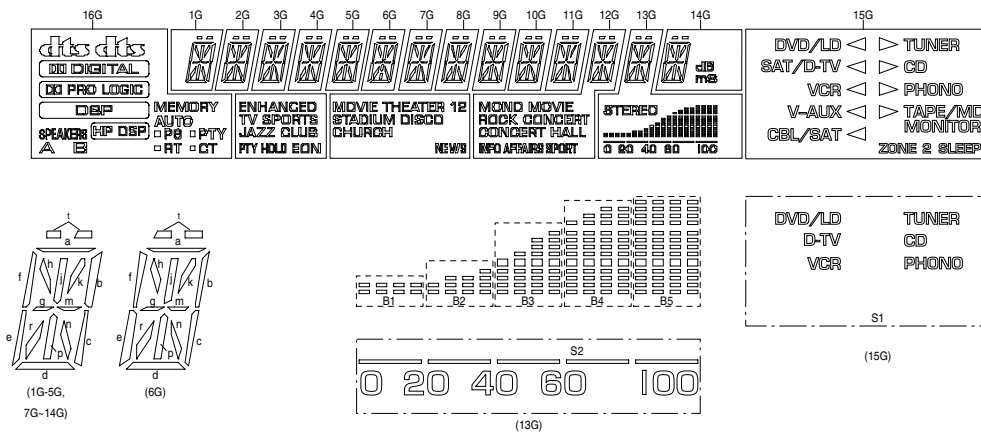


• PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CONNECTION	F1	F1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	Fd	Fd	NP	NP	P22	P21	P20	P19
Pin No.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
CONNECTION	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	16G	15G	14G	13G	12G
Pin No.	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65										
CONNECTION	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2										

- NOTE**
- 1) F1, F2..... Filament
 - 2) NP..... No pin
 - 3) P1~P22 Segment
 - 4) 1G~16G..... Grid
 - 5) Fd terminals are to be supplied through 51kΩ from Ec.
 - 6) Field of vision is a minimum of 23° from the lower side.

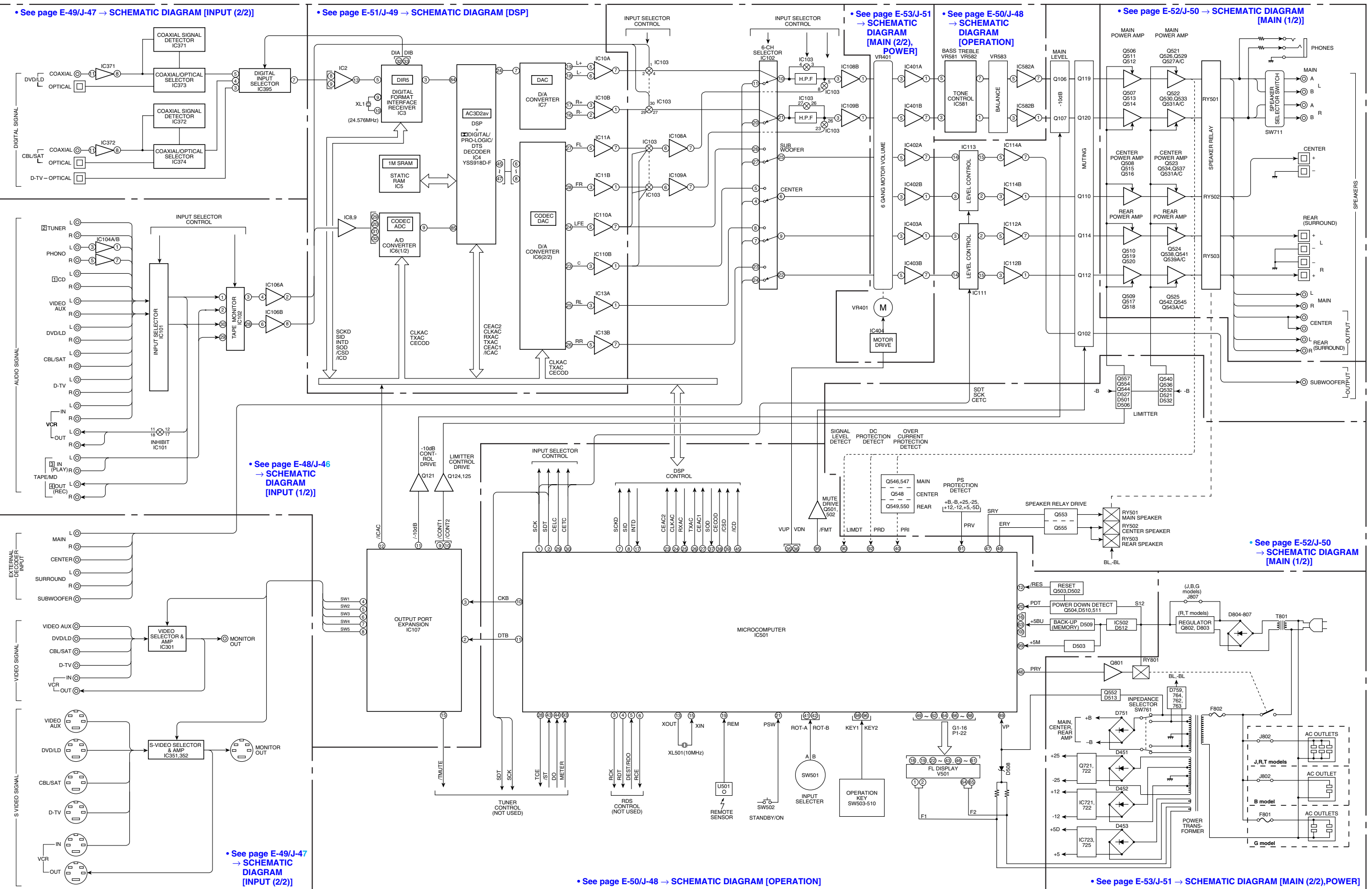
• GRID ASSIGNMENT



• ANODE CONNECTION

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	cts (LEFT)	(TUNER)	a	a	a	a	a	a	a	a	a	a	a	a	a	a
P2	(RIGHT) cts	(CD)	b	b	b	b	b	b	b	b	b	b	b	b	b	b
P3	DIGITAL	(PHONO)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
P4	PRO LOGIC	(TAPE/MD)	d	d	d	d	d	d	d	d	d	d	d	d	d	d
P5	DBP	(CBL/SAT)	e	e	e	e	e	e	e	e	e	e	e	e	e	e
P6	HP DSP	(V-AUX)	f	f	f	f	f	f	f	f	f	f	f	f	f	f
P7	SPEAKERS	(VCR)	g	g	g	g	g	g	g	g	g	g	g	g	g	g
P8	A	(SAT/D-TV)	h	h	h	h	h	h	h	h	h	h	h	h	h	h
P9	B	(DVD/LD)	j	j	j	j	j	j	j	j	j	j	j	j	j	j
P10	MEMORY	S1	k	k	k	k	k	k	k	k	k	k	k	k	k	k
P11	AUTO	SAT/	m	m	m	m	m	m	m	m	m	m	m	m	m	m
P12	(PS)	V-AUX	n	n	n	n	n	n	n	n	n	n	n	n	n	n
P13	PS	CBL/SAT	p	p	p	p	p	p	p	p	p	p	p	p	p	p
P14	(PTY)	TAPE/MD	r	r	r	r	r	r	r	r	r	r	r	r	r	r
P15	PTY	MONITOR	t	t	t	t	t	t	t	t	t	t	t	t	t	t
P16	(RT)	ZONE 2	dB	STEREO	MONO	MOVIE	MOVIE	THEATER	ENHANCED	-	-	-	-	-	-	-
P17	RT	SLEEP	ms	B1	ROCK	CONCERT	CONCERT	HALL	1	TV	SPORTS	-	-	-	-	-
P18	(CT)	-	-	B2	CONCERT	HALL	2	JAZZ	CLUB	-	-	-	-	-	-	-
P19	CT	-	-	B3	INFO	STADIUM	PTY	HOLD	EON	-	-	-	-	-	-	-
P20	-	-	-	B4	AFFAIRS	DISCO	CHURCH	NEWS	-	-	-	-	-	-	-	-
P21	-	-	-	B5	SPORT	CHURCH	NEWS	-	-	-	-	-	-	-	-	-
P22	-	-	-	S2	-	NEWS	-	-	-	-	-	-	-	-	-	-

BLOCK DIAGRAM



• See page E-49/J-47 → SCHEMATIC DIAGRAM [INPUT (2/2)]

• See page E-51/J-49 → SCHEMATIC DIAGRAM [DSP]

• See page E-53/J-51 → SCHEMATIC DIAGRAM [MAIN (2/2), POWER]

• See page E-50/J-48 → SCHEMATIC DIAGRAM [OPERATION]

• See page E-52/J-50 → SCHEMATIC DIAGRAM [MAIN (1/2)]

• See page E-48/J-46 → SCHEMATIC DIAGRAM [INPUT (1/2)]

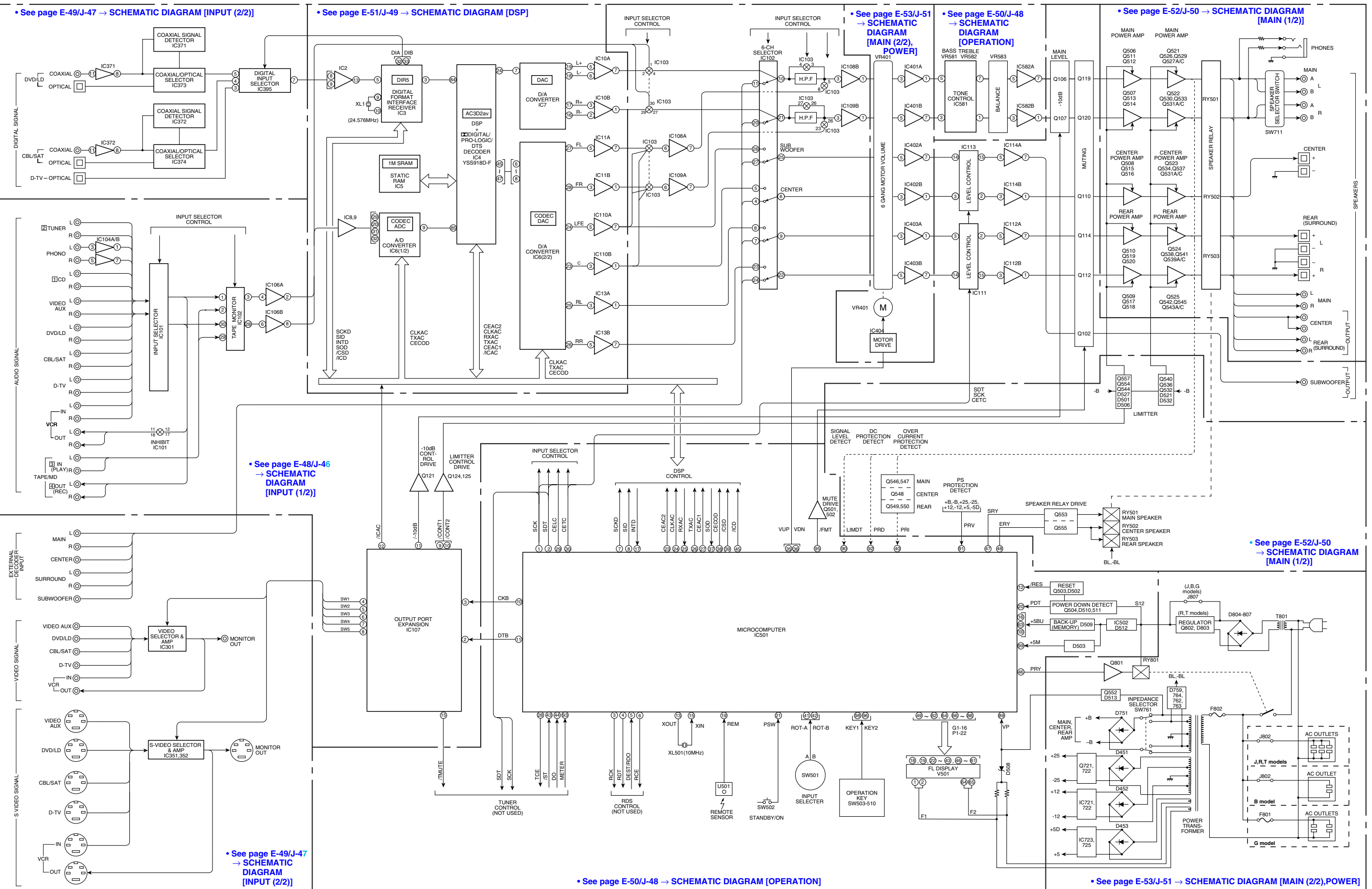
• See page E-52/J-50 → SCHEMATIC DIAGRAM [MAIN (1/2)]

• See page E-49/J-47 → SCHEMATIC DIAGRAM [INPUT (2/2)]

• See page E-50/J-48 → SCHEMATIC DIAGRAM [OPERATION]

• See page E-53/J-51 → SCHEMATIC DIAGRAM [MAIN (2/2), POWER]

BLOCK DIAGRAM



• See page E-49/J-47 → SCHEMATIC DIAGRAM [INPUT (2/2)]

• See page E-51/J-49 → SCHEMATIC DIAGRAM [DSP]

• See page E-53/J-51 → SCHEMATIC DIAGRAM [MAIN (2/2), POWER]

• See page E-50/J-48 → SCHEMATIC DIAGRAM [OPERATION]

• See page E-52/J-50 → SCHEMATIC DIAGRAM [MAIN (1/2)]

• See page E-48/J-46 → SCHEMATIC DIAGRAM [INPUT (1/2)]

• See page E-52/J-50 → SCHEMATIC DIAGRAM [MAIN (1/2)]

• See page E-49/J-47 → SCHEMATIC DIAGRAM [INPUT (2/2)]

• See page E-50/J-48 → SCHEMATIC DIAGRAM [OPERATION]

• See page E-53/J-51 → SCHEMATIC DIAGRAM [MAIN (2/2), POWER]

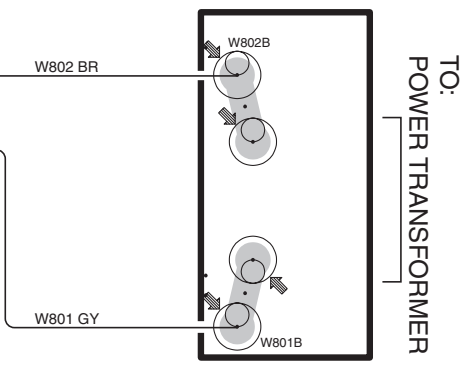
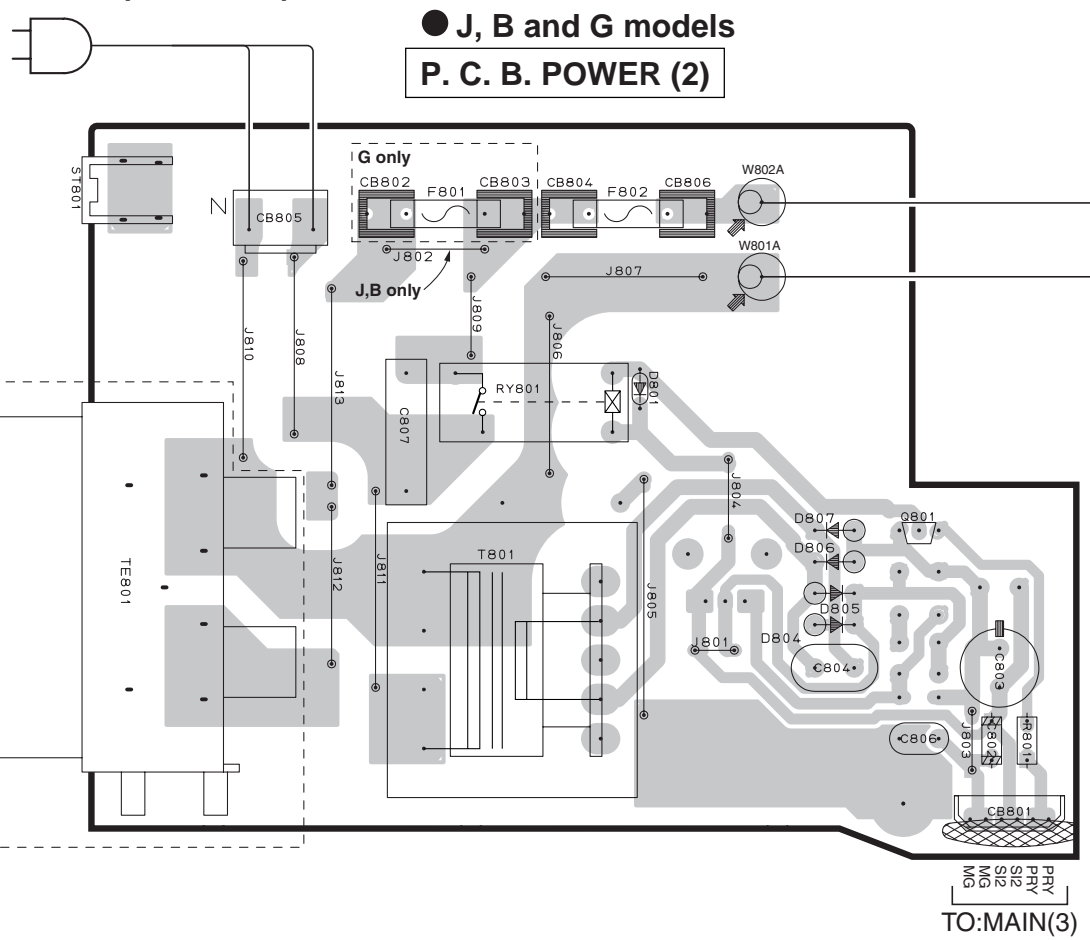
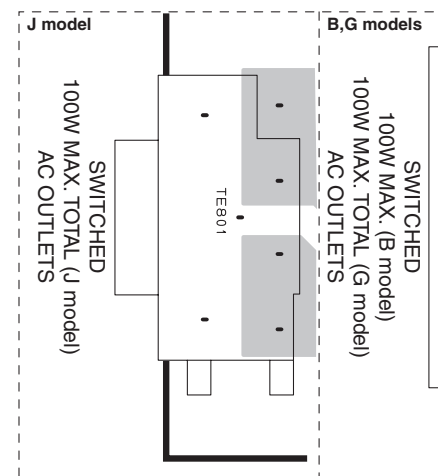
■ PRINTED CIRCUIT BOARD (Foil side)

● Semiconductor Location J,B,G models

Ref. No.	Location
D801	D2
D804	D3
D805	D3
D806	D2
D807	D2
Q801	D2

● J, B and G models
P. C. B. POWER (2)

● J, B and G models only
P. C. B. POWER (7)



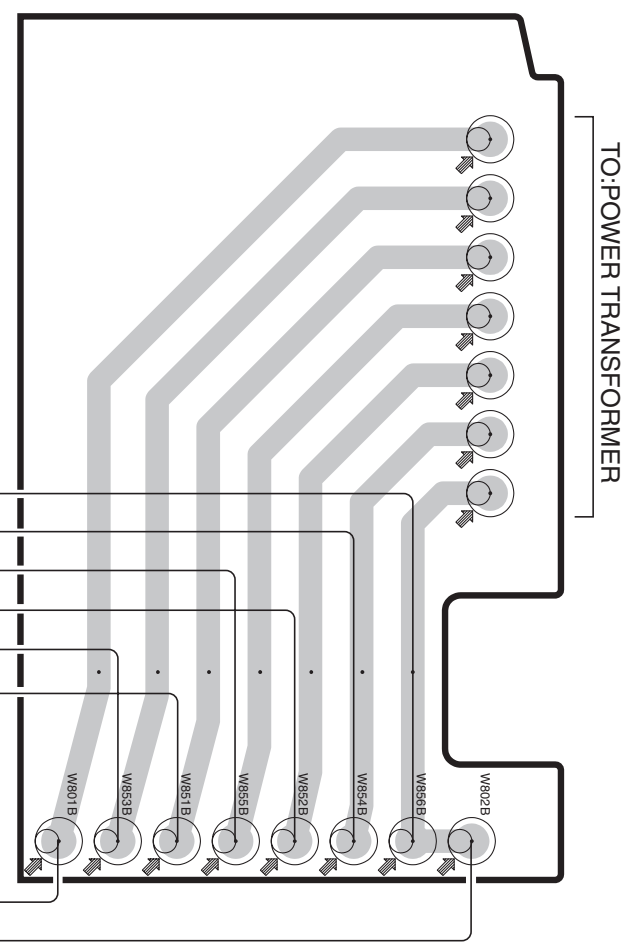
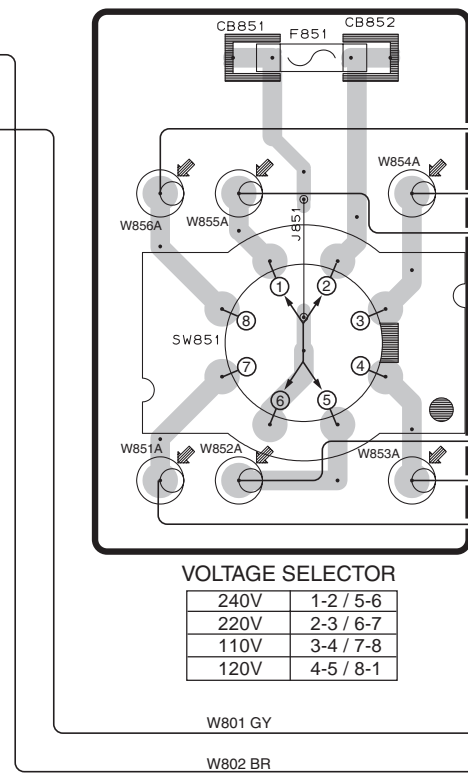
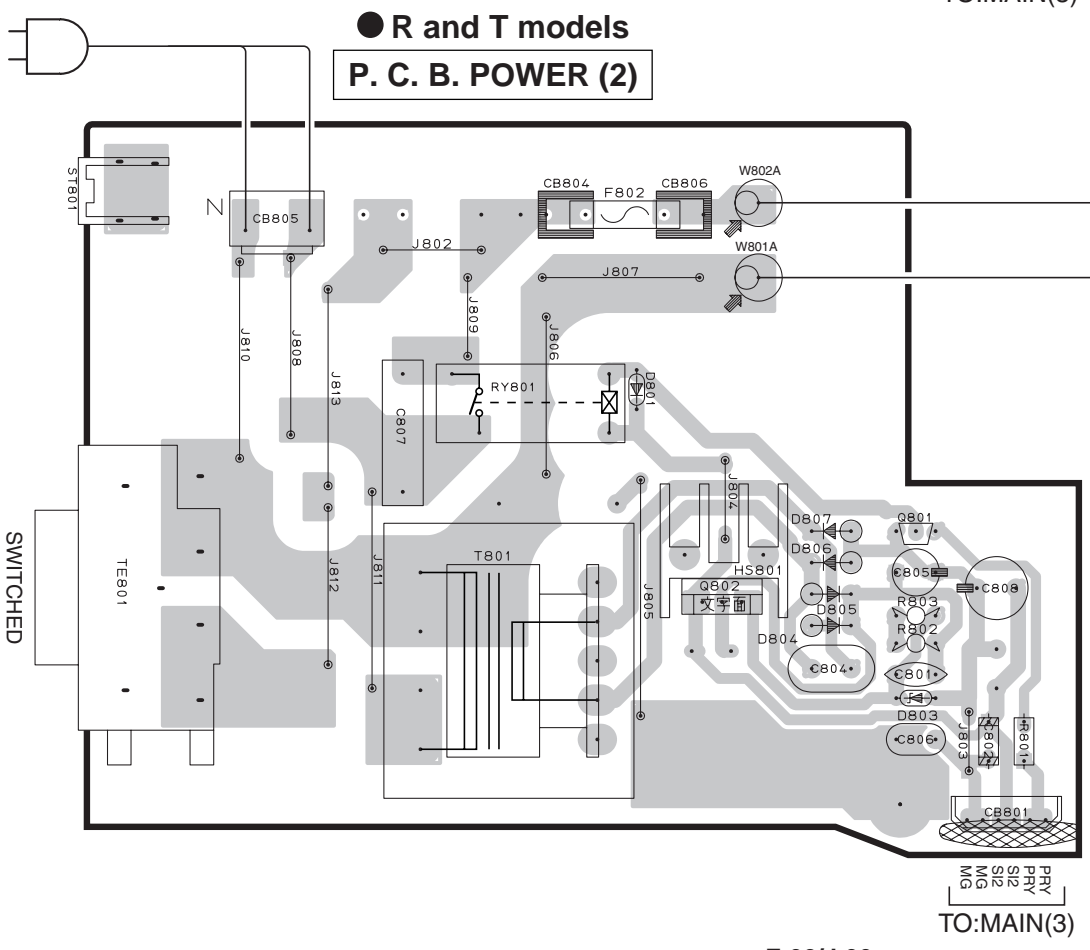
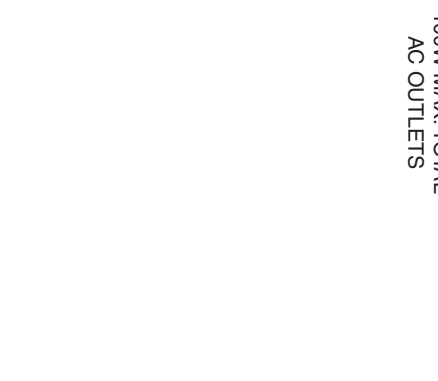
● R and T models only
P. C. B. POWER (4)

● Semiconductor Location R,T models

Ref. No.	Location
D801	D4
D803	D5
D804	D5
D805	D5
D806	D5
D807	D5
Q801	D5
Q802	D5

● R and T models
P. C. B. POWER (2)

● R and T models only
P. C. B. POWER (6)

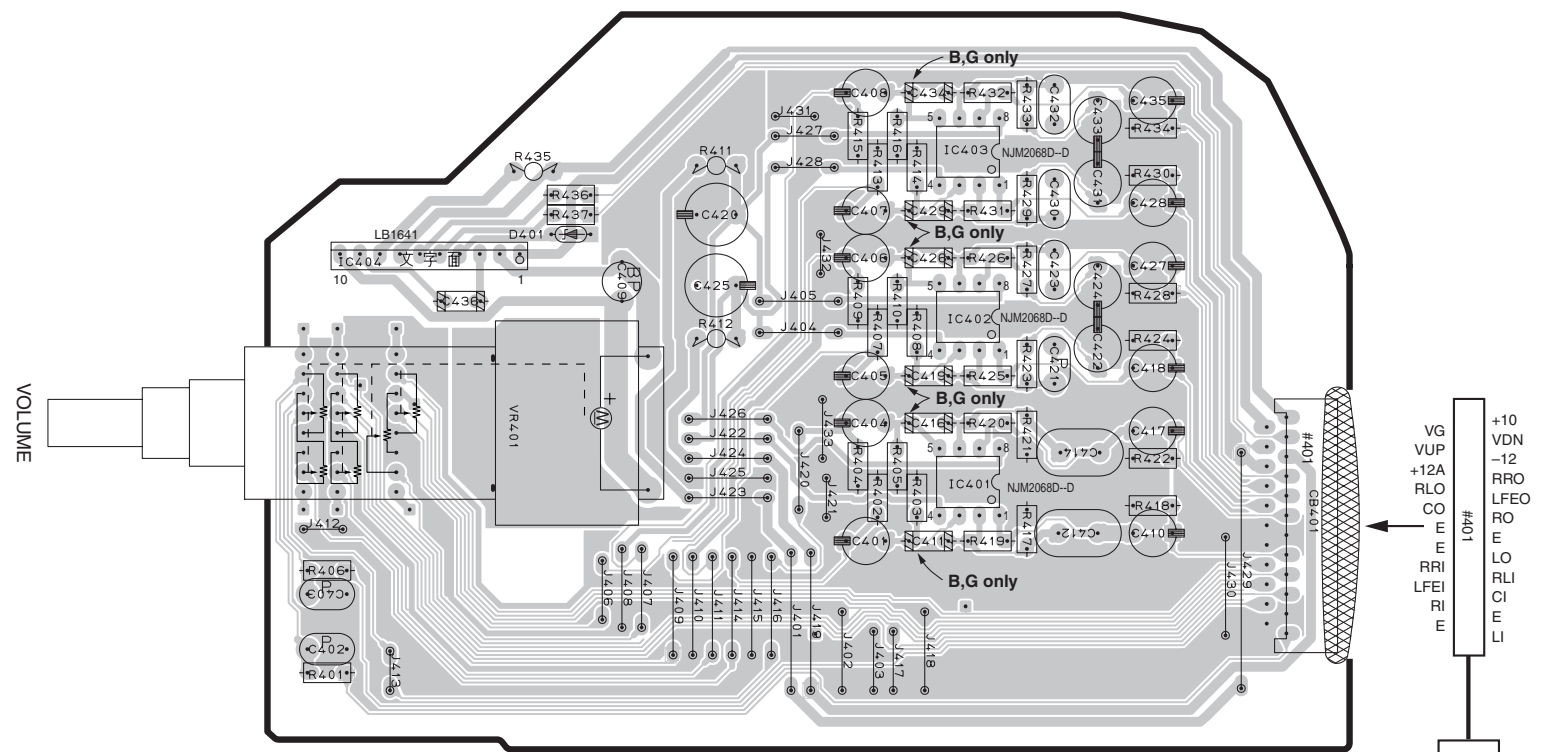


PRINTED CIRCUIT BOARD (Foil side)

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D401	E2	IC401	F2	Q721	E5
D451	B3	IC402	F2	Q722	D5
D452	B4	IC403	F2		
D453	B5	IC404	D2		
D721	E5	IC721	E5		
D722	E5	IC722	F5		
		IC723	E5		
		IC724	E5		
		IC725	D5		

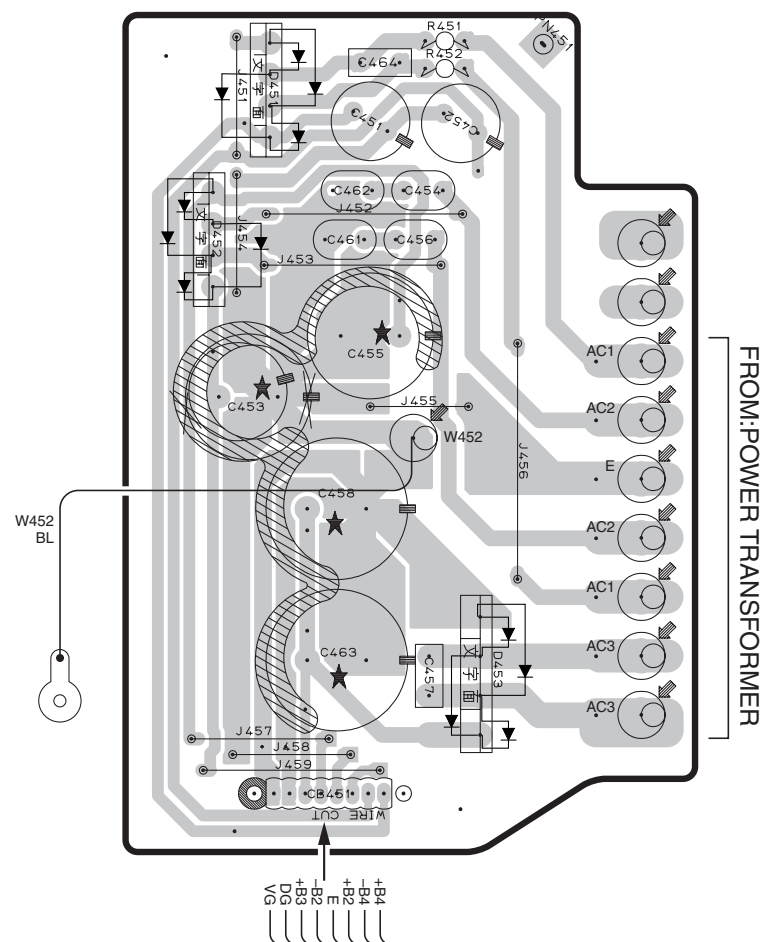
P. C. B. POWER (1)



TO: INPUT (1)

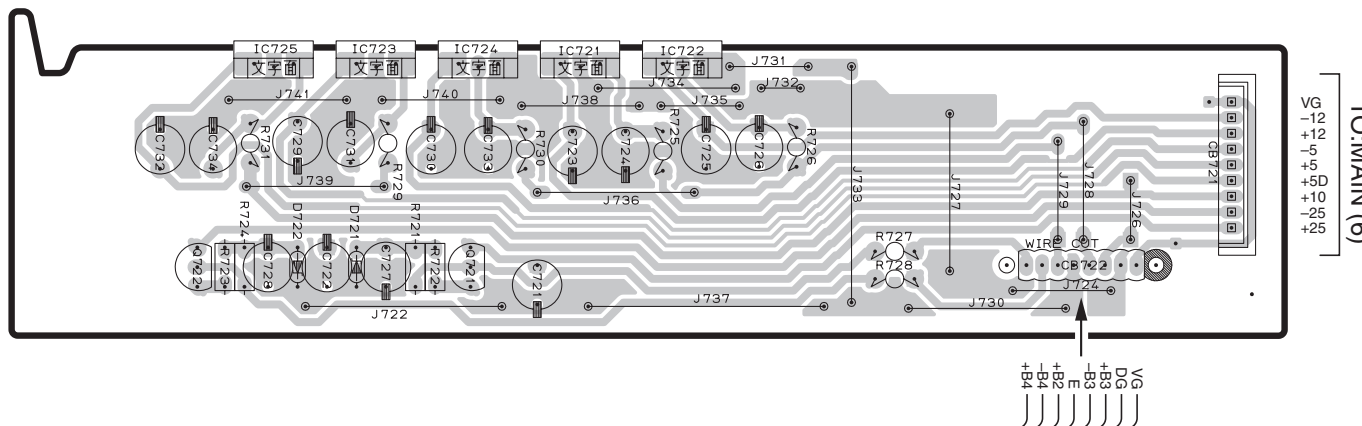
+10 VGN
 -12 VUP
 RLO
 CO
 E
 RRI
 LFEI
 RI
 E

P. C. B. POWER (5)



FROM: POWER TRANSFORMER

P. C. B. POWER (3)



TO: MAIN (6)

+5
 +12
 +9
 +5
 +10
 +5
 +12
 +5

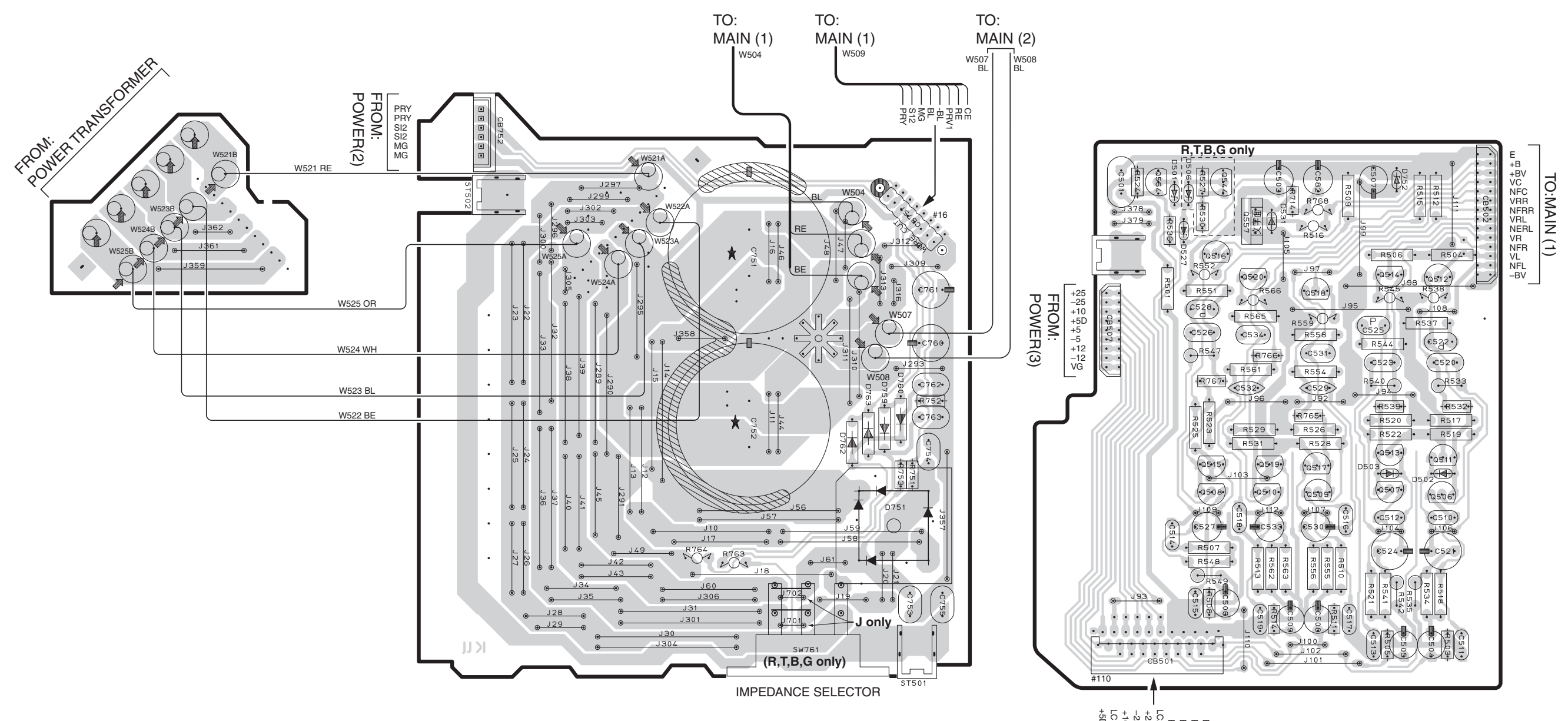
W451

PRINTED CIRCUIT BOARD (Foil side)

P. C. B. MAIN (4)

P. C. B. MAIN (3)

P. C. B. MAIN (6)



Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D501	F2	Q506	G3	Q518	G2
D502	G3	Q507	G3	Q519	F3
D503	G3	Q508	F3	Q520	F2
D506	F2	Q509	G3	Q544	F2
D527	F2	Q510	F3	Q554	F2
D531	F2	Q511	G3	Q557	F2
D751	E3	Q512	G2		
D752	G2	Q513	G3		
D759	E3	Q514	G2		
D760	E3	Q515	F3		
D762	E3	Q516	F4		
D763	E3	Q517	G3		

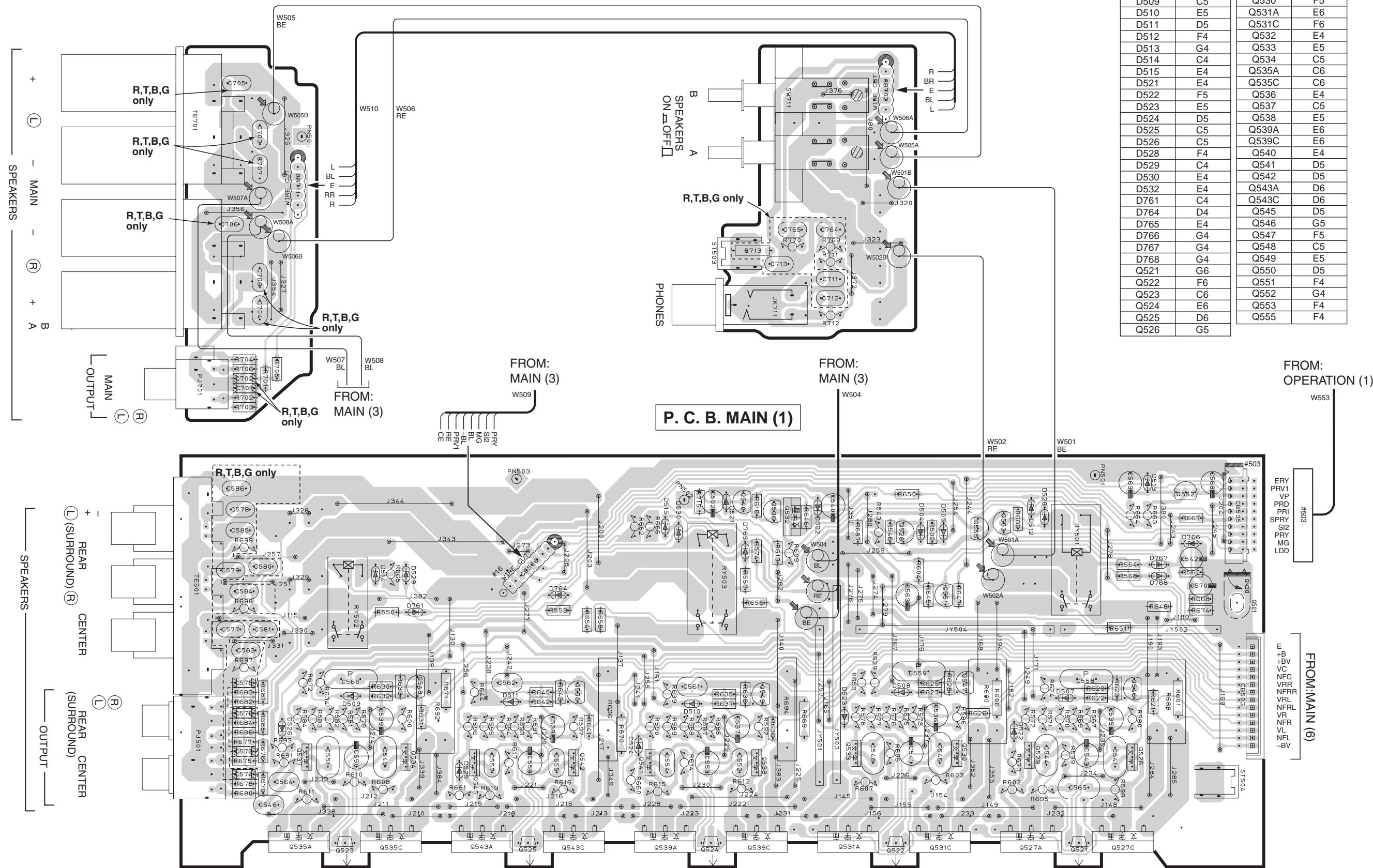
PRINTED CIRCUIT BOARD (Foil side)

P. C. B. MAIN (2)

P. C. B. MAIN (5)

Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D504	F4	Q527A	F6
D505	F4	Q527C	G6
D507	G5	Q528	F4
D508	F5	Q529	F5
D509	C5	Q530	F5
D510	E5	Q531A	E6
D511	D5	Q531C	F6
D512	F4	Q532	E4
D513	G4	Q533	E5
D514	C4	Q534	C5
D515	E4	Q535A	C6
D521	E4	Q535C	C6
D522	F5	Q536	E4
D523	E5	Q537	C5
D524	D5	Q538	E5
D525	C5	Q539A	E6
D526	C5	Q539C	E6
D528	F4	Q540	E4
D529	C4	Q541	D5
D530	E4	Q542	D5
D532	E4	Q543A	D6
D761	C4	Q543C	D6
D764	D4	Q545	D5
D765	E4	Q546	G5
D766	G4	Q547	F5
D767	G4	Q548	C5
D768	G4	Q549	E5
Q521	G6	Q550	D5
Q522	F6	Q551	F4
Q523	C6	Q552	G4
Q524	E6	Q553	F4
Q525	D6	Q555	F4
Q526	G5		



PRINTED CIRCUIT BOARD (Foil side)

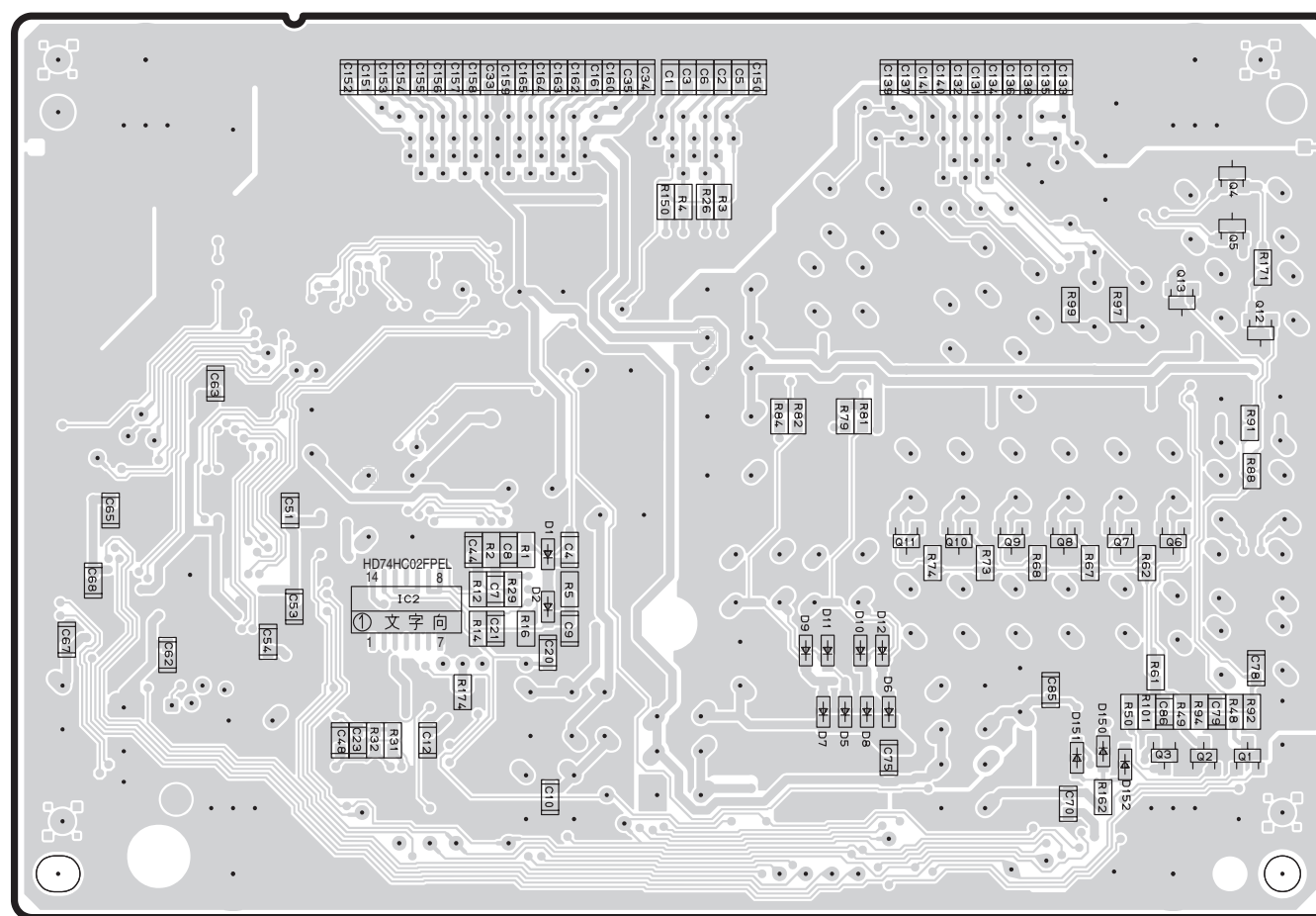
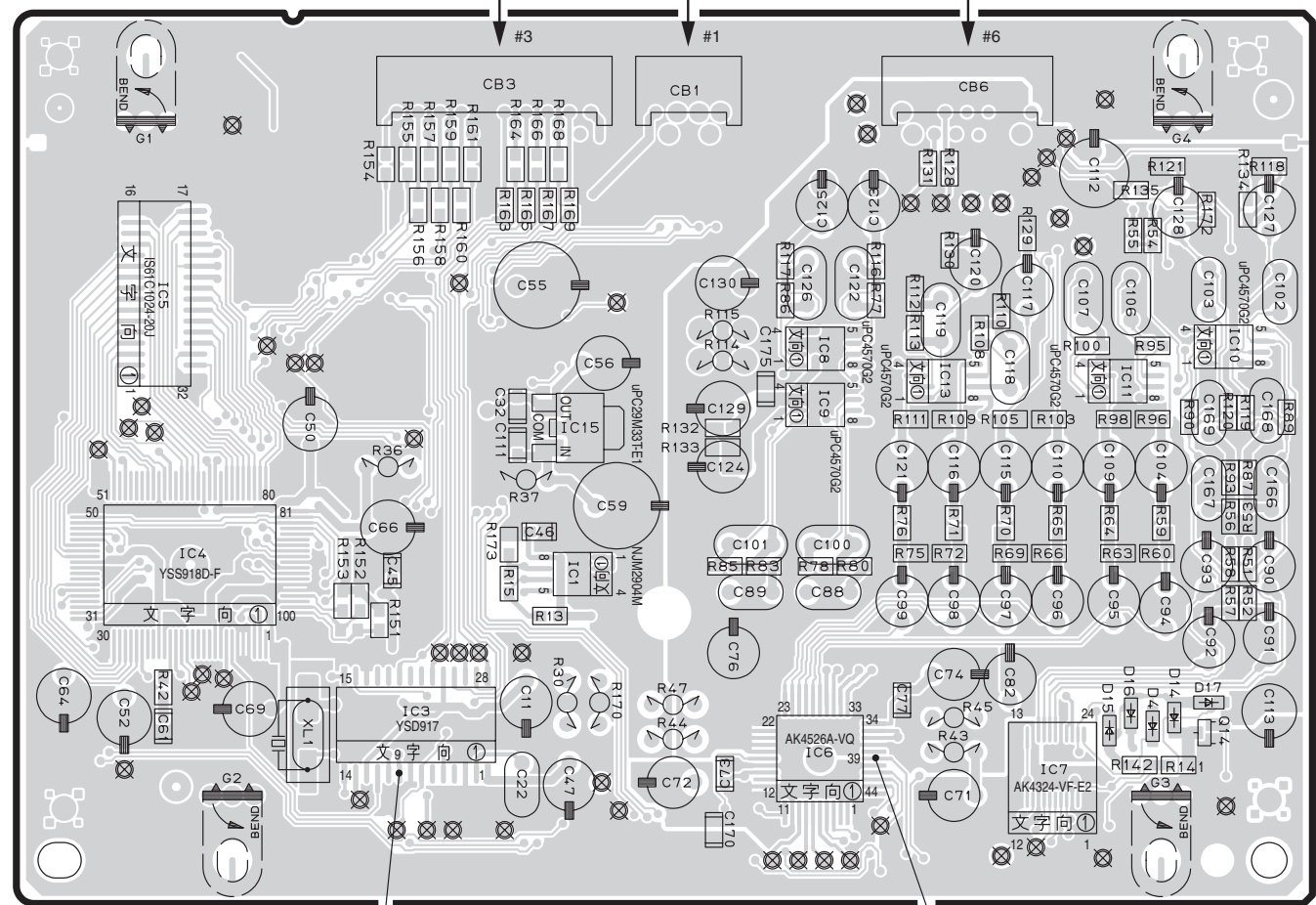
P. C. B. DSP

P. C. B. DSP

TO: INPUT (1)

TO: INPUT (4)

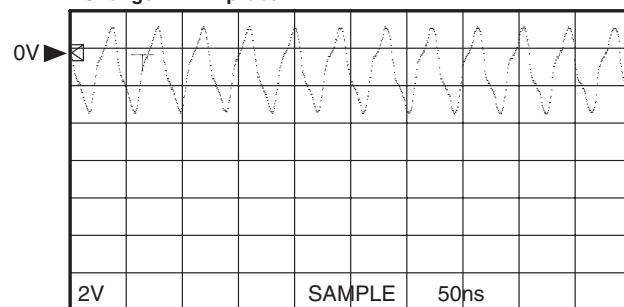
TO: INPUT (1)



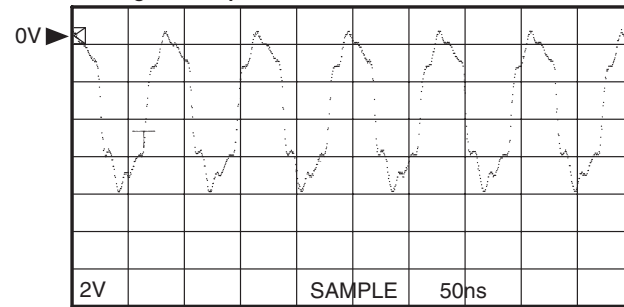
● Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	F3	IC1	B3	Q1	H4
D2	F3	IC2	F3	Q2	H4
D4	D4	IC3	B4	Q3	H4
D5	G4	IC4	A3	Q4	H2
D6	G4	IC5	A3	Q5	H3
D7	G4	IC6	C4	Q6	H3
D8	G4	IC7	D4	Q7	H3
D9	G4	IC8	C3	Q8	G3
D10	G4	IC9	C3	Q9	G3
D11	G4	IC10	D3	Q10	G3
D12	G4	IC11	D3	Q11	G3
D14	D4	IC13	C3	Q12	H3
D15	D4	IC15	B3	Q13	H3
D16	D4			Q14	D4
D17	D4				
D150	H4				
D151	G4				
D152	H4				

Point ⑤
Pin 9 of IC3
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe



Point ⑥
Pin 39 of IC6
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe

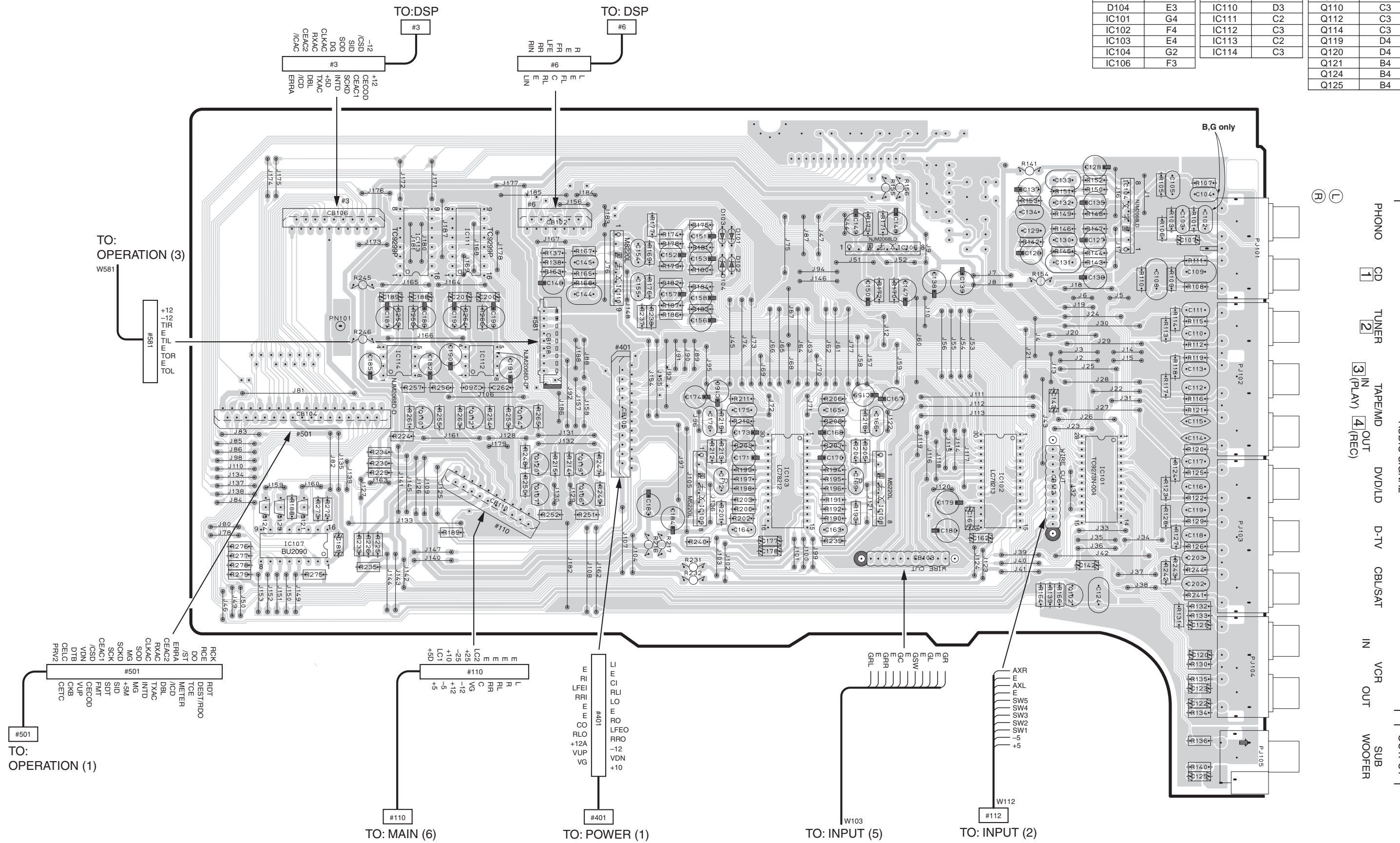


PRINTED CIRCUIT BOARD (Foil side)

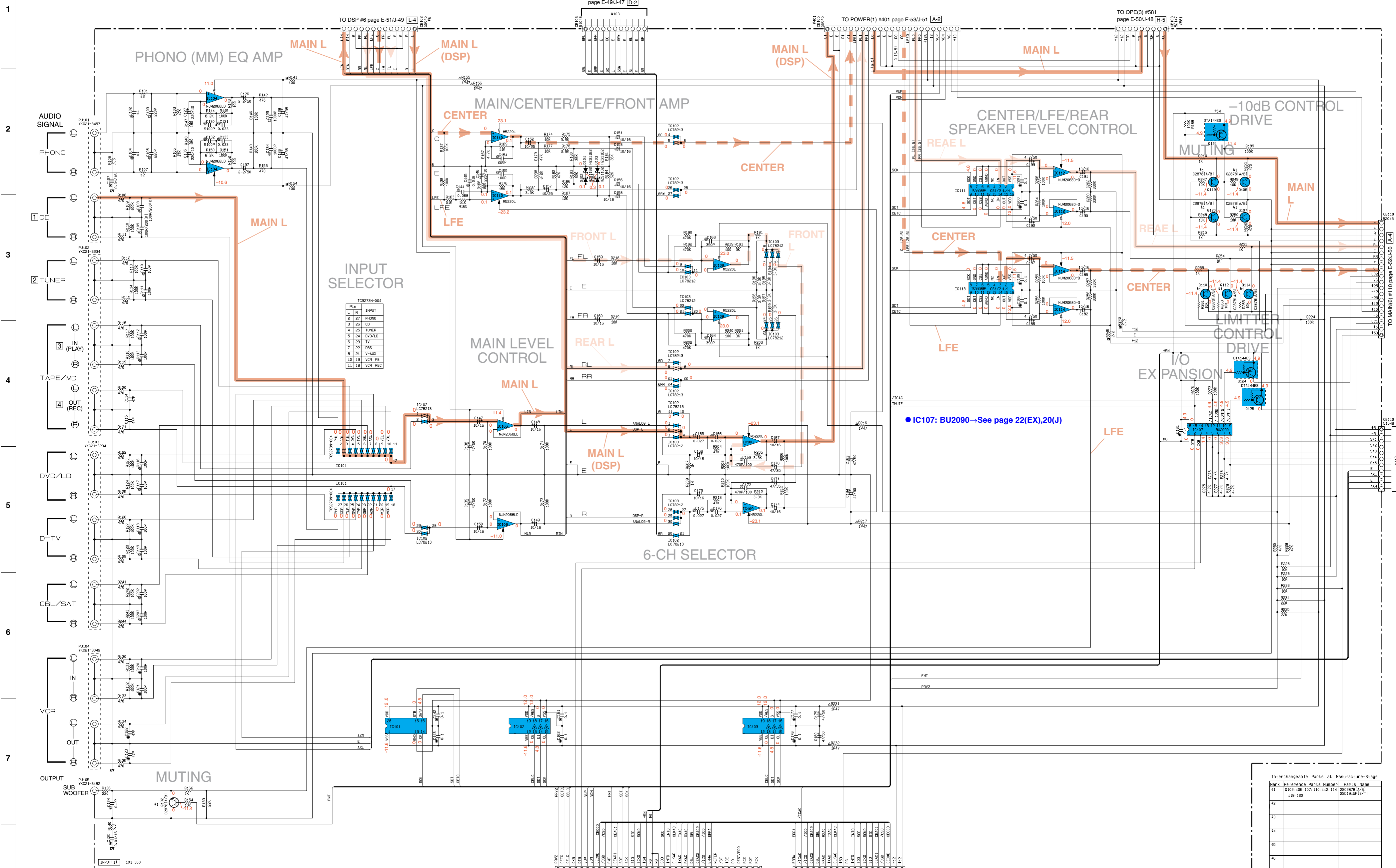
P. C. B. INPUT (1)

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	E2	IC107	B4	Q102	F4
D102	E3	IC108	E4	Q106	D4
D103	E2	IC109	D4	Q107	D4
D104	E3	IC110	D3	Q110	C3
IC101	G4	IC111	C2	Q112	C3
IC102	F4	IC112	C3	Q114	C3
IC103	E4	IC113	C2	Q119	D4
IC104	G2	IC114	C3	Q120	D4
IC106	F3			Q121	B4
				Q124	B4
				Q125	B4



SCHEMATIC DIAGRAM [INPUT (1/2)]



IC107: BU2090 → See page 22(EX),20(J)

NOTICE (made1)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (P)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (E)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

RESISTOR	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
△	CARBON FILM RESISTOR (P=10)
□	METAL OXIDE FILM RESISTOR
△	METAL FILM RESISTOR
□	METAL PLATE RESISTOR
○	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
□	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊗	CERAMIC TUBULAR CAPACITOR
○	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
○	MICA CAPACITOR
○	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

S	J-R-T	B-G
1	C100-104	X 1000 UMR510
2	R101-107	47 MF49447 1W49622

X: NOT USED

IC BLOCK → See page E-49/J-47
 PIN CONNECTION DIAGRAM → See page E-49/J-47

Conditions (DSP-A5)
 • INPUT → CD
 • VOLUME → minimum(∞)
 • IMPEDANCE
 • SELECTOR → Left
 • PRO LOGIC → On

* All voltages are measured with a 10MΩ/V DC electric volt meter.
 * Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM [INPUT (2/2)]

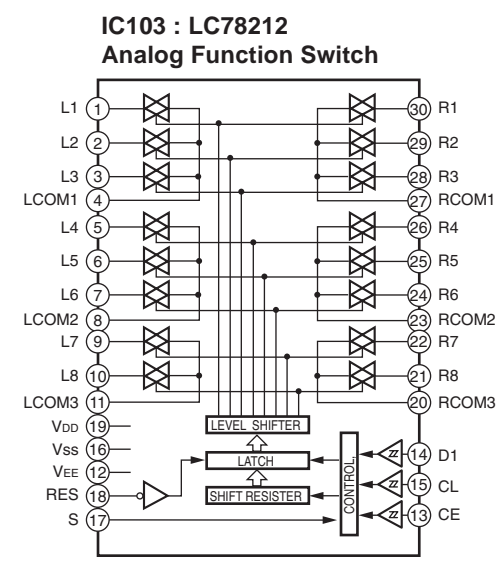
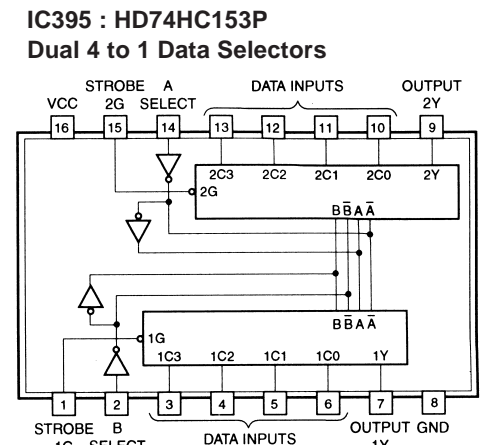
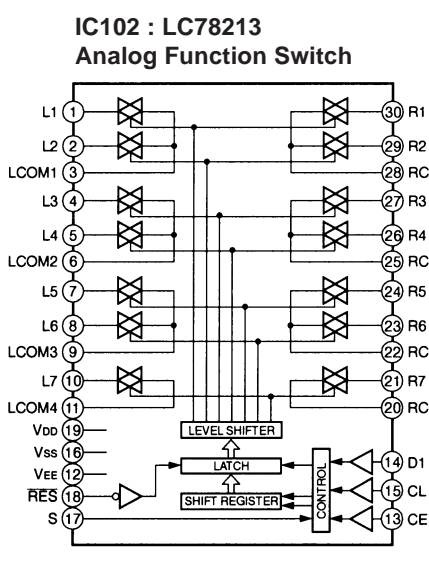
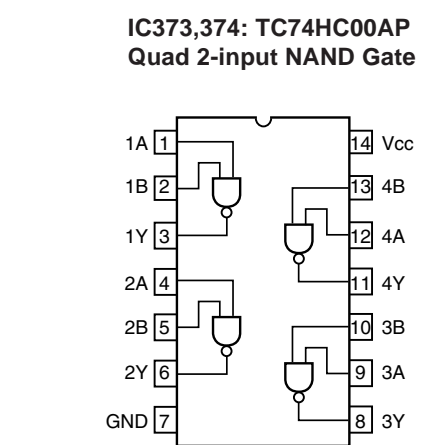
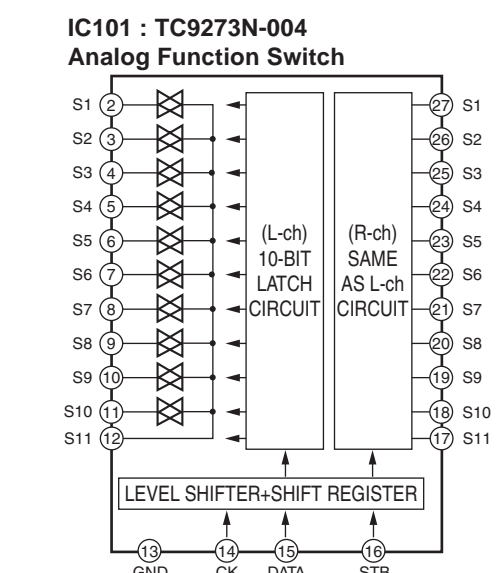
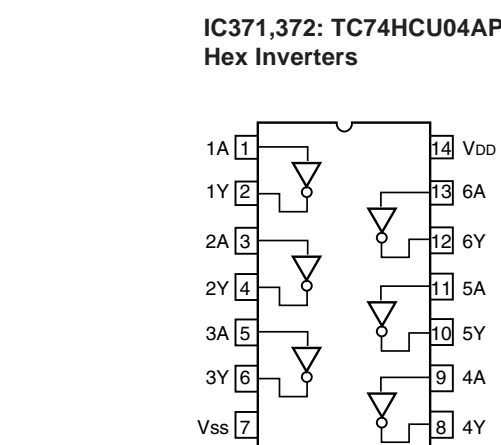
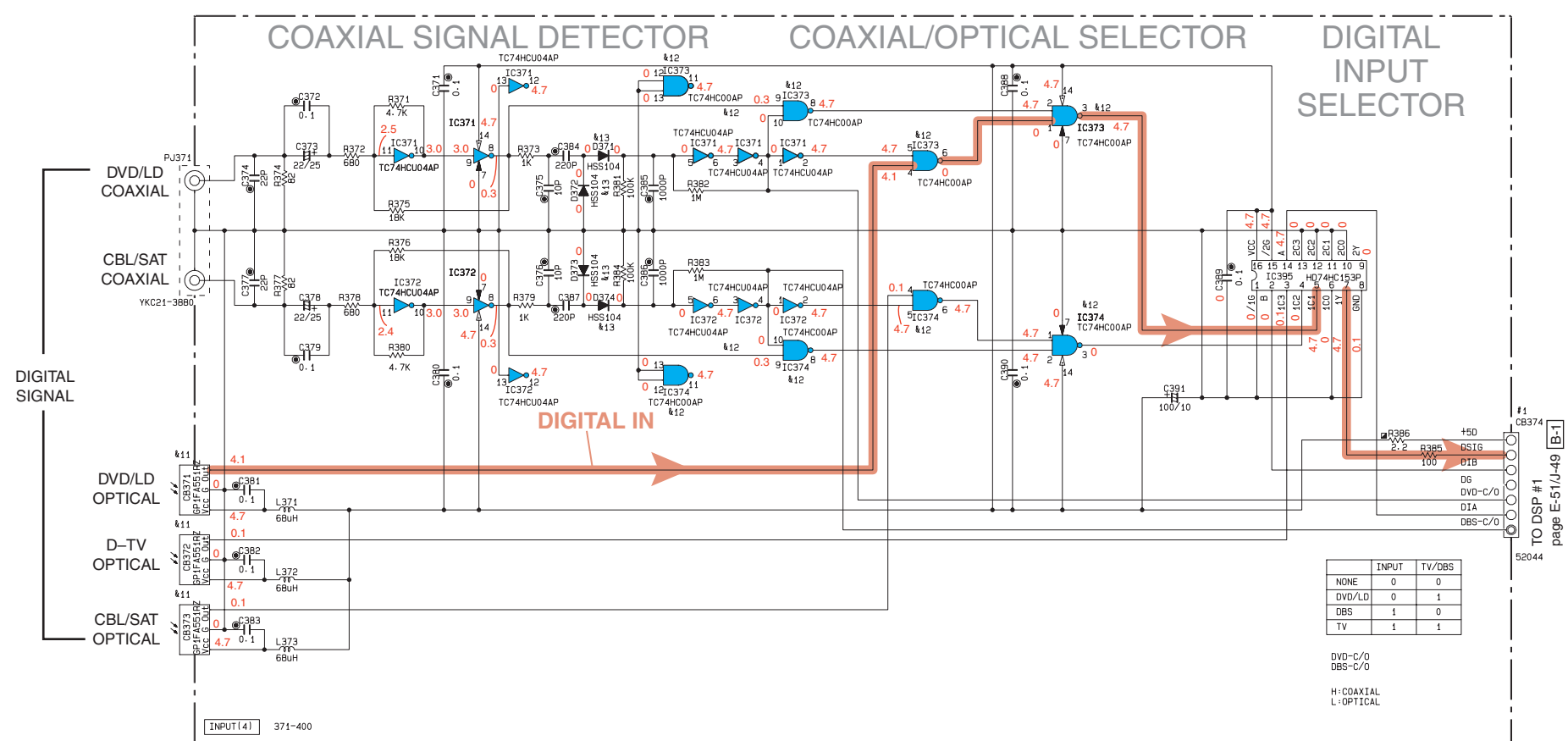
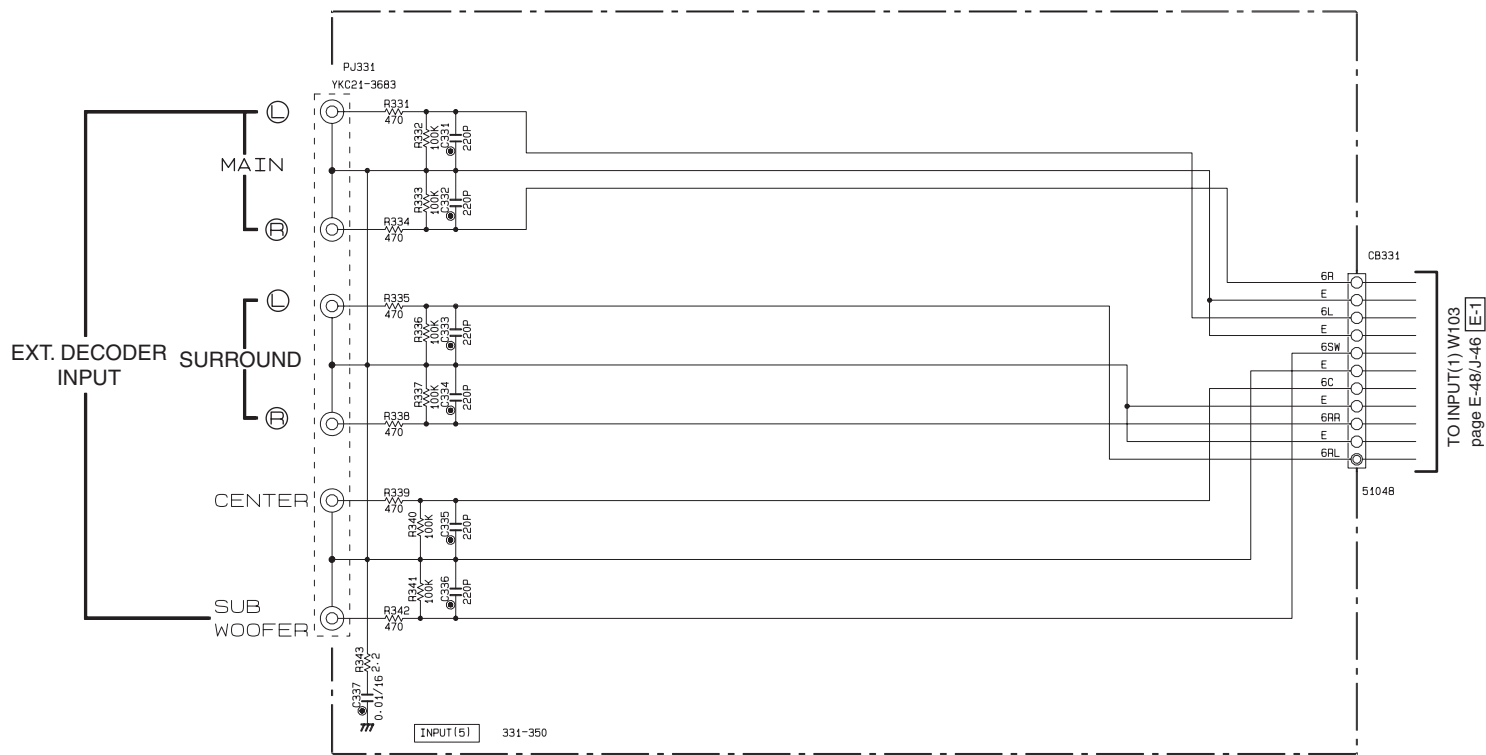
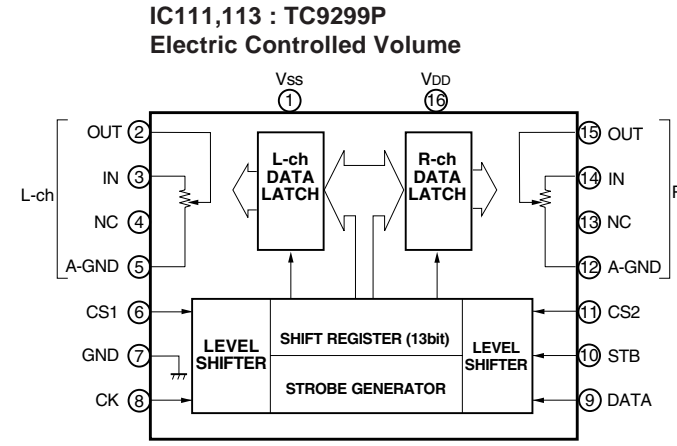
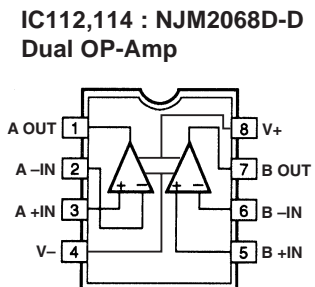
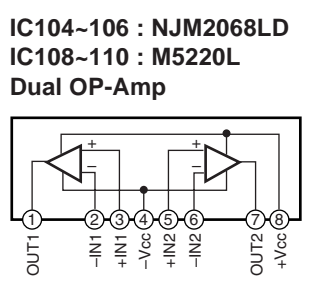
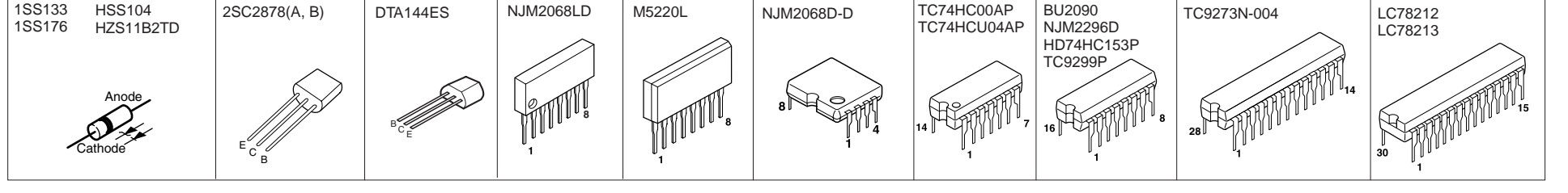


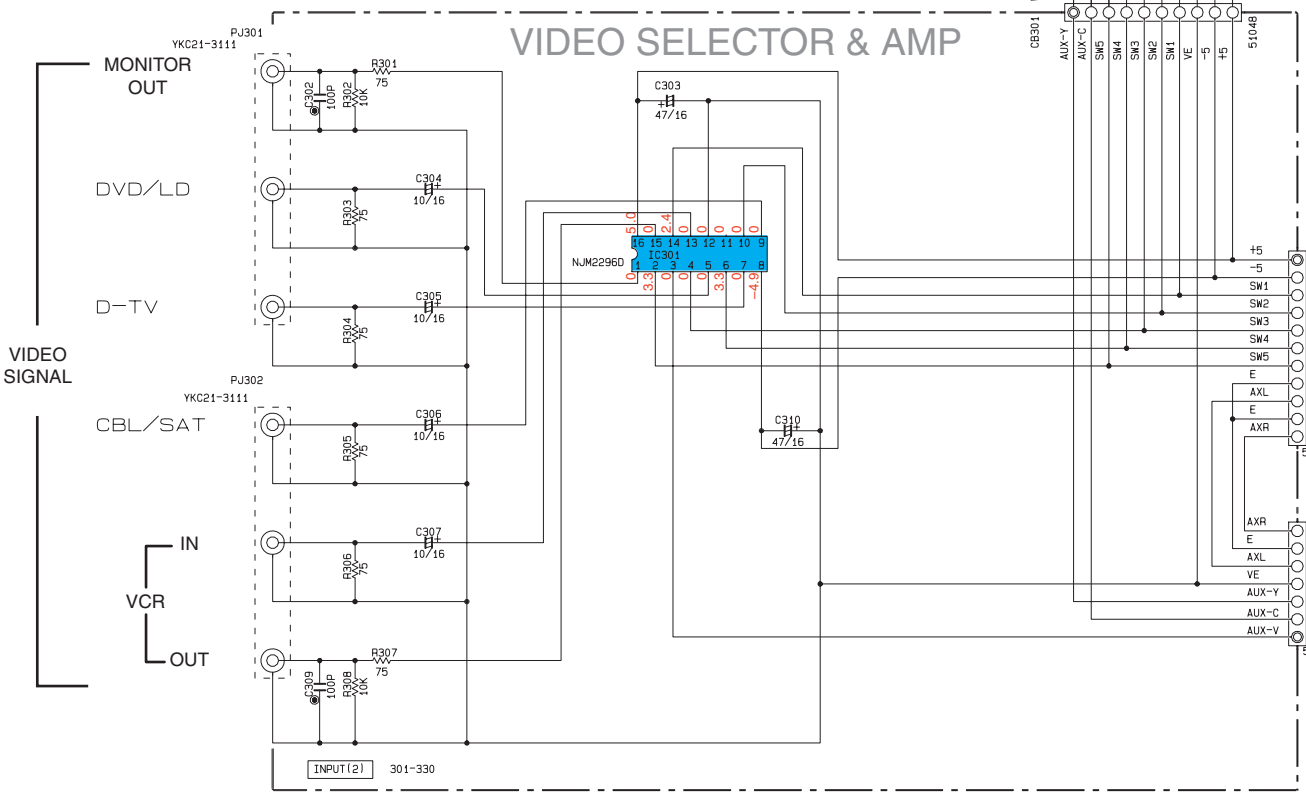
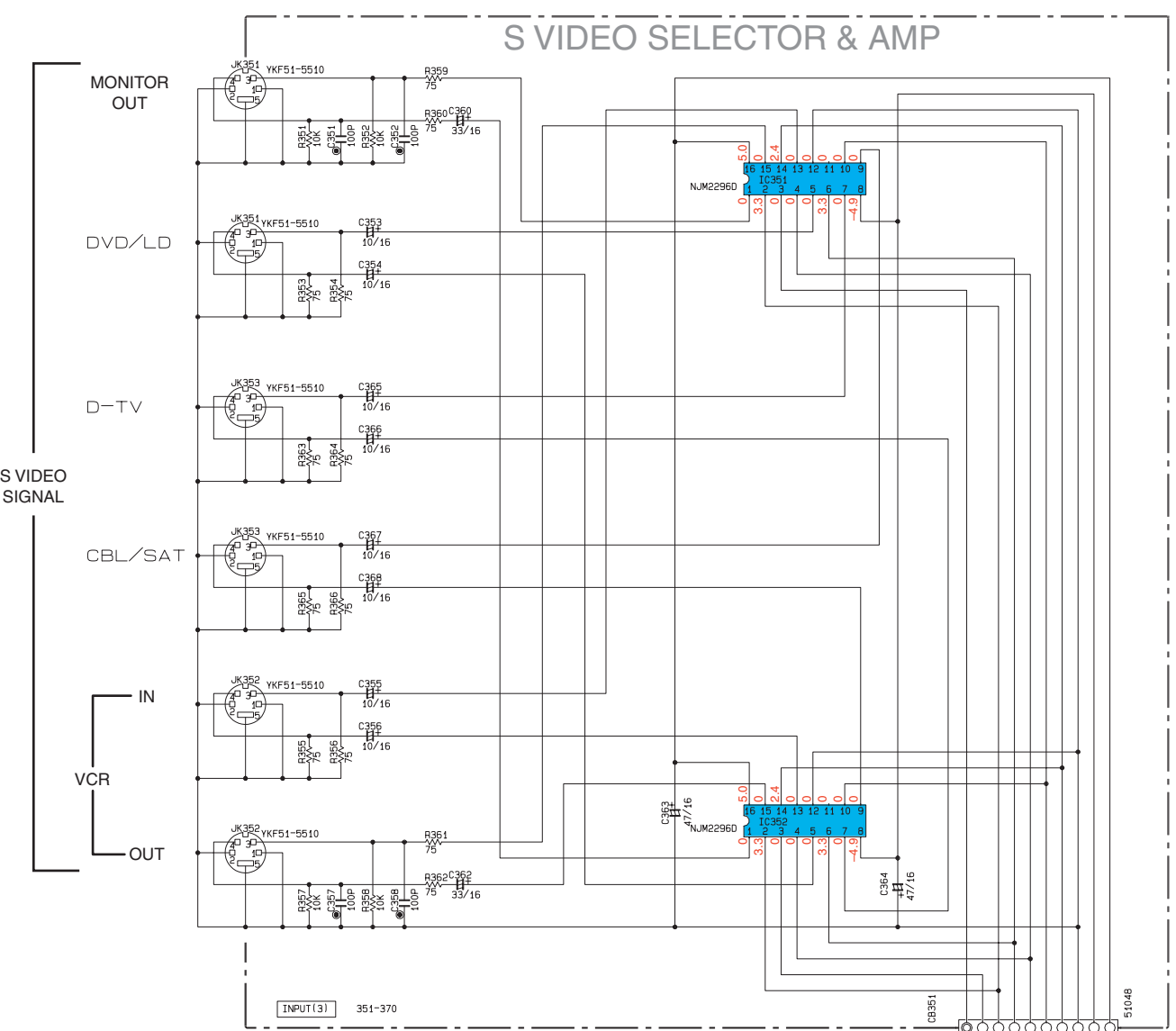
Table with columns for SELECT, STROBE, and OUTPUTS (Y, L, C0, C1, C2, C3). Includes a legend for H (High Level), L (Low Level), and X (Don't care).



PIN CONNECTION DIAGRAM OF DIODES, TRANSISTORS AND IC'S.



Conditions (DSP-A5) table: INPUT -> CD, VOLUME -> minimum(--), IMPEDANCE SELECTOR -> Left, PRO LOGIC -> On.



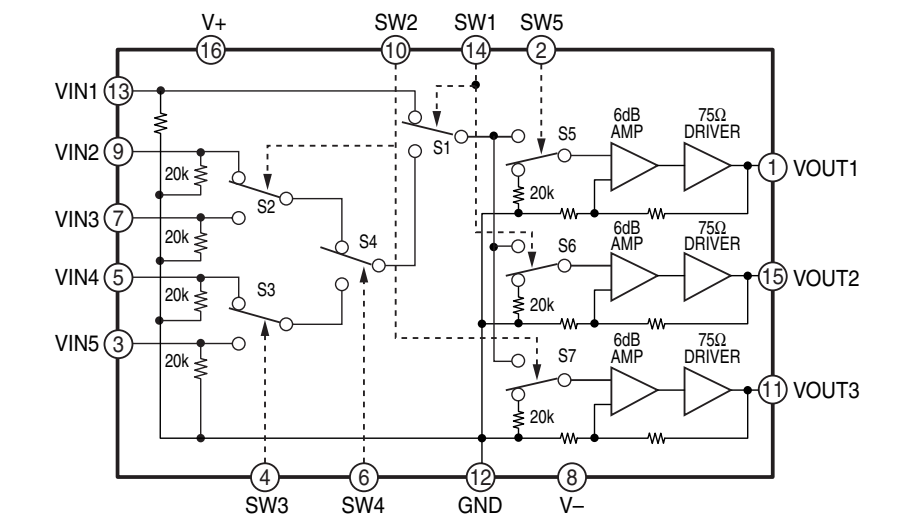
NOTICE (model) (J)..... JAPANESE (U)..... U. S. A. (C)..... CANADIAN (R)..... GENERAL (A)..... AUSTRALIAN (B)..... BRITISH (G)..... EUROPEAN (T)..... CHINA (L)..... SINGAPORE

RESISTOR table with columns for REMARKS, PARTS NAME, and values.

CAPACITOR table with columns for REMARKS, PARTS NAME, and values.

Interchangeable Parts at Manufacture-Stage table with columns for Mark, Reference Parts Number, and Parts Name.

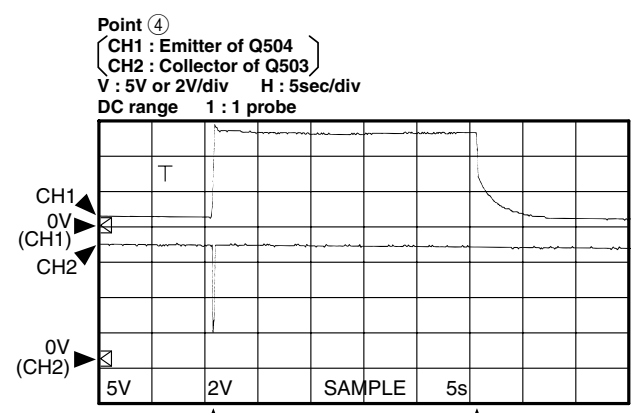
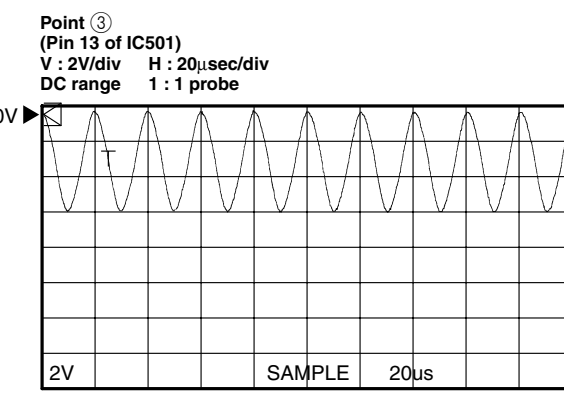
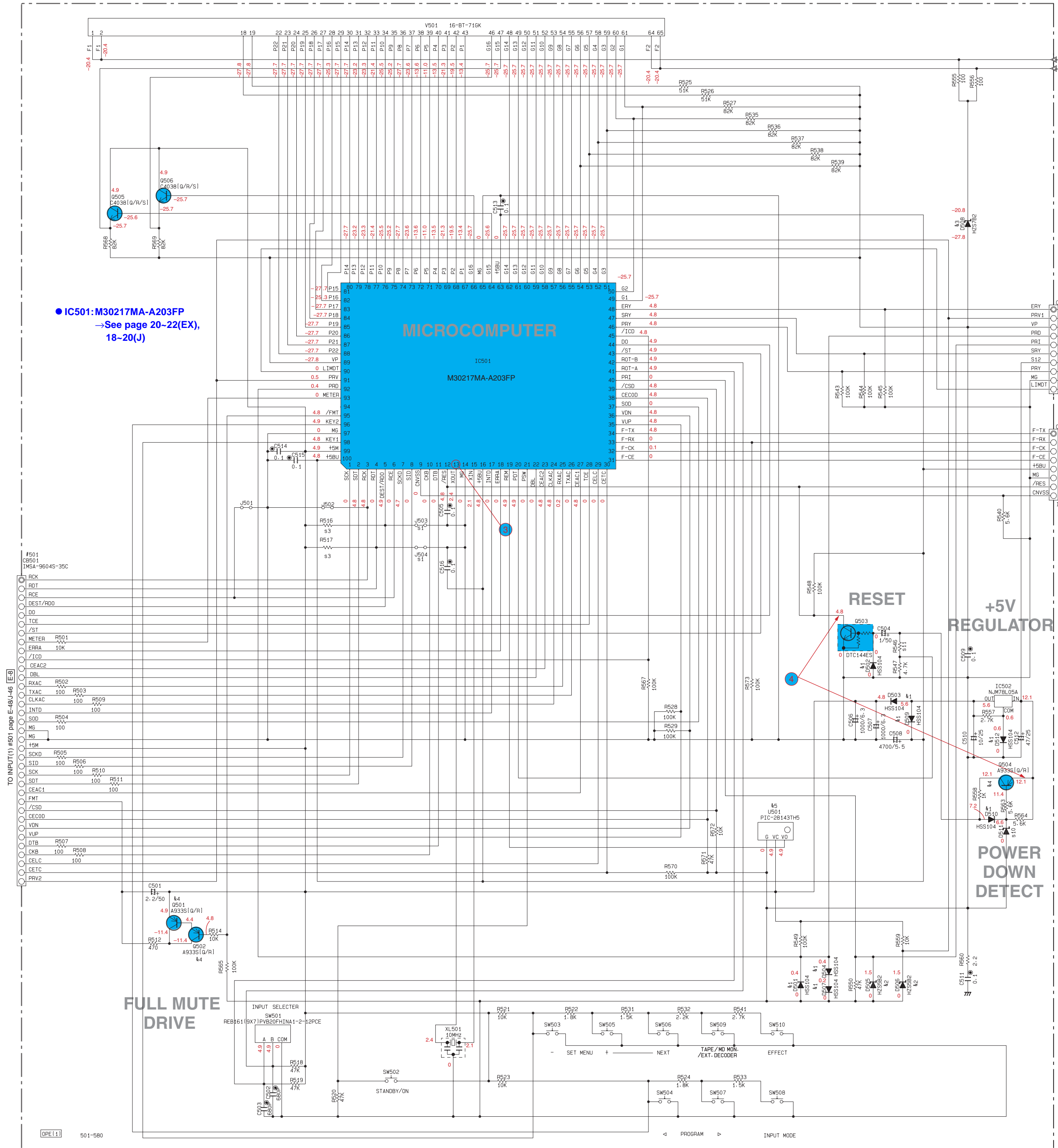
IC301,351,352 : NJM2296D 4-input to 3-output Video Switch



Truth table for the video switch with columns for SW1-5, INPUTS, and OUTPUTS (VOUT1-3). Includes a legend for H, L, X.

All voltages are measured with a 10MΩ/V DC electric volt meter. Components having special characteristics are marked with a triangle and must be replaced with parts having specifications equal to those originally installed. Schematic diagram is subject to change without notice.

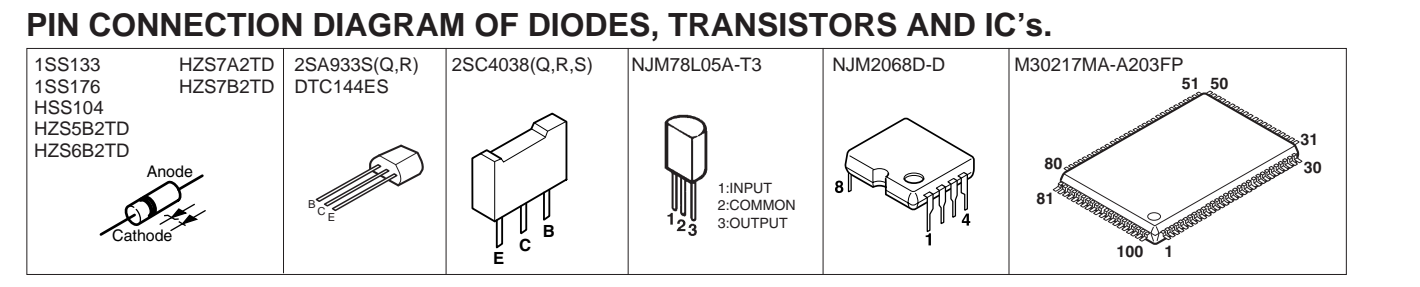
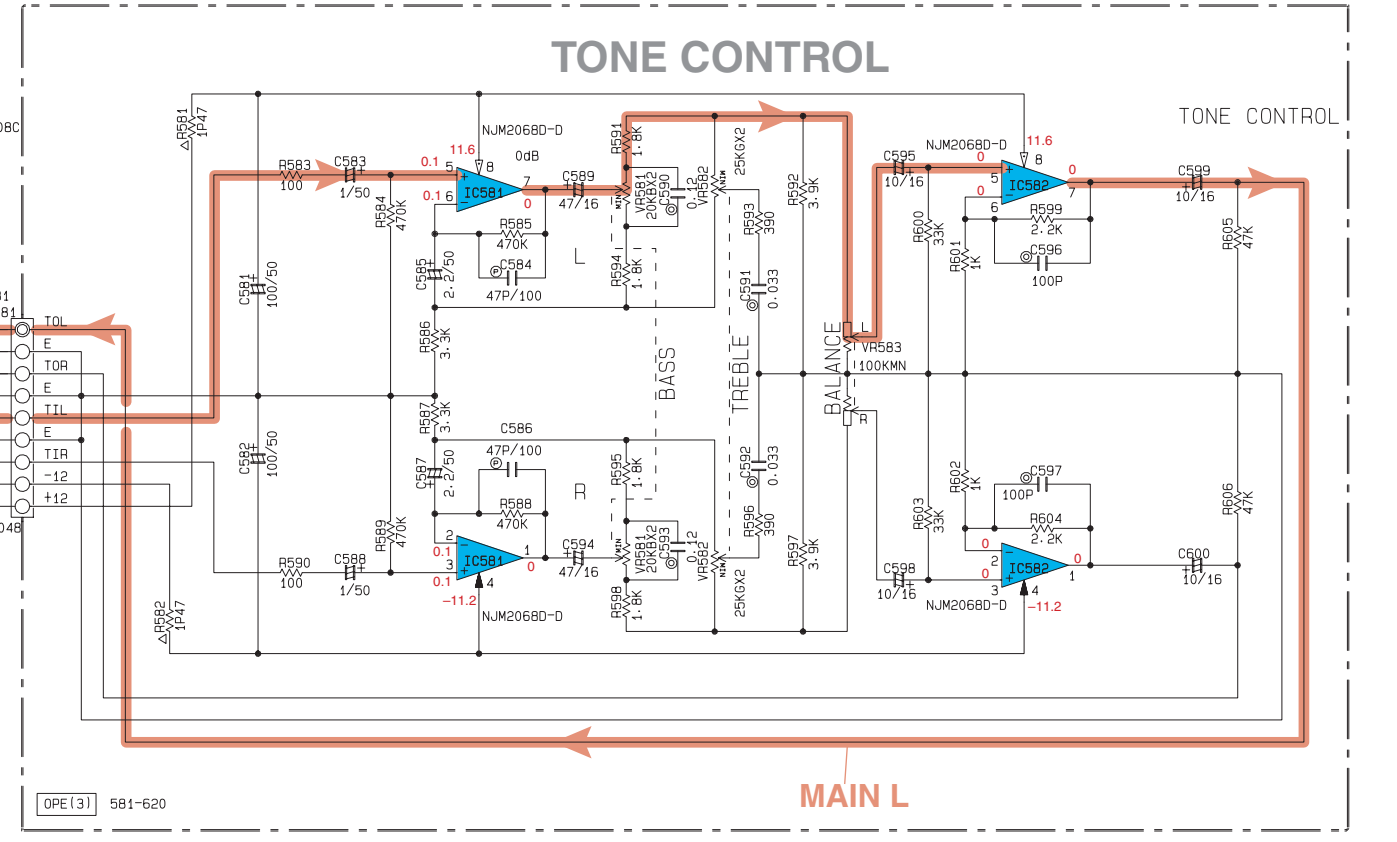
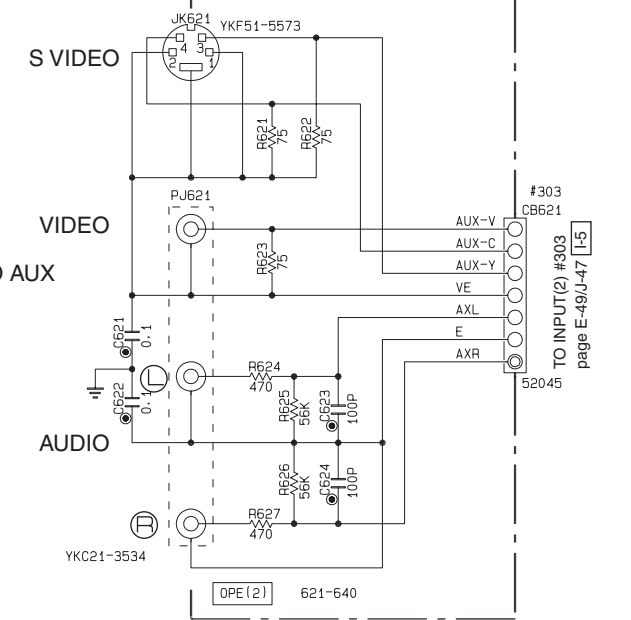
SCHEMATIC DIAGRAM [OPERATION]



With the POWER switch turned ON, connect the power cord to the AC outlet.
(This waveform is not available by pushing the power switch ON and OFF.)

REMARKS	PARTS NAME	QTY
NO MARK	ELECTROLYTIC CAPACITOR	5
⊗	TANTALUM CAPACITOR	1
NO MARK	CERAMIC CAPACITOR	11
⊙	CERAMIC TUBULAR CAPACITOR	
○	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
○	MICA CAPACITOR	
○	POLYPROPYLENE FILM CAPACITOR	
○	SEMICONDUCTIVE CERAMIC CAPACITOR	
○	POLYPHOSPHOR SULFIDE FILM CAPACITOR	

REMARKS	PARTS NAME	QTY
NO MARK	CARBON FILM RESISTOR (P=5)	
□	CARBON FILM RESISTOR (P=10)	
△	METAL OXIDE FILM RESISTOR	
△	METAL FILM RESISTOR	
△	METAL PLATE RESISTOR	
△	FIRE-PROOF CARBON FILM RESISTOR	
△	CEMENT MOLDED RESISTOR	
△	SEMI VARIABLE RESISTOR	
■	CHIP RESISTOR	



	J	R-T	B-G
s1 J503-504	○	×	×
s2			
s3 R516-517	×	100K HF4561D	×
s4			
s5			
s6			
s7			
s8			
s9			
s10 D511	○	HZS7A2 VM97460	HZS6B2 VM97440
s11 R546	○	2.2K HF45622	1.5K HF45615

NOTICE (mode1)
(J)..... JAPANESE
(U)..... U. S. A
(C)..... CANADIAN
(R)..... GENERAL
(A)..... AUSTRALIAN
(B)..... BRITISH
(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

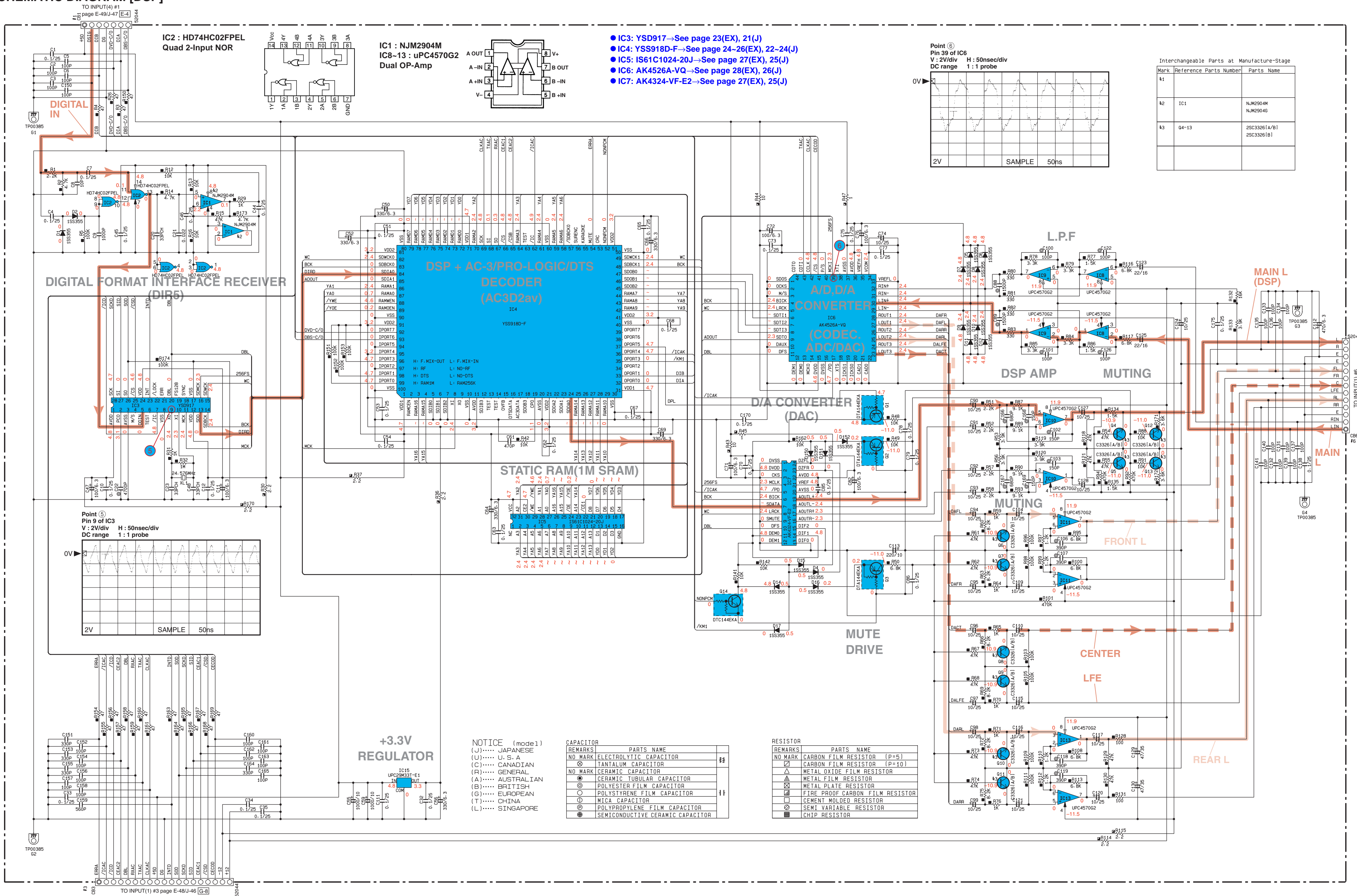
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	D501-504	HSS104 1SS133 1SS176
k2	D505-506	HZS5B2 HZS7A4-7C
k3	D508	HZS7B2 MIZJ7-5A
k4	D501-502-504	2SA933S(Q/R) 2SA1155(E/F) 2SA1308A(Q/R/S)
k5	U501	PTC-28143TH5 6P1U271X

Conditions (DSP-A5)
 • INPUT → CD
 • VOLUME → minimum(∞)
 • IMPEDANCE → Left
 • SELECTOR → Left
 • PRO LOGIC → On

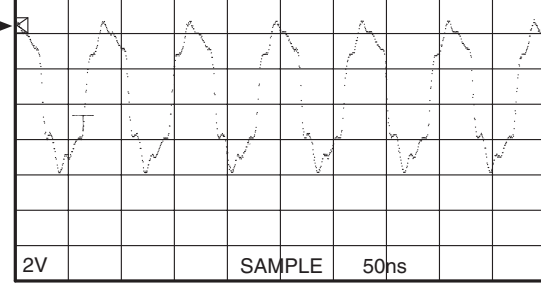
* All voltages are measured with a 10MΩ/V DC electric volt meter.
 * Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice. E-50/J-48

SCHEMATIC DIAGRAM [DSP]

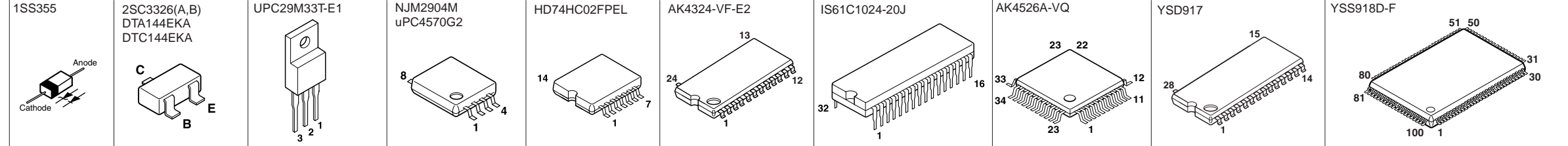


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
#1		
#2	IC1	NJM2904M NJM2904G
#3	04-13	2SC3326(A/B) 2SC3326(B)



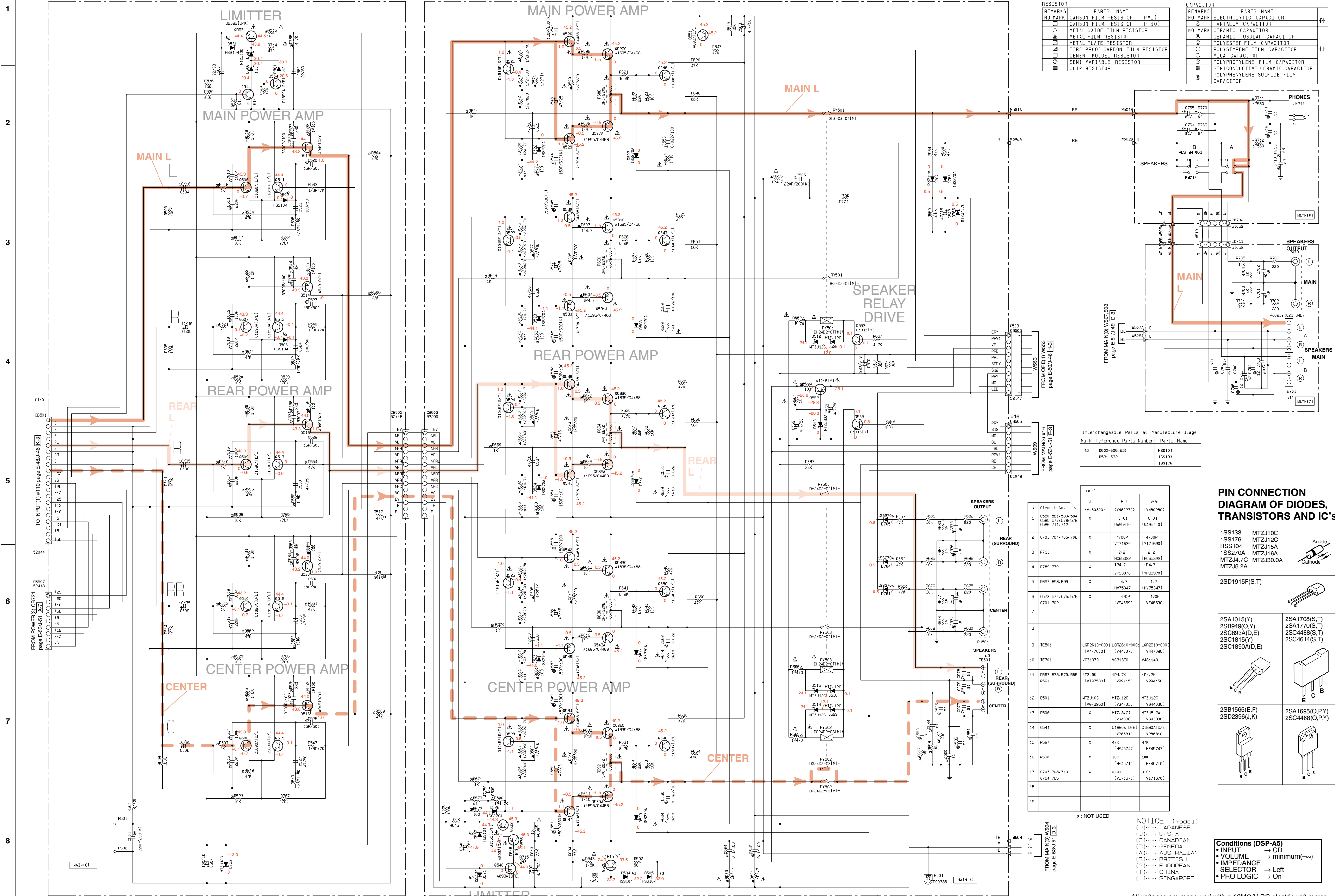
PIN CONNECTION DIAGRAM OF DIODES, TRANSISTORS AND IC'S.



- Conditions (DSP-A5)**
- INPUT → CD
 - VOLUME → minimum(∞)
 - IMPEDANCE SELECTOR → Left
 - PRO LOGIC → On

* All voltages are measured with a 10MΩ/V DC electric volt meter.
 * Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM [MAIN (1/2)]



RESISTOR		CAPACITOR	
REMARKS	PARTS NAME	REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)	NO MARK	ELECTROLYTIC CAPACITOR
□	CARBON FILM RESISTOR (P=10)	⊗	TANTALUM CAPACITOR
△	METAL OXIDE FILM RESISTOR	⊙	CERAMIC CAPACITOR
▲	METAL FILM RESISTOR	⊕	CERAMIC TUBULAR CAPACITOR
■	METAL PLATE RESISTOR	⊖	POLYESTER FILM CAPACITOR
⊠	FIRE PROOF CARBON FILM RESISTOR	⊗	POLYSTYRENE FILM CAPACITOR
⊡	CEMENT MOLDED RESISTOR	⊙	MICA CAPACITOR
⊞	SEMI VARIABLE RESISTOR	⊕	POLYPROPYLENE FILM CAPACITOR
⊞	CHIP RESISTOR	⊖	SEMICONDUCTIVE CERAMIC CAPACITOR
		⊗	POLYPHENYLENE SULFIDE FILM CAPACITOR

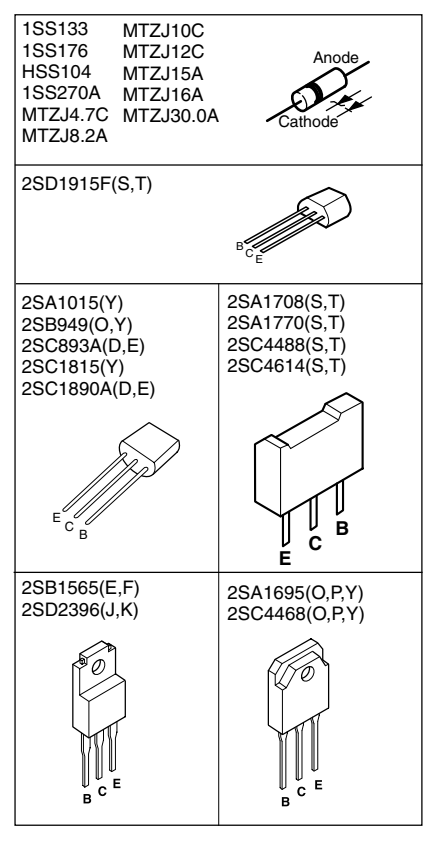
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k2	0502-505-521	HSS104
	0531-532	1S8139
		1S5176

S	CIPCU11 No.	J	R-T	B-G
1	C590-581-583-584 C586-577-578-579 C588-711-712	X	0-01 (U895410)	0-01 (U895410)
2	C703-704-705-706	X	4700P (V171630)	4700P (V171630)
3	R713	X	2-2 (HC65322)	2-2 (HC65322)
4	R769-770	X	IP4-7 (VP93970)	IP4-7 (VP93970)
5	R697-698-699	X	4-7 (HV75347)	4-7 (HV75347)
6	C573-574-575-576 C701-702	X	470P (VF46690)	470P (VF46690)
7				
8				
9	TE501	LQR2610-0001 (V447070)	LQR2610-0001 (V447070)	LQR2610-0003 (V447090)
10	TE701	VC31370 (V643880)	VC31370 (V643880)	V481140
11	R567-573-579-585 R991	IP3-9K (V197530)	IP4-7K (VP94150)	IP4-7K (VP94150)
12	D501	MTZJ10C (V643960)	MTZJ12C (V644030)	MTZJ12C (V644030)
13	D506	X	MTZJ8-2A (V643880)	MTZJ8-2A (V643880)
14	D544	X	C1890A(D/E) (VP88310)	C1890A(D/E) (VP88310)
15	R627	X	47K (HF45747)	47K (HF45747)
16	R630	X	10K (HF45710)	10K (HF45710)
17	C707-708-713 C764-765	X	0-01 (V171670)	0-01 (V171670)
18				
19				

x: NOT USED

PIN CONNECTION DIAGRAM OF DIODES, TRANSISTORS AND IC'S.



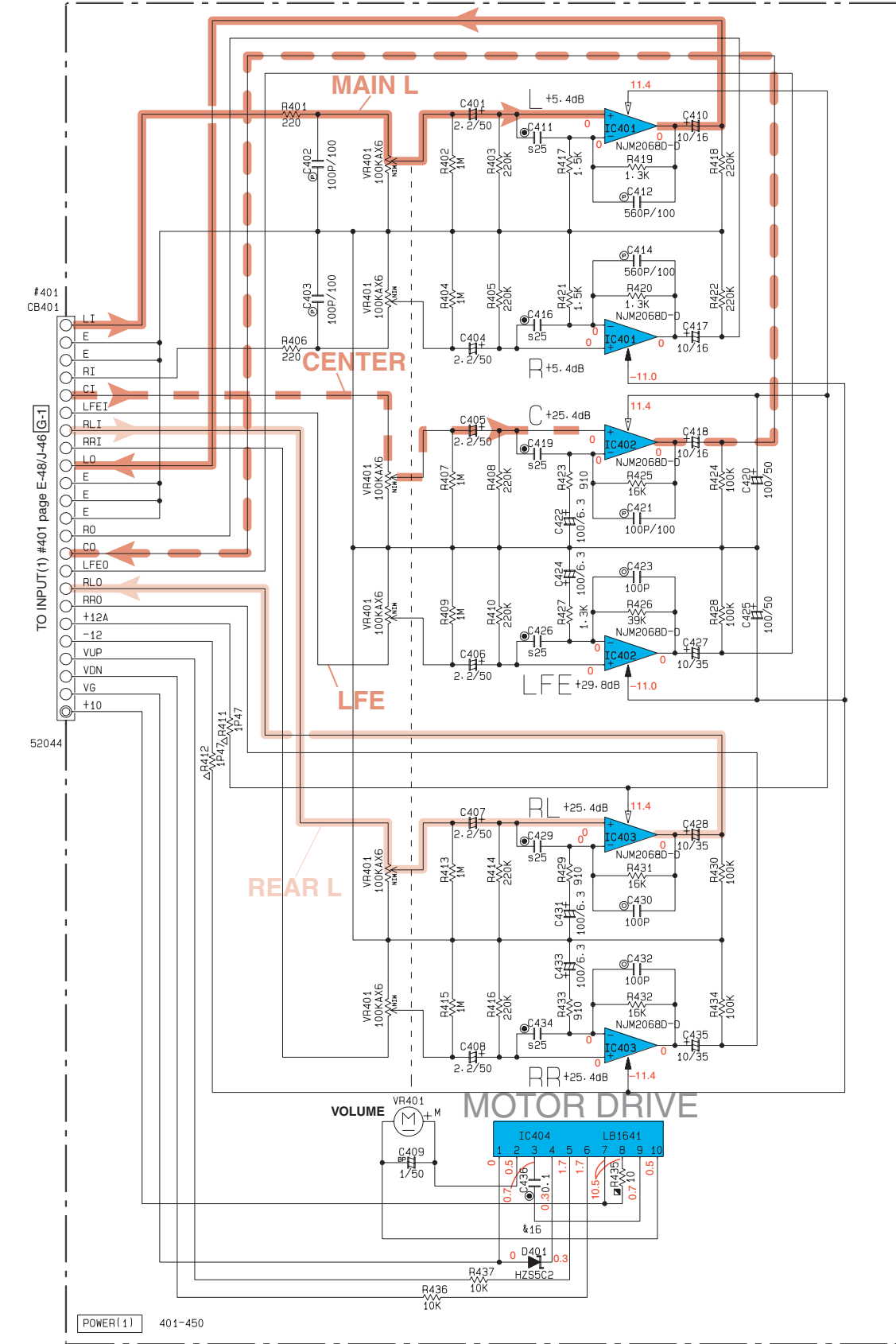
NOTICE (model)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

Conditions (DSP-A5)
 • INPUT → CD
 • VOLUME → minimum(∞)
 • IMPEDANCE
 • SELECTOR → Left
 • PRO LOGIC → On

• All voltages are measured with a 10MΩ/V DC voltage meter.
 • Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 • Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM [MAIN (2/2), POWER]

VOLUME AMP

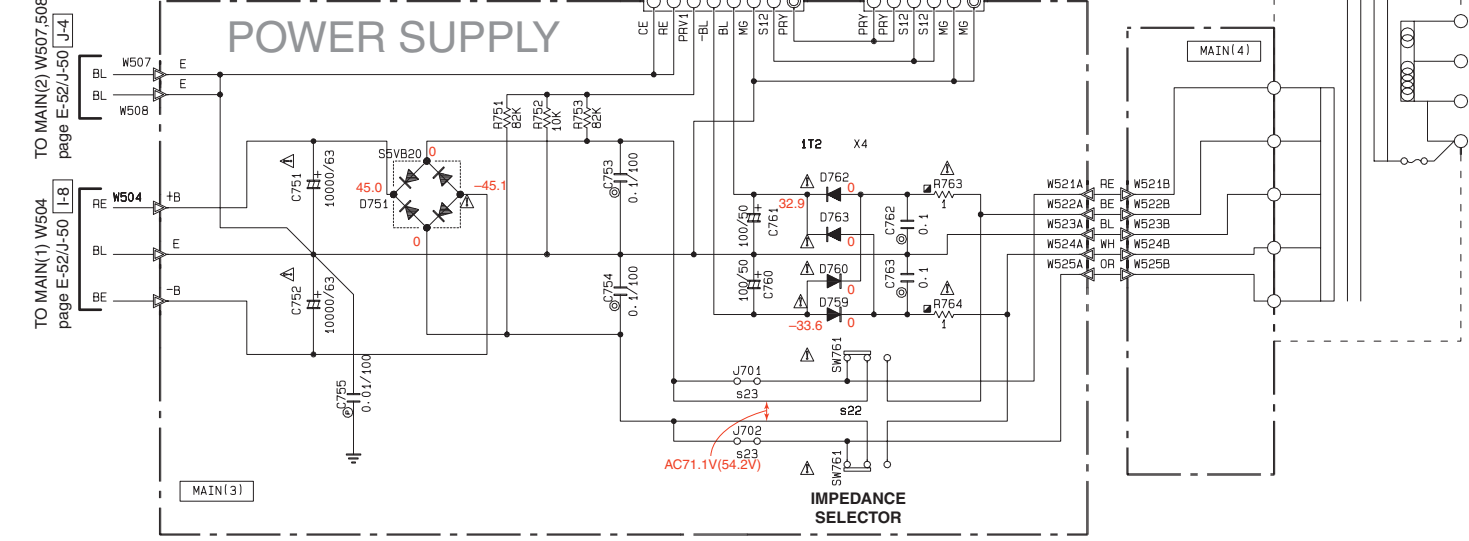


MAIN (3),(4)

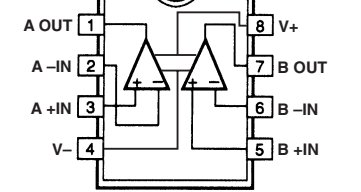
S	J	R.T	B-C
22	SW761	X	SL13B-022AMCS [V410420]
23	J701-702	0	X

X: NOT USED O: USED

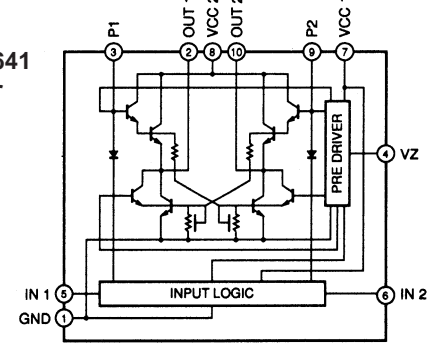
POWER SUPPLY



IC401-403 : NJM2068D-D Dual OP-Amp



IC404 : LB1641 Motor Driver



POWER (1), (2), (5), (6), (7)

	J	R.T	B	G
s1	J801	POWER(2)	0	X
s2	Q802	POWER(2)	X	D2396(J,K)
s3	CB01	POWER(2)	X	F0005
s4	RB02-803	POWER(2)	X	5-6K HV75656
s5	Q803	POWER(2)	X	HZS12B2 VM7560
s6	CB05	POWER(2)	X	4.7/100 UR9647
s7	T801	POWER(2)	XW605	XW607
s8	TE801	POWER(2)	VV11880	V474650
s9	J802	POWER(2)	0	0
s10	CB02-803	POWER(2)	X	X
s11	F801	POWER(2)	X	X
s12	WB53	POWER(6)	X	MH02630
s13	WB51	POWER(6)	X	MH04630
s14	WB55	POWER(6)	X	MH03630
s15	WB52	POWER(6)	X	MH09630
s16	WB54	POWER(6)	X	MH06630
s17	WB56	POWER(6)	X	MH01630
s18	SWB51	POWER(6)	X	VA96180
s19	CB851-852	POWER(6)	X	VP20650
s20	F851	POWER(6)	X	T4AL250V KB00079
s21	F802	POWER(2)	BA125V VS82330	BA125V VS82330
s22				
s23	CB03	POWER(2)	1000/25 UR74910	X
s24				
s25	C411-416-419	POWER(1)	X	33P
s26	WB01	POWER(2)	MH08610	MH08625
s27	WB02	POWER(2)	MH01610	MH01625
s28	CB08	POWER(2)	X	220/25 UR84822

X: NOT USED O: USED

Interchangeable Parts at Manufacture-Stage

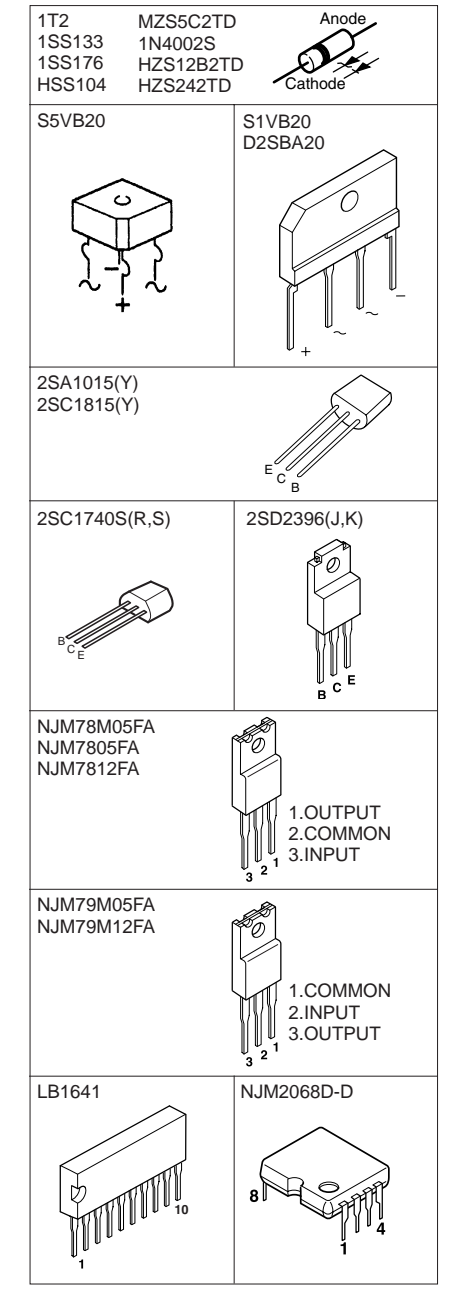
Mark	Reference Parts Number	Parts Name
K11		
K12	R/801	S07S-112LMR 061201*01M111 ALK5321
K13	Q801	2SC1740S(R/S) 2SC2603(E/F) 2SC3311A(Q/R/S)
K14	DB01	HSS104 1SS133 1SS176
K15	D721-722	HZS242 MTZ242C
K16	D401	HZS502 MTZJ5.1B

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR [P=5]
□	CARBON FILM RESISTOR [P=10]
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
▴	METAL PLATE RESISTOR
■	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
▣	SEMI VARIABLE RESISTOR
●	CHIP RESISTOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
⊕	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊗	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

NOTICE (mode1)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

PIN CONNECTION DIAGRAM OF DIODES, TRANSISTORS AND IC's.



Conditions (DSP-A5)
 • INPUT → CD
 • VOLUME → minimum(∞)
 • IMPEDANCE SELECTOR → Left
 • PRO LOGIC → On

• All voltages are measured with a 10MΩ/V DC electric volt meter.
 • Components having special characteristics are marked ▲ and must be replaced with parts having specifications equal to those originally installed.
 • Schematic diagram is subject to change without notice.

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked \triangle and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the part Nos. of the carbon resistors, refer to page 65.
- Chip resistors are listed on page 64.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C. A. EL. CHP	: CHIP ALUMI. ELECTROLYTIC CAP	LED. DSPLY	: LED DISPLAY
C. CE	: CERAMIC CAP	LED. INFRD	: LED, INFRARED
C. CE. ARRAY	: CERAMIC CAP ARRAY	MODUL. RF	: MODULATOR, RF
C. CE. CHP	: CHIP CERAMIC CAP	PHOT. CPL	: PHOTO COUPLER
C. CE. ML	: MULTILAYER CERAMIC CAP	PHOT. INTR	: PHOTO INTERRUPTER
C. CE. M. CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT. RFLCT	: PHOTO REFLECTOR
C. CE. SAFTY	: RECOGNIZED CERAMIC CAP	PIN. TEST	: PIN, TEST POINT
C. CE. TUBLR	: CERAMIC TUBULAR CAP	PLST. RIVET	: PLASTIC RIVET
C. CE. SMI	: SEMI CONDUCTIVE CERAMIC CAP	R. ARRAY	: RESISTOR ARRAY
C. EL	: ELECTROLYTIC CAP	R. CAR	: CARBON RESISTOR
C. MICA	: MICA CAP	R. CAR. CHP	: CHIP RESISTOR
C. ML. FLM	: MULTILAYER FILM CAP	R. CAR.FP	: FLAME PROOF CARBON RESISTOR
C. MP	: METALLIZED PAPER CAP	R. FUS	: FUSABLE RESISTOR
C. MYLAR	: MYLAR FILM CAP	R. MTL. CHP	: CHIP METAL FILM RESISTOR
C. MYLAR. ML	: MULTILAYER MYLAR FILM CAP	R. MTL. FILM	: METAL FILM RESISTOR
C. PAPER	: PAPER CAPACITOR	R. MTL. OXD	: METAL OXIDE FILM RESISTOR
C. PLS	: POLYSTYRENE FILM CAP	R. MTL. PLAT	: METAL PLATE RESISTOR
C. POL	: POLYESTER FILM CAP	RSNR. CE	: CERAMIC RESONATOR
C. POLY	: POLYETHYLENE FILM CAP	RSNR. CRYST	: CRYSTAL RESONATOR
C. PP	: POLYPROPYLENE FILM CAP	R. TW. CEM	: TWIN CEMENT FIXED RESISTOR
C. TNTL	: TANTALUM CAP	R. WW	: WIRE WOUND RESISTOR
C. TNT. CHP	: CHIP TANTALUM CAP	SCR. BND. HD	: BIND HEAD B-TITE SCREW
C. TRIM	: TRIMMER CAP	SCR. BW. HD	: BW HEAD TAPPING SCREW
CN	: CONNECTOR	SCR. CUP	: CUP TITE SCREW
CN. BS. PIN	: CONNECTOR, BASE PIN	SCR. TERM	: SCREW TERMINAL
CN. CANNON	: CONNECTOR, CANNON	SCR. TR	: SCREW, TRANSISTOR
CN. DIN	: CONNECTOR, DIN	SUPRT. PCB	: SUPPORT, P. C. B.
CN. FLAT	: CONNECTOR, FLAT CABLE	SURG. PRTCT	: SURGE PROTECTOR
CN. POST	: CONNECTOR, BASE POST	SW. TACT	: TACT SWITCH
COIL. MX. AM	: COIL, AM MIX	SW. LEAF	: LEAF SWITCH
COIL. AT. FM	: COIL, FM ANTENNA	SW. LEVER	: LEVER SWITCH
COIL. DT. FM	: COIL, FM DETECT	SW. MICRO	: MICRO SWITCH
COIL. MX. FM	: COIL, FM MIX	SW. PUSH	: PUSH SWITCH
COIL. OUTPT	: OUTPUT COIL	SW. RT. ENC	: ROTARY ENCODER
DIOD. ARRAY	: DIODE ARRAY	SW. RT. MTR	: ROTARY SWITCH WITH MOTOR
DIODE. BRG	: DIODE BRIDGE	SW. RT	: ROTARY SWITCH
DIODE. CHP	: CHIP DIODE	SW. SLIDE	: SLIDE SWITCH
DIODE. VAR	: VARACTOR DIODE	TERM. SP	: SPEAKER TERMINAL
DIOD. Z. CHP	: CHIP ZENER DIODE	TERM. WRAP	: WRAPPING TERMINAL
DIODE. ZENR	: ZENER DIODE	THRMST. CHP	: CHIP THERMISTOR
DSCR. CE	: CERAMIC DISCRIMINATOR	TR. CHP	: CHIP TRANSISTOR
FER. BEAD	: FERRITE BEADS	TR. DGT	: DIGITAL TRANSISTOR
FER. CORE	: FERRITE CORE	TR. DGT. CHP	: CHIP DIGITAL TRANSISTOR
FET. CHP	: CHIP FET	TRANS	: TRANSFORMER
FL. DSPLY	: FLUORESCENT DISPLAY	TRANS. PULS	: PULSE TRANSFORMER
FLTR. CE	: CERAMIC FILTER	TRANS. PWR	: POWER TRANSFORMER ASS'y
FLTR. COMB	: COMB FILTER MODULE	TUNER. AM	: TUNER PACK, AM
FLTR. LC. RF	: LC FILTER, EMI	TUNER. FM	: TUNER PACK, FM
GND. MTL	: GROUND PLATE	TUNER. PK	: FRONT-END TUNER PACK
GND. TERM	: GROUND TERMINAL	VR	: ROTARY POTENTIOMETER
HOLDER. FUS	: FUSE HOLDER	VR. MTR	: POTENTIOMETER WITH MOTOR
IC. PRTCT	: IC PROTECTOR	VR. SW	: POTENTIOMETER WITH ROTARY SW
JUMPER. CN	: JUMPER CONNECTOR	VR. SLIDE	: SLIDE POTENTIOMETER
JUMPER. TST	: JUMPER, TEST POINT	VR. TRIM	: TRIMMER POTENTIOMETER
L. DTCT	: LIGHT DETECTING MODULE		
L. EMIT	: LIGHT EMITTING MODULE		

Note) Those parts marked with "#" are not included in the P. C. B. Ass'y.

P. C. B. DSP

Schm Ref	PART NO.	Description	
*	V4800100	P.C.B.	DSP
*CB1	VQ044300	CN.BS.PIN	7P
CB3	VQ044900	CN.BS.PIN	19P
CB6	VQ044600	CN.BS.PIN	13P
C1	UB245100	C.CE.M.CHP	0.1uF 25V
C2	UB052100	C.CE.M.CHP	100pF 50V
C3	UB052100	C.CE.M.CHP	100pF 50V
C4	UB245100	C.CE.M.CHP	0.1uF 25V
C5	UB052100	C.CE.M.CHP	100pF 50V
C6	UB052100	C.CE.M.CHP	100pF 50V
C7	UB245100	C.CE.M.CHP	0.1uF 25V
C8	UB051100	C.CE.M.CHP	10pF 50V
C9	UB013100	C.CE.M.CHP	1000pF 50V
C10	UB245100	C.CE.M.CHP	0.1uF 25V
C11	UR818100	C.EL	100uF 6.3V
C12	UB245100	C.CE.M.CHP	0.1uF 25V
C20	VJ900700	C.CE.M.CHP	33pF 50V
C21	UB044220	C.CE.M.CHP	0.022uF 50V
C22	UA953470	C.MYLAR	4700pF 50V
C23	VJ900700	C.CE.M.CHP	33pF 50V
C32	UB245100	C.CE.M.CHP	0.1uF 25V
C33	UB245100	C.CE.M.CHP	0.1uF 25V
C34	UB245100	C.CE.M.CHP	0.1uF 25V
C35	UB245100	C.CE.M.CHP	0.1uF 25V
C44	UB245100	C.CE.M.CHP	0.1uF 25V
C45	UB245100	C.CE.M.CHP	0.1uF 25V
C46	UB245100	C.CE.M.CHP	0.1uF 25V
C47	UR818100	C.EL	100uF 6.3V
C48	VJ900700	C.CE.M.CHP	33pF 50V
C50	UR818330	C.EL	330uF 6.3V
C51	UB245100	C.CE.M.CHP	0.1uF 25V
C52	UR818330	C.EL	330uF 6.3V
C53	UB245100	C.CE.M.CHP	0.1uF 25V
C54	UB245100	C.CE.M.CHP	0.1uF 25V
C55	UR829100	C.EL	1000uF 10V
C56	UR818330	C.EL	330uF 6.3V
C59	UR829100	C.EL	1000uF 10V
C61	UB012470	C.CE.M.CHP	470pF 50V
C62	UB245100	C.CE.M.CHP	0.1uF 25V
C63	UB245100	C.CE.M.CHP	0.1uF 25V
C64	UR818330	C.EL	330uF 6.3V
C65	UB245100	C.CE.M.CHP	0.1uF 25V
C66	UR818330	C.EL	330uF 6.3V
C67	UB245100	C.CE.M.CHP	0.1uF 25V
C68	UB245100	C.CE.M.CHP	0.1uF 25V
C69	UR818330	C.EL	330uF 6.3V
C70	UB245100	C.CE.M.CHP	0.1uF 25V
C71	VG286200	C.EL	100uF 10V
C72	VG286200	C.EL	100uF 10V
C73	UB245100	C.CE.M.CHP	0.1uF 25V
C74	VG288500	C.EL	10uF 50V
C75	UB245100	C.CE.M.CHP	0.1uF 25V
C76	VG286200	C.EL	100uF 10V

* New Parts

Schm Ref	PART NO.	Description	
C77	UB245100	C.CE.M.CHP	0.1uF 25V
C78	UB245100	C.CE.M.CHP	0.1uF 25V
C79	UB245100	C.CE.M.CHP	0.1uF 25V
C82	VG286200	C.EL	100uF 10V
C85	UB245100	C.CE.M.CHP	0.1uF 25V
C86	UB245100	C.CE.M.CHP	0.1uF 25V
C88	UA953150	C.MYLAR	1500pF 50V
C89	UA953150	C.MYLAR	1500pF 50V
C90	VG288500	C.EL	10uF 50V
C91	VG288500	C.EL	10uF 50V
C92	VG288500	C.EL	10uF 50V
C93	VG288500	C.EL	10uF 50V
C94	VG288500	C.EL	10uF 50V
C95	VG288500	C.EL	10uF 50V
C96	VG288500	C.EL	10uF 50V
C97	VG288500	C.EL	10uF 50V
C98	VG288500	C.EL	10uF 50V
C99	VG288500	C.EL	10uF 50V
C100	UA952100	C.MYLAR	100pF 50V
C101	UA952100	C.MYLAR	100pF 50V
*C102	UA952150	C.MYLAR	150pF 50V(BG)
*C103	UA952150	C.MYLAR	150pF 50V
C104	VG288500	C.EL	10uF 50V
C106	UA952390	C.MYLAR	390pF 50V
C107	UA952390	C.MYLAR	390pF 50V
C109	VG288500	C.EL	10uF 50V
C110	VG288500	C.EL	10uF 50V
C111	UB245100	C.CE.M.CHP	0.1uF 25V
C112	VG286500	C.EL	470uF 10V
*C113	VG286900	C.EL	220uF 10V
C115	VG288500	C.EL	10uF 50V
C116	VG288500	C.EL	10uF 50V
C117	VG288500	C.EL	10uF 50V
C118	UA952390	C.MYLAR	390pF 50V
C119	UA952390	C.MYLAR	390pF 50V
C120	VG288500	C.EL	10uF 50V
C121	VG288500	C.EL	10uF 50V
C122	UA952100	C.MYLAR	100pF 50V
C123	VG287300	C.EL	22uF 50V
C124	VG288500	C.EL	10uF 50V
C125	VG287300	C.EL	22uF 50V
C126	UA952100	C.MYLAR	100pF 50V
C127	VG288500	C.EL	10uF 50V
C128	VG288500	C.EL	10uF 50V
*C129	V4578900	C.EL	47uF 35V
*C130	V4578900	C.EL	47uF 35V
C131	UB052100	C.CE.M.CHP	100pF 50V
C132	UB052100	C.CE.M.CHP	100pF 50V
C133	UB052100	C.CE.M.CHP	100pF 50V
C134	UB052100	C.CE.M.CHP	100pF 50V
C135	UB052100	C.CE.M.CHP	100pF 50V
C136	UB052100	C.CE.M.CHP	100pF 50V
C137	UB052100	C.CE.M.CHP	100pF 50V

* New Parts

P. C. B. DSP & P. C. B. OPERATION

Schm Ref	PART NO.	Description		
C138	UB245100	C.CE.M.CHP	0.1uF	25V
C139	UB052100	C.CE.M.CHP	100pF	50V
C140	UB052100	C.CE.M.CHP	100pF	50V
C141	UB052100	C.CE.M.CHP	100pF	50V
C150	UB052100	C.CE.M.CHP	100pF	50V
C151	UB012330	C.CE.M.CHP	330pF	50V
C152	UB052100	C.CE.M.CHP	100pF	50V
C153	UB012330	C.CE.M.CHP	330pF	50V
C154	UB052100	C.CE.M.CHP	100pF	50V
C155	UB012330	C.CE.M.CHP	330pF	50V
C156	UB052100	C.CE.M.CHP	100pF	50V
C157	UB052100	C.CE.M.CHP	100pF	50V
C158	UB052100	C.CE.M.CHP	100pF	50V
C159	UB012560	C.CE.M.CHP	560pF	50V
C160	UB052100	C.CE.M.CHP	100pF	50V
C161	UB052100	C.CE.M.CHP	100pF	50V
C162	UB052100	C.CE.M.CHP	100pF	50V
C163	UB052100	C.CE.M.CHP	100pF	50V
C164	UB012330	C.CE.M.CHP	330pF	50V
C165	UB052100	C.CE.M.CHP	100pF	50V
C166	UA952680	C.MYLAR	680pF	50V
C167	UA952680	C.MYLAR	680pF	50V
*:C168	UA952150	C.MYLAR	150pF	50V
*:C169	UA952150	C.MYLAR	150pF	50V
C170	UB245100	C.CE.M.CHP	0.1uF	25V
C175	UB245100	C.CE.M.CHP	0.1uF	25V
D1	VT332900	DIODE	1SS355	
D2	VT332900	DIODE	1SS355	
D4	VT332900	DIODE	1SS355	
D5	VT332900	DIODE	1SS355	
D6	VT332900	DIODE	1SS355	
D7	VT332900	DIODE	1SS355	
D8	VT332900	DIODE	1SS355	
D9	VT332900	DIODE	1SS355	
D10	VT332900	DIODE	1SS355	
D11	VT332900	DIODE	1SS355	
D12	VT332900	DIODE	1SS355	
D14	VT332900	DIODE	1SS355	
D15	VT332900	DIODE	1SS355	
D16	VT332900	DIODE	1SS355	
D17	VT332900	DIODE	1SS355	
D150	VT332900	DIODE	1SS355	
D151	VT332900	DIODE	1SS355	
D152	VT332900	DIODE	1SS355	
G1	VR463400	TERM.GND	D3.5	TP00385
G2	VR463400	TERM.GND	D3.5	TP00385
G3	VR463400	TERM.GND	D3.5	TP00385
G4	VR463400	TERM.GND	D3.5	TP00385
IC1	XR038A00	IC	NJM2904M OP AMP	
IC2	XL091A00	IC	HD74HC02FPEL NOR	
*:IC3	XW526A00	IC	YSD917	
IC4	XV304B00	IC	YSS918D-F	
*:IC5	XV305A00	IC	IS61C1024-20J SRAM	

*: New Parts

Schm Ref	PART NO.	Description		
IC6	XV951A00	IC	AK4526A-VQ	
*:IC7	XT955A00	IC	AK4324-VF-E2	
IC8	XF291A00	IC	uPC4570G2	
IC9	XF291A00	IC	uPC4570G2	
IC10	XF291A00	IC	uPC4570G2	
IC11	XF291A00	IC	uPC4570G2	
IC13	XF291A00	IC	uPC4570G2	
IC15	XU965A00	IC	uPC29M33T-E1 3.3V	
Q1	VV655300	TR.DGT	DTA144EKA	
Q2	VV655300	TR.DGT	DTA144EKA	
Q3	VV655300	TR.DGT	DTA144EKA	
Q4	VD303700	TR	2SC3326 A,B	
Q5	VD303700	TR	2SC3326 A,B	
Q6	VD303700	TR	2SC3326 A,B	
Q7	VD303700	TR	2SC3326 A,B	
Q8	VD303700	TR	2SC3326 A,B	
Q9	VD303700	TR	2SC3326 A,B	
Q10	VD303700	TR	2SC3326 A,B	
Q11	VD303700	TR	2SC3326 A,B	
Q12	VD303700	TR	2SC3326 A,B	
Q13	VD303700	TR	2SC3326 A,B	
Q14	VV655700	TR.DGT	DTC144EKA	
R30	HV753220	R.CAR.FP	2.2Ω	1/4W
R36	HV753220	R.CAR.FP	2.2Ω	1/4W
R37	HV753220	R.CAR.FP	2.2Ω	1/4W
R43	HV754100	R.CAR.FP	10Ω	1/4W
R44	HV754100	R.CAR.FP	10Ω	1/4W
R45	HV753100	R.CAR.FP	1Ω	1/4W
R47	HV753100	R.CAR.FP	1Ω	1/4W
R114	HV753220	R.CAR.FP	2.2Ω	1/4W
R115	HV753220	R.CAR.FP	2.2Ω	1/4W
R170	HV753220	R.CAR.FP	2.2Ω	1/4W
*:XL1	V3625700	RSNR.CRYS	24.576MHz	
*:	V4801400	P.C.B.	OPERATION(RT)	
*:	V4801500	P.C.B.	OPERATION(BG)	
*:CB501	VU273500	CN	35P	
*:CB502	VU270800	CN	8P	
CB503	Vi878800	CN.BS.PIN	10P	
CB581	Vi878700	CN.BS.PIN	9P	
CB621	VQ047100	CN.BS.PIN	7P	
C501	UR866220	C.EL	2.2uF	50V
C502	VG278900	C.CE.TUBLR	680pF	50V
C503	VG278900	C.CE.TUBLR	680pF	50V
C504	UR866100	C.EL	1uF	50V
C505	VJ599100	C.CE.TUBLR	0.1uF	50V
C506	UR819100	C.EL	1000uF	6.3V
C507	UR819100	C.EL	1000uF	6.3V
C508	VS672200	C.EL	4700uF	5.5V
C509	VJ599100	C.CE.TUBLR	0.1uF	50V
C510	UR847100	C.EL	10uF	25V

*: New Parts

P. C. B. OPERATION & P. C. B. INPUT

Schm Ref	PART NO.	Description	
C511	VJ599100	C.CE.TUBLR	0.1uF 50V
C512	UR847470	C.EL	47uF 25V
C513	VJ599100	C.CE.TUBLR	0.1uF 50V
C514	VJ599100	C.CE.TUBLR	0.1uF 50V
C515	VJ599100	C.CE.TUBLR	0.1uF 50V
C516	VJ599100	C.CE.TUBLR	0.1uF 50V
*C581	VG291300	C.EL	100uF 50V
*C582	VG291300	C.EL	100uF 50V
C583	VG290500	C.EL	1uF 50V
*C584	V5690300	C.PP	47pF 100V
C585	VG290600	C.EL	2.2uF 50V
*C586	V5690300	C.PP	47pF 100V
C587	VG290600	C.EL	2.2uF 50V
C588	VG290500	C.EL	1uF 50V
C589	UU137470	C.EL	47uF 16V
C590	UA655120	C.MYLAR	0.12uF 50V
C591	UA954330	C.MYLAR	0.033uF 50V
C592	UA954330	C.MYLAR	0.033uF 50V
C593	UA655120	C.MYLAR	0.12uF 50V
C594	UU137470	C.EL	47uF 16V
C595	UU137100	C.EL	10uF 16V
C596	VQ645600	C.MYLAR	100pF 50V
C597	VQ645600	C.MYLAR	100pF 50V
C598	UU137100	C.EL	10uF 16V
C599	UU137100	C.EL	10uF 16V
C600	UU137100	C.EL	10uF 16V
C621	VJ599100	C.CE.TUBLR	0.1uF 50V
C622	VJ599100	C.CE.TUBLR	0.1uF 50V
C623	VF466800	C.CE.TUBLR	100pF 50V
C624	VF466800	C.CE.TUBLR	100pF 50V
D501	VD631600	DIODE	1SS133,176,HSS104
D502	VD631600	DIODE	1SS133,176,HSS104
D503	VD631600	DIODE	1SS133,176,HSS104
D504	VD631600	DIODE	1SS133,176,HSS104
D505	VM974100	DIODE.ZENR	HZS5B2TD 5.0V
D506	VM974100	DIODE.ZENR	HZS5B2TD 5.0V
D507	VD631600	DIODE	1SS133,176,HSS104
D508	VM974700	DIODE.ZENR	HZS7B2TD 7.0V
D509	VD631600	DIODE	1SS133,176,HSS104
D510	VD631600	DIODE	1SS133,176,HSS104
D511	VM974400	DIODE.ZENR	HZS6B2TD 6.0V(RT)
D511	VM974600	DIODE.ZENR	HZS7A2TD 7.0V(BG)
D512	VD631600	DIODE	1SS133,176,HSS104
*IC501	XW826A00	IC.CPU	M30217MA-A203FP
IC502	XJ757A00	IC	NJM78L05A-T3
IC581	XA987A00	IC	NJM2068D-D
IC582	XA987A00	IC	NJM2068D-D
JK621	V2589500	CN	1P
PJ621	VR406000	JACK.PIN	3P
PN501	V3750200	PIN	L=70
Q501	iA093320	TR	2SA933S Q,R
Q502	iA093320	TR	2SA933S Q,R
Q503	VG722000	TR.DGT	DTC144ES

* New Parts

Schm Ref	PART NO.	Description	
Q504	iA093320	TR	2SA933S Q,R
Q505	VR948600	TR	2SC4038 Q,R,S
Q506	VR948600	TR	2SC4038 Q,R,S
R581	VP940200	R.MTL.OXD	47Ω 1W
R582	VP940200	R.MTL.OXD	47Ω 1W
ST601	BB071360	SCR.TERM	8.3x13
SW501	V4586200	SW.RT.ENC	REB161PVB20F
SW502	VG392900	SW.TACT	SKHVAA
SW503	VG392900	SW.TACT	SKHVAA
SW504	VG392900	SW.TACT	SKHVAA
SW505	VG392900	SW.TACT	SKHVAA
SW506	VG392900	SW.TACT	SKHVAA
SW507	VG392900	SW.TACT	SKHVAA
SW508	VG392900	SW.TACT	SKHVAA
SW509	VG392900	SW.TACT	SKHVAA
SW510	VG392900	SW.TACT	SKHVAA
U501	V3872300	L.DTCT	PIC-28143TH5
V501	V4193300	FL.DSPLY	16-BT-71GK
VR581	VP741800	VR	B20KΩ
VR582	VP741900	VR	G25KΩ
VR583	VP742000	VR	MN100KΩ
XL501	V4610100	RSNR.CE	10MHz
	VS588900	SHEET	
	V4186900	SPACER	FL-WIDE 10/32
*:	V4800600	P.C.B.	INPUT(RT)
*:	V4800700	P.C.B.	INPUT(BG)
CB102	VM923600	CN.BS.PIN	13P
CB103	Vi878900	CN.BS.PIN	11P
*CB104	VQ048400	CN	35P
CB105	VM689000	CN.BS.PIN	23P
CB106	VQ047400	CN.BS.PIN	19P
CB108	VK025300	CN.BS.PIN	9P
CB110	VQ047500	CN.BS.PIN	20P
CB112	Vi878900	CN.BS.PIN	11P
CB301	Vi878800	CN.BS.PIN	10P
CB302	VK027000	CN.BS.PIN	11P
CB303	VQ047100	CN.BS.PIN	7P
CB331	Vi878900	CN.BS.PIN	11P
CB351	Vi878800	CN.BS.PIN	10P
*CB371	V5478200	CN.PHOT.SN	1P GP1FA551RZ
*CB372	V5478200	CN.PHOT.SN	1P GP1FA551RZ
*CB373	V5478200	CN.PHOT.SN	1P GP1FA551RZ
*CB374	VQ044300	CN.BS.PIN	7P
C102	UA952100	C.MYLAR	100pF 50V(BG)
C103	UA952220	C.MYLAR	220pF 50V
C104	UA952100	C.MYLAR	100pF 50V
C105	UA952220	C.MYLAR	220pF 50V
C107	VF467300	C.CE.TUBLR	0.01uF 16V
C108	VK533900	C.PP	100pF 200V
C109	VK533900	C.PP	100pF 200V

* New Parts

P. C. B. INPUT

Schm Ref	PART NO.	Description		
C110	UA952100	C.MYLAR	100pF	50V
C111	UA952100	C.MYLAR	100pF	50V
C112	UA952100	C.MYLAR	100pF	50V
C113	UA952100	C.MYLAR	100pF	50V
C114	FG651470	C.CE	47pF	50V
C115	FG651470	C.CE	47pF	50V
C116	UA952100	C.MYLAR	100pF	50V
C117	UA952100	C.MYLAR	100pF	50V
C118	UA952100	C.MYLAR	100pF	50V
C119	UA952100	C.MYLAR	100pF	50V
C120	VF466800	C.CE.TUBLR	100pF	50V
C121	VF466800	C.CE.TUBLR	100pF	50V
C122	VF466700	C.CE.TUBLR	47pF	50V
C123	VF466700	C.CE.TUBLR	47pF	50V
C124	UA655220	C.MYLAR	0.22uF	50V
C125	VF467300	C.CE.TUBLR	0.01uF	16V
C126	UR866220	C.EL	2.2uF	50V
C127	UR828220	C.EL	220uF	10V
*C128	V4578900	C.EL	47uF	35V
C129	UA953100	C.MYLAR	1000pF	50V
C130	UA653910	C.MYLAR	9100pF	50V
C131	UA954330	C.MYLAR	0.033uF	50V
C132	UA653910	C.MYLAR	9100pF	50V
C133	UA954330	C.MYLAR	0.033uF	50V
C134	UA953100	C.MYLAR	1000pF	50V
C135	UR828220	C.EL	220uF	10V
*C136	V4578900	C.EL	47uF	35V
C137	UR866220	C.EL	2.2uF	50V
C138	VG291200	C.EL	47uF	50V
C139	VG291200	C.EL	47uF	50V
C142	VJ599100	C.CE.TUBLR	0.1uF	50V
C143	VJ599100	C.CE.TUBLR	0.1uF	50V
C144	UA954680	C.MYLAR	0.068uF	50V
C145	UA954180	C.MYLAR	0.018uF	50V
C146	UR828220	C.EL	220uF	10V
C147	UU137100	C.EL	10uF	16V
C148	UU137100	C.EL	10uF	16V
C149	UU137100	C.EL	10uF	16V
C150	UU137100	C.EL	10uF	16V
C151	VG287200	C.EL	10uF	50V
C152	VG288500	C.EL	10uF	50V
C153	VG287200	C.EL	10uF	50V
C154	UA952220	C.MYLAR	220pF	50V
C155	UA952100	C.MYLAR	100pF	50V
C156	VG287200	C.EL	10uF	50V
C157	VG288500	C.EL	10uF	50V
C158	VG287200	C.EL	10uF	50V
C159	UR837100	C.EL	10uF	16V
C160	UR837100	C.EL	10uF	16V
C161	VJ599100	C.CE.TUBLR	0.1uF	50V
C162	VJ599100	C.CE.TUBLR	0.1uF	50V
C163	UA952390	C.MYLAR	390pF	50V
C164	UA952390	C.MYLAR	390pF	50V

* New Parts

Schm Ref	PART NO.	Description		
*C165	Vi717200	C.MYLAR	0.027uF	50V
*C166	Vi717200	C.MYLAR	0.027uF	50V
C167	UU137100	C.EL	10uF	16V
C168	UU137100	C.EL	10uF	16V
*C169	VP917700	C.PP	470pF	100V
*C170	V4578900	C.EL	47uF	35V
*C171	V4578900	C.EL	47uF	35V
*C172	VP917700	C.PP	470pF	100V
C173	UU137100	C.EL	10uF	16V
C174	UU137100	C.EL	10uF	16V
*C175	Vi717200	C.MYLAR	0.027uF	50V
*C176	Vi717200	C.MYLAR	0.027uF	50V
C177	VJ599100	C.CE.TUBLR	0.1uF	50V
C178	VJ599100	C.CE.TUBLR	0.1uF	50V
C179	VG291200	C.EL	47uF	50V
C180	VG291200	C.EL	47uF	50V
C181	VJ599100	C.CE.TUBLR	0.1uF	50V
C182	VG287200	C.EL	10uF	50V
C183	VG291200	C.EL	47uF	50V
C184	VG291200	C.EL	47uF	50V
C185	VG287200	C.EL	10uF	50V
C186	UR866470	C.EL	4.7uF	50V
C187	UR866470	C.EL	4.7uF	50V
C188	VJ599100	C.CE.TUBLR	0.1uF	50V
C189	VJ599100	C.CE.TUBLR	0.1uF	50V
C190	VG287200	C.EL	10uF	50V
C191	VG287200	C.EL	10uF	50V
C192	UR866470	C.EL	4.7uF	50V
C199	UR866470	C.EL	4.7uF	50V
C200	VJ599100	C.CE.TUBLR	0.1uF	50V
C201	VJ599100	C.CE.TUBLR	0.1uF	50V
C202	UA952100	C.MYLAR	100pF	50V
C203	UA952100	C.MYLAR	100pF	50V
C302	VF466800	C.CE.TUBLR	100pF	50V
C303	UR837470	C.EL	47uF	16V
C304	UR837100	C.EL	10uF	16V
C305	UR837100	C.EL	10uF	16V
C306	UR837100	C.EL	10uF	16V
C307	UR837100	C.EL	10uF	16V
C309	VF466800	C.CE.TUBLR	100pF	50V
C310	UR837470	C.EL	47uF	16V
C331	VG278400	C.CE.TUBLR	220pF	50V
C332	VG278400	C.CE.TUBLR	220pF	50V
C333	VG278400	C.CE.TUBLR	220pF	50V
C334	VG278400	C.CE.TUBLR	220pF	50V
C335	VG278400	C.CE.TUBLR	220pF	50V
C336	VG278400	C.CE.TUBLR	220pF	50V
C337	VF467300	C.CE.TUBLR	0.01uF	16V
C351	VF466800	C.CE.TUBLR	100pF	50V
C352	VF466800	C.CE.TUBLR	100pF	50V
C353	UR837100	C.EL	10uF	16V
C354	UR837100	C.EL	10uF	16V
C355	UR837100	C.EL	10uF	16V

* New Parts

P. C. B. INPUT

Schm Ref	PART NO.	Description		
C356	UR837100	C.EL	10uF	16V
C357	VF466800	C.CE.TUBLR	100pF	50V
C358	VF466800	C.CE.TUBLR	100pF	50V
C360	UR837330	C.EL	33uF	16V
C362	UR837330	C.EL	33uF	16V
C363	UR837470	C.EL	47uF	16V
C364	UR837470	C.EL	47uF	16V
C365	UR837100	C.EL	10uF	16V
C366	UR837100	C.EL	10uF	16V
C367	UR837100	C.EL	10uF	16V
C368	UR837100	C.EL	10uF	16V
C371	VJ599100	C.CE.TUBLR	0.1uF	50V
C372	VJ599100	C.CE.TUBLR	0.1uF	50V
C373	UR847220	C.EL	22uF	25V
C374	VG276600	C.CE.TUBLR	22pF	50V
C375	VF466600	C.CE.TUBLR	10pF	50V
C376	VF466600	C.CE.TUBLR	10pF	50V
C377	VG276600	C.CE.TUBLR	22pF	50V
C378	UR847220	C.EL	22uF	25V
C379	VJ599100	C.CE.TUBLR	0.1uF	50V
C380	VJ599100	C.CE.TUBLR	0.1uF	50V
C381	VJ599100	C.CE.TUBLR	0.1uF	50V
C382	VJ599100	C.CE.TUBLR	0.1uF	50V
C383	VJ599100	C.CE.TUBLR	0.1uF	50V
C384	VG278400	C.CE.TUBLR	220pF	50V
C385	VF467000	C.CE.TUBLR	1000pF	50V
C386	VF467000	C.CE.TUBLR	1000pF	50V
C387	VG278400	C.CE.TUBLR	220pF	50V
C388	VJ599100	C.CE.TUBLR	0.1uF	50V
C389	VJ599100	C.CE.TUBLR	0.1uF	50V
C390	VJ599100	C.CE.TUBLR	0.1uF	50V
C391	UR828100	C.EL	100uF	10V
D101	VM975300	DIODE.ZENR	HZS11B2TD 11V	
D102	VM975300	DIODE.ZENR	HZS11B2TD 11V	
D103	VM975300	DIODE.ZENR	HZS11B2TD 11V	
D104	VM975300	DIODE.ZENR	HZS11B2TD 11V	
D371	VD631600	DIODE	1SS133,176,HSS104	
D372	VD631600	DIODE	1SS133,176,HSS104	
D373	VD631600	DIODE	1SS133,176,HSS104	
D374	VD631600	DIODE	1SS133,176,HSS104	
*IC101	XP580A00	IC	TC9273N-004	
IC102	XP896A00	IC	LC78213	
IC103	XP895A00	IC	LC78212	
IC104	XM356A00	IC	NJM2068LD	
IC106	XM356A00	IC	NJM2068LD	
IC107	XP265A00	IC	BU2090	
IC108	iG092000	IC	M5220L	
IC109	iG092000	IC	M5220L	
IC110	iG092000	IC	M5220L	
IC111	XR040A00	IC	TC9299P	
IC112	XA987A00	IC	NJM2068D-D	
IC113	XR040A00	IC	TC9299P	
IC114	XA987A00	IC	NJM2068D-D	

* New Parts

Schm Ref	PART NO.	Description		
*IC301	XW164A00	IC	NJM2296D	
*IC351	XW164A00	IC	NJM2296D	
*IC352	XW164A00	IC	NJM2296D	
IC371	iG142200	IC	TC74HCU04AP	
IC372	iG142200	IC	TC74HCU04AP	
*IC373	iR000000	IC	TC74HC00AP	
*IC374	iR000000	IC	TC74HC00AP	
IC395	XT208A00	IC	HD74HC153P MPX	
JK351	VP113600	CN.DIN	2P	
JK352	VP113600	CN.DIN	2P	
JK353	VP113600	CN.DIN	2P	
L371	GE901970	COIL	68uH	
L372	GE901970	COIL	68uH	
L373	GE901970	COIL	68uH	
PJ101	VQ260900	JACK.PIN	4P	
PJ102	VU857800	JACK.PIN	6P	
PJ103	VU857800	JACK.PIN	6P	
PJ104	VJ696300	JACK.PIN	4P	
PJ105	VK437600	JACK.PIN	1P	
PJ301	VJ695900	JACK.PIN	3P	
PJ302	VJ695900	JACK.PIN	3P	
PJ331	VT003300	JACK.PIN	6P	
PJ371	VZ537500	JACK.PIN	2P	
PN101	V3750200	PIN	L=70	
Q102	iC287820	TR	2SC2878 A,B	
Q106	iC287820	TR	2SC2878 A,B	
Q107	iC287820	TR	2SC2878 A,B	
Q110	iC287820	TR	2SC2878 A,B	
Q112	iC287820	TR	2SC2878 A,B	
Q114	iC287820	TR	2SC2878 A,B	
Q119	iC287820	TR	2SC2878 A,B	
Q120	iC287820	TR	2SC2878 A,B	
Q121	VG721700	TR.DGT	DTA144ES	
Q124	VG721700	TR.DGT	DTA144ES	
Q125	VG721700	TR.DGT	DTA144ES	
R141	HV755100	R.CAR.FP	100Ω	1/4W
R154	HV755100	R.CAR.FP	100Ω	1/4W
R155	VP940200	R.MTL.OXD	47Ω	1W
R156	VP940200	R.MTL.OXD	47Ω	1W
R216	VP940200	R.MTL.OXD	47Ω	1W
R217	VP940200	R.MTL.OXD	47Ω	1W
R231	VP940200	R.MTL.OXD	47Ω	1W
R232	VP940200	R.MTL.OXD	47Ω	1W
R245	HV753220	R.CAR.FP	2.2Ω	1/4W
R246	HV753220	R.CAR.FP	2.2Ω	1/4W
R386	HV753220	R.CAR.FP	2.2Ω	1/4W

* New Parts

P. C. B. POWER

Schm Ref	PART NO.	Description	
* V4801900	P.C.B.	POWER(B)	
* V4802000	P.C.B.	POWER(G)	
* V4802400	P.C.B.	POWER(RT)	
CB401	VQ045300	CN.BS.PIN	23P
CB451	Vi878600	CN.BS.PIN	8P
CB721	VQ963000	CN.BS.PIN	9P
CB722	Vi878600	CN.BS.PIN	8P
CB801	VQ960900	CN.BS.PIN	6P
CB804	VP206500	HOLDER.FUS	EYF-52BCT
CB805	VG879900	CN.BS.PIN	2P
CB806	VP206500	HOLDER.FUS	EYF-52BCT
CB851	VP206500	HOLDER.FUS	EYF-52BCT(RT)
CB852	VP206500	HOLDER.FUS	EYF-52BCT(RT)
C401	VG290600	C.EL	2.2uF 50V
* C402	VP917500	C.PP	100pF 100V
* C403	VP917500	C.PP	100pF 100V
C404	VG290600	C.EL	2.2uF 50V
C405	VG290600	C.EL	2.2uF 50V
C406	VG290600	C.EL	2.2uF 50V
C407	VG290600	C.EL	2.2uF 50V
C408	VG290600	C.EL	2.2uF 50V
C409	UN866100	C.EL	1uF 50V
C410	UU137100	C.EL	10uF 16V
C412	VM645200	C.PP	560pF 100V
C414	VM645200	C.PP	560pF 100V
C417	UU137100	C.EL	10uF 16V
C418	UU137100	C.EL	10uF 16V
* C420	VG291300	C.EL	100uF 50V
* C421	VP917500	C.PP	100pF 100V
C422	VG286200	C.EL	100uF 10V
C423	UA952100	C.MYLAR	100pF 50V
C424	VG286200	C.EL	100uF 10V
* C425	VG291300	C.EL	100uF 50V
* C427	Vi578700	C.EL	10uF 50V
* C428	Vi578700	C.EL	10uF 50V
C430	UA952100	C.MYLAR	100pF 50V
C431	VG286200	C.EL	100uF 10V
C432	UA952100	C.MYLAR	100pF 50V
C433	VG286200	C.EL	100uF 10V
* C435	Vi578700	C.EL	10uF 50V
C436	VJ599100	C.CE.TUBLR	0.1uF 50V
* C451	VG291500	C.EL	330uF 50V
* C452	VG291500	C.EL	330uF 50V
△ C453	UR749220	C.EL	2200uF 25V
C454	VE326000	C.MYLAR.ML	0.1uF 50V
△ C455	UR749470	C.EL	4700uF 25V
C456	VE326000	C.MYLAR.ML	0.1uF 50V
C457	VS745400	C.POL.MTL	0.1uF 100V
△ C458	UR73A100	C.EL	10000uF 16V
C461	VE326000	C.MYLAR.ML	0.1uF 50V
C462	VE326000	C.MYLAR.ML	0.1uF 50V
△ C463	UR73A100	C.EL	10000uF 16V
C464	VS745400	C.POL.MTL	0.1uF 100V

* New Parts

Schm Ref	PART NO.	Description	
C721	VG291200	C.EL	47uF 50V
C722	VG291200	C.EL	47uF 50V
C723	VG287600	C.EL	100uF 25V
C724	VG288500	C.EL	10uF 50V
C725	VG287600	C.EL	100uF 25V
C726	VG288500	C.EL	10uF 50V
C727	VG291200	C.EL	47uF 50V
C728	VG291200	C.EL	47uF 50V
C729	UR838100	C.EL	100uF 16V
C730	UR838100	C.EL	100uF 16V
C731	UR847100	C.EL	10uF 25V
C732	UR838100	C.EL	100uF 16V
C733	UR847100	C.EL	10uF 25V
C734	UR847100	C.EL	10uF 25V
C801	FG613100	C.CE	1000pF 50V(RT)
C802	VJ599100	C.CE.TUBLR	0.1uF 50V
* C804	VL884600	C.PP	0.01uF 100V
* C805	UR896470	C.EL	4.7uF 100V(RT)
C806	Vi716700	C.MYLAR	0.01uF 50V
△ C807	V3501400	C.CE.SAFTY	0.01uP 275V
C808	UR848220	C.EL	220uF 25V(RT)
D401	VM974200	DIODE.ZENR	HZS5C2TD 5.0V
△ D451	VQ379300	DIODE.BRG	S1VB20 1.0A 200V
△ D452	VQ379300	DIODE.BRG	S1VB20 1.0A 200V
△* D453	V4269600	DIODE.BRG	D2SBA20 1.5A 200V
D721	VM976300	DIODE.ZENR	HZS242TD 24V
D722	VM976300	DIODE.ZENR	HZS242TD 24V
D801	VD631600	DIODE	1SS133,176,HSS104
D803	VM975600	DIODE.ZENR	HZS12B2TD 12V(RT)
D804	VV307700	DIODE	1N4002S
D805	VV307700	DIODE	1N4002S
D806	VV307700	DIODE	1N4002S
D807	VV307700	DIODE	1N4002S
△ F802	VS823300	FUSE	T8.0A 125V
△ F851	KB000790	FUSE	T4.0A 250V(RT)
HS801	VR506800	HEAT.SINK	PUH16-25(RT)
IC401	XA987A00	IC	NJM2068D-D
IC402	XA987A00	IC	NJM2068D-D
IC403	XA987A00	IC	NJM2068D-D
IC404	XF494A00	IC	LB1641
△ IC721	XJ608A00	IC	NJM7812FA
△ IC722	XD343A00	IC	NJM79M12FA
△ IC723	XJ604A00	IC	NJM78M05FA
△ IC724	XE436A00	IC	NJM79M05FA
△ IC725	XJ607A00	IC	NJM7805FA 5V
PN451	V3750200	PIN	L=70
Q721	iC1815I0	TR	2SC1815 Y
Q722	iA1015I0	TR	2SA1015 Y
Q801	iC174020	TR	2SC1740S R,S
Q802	VR510800	TR	2SD2396 J,K(RT)
R411	VP940200	R.MTL.OXD	47Ω 1W
R412	VP940200	R.MTL.OXD	47Ω 1W
R435	HV754100	R.CAR.FP	10Ω 1/4W

* New Parts

P. C. B. POWER & P. C. B. MAIN

Schm Ref	PART NO.	Description	
R451	HV753100	R.CAR.FP	1Ω 1/4W
R452	HV753100	R.CAR.FP	1Ω 1/4W
R725	HV753100	R.CAR.FP	1Ω 1/4W
R726	HV753100	R.CAR.FP	1Ω 1/4W
R727	HV755100	R.CAR.FP	100Ω 1/4W
R728	HV755100	R.CAR.FP	100Ω 1/4W
R729	HV753100	R.CAR.FP	1Ω 1/4W
*R730	VP939500	R.MTL.FLM	1Ω 1W
R731	VP939600	R.MTL.FLM	2.2Ω 1W
R802	HV756560	R.CAR.FP	5.6KΩ 1/4W(RT)
R803	HV756560	R.CAR.FP	5.6KΩ 1/4W(RT)
△RY801	V2712300	RELAY	DC SDT-S-112LMR
ST801	BB071360	SCR.TERM	8.3x13
SW851	VA961800	VOLT.SELCT	ESE-37247-F(RT)
△*T801	XW607A00	TRANS.PWR	(RT)
△TE801	V4746500	OUTLET.AC	3P(RT)
VR401	VV613500	VR	A100KΩ
	EP600140	SCR.BND.HD	3x10 MFZN2-BL(RT)
*	V4802700	P.C.B.	MAIN(RT)
*	V4802800	P.C.B.	MAIN(BG)
CB501	VQ045000	CN.BS.PIN	20P
CB502	VQ961700	CN.BS.PIN	14P
CB503	VQ963500	CN.BS.PIN	14P
CB505	VF728200	CN.BS.PIN	10P
CB506	Vi878600	CN.BS.PIN	8P
CB507	VQ961200	CN.BS.PIN	9P
CB702	VQ584700	CN.BS.PIN	5P
CB711	VQ584700	CN.BS.PIN	5P
CB751	Vi878600	CN.BS.PIN	8P
CB752	VQ962700	CN.BS.PIN	6P
C501	VK534000	C.PP	220pF 200V
*C502	Vi377400	C.EL	4.7uF 63V
*C503	V2290000	C.EL	22uF 63V
C504	UU137100	C.EL	10uF 16V
C505	UU137100	C.EL	10uF 16V
*C506	V5618600	C.EL	10uF 25V
C0507	UU138100	C.EL	100uF 16V
*C508	Vi578700	C.EL	10uF 50V
*C509	Vi578700	C.EL	10uF 50V
C510	VQ645600	C.MYLAR	100pF 50V
C511	VQ462600	C.MYLAR	220pF 50V
C512	VQ645600	C.MYLAR	100pF 50V
C513	VQ462600	C.MYLAR	220pF 50V
C514	VQ645600	C.MYLAR	100pF 50V
C515	VQ462600	C.MYLAR	220pF 50V
C516	UA952100	C.MYLAR	100pF 50V
C517	UA952220	C.MYLAR	220pF 50V
C518	UA952100	C.MYLAR	100pF 50V
C519	UA952220	C.MYLAR	220pF 50V
C520	FU451150	C.MICA	15pF 500V
*C521	VG291300	C.EL	100uF 50V

Schm Ref	PART NO.	Description	
*C522	VP918000	C.PP	3300pF 100V
C523	FU451150	C.MICA	15pF 500V
*C524	VG291300	C.EL	100uF 50V
*C525	VP918000	C.PP	3300pF 100V
C526	FU451150	C.MICA	15pF 500V
C527	VG291200	C.EL	47uF 50V
*C528	VP918000	C.PP	3300pF 100V
C529	VR516400	C.CE	15pF 500V
*C530	V4578900	C.EL	47uF 35V
C531	UA953330	C.MYLAR	3300pF 50V
C532	VR516400	C.CE	15pF 500V
*C533	V4578900	C.EL	47uF 35V
C534	UA953330	C.MYLAR	3300pF 50V
C535	VG291200	C.EL	47uF 50V
C536	VG291200	C.EL	47uF 50V
C537	VG291200	C.EL	47uF 50V
C538	VG291200	C.EL	47uF 50V
C539	VG291200	C.EL	47uF 50V
*C540	V2290000	C.EL	22uF 63V
C541	VS759000	C.PP	150pF 630V
C542	VG287500	C.EL	47uF 50V
*C543	V5618900	C.EL	47uF 25V
C544	VS759000	C.PP	150pF 630V
C545	VS759000	C.PP	150pF 630V
*C546	VT898000	C.MYLAR	0.1uF 100V
*C547	V5618900	C.EL	47uF 25V
C548	VS759000	C.PP	150pF 630V
C549	VS759000	C.PP	150pF 630V
*C550	V5618900	C.EL	47uF 25V
C551	VS759000	C.PP	150pF 630V
*C552	V3872800	C.MYLAR	150pF 100V
C553	VG287500	C.EL	47uF 50V
*C554	V3872800	C.MYLAR	150pF 100V
*C555	V3872800	C.MYLAR	150pF 100V
C556	VG287500	C.EL	47uF 50V
*C557	V3872800	C.MYLAR	150pF 100V
*C558	VP918300	C.PP	0.022uF 100V
*C559	VP918300	C.PP	0.022uF 100V
*C560	VP918300	C.PP	0.022uF 100V
C561	UA954220	C.MYLAR	0.022uF 50V
C562	UA954220	C.MYLAR	0.022uF 50V
C563	UR866470	C.EL	4.7uF 50V
*C564	VT898000	C.MYLAR	0.1uF 100V
C565	VK534000	C.PP	220pF 200V
C568	UR866470	C.EL	4.7uF 50V
C569	UR866470	C.EL	4.7uF 50V
C570	UR818220	C.EL	220uF 6.3V
*C582	V2290000	C.EL	22uF 63V
△C751	VS529200	C.EL	10000uF 63V
△C752	VS529200	C.EL	10000uF 63V
*C753	VT898000	C.MYLAR	0.1uF 100V
*C754	VT898000	C.MYLAR	0.1uF 100V
C755	VK534100	C.PP	0.01uF 100V

* New Parts

* New Parts

P. C. B. MAIN

Schm Ref	PART NO.	Description	
*C760	VG291300	C.EL	100uF 50V
*C761	VG291300	C.EL	100uF 50V
C762	UA655100	C.MYLAR	0.1uF 50V
C763	UA655100	C.MYLAR	0.1uF 50V
D501	VG439600	DIODE.ZENR	MTZJ10C 10V
D502	VD631600	DIODE	1SS133,176,HSS104
D503	VD631600	DIODE	1SS133,176,HSS104
D504	VD631600	DIODE	1SS133,176,HSS104
D505	VD631600	DIODE	1SS133,176,HSS104
D507	VN008700	DIODE	1SS270A
D508	VN008700	DIODE	1SS270A
D509	VN008700	DIODE	1SS270A
D510	VN008700	DIODE	1SS270A
D511	VN008700	DIODE	1SS270A
*D512	VG440300	DIODE.ZENR	MTZJ12C 12V
*D513	VG443200	DIODE.ZENR	MTZ J 30.0A 30.0V
*D514	VG440300	DIODE.ZENR	MTZJ12C 12V
*D515	VG440300	DIODE.ZENR	MTZJ12C 12V
D521	VD631600	DIODE	1SS133,176,HSS104
D522	VN008700	DIODE	1SS270A
D523	VN008700	DIODE	1SS270A
D524	VN008700	DIODE	1SS270A
D525	VN008700	DIODE	1SS270A
D526	VN008700	DIODE	1SS270A
*D527	VG440300	DIODE.ZENR	MTZJ12C 12V
*D528	VG440300	DIODE.ZENR	MTZJ12C 12V
*D529	VG440300	DIODE.ZENR	MTZJ12C 12V
*D530	VG440300	DIODE.ZENR	MTZJ12C 12V
D531	VD631600	DIODE	1SS133,176,HSS104
D532	VD631600	DIODE	1SS133,176,HSS104
△*D751	VM702000	DIODE.BRG	S5VB20 3.5A 200V
*D752	VG440300	DIODE.ZENR	MTZJ12C 12V
△D759	VS997800	DIODE	1T2
△D760	VS997800	DIODE	1T2
D761	VN008700	DIODE	1SS270A
△D762	VS997800	DIODE	1T2
△D763	VS997800	DIODE	1T2
D764	VN008700	DIODE	1SS270A
D765	VN008700	DIODE	1SS270A
D766	VG437200	DIODE.ZENR	MTZJ4.7C 4.7V
D767	VN008700	DIODE	1SS270A
D768	VN008700	DIODE	1SS270A
G501	VR463400	TERM.GND	D3.5 TP00385
JK711	V2700900	JACK.PHONE	JY-6317-03-030GD
*PJ501	V5479200	JACK.PIN	4P YKC21-3739
PJ701	VR765100	JACK.PIN	2P
PN501	V3750200	PIN	L=70
PN502	V3750200	PIN	L=70
PN503	V3750200	PIN	L=70
PN504	V3750200	PIN	L=70
Q506	VP883100	TR	2SC1890A D,E
Q507	VP883100	TR	2SC1890A D,E
Q508	VP883100	TR	2SC1890A D,E

* New Parts

Schm Ref	PART NO.	Description	
Q509	VP883100	TR	2SC1890A D,E
Q510	VP883100	TR	2SC1890A D,E
Q511	VP883100	TR	2SC1890A D,E
*Q512	V3966800	TR	2SB949 O,Y
Q513	VP883100	TR	2SC1890A D,E
*Q514	V3966800	TR	2SB949 O,Y
Q515	VP883100	TR	2SC1890A D,E
*Q516	V3966800	TR	2SB949 O,Y
Q517	VP883100	TR	2SC1890A D,E
*Q518	V3966800	TR	2SB949 O,Y
Q519	VP883100	TR	2SC1890A D,E
*Q520	V3966800	TR	2SB949 O,Y
△Q521	VK432900	TR	2SD1915F S,T
△Q522	VK432900	TR	2SD1915F S,T
△Q523	VK432900	TR	2SD1915F S,T
△Q524	VK432900	TR	2SD1915F S,T
△Q525	VK432900	TR	2SD1915F S,T
△Q526	VP872700	TR	2SC4488 S,T
△Q527	VR355900	TR.PAIR	2SA1695/C4468 OPY
Q528	iC1815I0	TR	2SC1815 Y
△Q529	VP872600	TR	2SA1708 S,T
△Q530	VP872700	TR	2SC4488 S,T
△Q531	VR355900	TR.PAIR	2SA1695/C4468 OPY
△Q532	VS883300	TR	2SB1565 E,F
△Q533	VP872600	TR	2SA1708 S,T
△Q534	VP872700	TR	2SC4488 S,T
△Q535	VR355900	TR.PAIR	2SA1695/C4468 OPY
△Q536	VP883000	TR	2SA893A D,E
△Q537	VP872600	TR	2SA1708 S,T
△Q538	VP872700	TR	2SC4488 S,T
△Q539	VR355900	TR.PAIR	2SA1695/C4468 OPY
Q540	VP883000	TR	2SA893A D,E
△Q541	VP872600	TR	2SA1708 S,T
△Q542	VP872700	TR	2SC4488 S,T
△Q543	VR355900	TR.PAIR	2SA1695/C4468 OPY
△Q545	VP872600	TR	2SA1708 S,T
Q546	VP883100	TR	2SC1890A D,E
Q547	VP883100	TR	2SC1890A D,E
Q548	VP883100	TR	2SC1890A D,E
Q549	VP883100	TR	2SC1890A D,E
Q550	VP883100	TR	2SC1890A D,E
Q551	VP883000	TR	2SA893A D,E
△Q552	iA1015I0	TR	2SA1015 Y
Q553	iC1815I0	TR	2SC1815 Y
Q554	VP883100	TR	2SC1890A D,E
Q555	iC1815I0	TR	2SC1815 Y
△Q557	VR510800	TR	2SD2396 J,K
△R516	HV754100	R.CAR.FP	10Ω 1/4W
R538	VP940400	R.MTL.OXD	100Ω 1W
△R543	HV756150	R.CAR.FP	1.5KΩ 1/4W
R545	VP940400	R.MTL.OXD	100Ω 1W
R552	VP940400	R.MTL.OXD	100Ω 1W
R559	HV755100	R.CAR.FP	100Ω 1/4W

* New Parts

P. C. B. MAIN

Schm Ref	PART NO.	Description		
R566	HV755100	R.CAR.FP	100Ω	1/4W
R567	VT975300	R.MTL.OXD	3.9KΩ	1W
*R569	V3946100	R.MTL.OXD	2.7KΩ	0.5W
*R570	V3945100	R.MTL.OXD	390Ω	0.5W
*R571	V3945600	R.MTL.OXD	1KΩ	0.5W
*R572	V3945500	R.MTL.OXD	820Ω	0.5W
*R573	VT975300	R.MTL.OXD	3.9KΩ	1W
*R575	V3946100	R.MTL.OXD	2.7KΩ	0.5W
*R576	V3945100	R.MTL.OXD	390Ω	0.5W
*R577	V3945600	R.MTL.OXD	1KΩ	0.5W
*R578	V3945500	R.MTL.OXD	820Ω	0.5W
*R579	VT975300	R.MTL.OXD	3.9KΩ	1W
R580	VP941500	R.MTL.OXD	4.7KΩ	1W
*R581	V3946100	R.MTL.OXD	2.7KΩ	0.5W
*R582	V3945100	R.MTL.OXD	390Ω	0.5W
*R583	V3945600	R.MTL.OXD	1KΩ	0.5W
*R584	V3945500	R.MTL.OXD	820Ω	0.5W
*R585	VT975300	R.MTL.OXD	3.9KΩ	1W
R586	VP941500	R.MTL.OXD	4.7KΩ	1W
*R587	V3946100	R.MTL.OXD	2.7KΩ	0.5W
*R588	V3945100	R.MTL.OXD	390Ω	0.5W
*R589	V3945600	R.MTL.OXD	1KΩ	0.5W
*R590	V3945500	R.MTL.OXD	820Ω	0.5W
*R591	VT975300	R.MTL.OXD	3.9KΩ	1W
R592	VP941500	R.MTL.OXD	4.7KΩ	1W
*R593	V3946100	R.MTL.OXD	2.7KΩ	0.5W
*R594	V3945100	R.MTL.OXD	390Ω	0.5W
*R595	V3945600	R.MTL.OXD	1KΩ	0.5W
*R596	V3945500	R.MTL.OXD	820Ω	0.5W
R597	VP941500	R.MTL.OXD	4.7KΩ	1W
△ R598	VP939700	R.MTL.FLM	4.7Ω	1W
△*R599	V3944800	R.MTL.OXD	220Ω	0.5W
R600	VP941500	R.MTL.OXD	4.7KΩ	1W
△ R602	VP939700	R.MTL.FLM	4.7Ω	1W
△ R603	VP939700	R.MTL.FLM	4.7Ω	1W
△*R605	V3944800	R.MTL.OXD	220Ω	0.5W
△ R607	VP939700	R.MTL.FLM	4.7Ω	1W
△ R608	VP939800	R.MTL.OXD	10Ω	1W
△ R609	HV754100	R.CAR.FP	10Ω	1/4W
△*R610	V3944800	R.MTL.OXD	220Ω	0.5W
△ R611	VP939800	R.MTL.OXD	10Ω	1W
△ R612	HV754100	R.CAR.FP	10Ω	1/4W
△*R614	V3944800	R.MTL.OXD	220Ω	0.5W
△ R615	HV754100	R.CAR.FP	10Ω	1/4W
△ R616	HV754100	R.CAR.FP	10Ω	1/4W
△*R617	V3944800	R.MTL.OXD	220Ω	0.5W
△ R619	HV754100	R.CAR.FP	10Ω	1/4W
△ R624	VP939800	R.MTL.OXD	10Ω	1W
△ R629	VP939800	R.MTL.OXD	10Ω	1W
△ R634	VP939800	R.MTL.OXD	10Ω	1W
△ R639	VP939800	R.MTL.OXD	10Ω	1W
△ R644	VP939800	R.MTL.OXD	10Ω	1W
R653	HV755100	R.CAR.FP	100Ω	1/4W

* New Parts

Schm Ref	PART NO.	Description		
R660	HV755100	R.CAR.FP	100Ω	1/4W
R661	HV755100	R.CAR.FP	100Ω	1/4W
△ R662	VP940800	R.MTL.OXD	470Ω	1W
△ R663	HV755100	R.CAR.FP	100Ω	1/4W
△ R664	HV756100	R.CAR.FP	1KΩ	1/4W
△ R665	VP940800	R.MTL.OXD	470Ω	1W
△ R666	VP940800	R.MTL.OXD	470Ω	1W
R672	HV755100	R.CAR.FP	100Ω	1/4W
R673	HV755100	R.CAR.FP	100Ω	1/4W
△ R688	V3873200	R.WW	0.22Ω	3W
△ R690	V3873200	R.WW	0.22Ω	3W
△ R691	VP939700	R.MTL.FLM	4.7Ω	1W
△ R692	V3873200	R.WW	0.22Ω	3W
△ R693	VP939700	R.MTL.FLM	4.7Ω	1W
△ R694	VU981700	R.MTL.PLAT	0.22Ω+0.22Ω	3W
△ R695	VP939700	R.MTL.FLM	4.7Ω	1W
△ R696	VU981700	R.MTL.PLAT	0.22Ω+0.22Ω	3W
R711	VP940900	R.MTL.OXD	560Ω	1W
R712	VP940900	R.MTL.OXD	560Ω	1W
△ R763	HV753100	R.CAR.FP	1Ω	1/4W
△ R764	HV753100	R.CAR.FP	1Ω	1/4W
△ R768	HV756470	R.CAR.FP	4.7KΩ	1/4W
△ RY501	VK438300	RELAY	DH24D2-OT/M2	
△ RY502	VU566700	RELAY	DG24D2-OS/M	
△ RY503	VK438300	RELAY	DH24D2-OT/M2	
ST501	BB071360	SCR.TERM	8.3x13	
ST502	BB071360	SCR.TERM	8.3x13	
ST503	BB071360	SCR.TERM	8.3x13	
ST504	BB071360	SCR.TERM	8.3x13	
ST505	BB071360	SCR.TERM	8.3x13	
SW711	VV523900	SW.PUSH	PBS-YM-001	
TE501	V4470700	TERM.SP	6P	
TE701	VC313700	TERM.SP	8P	
	BB070700	GND.MTL		

* New Parts

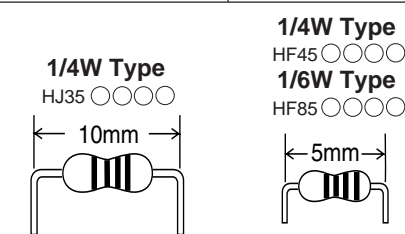
■ Chip Resistors

Schm Ref	PART NO.	Description
	RD254470	R.CAR.CHP 47Ω 1/10W
	RD255100	R.CAR.CHP 100Ω 1/10W
	RD255330	R.CAR.CHP 330Ω 1/10W
	RD256100	R.CAR.CHP 1KΩ 1/10W
	RD256120	R.CAR.CHP 1.2KΩ 1/10W
	RD256150	R.CAR.CHP 1.5KΩ 1/10W
	RD256220	R.CAR.CHP 2.2KΩ 1/10W
	RD256330	R.CAR.CHP 3.3KΩ 1/10W
*	RD256360	R.CAR.CHP 3.6KΩ 1/10W
	RD256390	R.CAR.CHP 3.9KΩ 1/10W
	RD256470	R.CAR.CHP 4.7KΩ 1/10W
	RD256680	R.CAR.CHP 6.8KΩ 1/10W
	RD256820	R.CAR.CHP 8.2KΩ 1/10W
	RD256910	R.CAR.CHP 9.1KΩ 1/10W
	RD257100	R.CAR.CHP 10KΩ 1/10W
	RD257160	R.CAR.CHP 16KΩ 1/10W
	RD257470	R.CAR.CHP 47KΩ 1/10W
	RD258100	R.CAR.CHP 100KΩ 1/10W
	RD258470	R.CAR.CHP 470KΩ 1/10W
	RD259100	R.CAR.CHP 1MΩ 1/10W

* New Parts

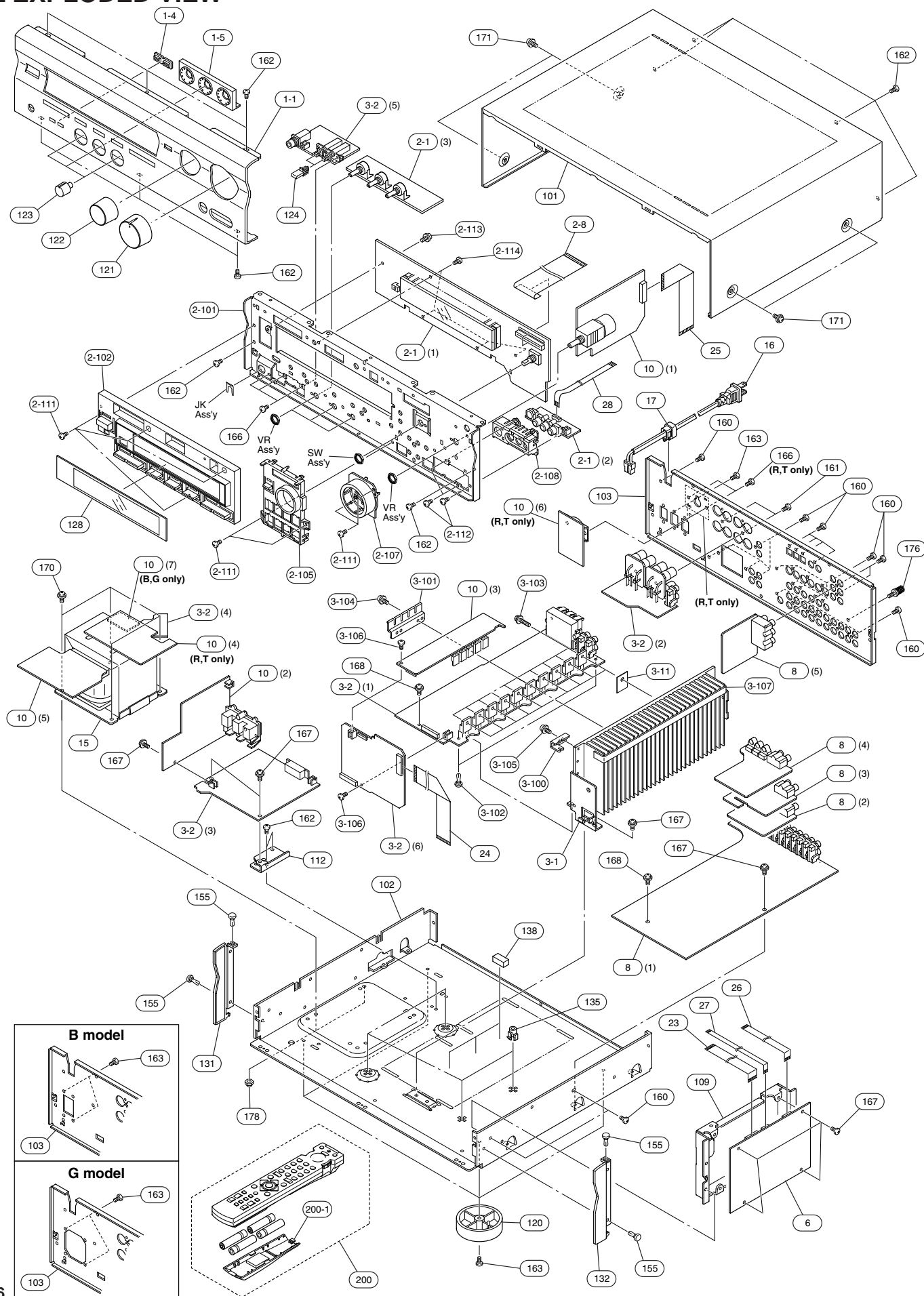
Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4390	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



*: Not available

EXPLODED VIEW



MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1-1	V4169600	FRONT PANEL		BL
* 1-1	V4169700	FRONT PANEL		GD
* 1-1	V4169800	FRONT PANEL		TI
1-4	V2468600	ESCUTCHON	3x8	
* 1-5	V4173300	ESCUTCHEON TC		BL
* 1-5	V4173400	ESCUTCHEON TC		TI
1-5	V4173500	ESCUTCHEON TC		GD
* 2-1	V4801400	P.C.B. ASS'Y	OPERATION	(RT)
* 2-1	V4801500	P.C.B. ASS'Y	OPERATION	(GB)
* 2-8	MF235200	S FLEXIBLE FLAT CABLE	35P 200mm	
2-101	V4168800	SUB CHASSIS		
2-102	V4171100	BUTTON CASE		GD
* 2-102	V4170900	BUTTON CASE		BL
* 2-102	V4171000	BUTTON CASE		TI
* 2-105	V4171900	BUTTON INPUT		GD
* 2-105	V4171500	BUTTON INPUT		BL
* 2-105	V4171700	BUTTON INPUT		TI
2-107	V2468100	ESCUTCHEON, VOL		GD
2-107	V2467900	ESCUTCHEON, VOL		BL
2-107	V2468000	ESCUTCHEON, VOL		TI
2-108	V2468500	ESCUTCHEON, PJ		GD
2-108	V2468300	ESCUTCHEON, PJ		BL
2-108	V2468400	ESCUTCHEON, PJ		TI
2-111	EP600830	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
2-112	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL	
2-113	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
2-114	EP630220	BIND HEAD P-TITE SCREW	3x8 ZMC2-BL	
* 3-1	V4170000	HEAT SINK		
* 3-2	V4802700	P.C.B. ASS'Y	MAIN	(RT)
* 3-2	V4802800	P.C.B. ASS'Y	MAIN	(BG)
3-11	VV849300	SHEET	19x24	
* 3-100	V4169000	SUPPORT, PCB		
3-101	V2461000	SUPPORT, TR		
3-102	VQ368600	PUSH RIVET	P3555-B	
3-103	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3	
3-104	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
3-105	EP600830	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
3-106	EG330030	BIND HEAD SCREW	3x6 FCRM3-BL	
* 3-107	V5454200	DAMPER	2x10x260	
* 6	V4800100	P.C.B. ASS'Y	DSP	
* 8	V4800600	P.C.B. ASS'Y	INPUT	(RT)
* 8	V4800700	P.C.B. ASS'Y	INPUT	(BG)
* 10	V4801900	P.C.B. ASS'Y	POWER	(B)
* 10	V4802000	P.C.B. ASS'Y	POWER	(G)
* 10	V4802400	P.C.B. ASS'Y	POWER	(RT)
△* 15	XW612A00	POWER TRANSFORMER		(RT)
△* 15	XW614A00	POWER TRANSFORMER		(BG)
△ 16	VN363700	POWER CORD ASS'Y		(G)
△ 16	VV437300	POWER CORD ASS'Y		(B)
△ 16	VZ542500	POWER CORD ASS'Y		(RT)
17	V2438700	CORD STOPPER	10P1	
23	MF219140	S FLEXIBLE FLAT CABLE	19P 140mm	
24	MF120200	FLEXIBLE FLAT CABLE	20P 200mm	

* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
25	MF123140	FLEXIBLE FLAT CABLE	23P 140mm	
26	MF113140	FLEXIBLE FLAT CABLE	13P 140mm	
27	MF207200	S FLEXIBLE FLAT CABLE	7P 200mm	
* 28	MF207350	S FLEXIBLE FLAT CABLE	7P 350mm	
101	VV121300	TOP COVER		BL
101	VV121500	TOP COVER		TI
101	VZ884500	TOP COVER		GD
102	V2460600	CHASSIS		
* 103	V4168500	REAR PANEL		(RT)
* 103	V4168600	REAR PANEL		(B)
* 103	V4168700	REAR PANEL		(G)
109	V2461100	SHIELD CASE		
112	V4168900	FRAME, PCB		
120	V0042500	LEG	D60xH21	GD
120	VS025000	LEG	D60xH21	BL, TI
* 121	V4172900	KNOB D40		BL
* 121	V4173000	KNOB D40		TI
121	V4173100	KNOB D40		GD
* 122	V4172600	KNOB D30 ENC		BL
* 122	V4172700	KNOB D30 ENC		TI
122	V4172800	KNOB D30 ENC		GD
* 123	V4172000	KNOB		BL
* 123	V4172100	KNOB		TI
123	V4172200	KNOB		GD
* 124	V2918800	BUTTON	3x8	BL
124	V2918900	BUTTON	3x8	TI
124	V4562700	BUTTON	3x8	GD
128	V2469400	SHEET, WINDOW		
* 131	V4170300	PLATE SIDE L		BL
* 131	V4170400	PLATE SIDE L		TI
131	V4170500	PLATE SIDE L		GD
* 132	V4170600	PLATE SIDE R		BL
* 132	V4170700	PLATE SIDE R		TI
132	V4170800	PLATE SIDE R		GD
135	VR264400	SPACER	H8	
138	V2879500	SPACER PCB-M		
155	VQ368600	PUSH RIVET	P3555-B	
160	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL	
161	VY731200	BONDING HEAD TAPPING SCREW	3x10 MFNI33	
162	EP600830	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
163	EP600250	BIND HEAD B-TITE SCREW	3x8 ZMC2-Y	
166	EG330030	BIND HEAD SCREW	3x6 FCRM3-BL	
167	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
168	VT669400	PW HEAD B-TITE SCREW	3x15-8 MFC2	
170	21991500	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
171	21991500	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL
171	VD069600	PW HEAD S-TITE SCREW	4x8-10 MFNI-33	GD
171	VH313200	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI
176	AA627310	GROUND TERMINAL		
178	03700480	HEXAGONAL CAP NUT	4.0 MFNI33	

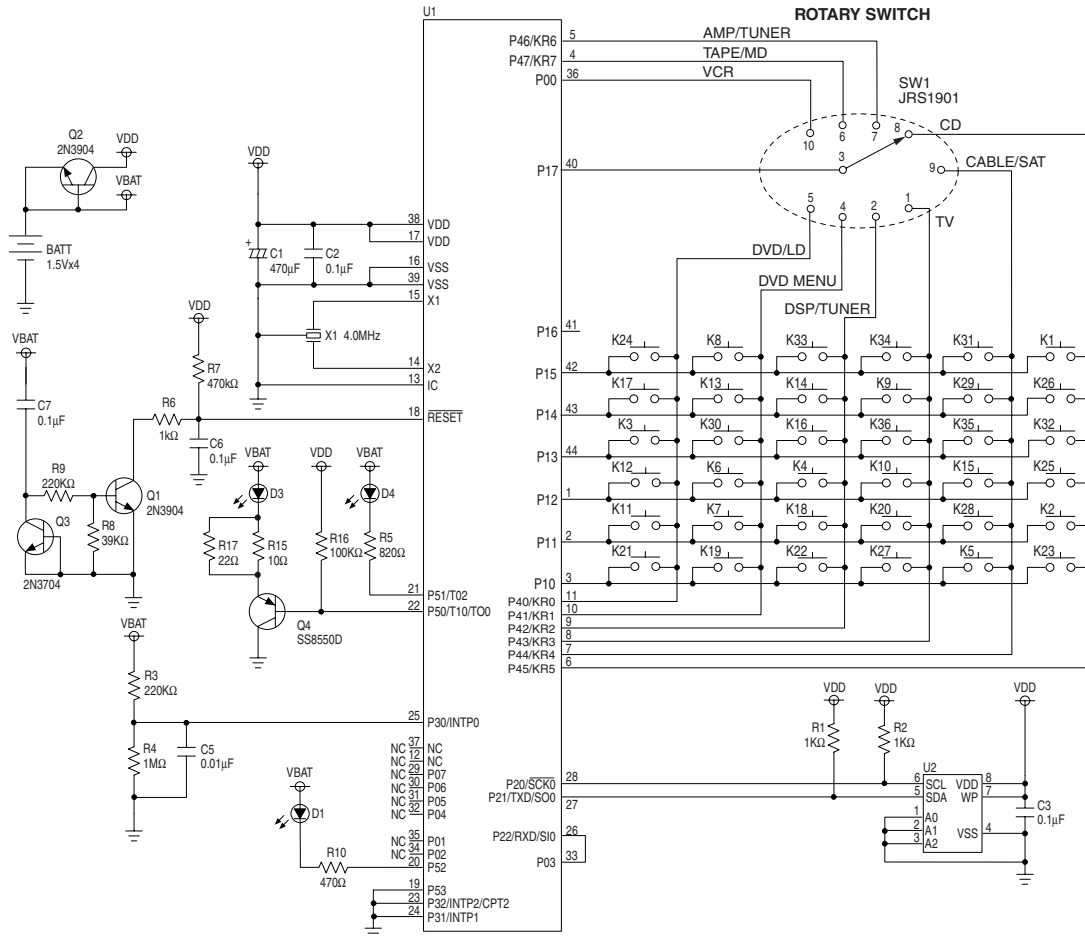
* New Parts

Ref. No.	PART NO.	Description		Remarks	Markets
* 200	V4297600	ACCESSORIES			
* 200	V4297700	REMOTE CONTROL TRANSMITTER	SBGH20018A RAV210		(RT)
* 200-1	AAX14030	REMOTE CONTROL TRANSMITTER	SBGH20018A RAV211		(BG)
		LID	BW0780/1	71078002000	
		BATTERY, MANGANESE	SUM-4,AAA,R03		

* New Parts

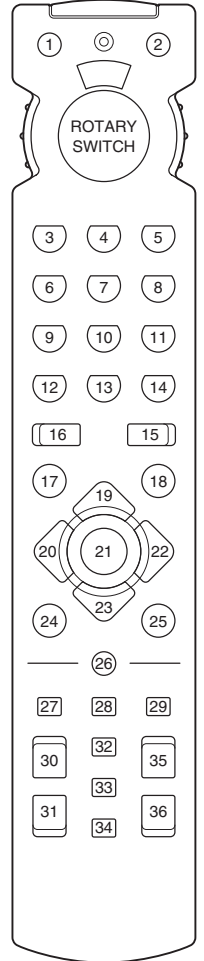
REMOTE CONTROL TRANSMITTER

SCHEMATIC DIAGRAM



- (RAV210 or RAV211)
- J,R and T models→RAV210
- B and G models→RAV211

Key Arrangement



List of the Functional key

Key No.	Key Name	TV	VCR	CABLE/SAT	CD	AMP/TUNER	TAPE/MD	DVD/MENU	DVD/LD	DSP/TUNER
1	DSP					Shift DSP PROGRAM				
2	INPUT					Shift INPUT SELECT				0023
3	1	CH1	CH1	CH1	1	CD	1	1	1	DD/dts/SUR P1
4	2	CH2	CH2	CH2	2	TUNER	2	2	2	MOVIE THTR1 P2
5	3	CH3	CH3	CH3	3	TAPE/MD	3	3	3	MOVIE THTR2 P3
6	4	CH4	CH4	CH4	4	DVD/LD	4	4	4	MPNO MOVIE P4
7	5	CH5	CH5	CH5	5	D-TV	5	5	5	TV SPORTS P5
8	6	CH6	CH6	CH6	6	VCR(VCR1)	6	6	6	DISCO P6
9	7	CH7	CH7	CH7	7	PHONO	7	7	7	ROCK P7
10	8	CH8	CH8	CH8	8	CBL/SAT	8	8	8	JAZZ CLUB P8
11	9	CH9	CH9	CH9	9	V-AUX	9	9	9	CHURCH P8
12	0	CH0	CH0	CH0	0	EXT DEC	0	0	0	HALL -
13	ENTER	CH Enter/Recall	CH Enter/Recall	CH Enter	INDEX	A/B/C/D/E	-	INDEX	INDEX	A/B/C/D/E <-
14	>10				+10	(VCR2)	+10	+10	+10	EFFECT -
15	CH+	TV CH+	VCR CH+	CBL/SAT CH+	DISC +	PRESET+	-	DISC +	DISC +	PRESET+ <-
16	CH-	TV CH-	VCR CH-	CBL/SAT CH-	DISC -	PRESET-	-	DISC -	DISC -	PRESET- <-
17	REC		VCR REC	-	-	TEST	REC/PAUSE	RETURN	-	TEST <-
18	DISPLAY	DISPLAY	DISPLAY	DISPLAY/GUIDE	DISPLAY	ON SCREEN	DISPLAY/A-B	DISPLAY	DISPLAY	ON SCREEN <-
19	PAUSE		VCR PAUSE	Up	PAUSE	Up	PAUSE	Up	PAUSE	Up <-
20	SKIP-	-	-	Left	SKIP-	Left	SKIP-/DIR A	Left	SKIP/CHAP-	Left <-
21	PLAY		VCR PLAY	Menu Select	PLAY	-	PLAY	Select	PLAY	- <-
22	SKIP+	-	-	Right	SKIP+	Right	SKIP+/DIR B	Right	SKIP/CHAP+	Right <-
23	STOP		VCR STOP	Down	STOP	Down	STOP	Down	STOP	Down <-
24	REW		VCR REW	RECALL	REW	TIME/LEVEL	REW	TITLE	REW	TIME/LEVEL <-
25	FF		VCR FF	MENU	FF	SET MENU	FF	MENU	FF	SET MENU <-
26	AV POWER		VCR POWER	CBL/SAT POWER	CD POWER	-	TAPE/MD POWER		DVD/LD POWER	- <-
27	TV POWER					TV POWER				
28	STANDBY					STANDBY (OFF)				
29	POWER					AMP POWER				
30	TV VOL+					TV VOL+				
31	TV VOL-					TV VOL-				
32	TV INPUT					TV INPUT				
33	SLEEP	TV SLEEP				SLEEP				
34	MUTE	TV MUTE				MUTE				
35	VOL+					VOL+				
36	VOL-					VOL-				
	Library	TV	VCR	CABLE SAT/SAT	CD	TUNER 0023	TAPE MD	(DVD)	DVD LD	TUNER 0023
	Change Device	x	x	AUX	x	x	x	AUX	x	x
	Default	0101	0002	0006	0005(Yamaha)	0003(AMP)	0004(Yamaha)	0008(Yamaha)		0013(DSP)

- : No Function

List of the Yamaha Code (NEC Format)

Key No.	Key Name	DVD		DVD MENU		LD		CD		
			Yamaha 0008		Yamaha 0008		Yamaha 0007	Yamaha 0005	Yamaha 0015	
3	1	1	7C-94	1	7C-94	1	7C-17	1	79-11	79-11
4	2	2	7C-95	2	7C-95	2	7C-18	2	79-12	79-12
5	3	3	7C-96	3	7C-96	3	7C-19	3	79-13	79-13
6	4	4	7C-97	4	7C-97	4	7C-1A	4	79-14	79-14
7	5	5	7C-98	5	7C-98	5	7C-1B	5	79-15	79-15
8	6	6	7C-99	6	7C-99	6	7C-1C	6	79-16	79-16
9	7	7	7C-9A	7	7C-9A	7	7C-1D	7	79-17	79-17
10	8	8	7C-9B	8	7C-9B	8	7C-1E	8	79-18	79-18
11	9	9	7C-9C	9	7C-9C	9	7C-1F	9	79-19	79-19
12	0	0	7C-93	0	7C-93	0	7C-16	0	79-10	79-10
13	ENTER	INDEX	7C-9E	INDEX	7C-9E	CHP/TIME	7C-15	INDEX	79-0B	79-0B
14	>10	+10	7C-9D	+10	7C-9D	+10	7C-5D	+10	79-1A	79-1A
15	CH+	DISC+	7C-8B	DISC+	7C-8B	DISC+	-	DISC+	7A-4F	79-4F
16	CH-	DISC-	7C-8A	DISC-	7C-8A	DISC-	-	DISC-	7A-50	79-50
17	REC	REC	-	RETURN	7C-B7	REC	-	REC	-	-
18	DISPLAY	DISPLAY	7C-A6	DISPLAY	7C-A6	DISPLAY	7C-13	DISPLAY	79-0A	79-0A
19	PAUSE	PAUSE	7C-B3	Up	7C-B4	PAUSE	7C-5A	PAUSE	7A-09	79-55
20	SKIP-	SKIP/CHAP-	7C-B9	Left	7C-B5	SKIP/CHAP-	7C-02	SKIP-	7A-0B	79-04
21	PLAY	PLAY	7C-B2	Select	7C-B8	PLAY	7C-05	PLAY	7A-08	79-02
22	SKIP+	SKIP/CHAP+	7C-BA	Right	7C-B6	SKIP/CHAP+	7C-03	SKIP+	7A-0A	79-07
23	STOP	STOP	7C-B5	Down	7C-B3	STOP	7C-5B	STOP	7A-06	79-56
24	REW	REW	7C-B6	TITLE	7C-B1	REW	7C-06	REW	7A-0D	79-05
25	FF	FF	7C-B7	MENU	7C-B2	FF	7C-07	FF	7A-0C	79-06
26	AV POWER	DVD POWER	7C-B0	DVD POWER	7C-B0	LD POWER	-	CD POWER	-	-
27	TV POWER		Punch Through		Punch Through	Punch Through			Punch Through	
28	STANDBY		Punch Through		Punch Through	Punch Through			Punch Through	
29	POWER		Punch Through		Punch Through	Punch Through			Punch Through	
30	TV VOL+		Punch Through		Punch Through	Punch Through			Punch Through	
31	TV VOL-		Punch Through		Punch Through	Punch Through			Punch Through	
32	TV INPUT		Punch Through		Punch Through	Punch Through			Punch Through	
33	SLEEP		Punch Through		Punch Through	Punch Through			Punch Through	
34	MUTE		Punch Through		Punch Through	Punch Through			Punch Through	
35	VOL+		Punch Through		Punch Through	Punch Through			Punch Through	
36	VOL-		Punch Through		Punch Through	Punch Through			Punch Through	

- : No Code

Key No.	Key Name	TAPE		MD		AMP/TUNER			
		Yamaha 0004	Yamaha 0014	Yamaha 0024		AMP 0003	DSP 0013	TUNER 0023	
3	1	1	-	-	79-85	CD	7A-15	7A-88	7A-E5
4	2	2	-	-	79-85	TUNER	7A-16	7A-89	7A-E6
5	3	3	-	-	79-87	TAPE/MD	7A-18	7A-8A	7A-E7
6	4	4	-	-	79-88	DVD/LD	7A-17	7A-8B	7A-E8
7	5	5	-	-	79-89	D-TV	7A-54	7A-8C	7A-E9
8	6	6	-	-	79-8A	VCR	7A-0F	7A-8D	7A-EA
9	7	7	-	-	79-8B	PHONO	7A-14	7A-8E	7A-EB
10	8	8	-	-	79-8C	CBL/SAT	7A-C0	7A-8F	7A-EC
11	9	9	-	-	79-8D	V-AUX	7A-55	7A-90	-
12	0	0	-	-	79-8E	EXT.DEC.	7A-87	7A-91	-
13	ENTER	INDEX	-	-	-	A/B/C/D/E	7A-12	7A-12	7A-12
14	>10	+10	-	-	79-8F	(VCR2)	7A-13	7A-56	-
15	CH+	CH+	-	-	-	PRESET+	7A-10	7A-10	7A-10
16	CH-	CH-	-	-	-	PRESER-	7A-11	7A-11	7A-11
17	REC	REC/PAUSE	7A-04	7F-04	79-AF	TEST	7A-85	7A-85	7A-85
18	DISPLAY	A/B DISPLAY	7A-06	7F-06	79-A5	ON SCREEN	7A-C2	7A-C2	7A-C2
19	PAUSE	PAUSE	-	-	79-A9	Up	7A-98	7A-98	7A-98
20	SKIP-	DIR A/SKIP-	7A-07	7F-07	79-AB	Left	7A-53	7A-53	7A-53
21	PLAY	PLAY	7A-00	7F-00	79-A8		-	-	-
22	SKIP+	DIR B/SLIP+	7A-40	7F-0B	79-AE	Right	7A-52	7A-52	7A-52
23	STOP	STOP	7A-03	7F-03	79-AA	Down	7A-99	7A-99	7A-99
24	REW	REW	7A-01	7F-01	79-AC	TIME/LEVEL	7A-86	7A-86	7A-86
25	FF	FF	7A-02	7F-02	79-AD	SET MENU	7A-9C	7A-9C	7A-9C
26	AV POWER	TAPE/MD POWER	-	-	-		-	-	-
27	TV POWER		Punch Through	Punch Through	Punch Through		Punch Through	Punch Through	Punch Through
28	STANDBY		Punch Through	Punch Through	Punch Through	AMP STANDBY	7A-1E	7A-1E	7A-1E
29	POWER		Punch Through	Punch Through	Punch Through	AMP POWER	7A-1D	7A-1D	7A-1D
30	TV VOL+		Punch Through	Punch Through	Punch Through		Punch Through	Punch Through	Punch Through
31	TV VOL-		Punch Through	Punch Through	Punch Through		Punch Through	Punch Through	Punch Through
32	TV INPUT		Punch Through	Punch Through	Punch Through		Punch Through	Punch Through	Punch Through
33	SLEEP		Punch Through	Punch Through	Punch Through	AMP SLEEP	7A-57	7A-57	7A-57
34	MUTE		Punch Through	Punch Through	Punch Through	AMP MUTE	7A-1C	7A-1C	7A-1C
35	VOL+		Punch Through	Punch Through	Punch Through	AMP VOL+	7A-1A	7A-1A	7A-1A
36	VOL-		Punch Through	Punch Through	Punch Through	AMP VOL-	7A-1B	7A-1B	7A-1B

- : No Code