SANYO

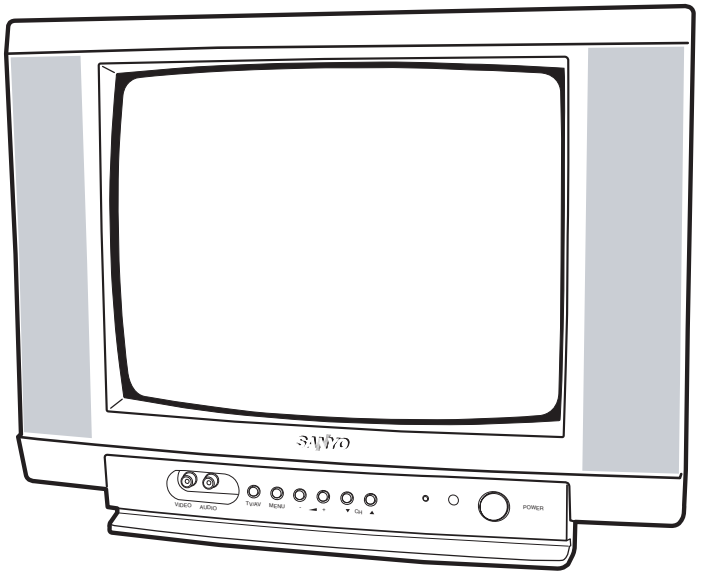
FILE NO.

SERVICE MANUAL Colour Television

Model No. CP14SE1K

(Australia / New Zealand)

Service Ref. No. CP14SE1K-00
(Australia)
CP14SE1K-50
(New Zealand)



Specifications

Power Source . . . . . .AC127−240V, 50/60Hz.
Colour System . . . . . .PAL, SECAM, NTSC4.43, NTSC, PAL 60Hz
Television System . . . . .B/G, D/KK', I, M/M
Channel Coverage . . . . .VHF: E2-E12, R1-R12, K1-K9, J1-J12, A2-A13
0-11, 5A (AUS), 1-11 (NZ)
UHF: 21-69, A14-A69, J13-J62, 28-69 (AUS)
CATV: S1-S41, X, Y, Z, Z+1, Z+2,
Video IF . . . . . 38.0 MHz
Aerial Input Impedance . 75Ω
Ext. Terminals
Video inputs: Phono jack × 2 (1.0Vp−p, impedance 75Ω)
Audio inputs: Phono jack (L) × 2 (436mVrms, impedance more than 40KΩ)
Video monitor output: Phono jack × 1 (1.0Vp−p, 75Ω)
Audio monitor outputs: Phono jack(L) × 1(436mVrms, Impedance less than 600Ω)
Speaker . . . . . 5 cm × 9 cm × 2 pcs.
Sound Output (RMS) . . . 2.5W + 2.5W
Dimensions . . . . . 433 (W) × 336 (H) × 359 (D)mm
Weight . . . . . approx. 8.7 Kg

Specifications subject to change without notice

Product Code: 113016716

Original Version

Chassis Series: AC7-A

– NOTE –
Service Ref. No. CP14SE1K-00 is electrically the same as Service Ref. No. CP14SE1K-50. The difference between Service Ref. No. CP14SE1K-00 and CP14SE1K-50 is as follow:
Destination CP14SE1K-00....Australia
CP14SE1K-50....New Zealand

Give complete "SERVICE REF. NO." for parts order or servicing. It is shown on the rating plate at the cabinet back of the unit.

This T.V. receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications. Refer to the specification table.

Contents

Safety Notice

SAFETY PRECAUTIONS

1: An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.

2: Comply with all caution and safety-related notes provided on the cabinet back, inside the cabinet, on the chassis or the picture tube.

3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.. Before returning any television to the customer, the service technician must be sure that it is completely safe to operate without danger of electrical shock.

X-RADIATION PRECAUTION

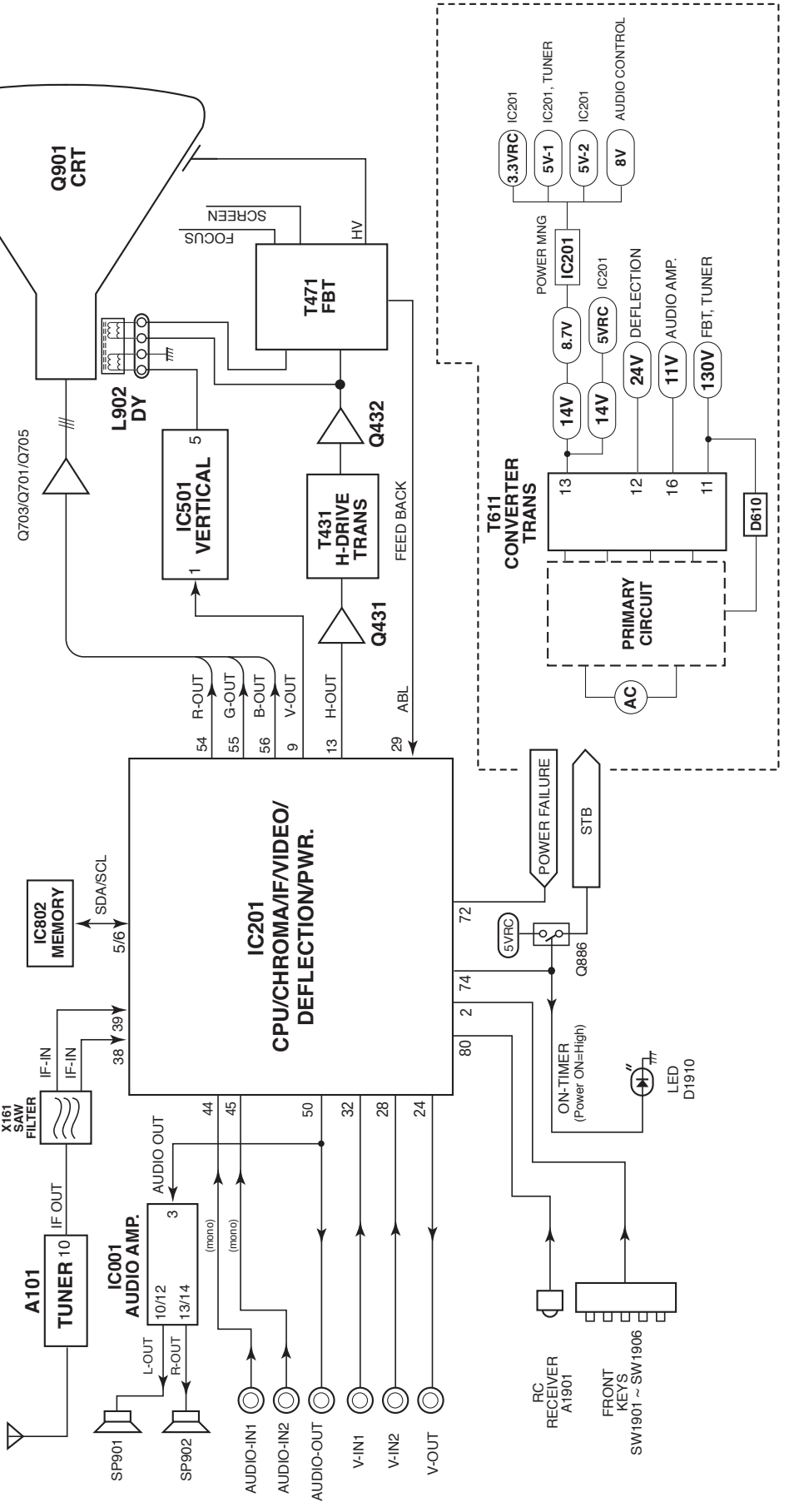
The primary source of X-RADIATION in television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X - RADIATION. To avoid such hazards, the high voltage must be maintained within specified limit. Refer to this service manual, high voltage adjustment for specific high voltage limit. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for + B1 volt power supply adjustment, and high voltage check to maintain the high voltage within the specified limits.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by mark ⚠ . No deviations from resistance

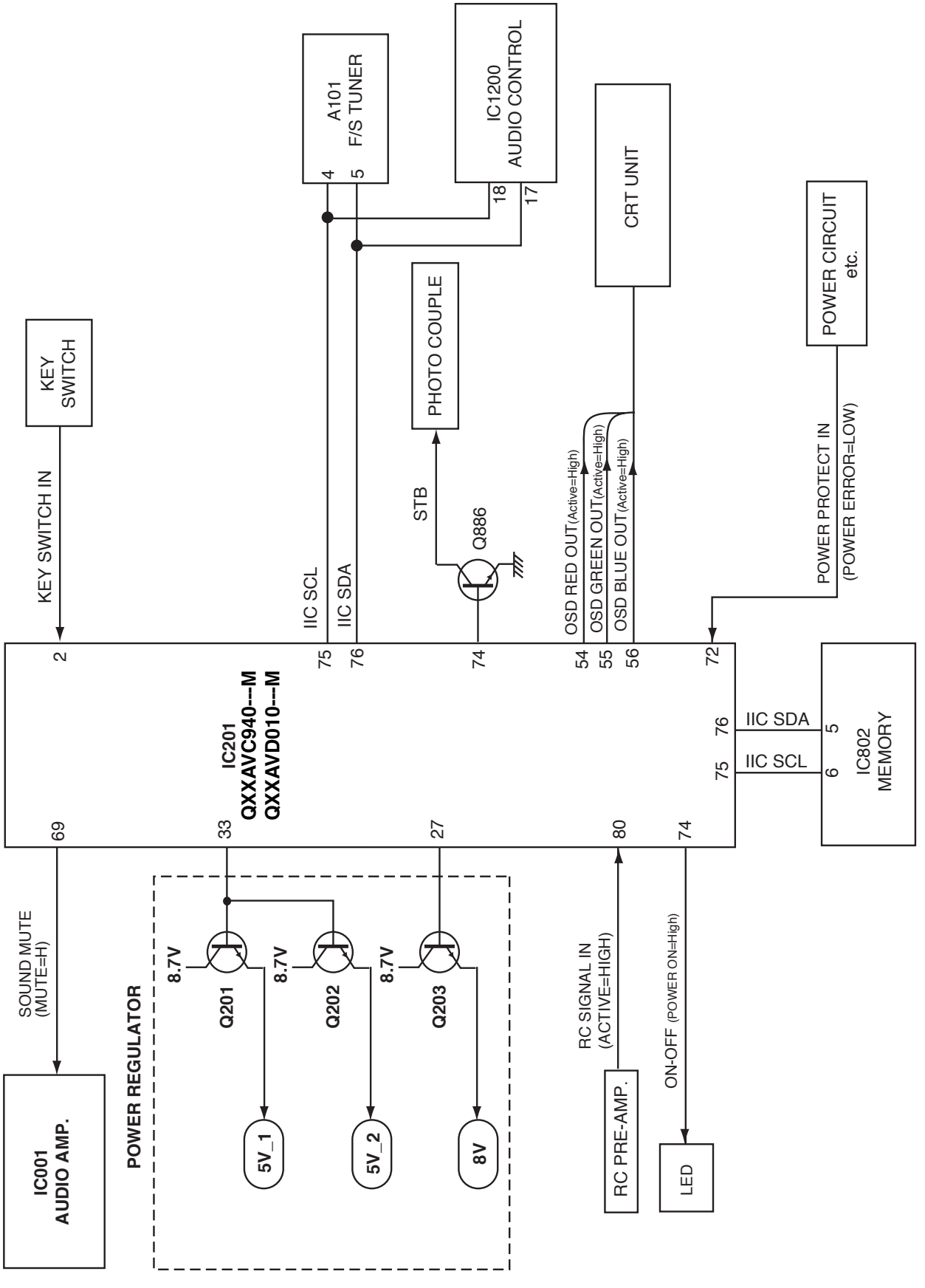
wattage or voltage ratings may be made for replacement items designated by mark ⚠ .

Chassis Block Diagrams



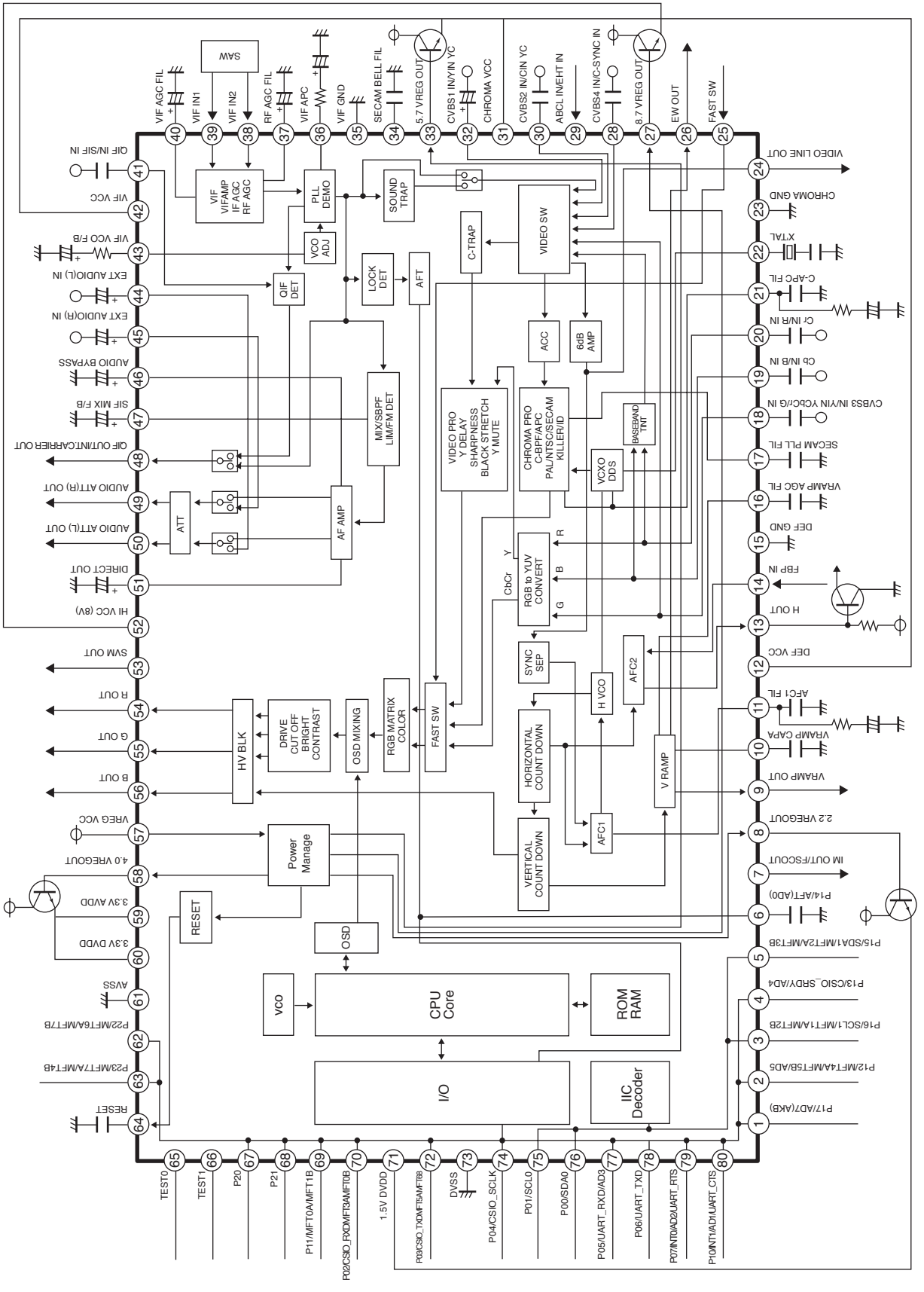
Chassis Block Diagrams

System Control



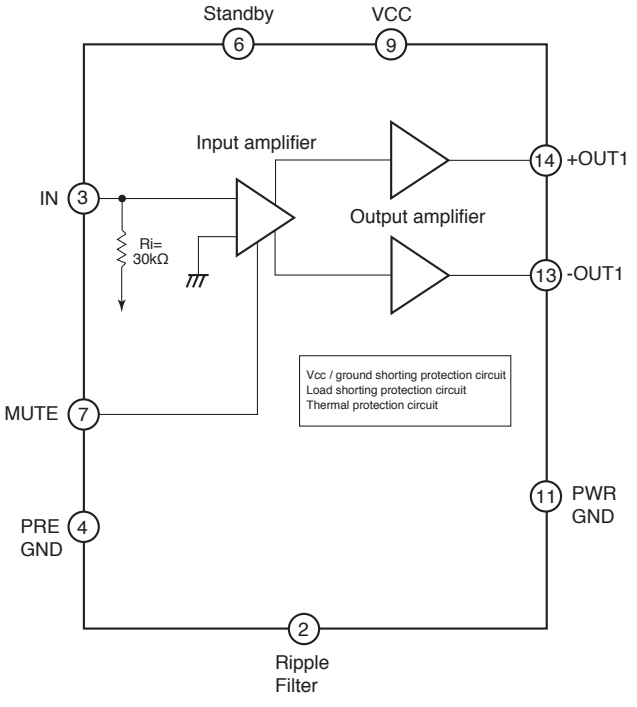
IC Block Diagrams

IC201 < CPU/IF/Video/Chroma/Def.> QXXAVC940---M/QXXAVD010---M

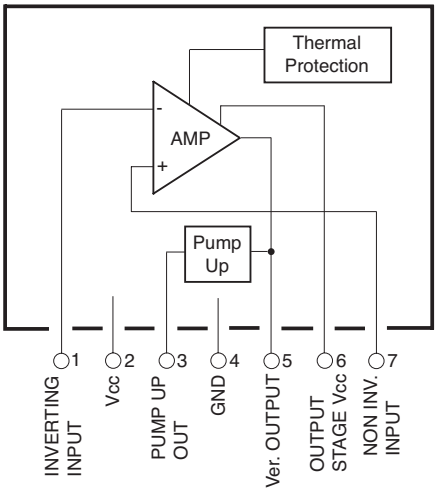


IC Block Diagrams

IC001 < Audio AMP.> LA42105-E



IC501 < Vertical Output > LA78040/LA78040N

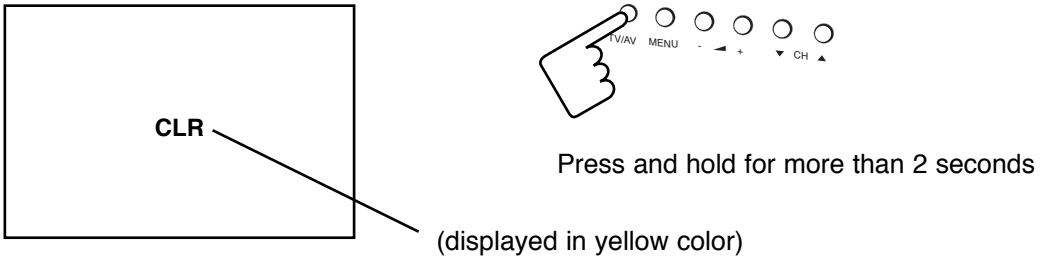


Service Adjustments with Replacing Memory IC(IC802)

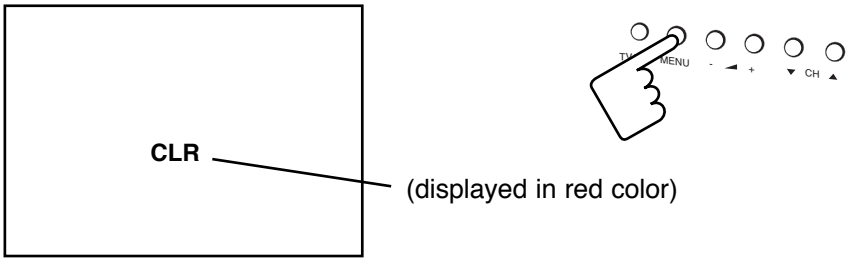
Note: The CPU (IC201) and memory IC (IC802) store the service adjustments data and controls data for each circuit.When the Memory IC(IC802) is replaced, some of the service adjustments should be readjusted to obtain the best performance. The necessary service adjustments are carried out by using the RC handset. Please set up the TV set with following steps [1] to [2].

[1] Initializing Procedure

1. Put a new memory IC.
2. Turn on the TV set.
3. Press and hold the **TV/AV Selector** on the TV set for more than 2 seconds. The following picture appears on the screen.



4. Press the **MENU** on the TV set while the above On-Screen Display is still on the screen. The following picture appears on the screen.



5. Switch off the TV set by pressing the **Power Switch button** on the TV set while the above On-Screen Display is still on the screen.

This completes the initialization of memory IC.

Following shows the initialized contents of memory data by this procedure.

- Plug & play : No executed
- Inhibit data : Cancelled
- Ch skip data : Cancelled
- Sound volume data : 10/63 steps.
- Volume Lock : OFF
- Colour system : AUTO

[2] Required Service Adjustments

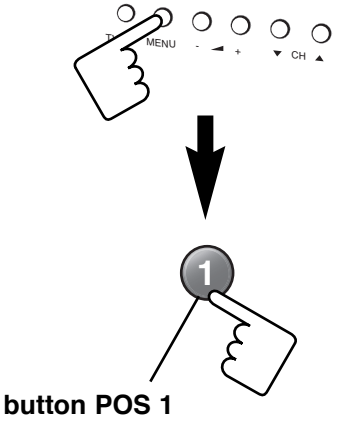
Readjust the following service adjustments.

Adjustments	**Service Mode No. & Item**
RF AGC	Item 126, RF DELAY ADJ
Horizontal centre	Item 21, H-PHA (PAL)
Vertical Position	Item 16, V-SHIFT
Vertical linearity	Item 14, V-LIN
Vertical-S correction	Item 12, V-SCO
Gray scale	Item 187 ~ 191

Further adjustment please refer to page 15 and 16.

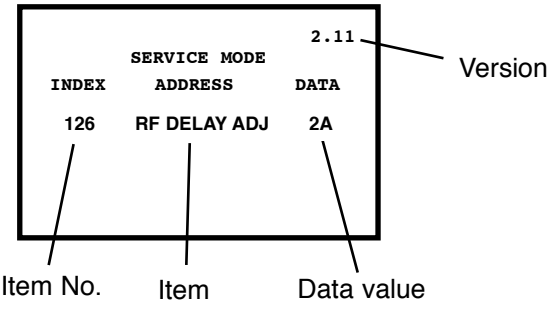
[Entering to Service Mode]

1. Press and hold the **MENU** button on the TV set and press the **numeric 1** button on the Remote Control. Following setting items appears on the screen.

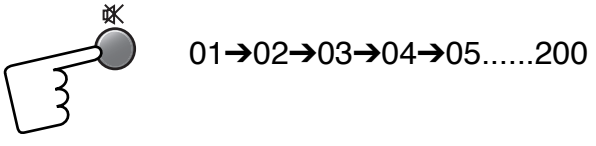


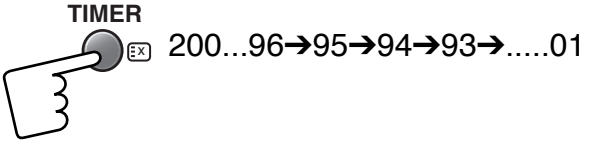
button POS 1

Display for [RF DELAY ADJ] RF AGC adjustment



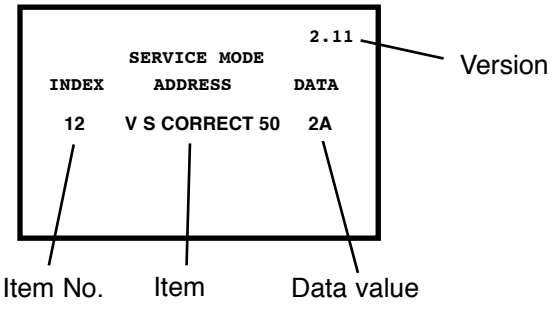
2. Select item by pressing the **SOUND MUTE** (Item No. UP) or **TIMER** (Item No. DOWN) button on the remote control handset.



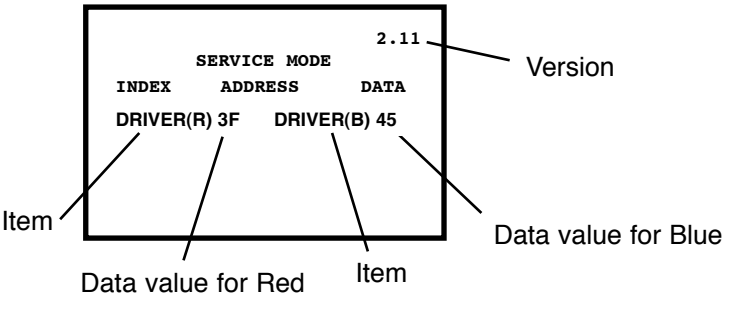


Example

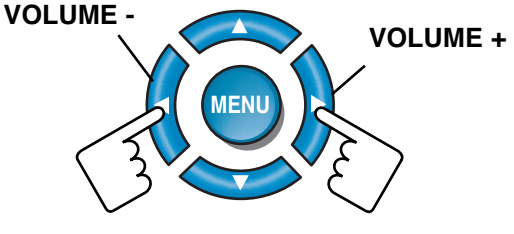
Display for [V-SCO] V-S Correction adjustment



Display for [DRV] White balance adjustment



3. Adjust data value by pressing the **VOLUME +** or **VOLUME –** button on the remote control handset.



To return to normal TV mode, press the **MENU** button on the TV set or the remote control handset.

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.

Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
01	VIF VCO ADJ	0 ~ 3F	1E	VIF VCO free-running frequency fine adjustment
02	STRAP ADJ	0 ~ 3F	10	SOUND trap free-running frequency fine adjustment
03	H VCO ADJ	0 ~ F	8	HORIZONTAL VCO free running frequency fine adjustment
04	SECAM BLK LEVEL (R)	0 ~ 3F	1A	SECAM-(R-Y) signal black level adjustment
05	SECAM BLK LEVEL (B)	0 ~ 3F	21	SECAM-(B-Y) signal black level adjustment
06	V SIZE 50	0 ~ 3F	22	V Ramp amplitude adjustment (Vertical Size) for PAL
07	V-SIZE 50 ZOOM	0 ~ 3F	33	V-Size for Zoom Mode PAL
08	V-SIZE 50 WIDE	0 ~ 3F	16	V-Size for Wide Mode PAL
09	V-SIZE 60	-1F ~ 20	0	V Ramp amplitude adjustment (Vertical Size) for NTSC
10	V SIZE 60 ZOOM	-1F ~ 20	0	V-Size for Zoom Mode NTSC
11	V SIZE 60 WIDE	-1F ~ 20	0	V-Size for Wide Mode NTSC
12	V S CORRECT 50	0 ~ 3F	2A	V-S Correction control for PAL
13	V S CORRECT 60	-1F ~ 20	0	V-S Correction control for NTSC
14	V LINEARITY 50	0 ~ 3F	25	V Linearity control for PAL
15	V LINEARITY 60	-1F ~ 20	02	V Linearity control for NTSC
16	V SHIFT 50	0 ~ F	05	V Ramp start timing point adjustment 2 line/step (V position) for PAL
17	V SHIFT 60	-7 ~ 8	-03	V Ramp start timing point adjustment 2 line/step (V position) for NTSC
18	AFC2 H PHASE 50	0 ~ 1F	11	Horizontal Phase (H-Position) adjustment for PAL
19	AFC2 H PHASE 50 ZOOM	0 ~ 1F	0	Horizontal Phase (H-Position) ZOOM adjustment for PAL
20	AFC2 H PHASE 50 WIDE	0 ~ 1F	0	Horizontal Phase (H-Position) WIDE adjustment for PAL
21	AFC2 H PHASE 60	0 ~ 1F	2	Horizontal Phase (H-Position) adjustment for NTSC
22	AFC2 H PHASE 60 ZOOM	0 ~ 1F	0	Horizontal Phase (H-Position) ZOOM adjustment for NTSC
23	AFC2 H PHASE 60 WIDE	0 ~ 1F	0	Horizontal Phase (H-Position) WIDE adjustment for NTSC
24	EHT V	0 ~ 7	0	EHT Vertical Function 0: OFF 1: Gain UP
25	EHT HSIZE	0 ~ 7	0	EHT Horizontal Size Function 0: OFF 1: Gain UP
26	EHT PARABOLA	0 ~ 7	0	EHT Parabola Function 0: OFF 1: Gain UP
27	EW STOP	0 ~ 1	0	East West Function disable 0:On 1: Off
28	E/W UP/LOW ON	0 ~ 1	0	East /West Corner
29	E/W PARABOLA 50	0 ~ 3F	0	East West Parabola 50 Adustment
30	E/W CORNER UPPER 50	0 ~ 3F	0	East West Upper Corner 50 Adustment
31	E/W CORNER LOWER 50	0 ~ 3F	0	East West Lower Corner 50 Adustment
32	E/W TRAPEZIUM 50	0 ~ 3F	0	East West Trapezium 50 Adustment
33	E/W H SIZE 50	0 ~ 3F	0	East West H-Size 50 Adustment
34	E/W PARABOLA 60	0 ~ 3F	0	East West Parabola 60 Adustment
35	E/W CORNER UPPER 60	0 ~ 3F	0	East West Upper Corner 60 Adustment
36	E/W CORNER LOWER 60	0 ~ 3F	0	East West Lower Corner 60 Adustment
37	E/W TRAPEZIUM 60	0 ~ 3F	0	East West Trapezium 60 Adustment
38	E/W H SIZE 60	0 ~ 3F	0	East West H-Size 60 Adustment
39	CONTRAST CONTROL	0 ~ 2F	13	Contrst Control (Offset Data)
40	BRIGHTNESS CONTROL	0 ~ 3F	2A	Brightness Control (Offset Data)
41	TINT CONTROL TV	-3F ~ 40	1D	Tint Control (Offset Data) for TV
42	TINT CONTROL AV	-3F ~ 40	47	Tint Control (Offset Data) for AV
43	SERVICE SW	0 ~ 1	0	Vertical Output ON/OFF Switch (Contrast Control)
44	VRAMP OFF	0 ~ 1	0	Vertical Output ON/OFF Switch ON/OFF
45	V AGC SPEED UP	0 ~ 1	0	V Ramp AGC Speed
46	Y/C TEST ON	0 ~ 1	0	

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
47	BASEBAND TINT 50	0 ~ 7F	0	Base band tint control for component color signal by 7bits DAC
48	BASEBAND TINT 60	0 ~ 7F	12	Base band tint control for component color signal by 7bits DAC
49	HVCO FREERUN UP	0 ~ 1	0	Horizontal free-running frequency up
50	HALF H KILLER	0 ~ 1	0	Composite-Sync Half H Kill
51	H FREE	0 ~ 1	0	Horizontal forced free-running mode switch
52	H START	0 ~ 1	0	Horizontal output switch
53	AFC1 PULL UP	0 ~ 1	1	Horizontal AFC1 gain switch
54	HVCO PULL UP	0 ~ 1	0	Horizontal VCO Filter PULL UP
55	HVCO PULL DOWN	0 ~ 1	0	Horizontal VCO Filter PULL DOWN
56	AFC1 GAIN UP	0 ~ 3	0	Horizontal AFC1 gain switch
57	ACFQ IF CONT	0 ~ 1	1	AFC1 gain controlled by IF AGC
58	DOUBLE COINCI	0 ~ 1	0	Horizontal AFC1 Gain Controlled by FAST Horizontal Coincidence
59	AFC2 RAMP UP	0 ~ 1	0	AFC2 RAMP UP
60	FBP BTHL	0 ~ 1	0	FBP slice level switch
61	AFC2 GAIN UP	0 ~ 3	3	Horizontal AFC2 gain switch
62	HBLK RIGHT	0 ~ 3	1	Control edge of horizontal blanking pulse that is right side of picture
63	HBLK LEFT	0 ~ 3	0	Control edge of horizontal blanking pulse that is left side of picture
64	HBLK SEL	0 ~ 1	1	Horizontal blanking select
65	HD SEL	0 ~ 1	1	Horizontal time pulse for OSD
66	HV BLK OFF	0 ~ 1	0	H and V blanking off switch for RGB-OUT
67	BGP SHIFT	0 ~ 3	0	Burst Gate Pulse for Position Adjustment
68	SECAM BGP SHIFT	0 ~ 3	3	Burst Gate Pulse for Position Adjustment
69	BGP SEL	0 ~ 1	0	Burst Gate Pulse Mode Select
70	PSEUDO H COIN	0 ~ 1	0	Horizontal coincidence detection by fsc counter
71	AUTO SLICE LEVEL	0 ~ 7	0	Sync separator slice level down
72	VSYNC UP ON	0 ~ 1	0	Sync Separator Gain Up at vertical sync
73	AUTO SLICE SPEED UP	0 ~ 1	0	Auto Slice Speed Switch (Normal / Up)
74	AUTO SLICE SPEED DN	0 ~ 1	0	Auto Slice Speed Switch (Normal / Down)
75	AUTO SLICE DOWN	0 ~ 1	0	Sync detect level switch during video period.
76	HV FREE	0 ~ 1	0	Horizontal and Vertical forced free-running mode switch
77	V SYNC DET TIME	0 ~ 7	0	Vertical sync detect minimum time switch
78	V SYNC DET MODE	0 ~ 1	1	Vertical sync detect mode select
79	MACRO OFF	0 ~ 1	0	Switch to improvr macrovision signal ON/OFF
80	VBLK STOP	0 ~ 1	0	Vertical blanking stop
81	EQ LATCH OFF	0 ~ 1	0	AFC1 stop timing shift
82	HBLK STOP	0 ~ 1	0	Horizontal blanking stop
83	VRAMP TEST	0 ~ 1	0	Vertical Ramp Out Test
84	V 1 WINDOW	0 ~ 1	0	Vertical sync detect mode select
85	V FREE2	0 ~ 1	0	Vertical free-running mode when horizontal coincidence is low
86	V FREE	0 ~ 1	0	Vertical forces free-running mode switch
87	FORCE V MODE	0 ~ 3	0	Vertical frequency mode switch
88	V STD DET OFF	0 ~ 1	0	Vertical frequency standard / non-standard detection
89	V STD DET2	0 ~ 1	0	Vertical frequency standard / non-standard detection
90	V FREE FREQ	0 ~ 1	0	Vertical free-running frequency
91	OSD VD DELAY	0 ~ 1	0	VD TIMING delay for OSD TIMING
92	W VBLK ON	0 ~ 1	1	Vertical blanking wide mode 16:9

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
93	VLOGIC STOP	0 ~ 1	0	Vertical count up logic stop
94	VBLK TEST	0 ~ 1	0	V blanking control
95	WIDE VBLK TOP	0 ~ F	0	Vertical blanking top adjustment 16:9
96	WIDE VBLK BOTTOM	0 ~ F	3	Vertical blanking bottom adjustment 16:9
97	OSD CONT CLIP LEVEL	0 ~ 3	1	Contrast control clip level of OSD mode
98	OSD CONT CLIP OFF	0 ~ 1	0	Contrast control clip switch of OSD mode
99	DRIVER (R)	0 ~ 7F	3F	R OUT amplitude adjustment by 7 bits DAC
100	BLUE BACK	0 ~ 1	0	Blue back mode ON/OFF switch
101	DRIVER (B)	0 ~ 7F	3F	B OUT amplitude adjustment by 7 bits DAC
102	WHITE BACK	0 ~ 1	0	White raster mode ON/OFF switch
103	TEST PATTERN	0 ~ 1F	0	SCREEN TEST MODE
104	PEAK ACL	0 ~ 1	0	PEAK ACL MODE ON / OFF
105	ABCL	0 ~ 1	0	ABCL ON / OFF Switch
106	ABCL GAIN	0 ~ 1	0	ABCL Gain Low / High Switch
107	DCT LEVEL	0 ~ 7	0	DC Transfer Level Control
108	DCT ON	0 ~ 1	0	DC Transfer select ON / OFF
109	COLOR CONTROL PAL	0 ~ 10	0	Color Saturation control (Offset Data of Color) for PAL
110	COLOR CONTROL NTSC	0 ~ 10	0	Color Saturation control (Offset Data of Color) for NTSC
111	COLOR CONTROL SECAM	0 ~ 10	0	Color Saturation control (Offset Data of Color) for SECAM
112	TAKE OFF	0 ~ 1	1	Chroma BPF / Take Off switch
113	C KILLER LEVEL	0 ~ 1	0	Color killer sensitivity threshold switch
114	COLOR SYSTEM	0 ~ F	0	Color system selector
115	443NT50 INHIBIT	0 ~ 1	1	Auto color system 443NTSC(50Hz)
116	FSC FREE	0 ~ 1	0	VCXO free-running mode switch ON/OFF
117	FORCE MONO	0 ~ 1	0	Monochrome mode switch
118	FORCE COLOR	0 ~ 1	0	Killer function ON/OFF switch only for manual color mode
129	COND KILLER EN	0 ~ 1	0	Condition Killer Sensitivity Enable
120	1/2FSC TRAP OFF	0 ~ 1	0	Half fsc Trap filer off
121	C BPF OFF	0 ~ 1	0	Chroma DDS OFF
122	CTI	0 ~ 1	1	Color Edge Timing Improvement
123	DDS OFF	0 ~ 1	0	Chroma Bandpass Filter OFF
124	ACC AMP ON	0 ~ 1	0	Chroma ACC AMP FUNCTION
125	C ANGLE 95	0 ~ 1	1	Chroma Demodulation Angle switch
126	RF DELAY ADJ	0 ~ 7F	2A	RF AGC delay point adjustment
127	VIF SYNC ADJ	0 ~ 1	01	Enable VIF video out lamp
128	AFT DEFETAT	0 ~ 1	0	AFT OUT ON/OFF switch
129	VIF REEQ	0 ~ F	0	VIF frequency selector
130	VIF VIDEO OUT GAIN	0 ~ 7	3	VIF Video Detector output amplitude adjustment
131	VIF DEFEAT	0 ~ 1	0	VIF AGC gain
132	AFT REV	0 ~ 1	0	AFT polarity reverse
133	VIF POS	0 ~ 1	0	positive modulation mode
134	STRAP OFF	0 ~ 1	0	SOUND trap test mode switch
135	OM DET	0 ~ 1	0	Vertical frequency standard / non-standard detection
136	VIF AGC CLIP	0 ~ 1	0	VIF AGC sensitivity become low
137	AMF ON	0 ~ 1	0	VIF AGC CURRENT CHANGE ON/OFF switch
138	AMF VTH	0 ~ 7	0	VIF AGC CURRENT CHANGE FUNCTION INPUT LEVEL Adj.

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
139	VIF AGC VTH HYS OFF	0 ~ 1	0	VIF AGC CURRENT CHANGE FUNCTION HYSTERESIS OFF SWITCH
140	VIF AGC SPEED UP	0 ~ 7	0	VIF AGC SPEED Adj.
141	AUDIO ATT L MONO	0 ~ 7F	7F	L Ch Audio output level attenuation
142	SIF OUT MUTE	0 ~ 1	1	AF direct put out ON/OFF (Mute) switch
143	AUDIO ATT (R)	0 ~ 7F	7F	R Ch Audio output level attenuation
144	SIF OVER MODE	0 ~ 1	0	SIF OVER modulation detector ON/OFF switch
145	AUDIO SW SEL	0 ~ 1F	0	Audio Switch Selector
146	SECAML PC65	0 ~ 1	0	SECAML' Phase Comparator Mode Select
147	CONV VCO PULL UP	0 ~ 1	0	SIF CONVERTER VCO PULL UP
148	CONV VCO BETA UP	0 ~ 1	0	SIF CONVERTER VCO Bup
149	SIF MODE	0 ~ 7	1	SIF Frequency selector
150	AVL SEL	0 ~ 1	0	AVL MODE DELECTOR ON/OFF
151	SIF INT	0 ~ 1	1	
152	SIF BPF WIDE	0 ~ 3	3	SIF BPF band width selector (For over mode)
153	SIF PAL	0 ~ 3	0	Switch to improve Sound S/N at PAL signal ON/OFF
154	SIF PAL INV	0 ~ 1	0	Switch to improve Sound S/N at PAL signal ON/OFF
155	SIF BPF TEST	0 ~ 1	0	Color Saturation control (Offset Data of Color) for PAL
156	HI TRAP OFF	0 ~ 1	0	Color Saturation control (Offset Data of Color) for NTSC
157	VIDEO SW LPF	0 ~ 1	0	Color Saturation control (Offset Data of Color) for SECAM
158	VIDEO MUTE	0 ~ 1	0	Luminance signal mute ON/OFF
159	SHARPNESS PRE	0 ~ 1F	13	SHARPNESS PRESHOOT LEVEL Adjustment
160	SHARPNESS OVER	0 ~ 1F	10	SHARPNESS OVERSHOOT LEVEL Adjustment
161	BLK STRETCH OFF	0 ~ 1	0	Black Stretch function ON/OFF switch
162	BLK STRETCH CHARGE	0 ~ 3	1	Charge time constant adjustment for black stretch
163	BLK STRETCH	0 ~ 3	1	Discharge time constant adjustment for black stretch
164	BLK STRTCH GAIN	0 ~ 1	0	Black stretch gain adjustment
165	GAMMA CONTROL	0 ~ 3	3	Luminance gamma threshold control ON/OFF
166	C TRAP ADJ PAL	0 ~ 3	1	Chroma trap for for adjustment PAL
167	C TRAP ADJ NTSC	0 ~ 3	1	Chroma trap for for adjustment NTSC
168	C TRAP OFF	0 ~ 1	0	Chroma trap ON/OFF switch
169	DOUBLE TRAP	0 ~ 1	1	Chroma trap filter for SECAM ON/OFF
170	Y NR TH	0 ~ 3	0	Video Noise Reduction Threshold level change
171	Y NR DEPTH	0 ~ 3	0	Video Noise Reduction Threshold Depth change
172	Y NR ON	0 ~ 1	1	Video Noise Reduction ON
173	Y DL TIME ADJ	0 ~ 7	2	Luminance signal delay time adjustment for PAL
174	Y DL TIME ADJ SECAM	0 ~ 7	3	Luminance signal delay time adjustment for SECAM
175	SECAM KILLER	0 ~ 3	1	SECAM color killer sensitivity threshold adjustment
176	SECAM PLL RST OFF	0 ~ 1	0	SECAM PLL RESET disable
177	SECAM OFF	0 ~ 1	0	SECAM demodulator switch
178	CR DL FINE	0 ~ 1	0	Cr signal delay time adjustment
179	CBCR GAIN UP	0 ~ 1	0	CbCr signal pedestal Gain Switch
180	CBCRPED ADJ ON	0 ~ 1	1	CbCrPED ADJ ON
181	CRPEDESTAL ADJ	0 ~ F	3	Cr signal Pedestal level adjustment
182	CBPEDESTAL ADJ	0 ~ F	4	Cb signal Pedestal level adjustment
183	CB DL FINE	0 ~ 3	0	Cb signal delay time adjustment
184	DL TEST	0 ~ 1	0	1HD TEST MODE

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.
Service mode adjustments table in CPU ROM

No.	Item	Range	Data	Description
185	R MATRIX PAL	0 ~ 3	1	R Matrix 50
186	R MATRIX NT DEFFER	0 ~ 3	1	R matrix gain control for YCbCr (NTSC Offset)
187	WHITE BALANCE	0 ~ 3	.....	WHITE BALANCE (R-Drive & B-Drive)
188	CUT OFF (R)	0 ~ FF	0	R OUT Pedestal level adjustment (R Bias for White balance)
189	CUT OFF (G)	0 ~ FF	0	G OUT Pedestal level adjustment (G Bias for White balance)
190	CUT OFF (B)	0 ~ FF	0	B OUT Pedestal level adjustment (B Bias for White balance)
191	CUT OFF		.....	One Line
192	FAST SW	0 ~ 1	0	
193	E/W P 50 ZOOM	0 ~ 3F	0	EW_PARA_50_ZOOM
194	E/W C UP 50 ZOOM	0 ~ 3F	0	EW_COR_U_50_ZOMM
195	E/W C LOW 50 ZOOM	0 ~ 3F	0	EW_COR_L_50_ZOMM
196	E/W T 50 ZOOM	0 ~ 3F	0	EW_TRAPE_50_ZOOM
197	E/W H SIZE 50 ZOOM	0 ~ 3F	0	EW_HSIZE_50_ZOOM
198	E/W P 60 ZOOM	0 ~ 3F	0	EW_PARA_60_ZOOM
199	E/W C UP 60 ZOOM	0 ~ 3F	0	EW_COR_U_60_ZOOM
200	E/W C LOW 60 ZOOM	0 ~ 3F	0	EW_COR_L_60_ZOOM
201	E/W T 60 ZOOM	0 ~ 3F	0	EW_TRAPE_60_ZOOM
202	E/W H SIZE 60 ZOOM	0 ~ 3F	0	EW_HSIZE_60_ZOOM
203	E/W P 50 WIDE	0 ~ 3F	0	EW_PARA_50_WIDE
204	E/W C UP 50 WIDE	0 ~ 3F	0	EW_COR_U_50_WIDE
205	E/W C LOW 50 WIDE	0 ~ 3F	0	EW_COR_L_50_WIDE
206	E/W T 50 WIDE	0 ~ 3F	0	EW_TRAPE_50_WIDE
207	E/W H SIZE 50 WIDE	0 ~ 3F	0	EW_HSIZE_50_WIDE
208	E/W P 60 WIDE	0 ~ 3F	0	EW_PARA_60_WIDE
209	E/W C UP 60 WIDE	0 ~ 3F	0	EW_COR_U_60_WIDE
210	E/W C LOW 60 WIDE	0 ~ 3F	0	EW_COR_L_60_WIDE
211	E/W T 60 WIDE	0 ~ 3F	0	EW_TRAPE_60_WIDE
212	E/W H SIZE 60 WIDE	0 ~ 3F	0	EW_HSIZE_60_WIDE
213	OPT MONO STE	0 ~ 1	1	Option Stereo / Mono (0=Stereo w/ surround; 1=Mono w/o surround)
214	OPT VOL TABLE	0 ~ 1	1	Option Volume Table
215	OPT MPP	0 ~ 1	1	Option MPP (0=with MPP; 1=without MPP)
216	OPT BOOSTER	0 ~ 1	1	Option Booster (0=with Booster; 1=without Booster)
217	OPT AV SEL	0 ~ 3	1	Option Audio Video Select
218	OPT COL SYSTEM	0 ~ 2	1	Option Color System
219	OPT SIF SYSTEM	0 ~ 3	1	Option SIF System (0=Auto/BG/I/DK/m, 1=BG/I/DK, 2=S-1/S-2, 3=M Fixed)
220	OPT LG ALPS TCL	0 ~ 2	0	Option Maker Tunner LG , ALPS , TCL
221	OPT PLUG & PLAY	0 ~ 1	0	Option Plug and Play
222	OPT ASIA ME HSE	0 ~ 2	0	Option ASIA Middle East HSE
223	POWER ON TIME	0 ~ FF	0	Power ON Timer
224	OSD H - POSITION	0 ~ FF	3F	OSD Horizontal Position
225	OSD V - (60 Hz)	0 ~ FF	16	OSD Vertical NTSc
226	VOLUME OFFSET	0 ~ 7	0	Volume Offset
227	BASS OFFSET	0 ~ 7	0	BASS OFFSET
228	TREBLE OFFSET	0 ~ 7	0	TREBLE OFFSET
229	OPT AFT	0 ~ 1	1	0 : For VCO AFT Voltage 2.5 V (WS 1.2) ==> 1 : for (WS 2.0)
230	OPT CHMUTE	0 ~ 1	1	VIDEO MUTE WHEN changing posion 0: NO MUTE 1: MUTE

Service Adjustments with Replacing Memory IC(IC802)

Following table shows the initial values which have been stored in the CPU ROM, and items for the service adjustments.

Service mode adjustments table in CPU ROM

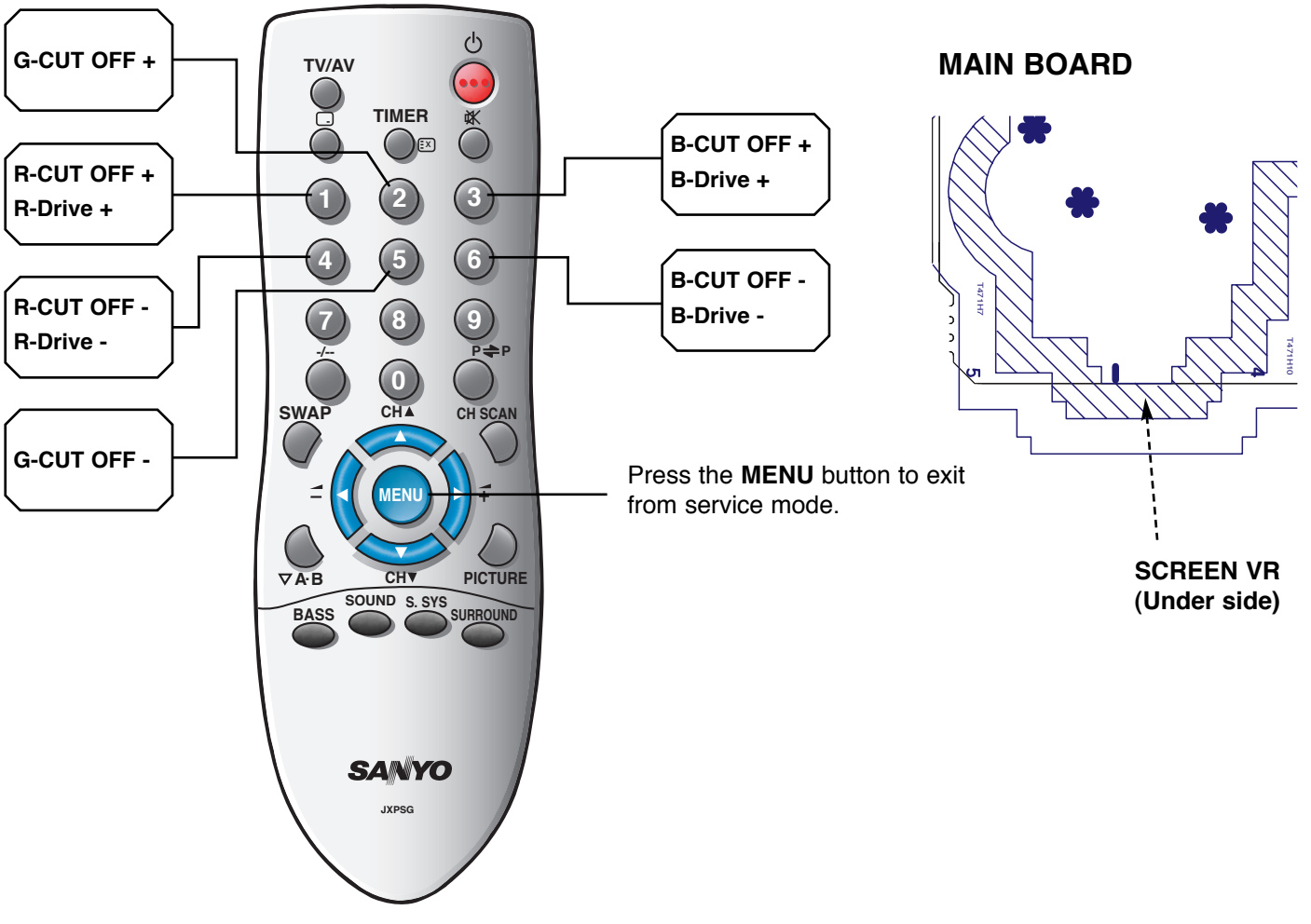
No.	Item	Range	Data	Description
231	AV TV TIME	0 ~ FF	17	
232	BG STRAP OFFSET	0 ~ 12	-1	
233	DK STRAP OFFSET	0 ~ 12	-5	
234	I STRAP OFFSET	0 ~ 12	2	
235	M STRAP OFFSET	0 ~ 12	1	
236	BGSUB STRAP OFFSET	0 ~ 12	-4	
237	OPT PAL DK I	0 ~ 1	0	
238	OPT BASS WOOFER	0 ~ 1	0	0: Bass Expander, 1: Woofer
239	SECAM CNT	0 ~ FF	5	
240	KEY WORD	0 ~ FF	AC	

Service Mode Adjustments

Items 187 - 191 GREY SCALE

(1) Receive a monochrome circular pattern.
(2) Set the brightness and colour to normal, contrast to maximum.
(3) Enter to the service mode.
(4) Select No. **188 CUT OFF (R)**, No, **189 CUT OFF (G)**, and No. **190 CUT OFF (B)** and set each data to 0 by pressing the VOLUME + or - key.
(5) Select No. **187 WHITE BALANCE** (R-Drive and B-Drive) and set data to 3F by pressing the VOLUME + or - key.
(6) Turn Screen Control on the FBT (T471) to minimum (fully counter-clock-wise).
(7) Select No. **191 (1-line appear)**.
(8) Advance Screen Control clockwise to obtain just visible one colour line. If line does not appear, place this control to maximum (fully clockwise).
(9) Raise each CUT OFF Level with 1, 2, 3, 4, 5 and 6 keys to obtain just visible white line.
(10) Select No. **187 WHITE BALANCE** (Drive Adjustments).
(11) Adjust Red and Blue Drive Levels alternately with 1, 3, 4 or 6 key to produce normal black and white picture in highlight areas.
(12) Check for proper grayscale at all brightness levels. To turn off the TV Service Menu display, press the MENU key.

Note: If the Grayscale adjustment is made after picture tube replacement, check the High Voltage



Service Mode Adjustments

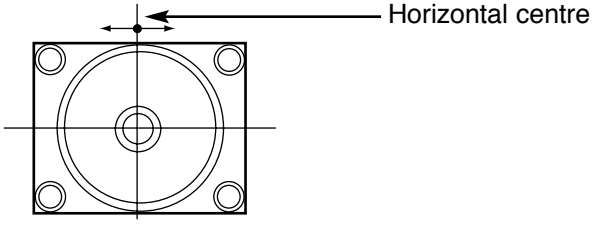
Following adjustments should be carried out when the memory IC is replaced. How to enter the service mode and adjust values, please refer to " Entering to Service mode" on page 8.

Item 126 [RF DELAY ADJ] AGC ADJ

NOTE: Do not attempt this adjustment with weak signal.
(1) Tune the receiver to most clearest (or strongest) VHF station in your area. Set the brightness and contrast controls to maximum. Set the colour control to minimum.
(2) Select [RF DELAY ADJ] in the service mode.
(3) Change value until the snow noise just disappears.
(4) Exit from service mode.

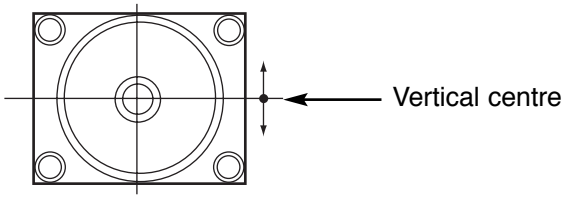
Item 18 [AFC2 H-PHASE 50] HORIZONTAL ADJ

(1) Receive a monochrome circular pattern.
(2) Set the brightness and contrast to normal.
(3) Select [AFC2 H-PHASE 50] in the service mode.
(4) Change value to be optimum horizontal centre position.
(5) Exit from service mode.



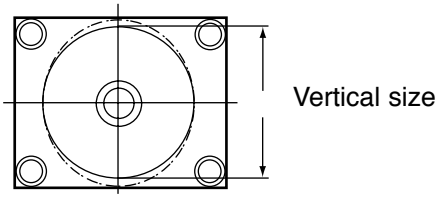
Item 16 [V-SHIFT 50] VERTICAL CENTRE

(1) Receive a monochrome circular pattern.
(2) Set the brightness and contrast to normal.
(3) Select [V-SHIFT 50] in the service mode.
(4) Change value to be optimum verticall centre position.
(5) Exit from service mode.



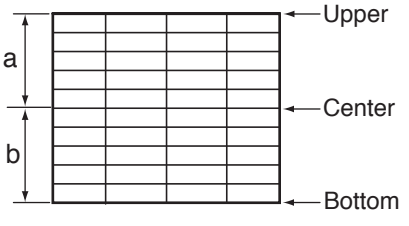
Item 6 [V-SIZE 50] VERTICAL SIZE

(1) Receive a monochrome circular pattern..
(2) Set the brightness and contrast to maximum.
(3) Select [V-SIZE 50] in the service mode.
(4) Change value to be optimum vertical size.
(5) Exit from service mode.



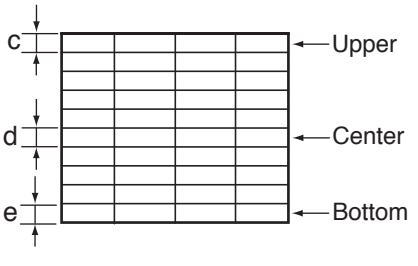
Item 14 [V-LINEARITY 50] VERTICAL LINEARITY

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select [V-LINEARITY 50] in the service mode.
(4) Adjust Vertical Linearity so that the difference of "a" and "b" becomes less than 3mm by pressing VOLUME + or - button.
(5) Exit from service mode.



Item 12 [V S CORRECT 50] V-S CORRECTION

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select [V S CORRECT 50] in the service mode.
(4) Adjust Vertical S-letter Correction so that the difference of "c", "d" and "e" becomes less than 2 mm by pressing the VOLUME + or - button.
(5) Confirm Vertical Linearity and adjust Vertical Center then Vertical Size.
(6) Exit from service mode.



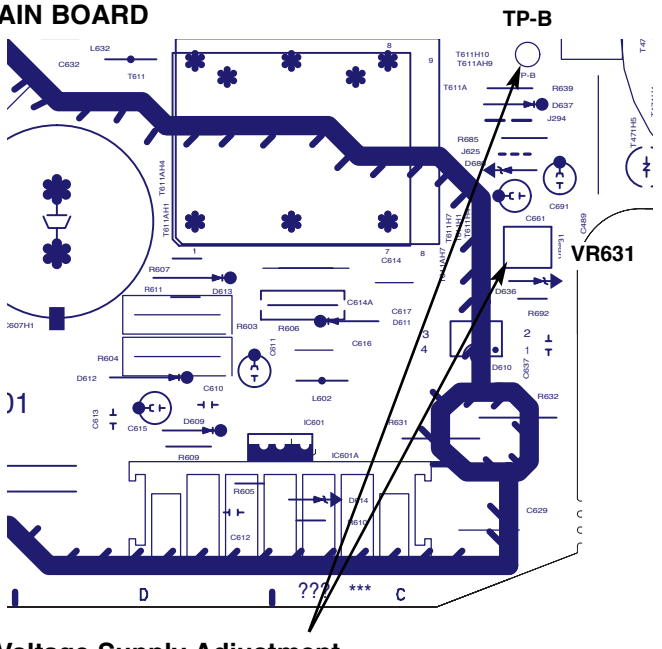
Service Adjustments

Following adjustments are not required to readjust when replacing the memory IC.

B-VOLTAGE SUPPLY CHECKING

(1) Connect DC meter to TP-B and the ground.
(2) Tune the receiver to an active channel and synchronized picture. Select NATURAL picture mode by pressing the **PICTURE MODE** button on the remote control.
(3) Adjust B-voltage to be 130 ± 0.5V DC by using VR631.

MAIN BOARD



B-Voltage Supply Adjustment

HIGH VOLTAGE CHECK

Note: *+B (+130V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.*

(1) Connect high voltage voltmeter negative lead to ground, and connect + lead to anode of picture tube.
(2) Tune receiver to an active channel and confirm TV is operating properly.
(3) Maximize the beam current by adjusting the contrast and brightness controls to maximum. Confirm high voltage is within 21.0 KV and 23.0 KV at maximum beam current.
(4) Eliminate the beam current by adjusting the contrast and brightness controls to minimum. Confirm high voltage does not exceed 24 KV at zero beam current.

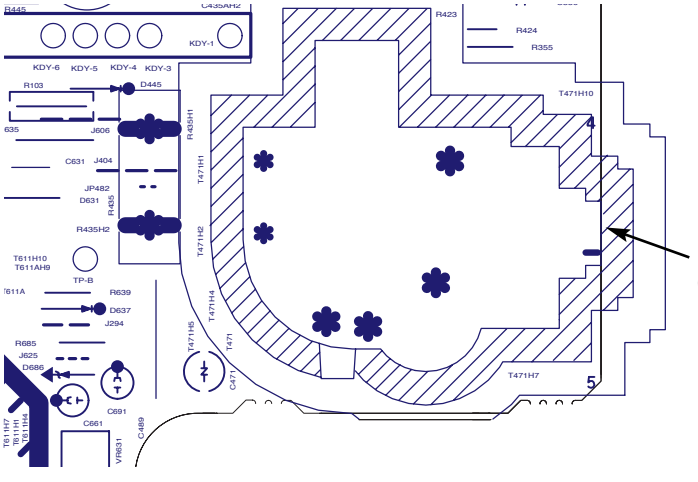
If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

FOCUS ADJUSTMENT

(1) Receive the monochrome circular pattern.
(2) Set the brightness to normal and contrast to maximum.
(3) Adjust the focus control on the F.B.T. for the best focus on the screen centre.

MAIN BOARD



Special Function

The following special functions can be set up on this TV set.

(1) Volume Lock setting

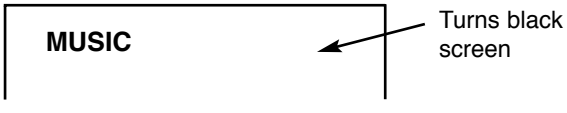
With this function, a maximum sound volume limit can be set at any level.

(2) Tuning Lock setting

Once TUNING LOCK is switched on, further channel tuning (Pre-set) is not possible. The Channel Swapping function also is not possible.

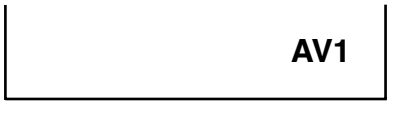
(3) Music Mode setting

When Music Mode is ON, Programme position from “247” to “255” and “0” are set Music Mode. Only sound is provided and any picture is not on the screen under Music Mode.



(4) AV Start setting

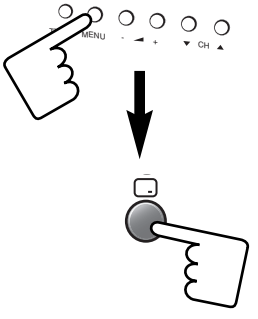
Set AV-START to ON and every time the TV set is switched on, AV1 position will be the initial programme position.

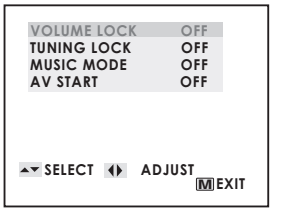


How to set the special function:

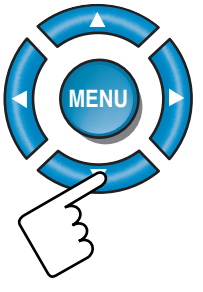
Note: When making the VOLUME LOCK setting, set the desired maximum sound volume by pressing the **VOLUME +** or **–** button before entering Special Function setting mode.

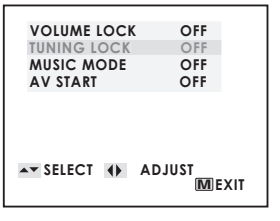
1 To enter into the special function setting mode, press and hold the **MENU** button of the TV set, then press the **Recall** button on the Remote Control.



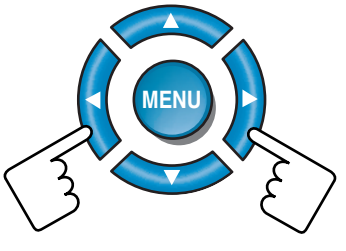


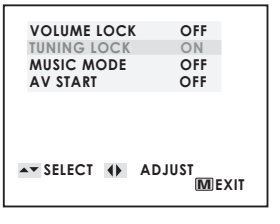
2 Select an item of the special functions by pressing the **PROGRAMME UP** or **DOWN** button on the remote control or the TV set.



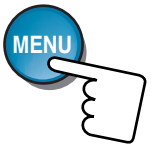


3 Set the selected special function “ ON “ by pressing the **VOLUME +** or **–** button. To cancel, set to “ OFF”.





4 Press the **MENU** button of the remote control to return to the normal TV mode.



Purity and Convergence Adjustment

CAUTION: The Convergence and Purity adjustments have been made at the factory. Readjustment should be made only after picture tube or deflection yoke replacement, following the steps below:

PURITY ADJUSTMENT

1. Demagnetize the picture tube and receiver using an external degaussing coil. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly, see figures 1 and 4.
2. Turn Red and Blue guns off and provide only Green raster. Rotate Screen control to fully counterclockwise. Rotate Red and Blue Bias controls fully counterclockwise. Slowly rotate Green Bias control clockwise to produce Green raster.
3. Loosen the screw holding the Deflection Yoke and remove the 3 Rubber Wedges, and slide the Deflection Yoke fully forward.
4. Rotate and spread the Tabs of the two Purity Magnets to centre the vertical green belt in the picture screen. The Purity Magnets are also adjusted to obtain vertical centring of the raster.
5. Slowly slide the Deflection Yoke backward until a uniform green screen is obtained.
6. Check the purity of the red and blue screens for uniformity, turn off other colours to check this (use bias controls). Readjust the yoke position if necessary until all screens are pure.
7. Adjust each Bias control and screen control to obtain white raster. Refer to Gray Scale Adjustment. If part of the picture screen is coloured, adjust the Deflection Yoke position forward or backward slightly.
8. Tighten the mounting screw of the Deflection Yoke. Adjust Convergence next.

CENTRE CONVERGENCE ADJUSTMENT

1. Use a dot crosshatch pattern signal.
2. Turn Red and Blue guns on and turn off Green gun. Adjust the angle between the Tabs of the Four Pole Magnet 1 and 2, and superimpose the Red and Blue vertical lines in the centre area of the picture screen. Refer to figure 2.
3. Keeping the mutual angle of the Tabs of the Four Pole Magnet turn them together to superimpose the Blue and Red horizontal lines in the centre area of the picture screen. Refer to figure 2.
4. Turn Green gun on and adjust Six Pole Magnet 3 and 4 that the Green line superimposed on the Red/Blue lines.
   This is the same procedure used in steps 2 and 3.
   Refer to figure 3.

OUTER AREA CONVERGENCE ADJUSTMENT

Slightly loosen the screw holding the Deflection Yoke. Adjust the Deflection Yoke to converge the detail in the outer area (left side and right side) of the picture screen by orbital movement of the front of the Yoke, then secure the Deflection Yoke in appropriate position by putting the wedges as illustrated. Tighten screw holding the Deflection Yoke.

Note: The form of deflection yoke changes with models.

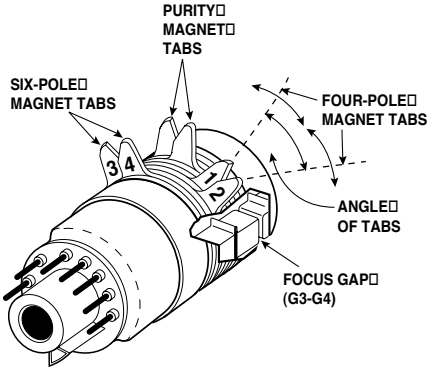


Figure 1. Purity and Convergence Magnets

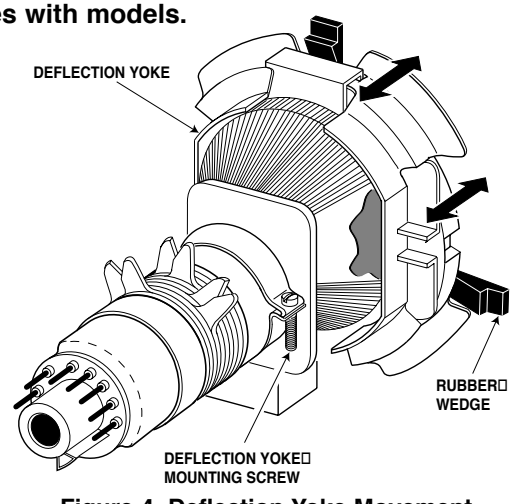


Figure 4. Deflection Yoke Movement

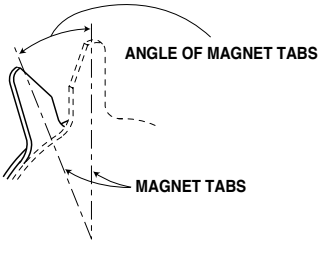


Figure 5. Adjusting Magnet

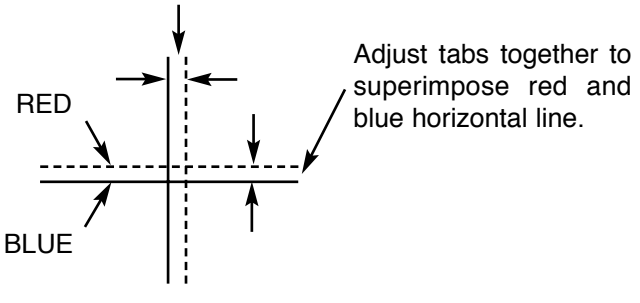


Figure- 2 BLUE AND RED LINE MOVEMENT

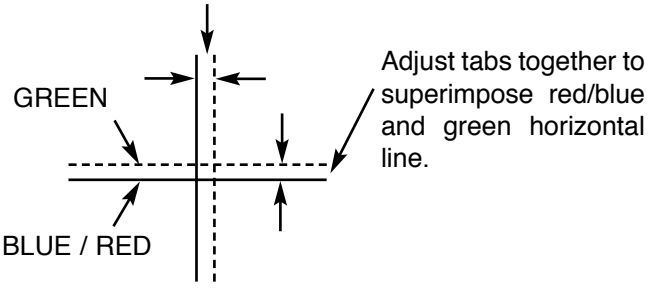


Figure- 3 BLUE/RED AND GREEN MOVEMENT

Mechanical Disassembly

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 7 screws.
2. Pull off cabinet back and remove.

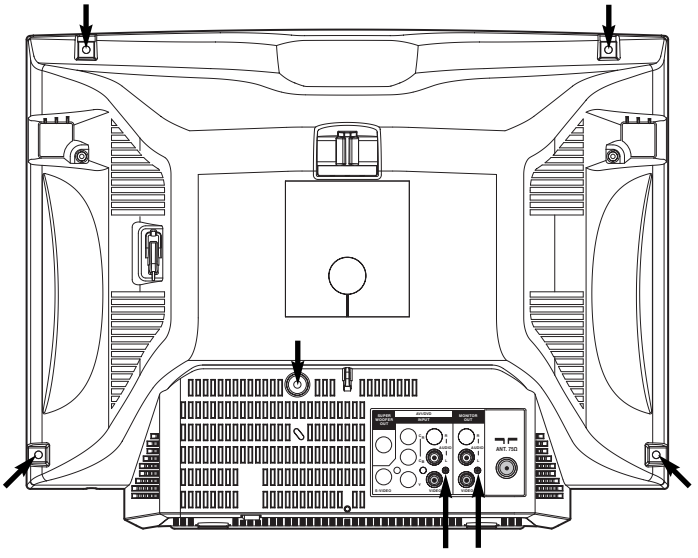


Figure 1. Cabinet Back Removal

Protection Circuit

This TV set has a built-in power supply protection circuit.
It is provided to protect the TV set in case of a power supply circuit malfunctions. When something abnormality occurs during TV reception, the TV set goes to the stand-by mode.

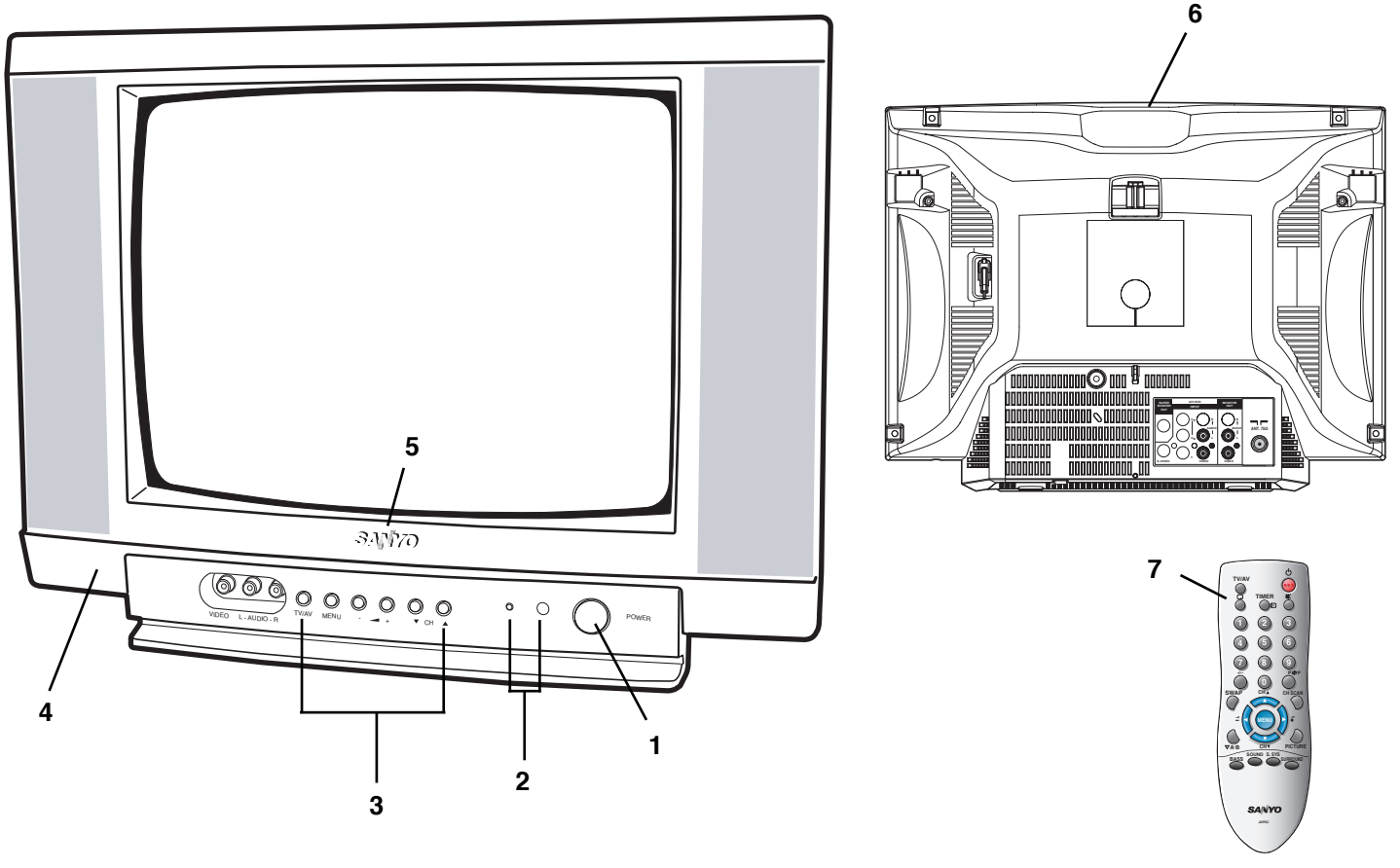
When an abnormality occurs during TV reception, it causes pin 72 of the Processor to go continually Low (less than 2.0V) for about 2 second. The Processor detects that this has occurred and outputs the signal from pin 74 to switch off the power supply lines.

■ Releasing the protective circuit and restoring power supply

To release the protective circuit and restore power supply, turn the power to the TV set OFF and then ON again via either the main power switch or the ON-OFF button on the remote control. This will work only if the power supply trouble was temporary. If there is permanent trouble such as a damaged circuit, power cannot be restored and the circuit will have to be repaired.

Cabinet Parts List

Note: Parts order must contain Service Ref. No., Part No., and descriptions.



Key No.	Part No.	Description	Key No.	Part No.	Description
1	610 341 1835	BUTTON UNITED-BD6L			
	610 229 8406	SPRING-E3HA (for power button)			
2	610 331 7274	DEC IND-BB2A			
3	610 341 1828	BUTTON UNITED-BD6L			
4	610 341 1866	CABINET FRONT-BE5R			
5	645 073 9798	BADGE,SANYO*35.0X7.5L35.0			
6	610 335 4026	CABINET BACK-BB3G			
7	652 002 0634	REMOCON,JXPSG			
	610 341 7608	INSTRUCTION MANUAL-C8WE-D			

Chassis Electrical Parts List

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a ⚠ mark in this parts list and the circuit diagram show components whose value have special significance to product safety. It is particularly recommended that only parts specified on the following parts list be used for components replacement pointed out by the mark.

Note: Parts order must contain Chassis No., Part No., and descriptions. The main PCB unit will be supplied without tuner and flyback transformer. They should be ordered separately.

Ref. No.	Part No.	Description

NOTES:

Read description in the Capacitor and Resistor as follows:

CAPACITOR

CERAMIC 100P K 50V

- 50V: Rated Voltage
- K: Tolerance Symbols:

  Less than 10pF

  A : Not specified B : ±0.1pF C : ±0.25pF
  D : ±0.5pF F : ±1PF G : ±2pF
  R : ±0.25-0pF S : ±0-0.25pF E : +0-1pF

  More than 10pF

  A : Not specified B : ±0.1% C : ±0.25%
  D : ±0.5% F : ±1% G : ±2%
  H : ±3% J : ±5% K : ±10%
  L : ±15% M : ±20% N : ±30%
  P : +100-0% Q : +30-10% T : +50-10%
  U : +75-10% V : +20-10% W : +100-10%
  X : +40-20% Y : +150-10% Z : +80-20%
- 100P: Rated value: P=pico farad, U=micro farad
- CERAMIC: Material:

Material:

CERAMIC..... Ceramic
MT-PAPER..... Metallized Paper
POLYESTER..... Polyester
MT-POLYEST..... Metallized Polyester
POLYPRO..... Polypropylene
MT-POLYPRO.... Metallized Polypropylene
COMPO FILM..... Composite film
MT-COMPO..... Metallized Composite
STYRENE..... Styrene
TA-SOLID..... Tantalum Solid
AL-SOLID..... Aluminium Solid
ELECT..... Electrolytic
NP-ELECT..... Non-polarised Electrolytic
OS-SOLID..... Aluminium Solid with Organic Semiconductive Electrolytic
DL-ELECT..... Double Layered Electrolytic

RESISTOR

CARBON 4.7K J A 1/4W

- 1/4W: Rated Wattage
- A: Performance Symbols:

  A: General B: Non flammable Z: Low noise
  Other: Temperature coefficient
- J: Tolerance Symbols:

  A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5%
  F: ±1% G: ±2% J: ±5% K: ±10%
  M: ±20% P: +5-15%
- 4.7K: Rated value, ohms:

  K: 1,000, M: 1,000,000
- CARBON: Material:

Material:

CARBON..... Carbon
MT-FILM..... Metal Film
OXIDE-MT..... Oxide Metal Film
SOLID..... Composition
MT-GLAZE..... Metal Glaze
WIRE WOUND... Wire Wound
CERAMIC RES.. Ceramic
FUSIBLE RES.... Fusible

Ref. No.	Part No.	Description

OUT OF CIRCUIT BOARD

PICTURE TUBE

⚠Q901	4140137602	CRT ASSY A34JRY24X02
⚠A100	4140103904	CRT A34JRY24X (DT)
⚠A200	6450813504	YOKE,DEFLECTION
Q901-2A	6101170154	DY SPACER-D4AK
	6102337891	DY SPACER E2HA
	6102904154	DY SPACER-F8LZ
Q901-2B	6101170154	DY SPACER-D4AK
	6102337891	DY SPACER E2HA
	6102904154	DY SPACER-F8LZ

COIL

⚠L901	6450841705	ASSY,COIL,DEGAUSSING

MISCELLANEOUS

SP901	6520013339	SPEAKER,8
	6520018730	SPEAKER,8
SP902	6520013339	SPEAKER,8
	6520018730	SPEAKER,8
⚠W901	6450930201	CORD,POWER-2.0MK-A5003
W902	6102979565	ASSY,WIRE GND CONECTOR F8
	6103314082	ASSY,WIRE GND CONECTOR C8

6103416687 ASSY,PWB,MAIN BE5V 1AA0B10S253KA

TRANSISTOR

Q1002	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
Q1003	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q111	4052187712	TR KTC3879S-Y
	4050159721	TR 2SC2814-F4-TB
Q122	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q1901	4051648412	TR KTC3875S-GR-RTK

Ref. No.	Part No.	Description
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q201	4050235009	TR 2SD400-E-MP
Q202	4050235009	TR 2SD400-E-MP
Q203	4050235009	TR 2SD400-E-MP
Q206	4050235009	TR 2SD400-E-MP
Q431	4050180517	TR 2SC3332-R
	4050180606	TR 2SC3332-S
Q432	4060171809	TR TT2138LS-YB11
Q471	4050036002	TR 2SA1319-S
Q472	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q511	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q631	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q632	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q683	4052197711	TR KTB985-B-AT/P
	4050890000	TR 2SA1707-S
	4050890109	TR 2SA1707-T
	4050096907	TR 2SB985-S
Q684	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q801	4050235009	TR 2SD400-E-MP
Q802	4052203115	TR ISA1235AC1E
	4052203016	TR ISA1235AC1F
	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F

Ref. No.	Part No.	Description
Q886	4051648412	TR KTC3875S-GR-RTK
	4050144519	TR 2SC2412K T146 R
	4050144618	TR 2SC2412K T146 S
	4050158724	TR 2SC2812-L6-TB
	4050158922	TR 2SC2812-L7-TB
	4051631612	TR 2SC2812N-L6-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
INTEGRATED CIRCUIT		
IC001	4096827602	IC LA42105-E
IC201	4106465206	IC R2J12203M4-+++FP
	4106620803	IC R2J12204M4-A02FP
IC501	4096646104	IC LA78040B-E
IC601	4106062108	IC STR-W6753(LF2003
IC802	4096760701	IC LE24C161-E-C
	4104958007	IC AT24C16A-10PU-2.7
	4106374607	IC LE24C162-E
	4094594506	IC 24LC16B/P
CAPACITOR		
C001	4041063901	ELECT 1000U M 25V
	4031904702	ELECT 1000U M 25V
C002	4041084104	ELECT 100U M 16V
	4041098408	ELECT 100U M 25V
	4032112918	ELECT 100U M 16V
	4031905214	ELECT 100U M 25V
C003	4041046409	CERAMIC 3900U K 50V
	4040914204	CERAMIC 3900P K 50V
	4031577213	CERAMIC 3900P K 50V
C004	4041140206	CERAMIC 1U Z 16V
	4032070317	CERAMIC 1U Z 16V
	4032789615	CERAMIC 1U Z 16V
C011	4041102600	ELECT 10U M 16V
	4041109906	ELECT 10U M 50V
	4032113519	ELECT 10U M 50V
C1001	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V
C1005	4040970200	ELECT 10U M 50V
	4040843900	ELECT 10U M 50V
C1006	4040988403	ELECT 470U M 10V
	4040842606	ELECT 470U M 10V
C1009	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V
C101	4040987802	ELECT 470U M 6.3V
	4040842408	ELECT 470U M 6.3V
C104	4040973607	ELECT 47U M 50V
	4040844303	ELECT 47U M 50V
C106	4040973201	ELECT 22U M 50V
	4040873006	ELECT 22U M 50V
C111	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C112	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C114	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C115	4040972808	ELECT 0.47U M 50V
	4040843702	ELECT 0.47U M 50V
C1207	4040973409	ELECT 4.7U M 50V
	4040844204	ELECT 4.7U M 50V
C1217	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V
C124	4040970101	ELECT 1U M 50V
	4040843801	ELECT 1U M 50V

Ref. No.	Part No.	Description			Ref. No.	Part No.	Description		
C125	4040972808	ELECT	0.47U	M 50V	C225	4040970200	ELECT	10U	M 50V
	4040843702	ELECT	0.47U	M 50V		4040843900	ELECT	10U	M 50V
C126	4032002625	ELECT	0.47U	M 50V	C231	4041044900	CERAMIC	0.1U	K 50V
C127	4041040209	CERAMIC	100P	J 50V		4040912606	CERAMIC	0.1U	K 50V
	4040946403	CERAMIC	100P	J 50V		4033670417	CERAMIC	0.1U	K 50V
	4031573611	CERAMIC	100P	J 50V	C232	4040970101	ELECT	1U	M 50V
C1902	4040973201	ELECT	22U	M 50V		4040843801	ELECT	1U	M 50V
	4040873006	ELECT	22U	M 50V	C233	4041044900	CERAMIC	0.1U	K 50V
C201	4041159109	MT-POLYEST	0.22U	J 63V		4040912606	CERAMIC	0.1U	K 50V
	4040935407	MT-POLYEST	0.22U	J 63V		4033670417	CERAMIC	0.1U	K 50V
	4032377901	MT-COMPO	0.22U	J 50V	C234	4041045709	CERAMIC	2200U	K 50V
C202	4041044900	CERAMIC	0.1U	K 50V		4040913306	CERAMIC	2200P	K 50V
	4040912606	CERAMIC	0.1U	K 50V		4031134119	CERAMIC	2200P	K 50V
	4033670417	CERAMIC	0.1U	K 50V	C235	4041044900	CERAMIC	0.1U	K 50V
C203	4040947004	CERAMIC	15P	J 50V		4040912606	CERAMIC	0.1U	K 50V
	4031554214	CERAMIC	15P	J 50V		4033670417	CERAMIC	0.1U	K 50V
C204	4040970200	ELECT	10U	M 50V	C237	4033588316	CERAMIC	1U	K 10V
	4040843900	ELECT	10U	M 50V		4033456615	CERAMIC	1U	M 10V
C205	4040970101	ELECT	1U	M 50V	C238	4033588316	CERAMIC	1U	K 10V
	4040843801	ELECT	1U	M 50V		4033456615	CERAMIC	1U	M 10V
C206	4041044900	CERAMIC	0.1U	K 50V	C242	4011506011	MT-GLAZE	0.000	ZA 1/10W
	4040912606	CERAMIC	0.1U	K 50V		4011057919	MT-GLAZE	0.000	ZA 1/16W
	4033670417	CERAMIC	0.1U	K 50V	C243	4011506011	MT-GLAZE	0.000	ZA 1/10W
C207	4041045303	CERAMIC	0.015U	K 50V		4011057919	MT-GLAZE	0.000	ZA 1/16W
	4040912903	CERAMIC	0.015U	K 50V	C246	4041032907	CERAMIC	0.01U	K 50V
	4032152419	CERAMIC	0.015U	K 50V		4040901204	CERAMIC	0.01U	K 50V
C208	4040984009	MT-POLYEST	0.1U	J 63V		4032152211	CERAMIC	0.01U	K 50V
	4040852902	MT-POLYEST	0.1U	J 63V	C432	4041135103	CERAMIC	3900P	K 500V
	4032378007	MT-COMPO	0.1U	J 50V		4032753329	CERAMIC	3900P	K 500V
C209	4041159109	MT-POLYEST	0.22U	J 63V	C433	4041135103	CERAMIC	3900P	K 500V
	4040935407	MT-POLYEST	0.22U	J 63V		4032753329	CERAMIC	3900P	K 500V
	4032377901	MT-COMPO	0.22U	J 50V	C434	4041085705	ELECT	330U	M 35V
C211	4041044900	CERAMIC	0.1U	K 50V		4041075201	ELECT	330U	M 35V
	4040912606	CERAMIC	0.1U	K 50V	C435	4040812104	MT-POLYPRO	4700P	H 1.5K
	4033670417	CERAMIC	0.1U	K 50V		4041019403	MT-POLYPRO	4700P	H 1.5V
C212	4041081301	ELECT	47U	M 16V		4033531015	MT-POLYPRO	4700P	H 1.5K
	4041084500	ELECT	47U	M 25V	C436	4032473306	CERAMIC	330P	K 2K
	4041098002	ELECT	47U	M 35V		4033242436	CERAMIC	330P	K 3K
	4031904811	ELECT	47U	M 25V		4033242406	CERAMIC	330P	K 3K
	4032118217	ELECT	47U	M 35V	C441	4033467027	MT-POLYPRO	0.24U	J 250V
C213	4040972808	ELECT	0.47U	M 50V		4033726718	MT-POLYPRO	0.24U	J 250V
	4040843702	ELECT	0.47U	M 50V	C471	4040565307	NP-ELECT	2.2U	M 100V
C214	4041045303	CERAMIC	0.015U	K 50V		4041089000	NP-ELECT	2.2U	M 100V
	4040912903	CERAMIC	0.015U	K 50V		4040849902	NP-ELECT	2.2U	M 100V
	4032152419	CERAMIC	0.015U	K 50V	C489	4041137107	MT-POLYEST	0.47U	J 250V
C215	4040984009	MT-POLYEST	0.1U	J 63V		4030666106	MT-POLYEST	0.47U	J 250V
	4040852902	MT-POLYEST	0.1U	J 63V		4034335008	MT-POLYEST	0.47U	J 250V
	4032378007	MT-COMPO	0.1U	J 50V		4041194407	MT-POLYPRO	0.47U	J 250V
C216	4041032907	CERAMIC	0.01U	K 50V	C511	4041109906	ELECT	10U	M 50V
	4040901204	CERAMIC	0.01U	K 50V		4032113519	ELECT	10U	M 50V
	4032152211	CERAMIC	0.01U	K 50V	C514	4041109906	ELECT	10U	M 50V
C218	4041032907	CERAMIC	0.01U	K 50V		4032113519	ELECT	10U	M 50V
	4040901204	CERAMIC	0.01U	K 50V	C515	4041063901	ELECT	1000U	M 25V
	4032152211	CERAMIC	0.01U	K 50V		4031904702	ELECT	1000U	M 25V
C219	4040970408	ELECT	47U	M 35V	C517	4041157303	ELECT	220U	M 35V
	4040854609	ELECT	47U	M 35V		4032114427	ELECT	220U	M 35V
C220	4040970408	ELECT	47U	M 35V	C521	4041064205	ELECT	1000U	M 35V
	4040854609	ELECT	47U	M 35V		4032112532	ELECT	1000U	M 35V
C221	4041032907	CERAMIC	0.01U	K 50V	C524	4041153800	POLYESTER	0.1U	J 100
	4040901204	CERAMIC	0.01U	K 50V		4030641212	POLYESTER	0.1U	K 100V
	4032152211	CERAMIC	0.01U	K 50V		4032769726	POLYESTER	0.1U	K 100V
C222	4040970200	ELECT	10U	M 50V		4032564826	MT-COMPO	0.1U	J 100V
	4040843900	ELECT	10U	M 50V	C525	4041040209	CERAMIC	100P	J 50V
C223	4041109906	ELECT	10U	M 50V		4040946403	CERAMIC	100P	J 50V
	4032113519	ELECT	10U	M 50V		4031573611	CERAMIC	100P	J 50V
C224	4040970200	ELECT	10U	M 50V	⚠C601	4040881704	MT-POLYEST	0.22U	K 250V
	4040843900	ELECT	10U	M 50V		4040888802	MT-POLYEST	0.22U	M 275V

Ref. No.	Part No.	Description
	4040941804	MT-POLYEST 0.22U K 275V
	4040966708	MT-POLYPRO 0.22U M 275V
⚠C602	4040881704	MT-POLYEST 0.22U K 250V
	4040888802	MT-POLYEST 0.22U M 275V
	4040941804	MT-POLYEST 0.22U K 275V
	4040966708	MT-POLYPRO 0.22U M 275V
C603	4041157501	CERAMIC 1000P K 1K
	4041078400	CERAMIC 1000P K 1K
	4041157105	CERAMIC 1000P K 1K
	4040846307	CERAMIC 1000P K 1K
	4030766707	CERAMIC 1000P K 1K
	4032221313	CERAMIC 1000P K 1K
	4032719622	CERAMIC 1000P K 1K
C604	4041157501	CERAMIC 1000P K 1K
	4041078400	CERAMIC 1000P K 1K
	4041157105	CERAMIC 1000P K 1K
	4040846307	CERAMIC 1000P K 1K
	4030766707	CERAMIC 1000P K 1K
	4032221313	CERAMIC 1000P K 1K
	4032719622	CERAMIC 1000P K 1K
C605	4041036905	CERAMIC 0.1U K 25V
	4040950806	CERAMIC 0.1U K 25V
	4033423310	CERAMIC 0.1U K 25V
	4031640214	CERAMIC 0.1U Z 25V
	4033670417	CERAMIC 0.1U K 50V
	4033053517	CERAMIC 0.1U Z 50V
C607	4040381600	ELECT 100U M 400V
	4040969006	ELECT 100U M 400V
	4041077403	ELECT 150U M 400V
C610	4040896708	POLYESTER 0.015U K 63V
	4031793207	POLYESTER 0.015U J 50V
	4031793108	POLYESTER 0.015U K 50V
C611	4041097609	ELECT 1U M 50V
	4032112116	ELECT 1U M 50V
C612	4030572130	POLYESTER 0.1U J 50V
	4031818306	POLYESTER 0.1U J 50V
	4030573107	POLYESTER 0.1U K 50V
	4031818207	POLYESTER 0.1U K 50V
C613	4041155002	POLYESTER 4700P J 100V
	4030617504	POLYESTER 4700P J 50V
	4031791203	POLYESTER 4700P J 50V
	4030618303	POLYESTER 4700P K 50V
	4031791104	POLYESTER 4700P K 50V
C615	4041162406	ELECT 33U M 35V
	4032116015	ELECT 33U M 35V
C616	4041119707	CERAMIC 470P K 2K
	4041112500	CERAMIC 470P K 2K
	4040862109	CERAMIC 470P K 2K
	4032454404	CERAMIC 470P K 2K
	4032758146	CERAMIC 470P K 2K
⚠C627	4040733904	CERAMIC 1000P K 250V
	4040732105	CERAMIC 1000P M 250V
	4040713302	CERAMIC 1000P M 400V
	4041113903	CERAMIC 1000P M 400V
	4041039104	CERAMIC 1000P M 400V
⚠C628	4040733904	CERAMIC 1000P K 250V
	4040732105	CERAMIC 1000P M 250V
	4040713302	CERAMIC 1000P M 400V
	4041113903	CERAMIC 1000P M 400V
	4041039104	CERAMIC 1000P M 400V
⚠C629	4040733904	CERAMIC 1000P K 250V
	4040732105	CERAMIC 1000P M 250V
	4040713302	CERAMIC 1000P M 400V
	4041113903	CERAMIC 1000P M 400V
	4041039104	CERAMIC 1000P M 400V
C631	4041078400	CERAMIC 1000P K 1K
	4040846307	CERAMIC 1000P K 1K
	4032719622	CERAMIC 1000P K 1K
C637	4041135509	CERAMIC 220P K 50V
	4031040133	CERAMIC 220P K 50V
C641	4040800606	ELECT 100U M 160V
	4040739005	ELECT 220U M 160V
	4041082803	ELECT 100U M 160V
	4040973706	ELECT 220U M 160V
C643	4041064205	ELECT 1000U M 35V
	4032112532	ELECT 1000U M 35V
C644	4041063901	ELECT 1000U M 25V
	4031904702	ELECT 1000U M 25V
C645	4041063703	ELECT 2200U M 25V
	4032115127	ELECT 2200U M 25V
C662	4041098408	ELECT 100U M 25V
	4031905214	ELECT 100U M 25V
C801	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C802	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C803	4041032402	CERAMIC 1000P K 50V
	4040901105	CERAMIC 1000P K 50V
	4031133815	CERAMIC 1000P K 50V
C804	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C805	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C806	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C807	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C808	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C809	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C810	4040947608	CERAMIC 22P J 50V
	4031459915	CERAMIC 22P J 50V
C811	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C812	4041064809	ELECT 470U M 10V
	4032118514	ELECT 470U M 10V
C813	4040947608	CERAMIC 22P J 50V
	4031459915	CERAMIC 22P J 50V
C814	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C815	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C816	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C817	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C818	4040970408	ELECT 47U M 35V
	4040854609	ELECT 47U M 35V
C819	4041032907	CERAMIC 0.01U K 50V
	4040901204	CERAMIC 0.01U K 50V
	4032152211	CERAMIC 0.01U K 50V
C820	4040947608	CERAMIC 22P J 50V
	4031459915	CERAMIC 22P J 50V
C821	4040947608	CERAMIC 22P J 50V
	4031459915	CERAMIC 22P J 50V

Ref. No.	Part No.	Description
RESISTOR		
R002	4012560418	MT-GLAZE 12K JA 1/10W
	4011051115	MT-GLAZE 12K JA 1/16W
R003	4011623114	MT-GLAZE 3.3K JA 1/10W
	4011054116	MT-GLAZE 3.3K JA 1/16W
R005	4010258208	CARBON 22K JA 1/6W
	4021025301	CARBON 22K JA 1/6W
	4020941701	CARBON 22K JA 1/6W
R007	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R008	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R009	4012567615	MT-GLAZE 3.9K JA 1/10W
	4011054611	MT-GLAZE 3.9K JA 1/16W
R1001	4012562719	MT-GLAZE 75 JA 1/10W
	4011134412	MT-GLAZE 75 JA 1/16W
R1002	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R1003	4012567219	MT-GLAZE 18K JA 1/10W
	4011052112	MT-GLAZE 18K JA 1/16W
R1008	4012566915	MT-GLAZE 680 JA 1/10W
	4011056516	MT-GLAZE 680 JA 1/16W
R1009	4011505816	MT-GLAZE 100K JA 1/10W
	4011050712	MT-GLAZE 100K JA 1/16W
R101	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R1010	4012562719	MT-GLAZE 75 JA 1/10W
	4011134412	MT-GLAZE 75 JA 1/16W
R1011	4011505816	MT-GLAZE 100K JA 1/10W
	4011050712	MT-GLAZE 100K JA 1/16W
R1014	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R1015	4012567219	MT-GLAZE 18K JA 1/10W
	4011052112	MT-GLAZE 18K JA 1/16W
R1016	4012562719	MT-GLAZE 75 JA 1/10W
	4011134412	MT-GLAZE 75 JA 1/16W
R102	4011623718	MT-GLAZE 4.7K JA 1/10W
	4011055311	MT-GLAZE 4.7K JA 1/16W
R1025	4011622919	MT-GLAZE 220 JA 1/10W
	4011052716	MT-GLAZE 220 JA 1/16W
R1028	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R1029	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R103	4010618002	OXIDE-MT 39K JA 1W
R1030	4012558712	MT-GLAZE 22 JA 1/10W
	4011052617	MT-GLAZE 22 JA 1/16W
R1031	4010272105	CARBON 56 JA 1/6W
	4021037205	CARBON 56 JA 1/6W
	4020943804	CARBON 56 JA 1/6W
R1034	4012566311	MT-GLAZE 47K JA 1/10W
	4011055410	MT-GLAZE 47K JA 1/16W
R1035	4012566311	MT-GLAZE 47K JA 1/10W
	4011055410	MT-GLAZE 47K JA 1/16W
R106	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R107	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R109	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R111	4011622414	MT-GLAZE 1.2K JA 1/10W
	4011051016	MT-GLAZE 1.2K JA 1/16W
R112	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011056011	MT-GLAZE 5.6K JA 1/16W
R114	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W
R115	4010272105	CARBON 56 JA 1/6W

Ref. No.	Part No.	Description
	4021037205	CARBON 56 JA 1/6W
	4020943804	CARBON 56 JA 1/6W
R116	4012564119	MT-GLAZE 56 JA 1/10W
	4011055816	MT-GLAZE 56 JA 1/16W
R121	4010264308	CARBON 3.3K JA 1/6W
	4021086104	CARBON 3.3K JA 1/6W
	4020942708	CARBON 3.3K JA 1/6W
R122	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R123	4010247004	CARBON 1K JA 1/6W
	4021027503	CARBON 1K JA 1/6W
	4020939500	CARBON 1K JA 1/6W
R124	4012565314	MT-GLAZE 56K JA 1/10W
	4011058114	MT-GLAZE 56K JA 1/16W
R125	4010257805	CARBON 2.2K JA 1/6W
	4021026308	CARBON 2.2K JA 1/6W
	4020941602	CARBON 2.2K JA 1/6W
R126	4012558712	MT-GLAZE 22 JA 1/10W
	4011052617	MT-GLAZE 22 JA 1/16W
R1902	4012560418	MT-GLAZE 12K JA 1/10W
	4011051115	MT-GLAZE 12K JA 1/16W
R1903	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011056011	MT-GLAZE 5.6K JA 1/16W
R1904	4012567615	MT-GLAZE 3.9K JA 1/10W
	4011054611	MT-GLAZE 3.9K JA 1/16W
R1905	4011506110	MT-GLAZE 2.2K JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W
R1906	4011622810	MT-GLAZE 1.8K JA 1/10W
	4011052013	MT-GLAZE 1.8K JA 1/16W
R1907	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R1911	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W
R1912	4011622919	MT-GLAZE 220 JA 1/10W
	4011052716	MT-GLAZE 220 JA 1/16W
R1913	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W
R1916	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R201	4010682617	OXIDE-MT 47 JA 2W
R202	4010696218	OXIDE-MT 82 JA 2W
R205	4010247707	CARBON 100K JA 1/6W
	4021030206	CARBON 100K JA 1/6W
	4020939708	CARBON 100K JA 1/6W
R206	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R207	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R208	4012566311	MT-GLAZE 47K JA 1/10W
	4011055410	MT-GLAZE 47K JA 1/16W
R210	4010682409	OXIDE-MT 47 JA 2W
R211	4012561712	MT-GLAZE 33K JA 1/10W
	4011054215	MT-GLAZE 33K JA 1/16W
R212	4011623114	MT-GLAZE 3.3K JA 1/10W
	4011054116	MT-GLAZE 3.3K JA 1/16W
R106	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R107	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R109	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R111	4011622414	MT-GLAZE 1.2K JA 1/10W
	4011051016	MT-GLAZE 1.2K JA 1/16W
R112	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011056011	MT-GLAZE 5.6K JA 1/16W
R114	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W

Ref. No.	Part No.	Description
R115	4010272105	CARBON 56 JA 1/6W
	4021037205	CARBON 56 JA 1/6W
	4020943804	CARBON 56 JA 1/6W
R116	4012564119	MT-GLAZE 56 JA 1/10W
	4011055816	MT-GLAZE 56 JA 1/16W
R121	4010264308	CARBON 3.3K JA 1/6W
	4021086104	CARBON 3.3K JA 1/6W
	4020942708	CARBON 3.3K JA 1/6W
R122	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R123	4010247004	CARBON 1K JA 1/6W
	4021027503	CARBON 1K JA 1/6W
	4020939500	CARBON 1K JA 1/6W
R124	4012565314	MT-GLAZE 56K JA 1/10W
	4011058114	MT-GLAZE 56K JA 1/16W
R125	4010257805	CARBON 2.2K JA 1/6W
	4021026308	CARBON 2.2K JA 1/6W
	4020941602	CARBON 2.2K JA 1/6W
R126	4012558712	MT-GLAZE 22 JA 1/10W
	4011052617	MT-GLAZE 22 JA 1/16W
R1902	4012560418	MT-GLAZE 12K JA 1/10W
	4011051115	MT-GLAZE 12K JA 1/16W
R1903	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011056011	MT-GLAZE 5.6K JA 1/16W
R1904	4012567615	MT-GLAZE 3.9K JA 1/10W
	4011054611	MT-GLAZE 3.9K JA 1/16W
R1905	4011506110	MT-GLAZE 2.2K JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W
R1906	4011622810	MT-GLAZE 1.8K JA 1/10W
	4011052013	MT-GLAZE 1.8K JA 1/16W
R1907	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R1911	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W
R1912	4011622919	MT-GLAZE 220 JA 1/10W
	4011052716	MT-GLAZE 220 JA 1/16W
R1913	4011523216	MT-GLAZE 330 JA 1/10W
	4011054017	MT-GLAZE 330 JA 1/16W
R1916	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R201	4010682617	OXIDE-MT 47 JA 2W
R202	4010696218	OXIDE-MT 82 JA 2W
R205	4010247707	CARBON 100K JA 1/6W
	4021030206	CARBON 100K JA 1/6W
	4020939708	CARBON 100K JA 1/6W
R206	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R207	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011057919	MT-GLAZE 0.000 ZA 1/16W
R208	4012566311	MT-GLAZE 47K JA 1/10W
	4011055410	MT-GLAZE 47K JA 1/16W
R210	4010682409	OXIDE-MT 47 JA 2W
R211	4012561712	MT-GLAZE 33K JA 1/10W
	4011054215	MT-GLAZE 33K JA 1/16W
R212	4011623114	MT-GLAZE 3.3K JA 1/10W
	4011054116	MT-GLAZE 3.3K JA 1/16W
R445	4010692606	OXIDE-MT 680 JA 2W
R471	4012566618	MT-GLAZE 68K JA 1/10W
	4011058213	MT-GLAZE 68K JA 1/16W
R472	4012560111	MT-GLAZE 8.2K JA 1/10W
	4011057414	MT-GLAZE 8.2K JA 1/16W
R473	4010258634	CARBON 220K GA 1/6W
	4010258703	CARBON 220K JA 1/6W
	4021170209	CARBON 220K JA 1/6W
	4021170100	CARBON 220K JA 1/6W
R474	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W

Ref. No.	Part No.	Description
R481	4010662906	OXIDE-MT 2.2 JA 2W
R501	4010648603	OXIDE-MT 1K JA 2W
R502	4012565314	MT-GLAZE 56K JA 1/10W
	4011058114	MT-GLAZE 56K JA 1/16W
R514	4010264219	CARBON 3.3K GA 1/6W
	4010264308	CARBON 3.3K JA 1/6W
	4021086104	CARBON 3.3K JA 1/6W
	4020942708	CARBON 3.3K JA 1/6W
R515	4010278503	CARBON 8.2K GA 1/6W
	4010278602	CARBON 8.2K JA 1/6W
	4021037403	CARBON 8.2K JA 1/6W
	4020945303	CARBON 8.2K JA 1/6W
R516	4010247400	CARBON 10K JA 1/6W
	4021031500	CARBON 10K JA 1/6W
	4020939609	CARBON 10K JA 1/6W
R518	4010645206	OXIDE-MT 1.5 JA 2W
R522	4010257409	CARBON 220 JA 1/6W
	4021025608	CARBON 220 JA 1/6W
	4020941503	CARBON 220 JA 1/6W
R523	4010200752	CARBON 470 JA 1/4W
	4010200801	CARBON 470 JA 1/4W
	4021205901	CARBON 470 JA 1/4W
	4021205307	CARBON 470 JA 1/4W
	4020842107	CARBON 470 JA 1/4W
R525	4010660308	OXIDE-MT 180 JA 2W
⚠R601	4010088607	CARBON 220K JA 1/2W
	4021025103	CARBON 220K JA 1/2W
	4020924100	CARBON 220K JA 1/2W
⚠R602	4021118201	WIRE WOUND 1.8 KA 5W
	4020998309	WIRE WOUND 1.8 KA 5W
R603	4010645206	OXIDE-MT 1.5 JA 2W
R604	4010645206	OXIDE-MT 1.5 JA 2W
R605	4010246938	CARBON 1K GA 1/6W
	4010247004	CARBON 1K JA 1/6W
	4021027503	CARBON 1K JA 1/6W
	4020939500	CARBON 1K JA 1/6W
R607	4010246403	CARBON 10 JA 1/6W
	4021033108	CARBON 10 JA 1/6W
	4021021006	CARBON 10 JA 1/6W
R609	4010246700	CARBON 100 JA 1/6W
	4021032101	CARBON 100 JA 1/6W
	4020939401	CARBON 100 JA 1/6W
R610	4010247004	CARBON 1K JA 1/6W
	4021027503	CARBON 1K JA 1/6W
	4020939500	CARBON 1K JA 1/6W
R611	4010249305	CARBON 1.2K JA 1/6W
	4021121003	CARBON 1.2K JA 1/6W
	4020940001	CARBON 1.2K JA 1/6W
R613	4010088607	CARBON 220K JA 1/2W
	4021025103	CARBON 220K JA 1/2W
	4020924100	CARBON 220K JA 1/2W
R614	4010088607	CARBON 220K JA 1/2W
	4021025103	CARBON 220K JA 1/2W
	4020924100	CARBON 220K JA 1/2W
R631	4020008305	SOLID 5.6M KA 1/2W
	4021103801	SOLID 5.6M KA 1/2W
	4020975706	CARBON 5.6M KA 1/2W
R632	4020008305	SOLID 5.6M KA 1/2W
	4021103801	SOLID 5.6M KA 1/2W
	4020975706	CARBON 5.6M KA 1/2W
R635	4010075805	CARBON 120K JA 1/2W
	4021086807	CARBON 120K JA 1/2W
	4020923103	CARBON 120K JA 1/2W
R636	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011056011	MT-GLAZE 5.6K JA 1/16W
R639	4010269808	CARBON 4.7K GA 1/6W
	4010269907	CARBON 4.7K JA 1/6W

Ref. No.	Part No.	Description
	4021205703	CARBON 4.7K JA 1/6W
	4020943606	CARBON 4.7K JA 1/6W
	4020849304	CARBON 4.7K JA 1/6W
R642	4011505816	MT-GLAZE 100K JA 1/10W
	4011050712	MT-GLAZE 100K JA 1/16W
R643	4010690305	OXIDE-MT 6.8 JA 2W
R644	4011007716	OXIDE-MT 0.22 JA 2W
R645	4010251902	CARBON 15K JA 1/6W
	4021040007	CARBON 15K JA 1/6W
	4020940605	CARBON 15K JA 1/6W
R668	4010643707	OXIDE-MT 1 JA 2W
R685	4010146050	CARBON 150K JA 1/4W
	4010146109	CARBON 150K JA 1/4W
	4021117402	CARBON 150K JA 1/4
	4021109605	CARBON 150K JA 1/4W
R686	4010126953	CARBON 10K JA 1/4W
	4010127009	CARBON 10K JA 1/4W
	4021027701	CARBON 10K JA 1/4W
	4020935700	CARBON 10K JA 1/4W
R687	4010191852	CARBON 3.9K JA 1/4W
	4010191901	CARBON 3.9K JA 1/4W
	4021085800	CARBON 3.9K JA 1/6W
	4020943101	CARBON 3.9K JA 1/6W
R688	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R690	4010269808	CARBON 4.7K GA 1/6W
	4010269907	CARBON 4.7K JA 1/6W
	4021205703	CARBON 4.7K JA 1/6W
	4020943606	CARBON 4.7K JA 1/6W
	4020849304	CARBON 4.7K JA 1/6W
R801	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W
R802	4011506110	MT-GLAZE 2.2K JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W
R805	4010247004	CARBON 1K JA 1/6W
	4021027503	CARBON 1K JA 1/6W
	4020939500	CARBON 1K JA 1/6W
R806	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W
R809	4010269600	CARBON 470 JA 1/6W
	4021027909	CARBON 470 JA 1/6W
	4020943507	CARBON 470 JA 1/6W
R813	4010246700	CARBON 100 JA 1/6W
	4021032101	CARBON 100 JA 1/6W
	4020939401	CARBON 100 JA 1/6W
R814	4010246700	CARBON 100 JA 1/6W
	4021032101	CARBON 100 JA 1/6W
	4020939401	CARBON 100 JA 1/6W
R815	4012567318	MT-GLAZE 6.8K JA 1/10W
	4011056615	MT-GLAZE 6.8K JA 1/16W
R816	4012567318	MT-GLAZE 6.8K JA 1/10W
	4011056615	MT-GLAZE 6.8K JA 1/16W
R817	4010246700	CARBON 100 JA 1/6W
	4021032101	CARBON 100 JA 1/6W
	4020939401	CARBON 100 JA 1/6W
R818	4010246700	CARBON 100 JA 1/6W
	4021032101	CARBON 100 JA 1/6W
	4020939401	CARBON 100 JA 1/6W
R820	4010257102	CARBON 22 JA 1/6W
	4020941404	CARBON 22 JA 1/6W
R821	4010257102	CARBON 22 JA 1/6W
	4020941404	CARBON 22 JA 1/6W
R822	4012558712	MT-GLAZE 22 JA 1/10W
	4011052617	MT-GLAZE 22 JA 1/16W
R823	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R824	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R825	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R827	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R828	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W
R829	4010103102	CARBON 470 JA 1/2W
	4021205505	CARBON 470 JA 1/2W
	4021205604	CARBON 470 JA 1/2W
R831	4010588008	OXIDE-MT 120 JA 1W
R832	4010103102	CARBON 470 JA 1/2W
	4021205505	CARBON 470 JA 1/2W
	4021205604	CARBON 470 JA 1/2W
R833	4010247707	CARBON 100K JA 1/6W
	4021030206	CARBON 100K JA 1/6W
	4020939708	CARBON 100K JA 1/6W
R834	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W
R835	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W
R838	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R839	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R840	4012558712	MT-GLAZE 22 JA 1/10W
	4011052617	MT-GLAZE 22 JA 1/16W
R842	4012556510	MT-GLAZE 100 JA 1/10W
	4011050415	MT-GLAZE 100 JA 1/16W
R843	4011505915	MT-GLAZE 10K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W
R846	4012559511	MT-GLAZE 220K JA 1/10W
	4011053010	MT-GLAZE 220K JA 1/16W
R886	4011623015	MT-GLAZE 22K JA 1/10W
	4011052914	MT-GLAZE 22K JA 1/16W
R889	4012566618	MT-GLAZE 68K JA 1/10W
	4011058213	MT-GLAZE 68K JA 1/16W

VARIABLE RESISTOR

VR631	6450065514	VR,SEMI,2.2K N
	6450035579	VR,SEMI,2.2K N
	6450952586	VR,SEMI,2.2K N

COIL

L1901	6450062490	INDUCTOR,1U K
L431	6520010468	CORE,PIPE
L432	6520010468	CORE,PIPE
⚠L601A	6450938979	LINE FILTER
L602	6100785953	PIPE CORE
L602	6520010130	CORE,PIPE
L633	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L634	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L635	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L636	6100785953	PIPE CORE
	6520010130	CORE,PIPE
L801	6450082894	INDUCTOR,5.6U K
L803	6450257797	INDUCTOR,120 OHM
	6520016996	INDUCTOR , 120 OHM
L804	6450257797	INDUCTOR,120 OHM
	6520016996	INDUCTOR , 120 OHM

TRANSFORMER

T431	6450833847	TRANS,DRIVE
	6520011144	TRANS,DRIVE

Ref. No.	Part No.	Description
⚠T471	6520018297	TRANS,FLYBACK
	6520023079	TRANS,FLYBACK
⚠T611A	6450938214	TRANS,POWER,PULSE
VARIABLE RESISTOR		
VR631	6450065514	VR,SEMI,2.2K N
	6450035579	VR,SEMI,2.2K N
	6450952586	VR,SEMI,2.2K N
DIODE		
DK201-TM	4070638606	ZENER DIODE MTZJ5.1A
	4080476403	ZENER DIODE MTZJ5.1A
D001	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D005	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D1001	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D1009	4072505817	ZENER DIODE KDZ10V
	4072065618	ZENER DIODE UDZS-TE-1710B
D102	4070995600	ZENER DIODE MTZJ6.8A
	4070574003	ZENER DIODE RD6.8EB1
	4080478506	ZENER DIODE MTZJ6.8A
D103	4071000224	ZENER DIODE MTZJ36A
	4070562307	ZENER DIODE RD36EB1
	4080476205	ZENER DIODE MTZJ36A
D105	4070638220	ZENER DIODE MTZJ10A
	4070996122	ZENER DIODE MTZJ10B
	4080472009	ZENER DIODE MTZJ10A
	4080472207	ZENER DIODE MTZJ10B-52
D106	4070638220	ZENER DIODE MTZJ10A
	4070996122	ZENER DIODE MTZJ10B
	4080472009	ZENER DIODE MTZJ10A
	4080472207	ZENER DIODE MTZJ10B-52
D122	4080627003	DIODE 1SS356WS
	4071661118	DIODE 1SS356-TW11
D1902	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D1903	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D1904	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D1905	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D1910	4071166504	LED SLP-181B-51
	4080512408	LED 204HD
	4080626907	LED BT-202YX-31
D1910A	6103039954	HOLDER LED-C4LA
	6103357706	HOLDER LED-BD6A
D201	4070638606	ZENER DIODE MTZJ5.1A
	4080476403	ZENER DIODE MTZJ5.1A
D202	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
D202	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D203	4072217116	ZENER DIODE UDZS-TE-1712B
D204	4072217116	ZENER DIODE UDZS-TE-1712B
D205	4072217116	ZENER DIODE UDZS-TE-1712B
D421	4070997228	ZENER DIODE MTZJ16A
	4070547027	ZENER DIODE RD16EB1
	4070547215	ZENER DIODE RD16EB3
	4080475307	ZENER DIODE MTZJ16A-52
D445	6101975711	CUTTING WIRE
D487	4070077405	DIODE EU1
	4080457709	DIODE EU1
	4080584207	DIODE EU1
D508	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D509	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
D512	4070058602	DIODE ERA15-02-V1
	4080456801	DIODE ERA15-02
	4080658205	DIODE ERA15-02
D603	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
	4080657901	DIODE RM11C
D604	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
	4080657901	DIODE RM11C
D605	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
	4080657901	DIODE RM11C
D606	4070066300	DIODE ERC05-10BV1
	4070096901	DIODE RM11C
	4080457501	DIODE ERC05-10B
	4080657901	DIODE RM11C
D609	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
⚠D610	4072348701	PHOTO COUPLE PC123X5YFZ
	4072303908	PHOTO COUPLE PC123Y52
D612	4070077405	DIODE EU1
	4080457709	DIODE EU1
	4080584207	DIODE EU1
D613	4070077405	DIODE EU1
	4080457709	DIODE EU1
	4080584207	DIODE EU1
D614	4070995422	ZENER DIODE MTZJ6.2B
	4080627409	ZENER DIODE MTZJ6.2B
D631	4070098806	DIODE RU3AM
	4080584405	DIODE RU3AM
	4080584405	DIODE RU3AM
D632A	4071296706	DIODE RU4YX LF-L1
	4080458706	DIODE RU4YX LF-L1
D633	4070077603	DIODE EU2
	4080458102	DIODE EU2Z
	4080658007	DIODE EU2
D634	4070098905	DIODE RU3M
	4080458409	DIODE RU3M
	4080658106	DIODE RU3M
D636	4070638923	ZENER DIODE MTZJ5.6C
	4080477608	ZENER DIODE MTZJ5.6C
D637	4080082406	DIODE 1N4148

Ref. No.	Part No.	Description
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D638	4080082406	DIODE 1N4148
	4080585600	DIODE 1SS133ST
	4070124406	DIODE 1SS133
	4070134306	DIODE 1S2076A
D686	4070995521	ZENER DIODE MTZJ6.2C
	4070572801	ZENER DIODE RD6.2EB3
	4080478308	ZENER DIODE MTZJ6.2C-52
D801	4070639425	ZENER DIODE MTZJ8.2A
	4080479404	ZENER DIODE MTZJ8.2A
D802	4080627003	DIODE 1SS356WS
	4071661118	DIODE 1SS356-TW11
D803	4072217116	ZENER DIODE UDZS-TE-1712B
D805	4070638606	ZENER DIODE MTZJ5.1A
	4080476403	ZENER DIODE MTZJ5.1A
D808	4072217116	ZENER DIODE UDZS-TE-1712B
D809	4072217116	ZENER DIODE UDZS-TE-1712B
D816	4072128818	DIODE KDS160-RTK
	4080627201	DIODE 1SS35
	4071630411	DIODE 1SS352-(TPH3)
	4071490817	DIODE 1SS355-TE-17
MISCELLANEOUS		
⚠F601	4240059507	FUSE 250V 4A
	4230288603	FUSE 250V 4A
F601A	6450005077	HOLDER,FUSE
	6450705434	HOLDER,FUSE
	6520019591	HOLDER FUSE
F601B	6450005077	HOLDER,FUSE
	6450705434	HOLDER,FUSE
	6520019591	HOLDER FUSE
A101	6450904059	TUNER, U/V
A1901	6450476228	UNIT,REMOCON RECEIVER
	6450820465	UNIT,REMOCON RECEIVER
K1001A	6520012226	JACK,RCA-2
	6520022775	JACK,RCA-2
K1002A	6520012226	JACK,RCA-2
	6520022775	JACK,RCA-2
K1005A	6450401275	JACK,RCA-2
	6520012202	JACK,RCA-2
	6520018891	JACK,RCA-2
⚠PS601	4080464400	THERMISTOR PTDAA1BF9R0Q20
	4080652302	THERMISTOR MZ72BL-9RQ
SW1901	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1902	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1903	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1904	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1905	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
SW1906	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6520018761	SWITCH,PUSH 1P-1TX1
⚠SW601	6450590061	SWITCH, POWER 1P-1TX1
⚠VA601	4071712008	VARISTOR ERZV14D471
	4072620609	VARISTOR MYG3-14K385
	4072471300	VARISTOR SVC471D-07ABW7

Ref. No.	Part No.	Description
X161	4210121906	SAW F TSF6376BL
	4210115202	SAW F TSF6376Y
	4220068208	SAW F B39380-K7279-M100
	4220053907	SAW F SF6376U
X201	6450248801	OSC,CRYSTAL 4.433619MHZ
	6450251122	OSC,CRYSTAL 4.433619MHZ
	6450820052	OSC,CRYSTAL 4.433619MHZ
	6450975707	OSC,CRYSTAL 4.433619MHZ
	6520016842	OSC,CRYSTAL 4.433619MHZ

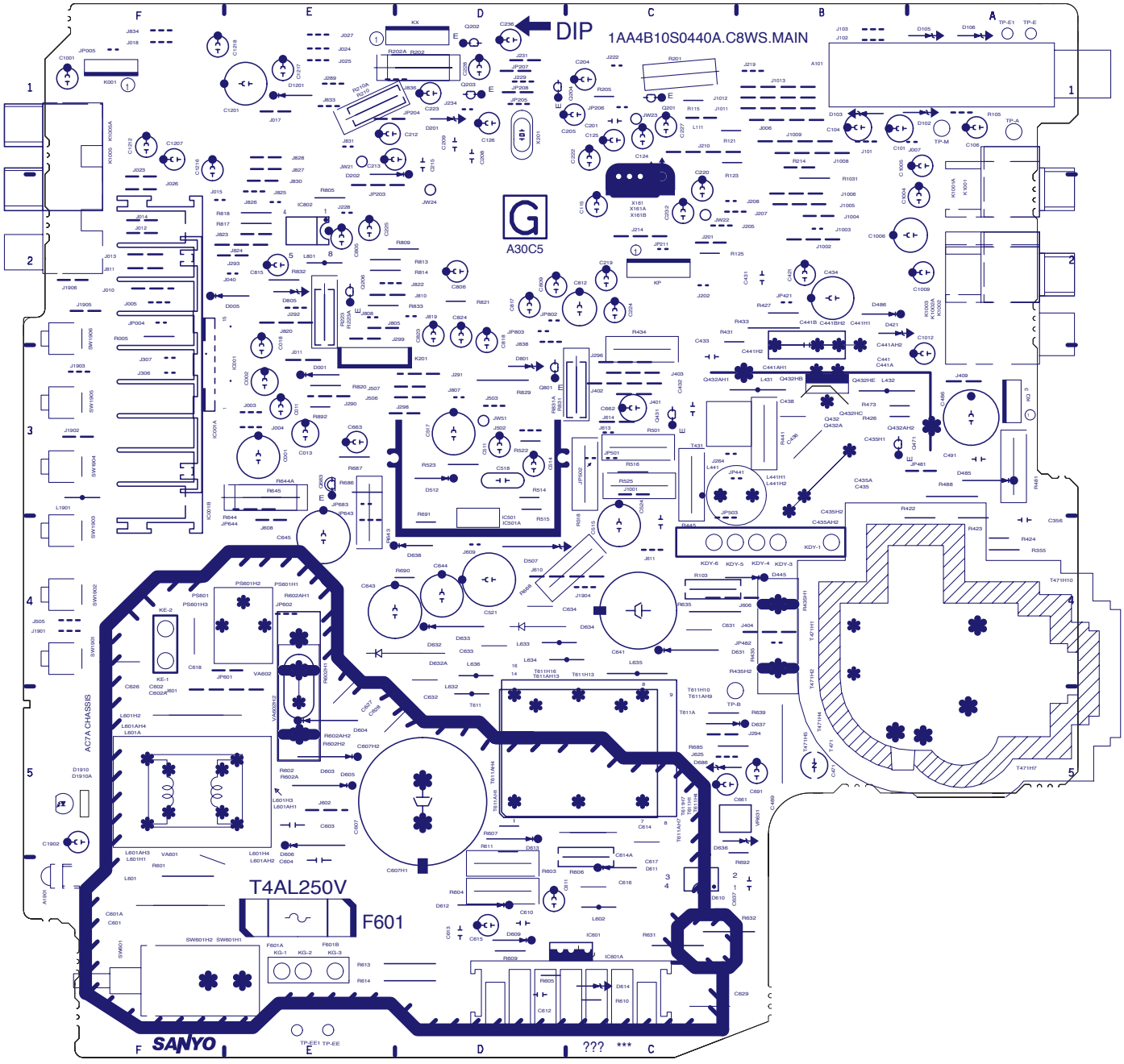
6103415062 ASSY,PWB,CRT BD8A 1AA0B10S2670B

TRANSISTOR					
Q701	4052188016	TR KTC3206-Y-AT/P			
	4050405600	TR 2SC2228-D			
	4050296901	TR 2SC2228-E			
Q703	4052188016	TR KTC3206-Y-AT/P			
	4050405600	TR 2SC2228-D			
	4050296901	TR 2SC2228-E			
Q705	4052188016	TR KTC3206-Y-AT/P			
	4050405600	TR 2SC2228-D			
	4050296901	TR 2SC2228-E			
CAPACITOR					
C703	4041045600	CERAMIC	220P	K	50V
	4040913207	CERAMIC	220P	K	50V
	4031576216	CERAMIC	220P	K	50V
C705	4041045600	CERAMIC	220P	K	50V
	4040913207	CERAMIC	220P	K	50V
	4031576216	CERAMIC	220P	K	50V
C707	4041045600	CERAMIC	220P	K	50V
	4040913207	CERAMIC	220P	K	50V
	4031576216	CERAMIC	220P	K	50V
C708	4041078400	CERAMIC	1000P	K	1K
	4040846307	CERAMIC	1000P	K	1K
	4030766707	CERAMIC	1000P	K	1K
	4033128225	CERAMIC	1000P	K	1K
C710	4040981701	ELECT	4.7U	M	250V
	4041094509	ELECT	4.7U	M	250V
	4041094509	ELECT	4.7U	M	250V
RESISTOR					
R701	4010278107	CARBON	82	JA	1/6W
	4021089105	CARBON	82	JA	1/6W
	4020945105	CARBON	82	JA	1/6W
R702	4011624012	MT-GLAZE	560	JA	1/10W
	4011055915	MT-GLAZE	560	JA	1/16W
R704	4012559016	MT-GLAZE	82	JA	1/10W
	4011057216	MT-GLAZE	82	JA	1/16W
R705	4011624012	MT-GLAZE	560	JA	1/10W
	4011055915	MT-GLAZE	560	JA	1/16W
R707	4010278107	CARBON	82	JA	1/6W
	4021089105	CARBON	82	JA	1/6W
	4020945105	CARBON	82	JA	1/6W
R708	4011624012	MT-GLAZE	560	JA	1/10W
	4011055915	MT-GLAZE	560	JA	1/16W
R711	4010589817	OXIDE-MT	12K	JA	1W
	4010589807	OXIDE-MT	12K	JA	1W
R712	4010589817	OXIDE-MT	12K	JA	1W
	4010589807	OXIDE-MT	12K	JA	1W
R713	4010589817	OXIDE-MT	12K	JA	1W
	4010589807	OXIDE-MT	12K	JA	1W
R715	4010091508	CARBON	2.7K	JA	1/2W
	4021033207	CARBON	2.7K	JA	1/2W
	4020924308	CARBON	2.7K	JA	1/2W

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R716	4010091508	CARBON 2.7K JA 1/2W			
	4021033207	CARBON 2.7K JA 1/2W			
	4020924308	CARBON 2.7K JA 1/2W			
R717	4010091508	CARBON 2.7K JA 1/2W			
	4021033207	CARBON 2.7K JA 1/2W			
	4020924308	CARBON 2.7K JA 1/2W			
R732	4010246403	CARBON 10 JA 1/6W			
	4021033108	CARBON 10 JA 1/6W			
	4021021006	CARBON 10 JA 1/6W			
COIL					
L702	6450079689	INDUCTOR,150U K			
MISCELLANEOUS					
⚠K701A	6520017788	SOCKET,CRT 8P			

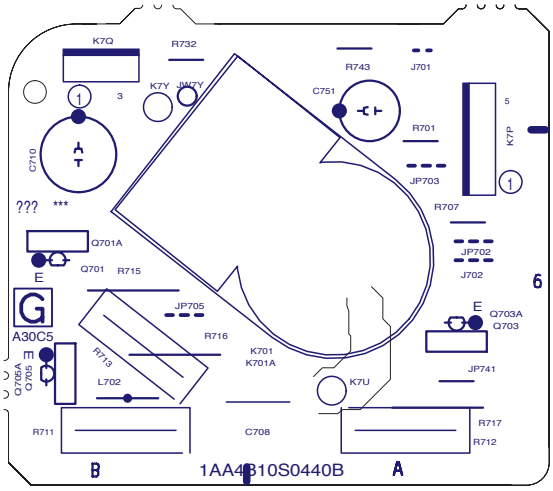
Component Locations

Main Board (Parts Side)



Component Locations

CRT Board (Parts Side)



Voltages and Waveforms Charts

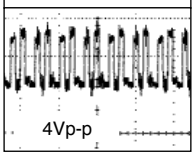
Note: Voltages and waveforms were measured with colour bar signal and controls adjusted for normal picture.

Main Board

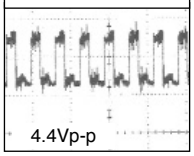
Q1001	Q1002	Q1003	Q111	Q202	Q203	Q206	Q431	Q432	Q471	Q472
E 4.9V	E 4.9V	E 2.4V	E 0.5V	E 5V	E 7.9V	E 1.7V	E 0V	E 0V	E 130V	E 0V
C 0V	C 0V	C 7.6V	C 4.4V	C 7.5V	C 11.1V	C 11.9V	C 16V	C 342V	C 28V	C 2.8V
B 4.2V	B 3.5V	B 3.1V	B 1.2V	B 5.7V	B 8.5V	B 2.3V	B 0V	B 1.4V	B 130V	B 0V

Q511	Q631	Q632	Q683	Q684	Q886	Q801	Q802
E 0V	E 6.2V	E 0V	E 26.3V	E 0V	E 0V	E 3.4V	E 3.4V
C 2.8V	C 11.9V	C 7.9V	C 26.2V	C 0V	C 0V	C 12.5V	C 0V
E 0V	B 6.8V	B 0V	B 25.6V	B 0.6V	B 0.6V	B 4.1V	B 3.2V

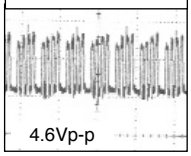
IC201-pin54 <R out>



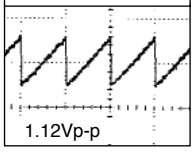
IC201-pin55 <G out>



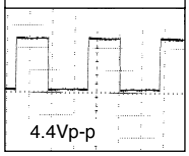
IC201-pin56 <B out>



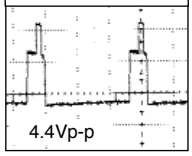
IC201-pin10 <V drive>



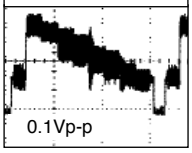
IC201-pin14 <H drive>



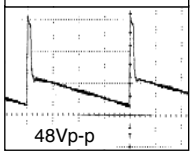
IC201-pin44 <Sandcastle>



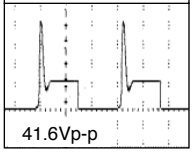
IC201-pin30 <CVBS int.>



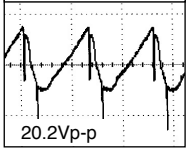
IC501-pin9 <V out>



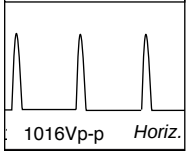
Q431-C <H drive>



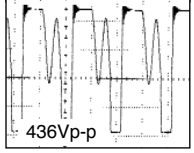
Q432-B <H out>



Q432-C <H out>



IC601-pin1 <Power out>



IC001 (AUDIO AMP.)

Pin-1	0V	**2**	11.9V	**3**	0.7V	**4**	0V	**5**	0.7V	**6**	3.9V	**7**	0V	**8**	0V	**9**	11.5V		
10	5.6V	**11**	0V	**12**	5.7V	**13**	0V	**14**	5.5V	**15**	0V								

IC501 (VERT. OUT)

Pin-1	2.4V	**2**	26.2V	**3**	1.4V	**4**	GND	**5**	14V	**6**	25.5V	**7**	2.4V

IC601 (POWER)

Pin-1	347V~	**2**	0V	**3**	19.3V	**4**	0V	**5**	1.3V	**6**	0.8V

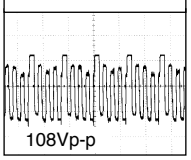
IC802 (MEMORY)

Pin-1	GND	**2**	GND	**3**	GND	**4**	GND	**5**	5V	**6**	5V	**7**	0V	**8**	5V

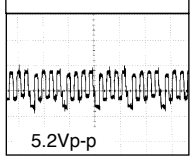
CRT Board

Q701	Q703	Q705	Q721
E 2.8V	E 2.7V	E 2.4V	E 0.8V
C 94V	C 95V	C 95V	C 0V
B 3.2V	B 3.2V	B 2.7V	B 0V

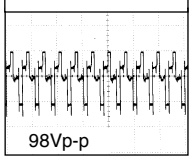
Q701-C <B-out>



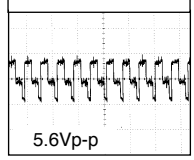
Q701-B <B drive>



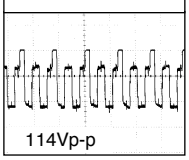
Q705-C <G-out>



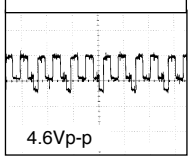
Q705-B <G drive>



Q703-C <R-out>

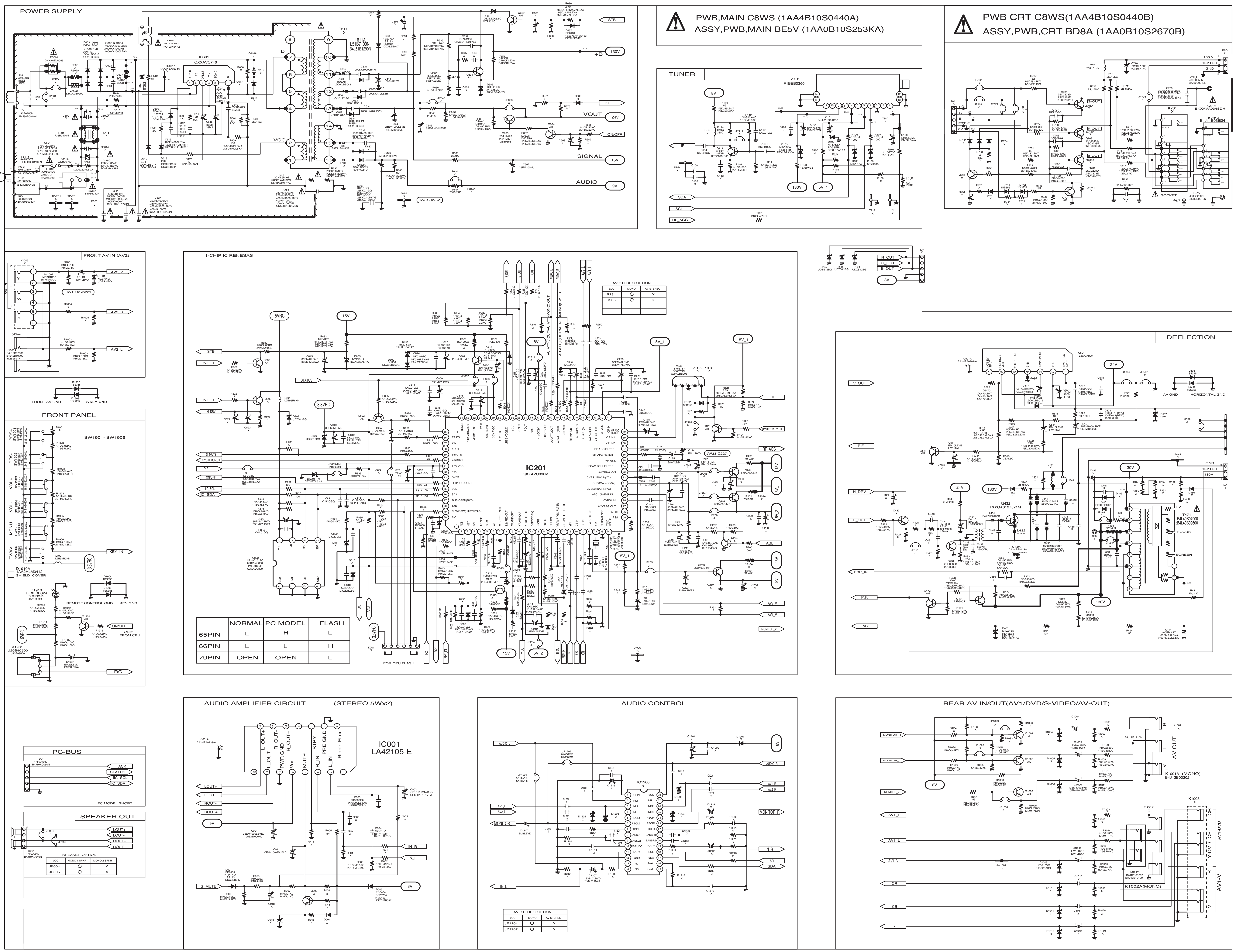


Q703-B <R drive>



SANYO Electric Co., Ltd.
Printed In Indonesia

Apr. /'08 /30 CPS



LIST OF REPLACEABLE TRANSISTORS

(2SA933S TYPE)

	14TH CODE	2SA933S	2SA1015	2SA564A
AB	7T200181	R	Y,GR	R
AC	7T200182	Q,R	O,Y,GR	Q,R

(2SA1037K CHIP TYPE)

	14TH CODE	2SA1037AK	2SA1235A	KTA1504S
AK	7T200221	R,S	1E,1F, C1E,C1F	GR

(2SC1740S TYPE)

	14TH CODE	2SC1740S	2SC945A	2SC1815
AD	7T200183	Q,R,S	QA,PA	Y,GR
AE	7QT00202	Q,R,S	RA,QA,PA	O,Y,GR

(2SC2412K CHIP TYPE)

	14TH CODE	2SC2812	2SC2412K
AH	7T200220	L6,L7	R,S

LIST OF REPLACEABLE DIODE

	14TH CODE	DIODE NAME
R	7DD00019	1S1555,1S2473,1S2076,DS442,1N4148
AA	7DD00192	1S1555,1S2473,1S2076,DS442,1N4148 1SS176,1SS133,GMA01
M	7ED00025	1SS176,GMA01,1SS133
P	7DD00021	1S1553,1S2076A,1S2471,1N4148

DIFFERENCES PARTS LIST :

MODEL	013	MAIN UNIT	CRT UNIT
BB3G	013BB3G	1AA0B10S253BA	1AA0B10S2530B
BB3C	013BB3C	1AA0B10S253CA	1AA0B10S2530B
BB3D	013C8TS	1AA0B10S253EA	1AA0B10S2530B
BB3F	013BB3G	1AA0B10S253BA	1AA0B10S2530B
BB3K	013C8TS	1AA0B10S253AA	1AA0B10S2530B
BB3KA	013C8TS	1AA0B10S253AA	1AA0B10S2530B
BB3T	013BB3T	1AA0B10S253DA	1AA0B10S2530B
C8TF	013C8TF	1AA0B10S253BA	1AA0B10S2530B
BE5A	013BB3G	1AA0B10S253BA	1AA0B10S2530B
BE5B	013BB3C	1AA0B10S253CA	1AA0B10S2530B
BE5D	013C8TS	1AA0B10S253EA	1AA0B10S2530B

LOC.	013BB3G	013C8TF	013BB3C	013C8TS	013BB3T
W901	W10B1600 N / A	W10B1600 N / A	W10B19700 N / A	W10B03901 W10B15500	W10B03901 W10B15500

LOC.	BB3G 1AA0B10S253BA	BB3C 1AA0B10S253CA	BB3K 1AA0B10S253AA	BB3D 1AA0B10S253EA	BB3T 1AA0B10S253DA
A101	F1BEB0360	F1BEB0360	F1BEB0360	F1BEB0360	F1BEB0380
C602	X	250GM0.22XBBJ 275GM0.22VB 275GK0.22VBB 275GM0.22VDC 275MM0.22LBYL	250GM0.22XBBJ 275GM0.22VB 275GK0.22VBB 275GM0.22VDC 275MM0.22LBYL	250GM0.22XBBJ 275GM0.22VB 275GK0.22VBB 275GM0.22VDC 275MM0.22LBYL	X
C618	X	X	X	X	400GJ0.1LBYC 400GK0.1P 400MJ0.1LBYA
C632	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH	X	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH
C633	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH	X	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH
C634	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH	X	1000KK470LBZB 1000KK470LBYH 1000KK470NH	1000KK470LBZB 1000KK470LBYH 1000KK470NH
D122	1SS356 DDXLBB052G	X	1SS356 DDXLBB052G	1SS356 DDXLBB052G	1SS356 DDXLBB052G
D507	1Z75	X	X	X	X
JP161	X	RGFR000ZTCANL RGGR000ZTCANL	X	X	X
L601	F35B0470N	X	X	X	F35B0470N
L601A	X	F35B1560N	F35B1560N	F35B1560N	X
Q122	AH	X	AH	AH	AH
R123	1K 1/6DJ1KLBVA 1/6DJ1KLBXA	X	1K 1/6DJ1KLBVA 1/6DJ1KLBXA	1K 1/6DJ1KLBVA 1/6DJ1KLBXA	1K 1/6DJ1KLBVA 1/6DJ1KLBXA
R124	1/10GJ56KC 1/16GJ56KC	X	1/10GJ56KC 1/16GJ56KC	1/10GJ56KC 1/16GJ56KC	1/10GJ56KC 1/16GJ56KC
R125	2.2K 1/6DJ2.2KLBVA 1/6DJ2.2KLBXA	X	2.2K 1/6DJ2.2KLBVA 1/6DJ2.2KLBXA	2.2K 1/6DJ2.2KLBVA 1/6DJ2.2KLBXA	2.2K 1/6DJ2.2KLBVA 1/6DJ2.2KLBXA
R602	X	5WK1.8LBZAL 5WK1.8LBZCL	5WK1.8LBZAL 5WK1.8LBZCL	5WK1.8LBZAL 5WK1.8LBZCL	5WK1.8LBZAL 5WK1.8LBZCL
R602H2	X	2400010 1LG2EYA0001--	2400010 1LG2EYA0001--	2400010 1LG2EYA0001--	2400010 1LG2EYA0001--
R821	22 1/6DJ22LBXA	X	22 1/6DJ22LBXA	22 1/6DJ22LBXA	22 1/6DJ22LBXA
VA602	DHXAVB020C	X	X	X	X
VA602H2	2400030 1LG2EYA0002--	X	X	X	X

THE SERVICE PRECAUTION:
The area enclosed by this line(⊥⊥⊥) is directly connected with AC mains voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

PRODUCT SAFETY NOTICE:

Product safety should be considered when a component replacement is made in any area of a receiver.

Components indicated by a mark ⚠ in this circuit diagram show components whose values have special significance to product safety. It is particularly recommended that only parts specified on the part service manual be used for components replacement pointed out by the mark.

CIRCUIT DIAGRAM NOTICE:

1. All resistance value are in ohms, K=1,000, M=1,000,000.
2. All resistance rated wattages are 1/6W unless otherwise noted.
3. Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in μ F and more than 1 are pF.
4. All capacitance rated voltages are 50V unless otherwise noted.
5. All inductance values are in μ H.
6. Voltage readings take with a "VTVM" are from point indicated chassis ground. Voltage readings taken by using PAL colour bar signal are with all controls at normal position. Some voltage may vary with signal strength.
7. Waveform were taken with PAL colour bar and controls adjusted for normal picture. Waveforms were taken by using a wide band oscillo-scope and a low capacity probe.
8. This circuit diagram covers a basic or representative chassis only. There may be some components or partial circuit differences between the actual chassis and the circuit diagram.
9. Parts specified with "X" are not installed in this model.
10. Parts specified with "J" are just jumper wires.

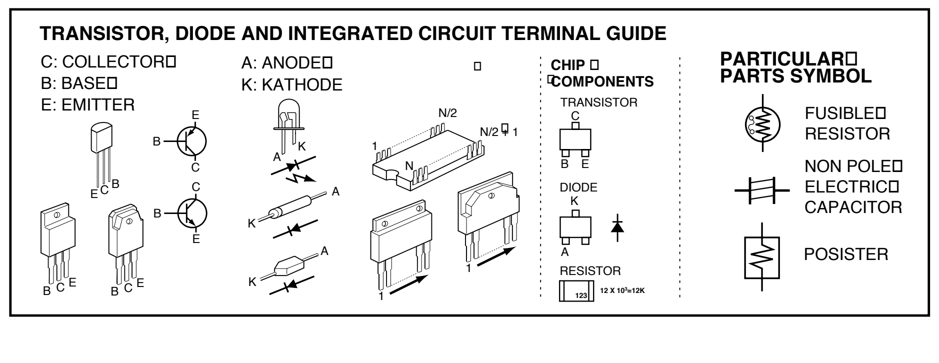
11. Expression of capacitance and resistance in circuit diagrme.

Capacitance (Example)

1000 C M 2000 D
- D — Characteristic
- 2000 — Capacitance value (220pF)
- M — Allowable error (±20%): J= ± 5%, K= ±10%, M= ±20%
- C — Kind (Ceramic): T, A, U, D: Electrolytic; C, K, B: Ceramic; F: Mylar film; M, N: Polypropylene; Z: Metalized paper
- 1000 — Rated voltage (1,000V)

Resistance (Example)

1/2 N J 1.2
- 1.2 — Resistance value (1.2Ω)
- J — Allowable error (±5%)
- N — Kind (M.carbon): D: Carbon; N: Metalized carbon; S: Oxied metalized; W: Wire wounding; C: Solid
- 1/2 — Rated wattage (1/2W)



SANYO

COLOUR TELEVISION

AC7-A CHASSIS SERIES

SERVICE REF. NO. CP14SE1K-00
CP14SE1K-50

BE5V/BE5W