SANYO

FILE NO.

SERVICE MANUAL Colour Television

Model No. CP21CE1

(Australia)

Service Ref. No. CP21CE1-00

Specifications

Power Source . . . . . .AC220−240V, 50/60Hz.
Colour System . . . . . .PAL, 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 × 2 (436mVrms, impedance more than 40KΩ)
Video monitor output: Phono jack × 1 (1.0Vp−p, 75Ω)
Audio monitor outputs: Phono jack × 1(436mVrms, Impedance less than 600Ω)
Speaker . . . . . 5 cm × 9 cm × 2 pcs.
Sound Output . . . . . 2.5W + 2.5W (RMS)
Dimensions . . . . . 580 (W) × 460 (H) × 465 (D)mm
Weight . . . . . approx. 19.5 Kg

Specifications subject to change without notice

Product Code:113002116

Original Version

Chassis Series: AC6-A

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

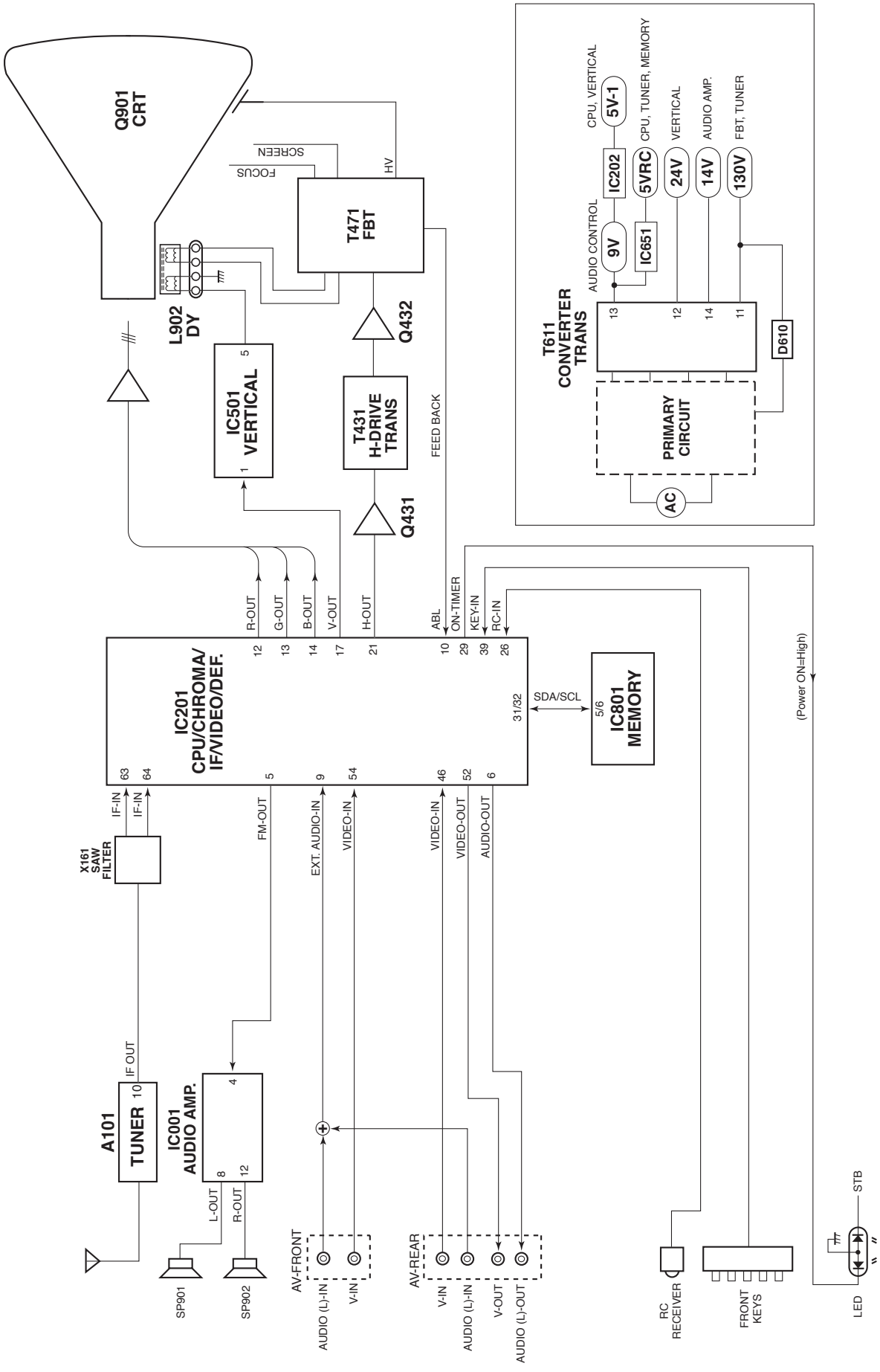
The primary source of X-RADIATION in television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may 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

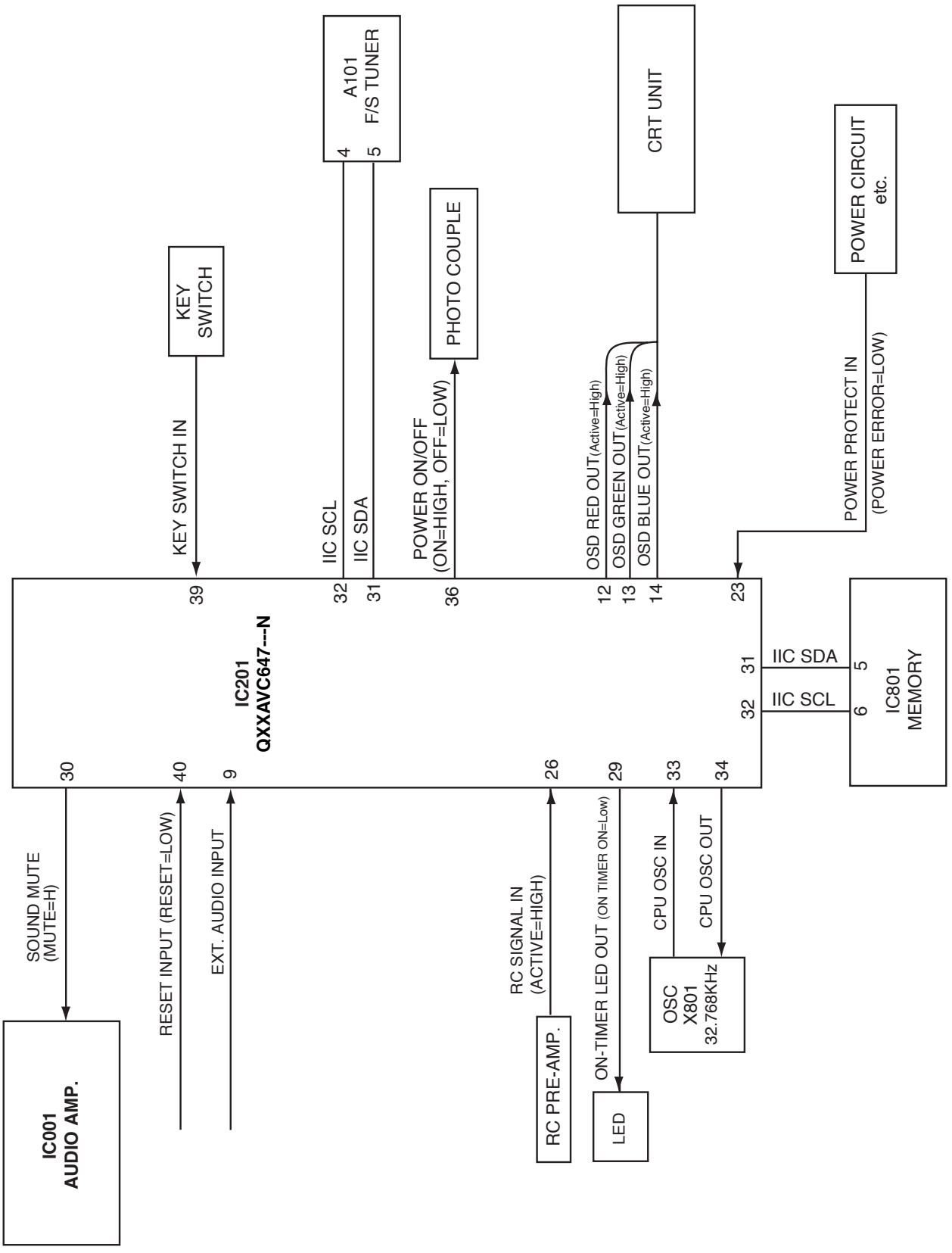
wattage or voltage ratings may be made for replacement items designated by mark ⚠ .

Chassis Block Diagrams



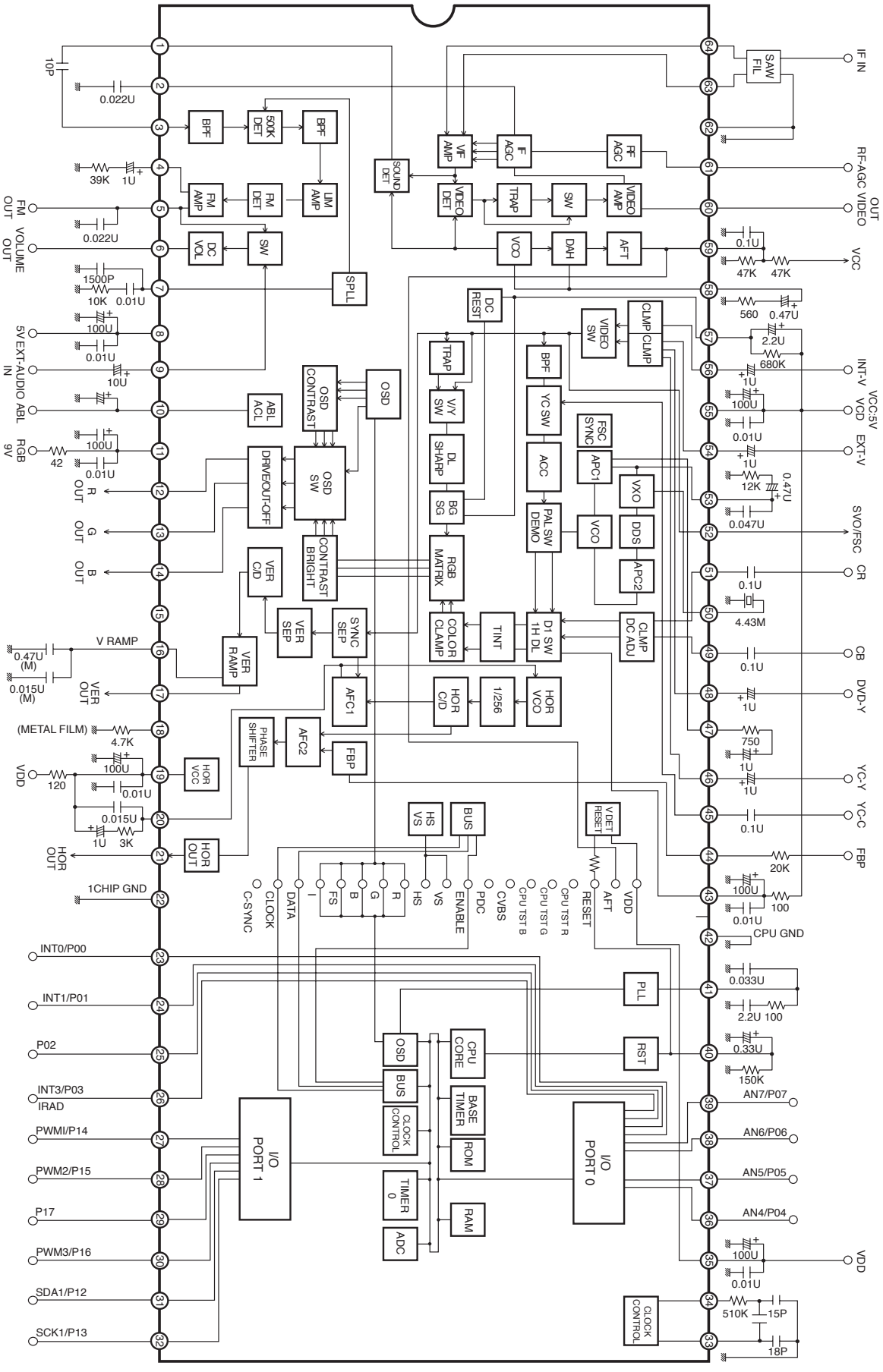
Chassis Block Diagrams

System Control



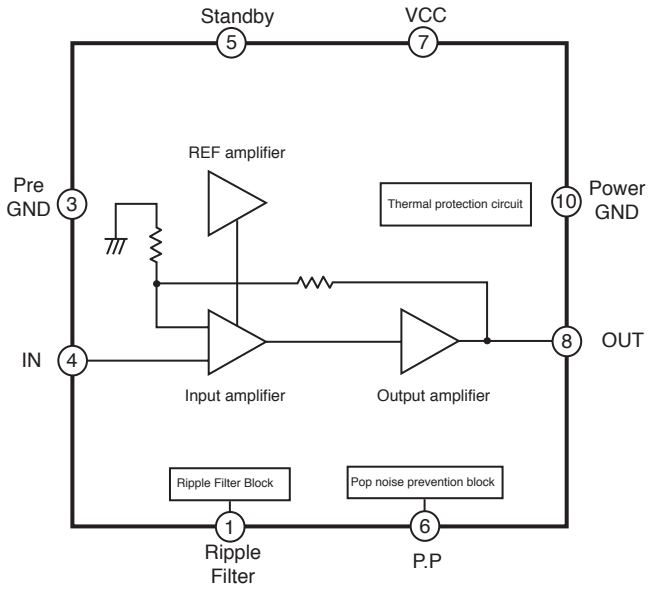
IC Block Diagrams

IC201 < CPU/IF/Video/Chroma/Def.> LA76931AD56S1-E

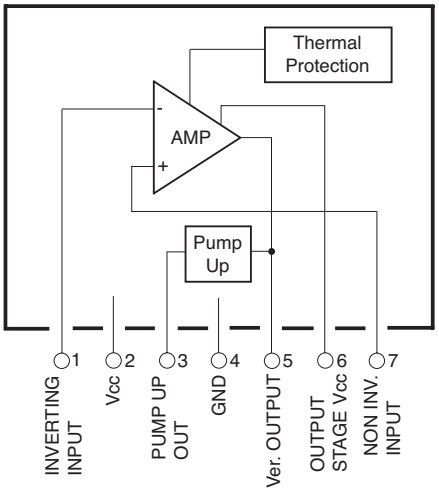


IC Block Diagrams

IC001 < Audio AMP.> LA42051-E



IC501 < Vertical Output > LA78040/LA78040N



CPU Port Functions

Pin No.	Function Name	Function
1	SIFout	SIF Output (NICAM)
2	IFAGC-F	IF AGC Filter
3	SIF-IN	SIF Input
4	FM-F	Filter for the DC loop of FM detector
5	FMout	FM detector output
6	Audout	Audio output
7	SND-APC-F	Snd VCO frequency is locked at 500kHz from SIF
8	IF-Vcc	DC Supply pin for IF circuit
9	VM/Ext-A-IN	External audio signal input
10	ABL	Auto Beam Limiter function
11	RGB Vcc	Vcc input pin of RGB output block function
12	R-Out	R signal output pin function
13	G-Out	G signal output pin function
14	B-Out	B signal output pin function
15	NC	Not Connected
16	Vramp	To generate a ramp waveform for the reference V-out
17	V-out	Output pin of vertical synchronization ramp signal
18	Iref	Producing reference current function
19	H-Vcc	Vcc of Horizontal deflection and BUS interface
20	AFC-F	AFC Filter pin of horizontal VCO function
21	H-out	Horizontal output pin
22	VCD-GND	Video Chroma Deflection GND
23	Power Fail IN	Power Fail Input function
24	S-TERM IN	S-Video input
25	STATUS IN	Factory PC mode status (L=ON)
26	Remote IN	Remote Control signal receiver
27	P14/PWM1	
28	P15/PWM2	
29	ON-TIMER LED OUT	On timer led out function
30	MUTE OUT	Mute out function
31	IIC SDA1	IIC-Bus Data Line
32	IIC SCK1	IIC-Bus Clock Line
33	X'tal	Crystal Oscillator
34	X'tal	Crystal Oscillator
35	5V	Supply (5V)
36	Power Out	Power On/Off signal output
37	Bass Expander ON/OFF OUT	Bass Expander On/Off function
38	VIF M OUT /Bilingual Out	VIF M Out/Bilingual Out function
39	AD KEY IN	Key signal input
40	RESET	RESET pin function
41	FILT	FILT pin function
42	GND	Ground
43	CCD-Vcc	Vcc (5V) pin for 1H delay-line
44	FBP-IN	Fly Back Pulse Input
45	YC-C	Y/C-C Input function
46	YC-Y	Y/C-Y Input function

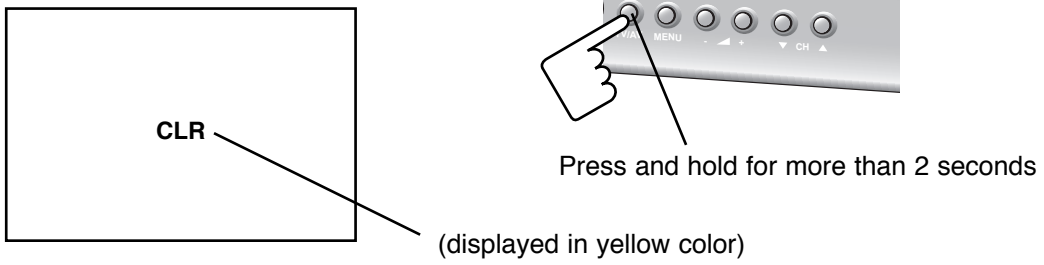
Pin No.	Function Name	Function
47	C-APC2	AFC filter pin of chroma VCO. (3.58MHz)
48	DVD-Y	DVD-Y Input
49	CB-IN	C_B Input (for DVD)
50	X'tal	4.43MHz Crystal
51	CR-IN	C_R Input (for DVD)
52	SVO/FSC	Selected Video Output or FSC Output
53	C-APC-F	Chroma APC Filter
54	Ext-Video-IN	Ext Video Input & Y Input in S-VHS mode
55	VCD-Vcc	Video Chroma Deflection VCC
56	Int-Video-IN	Int. Video Input & Chroma Signal Input in S-VHS mode
57	Blk-F	Black peak level detection in black stretch circuit.
58	PIF-APC-F	APC filter pin for PLL circuit function.
59	AFT	Automatic Fine Tuning Output pin
60	Video out	Video Output pin
61	RF AGC	RF AGC Output pin
62	IF-GND	Ground of IF circuit
63	VIF IN	PIF input pin
64	VIF IN	PIF input pin

Service Adjustments with Replacing Memory IC(IC801)

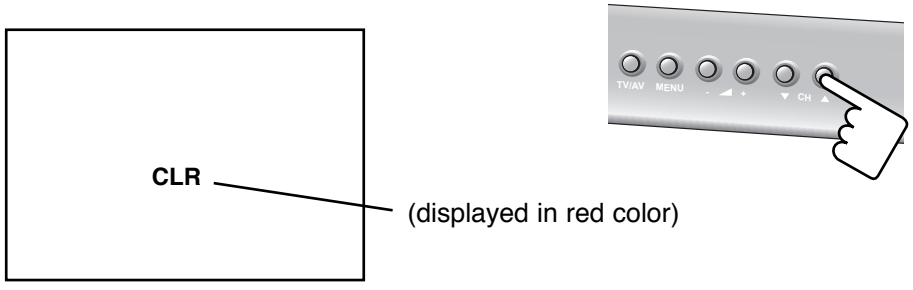
Note: The CPU (IC201) and memory IC (IC801) store the service adjustments data and controls data for each circuit.When the Memory IC(IC801) is replaced, some of the service adjustments should be readjusted to obtain the best performance. The necessary service adjustments are carried out by using the 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 **PROGRAMME UP** 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

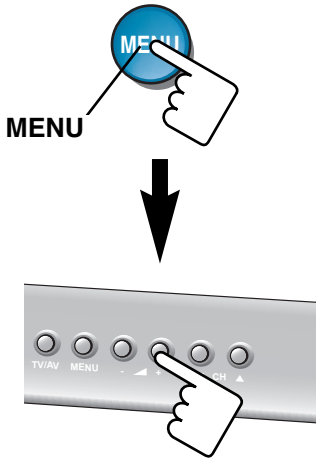
Readjust the following service adjustments.

Adjustments	**Service Mode No. & Item**
RF AGC	Item 01, RF AGC
Horizontal centre	Item 02, H-PHA
Vertical Position	Item 04, V-SHIFT
Vertical linearity	Item 06, V-LIN
Vertical-S correction	Item 07, V-SCO
Gray scale	Item 17-20, 22-24

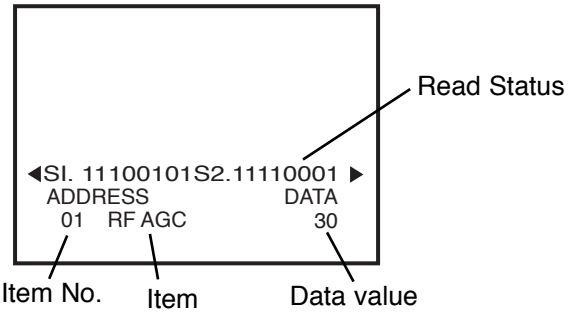
Further adjustment please refer to page 12 and 13.

[Entering to Service Mode]

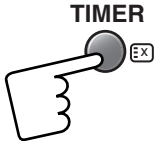
1. Press and hold the **MENU** button on the Remote Control and press the **VOLUME (+)** button on the TV set. Following setting items appears on the screen.



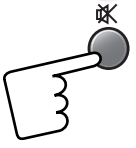
Display for [RF AGC] RF AGC adjustment



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



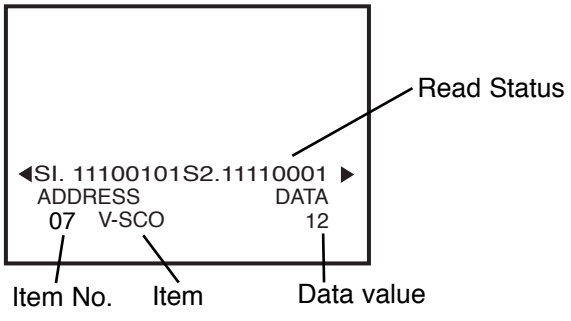
01➔02➔03➔04➔05.....96...



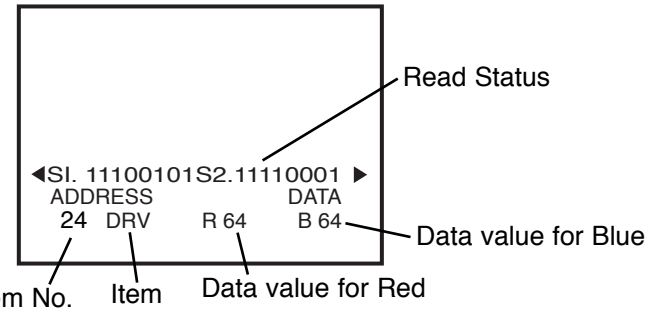
...96➔95➔94➔93➔92.....01

Example

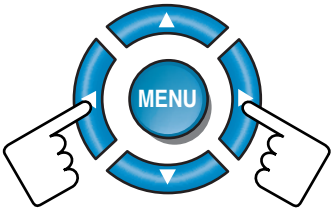
Display for [V-SCO] V-S Correction adjustment



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(IC801)

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	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
01	RFAGC	0~63	27	RF AGC Adj.
02	H-PHA	0~31	15	H-Phase (H-Centering) Adj. (50Hz)
03	V-POS	0~63	40	V-Position Adj. (50Hz)
04	V-SHIFT	0~15	3	V-Phase (V-Centering) Adj. (50Hz)Fixed.
05	V-SIZ	0~127	88	V-Size Adj. (50Hz)
06	V-LIN	0~31	17	V-Linearity Adj. (50Hz)
07	V-SCO	0~31	10	V-S-Correction (50Hz)
08	VTRANS	0, 1	0	Data transmission between V Retrace
09	VRES	0, 1	0	Vertical Reset Timing
10	H-P60	-16~+15	+3	H-Phase Adj. (60Hz) difference val.
11	V-S60	-64~+63	-8	V-Size Adj. (60Hz) difference val.
12	V-SHIF60	-16~+15	-3	V-Phase Adj. (60Hz) difference val.
13	OSDHP	0~255	40	OSD H-Position Adj.
14	OSDC	0~3	4	OSD Contrast Adj.
15	V-SCP	0~7	7	V-Size COMP Adj.
16	SBIAS	0~255	105	Sub Bias Adj.
17	RBIAS	0~255	0	Red Bias Adj.
18	GBIAS	0~255	0	Green Bias Adj.
19	BBIAS	0~255	0	Blue Bias Adj.
20	RDRIV	0~127	64	Red Drive Adj.
21	GDRIV	0~15	8	Green Drive Adj.
22	BDRIV	0~127	64	Blue Drive Adj.
23	1 Line Appear			White Balance Adj.
24	DRV			White Balance Adj.
25	B-YD	0~15	10	B-Y DC Level Adj.
26	R-YD	0~15	10	R-Y DC Level Adj.
27	B-YDN	-16~+15	0	NTSC B-Y DC level Adj.
28	R-YDN	-16~+15	0	NTSC R-Y DC level Adj.
29	SBDC	-16~+15	0	SECAM B-Y DC Level Adj.
30	SRDC	-16~+15	0	SECAM R-Y DC Level Adj.
31	B-YDD	-16~+15	-4	DVD B-Y DC Level Adj.
32	R-YDD	-16~+15	-4	DVD R-Y DC Level Adj.
33	RGBTEMP	0, 1	0	RGB Temp SW
34	RGBTEST	0, 1	0	RGB Test
35	DRVTEST	0, 1	0	Drive Test Mode
36	HALFTONE	0, 1	2	Halftone Color
37	G-YA	0, 1	1	G-Y Angle
38	GYAMP	0~15	3	G-Y Amplitude Adjust
39	RBGB	0~15	8	R-Y / B-Y Gain Balance
40	RBAG	0~15	8	R-Y / B-Y angle
41	G-YAN	0, 1	0	NTSC G-Y Angle
42	GYAMPN	-8~+7	0	NTSC G-Y Amplitude Adj.
43	RBGBN	-16~+15	0	NTSC R-Y / B-Y Gain Balance
44	RBAGN	-16~+15	0	NTSC R-Y / B-Y Angle
45	RBGBDN	-16~+15	+10	DVD NTSC R-Y / B-Y Gain Balance
46	RBAGDN	-16~+15	+10	DVD NTSC R-Y / B-Y Angle
47	VOLFIL	0, 1	0	DAC Volume filter disable
48	IF-AGC	0, 1	0	IF AGC defeat
49	COGV	0~3	0	Coring Gain
50	BLKS	0~3	3	Blk.str.start(W/Defeat)
51	BLKG	0~3	3	Blk.str.gain
52	BRTA	0, 1	0	Brt.Abl.Def
53	BRST	0, 1	0	Mid.Stp.Def
54	BRTH	0~7	0	Bright.Abl.Treshold
55	WPL	0~3	2	White Peak Limit Op. Point
56	YGAM	0~3	0	Y Gamma Start
57	PRS	0~3	0	Pre-shoot AV Adj.
58	ORS	0~3	2	Over-shoot AV Adj.
59	DCREST	0~3	0	Select Luminance DC Restoration
60	RFCO	0~3	1	RF Coring Gain Difference
61	PRSN	0~3	0	Pre-shoot RF Adj.
62	ORSN	0~3	3	Over-shoot RF Adj.
63	CTRAP	0~7	4	Chroma Trap Control
64	CBPF	0~3	1	Chroma BPF Control
65	CBPFN	0~3	1	Chroma BPF Control NTSC
66	CBPFAVN	0~3	0	Chroma BPF Control AV NTSC
67	TINT	-16~+15	+10	Tint RF
68	TINT443	-16~+15	-12	Tint (NTCS4.43)
69	SHRF	-32~+31	-10	RF Sharpness
70	COL TEST	0, 1	0	Color Test
71	CODP	-16~+15	-6	DVD PAL Color
72	CODN	-16~+15	+5	DVD NTSC Color
73	TINTDN	-16~+15	0	DVD NTSC Tint
74	YTH	0~3	0	Select Y signal sensitivity for Blue Strect
75	YGAIN	0~3	0	Select Blue Stretching gain w/ defeat
76	RWIDTH	0~3	0	R Width
77	ROFFSET	0~3	0	R Offset
78	BWIDTH	0~3	0	B Width
79	BOFFSET	0~3	0	B Offset
80	VOLUM	0~127	110	Volume Control Adj.
81	DEEM	0, 1	0	De-emphasis TC
82	VIFSW	0~3	0	VIF System Switch
83	SIFSW	0~3	1	SIF System Switch
84	V-LVL	0~7	4	Video Level
85	V-LVLOFS	0~3	1	Video Level Offset
86	FMGAIN	0, 1	0	FM Gain
87	IFOM-S	0, 1	0	Over Modulation Switch
88	IFMN-S	0, 1	1	Audio Monitor Sw. Monitor or FM
89	IFTRPS	0, 1	1	IC inside SIF Trap Sw ON-OFF
90	IFMLVL	0~15	0	IF Over Modulation Level Adj.

(/JE0239B)

Service Adjustments with Replacing Memory IC(IC801)

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	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
91	IFTEST1	0, 1	0	IF Test 1
92	TRAPT	0~7	4	Sound Trap-Test
93	H-FRQ	0~63	35	Horizontal Frequency
94	FBTS	0, 1	0	FBPBLK Switch
95	COOP	0~7	4	Color Killer Option
96	HBLKL	0~3	1	H-Blanking Control Left
97	HBLKR	0~3	2	H-Blanking Control Right
98	AFCRF	0, 1	0	RF AFC Gain & gate Adj.
99	VSURF	0, 1	0	RF VSync. Separation sensitivity
100	CDMRF	0~7	0	RF Vertical count down circuit Adj.
101	AFCAV	0, 1	1	AV AFC Gain & gate Adj.
102	VSUAV	0, 1	0	AV Vsync. Separation sensitivity
103	CDMAV	0~7	0	AV Vertical count down circuit Adj.
104	HLVDRF	0, 1	1	H Lock, V Det.
105	HLVDAV	0, 1	1	H Lock, V Det.
106	VTEST	0~3	0	Select Vertical DAC test mode
107	VCOTEST	0~15	0	IF VCO free run Freq. Adj.
108	C.VCOADJ	0~7	4	Control free run Freq. of Chroma VCO
109	VCOFREQ	0~255	40	ES Sample IF VCO Freq. Adj.
110	CROSS-BW	0~3	0	Pattern Output
111	AVNCON	0~127	64	AV non-signal Contrast
112	AVNBRI	0~127	64	AV non-signal Brightness
113	POMT	0~127	25	Power Mute Time
114	CHMT	0~31	10	Channel Change Mute Time Adj.
115	SYST	0~15	5	The number of times that a color system AUTO is judged
116	S-STE	0~3	0	Stereo/Mono Option, 0=Mono, 1=Simple AV Stereo, 2,3=AV Stereo
117	VOLTBL	0, 1	1	Volume Table Select
118	MPP	0, 1	0	Multi Personal Preference function on/off 0=without M.P.P., 1=with M.P.P.
119	TUNER	0, 1	0	Tuner Option
120	BOOSTER	0, 1	0	Booster Option
121	OPT AVIN	0~3	0	AV1/AV2/AV3 Option, 0=AVonly, 1=AV1,AV2, 2~3=AV1, AV2, AV3
122	OPT POS	0, 1	1	Programme number option, position No. Option, 0=100 pos., 1=256 pos.
123	LANGUAGE	0, 1	1	Language Option, 0=without language, 1=with language
124	OPT COL	0, 1	0	Color System Option
125	OPT SIF	0, 1	1	SIF System Option
126	OPT BASS	0~3	0	BASS Expander Option, 0=without BASS, 1~2=BASS EXPANDER, 3=WOOFER
127	OPT SURR	0, 1	1	Surround Option
128	OPT BLBK	0, 1	1	Blue Back Option
129	AUDGAIN	0~7	0	Gain Control LV1116
130	L/RGAIN	0~7	6	L/R Output Gain Control LV1116

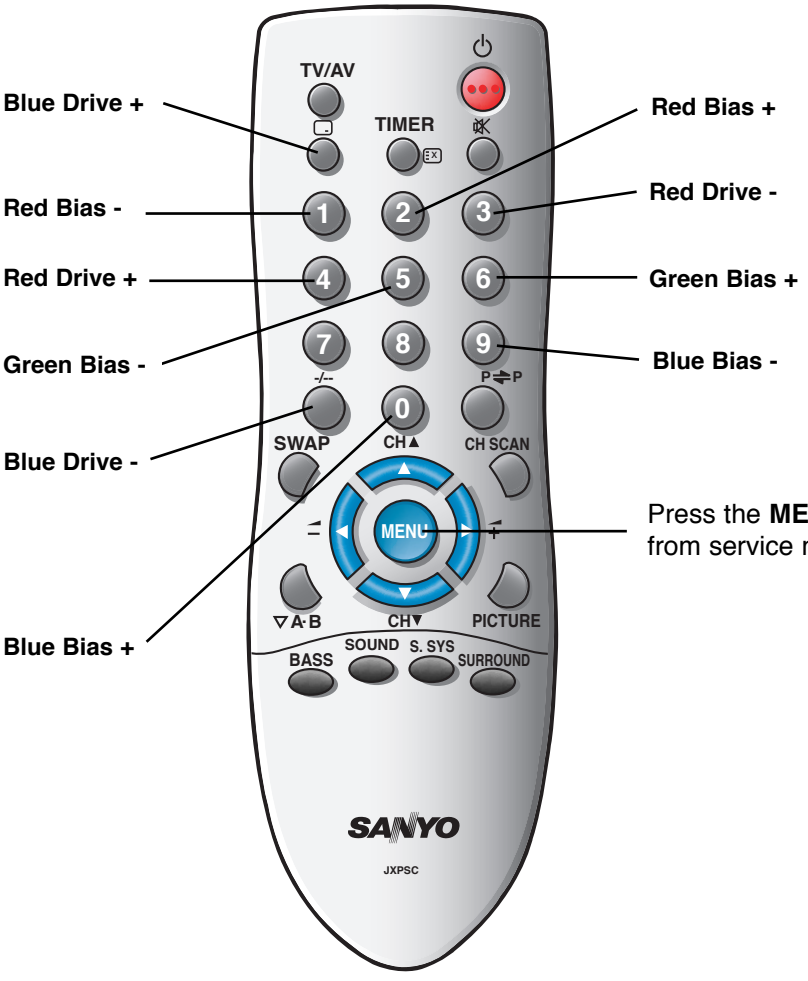
No.	ITEM	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
300	R00	0~255	0	ROM Correction
301	R01	0~255	0	ROM Correction
302	R02	0~255	0	ROM Correction
303	R03	0~255	0	ROM Correction
304	R04	0~255	0	ROM Correction
⋮	⋮	⋮	⋮	⋮
376	R76	0~255	0	ROM Correction
377	R77	0~255	0	ROM Correction

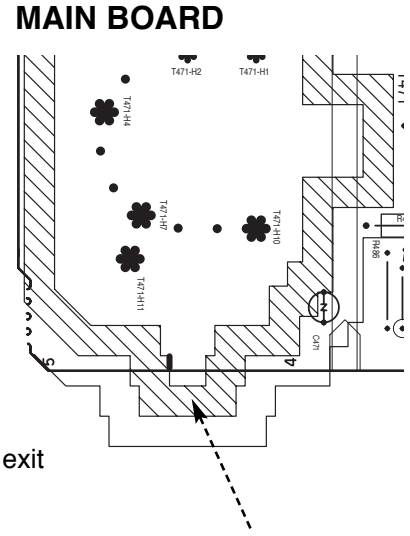
Service Mode Adjustments

Items 17-20, 22-24 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. 17 RBIAS (Red Bias), No, 18 GBIAS (Green Bias), and No. 19 BBIAS (Blue Bias) and set each data to 0 by pressing the VOLUME + or - key.
(5) Select No. 19 RDRIV (Red Drive) and No. 22 BDRIV (Blue Drive) and set each data to 64 by pressing the VOLUME + or - key.
(6) Turn Screen Control on the FBT (T471) to minimum (fully counter-clock-wise).
(7) Select No. 23 (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 Bias Level with 1, 2, 5, 6, 9 and 0 keys to obtain just visible white line.
(10) Select No. 24 DRV (Drive Adjustments).
(11) Adjust Red and Blue Drive Levels alternately with 3, 4, -/-- or RECALL 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

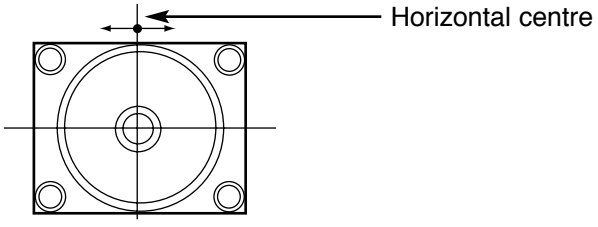
Following adjustments should be carried out when the memory IC is replaced. How to enter the service mode and adjust values, please refer to " Entering to Service mode" on page 9.

Item 01 [RF AGC] AGC

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 AGC] in the service mode.
(3) Change value until the snow noise just disappears.
(4) Exit from service mode.

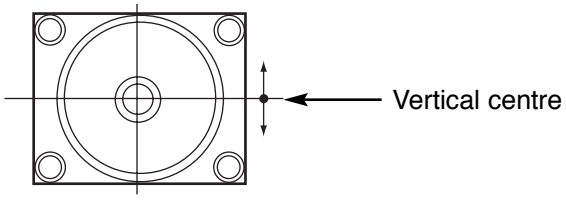
Item 02 [H-PHA] HORIZONTAL CENTRE

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



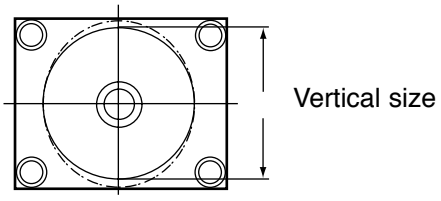
Item 04 [V-SHIFT] VERTICAL CENTRE

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



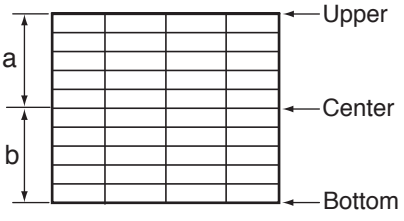
Item 05 [V-SIZ] VERTICAL SIZE

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



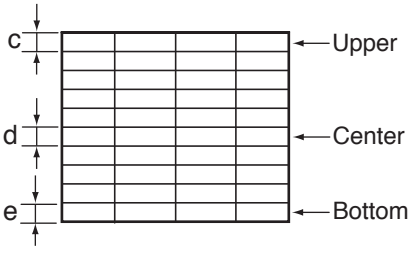
Item 06 [V-LIN] VERTICAL LINEARITY

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select [V-LIN] 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 07 [V-SCO] V-S CORRECTION

(1) Receive a crosshatch pattern.
(2) Select a picture mode of NATURAL by pressing the PICTURE MODE button.
(3) Select [V-SCO] 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.



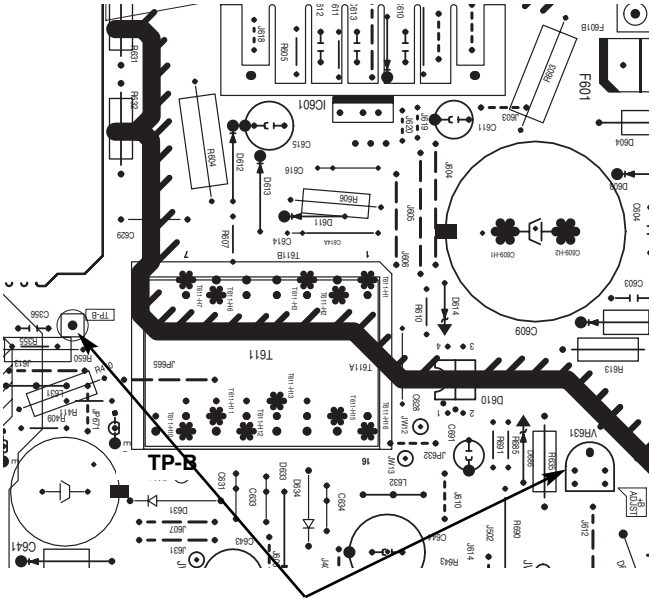
Service Adjustments

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

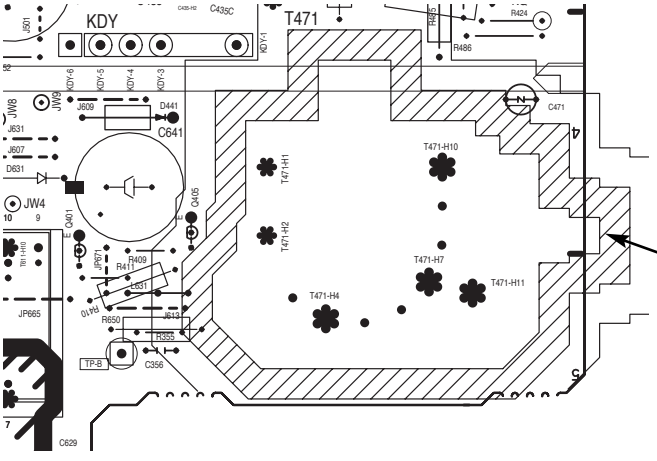


B-Voltage Supply Adjustment

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



Focus VR (Upper side)

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 24.0 KV and 26.0 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 27.5 KV at zero beam current.

If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

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.

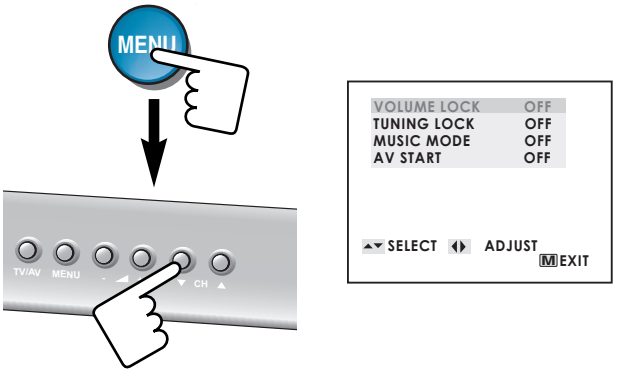
(4) AV Start setting

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

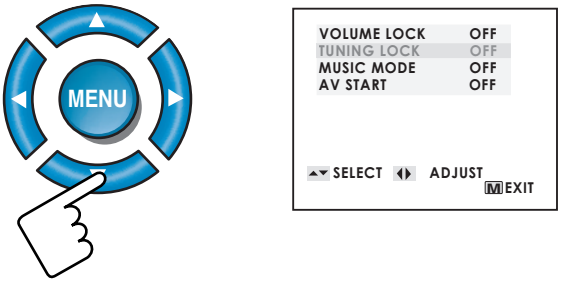
How to set the special function:

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.

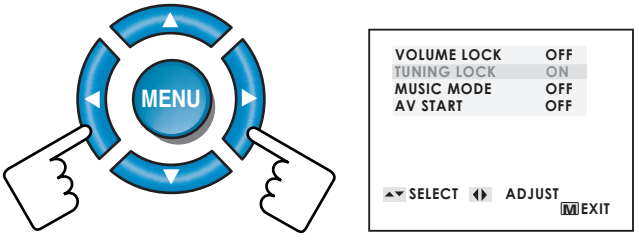
1 To enter into the special function setting mode, press and hold the **MENU** button of the remote control, then press the **PROGRAMME DOWN** button on the TV set.



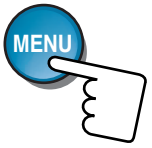
2 Select an item of the special functions by pressing the **PROGRAMME UP** or **DOWN** button on the remote control or the TV set.



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.

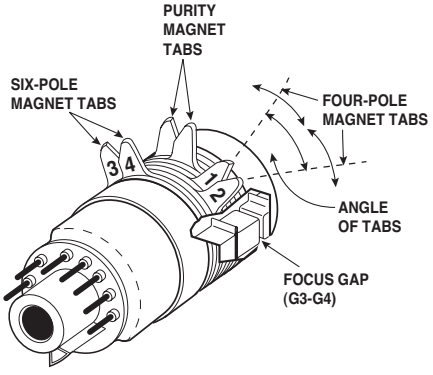


Figure 1. Purity and Convergence Magnets

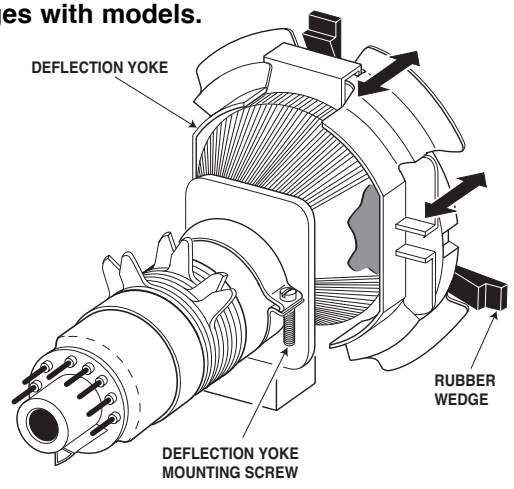


Figure 4. Deflection Yoke Movement

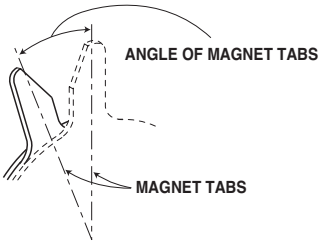


Figure 5. Adjusting Magnet

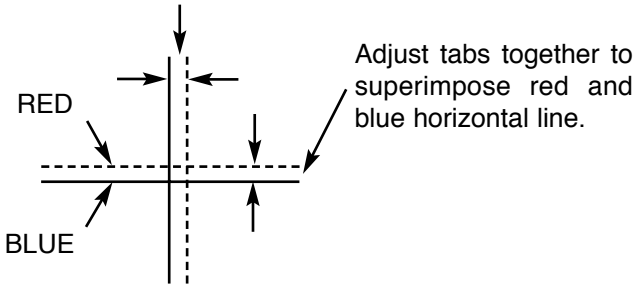


Figure- 2 BLUE AND RED LINE MOVEMENT

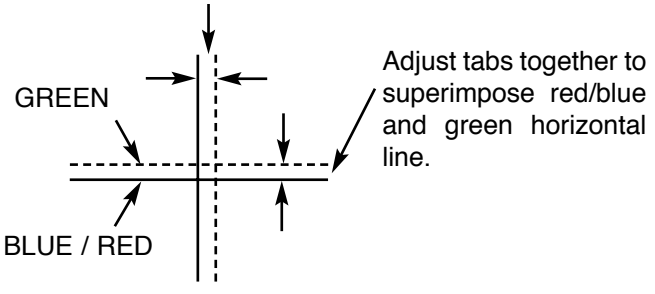


Figure- 3 BLUE/RED AND GREEN MOVEMENT

Mechanical Disassembly

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 9 screws.
2. Pull off cabinet back and remove.

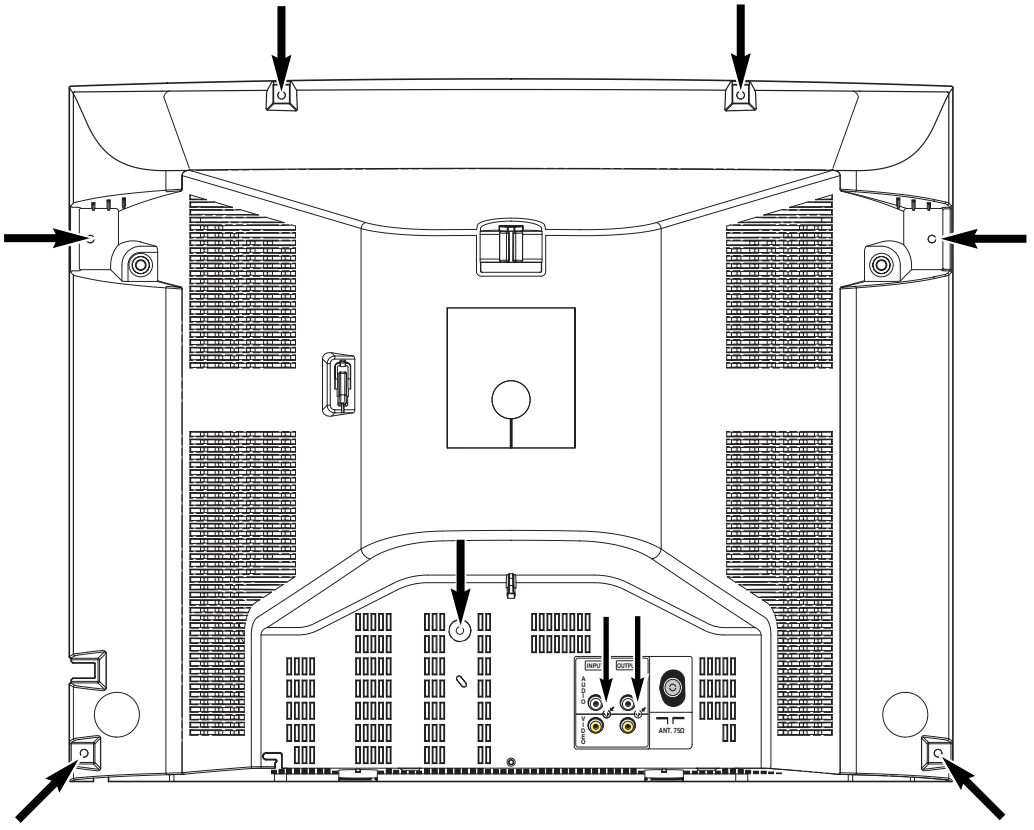


Figure 1. Cabinet Back Removal

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.

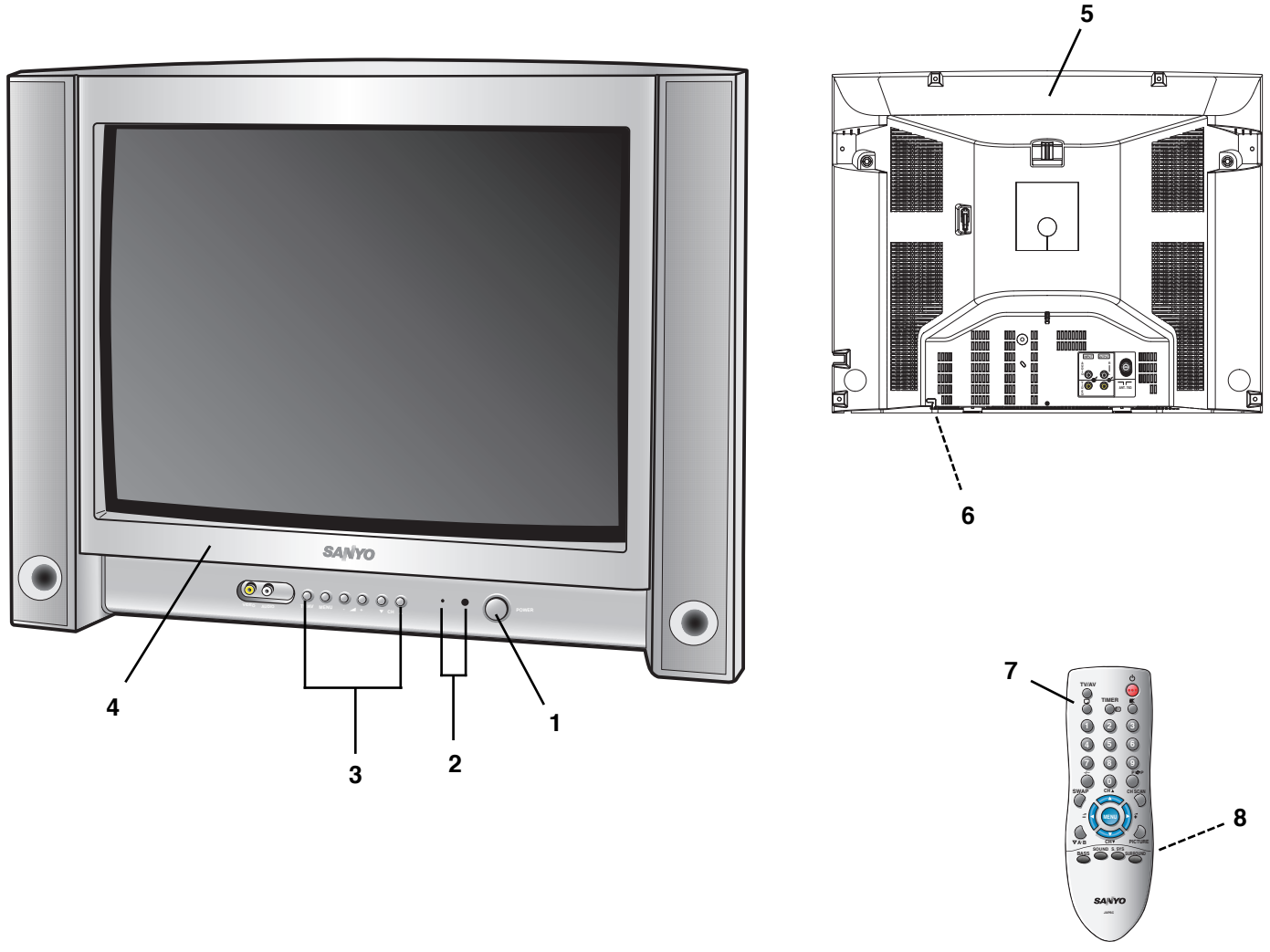
When an abnormality occurs during TV reception, it causes pin 23 of the Processor to go continually Low (less than 2.0V) for about 2 second. The Processor detects that this has occurred and outputs the signal from pin 36 to switch off the power supply lines.

■ 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	610 329 7637	BUTTON PW-C8VA			
	610 229 8406	SPRING-E3HA (for power button)			
2	610 314 4344	DEC.IND-C5ZJ			
3	610 328 2442	BUTTON UNITED-C8TA			
4	610 328 0882	CABINET FRONT-C8VA			
5	610 328 0783	CABINET BACK-C8VA			
6	610 256 7670	HOLDER AC CORD-SGP-D4VA			
7	645 071 1145	ASSY,REMOCON JXPSC			
8	610 313 3393	RC-BATTERY LID-JXPLA			
9	610 328 9441	INSTRUCTION MANUAL-C8VV			

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 Service Ref. 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:

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:

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	4140105502	CRT A51QAE320X (N)
Q901-1	6100031739	CG PURITY MAGNET
	6450088674	MAGNET,CG.PR
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
Q901-2C	6101170154	DY SPACER-D4AK
	6102337891	DY SPACER E2HA
	6102904154	DY SPACER-F8LZ

COIL

⚠L901	6450837616	ASSY,COIL,DEGAUSSING
⚠L902	6450764417	YOKE,DEFLECTION

MISCELLANEOUS

SP901	6520014176	SPEAKER,16
SP902	6520014176	SPEAKER,16
⚠W901	6450655111	CORD,POWER-2.4MK-A5003
	6450646102	CORD,POWER-2.4MK-A5003
W902	6102828092	ASSY WIRE,GND CONECTOR F7

6103294001 ASSY,PWB,MAIN C8VV 1AA0B10S211AA

TRANSISTOR

Q001	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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
	4051843411	TR 2SD0601A-R-TX
	4051843510	TR 2SD0601A-S-TX
Q1003	4051648016	TR KTA1504S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R
	4051472215	TR 2SA1037AK-S-T146
	4050020318	TR 2SA1037K T146 R
	4050020417	TR 2SA1037K T146 S
	4050026726	TR 2SA1179-M6-TB
	4050026924	TR 2SA1179-M7-TB
	4051631513	TR 2SA1179N-M6-TB
	4051632718	TR 2SA1179N-M7-TB
	4051739615	TR 2SA1235A1E
	4051739714	TR 2SA1235A1F
	4051843114	TR 2SB0709A-R-TX
	4051843213	TR 2SB0709A-S-TX

Ref. No.	Part No.	Description
Q111	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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
Q402	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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
	4051843411	TR 2SD0601A-R-TX
	4051843510	TR 2SD0601A-S-TX
Q431	4050180517	TR 2SC3332-R
	4050180616	TR 2SC3332-S
Q432	4060171908	TR TT2140LS-YB11
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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
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	4051843510	TR 2SD0601A-S-TX
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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
	4051843411	TR 2SD0601A-R-TX
	4051843510	TR 2SD0601A-S-TX
Q641	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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
	4051843411	TR 2SD0601A-R-TX
	4051843510	TR 2SD0601A-S-TX
Q661	4052144200	TR KTC2026-Y-U/P
	4050599903	TR 2SD1913-R-RA
	4050600005	TR 2SD1913-S-RA
Q681	4051413317	TR KTC3198-GR-T
	4050118411	TR 2SC1740S-Q
	4050118510	TR 2SC1740S-R
	4050118619	TR 2SC1740S-S
	4050122012	TR 2SC1815-GR
	4050122111	TR 2SC1815-O
	4050122319	TR 2SC1815-Y
	4050207511	TR 2SC945A-PA
	4050207719	TR 2SC945A-QA
	4050207917	TR 2SC945A-RA
Q683	4050890010	TR 2SA1707-S
	4050890119	TR 2SA1707-T
	4050096917	TR 2SB985-S
	4050097013	TR 2SB985-T
Q684	4051413317	TR KTC3198-GR-T
	4050118411	TR 2SC1740S-Q
	4050118510	TR 2SC1740S-R
	4050118619	TR 2SC1740S-S
	4050122012	TR 2SC1815-GR
	4050122111	TR 2SC1815-O
	4050122319	TR 2SC1815-Y
	4050207511	TR 2SC945A-PA
	4050207719	TR 2SC945A-QA
	4050207917	TR 2SC945A-RA
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
	4051631711	TR 2SC2812N-L7-TB0
	4051739813	TR 2SC3928A1R
	4051739912	TR 2SC3928A1S
	4051843411	TR 2SD0601A-R-TX
	4051843510	TR 2SD0601A-S-TX
INTEGRATED CIRCUIT		
IC001	4096435718	IC LA42051-E
IC201	4105869401	IC LA76931AD56S1-E
IC202	4092415407	IC BA178M05T
	4094636701	IC KIA7805API
	4092654806	IC L78M05CV
	4091721509	IC MC78M05CT
	4093205700	IC UPC78M05AHF
IC501	4094494103	IC LA78040
	4095070900	IC LA78040N
IC601	4106062108	IC STR-W6753(LF2003
IC651	4092415407	IC BA178M05T
	4094636701	IC KIA7805API
	4092654806	IC L78M05CV
	4091721509	IC MC78M05CT
	4093205700	IC UPC78M05AHF
IC801	4104958007	IC AT24C16A-10PU-2.7
	4094594506	IC 24LC16B/P
CAPACITOR		
C001	4040875109	ELECT 470U M 25V
	4030475035	ELECT 470U M 25V
C002	4040897200	ELECT 100U M 25V
	4030449521	ELECT 100U M 25V
C005	4033363517	CERAMIC 0.47U K 16V
C006	4032152112	CERAMIC 8200P K 50V
C011	4040848707	ELECT 0.47U M 50V
	4030486328	ELECT 0.47U M 50V
C015	4040875109	ELECT 470U M 25V
	4030475035	ELECT 470U M 25V
C1002	4040848905	ELECT 10U M 50V
	4030494224	ELECT 10U M 50V
C1005	4040848905	ELECT 10U M 50V
	4030494224	ELECT 10U M 50V
C1006	4040848004	ELECT 220U M 16V
	4030430222	ELECT 220U M 16V
C1008	4040848905	ELECT 10U M 50V
	4030494224	ELECT 10U M 50V

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
C101	4040848301	ELECT 470U M 16V	C432	4030757121	CERAMIC 1000P K 500V
	4030441743	ELECT 470U M 16V		4031149519	CERAMIC 1000P K 500V
C104	4040849308	ELECT 47U M 50V		4034171814	CERAMIC 1000P K 500V
	4030513123	ELECT 47U M 50V	C433	4030763122	CERAMIC 3900P K 500V
C105	4033423310	CERAMIC 0.1U K 25V		4032753329	CERAMIC 3900P K 500V
	4031640214	CERAMIC 0.1U Z 25V		4034172910	CERAMIC 3900P K 500V
	4033670417	CERAMIC 0.1U K 50V	C434-TM	4041075508	ELECT 330U M 35V
	4033053517	CERAMIC 0.1U Z 50V		4030536934	ELECT 330U M 35V
C106	4040875406	ELECT 22U M 50V		4031481916	ELECT 330U M 35V
	4030502810	ELECT 22U M 50V		4032331804	ELECT 330U M 35V
C111	4032152211	CERAMIC 0.01U K 50V	C435	4041009503	MT-POLYPRO 7000P H 1.5K
C112	4032152211	CERAMIC 0.01U K 50V		4033472516	MT-POLYPRO 7000P H 1.5K
C114	4032152211	CERAMIC 0.01U K 50V	C436	4033242327	CERAMIC 270P K 3K
C120	4032152419	CERAMIC 0.015U K 50V		4032690416	CERAMIC 270P K 3K
C121	4032152211	CERAMIC 0.01U K 50V		4034141015	CERAMIC 270P K 3K
C122	4040847809	ELECT 100U M 16V	C438	4033242327	CERAMIC 270P K 3K
	4030422425	ELECT 100U M 16V		4032690416	CERAMIC 270P K 3K
C123	4011057919	MT-GLAZE 0.000 ZA 1/16W		4034141015	CERAMIC 270P K 3K
C132	4033363517	CERAMIC 0.47U K 16V	C441	4033467423	MT-POLYPRO 0.39U J 250V
C138	4032844314	CERAMIC 0.022U K 50V		4033727210	MT-POLYPRO 0.39U J 250V
C171	4031552111	CERAMIC 1500P K 50V	C469	4040848905	ELECT 10U M 50V
C172	4032152211	CERAMIC 0.01U K 50V		4030494224	ELECT 10U M 50V
C174	4031571914	CERAMIC 10P D 50V	C471	4040565208	NP-ELECT 2.2U M 100V
C176	4011057919	MT-GLAZE 0.000 ZA 1/16W		4040849902	NP-ELECT 2.2U M 100V
C1902	4040875406	ELECT 22U M 50V	C486	4040876106	ELECT 22U M 100V
	4030502810	ELECT 22U M 50V		4031150842	ELECT 22U M 100V
C202	4031793217	POLYESTER 0.015U J 50V	C491	4030765324	CERAMIC 680P K 500V
C203	4032152211	CERAMIC 0.01U K 50V		4034164915	CERAMIC 680P K 500V
C204	4040897200	ELECT 100U M 25V		4034173115	CERAMIC 680P K 500V
	4030449521	ELECT 100U M 25V	C510	4040875406	ELECT 22U M 50V
C210	4040848400	ELECT 1000U M 25V		4030502810	ELECT 22U M 50V
	4030451534	ELECT 1000U M 25V	C511	4040848905	ELECT 10U M 50V
C212	4031397316	CERAMIC 18P J 50V		4030494224	ELECT 10U M 50V
C215	4040848806	ELECT 1U M 50V	C514	4040849209	ELECT 4.7U M 50V
	4030490018	ELECT 1U M 50V		4030510627	ELECT 4.7U M 50V
C224	4032052818	CERAMIC 0.047U K 25V	C515	4040848400	ELECT 1000U M 25V
C225	4040848806	ELECT 1U M 50V		4030451534	ELECT 1000U M 25V
	4030490018	ELECT 1U M 50V	C517	4040849407	ELECT 220U M 35V
C226	4040848707	ELECT 0.47U M 50V		4030532134	ELECT 220U M 35V
	4030486328	ELECT 0.47U M 50V	C518	4030729425	CERAMIC 3300P K 50V
C230	4032152211	CERAMIC 0.01U K 50V		4031041922	CERAMIC 3300P K 50V
C231	4031686529	MT-POLYEST 0.47U J 50V		4034171111	CERAMIC 3300P K 50V
	4030677815	MT-COMPO 0.47U J 50V	C521	4040886709	ELECT 1000U M 35V
	4032560848	MT-COMPO 0.47U J 50V		4030528553	ELECT 1000U M 35V
C232	4032152211	CERAMIC 0.01U K 50V	C524	4030641212	POLYESTER 0.1U K 100V
C233	4040848400	ELECT 1000U M 25V		4032769726	POLYESTER 0.1U K 100V
	4030451534	ELECT 1000U M 25V	C525	4031573116	CERAMIC 56P J 50V
C234	4032152211	CERAMIC 0.01U K 50V	⚠C601	4040712404	MT-POLYEST 0.22U K 250V
C236	4032789615	CERAMIC 1U Z 16V		4040725909	MT-POLYEST 0.22U M 250V
C243	4032152211	CERAMIC 0.01U K 50V		4040881704	MT-POLYEST 0.22U K 250V
C244	4040848202	ELECT 47U M 16V		4040662204	MT-POLYEST 0.22U M 275V
	4030439136	ELECT 47U M 16V		4040888802	MT-POLYEST 0.22U M 275V
C245	4032070317	CERAMIC 1U Z 16V	⚠C602	4040727903	MT-POLYEST 0.068U K 250V
	4032789615	CERAMIC 1U Z 16V		4040726104	MT-POLYEST 0.068U M 250V
C247	4040849001	ELECT 2.2U M 50V		4040796503	MT-POLYEST 0.068U M 250V
	4030499823	ELECT 2.2U M 50V		4040737506	MT-POLYEST 0.068U M 275V
C273	4033423310	CERAMIC 0.1U K 25V	C603	4030766707	CERAMIC 1000P K 1K
C291	4040848202	ELECT 47U M 16V		4033990911	CERAMIC 1000P K 1K
	4030439136	ELECT 47U M 16V	C604	4030766707	CERAMIC 1000P K 1K
C356	4030732920	CERAMIC 390P K 50V		4033990911	CERAMIC 1000P K 1K
C358	4040848806	ELECT 1U M 50V	C605	4031925915	CERAMIC 0.1U K 25V
	4030490018	ELECT 1U M 50V		4033423310	CERAMIC 0.1U K 25V
C3724	4040848806	ELECT 1U M 50V		4030700919	CERAMIC 0.1U K 50V
	4030490018	ELECT 1U M 50V		4033670417	CERAMIC 0.1U K 50V
C431	4031686529	MT-POLYEST 0.47U J 50V		4033053517	CERAMIC 0.1U Z 50V
	4030677815	MT-COMPO 0.47U J 50V	C609	4041048304	ELECT 220U M 400V
	4032560848	MT-COMPO 0.47U J 50V	C610	4031793712	POLYESTER 1200P J 50V

Ref. No.	Part No.	Description		
C611	4040848806	ELECT	1U M	50V
	4030490018	ELECT	1U M	50V
C612	4030572130	POLYESTER	0.1U J	50V
	4031818316	POLYESTER	0.1U J	50V
C613	4040904601	POLYESTER	2200P K	63V
	4030593046	POLYESTER	2200P J	50V
	4031792715	POLYESTER	2200P J	50V
C615	4040876007	ELECT	47U M	35V
	4030540713	ELECT	47U M	35V
C616	4032454404	CERAMIC	470P K	2K
	4034140414	CERAMIC	470P K	2K
C617	4032758423	CERAMIC	390P K	3K
	4034133010	CERAMIC	390P K	3K
⚠C627	4040733904	CERAMIC	1000P K	250V
	4040732105	CERAMIC	1000P M	250V
	4040713302	CERAMIC	1000P M	400V
	4040978503	CERAMIC	1000P K	400V
⚠C628	4040733904	CERAMIC	1000P K	250V
	4040732105	CERAMIC	1000P M	250V
	4040713302	CERAMIC	1000P M	400V
	4040978503	CERAMIC	1000P K	400V
⚠C629	4040733904	CERAMIC	1000P K	250V
	4040732105	CERAMIC	1000P M	250V
	4040713302	CERAMIC	1000P M	400V
	4040978503	CERAMIC	1000P K	400V
C631	4032221303	CERAMIC	1000P K	1K
	4032719622	CERAMIC	1000P K	1K
	4032719602	CERAMIC	1000P K	1K
	4033991017	CERAMIC	1000P K	1K
C632	4032475023	CERAMIC	470P K	1K
	4034084510	CERAMIC	470P K	1K
	4034084520	CERAMIC	@470P K	1K
C633	4032475023	CERAMIC	470P K	1K
	4034084510	CERAMIC	470P K	1K
	4034084520	CERAMIC	@470P K	1K
C634	4032475023	CERAMIC	470P K	1K
	4034084510	CERAMIC	470P K	1K
	4034084520	CERAMIC	@470P K	1K
C641	4040739005	ELECT	220U M	160V
	4040973706	ELECT	220U M	160V
C643	4040849506	ELECT	470U M	35V
	4030541532	ELECT	470U M	35V
C644	4040848400	ELECT	1000U M	25V
	4030451534	ELECT	1000U M	25V
C645	4040848400	ELECT	1000U M	25V
	4030451534	ELECT	1000U M	25V
C649	4040848905	ELECT	10U M	50V
	4030494224	ELECT	10U M	50V
C650	4040848905	ELECT	10U M	50V
	4030494224	ELECT	10U M	50V
C651	4040847601	ELECT	470U M	10V
	4030414529	ELECT	470U M	10V
C661	4040848905	ELECT	10U M	50V
	4030494224	ELECT	10U M	50V
C662	4040847809	ELECT	100U M	16V
	4030422425	ELECT	100U M	16V
C691	4040848806	ELECT	1U M	50V
	4030490018	ELECT	1U M	50V
C801	4031397316	CERAMIC	18P J	50V
C802	4031397316	CERAMIC	18P J	50V
C803	4032152211	CERAMIC	0.01U K	50V
C805	4040897200	ELECT	100U M	25V
	4030449521	ELECT	100U M	25V
C842	4033423310	CERAMIC	0.1U K	25V
C843	4033423310	CERAMIC	0.1U K	25V
C863	4040848806	ELECT	1U M	50V
	4030490018	ELECT	1U M	50V
C893	4040849001	ELECT	2.2U M	50V
	4030499823	ELECT	2.2U M	50V
C894	4032815017	CERAMIC	0.033U K	25V
RESISTOR				
R001	4011054215	MT-GLAZE	33K JA	1/16W
R004	4011051610	MT-GLAZE	15K JA	1/16W
R005	4011051115	MT-GLAZE	12K JA	1/16W
R008	4011057919	MT-GLAZE	0.000 ZA	1/16W
R016	4011056516	MT-GLAZE	680 JA	1/16W
R017	4011052518	MT-GLAZE	20K JA	1/16W
R1001	4011051412	MT-GLAZE	150 JA	1/16W
R1002	4011050514	MT-GLAZE	1K JA	1/16W
R1008	4011056516	MT-GLAZE	680 JA	1/16W
R1009	4011050712	MT-GLAZE	100K JA	1/16W
R101	4011057919	MT-GLAZE	0.000 ZA	1/16W
R1010	4011134412	MT-GLAZE	75 JA	1/16W
R1011	4011050712	MT-GLAZE	100K JA	1/16W
R1014	4011050514	MT-GLAZE	1K JA	1/16W
R1015	4011050712	MT-GLAZE	100K JA	1/16W
R1016	4011051412	MT-GLAZE	150 JA	1/16W
R1029	4011057919	MT-GLAZE	0.000 ZA	1/16W
R103	4010618101	OXIDE-MT	39K JA	1W
R1030	4011055915	MT-GLAZE	560 JA	1/16W
R1031	4011050514	MT-GLAZE	1K JA	1/16W
R106	4010246730	CARBON	100 JA	1/6W
R107	4010246730	CARBON	100 JA	1/6W
R108	4011052112	MT-GLAZE	18K JA	1/16W
R109	4011058213	MT-GLAZE	68K JA	1/16W
R111	4011050514	MT-GLAZE	1K JA	1/16W
R112	4011056011	MT-GLAZE	5.6K JA	1/16W
R114	4011054017	MT-GLAZE	330 JA	1/16W
R115	4010272135	CARBON	56 JA	1/6W
R116	4011055816	MT-GLAZE	56 JA	1/16W
R121	4011056615	MT-GLAZE	6.8K JA	1/16W
R122	4011052815	MT-GLAZE	2.2K JA	1/16W
R124	4011050613	MT-GLAZE	10K JA	1/16W
R125	4011053416	MT-GLAZE	27K JA	1/16W
R130	4011057919	MT-GLAZE	0.000 ZA	1/16W
R132	4011055212	MT-GLAZE	470 JA	1/16W
R140	4011055915	MT-GLAZE	560 JA	1/16W
R141	4011055915	MT-GLAZE	560 JA	1/16W
R176	4011050613	MT-GLAZE	10K JA	1/16W
R1902	4011051115	MT-GLAZE	12K JA	1/16W
R1903	4011056011	MT-GLAZE	5.6K JA	1/16W
R1904	4011054611	MT-GLAZE	3.9K JA	1/16W
R1905	4011052815	MT-GLAZE	2.2K JA	1/16W
R1906	4011052013	MT-GLAZE	1.8K JA	1/16W
R1907	4010246730	CARBON	100 JA	1/6W
R1911	4011052716	MT-GLAZE	220 JA	1/16W
R1912	4011052716	MT-GLAZE	220 JA	1/16W
R1913	4011052716	MT-GLAZE	220 JA	1/16W
R210	4011053713	MT-GLAZE	3K JA	1/16W
R211	4010251338	CARBON	150 JA	1/6W
R212	4010251338	CARBON	150 JA	1/6W
R223	4010247034	CARBON	1K JA	1/6W
R225	4011051115	MT-GLAZE	12K JA	1/16W
R226	4011053416	MT-GLAZE	27K JA	1/16W
R227	4011054215	MT-GLAZE	33K JA	1/16W
R228	4010252335	CARBON	150K JA	1/6W
R229	4011056714	MT-GLAZE	680K JA	1/16W
R230	4010269333	CARBON	47 JA	1/6W
R234	4011050910	MT-GLAZE	120 JA	1/16W
R235	4011050910	MT-GLAZE	120 JA	1/16W
R236	4011050910	MT-GLAZE	120 JA	1/16W
R243	4010683703	OXIDE-MT	470 JA	2W
R244	4011055410	MT-GLAZE	47K JA	1/16W

Ref. No.	Part No.	Description
R245	4011055410	MT-GLAZE 47K JA 1/16W
R280	4010246730	CARBON 100 JA 1/6W
R286	4012039914	MT-GLAZE 4.7K FA 1/16W
R290	4010681600	OXIDE-MT 4.7 JA 2W
R340	4011057513	MT-GLAZE 82K JA 1/16W
R351	4010256531	CARBON 20K JA 1/6W
R352	4010126953	CARBON 10K JA 1/4W
	4010127059	CARBON 10K JA 1/4W
R355	4010153751	CARBON 18K JA 1/4W
	4010153850	CARBON 18K JA 1/4W
R357	4010267032	CARBON 3.9K JA 1/6W
R358	4011057919	MT-GLAZE 0.000 ZA 1/16W
R401	4010200752	CARBON 470 JA 1/4W
	4010200851	CARBON 470 JA 1/4W
R422	4010224035	CARBON 68K JA 1/4W
	4010224154	CARBON 68K JA 1/4W
R423	4010224035	CARBON 68K JA 1/4W
	4010224154	CARBON 68K JA 1/4W
R424	4010247034	CARBON 1K JA 1/6W
R426	4010247440	CARBON 10K JA 1/6W
R431	4010247034	CARBON 1K JA 1/6W
R433	4010071134	CARBON 1K JA 1/2W
R434	4010607402	OXIDE-MT 270 JA 1W
R441	4010648702	OXIDE-MT 1K JA 2W
R445	4010687800	OXIDE-MT 560 JA 2W
R475	4010095843	CARBON 330 JA 1/2W
R479	4010278632	CARBON 8.2K JA 1/6W
R481	4010663002	OXIDE-MT 2.2 JA 2W
R488	4010573103	OXIDE-MT 0.22 JA 1W
R501A	4010648702	OXIDE-MT 1K JA 2W
R502	4011058114	MT-GLAZE 56K JA 1/16W
R510	4010247440	CARBON 10K JA 1/6W
R511	4010247440	CARBON 10K JA 1/6W
R514	4010278632	CARBON 8.2K JA 1/6W
R515	4010261337	CARBON 27K JA 1/6W
R516	4010278632	CARBON 8.2K JA 1/6W
R518	4010068411	CARBON 1.5 JA 1/2W
R522	4010257439	CARBON 220 JA 1/6W
R525	4010592807	OXIDE-MT 150 JA 1W
R602	4020825605	WIRE WOUND 1.8 KA 10W
	4020998200	WIRE WOUND 1.8 KA 10W
R603	4010643806	OXIDE-MT 1.0 JA 2W
R604	4010643806	OXIDE-MT 1.0 JA 2W
R607	4010246433	CARBON 10 JA 1/6W
R609	4010246730	CARBON 100 JA 1/6W
R610	4010247034	CARBON 1K JA 1/6W
R611	4010247034	CARBON 1K JA 1/6W
R613	4010585908	OXIDE-MT 100K JA 1W
⚠R631	4020008602	SOLID 5.6M KA 1/2W
	4020976604	CARBON 5.6M KA 1/2W
⚠R632	4020008602	SOLID 5.6M KA 1/2W
	4020976604	CARBON 5.6M KA 1/2W
R635	4010075815	CARBON 120K JA 1/2W
R636	4011056011	MT-GLAZE 5.6K JA 1/16W
R640	4011050712	MT-GLAZE 100K JA 1/16W
R641	4011056011	MT-GLAZE 5.6K JA 1/16W
R642	4010247737	CARBON 100K JA 1/6W
R643	4010579105	OXIDE-MT 1.2 JA 1W
R645	4010251932	CARBON 15K JA 1/6W
R650	4010578009	OXIDE-MT 1 JA 1W
R661	4010602704	OXIDE-MT 220 JA 1W
R667	4010084421	CARBON 2.7 JA 1/2W
R668	4010673100	OXIDE-MT 3.9 JA 2W
R681	4010247034	CARBON 1K JA 1/6W
R685	4010145132	CARBON 15K JA 1/4W
	4010145251	CARBON 15K JA 1/4W
R686	4010126953	CARBON 10K JA 1/4W
	4010127059	CARBON 10K JA 1/4W
R687	4010191852	CARBON 3.9K JA 1/4W
	4010191951	CARBON 3.9K JA 1/4W
R688	4010258238	CARBON 22K JA 1/6W
R689	4010273231	CARBON 560K JA 1/6W
R691	4010191852	CARBON 3.9K JA 1/4W
	4010191951	CARBON 3.9K JA 1/4W
R801	4011053515	MT-GLAZE 270K JA 1/16W
R814	4011050613	MT-GLAZE 10K JA 1/16W
R815	4011050613	MT-GLAZE 10K JA 1/16W
R817	4010247034	CARBON 1K JA 1/6W
R818	4010247034	CARBON 1K JA 1/6W
R819	4011050613	MT-GLAZE 10K JA 1/16W
R830	4011050514	MT-GLAZE 1K JA 1/16W
R834	4011050613	MT-GLAZE 10K JA 1/16W
R837	4011051610	MT-GLAZE 15K JA 1/16W
R838	4011051610	MT-GLAZE 15K JA 1/16W
R839	4011050415	MT-GLAZE 100 JA 1/16W
R840	4011055212	MT-GLAZE 470 JA 1/16W
R841	4011055311	MT-GLAZE 4.7K JA 1/16W
R842	4011055311	MT-GLAZE 4.7K JA 1/16W
R844	4011050415	MT-GLAZE 100 JA 1/16W
R845	4010247440	CARBON 10K JA 1/6W
R850	4011050415	MT-GLAZE 100 JA 1/16W
R852	4011050613	MT-GLAZE 10K JA 1/16W
R853	4011050613	MT-GLAZE 10K JA 1/16W
R863	4011055410	MT-GLAZE 47K JA 1/16W
R886	4011052914	MT-GLAZE 22K JA 1/16W
R893	4011058015	MT-GLAZE 1M JA 1/16W
R894	4011050415	MT-GLAZE 100 JA 1/16W
VARIABLE RESISTOR		
VR631	6450065514	VR,SEMI,2.2K N
	6450035579	VR,SEMI,2.2K N
TRANSFORMER		
T431	6450833847	TRANS,DRIVE
	6520011144	TRANS,DRIVE
⚠T471	6450860621	TRANS,FLYBACK
⚠T611	6450858291	TRANS,POWER,PULSE
COIL		
L431	6100319998	PIPE CORE
	6450187025	CORE,PIPE
	6520010475	PIPE CORE
L432	6100319998	PIPE CORE
	6450187025	CORE,PIPE
	6520010475	PIPE CORE
L441	6450677410	COIL,LINEARITY
⚠L601	6520011434	LINE FILTER
L631	6100785946	PIPE CORE
	6100785953	PIPE CORE
	6520010123	CORE,PIPE
	6520010147	CORE,PIPE
DIODE		
D001	4072128818	DIODE KDS160-RTK
	4071490817	DIODE 1SS355-TE-17
D005	4070054525	DIODE DS442X
	4080093204	DIODE 1N4148
	4070124426	DIODE 1SS133
	4070134336	DIODE 1S2076A
	4070137129	DIODE 1S2473
D1005	4070638329	ZENER DIODE MTZJ11C
	4070541827	ZENER DIODE RD11EB3
D1006	4070638329	ZENER DIODE MTZJ11C
	4070541827	ZENER DIODE RD11EB3

Ref. No.	Part No.	Description
D1008	4070638329	ZENER DIODE MTZJ11C
	4070541827	ZENER DIODE RD11EB3
D1009	4070638329	ZENER DIODE MTZJ11C
	4070541827	ZENER DIODE RD11EB3
D1016	4070124426	DIODE 1SS133
	4070124406	DIODE 1SS133
D102	4070995620	ZENER DIODE MTZJ6.8A
	4070574013	ZENER DIODE RD6.8EB1
	4080478506	ZENER DIODE MTZJ6.8A
D103	4071000224	ZENER DIODE MTZJ36A
	4070562317	ZENER DIODE RD36EB1
	4080476106	ZENER DIODE MTZJ36A
D122	4071661118	DIODE 1SS356-TW11
D1901	4070054525	DIODE DS442X
	4080093204	DIODE 1N4148
	4070124426	DIODE 1SS133
	4070134336	DIODE 1S2076A
	4070137129	DIODE 1S2473
D1910	4071166504	LED SLP-181B-51
D1910A	6102645064	HOLDER LED-S2CP
	6102737929	HOLDER LED-S4KF
	6103039954	HOLDER LED-C4LA
D249	4070996023	ZENER DIODE MTZJ9.1B
	4070579711	ZENER DIODE RD9.1EB2
	4080480004	ZENER DIODE MTZJ9.1B
D352	4070638626	ZENER DIODE MTZJ5.1A
	4070569811	ZENER DIODE RD5.6EB1
	4080476403	ZENER DIODE MTZJ5.1A
D357	4070054525	DIODE DS442X
	4080093204	DIODE 1N4148
	4070124426	DIODE 1SS133
	4070134336	DIODE 1S2076A
	4070137129	DIODE 1S2473
D421	4070997228	ZENER DIODE MTZJ16A
	4070547027	ZENER DIODE RD16EB1
	4070547215	ZENER DIODE RD16EB3
	4080475208	ZENER DIODE MTZJ16A-52
D467	4080093204	DIODE 1N4148
	4070134336	DIODE 1S2076A
	4070137129	DIODE 1S2473
D468	4070124426	DIODE 1SS133
D476	4070638329	ZENER DIODE MTZJ11C
	4070541827	ZENER DIODE RD11EB3
	4080473105	ZENER DIODE MTZJ11C
D485	4070077415	DIODE EU1
D512	4070058632	DIODE ERA15-02-V1
D603	4070066310	DIODE ERC05-10BV1
	4070096921	DIODE RM11C
D604	4070066310	DIODE ERC05-10BV1
	4070096921	DIODE RM11C
D605	4070066310	DIODE ERC05-10BV1
	4070096921	DIODE RM11C
D606	4070066310	DIODE ERC05-10BV1
	4070096921	DIODE RM11C
D609	4080093204	DIODE 1N4148
⚠ D610	4072348701	PHOTO COUPLE PC123X5YFZ
	4072303908	PHOTO COUPLE PC123Y52
D612	4070077415	DIODE EU1
D613	4070077415	DIODE EU1
D614	4070995422	ZENER DIODE MTZJ6.2B
D631	4070098816	DIODE RU3AM
D632	4070098915	DIODE RU3M
D633	4070077613	DIODE EU2
	4080458102	DIODE EU2Z
D634	4070098915	DIODE RU3M
D661	4070996122	ZENER DIODE MTZJ10B
	4070540018	ZENER DIODE RD10EB2
D681	4070054525	DIODE DS442X
	4080093204	DIODE 1N4148
	4070124426	DIODE 1SS133
	4070134336	DIODE 1S2076A
	4070137129	DIODE 1S2473
D686	4070995521	ZENER DIODE MTZJ6.2C
	4070572831	ZENER DIODE RD6.2EB3
	4080478209	ZENER DIODE MTZJ6.2C-52
MISCELLLANEOUS		
⚠ F601	4230288603	FUSE 250V 4A
	4230248409	FUSE 250V 4A
F601A	6450403576	HOLDER,FUSE
	6450705434	HOLDER,FUSE
F601B	6450403576	HOLDER,FUSE
	6450705434	HOLDER,FUSE
A101	6450572753	TUNER,U/V
	6450614132	TUNER,U/V
	6450720871	TUNER,U/V
	6450785689	TUNER.U/V
A1901A	6450476228	UNIT,REMOCON RECEIVER
	6450794124	UNIT,REMOCON RECEIVER
	6450820465	UNIT,REMOCON RECEIVER
K1001A	6450614248	JACK,RCA-2
	6520012226	JACK,RCA-2
K1002A	6450614248	JACK,RCA-2
	6520012226	JACK,RCA-2
K1005A	6450401275	JACK,RCA-2
	6520012202	JACK,RCA-2
⚠ PS601	4080465407	TH PTDCA1BF4R5Q200
	4080545109	THERMISTOR ECPCD4R5Q270
SW1901	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
SW1902	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
SW1903	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
SW1904	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
SW1905	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
SW1906	6450034701	SWITCH,PUSH 1P-1TX1
	6450194887	SWITCH,PUSH 1P-1TX1
	6450277382	SWITCH,PUSH 1P-1TX1
⚠ SW601	6450590061	SWITCH, POWER 1P-1TX1
⚠ VA601	4071712008	VARISTOR ERZV14D471
	4072471300	VARISTOR SVC471D-07ABW7
X161	4210121906	SAW F TSF6376BL
	4210094705	SAW F TSF6376U
	4210115202	SAW F TSF6376Y
X211	6450248818	OSC,CRYSTAL 4.433619MHZ
	6450820052	OSC,CRYSTAL 4.433619MHZ
	6520010154	OSC,CRYSTAL 4.433619MHZ
X801	6450041938	OSC,CRYSTAL 32.768KHZ
	6450041945	OSC,CRYSTAL 32.768KHZ

6103294018 ASSY,PWB,CRT C8VV 1AA0B10S211AB

TRANSISTOR

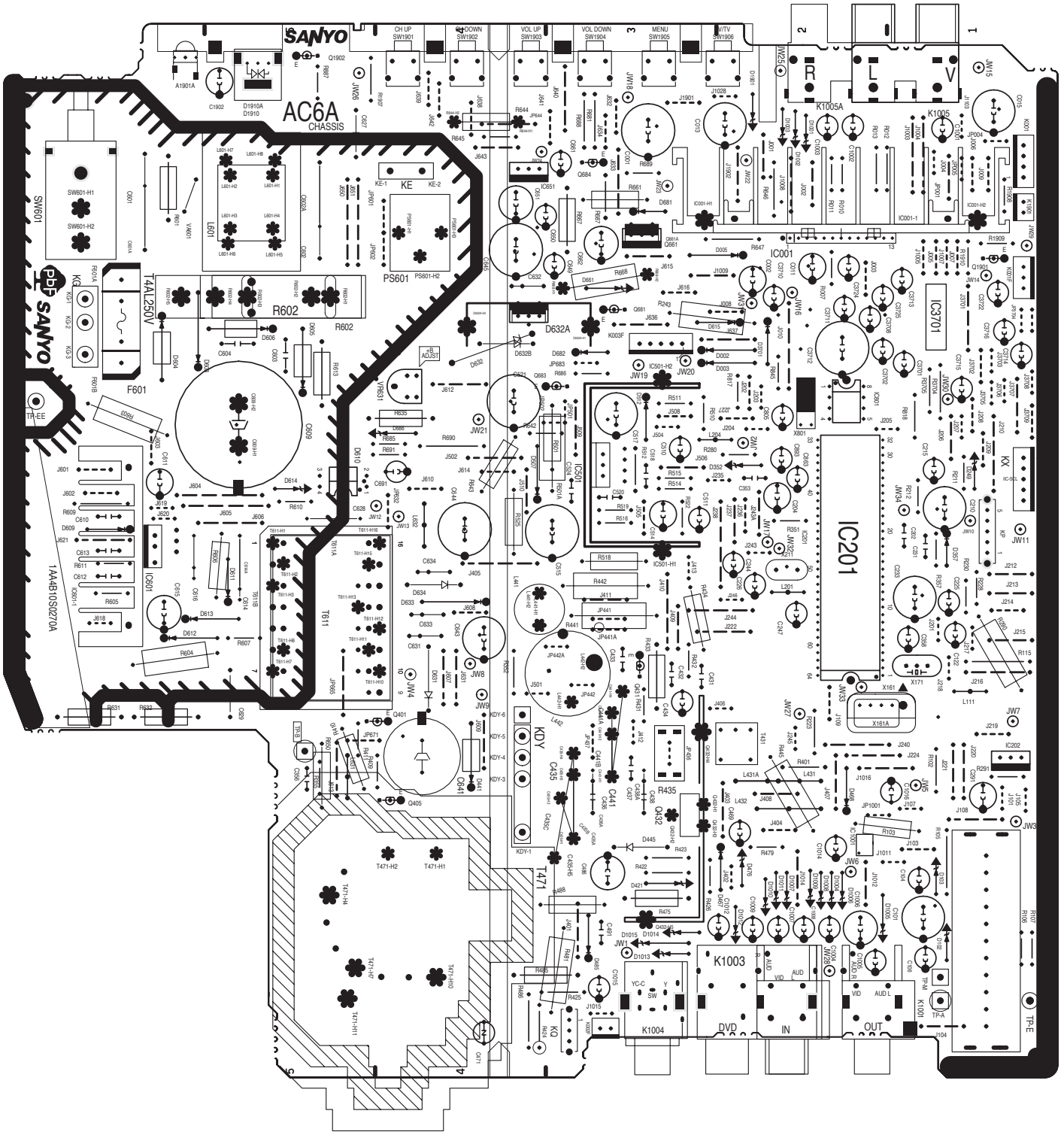
Q701	4050416507	TR 2SC2621-D-RA

Ref. No.	Part No.	Description
	4050416705	TR 2SC2621-E-RA
	4050669903	TR 2SC2688(1)-K
	4050670008	TR 2SC2688(1)-L
	4050670107	TR 2SC2688(1)-M
Q703	4050416507	TR 2SC2621-D-RA
	4050416705	TR 2SC2621-E-RA
	4050669903	TR 2SC2688(1)-K
	4050670008	TR 2SC2688(1)-L
	4050670107	TR 2SC2688(1)-M
Q705	4050416507	TR 2SC2621-D-RA
	4050416705	TR 2SC2621-E-RA
	4050669903	TR 2SC2688(1)-K
	4050670008	TR 2SC2688(1)-L
	4050670107	TR 2SC2688(1)-M
Q721	4051413515	TR KTA1266-Y-T
	4050017417	TR 2SA1015-O(SAN)
	4050017615	TR 2SA1015-Y(SAN)
CAPACITOR		
C703	4031576810	CERAMIC 680P K 50V
C705	4031576810	CERAMIC 680P K 50V
C707	4031576810	CERAMIC 680P K 50V
C708	4040861904	CERAMIC 2200P K 2K
C708	4034140216	CERAMIC 2200P K 2K
C710	4030560028	ELECT 4.7U M 250V
RESISTOR		
R701	4010251338	CARBON 150 JA 1/6W
R702	4011051917	MT-GLAZE 180 JA 1/16W
R704	4011051412	MT-GLAZE 150 JA 1/16W
R705	4011051917	MT-GLAZE 180 JA 1/16W
R707	4010251338	CARBON 150 JA 1/6W
R708	4011051917	MT-GLAZE 180 JA 1/16W
R711	4010654604	OXIDE-MT 12K JA 2W
R712	4010654604	OXIDE-MT 12K JA 2W
R713	4010654604	OXIDE-MT 12K JA 2W
R715	4010091528	CARBON 2.7K JA 1/2W
R716	4010091528	CARBON 2.7K JA 1/2W
R717	4010091528	CARBON 2.7K JA 1/2W
R723	4011050514	MT-GLAZE 1K JA 1/16W
R724	4010269630	CARBON 470 JA 1/6W
R732	4010246433	CARBON 10 JA 1/6W
R743	4010247440	CARBON 10K JA 1/6W
COIL		
L702	6450079979	INDUCTOR,33U J
	6450079993	INDUCTOR,33U K
DIODE		
D741	4072128818	DIODE KDS160-RTK
	4071490817	DIODE 1SS355-TE-17
D742	4072128818	DIODE KDS160-RTK
	4071490817	DIODE 1SS355-TE-17
MISCELLANEOUS		
⚠K701L	6450262005	SOCKET,CRT 8P

Ref. No.	Part No.	Description

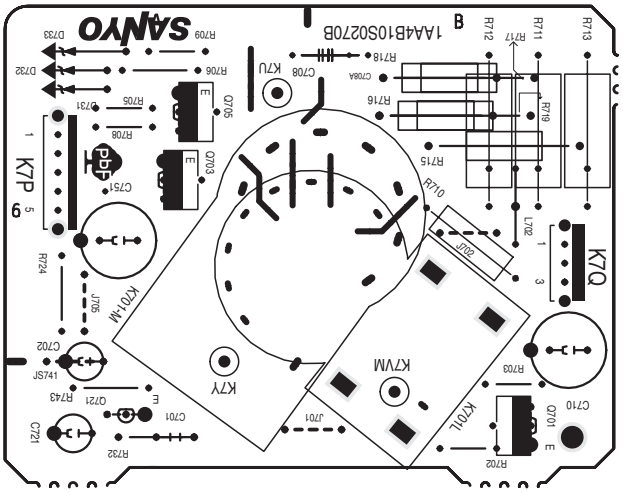
Component Locations

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

Q001	
E	8.4V
C	0V
B	8.6V

Q1003	
E	3.2V
C	0V
B	2.6V

Q111	
E	0.4V
C	5.6V
B	1.2V

Q122	
E	0V
C	0V
B	0.6V

Q402	
E	1.4V
C	4.0V
B	1.6V

Q431	
E	0V
C	15V
B	0.5V

Q432	
E	3.5V
C	340V
B	4.0V

Q511	
E	0V
C	3.0V
E	0V

Q631	
E	6.3V
C	22.0V
B	6.9V

Q641	
E	4.0V
C	4.9V
B	4.6V

Q661	
E	9.2V
C	10V
B	9.8V

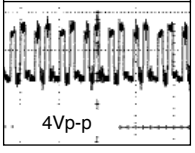
Q681	
E	0V
C	9.8V
B	0V

Q683	
E	25V
C	24.9V
B	24.3V

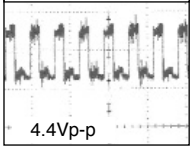
Q684	
E	0V
C	0V
B	0.6V

Q886	
E	0V
C	0V
B	0.6V

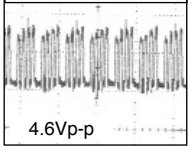
IC201-pin12 <R out>



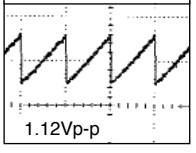
IC201-pin13 <G out>



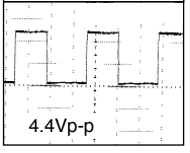
IC201-pin14 <B out>



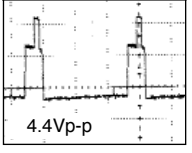
IC201-pin17 <V drive>



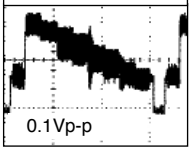
IC201-pin21 <H drive>



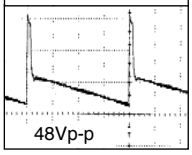
IC201-pin44 <Sandcastle>



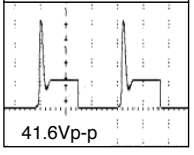
IC201-pin56 <CVBS int.>



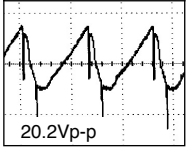
IC501-pin5 <V out>



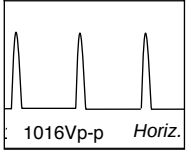
Q431-C <H drive>



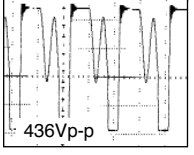
Q432-B <H out>



Q432-C <H out>



IC601-pin1 <Power out>



Voltages and Waveforms Charts

IC001 (AUDIO AMP.)

Pin-1	15.2V	**2**	NC	**3**	GND	**4**	0V	**5**	4.4V	**6**	0V	**7**	16.2V	**8**	7.5V	**9**	NC
10	GND	**11**	NC	**12**	NC	**13**	NC										

IC501 (VERT. OUT)

Pin-1	2.4V	**2**	24.9V	**3**	1V	**4**	GND	**5**	11.2V	**6**	24.2V	**7**	2.5V

IC601 (POWER)

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

IC651 (5VRC)

Pin-1	12.0V	**2**	GND	**3**	5V

IC202 (5V1)

Pin-1	7.7V	**2**	GND	**3**	4.9V

IC801 (MEMORY)

Pin-1	GND	**2**	GND	**3**	GND	**4**	GND	**5**	3.8V	**6**	3.6V	**7**	4.9V	**8**	4.9V		

IC201 (IF/VIDEO/CHROMA/DEF/CPU)

Pin-1:	2.1V	**2:**	2.4V	**3:**	3.1V	**4:**	2.6V	**5:**	2.2V	**6:**	2.3V	**7:**	2.0V	**8:**	4.9V	**9:**	2.2V
10:	3.7V	**11:**	8.1V	**12:**	2.7V	**13:**	2.8V	**14:**	2.9V	**15:**	1.3V	**16:**	2.2V	**17:**	2.3V	**18:**	1.6V
19:	5.1V	**20:**	2.6V	**21:**	1.6V	**22:**	GND	**23:**	3.2V	**24:**	4.9V	**25:**	4.9V	**26:**	4.8V	**27:**	4.9V
28:	4.9V	**29:**	4.9V	**30:**	0V	**31:**	3.8V	**32:**	3.4V	**33:**	2.6V	**34:**	2.6V	**35:**	4.9V	**36:**	4.8V
37:	0V	**38:**	4.9V	**39:**	0V	**40:**	3.9V	**41:**	3.3V	**42:**	GND	**43:**	4.4V	**44:**	1V	**45:**	2.4V
46:	2.5V	**47:**	2.6V	**48:**	2.5V	**49:**	2.5V	**50:**	2.8V	**51:**	2.5V	**52:**	2.6V	**53:**	3.5V	**54:**	2.5V
55:	4.9V	**56:**	2.7V	**57:**	2.5V	**58:**	2.2V	**59:**	2.3V	**60:**	2.2V	**61:**	1.8V	**62:**	GND	**63:**	2.8V
64:	2.8V																

CRT Board

Q701

E	2.5V
C	-11.4V
B	2.9V

Q703

E	2.4V
C	-12V
B	2.8V

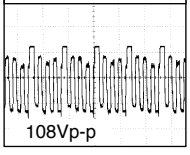
Q705

E	2.3V
C	12V
B	2.9V

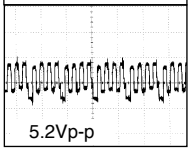
Q721

E	1.1V
C	0V
B	0.7V

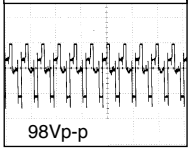
Q701-C <B-out>



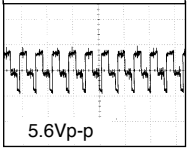
Q701-B <B drive>



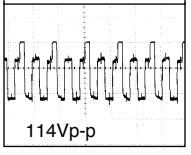
Q703-C <G-out>



Q703-B <G drive>



Q705-C <R-out>



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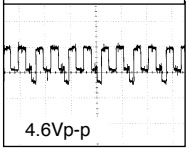

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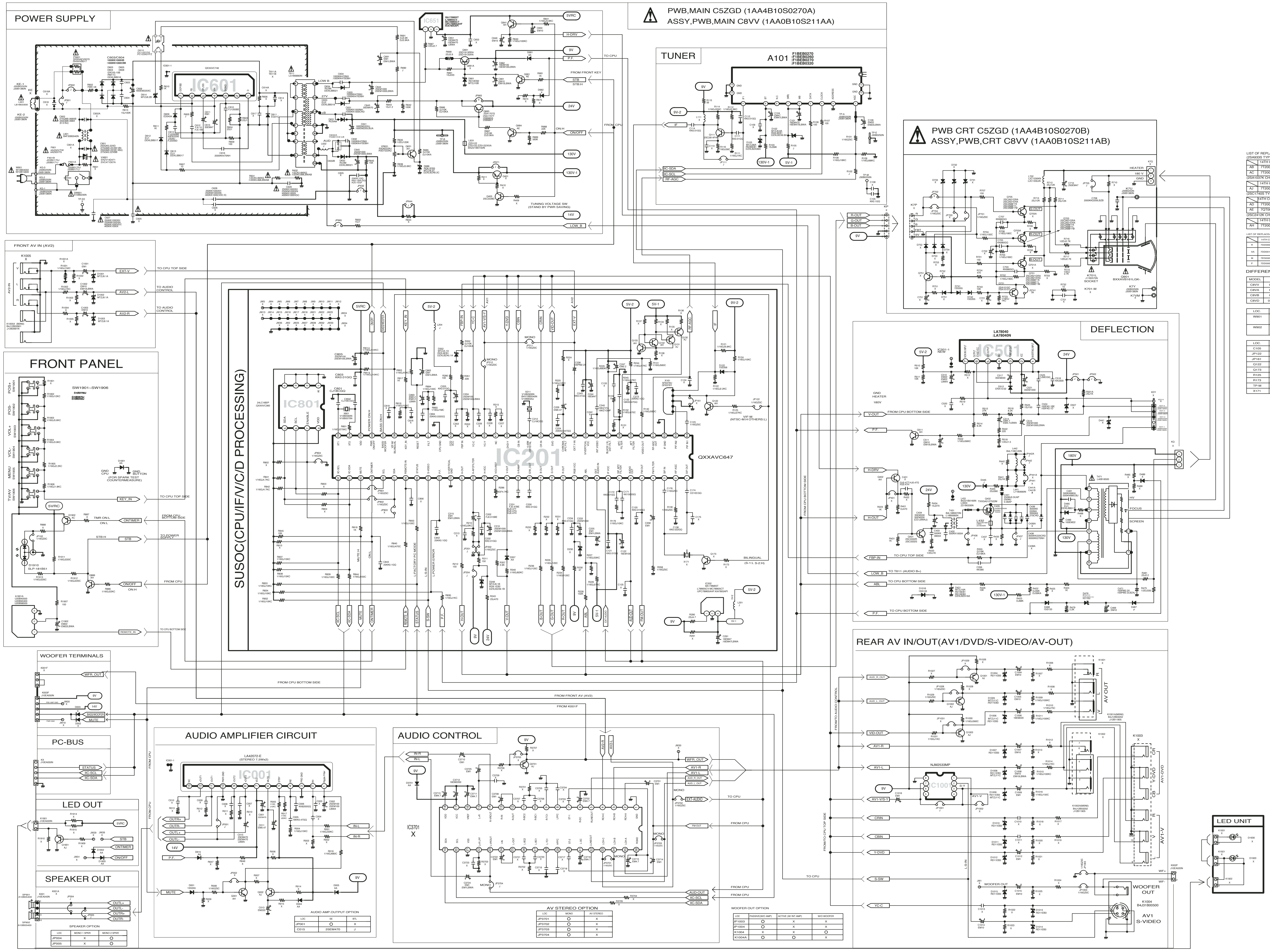


LIST OF REPLACEABLE TRANSISTORS

(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	2SA1179	2SA1037
AJ	7T200221	M6,M7	R,S

(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

DIFFERENCE PART LIST :

MODEL	013	MAIN UNIT	CRT UNIT
C8VV	013C8VV	S211AA	S211AB
C8VA	013C8VA	S211AA	S211AB
C8VB	013C8VB	S211DA	S211AB
C8VD	013C8VRA	S211AA	S211AB

LOC.	013C8VV	013C8VA	013C8VB	013C8VD
W901	1AV4W10B04002	1AV4W10B16000	1AV4W10B03901	<---
	1AV4W10B15600	N / A	1AV4W10B15500	<---
W902	1AA4W30B12701	<---	1AA4W30B06500	1AA4W30B12701
	N / A	N / A	1AA4W30B10600	N / A

LOC.	1AA0B10S211AA	1AA0B10S211DA
C105	CK1E104KGQBNG	N / A
JP122	RGGR000ZTCANL	N / A
JP161	N / A	RGGR000ZTCANL
Q122	AH	N / A
Q173	N / A	AH
R125	RGG2702JTCANL	N / A
R173	N / A	RGG2202JTCANL
TP-M	J30B0250N	N / A
X171	N / A	E8378

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 oscilloscope 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)

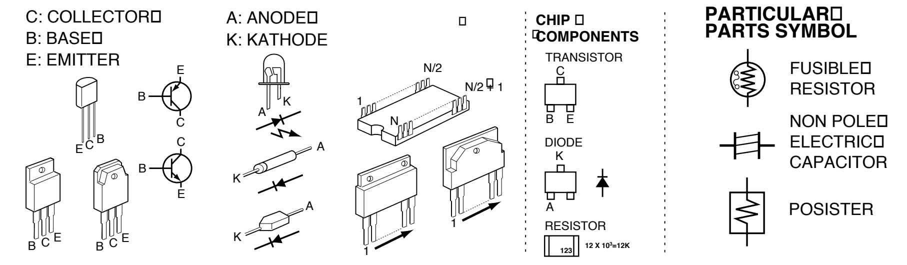
Resistance (Example)

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)

TRANSISTOR, DIODE AND INTEGRATED CIRCUIT TERMINAL GUIDE

C: COLLECTOR
B: BASE
E: EMITTER

A: ANODE
K: KATHODE



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COLOUR TELEVISION

AC6-A CHASSIS SERIES

SERVICE REF. NO. CP21CE1-00

C8VV