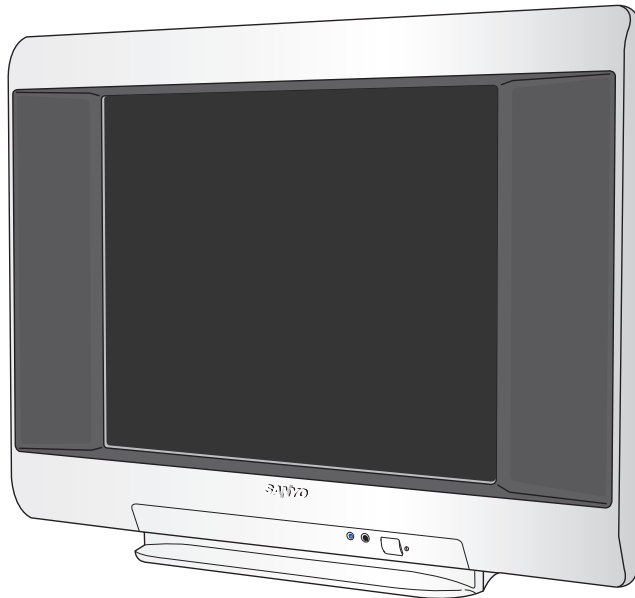


## SERVICE MANUAL Colour Television

Model No. CE21XS2

(Russia)

Service Ref. No. CE21XS2-00



### Specifications

<b>Power Source</b>	.....AC220-240V, 50/60Hz.
<b>Colour System</b>	.....PAL, SECAM, NTSC4.43, NTSC, PAL 60Hz
<b>Television System</b>	.....B/G, DK', I, MM
<b>Channel Coverage</b>	.....VHF: E2-E12, R1-R12, K1-K9, J1-J12, A2-A13 UHF: 21-69, A14-A69, J13-J62 CATV: S1-S41, X, Y, Z, Z+1, Z+2
<b>Video IF</b>	.....38.0 MHz
<b>Aerial Input Impedance</b>	.....75 $\Omega$
<b>Ext. Terminals</b>	
Video inputs:	Phono jack $\times$ 2 (1.0Vp-p, impedance 75 $\Omega$ ) S-Video Input $\times$ 1 (Din 4 pin, Separate Y/C Signals Input)
DVD Input:	Component Video Jack-Y $\times$ 1 (1.0Vp-p, impedance 75 $\Omega$ ) Component Video Jack CB/CR $\times$ 1 (0.7Vp-p, impedance 75 $\Omega$ )
Audio inputs:	Phono jack (R/L) $\times$ 2 (436mVrms, impedance more than 40K $\Omega$ )
Video monitor output:	Phono jack $\times$ 1 (1.0Vp-p, 75 $\Omega$ )
Audio monitor outputs:	Phono jack(R/L) $\times$ 1(436mVrms, Impedance less than 600 $\Omega$ )
Headphone jack:	Mini Stereo jack $\times$ 1
<b>Speaker</b>	..... 8 cm $\times$ 13 cm $\times$ 2 pcs.
<b>Sound Output (RMS)</b>	..... 10W + 10W
<b>Dimensions</b>	..... 654 (W) $\times$ 467 (H) $\times$ 335 (D)mm
<b>Weight</b>	..... approx. 19.6 Kg

Specifications subject to change without notice

Product Code: 113002907

Original Version

Chassis Series: AC6-B

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.

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## Safety Notice

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

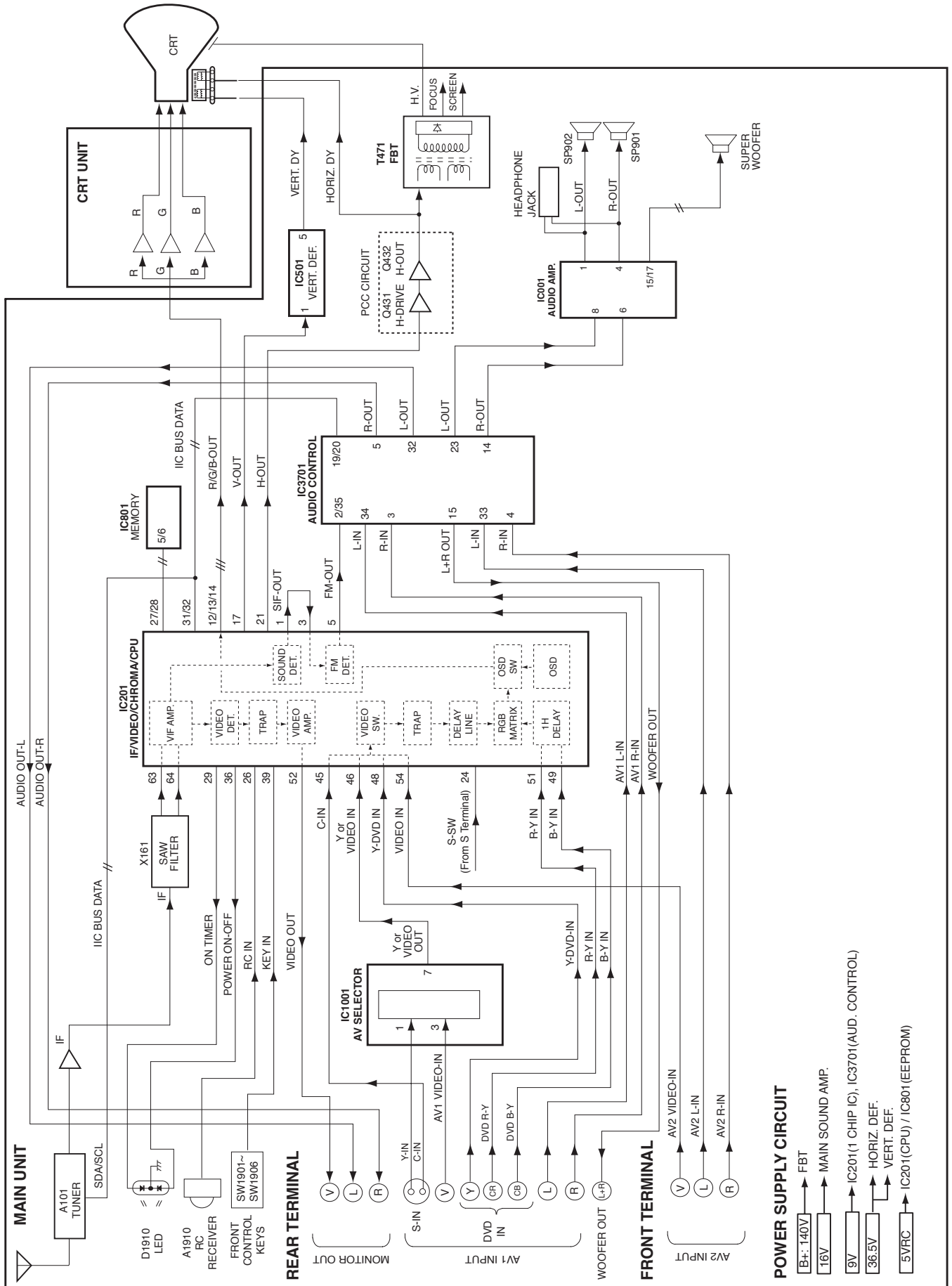
### X-RADIATION PRECAUTION

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

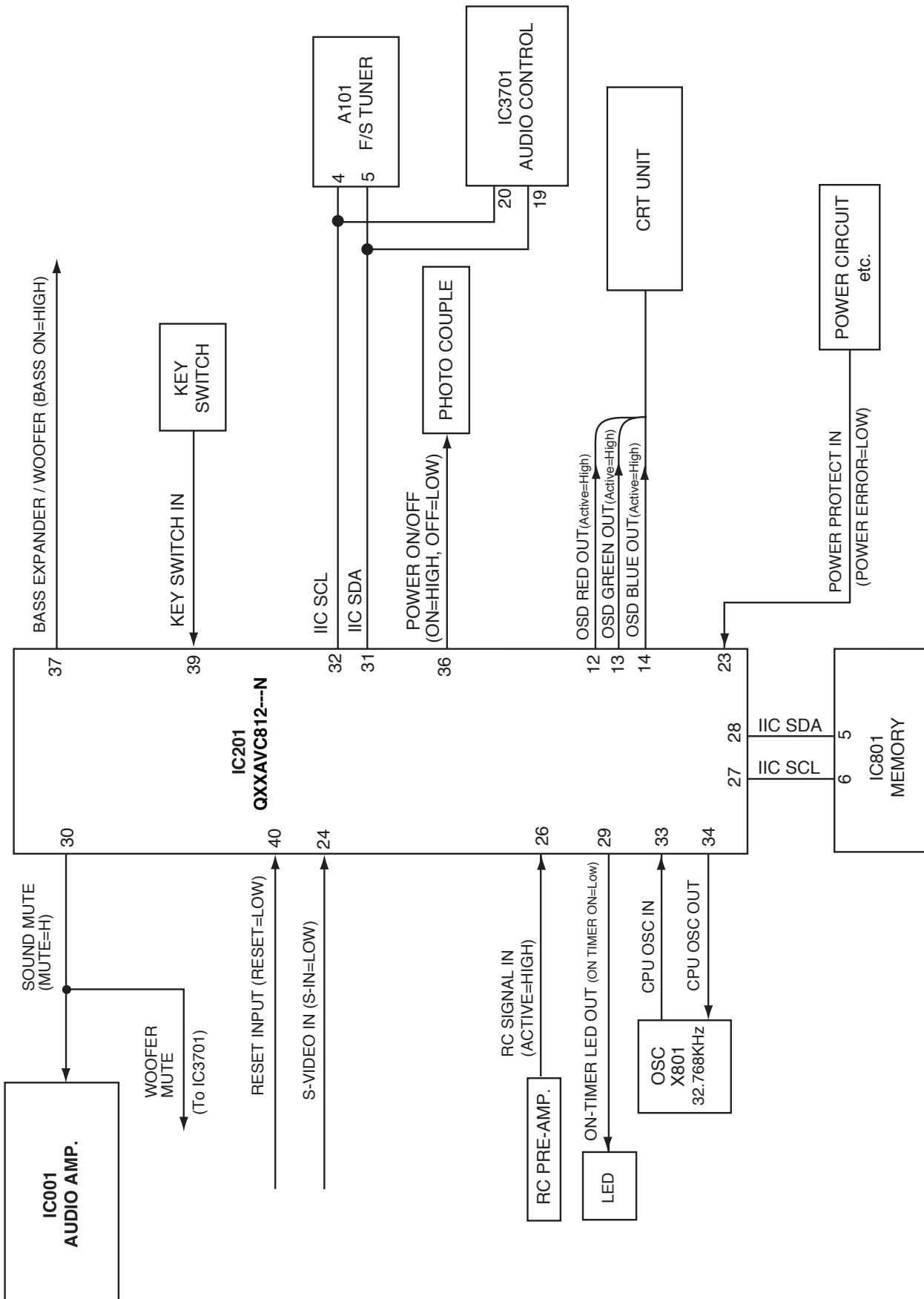
Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark  $\triangle$  in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts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

# Chassis Block Diagrams



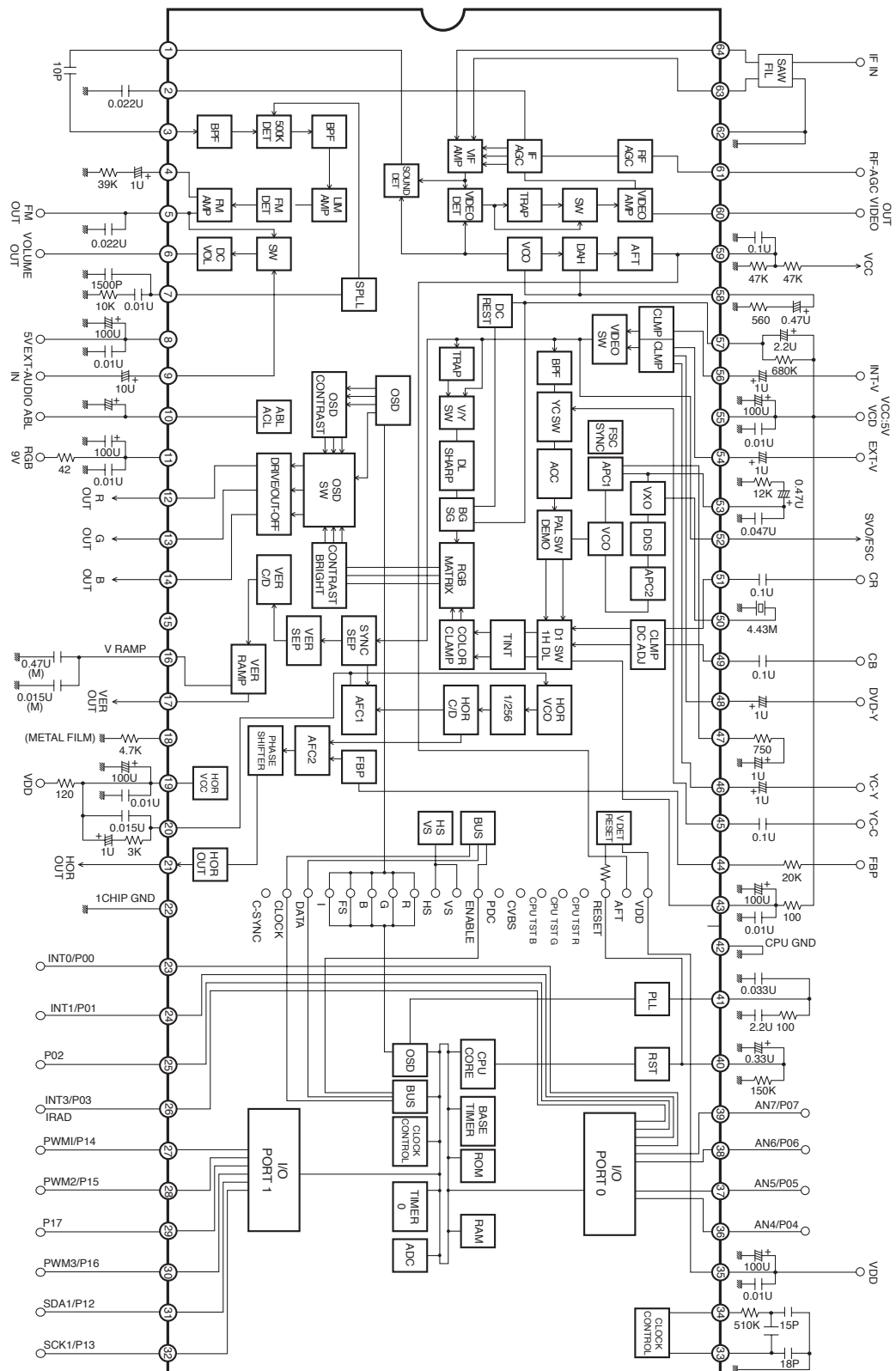
# Chassis Block Diagrams

## System Control



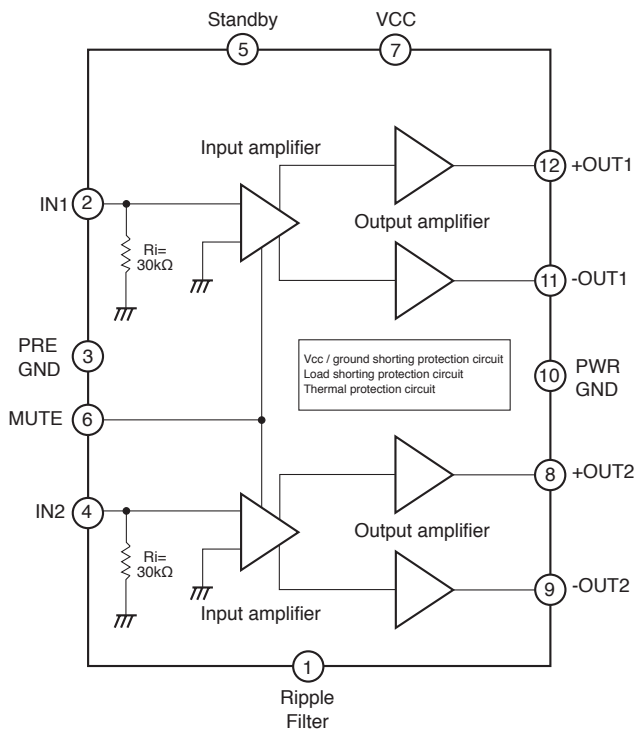
# IC Block Diagrams

IC201 < CPU/IF/Video/Chroma/Def.> LA76938NDE56S0-E

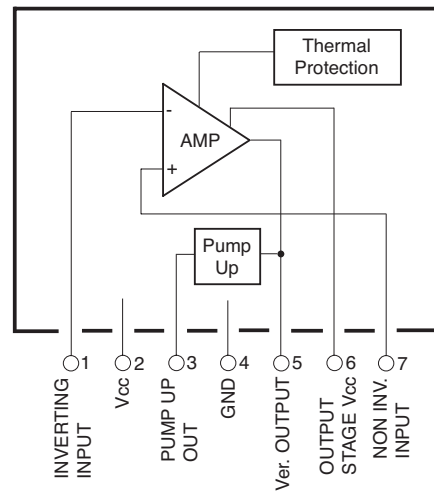


# IC Block Diagrams

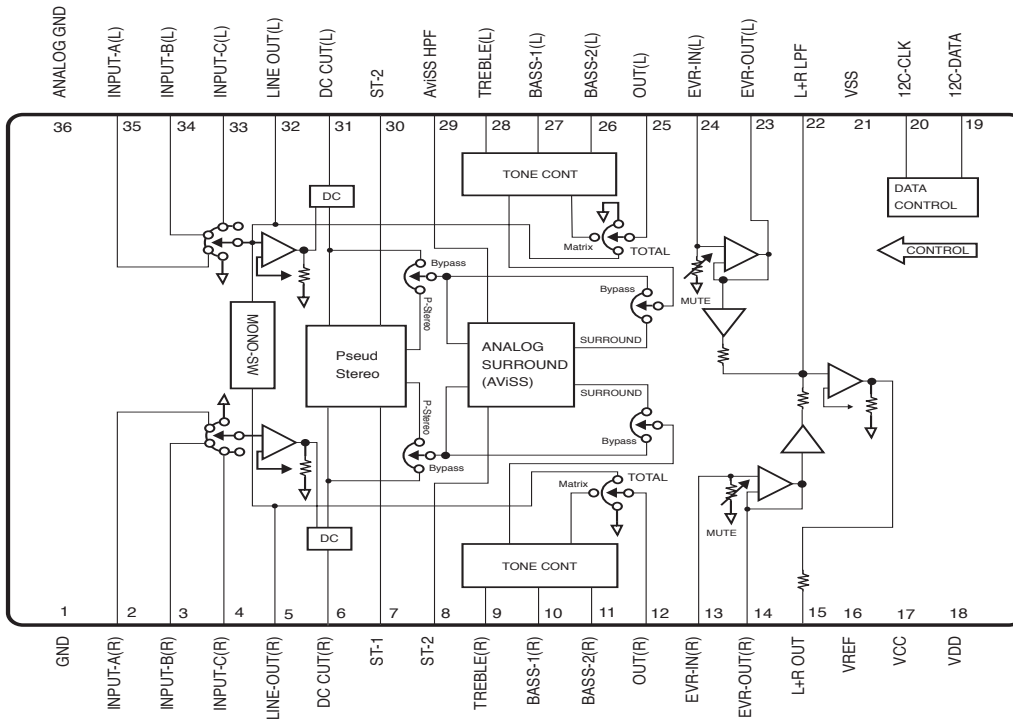
IC001 < Audio AMP.> LA42102-E



IC501 < Vertical Output > LA78045



IC3701 < Audio Control > LV1116NV-TLM-E



# CPU Port Functions

Pin No.	Display	Functions
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	Aud out	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

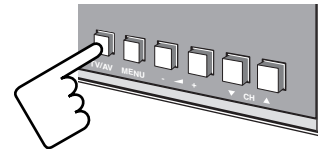
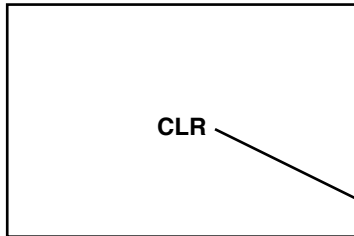
Pin No.	Display	Functions
41	FILT	FILT pin function
42	GND	Ground
43	CCD-Vcc	Vcc (5V) pin for 1H delay-line
44	FBP-IN	Fly Back Pulse Input
45	YC-C	Y/C-C Input function
46	YC-Y	Y/C-Y Input function
47	C-APC2	AFC filter pin of chroma VCO. (3.58MHz)
48	DVD-Y	DVD-Y Input
49	CB-IN	C <sub>B</sub> Input (for DVD)
50	X ' tal	4.43MHz Crystal
51	CR-IN	C <sub>R</sub> 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

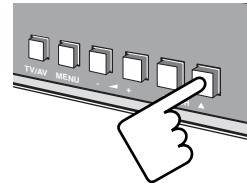
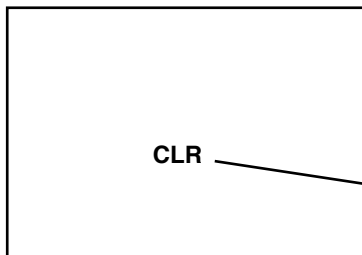
1. Put a new memory IC.
2. Turn on the TV set.
3. Press and hold the **TV/AV Selector** on the TV set for more than 2 seconds. The following picture appears on the screen.



Press and hold for more than 2 seconds

(displayed in yellow color)

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.



(displayed in red color)

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.

<u>Adjustments</u>	<u>Service Mode No. &amp; Item</u>
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 30-33, 35-37

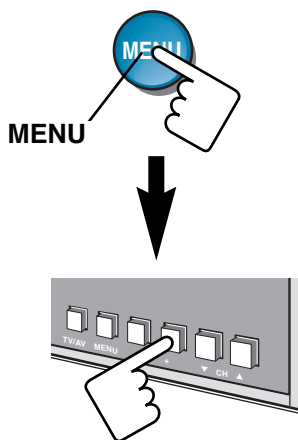
Further adjustment please refer to page 13 and 14.



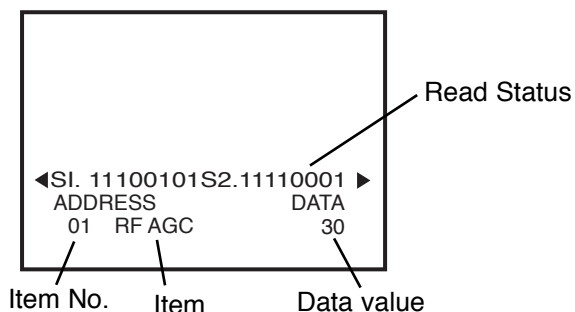
# Service Adjustments with Replacing Memory IC(IC801)

## [Entering to Service Mode]

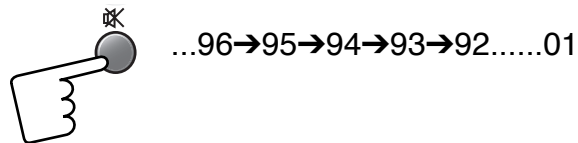
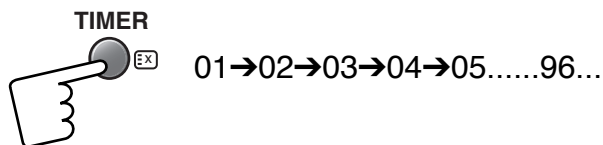
1. Press and hold the **MENU** button on the Remote Control and press the **VOLUME (+)** button on the TV set. Following setting items appears on the screen.



Display for [RF AGC] RF AGC adjustment

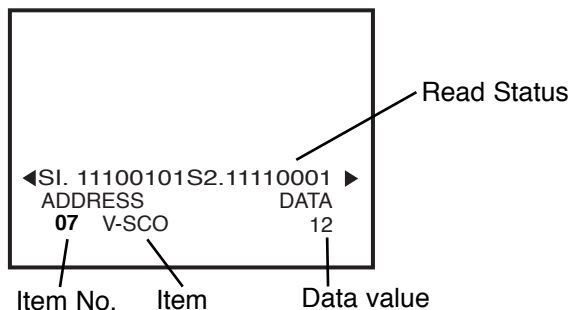


2. Select item by pressing the **TIMER** (Item No. UP) or **SOUND MUTE** (Item No. DOWN) button on the remote control handset.

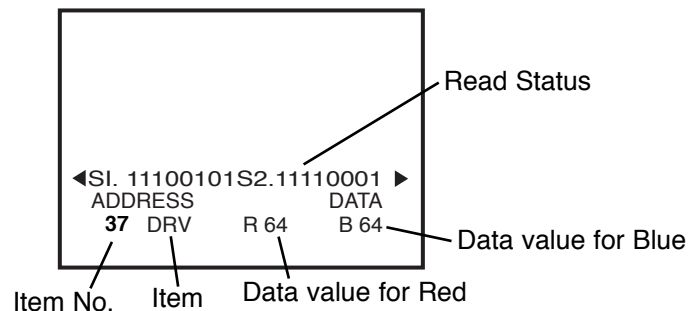


### Example

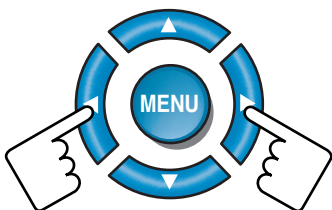
Display for [V-SCO] V-S Correction adjustment



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	30	RF AGC Adj.
02	H-PHA	0~31	16	H-Phase (H-Centering) Adj. (50Hz)
03	V-POS	0~63	45	V-Position (V-Centering) Adj. (50Hz)Fixed.
04	V-SHIFT	0~15	6	V-Phase Adj. (50Hz)
05	V-SIZ	0~127	62	V-Size Adj. (50Hz)
06	V-LIN	0~31	16	V-Linearity Adj. (50Hz)
07	V-SCO	0~31	19	Vertical S-Correction Adj. (50Hz)
08	V-TRANS	0~1	0	Data transmission between V Retrace
09	V-RES	0~1	0	Vertical Reset Timing.
10	H-P60	-16~+15	+3	H-Phase Adj. (60Hz) difference val.
11	V-S60	-64~+63	0	V-size Adj. (60Hz) difference val.
12	V-SHIF60	-16~+15	-2	V-Phase Adj. (60Hz) difference val.
13	OSDHP	0~255	24	OSD H-Position Adj.
14	OSDC	0~7	4	OSD Contrast Adj.
15	V-SCP	0~7	7	V-Size COMP Adj.
16	H-SCP	0~7	7	H-Size COMP Adj.
17	EWDC	0~63	16	H-Width / H-Size adj.
18	EWAMP	0~63	27	EW Parabola / Width ratio
19	EWILT	0~63	38	EW Trapezium correction
20	EWTOP	0~15	9	EW Corner Top
21	EWBTM	0~15	13	EW Corner Bottom
22	EWCFNSW	0~3	0	Select control range for corner corr.
23	EWTEST	0~7	0	Select EW DAC test mode
24	EWDC60	-32~+31	0	H-Width / H-Size Adj. NTSC (60Hz)
25	EWAMP60	-32~+31	-1	EW Parabola/Width ratio NTSC (60 Hz)
26	EWILT60	-32~+31	0	EW Trapezium correction NTSC (60 Hz)
27	EWTOP60	-16~+15	0	EW Corner Top NTSC (60Hz)
28	EWBTM60	-16~+15	-2	EW Corner bottom NTSC (60Hz)
29	SBIAS	0~255	64	Sub Bias Adj.
30	RBIAS	0~255	0	Red Bias Adj.
31	GBIAS	0~255	0	Green Bias Adj.
32	BBIAS	0~255	0	Blue Bias Adj.
33	RDRIV	0~127	64	Red Drive Adj.
34	GDRIV	0~15	8	Green Drive Adj.
35	BDRIV	0~127	64	Blue Drive Adj.
36	1 Line Appear			White Balance Adj.
37	DRV			White Balance Adj.
38	B-YD	0~31	22	B-Y DC Level
39	R-YD	0~31	20	R-Y DC Level
40	B-YDN	-16~+15	0	NTSC B-Y DC Level Adj.
41	R-YDN	-16~+15	0	NTSC R-Y DC Level Adj.
42	SBDC	-16~+15	+5	SECAM B-Y DC Level Adj.
43	SRDC	-16~+15	-7	SECAM R-Y DC Level Adj.
44	B-YDD	-16~+15	-3	DVD B-Y DC Level
45	R-YDD	-16~+15	-7	DVD R-Y DC Level

No.	ITEM	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
46	RGBTEMP	0~1	0	RGB Temp. SW
47	RGBTEST	0~1	0	RGB Test
48	EXTRGBC	0~1	0	External RGB Contrast
49	RGBTEST	0~1	0	RGB Test
50	HALFTONE	0~3	0	Halftone Color
51	G-YA	0~1	0	G-Y Angle
52	GYAMP	0~15	8	G-Y Amplitude Adj.
53	RBBG	0~15	8	R-Y / B-Y Gain Balance
54	RBAG	0~15	8	R-Y / B-Y Angle
55	G-YAN	0~1	0	NTSC G-Y Angle
56	GYAMPN	-8~+7	0	NTSC G-Y Amplitude Adj.
57	RBBGN	-16~+15	0	NTSC R-Y / B-Y Gain Balance
58	RBAGN	-16~+15	-10	NTSC R-Y / B-Y Angle
59	RBBGDN	-16~+15	+10	DVD NTSC R-Y / B-Y Gain Balance
60	RBAGDN	-16~+15	-10	DVD NTSC R-Y / B-Y Angle
61	VOLFIL	0~1	0	DAC Volume filter disable
62	APCOFFSET	0~1	0	Align APC Offset Current
63	IF-AGC	0~1	0	IF AGC defeat
64	OVERMOD	0~1	0	Select Over Modulation Circuit Type
65	COGV	0~3	1	Coring Gain
66	BLKS	0~3	3	Blk. Str. Start (w/ defeat)
67	BLKG	0~3	3	Blk. Str. Gain
68	BRTA	0~1	0	Brt. Abl. Def.
69	BRST	0~1	0	Mid. Stp. Def.
70	BRTH	0~7	0	Bright Abl. Threshold
71	WPL	0~3	2	White Peak Limit Op. Point (w/ defeat)
72	YGAM	0~3	0	Y Gamma Start
73	PRS	0~3	0	Pre-shoot AV Adj.
74	ORS	0~3	2	Over-shoot AV Adj.
75	DCREST	0~3	0	Select Luminance DC Restoration
76	RFCO	0~3	1	RF Coring Gain Difference
77	PRSN	0~3	0	Pre-shoot RF Adj.
78	ORSN	0~3	3	Over-shoot RF Adj.
79	CTRAP	0~7	4	Chroma Trap control
80	CBPF	0~3	0	Chroma BPF control
81	CBPFN	0~3	1	Chroma BPF control NTSC
82	CBPFAVN	0~3	0	Chroma BPF control AV NTSC
83	TINT	-16~+15	0	Tint RF
84	TINT443	-16~+15	+4	Tint (NTSC4.43)
85	SHRF	-32~+31	0	RF Sharpness
86	SH Adj	-32~+31	0	Sharpness Adjustment
87	COL TEST	0~1	0	Color Test
88	COL NTSC	-32~+31	-15	Color NTSC (difference from PAL)
89	CODP	-16~+15	-15	DVD PAL Color
90	CODN	-16~+15	-10	DVD NTSC Color

## 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	TINTDN	-16~+15	-5	DVD NTSC Tint
92	YTH	0~3	0	Select Y signal sensitivity for Blue Stretch
93	YGAIN	0~3	0	Select Blue stretching gain w/ defeat
94	RWIDTH	0~3	0	R Width
95	ROFFSET	0~3	0	R Offset
96	BWIDTH	0~3	0	B Width
97	BOFFSET	0~3	0	B Offset
98	VOLUM	0~127	127	Volume Control
99	DEEM	0~1	0	De-emphasis TC
100	VIFSW	0~3	0	VIF System SW
101	SIFSW	0~3	1	SIF System SW
102	V-LVL	0~7	4	Video Level
103	V-LVLOFS	0~3	1	Video Level Offset
104	FMGAIN	0~1	0	FM Gain
105	IFOM-S	0~1	0	Over Modulation SW
106	IFMN-S	0~1	1	Audio Monitor SW Monitor or FM
107	IFTRPS	0~1	1	IC Inside SIF Trap SW ON-OFF
108	IFMLVL	0~15	0	IF Over Modulation Level Adj.
109	IFTEST1	0~1	0	IF Test 1
110	TRAPT	0~7	4	Sound Trapt Test
111	H-FRQ	0~63	20	Horizontal Freq.
112	FBTS	0~1	0	FBPBLK SW
113	COOP	0~7	7	Color Killer Option
114	HBLKL	0~7	6	H-Blanking Control Left
115	HBLKR	0~7	2	H-Blanking Control Right
116	AFCRF	0~1	0	RF AFC Gain & Gate Adj.
117	VSURF	0~1	0	RF Vsync. Separation sensitivity
118	CDMRF	0~7	0	RF Vertical count down circuit Adj.
119	AFCAV	0~1	1	AV AFC Gain & Gate Adj.
120	VSUAV	0~1	0	AV Vsync separation sensitivity
121	CDMAV	0~7	0	AV vertical count down circuit Adj.
122	HLVDRF	0~1	1	H-Lock Vdet
123	HLVDAV	0~1	1	H-Lock Vdet
124	VTEST	0~3	0	Select Vertical DAC test mode
125	VCOTEST	0~15	8	IF VCO free run Freq. Adj.
126	C.VCOADJ	0~7	4	Control free run Freq. of chroma VCD
127	VCOFREQ	0~255	100	ES Sample IF VCO Freq. Adj.
128	CROSS-BW	0~3	0	Pattern Output
129	AVNCON	0~127	64	AV non-signal Contrast
130	AVNBRI	0~127	64	AV non-signal Brightness
131	VMDELAY	0~3	0	Select Delay of VM out
132	VMGAIN	0~7	0	Select VM Gain of VM out
133	SYNSEP	0~7	4	Select Sync. Sep Threshold Level
134	SCMKILON	0~1	0	Enable Killer Circuit (Service Mode only)
135	SCMKILOF	0~1	0	Disable Killer Circuit (Service Mode only)

No.	ITEM	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
136	SCM TEST	0~1	0	SECAM DC Level Adj.
137	BELL SW	0~1	1	Enable BELL Filter Adj.
138	EQU SW	0~1	0	Enable EQUALIZER Circuit Adj.
139	BELLADJ	0~15	3	BELL Filter Adj.
140	EQU ADJ	0~15	0	EQUALIZER Filter Adj.
141	POMT	0~127	25	Power Mute Time
142	CHMT	0~31	8	Ch Mute Time
143	SYST	0~15	5	System
144	S-STE	0~3	1	AV Stereo/Mono Option
145	VOLTBL	0~1	1	Volume Table Select
146	MPP	0~1	0	MPP Function on/off Option
147	TUNER	0~1	0	Tuner Option
148	BOOSTER	0~1	0	Booster Option (LNA Tuner)
149	OPT AVIN	0~3	3	AV1/AV2/AV3 Option
150	OPT POS	0~1	1	255 Position Option
151	LANGUAGE	0~1	1	Language Option
152	OPT COL	0~1	1	Color System Option
153	OPT SIF	0~1	1	SIF System Option
154	OPT BASS	0~3	2	Bass Expander Option
155	OPT SURR	0~1	1	Surround Option
156	OPT BLBK	0~1	1	Blue Back Option
157	1LINEMOD	0~1	0	Color Output Data Option at 1 Line Mode
158	OPT VM	0~1	0	Select VM Out or Ext Audio In
159	OPT ERGB	0~1	1	Select Video In or RGB In
160	AUDGAIN	0~7	1	Gain Control LV1116
161	L/RGAIN	0~7	7	L/R Output Gain Control LV111
300	R00	0~255	82	ROM Correction
301	R01	0~255	244	ROM Correction
302	R02	0~255	84	ROM Correction
303	R03	0~255	249	ROM Correction
304	R04	0~255	173	ROM Correction
305	R05	0~255	101	ROM Correction
306	R06	0~255	0	ROM Correction
307	R07	0~255	0	ROM Correction
308	R08	0~255	7	ROM Correction
309	R09	0~255	19	ROM Correction
310	R10	0~255	2	ROM Correction
311	R11	0~255	136	ROM Correction
312	R12	0~255	224	ROM Correction
313	R13	0~255	3	ROM Correction
314	R14	0~255	33	ROM Correction
315	R15	0~255	82	ROM Correction
316	R16	0~255	246	ROM Correction
317	R17	0~255	33	ROM Correction

# Service Adjustments with Replacing Memory IC(IC801)

No.	ITEM	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
318	R18	0~255	83	ROM Correction
319	R19	0~255	1	ROM Correction
320	R20	0~255	0	ROM Correction
321	R21	0~255	0	ROM Correction
322	R22	0~255	0	ROM Correction
323	R23	0~255	0	ROM Correction
324	R24	0~255	34	ROM Correction
325	R25	0~255	153	ROM Correction
326	R26	0~255	100	ROM Correction
327	R27	0~255	33	ROM Correction
328	R28	0~255	173	ROM Correction
329	R29	0~255	85	ROM Correction
330	R30	0~255	0	ROM Correction
331	R31	0~255	0	ROM Correction
332	R32	0~255	0	ROM Correction
333	R33	0~255	0	ROM Correction
334	R34	0~255	0	ROM Correction
335	R35	0~255	0	ROM Correction
336	R36	0~255	0	ROM Correction
337	R37	0~255	0	ROM Correction
338	R38	0~255	0	ROM Correction
339	R39	0~255	0	ROM Correction
340	R40	0~255	0	ROM Correction
341	R41	0~255	136	ROM Correction
342	R42	0~255	224	ROM Correction
343	R43	0~255	4	ROM Correction
344	R44	0~255	223	ROM Correction
345	R45	0~255	0	ROM Correction
346	R46	0~255	1	ROM Correction
347	R47	0~255	2	ROM Correction
348	R48	0~255	255	ROM Correction
349	R49	0~255	0	ROM Correction
350	R50	0~255	33	ROM Correction
351	R51	0~255	84	ROM Correction
352	R52	0~255	251	ROM Correction
353	R53	0~255	0	ROM Correction
354	R54	0~255	0	ROM Correction
355	R55	0~255	0	ROM Correction
356	R56	0~255	0	ROM Correction
357	R57	0~255	0	ROM Correction
358	R58	0~255	0	ROM Correction
359	R59	0~255	0	ROM Correction
360	R60	0~255	0	ROM Correction
361	R61	0~255	0	ROM Correction
362	R62	0~255	0	ROM Correction

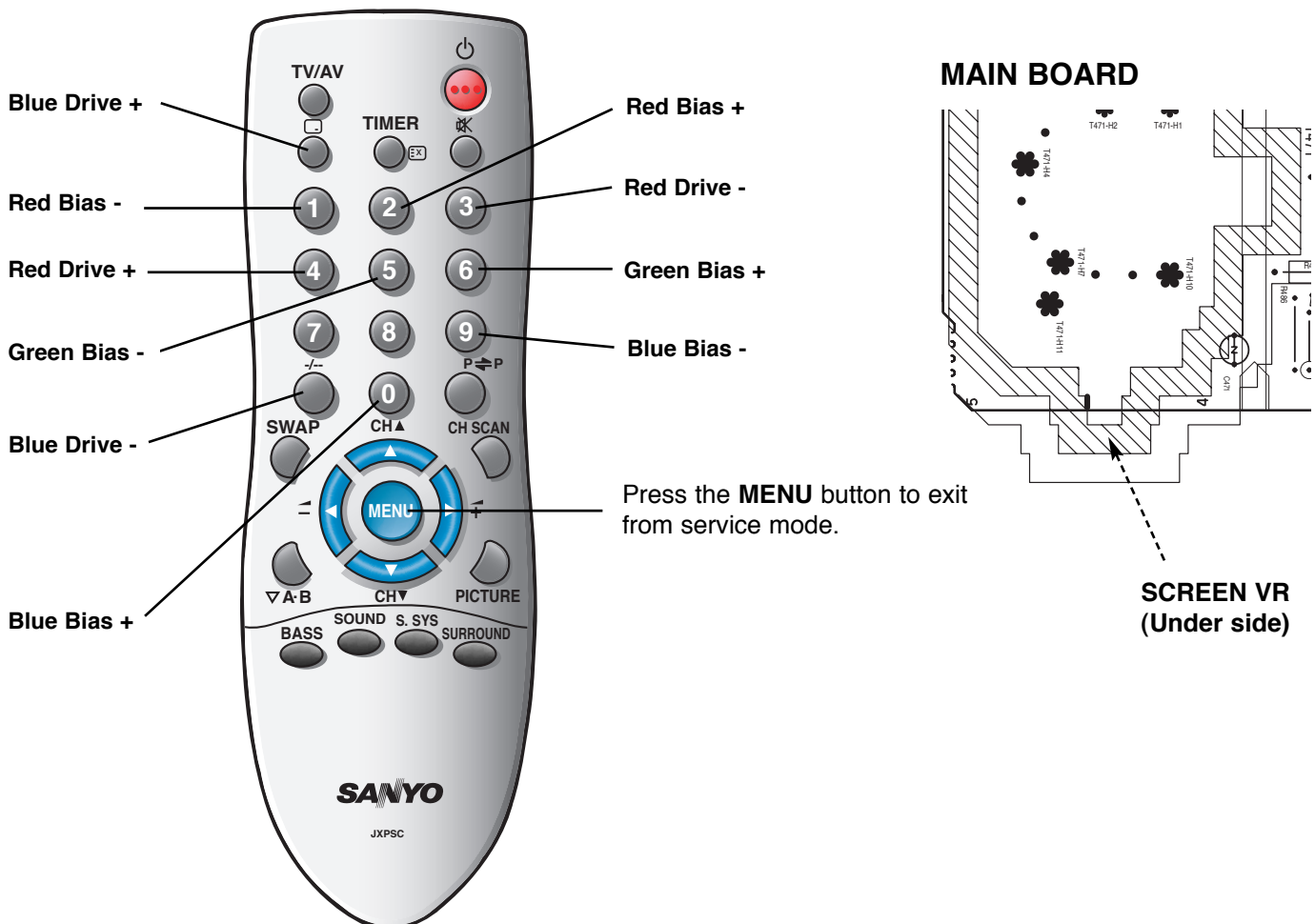
No.	ITEM	DATA RANGE	INITIAL SETUP DATA	DESCRIPTION
363	R63	0~255	0	ROM Correction
364	R64	0~255	0	ROM Correction
365	R65	0~255	0	ROM Correction
366	R66	0~255	0	ROM Correction
367	R67	0~255	0	ROM Correction
368	R68	0~255	0	ROM Correction
369	R69	0~255	0	ROM Correction
370	R70	0~255	0	ROM Correction
371	R71	0~255	0	ROM Correction
372	R72	0~255	0	ROM Correction
373	R73	0~255	1	ROM Correction
374	R74	0~255	205	ROM Correction
375	R75	0~255	0	ROM Correction
376	R76	0~255	0	ROM Correction
377	R77	0~255	109	ROM Correction

# Service Mode Adjustments

## Items 30-33, 35-37 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. 30 RBIAS (Red Bias), No. 31 GBIAS (Green Bias), and No. 32 BBIAS (Blue Bias) and set each data to 0 by pressing the VOLUME + or - key.
- (5) Select No. 33 RDRIV (Red Drive) and No. 35 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. 36 (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. 37 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

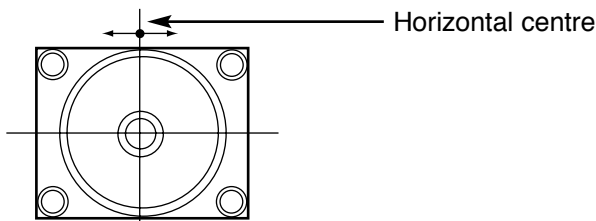
Following adjustments should be carried out when the memory IC is replaced. How to enter the service mode and adjust values, please refer to “ Entering to Service mode” on page 9.

## 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.

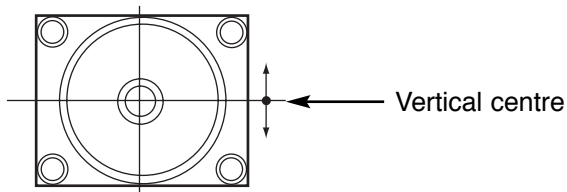
## Item 02 [H-PHA] HORIZONTAL CENTRE

- (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.



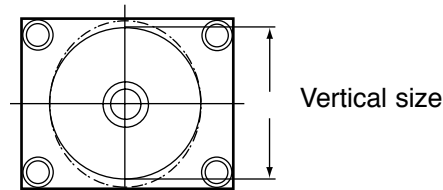
## Item 04 [V-SHIFT] VERTICAL CENTRE

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



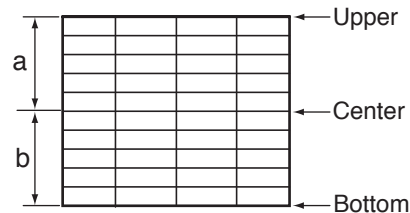
## Item 05 [V-SIZ] VERTICAL SIZE

- (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.



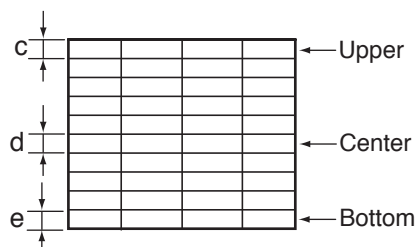
## Item 06 [V-LIN] VERTICAL LINEARITY

- (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.



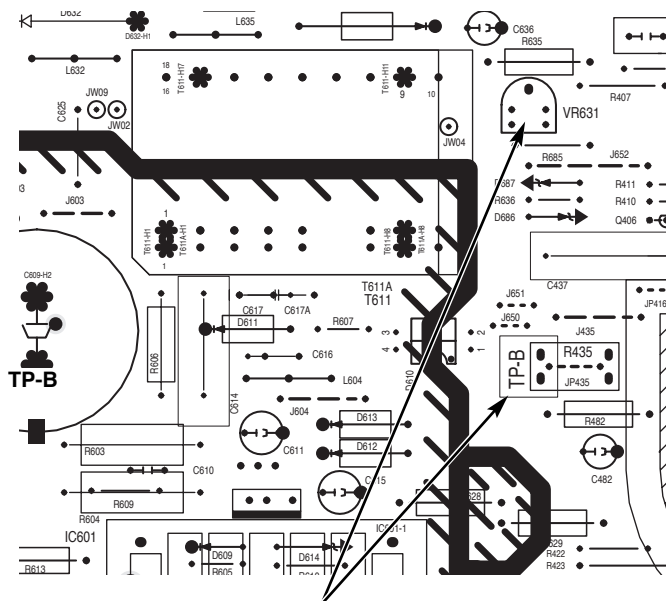
# Service Adjustments

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 synchro-  
nized picture. Select NATURAL picture mode by press-  
ing the **PICTURE MODE** button on the remote control.
- (3) Adjust B-voltage to be  $140 \pm 0.5V$  DC by using VR631.

### MAIN BOARD

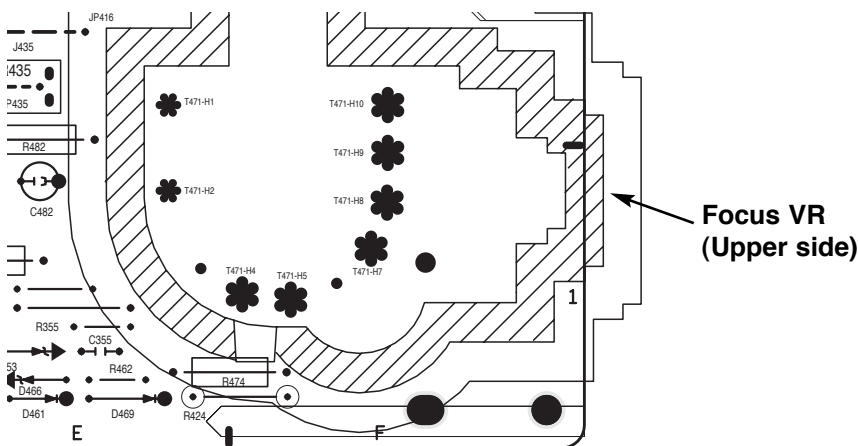


### B-Voltage Supply Adjustment

## 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



## HIGH VOLTAGE CHECK

**Note:** +B (+140V) 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 22.0 KV and 24.0 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 25.0 KV at zero beam current.

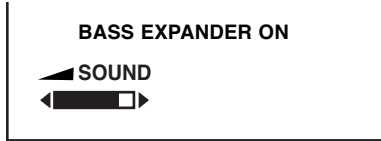
If reading is not within range, check horizontal circuit.  
No high-voltage adjustment is provided on this chassis.

# 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.



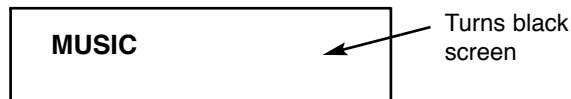
## (2) Tuning Lock setting

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

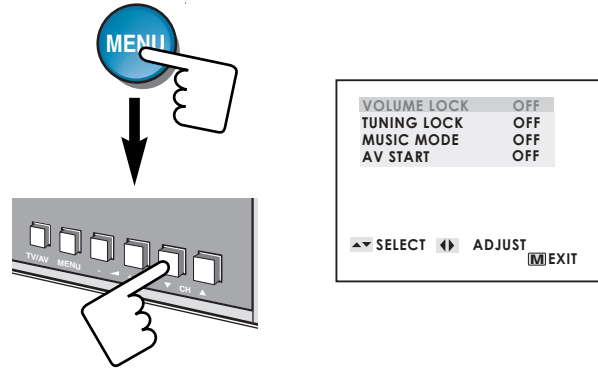
Set AV-START to ON and every time the TV set is switched on, AV1 position will be the initial programme position.



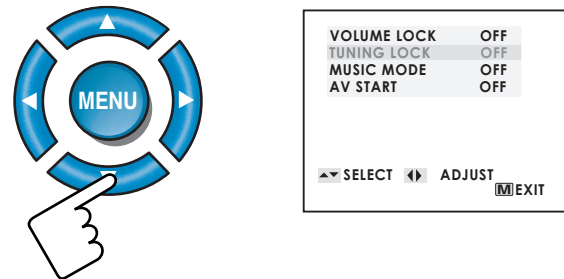
## How to set the special function:

**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.

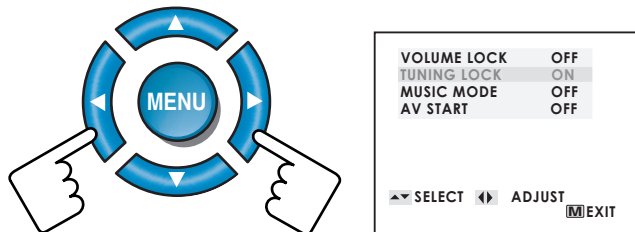
- 1 To enter into the special function setting mode, press and hold the **MENU** button of the remote control, then press the **PROGRAMME DOWN** button on the TV set.



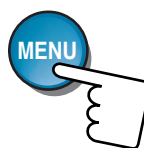
- 2 Select an item of the special functions by pressing the **PROGRAMME UP** or **DOWN** button on the remote control or the TV set.



- 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:

**Signals:** Use a pattern generator which can output red, green, blue and white raster and crosshatch pattern signals.

**Procedure:** Carry out purity adjustment first, and then carry out convergence adjustment.

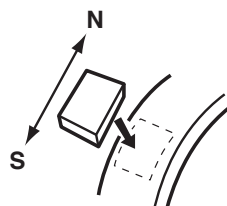
**Preparation:** The deflection yoke may have several correction magnets attached to its outer edge. If replacing the picture tube, the positions of the magnets can be changed and they can be re-used, so remove these magnets and keep them safely so that they do not get lost.

## PURITY ADJUSTMENTS

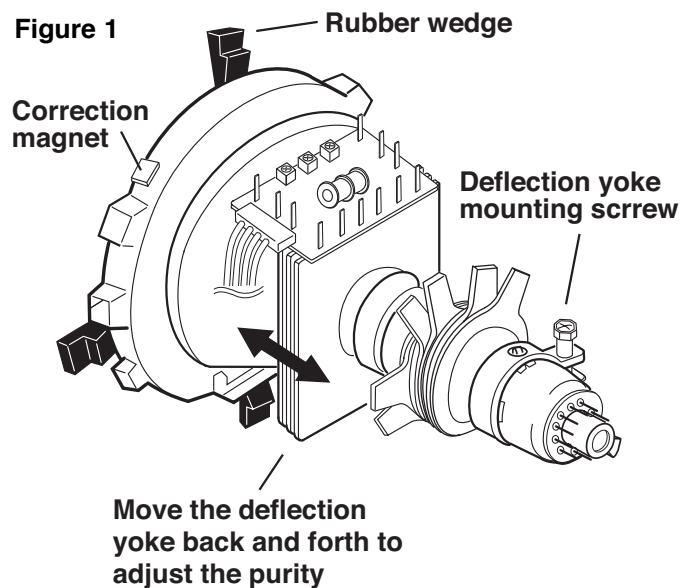
1. Place the picture so that its front faces west.
2. Insert the power plug into a wall outlet, and then turn on the power for the TV and de-magnetize the TV using its own degaussing circuit.
3. Loosen the screw which is holding the deflection yoke (with integrated purity magnets), and then move the deflection yoke forward as far as it will go. Remove the rubber wedge at this time.
4. Turn off the red and blue raster so that only the green raster is on.
5. Adjust the angle between the tabs (wings) on purity magnets to center the vertical green belt in the picture tube screen. (See Figures 2 and 3.)

**NOTE:** This adjustment can only be carried out by changing the angle, not by rotating the tabs up and down.

6. Gently move the deflection yoke back to the position where the green band fills the whole of the picture tube screen, and then tighten the screw to secure the deflection yoke in place.
7. If there is any color distortion around the edges, correct it by attaching magnets to the outer edge of the deflection yoke. The magnets should be attached so that the line running from the position of the distortion to the center of the picture tube intersects the deflection yoke. The colors on the magnets indicate the north and south poles of the magnets. Attach the magnets in whichever direction causes the distortion to disappear. (See Figures 1 and 4. The south and north pole positions are shown as a guide.)
8. Switch the screen to red and blue rasters and check that there is no color distortion. If there is any distortion, adjust the angles of purity magnets tabs or the forward-back position of the deflection yoke, or change the attachment positions of the correction magnets.

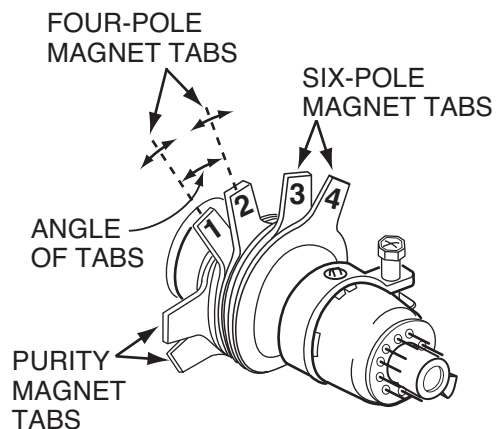


**Figure 1**

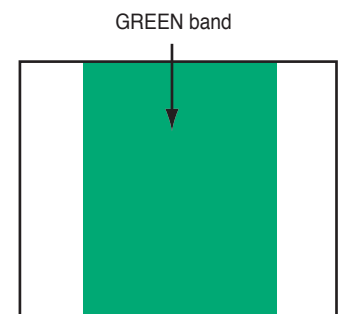


**Figure 2**

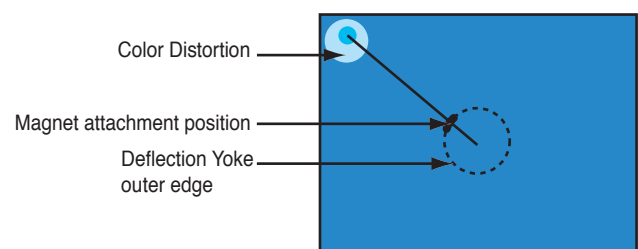
Change the angle to adjust the green band so that it is centered in the screen.



**Figure 3**



**Figure 4**



# Purity and Convergence Adjustment

## CONVERGENCE ADJUSTMENT

Preparation: After carrying out purity adjustment and before proceeding to convergence adjustment, provisionally insert the rubber wedge so that there is no vertical or sideways play in the deflection yoke.

Signals: Display a crosshatch pattern.

### 1. Red/blue center adjustment

Adjust the angle between the tabs (1) and (2) in Figure 5 and rotate them together until the lines of the red and blue crosshatch patterns (vertical and horizontal lines) are superimposed in the center of the screen.

### 2. Green and red/blue center adjustment

Adjust the angle between the tabs (3) and (4) in Figure 5 and rotate them together until the lines of the green crosshatch pattern are superimposed with the red/blue crosshatch pattern (vertical and horizontal lines) which were superimposed in step 1).

### 3. Vertical lines at screen bottom center (Red and Blue)

Use the YH control (see Figure 8) at the top of the deflection yoke to correct the vertical line convergence at the top and bottom center of the screen. (See Figure 9.)

### 4. Vertical lines at screen center (Red and Blue)

Use the YHC control (see Figure 8) at the top of the deflection yoke to correct the vertical line convergence at the center of the screen. (See Figure 10.)

### 5. Horizontal lines at screen top and bottom

Use the YV control (see Figure 8) at the top of the deflection yoke to correct the horizontal line convergence at the top and bottom of the screen. (See Figure 11.)

If horizontal lines are intersecting at the top and bottom, use a screwdriver to adjust the Balance coil at the top of the deflection yoke. (See Figure 12.)

Figure 5

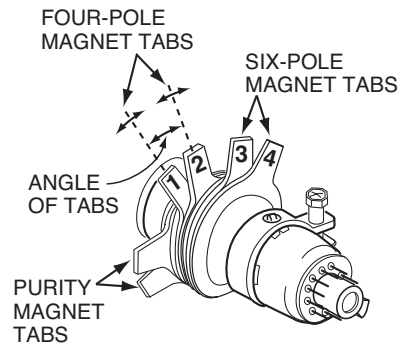
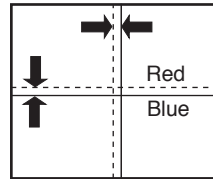
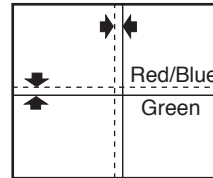


Figure 6



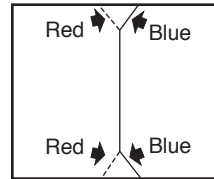
Adjust the angle rotation of tabs (1) and (2) to align the vertical and horizontal lines.

Figure 7



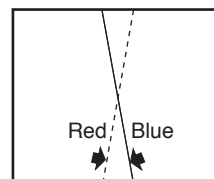
Adjust the angle and rotation of tabs (3) and (4) to align the vertical and horizontal lines.

Figure 9



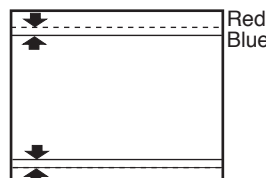
Use the YH control to correct.

Figure 10



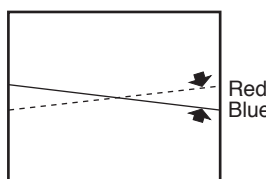
Use the YHC control to correct.

Figure 11



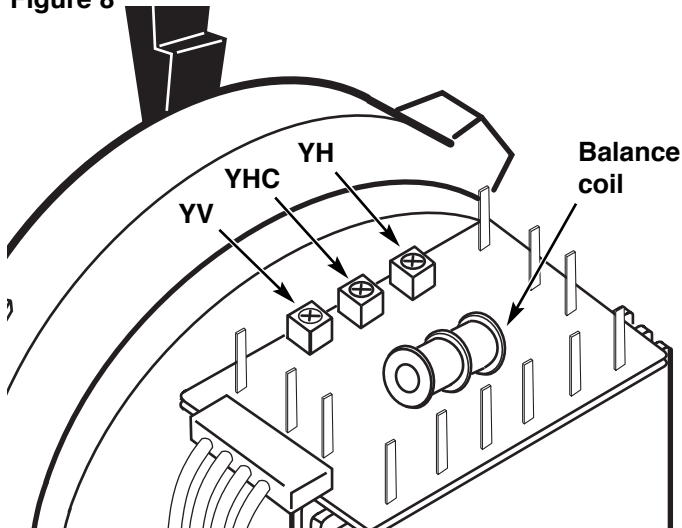
Use the YV control to correct.

Figure 12



Use the Balance coil to correct

Figure 8



# Mechanical Disassembly

## CABINET BACK REMOVAL

1. Refer to Figure 1, remove 12 screws.
2. Pull off cabinet back and remove.

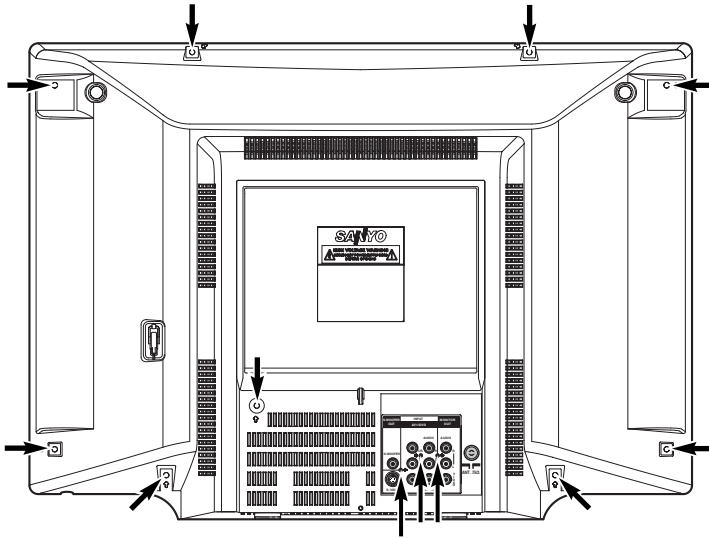


Figure 1. Cabinet Back Removal

## 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.

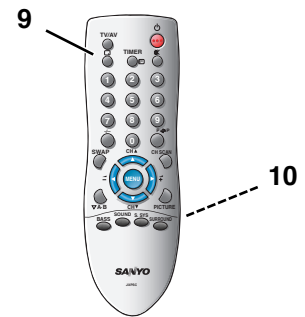
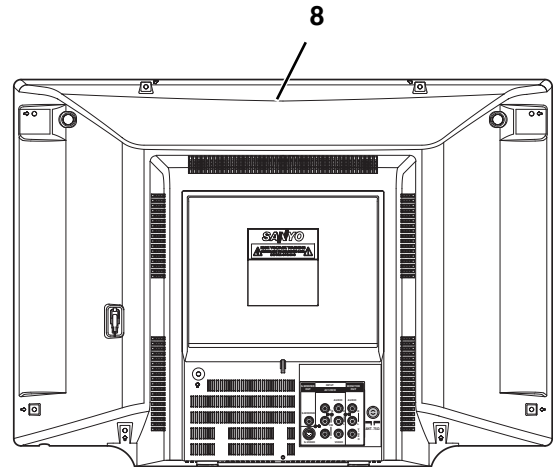
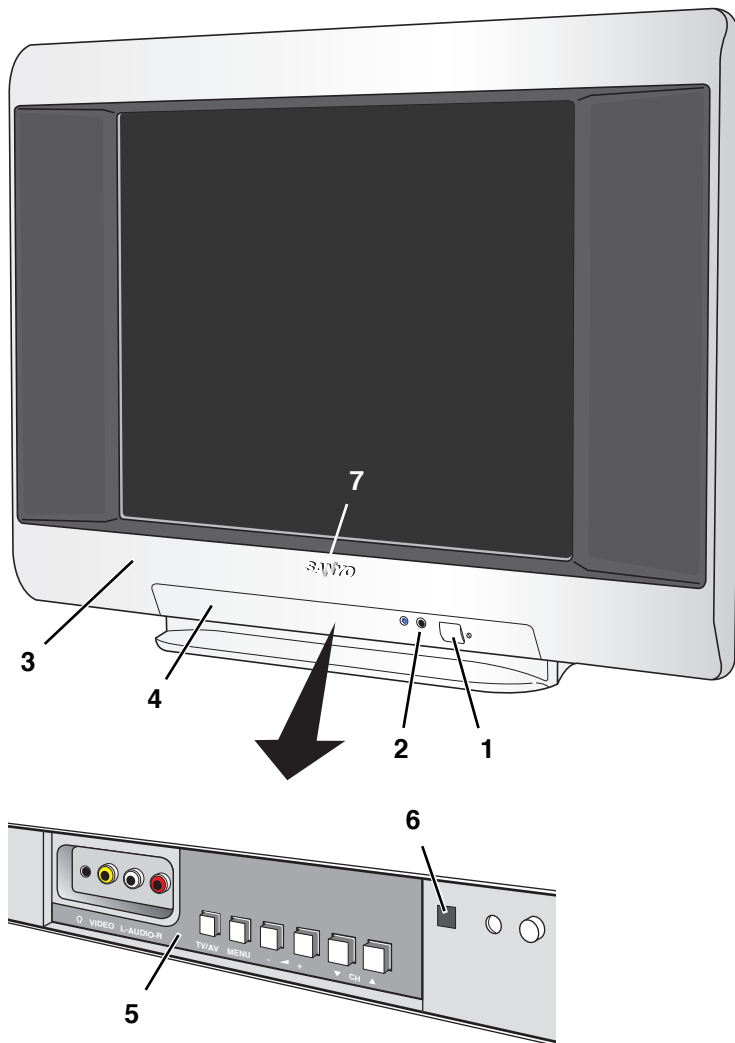
### ■ Releasing the protective circuit and restoring power supply

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

BA3H

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



Key No.	Part No.	Description	Key No.	Part No.	Description
1	610 330 4908	BUTTON POWER-BA3A			
	610 229 8406	SPRING-E3HA (for power button)			
2	610 330 4724	DEC IND-BA3A			
3	610 330 4878	CABINET FRONT-BA3A			
4	610 330 4748	DOOR-BA3A			
5	610 331 6628	DEC SHEET BA3A			
6	610 104 2505	LATCH PUSH,7.9X6.9BK			
or	645 019 2449	LATCH PUSH,7.9X6.9BK			
7	645 040 4672	BADGE,SANYO*43.5X10L43.5			
or	645 041 7269	BADGE,SANYO*43.5X10L43.5			
8	610 330 4786	CABINET BACK-BA3A			
9	645 071 1145	ASSY,REMOCON JXPSC			
or	652 002 0634	REMOCON,JXPSC			
10	610 313 3393	RC-BATTERY LID-JXPLA			
	610 333 6329	INSTRUCTION MANUAL-BA3H			

# Chassis Electrical Parts List

BA3H

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a  $\Delta$  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	Ref. No.	Part No.	Description
<p><b>NOTES:</b> Read description in the Capacitor and Resistor as follows:</p> <p><b>CAPACITOR</b> CERAMIC 100P K 50V</p> <p style="margin-left: 100px;">Rated Voltage</p> <p style="margin-left: 100px;">Tolerance Symbols: Less than 10pF A : Not specified B : <math>\pm 0.1\text{pF}</math> C : <math>\pm 0.25\text{pF}</math> D : <math>\pm 0.5\text{pF}</math> F : <math>\pm 1\text{PF}</math> G : <math>\pm 2\text{pF}</math> R : <math>\pm 0.25\text{-}0\text{pF}</math> S : <math>\pm 0\text{-}0.25\text{pF}</math> E : <math>+0\text{-}1\text{pF}</math> More than 10pF A : Not specified B : <math>\pm 0.1\%</math> C : <math>\pm 0.25\%</math> D : <math>\pm 0.5\%</math> F : <math>\pm 1\%</math> G : <math>\pm 2\%</math> H : <math>\pm 3\%</math> J : <math>\pm 5\%</math> K : <math>\pm 10\%</math> L : <math>\pm 15\%</math> M : <math>\pm 20\%</math> N : <math>\pm 30\%</math> P : <math>+100\text{-}0\%</math> Q : <math>+30\text{-}10\%</math> T : <math>+50\text{-}10\%</math> U : <math>+75\text{-}10\%</math> V : <math>+20\text{-}10\%</math> W : <math>+100\text{-}10\%</math> X : <math>+40\text{-}20\%</math> Y : <math>+150\text{-}10\%</math> Z : <math>+80\text{-}20\%</math></p> <p style="margin-left: 100px;">Rated value: P=pico farad, U=micro farad</p> <p>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</p> <p><b>RESISTOR</b> CARBON 4.7K J A 1/4W</p> <p style="margin-left: 100px;">Rated Wattage</p> <p style="margin-left: 100px;">Performance Symbols: A: General B: Non flammable Z: Low noise Other: Temperature coefficient</p> <p style="margin-left: 100px;">Tolerance Symbols: A: <math>\pm 0.05\%</math> B: <math>\pm 0.1\%</math> C: <math>\pm 0.25\%</math> D: <math>\pm 0.5\%</math> F: <math>\pm 1\%</math> G: <math>\pm 2\%</math> J: <math>\pm 5\%</math> K: <math>\pm 10\%</math> M: <math>\pm 20\%</math> P: <math>\pm 5\text{-}15\%</math></p> <p style="margin-left: 100px;">Rated value, ohms: K: 1,000, M: 1,000,000</p> <p>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</p>			<p><b>OUT OF CIRCUIT BOARD</b></p> <p><b>PICTURE TUBE</b> <math>\Delta</math> Q901 4140145300 CRT A51QGV991X005</p> <p><b>COIL</b> <math>\Delta</math> L901 6450837616 ASSY, COIL, DEGAUSSING 6450515521 COIL, DEGAUSSING</p> <p><b>MISCELLANEOUS</b></p> <p>SP901 6450553653 SPEAKER, 8 6450927805 SPEAKER, 8 SP902 6450553653 SPEAKER, 8 6450927805 SPEAKER, 8 <math>\Delta</math> W901 6450399251 CORD, POWER-2.0MK-A5003 6450646096 CORD, POWER-2.0MK-A5003 W902 6103283371 ASSY, WIRE GND CONNECTOR C</p> <p><b>6103345260 ASSY,PWB,MAIN BA3H 1AA0B10S242F0</b></p> <p><b>TRANSISTOR</b></p> <p>Q002 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 4051739615 TR 2SA1235A1E 4051739714 TR 2SA1235A1F</p> <p>Q1001 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 4051739615 TR 2SA1235A1E 4051739714 TR 2SA1235A1F</p> <p>Q1002 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 4051739615 TR 2SA1235A1E 4051739714 TR 2SA1235A1F</p> <p>Q1003 4051648016 TR KTA1504S-GR-RTK 4051345925 TR 2SA1037AK-T146-R 4051472215 TR 2SA1037AK-S-T146</p>		

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	4050020318	TR 2SA1037K T146 R		4050144519	TR 2SC2412K T146 R
	4050020417	TR 2SA1037K T146 S		4050144618	TR 2SC2412K T146 S
	4050026726	TR 2SA1179-M6-TB		4050158724	TR 2SC2812-L6-TB
	4050026924	TR 2SA1179-M7-TB		4050158922	TR 2SC2812-L7-TB
	4051631513	TR 2SA1179N-M6-TB		4051631612	TR 2SC2812N-L6-TB0
	4051739615	TR 2SA1235A1E		4051739813	TR 2SC3928A1R
	4051739714	TR 2SA1235A1F		4051739912	TR 2SC3928A1S
Q111	4050159721	TR 2SC2814-F4-TB	Q631	4051648412	TR KTC3875S-GR-RTK
Q122	4051648412	TR KTC3875S-GR-RTK		4050144519	TR 2SC2412K T146 R
	4050144519	TR 2SC2412K T146 R		4050144618	TR 2SC2412K T146 S
	4050144618	TR 2SC2412K T146 S		4050158724	TR 2SC2812-L6-TB
	4050158724	TR 2SC2812-L6-TB		4050158922	TR 2SC2812-L7-TB
	4050158922	TR 2SC2812-L7-TB		4051631612	TR 2SC2812N-L6-TB0
	4051631612	TR 2SC2812N-L6-TB0		4051739813	TR 2SC3928A1R
	4051739813	TR 2SC3928A1R		4051739912	TR 2SC3928A1S
	4051739912	TR 2SC3928A1S	Q632	4051648412	TR KTC3875S-GR-RTK
Q3701	4051648412	TR KTC3875S-GR-RTK		4050144519	TR 2SC2412K T146 R
	4050144519	TR 2SC2412K T146 R		4050144618	TR 2SC2412K T146 S
	4050144618	TR 2SC2412K T146 S		4050158724	TR 2SC2812-L6-TB
	4050158724	TR 2SC2812-L6-TB		4050158922	TR 2SC2812-L7-TB
	4050158922	TR 2SC2812-L7-TB		4051631612	TR 2SC2812N-L6-TB0
	4051631612	TR 2SC2812N-L6-TB0		4051739813	TR 2SC3928A1R
	4051739813	TR 2SC3928A1R		4051739912	TR 2SC3928A1S
	4051739912	TR 2SC3928A1S	Q641	4051648412	TR KTC3875S-GR-RTK
Q424	4051648412	TR KTC3875S-GR-RTK		4050144519	TR 2SC2412K T146 R
	4050144519	TR 2SC2412K T146 R		4050144618	TR 2SC2412K T146 S
	4050144618	TR 2SC2412K T146 S		4050158724	TR 2SC2812-L6-TB
	4050158724	TR 2SC2812-L6-TB		4050158922	TR 2SC2812-L7-TB
	4050158922	TR 2SC2812-L7-TB		4051631612	TR 2SC2812N-L6-TB0
	4051631612	TR 2SC2812N-L6-TB0		4051739813	TR 2SC3928A1R
	4051739813	TR 2SC3928A1R		4051739912	TR 2SC3928A1S
	4051739912	TR 2SC3928A1S	Q661	4052144200	TR KTC2026-Y-U/P
Q425	4060121408	TR 2SK2010-CTV-YA14		4050599903	TR 2SD1913-R-RA
Q431	4052192211	TR 2N5551C-AT/P		4050600005	TR 2SD1913-S-RA
	4050180517	TR 2SC3332-R	Q681	4051413317	TR KTC3198-GR-T
	4050180616	TR 2SC3332-S		4050118411	TR 2SC1740S-Q
Q432	4051571304	TR 2SD2634-YB		4050118510	TR 2SC1740S-R
Q439	4051648412	TR KTC3875S-GR-RTK		4050118619	TR 2SC1740S-S
	4050144519	TR 2SC2412K T146 R		4050122012	TR 2SC1815-GR
	4050144618	TR 2SC2412K T146 S		4050122111	TR 2SC1815-O
	4050158724	TR 2SC2812-L6-TB		4050207511	TR 2SC945A-PA
	4050158922	TR 2SC2812-L7-TB		4050207719	TR 2SC945A-QA
	4051631612	TR 2SC2812N-L6-TB0		4050207917	TR 2SC945A-RA
	4051739813	TR 2SC3928A1R	Q683	4050890010	TR 2SA1707-S
	4051739912	TR 2SC3928A1S		4050890119	TR 2SA1707-T
Q461	4050647307	TR 2SB1274-Q-RA		4050096917	TR 2SB985-S
	4050647406	TR 2SB1274-R-RA		4050097013	TR 2SB985-T
Q462	4051413317	TR KTC3198-GR-T	Q684	4051413317	TR KTC3198-GR-T
	4050118411	TR 2SC1740S-Q		4050118411	TR 2SC1740S-Q
	4050118510	TR 2SC1740S-R		4050118510	TR 2SC1740S-R
	4050118619	TR 2SC1740S-S		4050118619	TR 2SC1740S-S
	4050122012	TR 2SC1815-GR		4050122012	TR 2SC1815-GR
	4050122111	TR 2SC1815-O		4050122111	TR 2SC1815-O
	4050207511	TR 2SC945A-PA		4050207511	TR 2SC945A-PA
	4050207719	TR 2SC945A-QA		4050207719	TR 2SC945A-QA
	4050207917	TR 2SC945A-RA		4050207917	TR 2SC945A-RA
Q491	4051648016	TR KTA1504S-GR-RTK	Q886	4051648412	TR KTC3875S-GR-RTK
	4051345925	TR 2SA1037AK-T146-R		4050144519	TR 2SC2412K T146 R
	4051472215	TR 2SA1037AK-S-T146		4050144618	TR 2SC2412K T146 S
	4050020318	TR 2SA1037K T146 R		4050158724	TR 2SC2812-L6-TB
	4050020417	TR 2SA1037K T146 S		4050158922	TR 2SC2812-L7-TB
	4050026726	TR 2SA1179-M6-TB		4051631612	TR 2SC2812N-L6-TB0
	4050026924	TR 2SA1179-M7-TB		4051739813	TR 2SC3928A1R
	4051631513	TR 2SA1179N-M6-TB		4051739912	TR 2SC3928A1S
	4051739615	TR 2SA1235A1E			
	4051739714	TR 2SA1235A1F			
Q511	4051648412	TR KTC3875S-GR-RTK	<b>INTEGRATED CIRCUIT</b>		
			IC001	4096563708	IC LA42102-E

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
IC1001	4094244916	IC NJM2533M	C1008	4040968504	ELECT 10U M 50V
IC201	4106203402	IC LA76938NDE56S0-E		4040848905	ELECT 10U M 50V
IC202	4092415407	IC BA178M05T		4031957748	ELECT 10U M 50V
	4094636701	IC KIA7805API		4031957768	ELECT 10U M 50V
	4092654806	IC L78M05CV	C1009	4032070317	CERAMIC 1U Z 16V
IC3701	4095922734	IC LV1116NV-TLM-E		4032789615	CERAMIC 1U Z 16V
IC501	4094494202	IC LA78045	C101	4041072002	ELECT 470U M 16V
IC601	4105643100	IC STR-W6754(LF2003)		4040848301	ELECT 470U M 16V
IC651	4092415407	IC BA178M05T		4031768621	ELECT 470U M 16V
	4094636701	IC KIA7805API		4031768631	ELECT 470U M 16V
	4092654806	IC L78M05CV	C1010	4033670417	CERAMIC 0.1U K 50V
IC801	4096760701	IC LE24C161-E-C	C1011	4033670417	CERAMIC 0.1U K 50V
	4104958007	IC AT24C16A-10PU-2.7	C1012	4032070317	CERAMIC 1U Z 16V
	4094594506	IC 24LC16B/P		4032789615	CERAMIC 1U Z 16V
			C1013	4032152211	CERAMIC 0.01U K 50V
			C1014	4040968405	ELECT 1U M 50V
<b>CAPACITOR</b>				4040848806	ELECT 1U M 50V
C001	4040972303	ELECT 1K U M 25V		4032001123	ELECT 1U M 50V
	4040972402	ELECT 1000U M 25V		4032001143	ELECT 1U M 50V
	4040848400	ELECT 1000U M 25V	C1015	4040968504	ELECT 10U M 50V
	4031977340	ELECT 1000U M 25V		4040848905	ELECT 10U M 50V
C002	4032113519	ELECT 10U M 50V		4031957748	ELECT 10U M 50V
C003	4031134119	CERAMIC 2200P K 50V		4031957768	ELECT 10U M 50V
	4031737518	CERAMIC 2200P Z 50V	C1016	4040968405	ELECT 1U M 50V
C004	4030700919	CERAMIC 0.1U K 50V		4040848806	ELECT 1U M 50V
	4033670417	CERAMIC 0.1U K 50V		4032001123	ELECT 1U M 50V
	4033053517	CERAMIC 0.1U Z 50V		4032001143	ELECT 1U M 50V
C005	4030700919	CERAMIC 0.1U K 50V	C104	4040973508	ELECT 47U M 50V
	4033670417	CERAMIC 0.1U K 50V		4040849308	ELECT 47U M 50V
	4033053517	CERAMIC 0.1U Z 50V		4032001727	ELECT 47U M 50V
C006	4031134119	CERAMIC 2200P K 50V		4032001737	ELECT 47U M 50V
	4031737518	CERAMIC 2200P Z 50V	C106	4040973102	ELECT 22U M 50V
C007	4033670417	CERAMIC 0.1U K 50V		4040875406	ELECT 22U M 50V
C008	4033670417	CERAMIC 0.1U K 50V		4032001529	ELECT 22U M 50V
C009	4033670417	CERAMIC 0.1U K 50V		4032001549	ELECT 22U M 50V
C010	4033670417	CERAMIC 0.1U K 50V	C107	4031133815	CERAMIC 1000P K 50V
C011	4031904811	ELECT 47U M 25V		4041072101	ELECT 10U M 25V
C012	4032115612	ELECT 22U M 35V	C1102	4040871507	ELECT 10U M 25V
C013	4041072002	ELECT 470U M 16V		4031957748	ELECT 10U M 50V
	4040848301	ELECT 470U M 16V		4041072101	ELECT 10U M 25V
	4031768621	ELECT 470U M 16V	C1103	4040871507	ELECT 10U M 25V
C014	4011506011	MT-GLAZE 0.000 ZA 1/10W		4031957748	ELECT 10U M 50V
	4011057919	MT-GLAZE 0.000 ZA 1/16W	C111	4032152211	CERAMIC 0.01U K 50V
C1001	4011506011	MT-GLAZE 0.000 ZA 1/10W	C112	4032152211	CERAMIC 0.01U K 50V
	4011057919	MT-GLAZE 0.000 ZA 1/16W	C114	4032152211	CERAMIC 0.01U K 50V
C1002	4040968504	ELECT 10U M 50V	C120	4032844314	CERAMIC 0.022U K 50V
	4040848905	ELECT 10U M 50V		4032246613	CERAMIC 0.022U Z 50V
	4031957748	ELECT 10U M 50V	C121	4032152211	CERAMIC 0.01U K 50V
	4031957768	ELECT 10U M 50V	C122	4040971702	ELECT 100U M 16V
C1003	4040968504	ELECT 10U M 50V		4040847809	ELECT 100U M 16V
	4040848905	ELECT 10U M 50V		4031957837	ELECT 100U M 16V
	4031957748	ELECT 10U M 50V		4031957857	ELECT 100U M 16V
	4031957768	ELECT 10U M 50V	C123	4011506011	MT-GLAZE 0.000 ZA 1/10W
C1004	4040968504	ELECT 10U M 50V		4011057919	MT-GLAZE 0.000 ZA 1/16W
	4040848905	ELECT 10U M 50V	C132	4033363517	CERAMIC 0.47U K 16V
	4031957748	ELECT 10U M 50V	C138	4032844314	CERAMIC 0.022U K 50V
	4031957768	ELECT 10U M 50V	C171	4031552111	CERAMIC 1500P K 50V
C1005	4040968504	ELECT 10U M 50V	C172	4032152211	CERAMIC 0.01U K 50V
	4040848905	ELECT 10U M 50V	C174	4031571914	CERAMIC 10P D 50V
	4031957748	ELECT 10U M 50V	C176	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4031957768	ELECT 10U M 50V		4011057919	MT-GLAZE 0.000 ZA 1/16W
C1006	4040971900	ELECT 220U M 16V	C1902	4040973102	ELECT 22U M 50V
	4040848004	ELECT 220U M 16V		4040875406	ELECT 22U M 50V
	4032006722	ELECT 220U M 16V		4032001529	ELECT 22U M 50V
C1007	4040968504	ELECT 10U M 50V		4032001549	ELECT 22U M 50V
	4040848905	ELECT 10U M 50V	C201	4032152211	CERAMIC 0.01U K 50V
	4031957748	ELECT 10U M 50V	C202	4031793217	POLYESTER 0.015U J 50V
	4031957768	ELECT 10U M 50V			

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
C203	4032152211	CERAMIC 0.01U K 50V		4032789615	CERAMIC 1U Z 16V
C204	4040968306	ELECT 100U M 25V	C3711	4040973300	ELECT 4.7U M 50V
	4040897200	ELECT 100U M 25V		4040849209	ELECT 4.7U M 50V
	4031957936	ELECT 100U M 25V		4032001420	ELECT 4.7U M 50V
	4031957946	ELECT 100U M 25V		4032001440	ELECT 4.7U M 50V
C210	4041072101	ELECT 10U M 25V	C3712	4041086207	ELECT 2200U M 16V
	4040871507	ELECT 10U M 25V		4040988502	ELECT 2200U M 16V
	4031957748	ELECT 10U M 50V		4040936909	ELECT 2200U M 16V
	4031957768	ELECT 10U M 50V		4040951704	ELECT 2200U M 16V
C212	4031554214	CERAMIC 15P J 50V		4031937403	ELECT 2200U M 16V
C215	4032070317	CERAMIC 1U Z 16V	C3713	4040973300	ELECT 4.7U M 50V
	4032789615	CERAMIC 1U Z 16V		4040849209	ELECT 4.7U M 50V
C224	4032052818	CERAMIC 0.047U K 25V		4032001420	ELECT 4.7U M 50V
	4033565119	CERAMIC 0.047U K 50V		4032001440	ELECT 4.7U M 50V
C225	4033145915	CERAMIC 0.47U K 16V	C3714	4032070317	CERAMIC 1U Z 16V
	4033363517	CERAMIC 0.47U K 16V		4032789615	CERAMIC 1U Z 16V
C226	4040972709	ELECT 0.47U M 50V	C3715	4040973300	ELECT 4.7U M 50V
	4040848707	ELECT 0.47U M 50V		4040849209	ELECT 4.7U M 50V
	4032002625	ELECT 0.47U M 50V		4032001420	ELECT 4.7U M 50V
	4032002645	ELECT 0.47U M 50V		4032001440	ELECT 4.7U M 50V
C227	4032152211	CERAMIC 0.01U K 50V	C3716	4040973300	ELECT 4.7U M 50V
C231	4032560848	MT-COMPO 0.47U J 50V		4040849209	ELECT 4.7U M 50V
C232	4032152211	CERAMIC 0.01U K 50V		4032001420	ELECT 4.7U M 50V
C233	4041072101	ELECT 10U M 25V		4032001440	ELECT 4.7U M 50V
	4040871507	ELECT 10U M 25V	C3717	4031577312	CERAMIC 6800P K 50V
	4031957748	ELECT 10U M 50V	C3718	4033423310	CERAMIC 0.1U K 25V
C233	4031957768	ELECT 10U M 50V	C3719	4030718112	CERAMIC 2200P K 50V
C234	4032152211	CERAMIC 0.01U K 50V		4031134119	CERAMIC 2200P K 50V
C236	4032070317	CERAMIC 1U Z 16V		4031737518	CERAMIC 2200P Z 50V
	4032789615	CERAMIC 1U Z 16V	C3720	4033082111	CERAMIC 0.056U K 16V
C243	4032152211	CERAMIC 0.01U K 50V		4033565218	CERAMIC 0.056U K 50V
C244	4041071906	ELECT 470U M 10V	C3721	4033082111	CERAMIC 0.056U K 16V
	4040847601	ELECT 470U M 10V		4033565218	CERAMIC 0.056U K 50V
C245	4032070317	CERAMIC 1U Z 16V	C3722	4032070317	CERAMIC 1U Z 16V
	4032789615	CERAMIC 1U Z 16V		4032789615	CERAMIC 1U Z 16V
C247	4040972907	ELECT 2.2U M 50V	C3723	4032989619	CERAMIC 0.1U K 16V
	4040849001	ELECT 2.2U M 50V		4033423310	CERAMIC 0.1U K 25V
	4032001222	ELECT 2.2U M 50V	C3724	4032070317	CERAMIC 1U Z 16V
	4032001242	ELECT 2.2U M 50V		4032789615	CERAMIC 1U Z 16V
C273	4033423310	CERAMIC 0.1U K 25V	C3725	4040973300	ELECT 4.7U M 50V
C291	4041071906	ELECT 470U M 10V		4040849209	ELECT 4.7U M 50V
	4040847601	ELECT 470U M 10V		4032001420	ELECT 4.7U M 50V
C355	4031032257	CERAMIC 100P K 50V		4032001440	ELECT 4.7U M 50V
C358	4032070317	CERAMIC 1U Z 16V	C3726	4032989619	CERAMIC 0.1U K 16V
	4032789615	CERAMIC 1U Z 16V	C3727	4011506011	MT-GLAZE 0.000 ZA 1/10W
C3701	4032070317	CERAMIC 1U Z 16V		4011057919	MT-GLAZE 0.000 ZA 1/16W
	4032789615	CERAMIC 1U Z 16V	C420	4040774402	MT-POLYPRO 7200P H 1.5K
C3702	4040973300	ELECT 4.7U M 50V		4041008902	MT-POLYPRO 7200P H 1.5K
	4040849209	ELECT 4.7U M 50V		4033437911	MT-POLYPRO 7200P H 1.5K
	4032001420	ELECT 4.7U M 50V	C423	4040773108	MT-POLYPRO 7500P H 1.5K
	4032001440	ELECT 4.7U M 50V		4040958604	MT-POLYPRO 7500P H 1.5K
C3703	4031552418	CERAMIC 5600P K 50V		4033438017	MT-POLYPRO 7500P H 1.5K
C3704	4032152211	CERAMIC 0.01U K 50V	C424	4030833419	POLYPRO 0.015U J 400V
C3705	4030718112	CERAMIC 2200P K 50V	C425	4040869405	POLYPRO 0.018U J 400V
	4031134119	CERAMIC 2200P K 50V		4030833914	POLYPRO 0.018U J 400V
	4031737518	CERAMIC 2200P Z 50V	C426	4031801605	MT-POLYEST 0.1U K 400V
C3706	4033082111	CERAMIC 0.056U K 16V	C428	4031149519	CERAMIC 1000P K 500V
	4033565218	CERAMIC 0.056U K 50V		4034171814	CERAMIC 1000P K 500V
C3707	4033082111	CERAMIC 0.056U K 16V	C429	4041072101	ELECT 10U M 25V
	4033565218	CERAMIC 0.056U K 50V		4040871507	ELECT 10U M 25V
C3708	4032070317	CERAMIC 1U Z 16V		4031957748	ELECT 10U M 50V
	4032789615	CERAMIC 1U Z 16V	C432	4031149519	CERAMIC 1000P K 500V
C3709	4040968306	ELECT 100U M 25V	C433	4032753329	CERAMIC 3900P K 500V
	4040897200	ELECT 100U M 25V	C434	4032116728	ELECT 330U M 35V
	4031957936	ELECT 100U M 25V	C435	4041072200	ELECT 22U M 25V
	4031957946	ELECT 100U M 25V		4040874706	ELECT 22U M 25V
C3710	4032070317	CERAMIC 1U Z 16V		4040973102	ELECT 22U M 50V



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	4040875406	ELECT 22U M 50V	C615	4041087907	ELECT 22U M 35V
	4032001529	ELECT 22U M 50V		4040875802	ELECT 22U M 35V
	4032001549	ELECT 22U M 50V		4032003226	ELECT 22U M 35V
C437	4031879703	MT-POLYEST 2.2U J 250V	C616	4041117703	CERAMIC 1000P K 2K
	4031589206	MT-POLYEST 2.2U K 250V		4040846505	CERAMIC 1000P K 2K
C439	4033145915	CERAMIC 0.47U K 16V		4032468708	CERAMIC 1000P K 2K
C441	4033726510	MT-POLYPRO 0.2U J 250V		4034132914	CERAMIC 1000P K 2K
C442	4033587210	MT-POLYPRO 0.15U J 250V	C617	4041119707	CERAMIC 470P K 2K
	4033750614	MT-POLYPRO 0.15U J 250V		4040862109	CERAMIC 470P K 2K
	4033726312	MT-POLYPRO 0.15U J 250V		4032454404	CERAMIC 470P K 2K
C463	4030617534	POLYESTER 4700P J 50V		4032758106	CERAMIC 470P K 2K
	4031791213	POLYESTER 4700P J 50V		4034140414	CERAMIC 470P K 2K
C465	4030660104	MT-POLYEST 2.2U K 100V	△C626	4040733904	CERAMIC 1000P K 250V
	4031589107	MT-POLYEST 2.2U K 100V		4040732105	CERAMIC 1000P M 250V
C467	4032602043	MT-COMPO 1U J 50V		4040713302	CERAMIC 1000P M 400V
C468	4040973102	ELECT 22U M 50V		4040978503	CERAMIC 1000P K 400V
	4040875406	ELECT 22U M 50V		4041039104	CERAMIC 1000P M 400V
	4032001529	ELECT 22U M 50V	△C628	4040733904	CERAMIC 1000P K 250V
	4032001549	ELECT 22U M 50V		4040732105	CERAMIC 1000P M 250V
C469	4040968504	ELECT 10U M 50V		4040713302	CERAMIC 1000P M 400V
	4040848905	ELECT 10U M 50V		4040978503	CERAMIC 1000P K 400V
	4031957748	ELECT 10U M 50V		4041039104	CERAMIC 1000P M 400V
	4031957768	ELECT 10U M 50V	△C629	4040733904	CERAMIC 1000P K 250V
C470	4032462221	MT-COMPO 0.01U J 50V		4040732105	CERAMIC 1000P M 250V
C471	4040565208	NP-ELECT 2.2U M 100V		4040713302	CERAMIC 1000P M 400V
	4040847007	NP-ELECT 2.2U M 100V		4040978503	CERAMIC 1000P K 400V
C482	4041106905	ELECT 0.47U M 160V		4041039104	CERAMIC 1000P M 400V
C486	4034501512	ELECT 33U M 250V	C631	4041082902	CERAMIC 1500P K 1K
	4034501522	ELECT 33U M 250V		4033316444	CERAMIC 1500P K 1K
C491	4034164915	CERAMIC 680P K 500V		4033991215	CERAMIC 1500P K 1K
C510	4032114516	ELECT 22U M 50V		4034140018	CERAMIC 1500P K 2K
C511	4032113519	ELECT 10U M 50V	C632	4032475023	CERAMIC 470P K 1K
C514	4032115919	ELECT 3.3U M 50V		4034084520	CERAMIC @470P K 1K
C515	4032115127	ELECT 2200U M 50V		4034084510	CERAMIC 470P K 1K
C517	4032114823	ELECT 220U M 50V	C633	4032475023	CERAMIC 470P K 1K
C518	4031041922	CERAMIC 3300P K 50V		4034084520	CERAMIC @470P K 1K
C520	4030641212	POLYESTER 0.1U K 100V		4034084510	CERAMIC 470P K 1K
	4032769726	POLYESTER 0.1U K 100V	C634	4032475023	CERAMIC 470P K 1K
C521	4032112641	ELECT 1000U M 50V		4034084520	CERAMIC @470P K 1K
C524	4030641212	POLYESTER 0.1U K 100V		4034084510	CERAMIC 470P K 1K
	4032769726	POLYESTER 0.1U K 100V	C635	4032753012	CERAMIC 0.047U K 16V
C525	4030095718	CERAMIC 100P J 50V		4033565119	CERAMIC 0.047U K 50V
	4031573611	CERAMIC 100P J 50V	C636	4040968504	ELECT 10U M 50V
△C601	4040881704	MT-POLYEST 0.22U K 250V		4040848905	ELECT 10U M 50V
	4040888802	MT-POLYEST 0.22U M 275V		4031957748	ELECT 10U M 50V
	4040941804	MT-POLYEST 0.22U K 275V	C637	4033670417	CERAMIC 0.1U K 50V
△C602	4040796503	MT-POLYEST 0.068U M 250V	C641	4040739005	ELECT 220U M 160V
	4040920700	MT-POLYEST 0.068U M 275V		4040559801	ELECT 220U M 200V
	4041144501	MT-POLYEST 0.068U K 275V		4040973706	ELECT 220U M 160V
C603	4040846307	CERAMIC 1000P K 1K	C643	4032112641	ELECT 1000U M 50V
	4030766707	CERAMIC 1000P K 1K	C644	4031904722	ELECT 1000U M 25V
	4033128225	CERAMIC 1000P K 1K		4031904702	ELECT 1000U M 25V
C604	4040846307	CERAMIC 1000P K 1K	C645	4041087006	ELECT 2200U M 25V
	4030766707	CERAMIC 1000P K 1K		4040989103	ELECT 2200U M 25V
	4033128225	CERAMIC 1000P K 1K		4040886600	ELECT 2200U M 25V
C609	4040787600	ELECT 270U M 400V		4031943840	ELECT 2200U M 25V
	4040961901	ELECT 270U M 400V	C650	4040973300	ELECT 4.7U M 50V
	4041061105	ELECT 270U M 400V		4040849209	ELECT 4.7U M 50V
C610	4032769112	POLYESTER 470P J 50V		4032001420	ELECT 4.7U M 50V
C611	4040968405	ELECT 1U M 50V	C651	4032118514	ELECT 470U M 10V
	4040848806	ELECT 1U M 50V	C661	4032113519	ELECT 10U M 50V
	4032001123	ELECT 1U M 50V	C662	4032115216	ELECT 220U M 16V
C612	4030569734	POLYESTER 0.01U J 50V	C663	4031904722	ELECT 1000U M 25V
	4031789319	POLYESTER 0.01U J 50V		4031904702	ELECT 1000U M 25V
	4031793811	POLYESTER 0.01U K 50V	C689	4040968207	ELECT 47U M 16V
C613	4031792715	POLYESTER 2200P J 50V		4040848202	ELECT 47U M 16V
C614	4030840318	POLYPRO 0.022U J 630V	C691	4040968405	ELECT 1U M 50V

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	4040848806	ELECT 1U M 50V	R1015	4012567219	MT-GLAZE 18K JA 1/10W
	4032001123	ELECT 1U M 50V		4011052112	MT-GLAZE 18K JA 1/16W
C801	4031397316	CERAMIC 18P J 50V	R1016	4012562719	MT-GLAZE 75 JA 1/10W
C802	4031397316	CERAMIC 18P J 50V		4011134412	MT-GLAZE 75 JA 1/16W
C803	4032152211	CERAMIC 0.01U K 50V	R1017	4011506011	MT-GLAZE 0.000 ZA 1/10W
C805	4040971702	ELECT 100U M 16V		4011057919	MT-GLAZE 0.000 ZA 1/16W
	4040847809	ELECT 100U M 16V	R1018	4012562719	MT-GLAZE 75 JA 1/10W
	4031957837	ELECT 100U M 16V		4011134412	MT-GLAZE 75 JA 1/16W
C842	4033423310	CERAMIC 0.1U K 25V	R1019	4011506011	MT-GLAZE 0.000 ZA 1/10W
C863	4032070317	CERAMIC 1U Z 16V		4011057919	MT-GLAZE 0.000 ZA 1/16W
	4032789615	CERAMIC 1U Z 16V	R1020	4012562719	MT-GLAZE 75 JA 1/10W
C893	4040972907	ELECT 2.2U M 50V		4011134412	MT-GLAZE 75 JA 1/16W
	4040849001	ELECT 2.2U M 50V	R1021	4012562719	MT-GLAZE 75 JA 1/10W
	4032001222	ELECT 2.2U M 50V		4011134412	MT-GLAZE 75 JA 1/16W
C894	4032815017	CERAMIC 0.033U K 25V	R1022	4012562719	MT-GLAZE 75 JA 1/10W
				4011134412	MT-GLAZE 75 JA 1/16W
<b>RESISTOR</b>			R1023	4012562719	MT-GLAZE 75 JA 1/10W
R001	4012566014	MT-GLAZE 27K JA 1/10W		4011134412	MT-GLAZE 75 JA 1/16W
	4011053416	MT-GLAZE 27K JA 1/16W	R1024	4012566915	MT-GLAZE 680 JA 1/10W
R002	4010261337	CARBON 27K JA 1/6W		4011056516	MT-GLAZE 680 JA 1/16W
R003	4012566014	MT-GLAZE 27K JA 1/10W	R1025	4011505816	MT-GLAZE 100K JA 1/10W
	4011053416	MT-GLAZE 27K JA 1/16W		4011050712	MT-GLAZE 100K JA 1/16W
R004	4012566014	MT-GLAZE 27K JA 1/10W	R1026	4011506219	MT-GLAZE 1K JA 1/10W
	4011053416	MT-GLAZE 27K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R005	4011505915	MT-GLAZE 10K JA 1/10W	R1027	4011506219	MT-GLAZE 1K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R007	4010257835	CARBON 2.2K JA 1/6W	R1028	4011506219	MT-GLAZE 1K JA 1/10W
R009	4012566915	MT-GLAZE 680 JA 1/10W		4011050514	MT-GLAZE 1K JA 1/16W
	4011056516	MT-GLAZE 680 JA 1/16W	R1029	4011506219	MT-GLAZE 1K JA 1/10W
R010	4010255435	CARBON 2.2 JA 1/6W		4011050514	MT-GLAZE 1K JA 1/16W
R011	4010255435	CARBON 2.2 JA 1/6W	R103	4010618111	OXIDE-MT 39K JA 1W
R012	4010255435	CARBON 2.2 JA 1/6W	R1030	4012567516	MT-GLAZE 390 JA 1/10W
R013	4010255435	CARBON 2.2 JA 1/6W		4011054512	MT-GLAZE 390 JA 1/16W
R014	4011506219	MT-GLAZE 1K JA 1/10W	R1031	4011506219	MT-GLAZE 1K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R015	4011506110	MT-GLAZE 2.2K JA 1/10W	R1032	4011506219	MT-GLAZE 1K JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R1001	4012562917	MT-GLAZE 150 JA 1/10W	R106	4010246631	CARBON 100 GA 1/6W
	4011051412	MT-GLAZE 150 JA 1/16W		4010246730	CARBON 100 JA 1/6W
R1002	4011506219	MT-GLAZE 1K JA 1/10W	R107	4010246631	CARBON 100 GA 1/6W
	4011050514	MT-GLAZE 1K JA 1/16W		4010246730	CARBON 100 JA 1/6W
R1003	4012567219	MT-GLAZE 18K JA 1/10W	R108	4012567219	MT-GLAZE 18K JA 1/10W
	4011052112	MT-GLAZE 18K JA 1/16W		4011052112	MT-GLAZE 18K JA 1/16W
R1004	4011506219	MT-GLAZE 1K JA 1/10W	R109	4012566618	MT-GLAZE 68K JA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W		4011058213	MT-GLAZE 68K JA 1/16W
R1005	4012567219	MT-GLAZE 18K JA 1/10W	R1106	4010099346	CARBON 390 JA 1/2W
	4011052112	MT-GLAZE 18K JA 1/16W	R1107	4010099346	CARBON 390 JA 1/2W
R1006	4011506110	MT-GLAZE 2.2K JA 1/10W	R111	4011506219	MT-GLAZE 1K JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R1007	4011505816	MT-GLAZE 100K JA 1/10W	R112	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011050712	MT-GLAZE 100K JA 1/16W		4011056011	MT-GLAZE 5.6K JA 1/16W
R1008	4011506110	MT-GLAZE 2.2K JA 1/10W	R114	4011523216	MT-GLAZE 330 JA 1/10W
	4011052815	MT-GLAZE 2.2K JA 1/16W		4011054017	MT-GLAZE 330 JA 1/16W
R1009	4011505816	MT-GLAZE 100K JA 1/10W	R115	4010272135	CARBON 56 JA 1/6W
	4011050712	MT-GLAZE 100K JA 1/16W	R116	4012564119	MT-GLAZE 56 JA 1/10W
R101	4011506011	MT-GLAZE 0.000 ZA 1/10W		4011055816	MT-GLAZE 56 JA 1/16W
	4011057919	MT-GLAZE 0.000 ZA 1/16W	R121	4012567318	MT-GLAZE 6.8K JA 1/10W
R1010	4012562719	MT-GLAZE 75 JA 1/10W		4011056615	MT-GLAZE 6.8K JA 1/16W
	4011134412	MT-GLAZE 75 JA 1/16W	R122	4011506110	MT-GLAZE 2.2K JA 1/10W
R1011	4011505816	MT-GLAZE 100K JA 1/10W		4011052815	MT-GLAZE 2.2K JA 1/16W
	4011050712	MT-GLAZE 100K JA 1/16W	R124	4011505915	MT-GLAZE 10K JA 1/10W
R1012	4011506219	MT-GLAZE 1K JA 1/10W		4011050613	MT-GLAZE 10K JA 1/16W
	4011050514	MT-GLAZE 1K JA 1/16W	R125	4010261337	CARBON 27K JA 1/6W
R1013	4012567219	MT-GLAZE 18K JA 1/10W	R126	4011506219	MT-GLAZE 1K JA 1/10W
	4011052112	MT-GLAZE 18K JA 1/16W		4011050514	MT-GLAZE 1K JA 1/16W
R1014	4011506219	MT-GLAZE 1K JA 1/10W	R130	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011050514	MT-GLAZE 1K JA 1/16W		4011057919	MT-GLAZE 0.000 ZA 1/16W

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R132	4011623619	MT-GLAZE 470 JA 1/10W	R355	4010127059	CARBON 10K JA 1/4W
	4011055212	MT-GLAZE 470 JA 1/16W	R357	4010865822	MT-FILM 2.7K FA 1/6W
R140	4011624012	MT-GLAZE 560 JA 1/10W	R358	4011506011	MT-GLAZE 0.000 ZA 1/10W
	4011055915	MT-GLAZE 560 JA 1/16W		4011057919	MT-GLAZE 0.000 ZA 1/16W
R141	4011624012	MT-GLAZE 560 JA 1/10W	R3701	4012567615	MT-GLAZE 3.9K JA 1/10W
	4011055915	MT-GLAZE 560 JA 1/16W		4011054611	MT-GLAZE 3.9K JA 1/16W
R176	4011505915	MT-GLAZE 10K JA 1/10W	R3702	4012567615	MT-GLAZE 3.9K JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W		4011054611	MT-GLAZE 3.9K JA 1/16W
R1902	4012560418	MT-GLAZE 12K JA 1/10W	R3703	4032989619	CERAMIC 0.1U K 16V
	4011051115	MT-GLAZE 12K JA 1/16W		4033423310	CERAMIC 0.1U K 25V
R1903	4011624111	MT-GLAZE 5.6K JA 1/10W	R3704	4010257439	CARBON 220 JA 1/6W
	4011056011	MT-GLAZE 5.6K JA 1/16W	R3705	4010257439	CARBON 220 JA 1/6W
R1904	4012567615	MT-GLAZE 3.9K JA 1/10W	R3707	4010251932	CARBON 15K JA 1/6W
	4011054611	MT-GLAZE 3.9K JA 1/16W	R421	4010532714	MT-FILM 3.9K FA 1/6W
R1905	4011506110	MT-GLAZE 2.2K JA 1/10W	R422	4010214036	CARBON 56K JA 1/4W
	4011052815	MT-GLAZE 2.2K JA 1/16W		4010214155	CARBON 56K JA 1/4W
R1906	4011622810	MT-GLAZE 1.8K JA 1/10W	R423	4010224035	CARBON 68K JA 1/4W
	4011052013	MT-GLAZE 1.8K JA 1/16W		4010224154	CARBON 68K JA 1/4W
R1907	4010246730	CARBON 100 JA 1/6W	R424	4010247034	CARBON 1K JA 1/6W
R1911	4010257439	CARBON 220 JA 1/6W	R426	4011505915	MT-GLAZE 10K JA 1/10W
R1912	4012567516	MT-GLAZE 390 JA 1/10W		4011050613	MT-GLAZE 10K JA 1/16W
	4011054512	MT-GLAZE 390 JA 1/16W	R431	4010247034	CARBON 1K JA 1/6W
R1913	4011622919	MT-GLAZE 220 JA 1/10W	R432	4011623619	MT-GLAZE 470 JA 1/10W
	4011052716	MT-GLAZE 220 JA 1/16W		4011055212	MT-GLAZE 470 JA 1/16W
R210	4012556411	MT-GLAZE 3K JA 1/10W	R433	4010071134	CARBON 1K JA 1/2W
	4011053713	MT-GLAZE 3K JA 1/16W	R434	4010620312	OXIDE-MT 47 JA 1W
R211	4010134245	CARBON 120 JA 1/4W	R435	4020803702	OXIDE-MT 6.8 JB 7W
R212	4010249335	CARBON 1.2K JA 1/6W	R438	4010182850	CARBON 330 JA 1/4W
R215	4011506011	MT-GLAZE 0.000 ZA 1/10W	R441	4010687810	OXIDE-MT 560 JA 2W
	4011057919	MT-GLAZE 0.000 ZA 1/16W	R442	4010731612	OXIDE-MT 5.6K JA 3W
R225	4012560418	MT-GLAZE 12K JA 1/10W	R459	4010270537	CARBON 470K JA 1/6W
	4011051115	MT-GLAZE 12K JA 1/16W	R460	4010247440	CARBON 10K JA 1/6W
R226	4012566014	MT-GLAZE 27K JA 1/10W	R461	4010072319	CARBON 100K JA 1/2W
	4011053416	MT-GLAZE 27K JA 1/16W	R462	4010530017	MT-FILM 18K FA 1/6W
R227	4012561712	MT-GLAZE 33K JA 1/10W	R467	4010272333	CARBON 560 JA 1/6W
	4011054215	MT-GLAZE 33K JA 1/16W	R470	4010507524	MT-FILM 68K FA 1/4W
R228	4010254933	CARBON 180K JA 1/6W	R471	4010251635	CARBON 1.5K JA 1/6W
R229	4012567110	MT-GLAZE 680K JA 1/10W	R473	4010275235	CARBON 680 JA 1/6W
	4011056714	MT-GLAZE 680K JA 1/16W	R474	4010086742	CARBON 220 JA 1/2W
R230	4010269333	CARBON 47 JA 1/6W	R475	4010095843	CARBON 330 JA 1/2W
R231	4011506110	MT-GLAZE 2.2K JA 1/10W	R476	4010257835	CARBON 2.2K JA 1/6W
	4011052815	MT-GLAZE 2.2K JA 1/16W	R477	4010623016	OXIDE-MT 47K JA 1W
R232	4011506110	MT-GLAZE 2.2K JA 1/10W	R478	4010246730	CARBON 100 JA 1/6W
	4011052815	MT-GLAZE 2.2K JA 1/16W	R479	4010278632	CARBON 8.2K JA 1/6W
R233	4011506110	MT-GLAZE 2.2K JA 1/10W	R481	4010618913	OXIDE-MT 4.7 JA 1W
	4011052815	MT-GLAZE 2.2K JA 1/16W	R482	4010079318	CARBON 150K JA 1/2W
R234	4012560012	MT-GLAZE 120 JA 1/10W	R484	4010098636	CARBON 39 JA 1/2W
	4011050910	MT-GLAZE 120 JA 1/16W	R484	4010098715	CARBON 39 JB 1/2W
R235	4012560012	MT-GLAZE 120 JA 1/10W	R487	4010270537	CARBON 470K JA 1/6W
	4011050910	MT-GLAZE 120 JA 1/16W	R488	4020222008	FUSIBLE RES 1.0 J- 1/2W
R236	4012560012	MT-GLAZE 120 JA 1/10W	R489	4011054819	MT-GLAZE 390K JA 1/16W
	4011050910	MT-GLAZE 120 JA 1/16W	R490	4010154748	CARBON 180K JA 1/4W
R237	4012562917	MT-GLAZE 150 JA 1/10W	R491	4012560418	MT-GLAZE 12K JA 1/10W
	4011051412	MT-GLAZE 150 JA 1/16W		4011051115	MT-GLAZE 12K JA 1/16W
R243	4010697314	OXIDE-MT 820 JA 2W	R492	4012560418	MT-GLAZE 12K JA 1/10W
R244	4012566311	MT-GLAZE 47K JA 1/10W		4011051115	MT-GLAZE 12K JA 1/16W
	4011055410	MT-GLAZE 47K JA 1/16W	R493	4011623619	MT-GLAZE 470 JA 1/10W
R245	4012566311	MT-GLAZE 47K JA 1/10W		4011055212	MT-GLAZE 470 JA 1/16W
	4011055410	MT-GLAZE 47K JA 1/16W	R494	4011623619	MT-GLAZE 470 JA 1/10W
R280	4010246730	CARBON 100 JA 1/6W		4011055212	MT-GLAZE 470 JA 1/16W
R286	4012651710	MT-GLAZE 4.7K FA 1/10W	R495	4010246631	CARBON 100 GA 1/6W
	4012039914	MT-GLAZE 4.7K FA 1/16W		4010246730	CARBON 100 JA 1/6W
R290	4010686219	OXIDE-MT 5.6 JA 2W	R496	4011623411	MT-GLAZE 39K JA 1/10W
R340	4012566014	MT-GLAZE 27K JA 1/10W	R502	4011624111	MT-GLAZE 5.6K JA 1/10W
	4011053416	MT-GLAZE 27K JA 1/16W		4011056011	MT-GLAZE 5.6K JA 1/16W
R351	4010256531	CARBON 20K JA 1/6W	R510	4010247440	CARBON 10K JA 1/6W
R352	4010127059	CARBON 10K JA 1/4W	R511	4010247440	CARBON 10K JA 1/6W

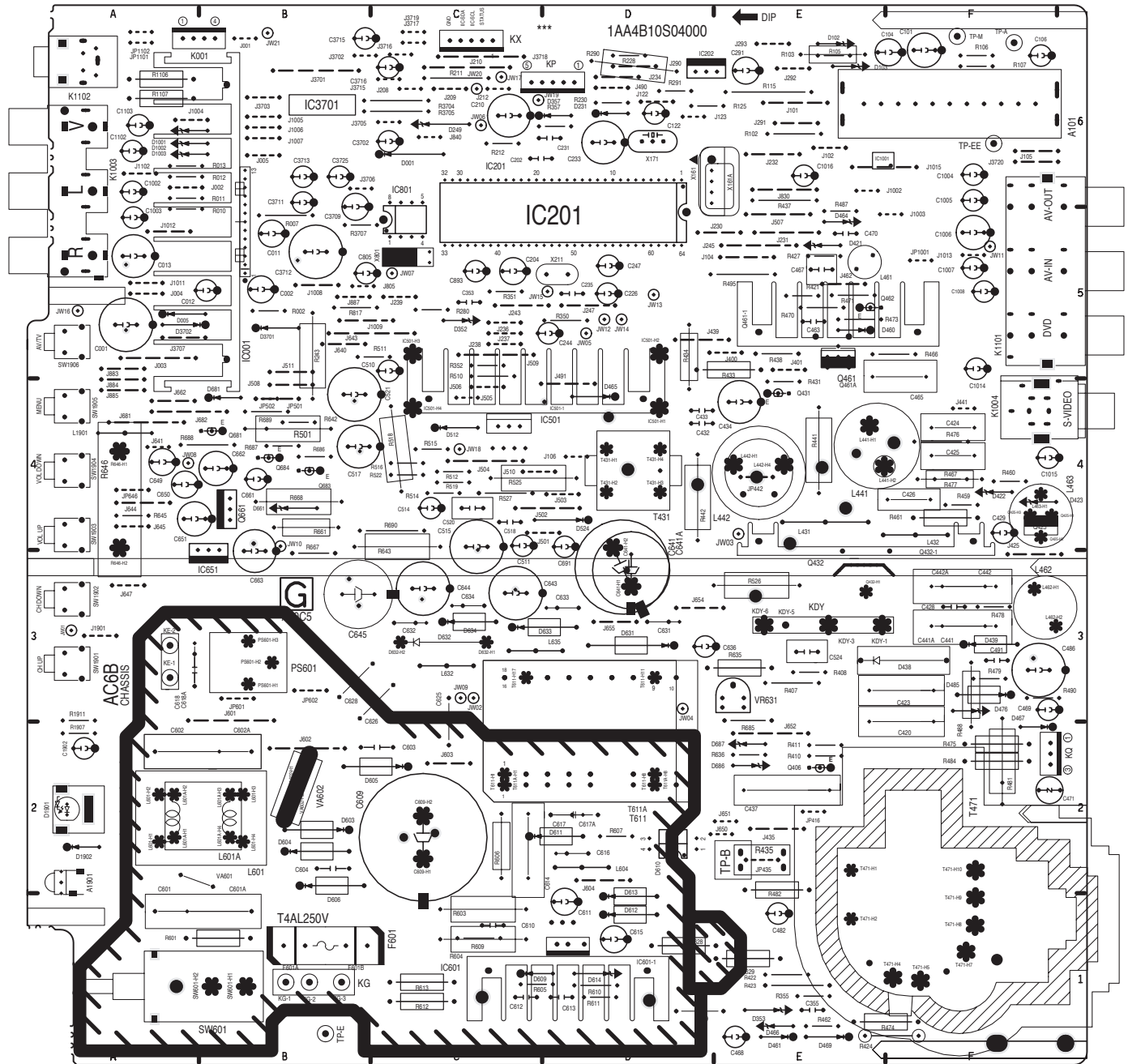
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R514	4010535735	MT-FILM 8.2K FA 1/6W	R839	4012556510	MT-GLAZE 100 JA 1/10W
R515	4010950429	MT-FILM 47K FA 1/6W		4011050415	MT-GLAZE 100 JA 1/16W
R516	4010534223	MT-FILM 5.6K FA 1/6W	R840	4011623619	MT-GLAZE 470 JA 1/10W
R518	4010643816	OXIDE-MT 1 JA 2W		4011055212	MT-GLAZE 470 JA 1/16W
R519	4010246730	CARBON 100 JA 1/6W	R841	4011623718	MT-GLAZE 4.7K JA 1/10W
R522	4010257439	CARBON 220 JA 1/6W		4011055311	MT-GLAZE 4.7K JA 1/16W
R525	4010670010	OXIDE-MT 270 JA 2W	R842	4011623718	MT-GLAZE 4.7K JA 1/10W
R526	4010656717	OXIDE-MT 150 JA 2W		4011055311	MT-GLAZE 4.7K JA 1/16W
R603	4011808412	OXIDE-MT 0.47 JA 2W	R844	4012556510	MT-GLAZE 100 JA 1/10W
R604	4010643816	OXIDE-MT 1 JA 2W		4011050415	MT-GLAZE 100 JA 1/16W
R606	4010632919	OXIDE-MT 68K JA 1W	R845	4011505915	MT-GLAZE 10K JA 1/10W
R607	4010246433	CARBON 10 JA 1/6W		4011050613	MT-GLAZE 10K JA 1/16W
R609	4010246730	CARBON 100 JA 1/6W	R850	4012556510	MT-GLAZE 100 JA 1/10W
R610	4010247034	CARBON 1K JA 1/6W		4011050415	MT-GLAZE 100 JA 1/16W
R611	4010251635	CARBON 1.5K JA 1/6W	R852	4011505915	MT-GLAZE 10K JA 1/10W
R612	4010082615	CARBON 180K JA 1/2W		4011050613	MT-GLAZE 10K JA 1/16W
R613	4010088627	CARBON 220K JA 1/2W	R853	4011505915	MT-GLAZE 10K JA 1/10W
△R628	4020008602	SOLID 5.6M KA 1/2W		4011050613	MT-GLAZE 10K JA 1/16W
	4020976604	CARBON 5.6M KA 1/2W	R863	4012566311	MT-GLAZE 47K JA 1/10W
△R629	4020008602	SOLID 5.6M KA 1/2W		4011055410	MT-GLAZE 47K JA 1/16W
	4020976604	CARBON 5.6M KA 1/2W	R886	4011623015	MT-GLAZE 22K JA 1/10W
R634	6450788130	PROTECTOR, 1.5A 125V	R886	4011052914	MT-GLAZE 22K JA 1/16W
R635	4010075815	CARBON 120K JA 1/2W	R893	4012556015	MT-GLAZE 1M JA 1/10W
R636	4010272630	CARBON 5.6K JA 1/6W		4011058015	MT-GLAZE 1M JA 1/16W
R637	4011505915	MT-GLAZE 10K JA 1/10W	R894	4012556510	MT-GLAZE 100 JA 1/10W
	4011050613	MT-GLAZE 10K JA 1/16W		4011050415	MT-GLAZE 100 JA 1/16W
R638	4011623718	MT-GLAZE 4.7K JA 1/10W	<b>VARIABLE RESISTOR</b>		
	4011055311	MT-GLAZE 4.7K JA 1/16W	VR631	6450065514	VR, SEMI, 2.2K N
R639	4011506219	MT-GLAZE 1K JA 1/10W		6450035579	VR, SEMI, 2.2K N
	4011050514	MT-GLAZE 1K JA 1/16W	<b>TRANSFORMER</b>		
R640	4011505915	MT-GLAZE 10K JA 1/10W	T431	6450473371	TRANS, DRIVE
	4011050613	MT-GLAZE 10K JA 1/16W		6520000704	TRANS, DRIVE
R641	4012567318	MT-GLAZE 6.8K JA 1/10W	△T471	6520020603	TRANS, FLYBACK
	4011056615	MT-GLAZE 6.8K JA 1/16W	△T611	6450898365	TRANS, POWER, PULSE
R642	4010264536	CARBON 33K GA 1/6W	<b>COIL</b>		
	4010264635	CARBON 33K JA 1/6W	L431	6450261084	INDUCTOR, 1U K
R643	4010645315	OXIDE-MT 1.5 JA 2W	L432	6450187025	CORE, PIPE
R645	4010145251	CARBON 15K JA 1/4W		6520010475	PIPE CORE
R646	4020802002	WIRE WOUND 1.8 KA 7W	L441	6450899508	COIL, LINEARITY
R661	4010607422	OXIDE-MT 270 JA 1W	L442	6450900884	INDUCTOR, 280U
R668	4010681610	OXIDE-MT 4.7 JA 2W	L461	6100311367	INDUCTOR 202J
R681	4011506219	MT-GLAZE 1K JA 1/10W		6102113488	INDUCTOR
	4011050514	MT-GLAZE 1K JA 1/16W		6450055645	INDUCTOR, 2200U K
R685	4010146159	CARBON 150K JA 1/4W	L462	6450002229	INDUCTOR 430UH
R686	4010127059	CARBON 10K JA 1/4W		6450597138	INDUCTOR, 438U
R687	4010191951	CARBON 3.9K JA 1/4W		6520010765	INDUCTOR, 392UH
R688	4010258238	CARBON 22K JA 1/6W	△L601A	6450193873	LINE FILTER
R690	4010251635	CARBON 1.5K JA 1/6W		6520001961	LINE FILTER
R801	4012565819	MT-GLAZE 270K JA 1/10W	L604	6100785946	PIPE CORE
	4011053515	MT-GLAZE 270K JA 1/16W		6100785953	PIPE CORE
R814	4011505915	MT-GLAZE 10K JA 1/10W		6520010123	CORE, PIPE
	4011050613	MT-GLAZE 10K JA 1/16W		6520010147	CORE, PIPE
R815	4011505915	MT-GLAZE 10K JA 1/10W	L632	6100785946	PIPE CORE
	4011050613	MT-GLAZE 10K JA 1/16W		6100785953	PIPE CORE
R817	4010247034	CARBON 1K JA 1/6W		6520010123	CORE, PIPE
R818	4011506219	MT-GLAZE 1K JA 1/10W		6520010147	CORE, PIPE
	4011050514	MT-GLAZE 1K JA 1/16W	L635	6100785946	PIPE CORE
R819	4011505915	MT-GLAZE 10K JA 1/10W		6100785953	PIPE CORE
	4011050613	MT-GLAZE 10K JA 1/16W		6520010123	CORE, PIPE
R830	4011506219	MT-GLAZE 1K JA 1/10W		6520010147	CORE, PIPE
	4011050514	MT-GLAZE 1K JA 1/16W	<b>DIODE</b>		
R834	4011505915	MT-GLAZE 10K JA 1/10W	D001	4080093204	DIODE 1N4148
	4011050613	MT-GLAZE 10K JA 1/16W		4070124426	DIODE 1SS133
R837	4012563617	MT-GLAZE 15K JA 1/10W			
	4011051610	MT-GLAZE 15K JA 1/16W			
R838	4012563617	MT-GLAZE 15K JA 1/10W			
	4011051610	MT-GLAZE 15K JA 1/16W			

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	4070134336	DIODE 1S2076A		4080474300	ZENER DIODE MTZJ15A
D004	4072128818	DIODE KDS160-RTK	D422	4070995026	ZENER DIODE MTZJ4.7A
	4071490817	DIODE 1SS355-TE-17	D423	4070996627	ZENER DIODE MTZJ-T-7212B
D1000	4072505817	ZENER DIODE KDZ10V		4080482305	ZENER DIODE MTZJ12B
	4072065618	ZENER DIODE UDZS-TE-1710B	D438	4070958001	DIODE ERD07-15L
D1001	4070639623	ZENER DIODE MTZJ9.1A	D439	4070064128	DIODE ERB44-04V1
	4070579632	ZENER DIODE RD9.1EB1	D461	4080093204	DIODE 1N4148
	4080480004	ZENER DIODE MTZJ9.1B		4070124426	DIODE 1SS133
	4080480301	ZENER DIODE MTZJ9.1C-52		4070134336	DIODE 1S2076A
D1002	4070639623	ZENER DIODE MTZJ9.1A	D464	4070995828	ZENER DIODE MTZJ7.5A
	4070579632	ZENER DIODE RD9.1EB1		4080478803	ZENER DIODE MTZJ7.5A
	4080480004	ZENER DIODE MTZJ9.1B	D465	4080093204	DIODE 1N4148
	4080480301	ZENER DIODE MTZJ9.1C-52		4070124426	DIODE 1SS133
D1003	4070639623	ZENER DIODE MTZJ9.1A		4070134336	DIODE 1S2076A
	4070579632	ZENER DIODE RD9.1EB1	D466	4070638438	ZENER DIODE MTZJ12C T-72
	4080480004	ZENER DIODE MTZJ9.1B		4080473402	ZENER DIODE MTZJ12C T-72
	4080480301	ZENER DIODE MTZJ9.1C-52	D467	4080093204	DIODE 1N4148
D1004	4072505817	ZENER DIODE KDZ10V		4070124426	DIODE 1SS133
	4072065618	ZENER DIODE UDZS-TE-1710B		4070134336	DIODE 1S2076A
D1005	4072505817	ZENER DIODE KDZ10V	D468	4072128818	DIODE KDS160-RTK
	4072065618	ZENER DIODE UDZS-TE-1710B		4071490817	DIODE 1SS355-TE-17
D1006	4072505817	ZENER DIODE KDZ10V	D469	4070077415	DIODE EU1
	4072065618	ZENER DIODE UDZS-TE-1710B		4080614102	DIODE EU1
D1007A	4072505817	ZENER DIODE KDZ10V	D476	4070638329	ZENER DIODE MTZJ11C
D1008A	4072505817	ZENER DIODE KDZ10V		4070541827	ZENER DIODE RD11EB3
D1009A	4072505817	ZENER DIODE KDZ10V	D485	4070077415	DIODE EU1
D1010	4072505817	ZENER DIODE KDZ10V		4080614102	DIODE EU1
	4072065618	ZENER DIODE UDZS-TE-1710B	D486	4072128818	DIODE KDS160-RTK
D1011	4072505817	ZENER DIODE KDZ10V		4071490817	DIODE 1SS355-TE-17
	4072065618	ZENER DIODE UDZS-TE-1710B	D487	4072128818	DIODE KDS160-RTK
D1012	4070996122	ZENER DIODE MTZJ10B		4071490817	DIODE 1SS355-TE-17
	4080472207	ZENER DIODE MTZJ10B-52	D512	4070058632	DIODE ERA15-02-V1
D1015	4072505817	ZENER DIODE KDZ10V	D603	4070066310	DIODE ERC05-10BV1
	4072065618	ZENER DIODE UDZS-TE-1710B		4070096921	DIODE RM11C
D102	4070995620	ZENER DIODE MTZJ6.8A		4080614003	DIODE ERC05-10B
	4070574013	ZENER DIODE RD6.8EB1	D604	4070066310	DIODE ERC05-10BV1
	4080478506	ZENER DIODE MTZJ6.8A		4070096921	DIODE RM11C
D103	4071000224	ZENER DIODE MTZJ36A		4080614003	DIODE ERC05-10B
	4070562317	ZENER DIODE RD36EB1	D605	4070066310	DIODE ERC05-10BV1
	4080476106	ZENER DIODE MTZJ36A		4070096921	DIODE RM11C
D106	4072505817	ZENER DIODE KDZ10V		4080614003	DIODE ERC05-10B
	4072065618	ZENER DIODE UDZS-TE-1710B	D606	4070066310	DIODE ERC05-10BV1
D107	4072505817	ZENER DIODE KDZ10V		4070096921	DIODE RM11C
	4072065618	ZENER DIODE UDZS-TE-1710B		4080614003	DIODE ERC05-10B
D122	4071661118	DIODE 1SS356-TW11	D609	4080093204	DIODE 1N4148
D1901	4072455003	LED SLR343BCT	△D610	4072348701	PHOTO COUPLE PC123X5YFZ
D1901A	6102645064	HOLDER LED-S2CP		4072303908	PHOTO COUPLE PC123Y52
	6102737929	HOLDER LED-S4KF		4072317707	PC TLP421F(D4-BL)
	6103039954	HOLDER LED-C4LA	D611	4071468113	DIODE EG01C
D231	4080093204	DIODE 1N4148		4080618803	DIODE EG01C
	4070124426	DIODE 1SS133	D612	4070077415	DIODE EU1
	4070134336	DIODE 1S2076A		4080614102	DIODE EU1
D249	4070996023	ZENER DIODE MTZJ9.1B	D613	4070077415	DIODE EU1
	4070579711	ZENER DIODE RD9.1EB2	D613	4080614102	DIODE EU1
D353	4070995224	ZENER DIODE MTZJ5.1B	D614	4070995422	ZENER DIODE MTZJ6.2B
	4080476700	ZENER DIODE MTZJ5.1B	D631	4070098816	DIODE RU3AM
D357	4080093204	DIODE 1N4148		4070098806	DIODE RU3AM
	4070124426	DIODE 1SS133		4080584405	DIODE RU3AM
	4070134336	DIODE 1S2076A	D632	4071662303	DIODE ERC91-02
D3701	4070058632	DIODE ERA15-02-V1	D633	4072105710	DIODE RN1Z
	4080456801	DIODE ERA15-02	D634	4072105710	DIODE RN1Z
D3702	4080093204	DIODE 1N4148	D661	4070540018	ZENER DIODE RD10EB2
	4070124426	DIODE 1SS133	D681	4080093204	DIODE 1N4148
	4070134336	DIODE 1S2076A		4070124426	DIODE 1SS133
D3720	4072505817	ZENER DIODE KDZ10V		4070134336	DIODE 1S2076A
	4072065618	ZENER DIODE UDZS-TE-1710B	D686	4070995521	ZENER DIODE MTZJ6.2C
D421	4070996924	ZENER DIODE MTZJ15A		4070572831	ZENER DIODE RD6.2EB3

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	4080478209	ZENER DIODE MTZJ6.2C-52	<b>CAPACITOR</b>		
D687	4070638923	ZENER DIODE MTZJ5.6C	C703	4031052324	CERAMIC 820P K 50V
	4080477608	ZENER DIODE MTZJ5.6C	C705	4031052324	CERAMIC 820P K 50V
D688	4072128818	DIODE KDS160-RTK	C707	4031052324	CERAMIC 820P K 50V
	4071490817	DIODE 1SS355-TE-17	C708	4032636622	CERAMIC 1500P K 2K
<b>MISCELLANEOUS</b>				4034140018	CERAMIC 1500P K 2K
△F601	4240059507	FUSE 250V 4A		4034140018	CERAMIC 1500P K 2K
	4230288603	FUSE 250V 4A	C710	4041093205	ELECT 10U M 250V
F601A	6450705434	HOLDER,FUSE		4034517810	ELECT 10U M 250V
F601B	6450705434	HOLDER,FUSE		4033531411	ELECT 10U M 250V
A101	6450904059	TUNER, U/V	<b>RESISTOR</b>		
A1901	6450476228	UNIT,REMOCON RECEIVER	R701	4010278137	CARBON 82 JA 1/6W
	6450794124	UNIT,REMOCON RECEIVER	R702	4010251338	CARBON 150 JA 1/6W
	6450820465	UNIT,REMOCON RECEIVER	R704A	4010278137	CARBON 82 JA 1/6W
K1003	6520015401	JACK,RCA-3	R705	4010251338	CARBON 150 JA 1/6W
K1004	6520015432	TERMINAL, BOARD	R707A	4010278137	CARBON 82 JA 1/6W
K1101	6520016187	JACK,RCA-9	R708	4010251338	CARBON 150 JA 1/6W
K1102	6450064791	JACK,PHONE D3.6	R711	4010654614	OXIDE-MT 12K JA 2W
	6520010970	JACK,PHONE D3.5	R712	4010654614	OXIDE-MT 12K JA 2W
△PS601	4080465407	TH PTDCA1BF4R5Q200	R713	4010654614	OXIDE-MT 12K JA 2W
SW1901	6450034701	SWITCH,PUSH 1P-1TX1	R715	4010091528	CARBON 2.7K JA 1/2W
	6450194887	SWITCH,PUSH 1P-1TX1	R716	4010091528	CARBON 2.7K JA 1/2W
SW1902	6450034701	SWITCH,PUSH 1P-1TX1	R717	4010091528	CARBON 2.7K JA 1/2W
	6450194887	SWITCH,PUSH 1P-1TX1	R723	4010272333	CARBON 560 JA 1/6W
SW1903	6450034701	SWITCH,PUSH 1P-1TX1	R724	4010249335	CARBON 1.2K JA 1/6W
	6450194887	SWITCH,PUSH 1P-1TX1	R732	4010269333	CARBON 47 JA 1/6W
SW1904	6450034701	SWITCH,PUSH 1P-1TX1	R743	4010269937	CARBON 4.7K JA 1/6W
	6450194887	SWITCH,PUSH 1P-1TX1	<b>COIL</b>		
SW1905	6450034701	SWITCH,PUSH 1P-1TX1	L702	6450079979	INDUCTOR,33U J
	6450194887	SWITCH,PUSH 1P-1TX1		6450079993	INDUCTOR,33U K
SW1906	6450034701	SWITCH,PUSH 1P-1TX1	<b>MISCELLANEOUS</b>		
	6450194887	SWITCH,PUSH 1P-1TX1	△K701L	6450262005	SOCKET,CRT 8P
△SW601	6450590061	SWITCH, POWER 1P-1TX1		6450317699	SOCKET,CRT 8P
△VA601	4071712008	VARISTOR ERZV14D471		6520017726	SOCKET,CRT 8P
	4072471300	VARISTOR SVC471D-07ABW7			
VA602	4080613204	TH ICL B57238S0100M000			
X161	4210121906	SAW F TSF6376BL			
	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			
<b>6103322933 ASSY,PWB,CRT BA3RA</b>					
<b>1AA0B10S24500</b>					
<b>TRANSISTOR</b>					
Q701	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			
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			
	4060087407	TR 2SA1015-G(SAN)-TPE2			
	4050017615	TR 2SA1015-Y(SAN)			

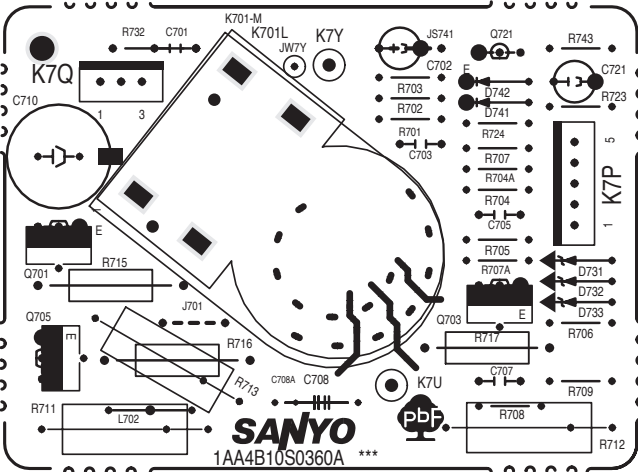
# Component Locations

## Main Board (Parts Side)



# Component Locations

## CRT Board (Parts Side)





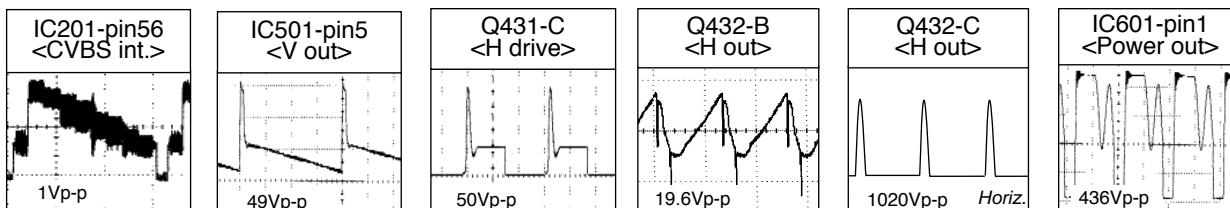
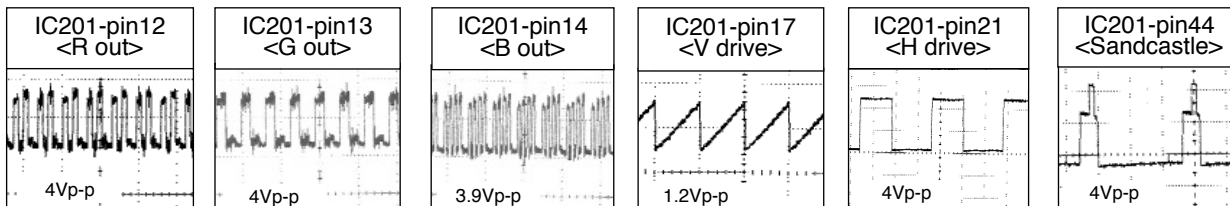
# Voltages and Waveforms Charts

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

## Main Board

<b>Q002</b> E 9.2V C 2.4V B 9.3V	<b>Q1001</b> E 4.2V C 0V B 3.5V	<b>Q1002</b> E 4.2V C 0V B 3.5V	<b>Q1003</b> E 3.2V C 0V B 2.6V	<b>Q111</b> E 0.5V C 5.4V B 1.2V	<b>Q122</b> E 0V C 0V B 0.6V	<b>Q3701</b> E 0V C 0V B 0.5V	<b>Q424</b> E 0V C 3.1V B 1.7V	<b>Q425</b> G 0V D 3.1V S 3.9V	<b>Q431</b> E 0V C 11.7V B 0V	<b>Q432</b> E 0V C 354V E 0V	<b>Q439</b> E 0V C 4V B 0V
-------------------------------------------	------------------------------------------	------------------------------------------	------------------------------------------	-------------------------------------------	---------------------------------------	----------------------------------------	-----------------------------------------	-----------------------------------------	----------------------------------------	---------------------------------------	-------------------------------------

<b>Q461</b> E 13V C 0V B 12.4V	<b>Q462</b> E 0V C 12.4V E 0V	<b>Q491</b> E 2.4V C 0V B 1.8V	<b>Q511</b> E 0V C 4.6V B 0V	<b>Q631</b> E 6.3V C 10V B 6.9V	<b>Q632</b> E 0V C 6V B 0V	<b>Q641</b> E 3.9V C 4.9V B 4.6V	<b>Q661</b> E 9.2V C 10V B 9.8V	<b>Q681</b> E 0V C 0V B 0.2V	<b>Q683</b> E 0V C 36V B 0V	<b>Q684</b> E 0V C 0.2V B 0.7V	<b>Q886</b> E 0V C 0.6V B 0V
-----------------------------------------	----------------------------------------	-----------------------------------------	---------------------------------------	------------------------------------------	-------------------------------------	-------------------------------------------	------------------------------------------	---------------------------------------	--------------------------------------	-----------------------------------------	---------------------------------------



<b>IC001 (AUDIO AMP.)</b>												
Pin-1 15.8V	2 0V	3 GND	4 0V	5 3.6V	6 2.4V	7 16.2V	8 8V	9 8V				
10 GND	11 8V	12 8V	13 NC									

<b>IC501 (VERT. OUT)</b>							
Pin-1 2.4V	2 35.9V	3 1.6V	4 GND	5 14.9V	6 34.3V	7 2.5V	

<b>IC601 (POWER)</b>							
Pin-1416V~	2 0V	3 0V	4 18V	5 0.1V	6 1.3V	7 0.7V	

<b>IC651 (5VRC)</b>		
Pin-1 11.9V	2 GND	3 4.9V

<b>IC202 (5V1)</b>		
Pin-1 7.4V	2 GND	3 4.9V

<b>IC1001 (AV SWITCH)</b>								
Pin-1 2.2V	2 6.6V	3 2.2V	4 0.5V	5 0V	6 6.6V	7 0V	8 GND	

<b>IC801 (MEMORY)</b>								
Pin-1 GND	2 GND	3 GND	4 GND	5 3.8V	6 3.6V	7 5V	8 5V	

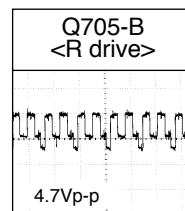
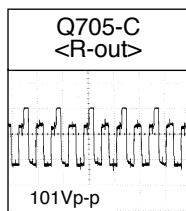
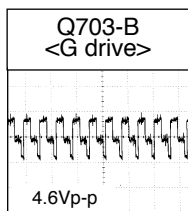
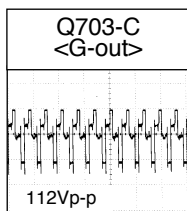
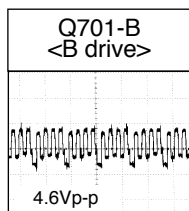
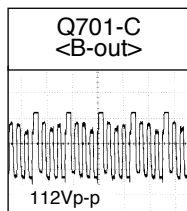
<b>IC3701 (AUDIO CONTROL)</b>										
Pin-1: GND	2: 4.2V	3: 4.2V	4: 4.2V	5: 3.5V	6: 4.2V	7: 4.2V	8: 4.2V	9: 4.2V		
10: 4.2V	11: 4.2V	12: 4.2V	13: 4.2V	14: 4.2V	15: 4.2V	16: 4.2V	17: 8.3V	18: 3V		
19: 3.8V	20: 3.5V	21: 0V	22: 4.2V	23: 4.2V	24: 4.2V	25: 4.2V	26: 4.2V	27: 4.2V		
28: 4.2V	29: 4.7V	30: 4.2V	31: 4.2V	32: 3.5V	33: 4.2V	34: 4.2V	35: 4.2V	36: 4.2V		

<b>IC201 (IF/VIDEO/CHROMA/DEF/CPU)</b>												
Pin-1: 2.1V	2: 2.5V	3: 3.2V	4: 2.8V	5: 2.3V	6: 2.3V	7: 2.2V	8: 5V	9: 2.6V				
10: 3.5V	11: 8V	12: 2.6V	13: 2.5V	14: 2.7V	15: 2.2V	16: 2.2V	17: 2.3V	18: 1.6V				
19: 5V	20: 2.6V	21: 1.6V	22: GND	23: 3.9V	24: 3.8V	25: 5V	26: 4.9V	27: 5V				
28: 5V	29: 5V	30: 0V	31: 3.8V	32: 3.7V	33: 2.7V	34: 2.7V	35: 5V	36: 4.9V				
37: 4.9V	38: 4.9V	39: 0V	40: 4V	41: 3.3V	42: GND	43: 4.5V	44: 1V	45: 2.5V				
46: 2.6V	47: 2.6V	48: 2.6V	49: 2.6V	50: 2.5V	51: 2.5V	52: 2.7V	53: 3.5V	54: 2.6V				
55: 5V	56: 2.8V	57: 2.5V	58: 2.3V	59: 2.3V	60: 2.2V	61: 1.8V	62: GND	63: 2.9V				

# Voltages and Waveforms Charts

## CRT Board

Q701	Q703	Q705	Q721
E 1.9V	E 2V	E 1.9V	E 1.2V
C 9.2V	C 9.6V	C 9.2V	C 0V
B 2.1V	B 2.1V	B 2V	B 0.5V

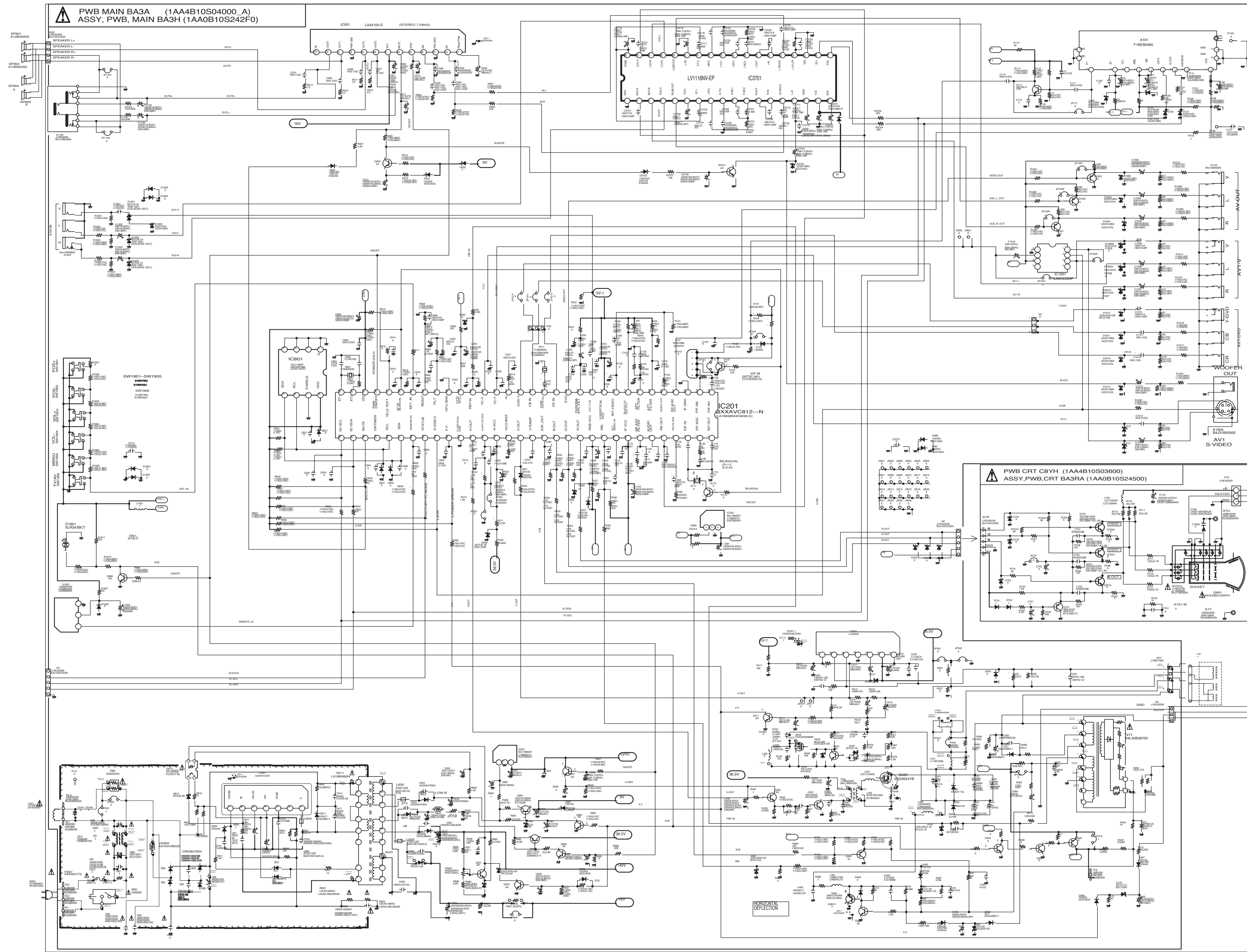






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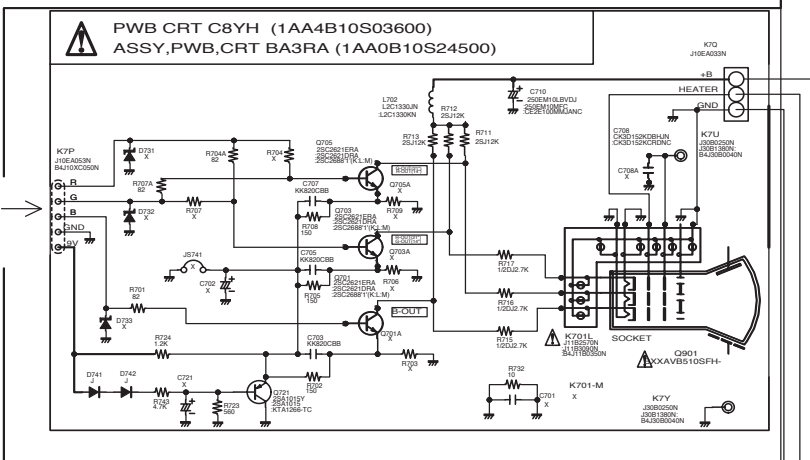
LIST OF REPLACEABLE TRANSISTORS (GRABOS TYPE)

TRANSISTOR	REPLACEABLE	TRANSISTOR	REPLACEABLE
2SD1081	2SD1081	2SD1081	2SD1081
2SD1082	2SD1082	2SD1082	2SD1082
2SD1083	2SD1083	2SD1083	2SD1083
2SD1084	2SD1084	2SD1084	2SD1084
2SD1085	2SD1085	2SD1085	2SD1085
2SD1086	2SD1086	2SD1086	2SD1086
2SD1087	2SD1087	2SD1087	2SD1087
2SD1088	2SD1088	2SD1088	2SD1088
2SD1089	2SD1089	2SD1089	2SD1089
2SD1090	2SD1090	2SD1090	2SD1090

LIST OF REPLACEABLE DIODES

DIODE	REPLACEABLE
1N4001	1N4001
1N4002	1N4002
1N4003	1N4003
1N4004	1N4004
1N4005	1N4005
1N4006	1N4006
1N4007	1N4007
1N4008	1N4008
1N4009	1N4009
1N4010	1N4010

MODEL	ELECTRICAL	MAIN UNIT	CRT UNIT
BA3A	01BA3A	1AA0B10S242F0	1AA0B10S242F0
BA3H	01BA3H	1AA0B10S242F0	1AA0B10S242F0
BA3FL	01BA3FL	1AA0B10S242F0	1AA0B10S242F0
BA3R	01BA3R	1AA0B10S242F0	1AA0B10S242F0



**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  $\Delta$  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:**

- All resistance value are in ohms, K=1,000, M=1,000,000.
- All resistance rated wattages are 1/8W unless otherwise noted.
- Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in  $\mu$ F and more than 1 are pF.
- All capacitance rated voltages are 50V unless otherwise noted.
- All inductance values are in  $\mu$ H.
- 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.
- 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.
- 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.
- Parts specified with "X" are not installed in this model.
- Parts specified with "J" are just jumper wires.

11. Expression of capacitance and resistance in circuit diagram.

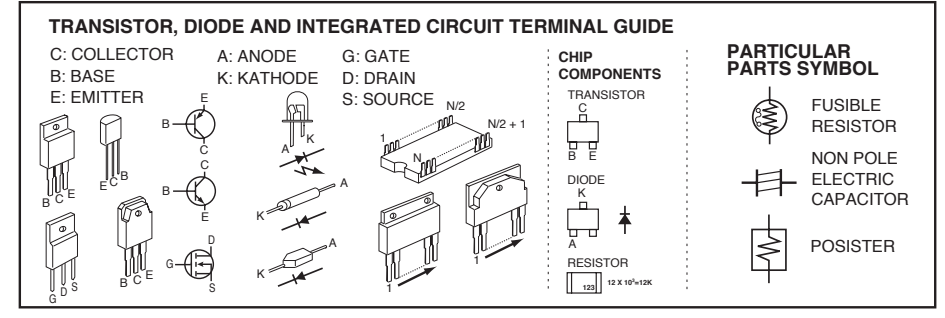
**Capacitance (Example)**  
1000 C M 2000 D

- Characteristic
- Capacity value (220pF)
- Allowable error ( $\pm 20\%$ )
- Kind (Ceramic)
- Rated voltage (1,000V)

**Resistance (Example)**  
1/2 N J 1.2

- Resistance value (1.2 $\Omega$ )
- Allowable error ( $\pm 5\%$ )
- Kind (M.carbon)
- Rated wattage (1/2W)

**Legend:**  
J =  $\pm 5\%$   
K =  $\pm 10\%$   
M =  $\pm 20\%$   
T, A, U, D: Electrolytic  
C, K, B: Ceramic  
F: Mylar film  
M, N: Polypropylene  
Z: Metalized paper  
D: Carbon  
N: Metalized carbon  
S: Oxide metalized  
W: Wire winding  
C: Solid



**SANYO** COLOUR TELEVISION CHASSIS SERIES

**AC6-B**

SERVICE REF. NO. **CE21XS2-10**