

HITACHI

HCPT

No. 006E

SERVICE MANUAL

C21-FL21F

PAL/SECAM/NTSC

V3AR Chassis

NOTE : To ensure the safety of customer, special protection circuitry is added to avoid failures due to abnormal commercial input voltage from power line which excess the maximum operation range of AC 264V.
The special protection circuitry activate approximately at AC 300V by cutting off main fuse F901.
Hence to prevent serious failures, such as smoke, fire etc...

CAUTION : Before servicing this chassis, it is important that the service technician reads the " Safety Precaution " and " Product Safety Notices " in this Service Manual.

* Enclosed with Circuit Diagram and Printed Wiring Board.

CONTENTS

SAFETY PRECAUTIONS	2
PRODUCT SAFETY NOTICE	2
REMOTE CONTROL UNIT	3
GENERAL OPERATIONS GUIDE	4
FAILURE DETECTING FUNCTION OF MAIN DEVICES	5
CIRCUIT DESCRIPTION	6 - 10
ADJUSTMENT INSTRUCTIONS	11 - 19
REPLACEMENT PARTS LIST	20 - 31

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

COLOR TELEVISION

MARCH 2002

Hitachi Consumer Products (THAILAND), Ltd.

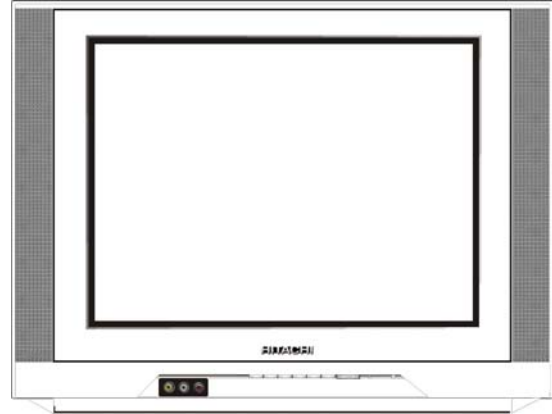
HITACHI

C21-FL21F

HITACHI LTD. AV SYSTEMS

FEATURES

- * FULL FUNCTION REMOTE CONTROL
- * PRESET TUNING (VOLTAGE SYNTHESIZER - AUTO PRESET, MANUAL , FINE)
- * HYPERBAND TUNER
- * AVL (AUTO VOLUME LEVELLING)
- * CHANNEL SKIP
- * BLUE BACK
- * AUTO OFF
- * ON / OFF/ ALARM TIMER (0:00 - 24:00)
- * MULTI LANGUAGE OSD
- * NR (NOISE REDUCTION)
- * AV STEREO



SPECIFICATIONS

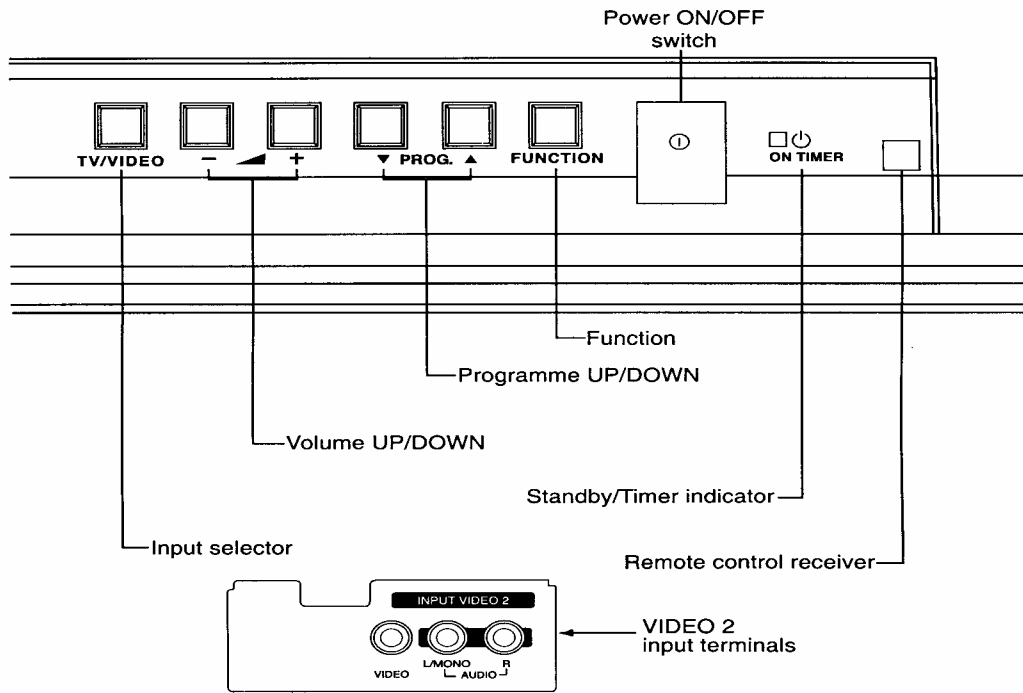
SCREEN SIZE	21 INCH 90 DEG. DEF.	
CHASSIS	V2	
RECEPTION SYSTEM (FULL MULTI)	RF: B/G/D/K/H/I-PAL, B/G/D/K/K'/I-SECAM,M-NTSC VIDEO: NTSC3.58 - 5.5/6.0/6.5, NTSC4.43 - 5.5/6.0/6.5, NTSC50,PAL60,SECAM60	
FREQUENCY COVERAGE	44-863 MHz	
PRESETTING PROGRAMME NO.	100	
PROGRAMME SELECTION	UP / DOWN AND RANDOM ACCESS	
AUDIO OUTPUT	5 W + 5 W (MAX)	
SPEAKER SIZE	(5 x 9 cm) X 2	
POWER SUPPLY	AC 100 ~ 264 V / 50Hz,60Hz (USABLE RANGE)	
POWER PLUG	CEE	
POWER CONSUMPTION	89 W	
AERIAL INPUT	75 OHM COAXIAL	
CONTROL OPERATION	- REMOTE - MANUAL	
TERMINALS	VIDEO IN	2
* TV OUT	* VIDEO OUT	1
	AUDIO IN	2
	* AUDIO OUT	1

OSD	ENGLISH,CHINESE,MALAY, RUSSIAN
CABINET STYLING	TABLE
CABINET MATERIALS	PLASTIC
HANDLE	YES (SCOOP)
TV-SET DIMENSION (mm)	605x489x448 (W x L x H)
PACKAGE DIMENSION (mm)	660x545x533 (W x L x H)
N.WEIGHT (kg)	21.6
G.WEIGHT (kg)	24.6
20 FT CONTAINER	136 SETS
40 FT CONTAINER	304 SETS
45 FT CONTAINER	340 SETS
REMOTE CONTROL FUNCTION	MENU PRESET TUNING PROGRAMME SELECTION TV / VIDEO PICTURE CONTROL SOUND CONTROL VOLUME CONTROL MUTE PICTURE AND SOUND MEMORY NOISE REDUCTION BLUE BACK ON / OFF AUTO OFF ON / OFF TIMER (ON,OFF,ALARM) STANDBY ON/OFF RECALL CHANNEL SKIP PRESET

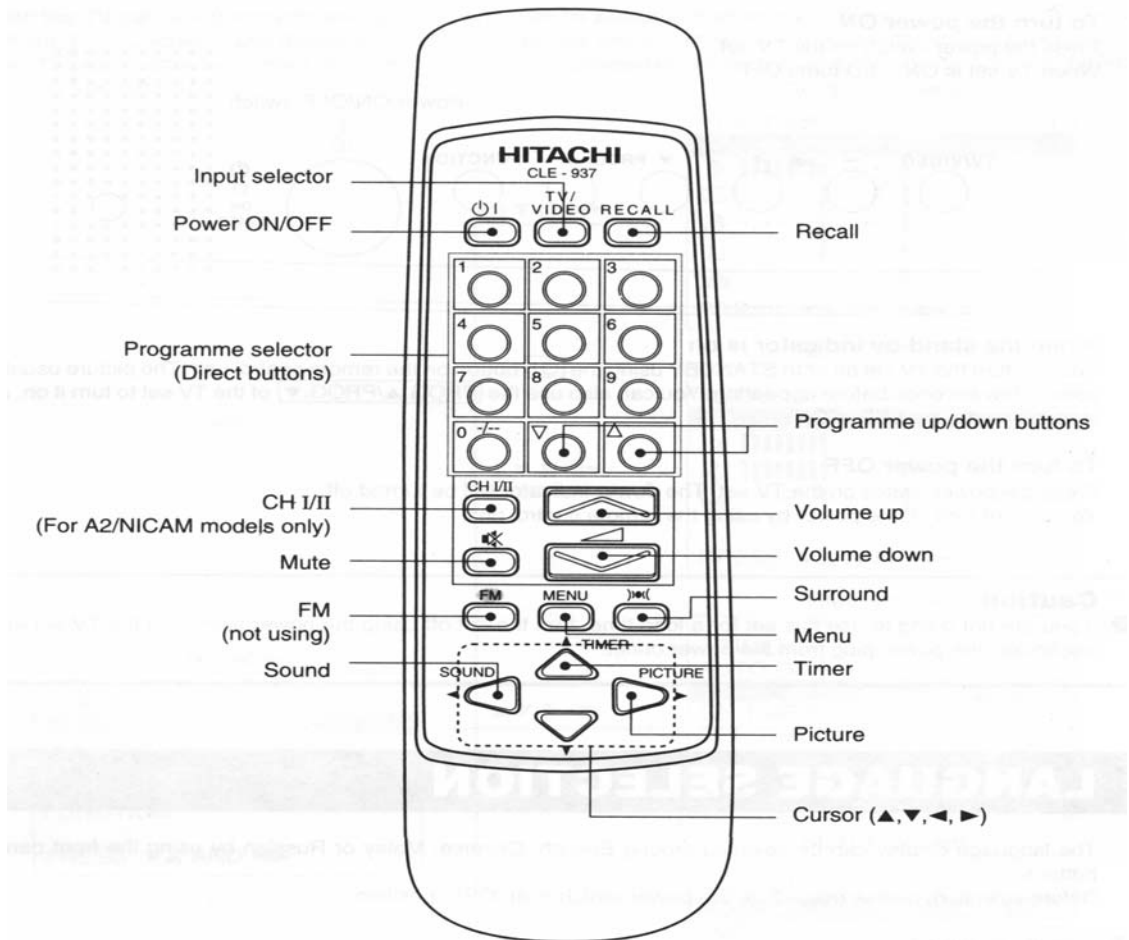
SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CONTROLS

FRONT PANEL




REMOTE CONTROL UNIT



SAFETY PRECAUTIONS

WARNING: The following precautions should be observed.

1. Do not install, remove, or handle the picture tube in any manner unless shatter proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.
2. When service is required, an isolation transformer should be inserted between power line and the receiver before any service is performed on the chassis.
3. When replacing the chassis in the cabinet, ensure all the protective devices are put back in place, such as barriers, non-metallic knobs, adjustment or compartment covers or shields, isolation resistors/capacitors, etc.
4. When service is required, observe the original lead dressing. Extra precaution should be taken to assure correct lead dressing in the high voltage circuitry area. Particularly note the R. G. B. lead dressing. Ensure they are dressed well away from the horizontal scan and F.B.T. circuitry.
5. Always use the manufacturer's replacement component. Always replace original spacers and maintain lead lengths. Especially critical components are indicated thus  on the parts list and should not be replaced by other makes. Furthermore, where a short circuit has occurred, replace those components that indicate evidence of overheating.
6. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently damaged during servicing. Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

INSULATION

Insulation resistance should not be less than $7\text{ M}\Omega$ at 500 V DC between the mains poles and any accessible metal parts. Also, no flashover or breakdown should occur during the dielectric strength test, applying 3kV AC or 4.25kV DC for two seconds between the main poles and accessible metal parts.

HIGH VOLTAGE


High voltage should always be kept at the rated value of the chassis and no higher. Operating at higher voltages may cause a failure of the picture tube or high voltage supply, and also, under certain circumstances could produce X-radiation moderately in excess of design levels. The high voltage must not, under any circumstances, exceed 34kV on the chassis.

X-RADIATION

TUBES : The primary source of X-radiation in this receiver is the picture tube. The tube utilized for the above mentioned function in this chassis is specially constructed to limit X-radiation.

For continued X-radiation protection, replace tube with the same type as the original, HITACHI approved type.

PRODUCT SAFETY NOTICE

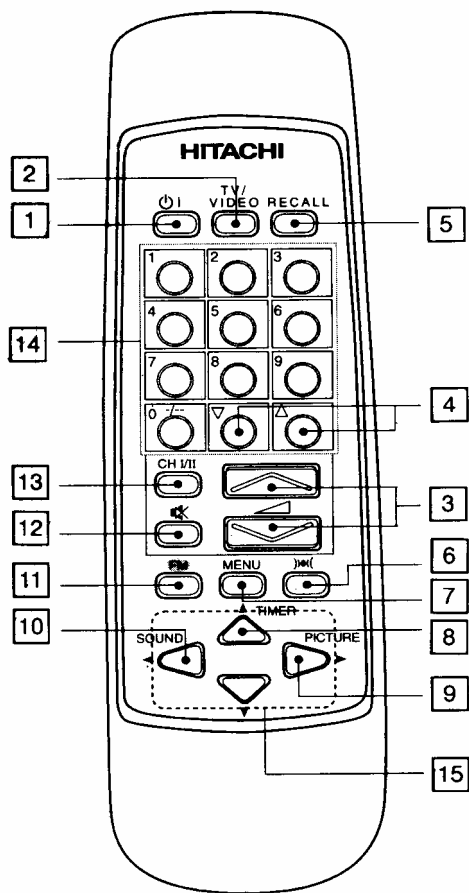
Many electrical and mechanical parts in HITACHI television receiver have special safety related characteristics. These characteristics are often not evident from visual inspection, nor can be protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified by marking with a  on the schematics and replacement parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create electrical shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of HITACHI Service Manuals may be obtained at a nominal charge from your HITACHI sales offices.

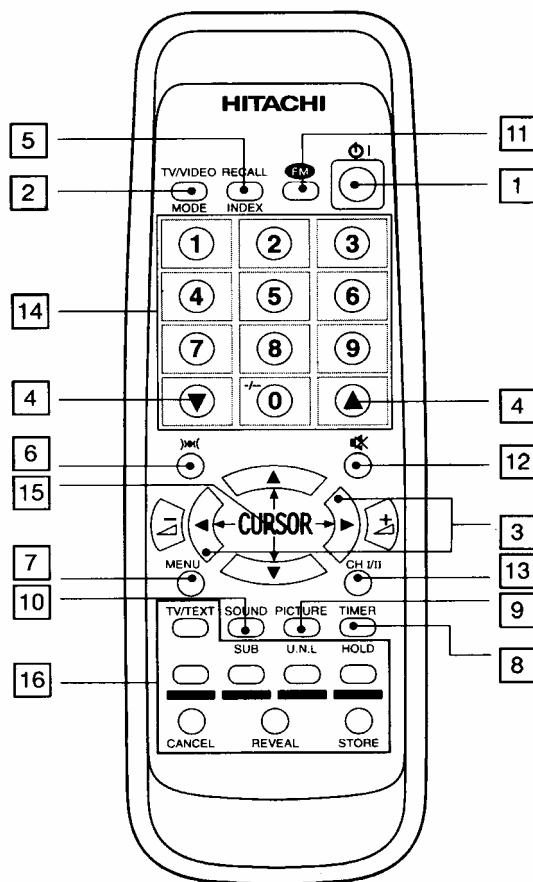
TUBE DISCHARGE

The line output stage can develop voltages in excess of 25kV; if the E.H.T cap is required to be removed, discharge the anode cap to chassis via a high value resistor, prior to its removal from the tube.

REMOTE CONTROL UNIT



FOR OTHER MODELS








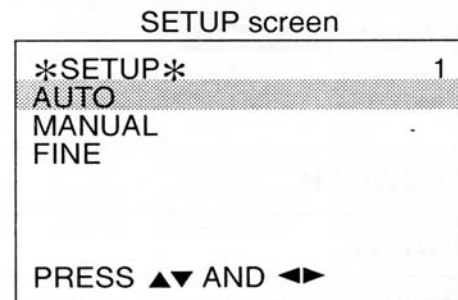
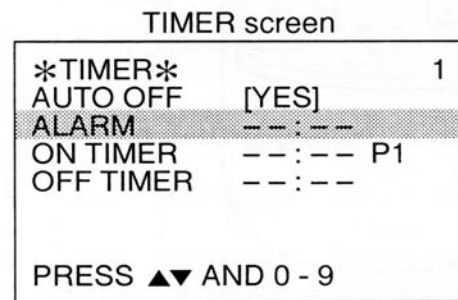
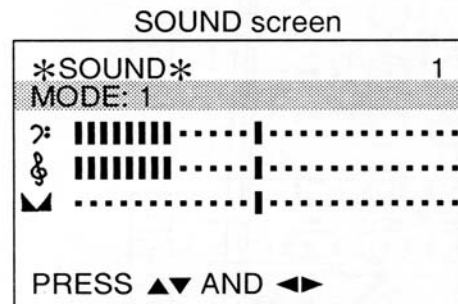
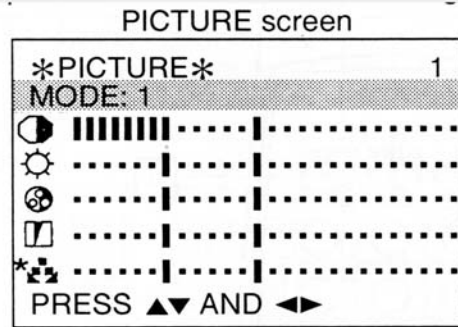
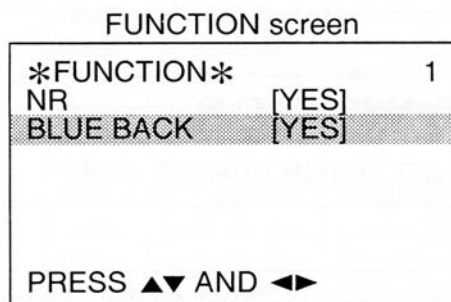
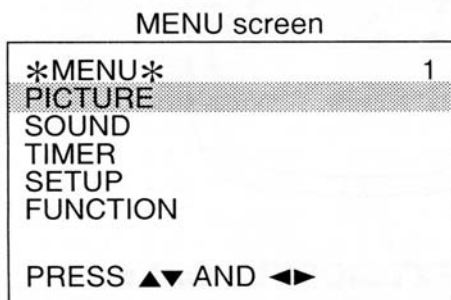
FOR T/TEXT MODELS ONLY

1.	POWER ON/OFF SWITCH	9.	PICTURE
2.	INPUT SELECTOR	10.	SOUND
3.	VOLUME UP/DOWN	11.	FM (NOT USING)
4.	PROGRAMME UP/DOWN	12.	MUTE
5.	RECALL	13.	CH/II (FOR NICAM/A2 MODELS)
6.	SURROUND SOUND	14.	PROGRAMME SELECTOR (DIRECT KEY)
7.	MENU	15.	CURSOR
8.	TIMER	16.	T/TEXT FUNCTION KEY (T/TEXT MODELS ONLY)

GENERAL OPERATIONS GUIDE

With this set, all adjustments/settings are performed by selecting from menu screens. Different menu screens and details of adjustments/settings are shown below. To access the menu screen, press the **MENU** button, then select the item by pressing the left/right cursor buttons.

-  : Contrast
-  : Brightness
-  : Color
-  : Sharpness
-  : Tint
-  : Treble
-  : Bass
-  : Balance



*Automatically appears in NTSC mode only.

FAILURE DETECTING FUNCTION OF MAIN DEVICES

In V3AR ,failure of Main devices can detect by the blinking indication of LED at front panel.

(Example : LED blinking time is 2 in cycle \longrightarrow I002 is out of order.)

If an IIC error occurred, the LED, D001 blinks at 1Hz, 50% duty cycle.

The blinking times are as below.

Failure Device	CCT.No.	Bus Error LED Blinking Time
EEPROM, AT24C04	I002	2
UOC, TDA935x/6x/8x	I001	3
Audio Processor, TDA9859	IA01	4
PLL Tuner, TUHAF4EG - 775F2	U001	5
NICAM, MSP3415D / MSP3417D	IN01	6

Table 3. Error LED blinking times

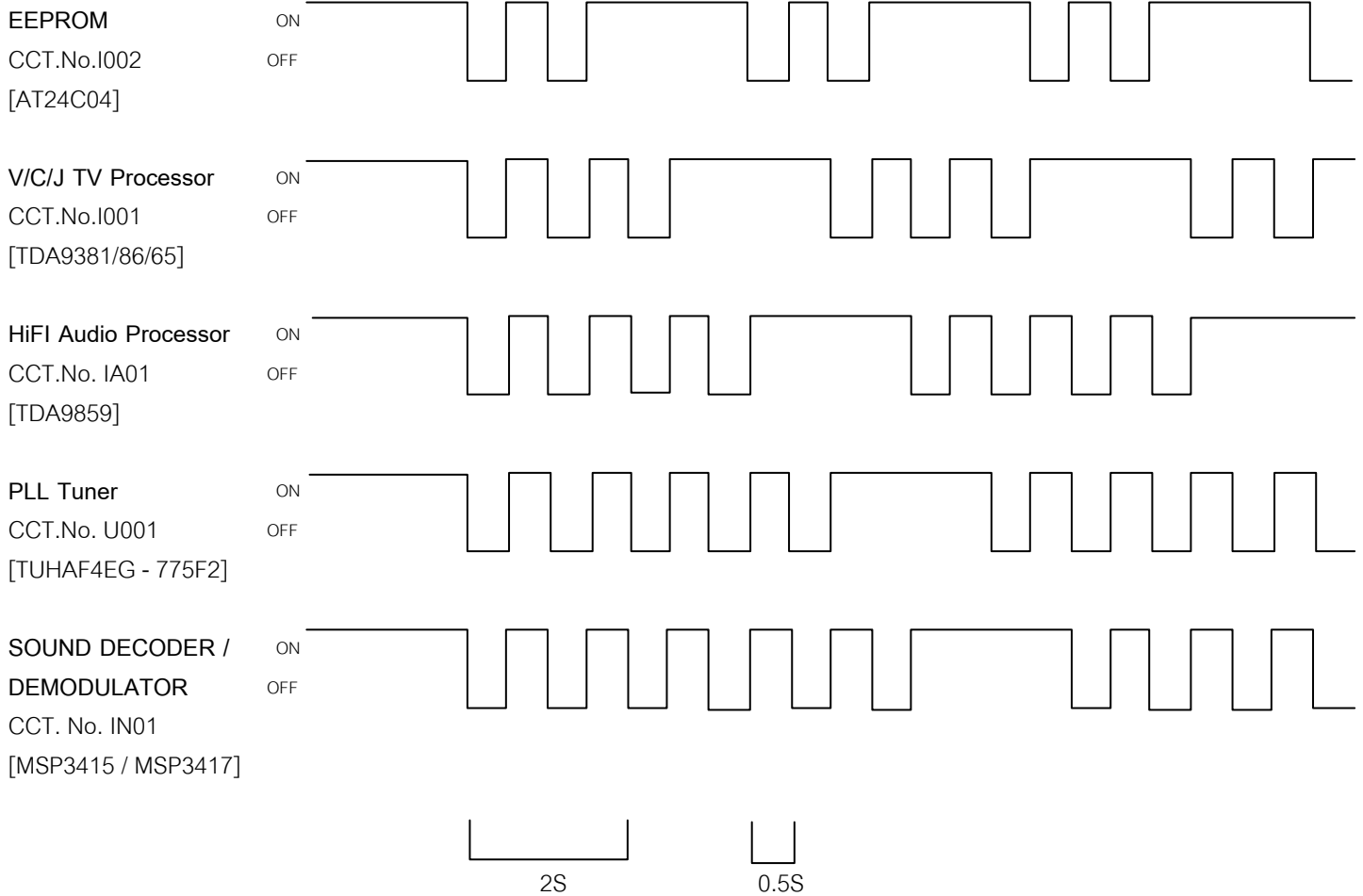


Figure 1. Error LED blinking times

CIRCUIT DESCRIPTION

Selection and CPU circuitry

IC type, TDA9381/86/65 performs functions like IIC controls, channel selection, on-screen display ,search tuning, systems selection amongst others. The pin's functions of TDA9381/86/65 are presented in the table shown below.

Pin number	Signal name	I/O	Configuration mode	Function
1	Power	Output	P.P. 3.3V	0 = Stand-by, 1 = On
2	SCL	I/O	O.D. 5V	Clock of main I ² C - bus
3	SDA	I/O	O.D. 5V	Data of main I ² C - bus
4	Alarm	Output	O.D. 5V	PWM output for Beep sound
5	SAW Sw	Output	O.D. 3.3V	1 = M, 0 = Others
6	AV S-DET	Input	H.I. 5V	Detect for S-VHS (not mono chassis)
	SW FE/AV	Output	O.D. 5V	FE/AV switch (mono chassis)
7	Key - In	Input	H.I. 3.3V	Local analogue keyboard
8	V2/V1	Output	O.D. 3.3V	1 = Video:2, 0 = Video:1
9	VSSC/P	-	-	Digital ground for μ -controller core and periphery
10	Led	Output	O.D. 3.3V	LED Drive
11	ON/OFF Mute	Output	O.D. 3.3V	1 = Mute on, 0 = Mute off (Under Standby)
12	VSSA	-	-	Analog ground of Teletext decoder and digital ground of TV-processor
13	SECPLL	-	-	SECAM PLL decoupling
14	VP2	-	-	2 nd supply voltage TV-processor (+8V)
15	DECDIG	-	-	Decoupling digital supply of TV-processor
16	PH2LF	-	-	Phase-2 filter
17	PH1LF	-	-	Phase-1 filter
18	TV	-	-	Ground 3 for TV-processor
19	DECBG	-	-	Bandgap decoupling
20	AVL/EWD	Output	-	East-West drive output
21	VDRB	Output	-	Vertical drive B output
22	VDRA	Output	-	Vertical drive A output
23	IFIN1	Input	-	IF input 1
24	IFIN2	Input	-	IF input 2

Pin number	Signal name	I/O	Configuration mode	Function
25	IREF	Input	-	Reference current input
26	VSC	-	-	Vertical sawtooth capacitor
27	AGCOUT	Output	-	Tuner AGC output
28	AUDEEM	Output	-	Audio deemphasis
29	DECSDEM	-	-	Decoupling sound demodulator
30	GND2	-	-	Ground 2 for TV processor
31	SNDPLL	-	-	Narrow band PLL filter
32	REFO	Output	-	Subcarrier reference output
33	HOUT	Output	-	Horizontal output
34	FBISO	Input	-	Flyback input
35	AUDEXT	Input	-	External audio input
36	EHTO	Input	-	EHT/overvoltage protection input
37	PLLIF	-	-	IF-PLL loop filter
38	IFOut	Output	-	IF video output / selected CVBS output
39	+8v	-	-	Main supply voltage TV-processor (+8V)
40	CVBSINT	Input	-	Internal CVBS input
41	GND1	-	-	Ground 1 for TV-processor
42	CVBS/Yin	Input	-	External CVBS/Y input
43	Cin	Input	-	Chrominance input (SVHS)
44	AUDOUT	Output	-	Audio output
45	INSSW2	-	-	No connection
46	R2/VIN	-	-	No connection
47	G2/YIN	-	-	No connection
48	B2/UIN	-	-	No connection
49	BCLIN	Input	-	Beam current limiter input/V-guard input
50	BLKIN	Input	-	Black current
51	RO	Output	-	Red OSD output
52	GO	Output	-	Green OSD output
53	BO	Output	-	Blue OSD output
54	VDDA	-	-	Analog supply of Teletext decoder and digital supply of TV-processor (3.3 V)
55	VPE	-	-	OTP Programming Voltage

Pin number	Signal name	I/O	Configuration mode	Function
56	VDDC	-	-	Digital supply to core (3.3V)
57	OSDGND	-	-	Oscillator ground supply
58	XTA/IN	Input	-	Crystal Oscillator input
59	XTA/OUT	Output	-	Crystal Oscillator output
60	RESET	Input	-	Reset
61	VDDP	-	-	Digital supply to periphery (+3.3 V)
62	SCL(EEP)	I/O	O.D. 3.3V	Clock of secondary I ² C-bus for EEPROM
63	SDA(EEP)	I/O	O.D. 3.3V	Data of secondary I ² C-bus for EEPROM
64	RC-In	Input	H.I. 3.3V	Input for Remote control decoding

Note 1 : Abbreviation of pin configuration mode :

O.D.	Open Drain
Q.B.	Quasi-Bidirectional
H.I.	High-Impedance
P.P.	Push-Pull

Note 2 : During reset all pins are Quasi-Bidirectional mode.

Tuner and IF

The Tuner (U001) used on V3AR chassis is powered up by the 5V supply. It is IIC bus controlled and covers VHF, UHF, CATV Band (Mid, super, and hyper).

The IF output from Tuner (pin 11 of U001) is applied to the amplifier Q201.

For multi-system model with M-NTSC, switchable saw filter is used. Q001 at pin 2 of X003 servers to select the IF signal between M/N mode to other modes (e.g. B/G, D/K) before demodulation is carried out at I001.

i.e. at M mode: Base of Q001 → High

I001 (TDA9381/9386/9365) besides being the microcontroller, incorporates video / chroma / deflections / teletext features and video/audio switching. It performs auto color identification of PAL/SECAM/NTSC, sync separation , AFC, HV oscillator and output RGB signals.

IF signal is sent to I001 pin 23 and 24 for demodulation. For **MONAURAL** and **AV STEREO** mode, the demodulated signals are sent for video and audio selection. For **NICAM/A2** mode, the demodulated signals are sent for video processing only.

The composite video signals after demodulation are sent to a series of bandpass filters (X004 - X006) through pin 38 of I001. The system selection is as follows :

Buffers		Signal output to pin 40 of I001	
		Q004	Q005
Q003	Low	Off	M
	High	B/G, I, D/K	Off

The selected RF video signal is sent to pin 40 of I001 and output AV terminal. The external video signal from input AV 1 and 2 terminal also goes through pin 38 to output AV terminal. This is done by use of internal switch control

Video / Chroma

I401 select Video 1 or Video 2 signals and sent to pin 42 of I001. The video input signals (RF at pin 40, Video 1 and Video 2 at pin 42) are selected using internal AV switch in I001 controlled by IIC bus. The selected video signals are processed with teletext. After color identification and decoding, the color difference signals are matrixed with the luminance signal to obtain the RGB signals. The RGB can be controlled by contrast and brightness and output at pin 51 - 53 to CRT PWB, in sequence with the OSD RGB.

Internal sync separator and H/V oscillator of I001 produce H and V drive signals which are applied to deflection circuits for horizontal and vertical scanning.

Audio mode switching

For **MONAURAL** (without NICAM/A2) sound models, two audio switching is carried out. The RF audio signal after demodulation in I001 is output at pin 28 of I001 to pin 10 of I401. I401 perform audio selection using control signal between the RF audio signal and external audio signal input (pin 8) of I401. The audio output at pin 6 of I401 is sent to output AV terminal.

The external audio input is also sent to pin 35 of I001 to perform the second audio switching with the RF audio signal in I001. The selected audio signal goes through volume control before output at pin 44 of I001 to L(pin2) and R(pin 5) of I402. Amplification took place and output at L (pin12) and R (pin7) of I402 to the speakers

For **NICAM/A2** sound models, the IF signal is input at pin 1 of X002 (saw filter) and output at pin 4 and 5 to pin 28 and pin 29 of I001. After demodulation, the audio signal output at pin 35 to NICAM PWB (pin 2 of EN01) for NICAM processing. The NICAM audio output at pin L (pin 10) and R (pin 11) of EN01 goes to SOUND PWB at pin 9 and 10 of EA01

For **AV STEREO** sound models, the audio signal is output at pin 44 of I001 and goes to SOUND PWB at pin 9 and 10 of EA01.

Audio input (L and R) from AV 1 And 2 terminal are input to pin 1 - 4 of EA01. Audio switching, volume control, treble and bass are processed at IA01 (TDA9856). The L (pin 7) and R (pin6) output at EA01 goes to output AV terminal. The L (pin 12) and R (pin 11) at EA01 goes to I402 for amplification before sending to the speakers

POWER SUPPLY CIRCUIT

Commutating voltage from AC output rectified by D901A and produces approximately 300V to pin 3 of I901.

Current flowing through R904, R917, causes I901 pin 4 to initially turn on.

Secondary voltage are then induced winding V1 - V2 in T901, I901 supply voltage is obtained via R906, D906, C909 and applied to pin 4 of I901, thereby maintaining I902 switching operation. Secondary voltage in S1, S3 winding is rectified by D951 to produce +B = 95V which is smoothed by C953. S2, S4 winding produces 16V from D952, and this is smoothed by C956.

Error amplifier Q951 is set to a pre-determined level by resistor network R952 - R956, and reference voltage D957. Should the +B voltage rise, base voltage of transistor Q951 will become more positive, and this difference is amplified by the error amplifier Q951. An output is applied to I901 feedback pin 1 through optocoupler (CTR) I902 and controls ON time of I901 internal circuit. In this way, +B voltage is regulated and maintained at a constant level. D973 offers protection that it should the voltage level rise excessively

When the standby mode is selected, pin 1 of I001 will go " low ". As a result Q954 and Q955 are turned off, and the supply voltage for the horizontal start of pin 33 of I001 through R980/D980/R071 disappears. Therefore shutting down the deflection drive stages of I001, deflection output stage will then cease for as long as the standby condition exist.

ADJUSTMENT INSTRUCTIONS

A. IIC ADJUSTMENTS

Most of the adjustment items in the V3AR chassis are controlled by IIC. Adjustment items include video chroma IC (I001, UOC) control, sound multiplex ICs, horizontal & vertical deflection and others.

To start the IIC adjustment, first turn off AC power switch. Press and hold down the TV/Video local key and then press the power switch. Release both buttons after the following display appears on screen.

NO	:	DATA	
001	:	28	
002	:	28	← Select the Adjust items by ▲ or ▼ cursor
003	:	28	
004	:	80	
005	:	80	
006	:	06	← Select the Adjust items by ◀ or ▶ cursor
007	:	75	
◀ ▶	:	ADJUST	
RECALL	:	SAVE	

To select the adjustment items (e.g. RGB level, sub-brightness level etc...), press the ▲ or ▼ cursor button on Remote control handset. To adjust the data of selected item, press ◀ or ▶ cursor button on Remote control handset .

After completing the adjustments, press the **RECALL** button on Remote control handset to memorize the data.

Press **MENU** button or turn off the TV set to end the IIC adjustment.

The following are the IIC Bus control and adjustment data for reference.

Table 1: IIC-Bus Control and Adjustment

ADJ No.	NAME OF ADJUSTMENT	DATA RANGE	INITIAL DATA (hex)	ITEMS AFFECTED DURING CHANGE		
				MEMORY I002	CPT	TDA9381/86/65 I001
1	WHITE POINT R	00-3F	00	O	O	O
2	WHITE POINT G	00-3F	00	O	O	O
3	WHITE POINT B	00-3F	00	O	O	O
6	HORIZONTAL POSITION	00-3F	16	O	O	O
7	SUB-COLOR	00-3F	1E	O	X	O
8	SUB-TINT	00-3F	1E	O	X	O
9	SUB-BRIGHT	00-3F	1E	O	X	O
10	SUB-CONTRAST	00-3F	08	O	X	O
11	SUB-SHARPNESS	00-3F	1E	O	X	O
13	PHASE 1 TIME CONSTANT	00-03	00	O	X	O
14	VIDEO IDENT MODE	00-01	01	O	X	O
15	FIELD FREQ.	00-03	02	O	X	O
16	INTERLACE	00-01	01	O	X	O
17	ENABLE FAST BLANKING	00-01	00	O	X	O
18	SYNCHRONIZATION	00-01	00	O	X	O
19	COLOR DECODER MODE	00-0F	08	O	X	O
20	RGB BLANKING	00-01	00	O	X	O
21	BLACK CURRENT STABILISATION	00-01	01	O	X	O
22	BLACK LEVEL OFF SET R	00-0F	00	O	X	O
23	BLACK LEVEL OFF SET G	00-0F	00	O	X	O
24	VERTICAL DIVIDER MODE	00-01	00	O	X	O
25	SEARCH TUNING MODE	00-01	00	O	X	O
26	VIDEO IDENT MODE	00-01	01	O	X	O
27	FORCED SLICING LEVEL FOR V.SY	00-01	01	O	X	O
29	ENABLE VERTICAL GUARD	00-01	00	O	X	O

ADJ No.	NAME OF ADJUSTMENT	DATA RANGE	INITIAL DATA (hex)	ITEMS AFFECTED DURING CHANGE		
				MEMORY I002	CPT	TDA9381/86/65 I001
30	SERVICE BLANKING	00-01	00	X	X	O
31	MATRIX NTSC	00-01	01	O	X	O
32	PAL,SECAM/NTSC	00-01	01	O	X	O
33	BYPASS OF CHROMA BASE BAND DL	00-01	00	O	X	O
34	AVL/SUBCARRIER	00-03	00	O	X	O
35	SYNCHRONIZATION OF OSD/TEXT	00-01	01	O	X	O
36	AFC WINDOW	00-01	01	O	X	O
37	IF SENSITIVITY	00-01	00	O	X	O
39	VIDEO MUTE	00-01	00	O	X	O
40	AGC TAKE OVER	00-3F	20	O	X	O
47	PLL DEMODULATOR FREQ.	00-05	02	O	X	O
48	VERTICAL ZOOM	00-3F	19	O	X	O
50	SW-OFF V-OVERSCAN	00-01	00	O	X	O
51	CHROMA BANDPASS C-FREQ.	00-01	00	O	X	O
54	VERTICAL SHIFT(V POSITION)	00-3F	28	O	O	O
55	VERTICAL AMPLITUDE(V SIZE)	00-3F	1B	O	O	
57	S-CORRECTION	00-3F	20	O	O	O
58	BLACK STRETCH	00-01	01	O	X	O
59	VERTICAL SLOPE	00-3F	1B	O	O	O
60	HORIZONTAL PARALLELOGRAM	00-3F	1B	O	O	O
61	HORIZONTAL BOW	00-3F	1B	O	O	O
63	AUTO COLOR LIMITTING	00-01	01	O	X	O
64	IF AGC SPEED	00-03	01	O	X	O
66	CATHODE DRIVE LEVEL	00-0F	0F	O	X	O
69	FAST FILTER IF-PLL	00-01	00	O	X	O
71	FORCED COLOR-ON	00-01	00	O	X	O
72	GAIN FM DEMODURATOR	00-01	00	O	X	O
73	SOUND MUTE	00-03	03	O	X	O

ADJ No.	NAME OF ADJUSTMENT	DATA RANGE	INITIAL DATA (hex)	ITEMS AFFECTED DURING CHANGE		
				MEMORY I002	CPT	TDA9381/86/65 I001
74	WINDOW SELECTION SOUND PLL	00-01	00	O	X	O
75	QSS OUT OR AM OUT	00-01	00	O	X	O
76	EHT TRACKING MODE	00-01	00	O	X	O
77	RGB/YUB SWITCH	00-01	00	O	X	O
78	RGB BLANKING MODE	00-01	00	O	X	O
80	V-SCAN DISABLED	00-01	00	X	X	O
106	EW WIDTH	00-3F	1F	O	O	O
107	EW PARABOLA/WIDTH	00-3F	1F	O	O	O
108	EW UPPER CORNER PARABOLA	00-3F	1F	O	O	O
109	EW LOWER CORNER PARABOLA	00-3F	1F	O	O	O
110	EW TAPEZIUM	00-3F	1F	O	O	O
111	Y DELAY	00-0F	06	O	X	O
112	Y DELAY	00-0F	0A	O	X	O
113	DISABLE FLASH PROTECTION	00-01	00	O	X	O
114	X-RAY PROTECTION	00-01	00	O	X	O
139	A2 STEREO JUDGE>X	00-7F	0F	O	X	X
140	A2 BILINGUAL JUDGE>X	80-FF	F2	O	X	X
141	FM-AM SWITCHING	000-3FF	380	O	X	X
142	OUTPUT LEVEL OF NICAM	00-7F	7A	O	X	X
143	OUTPUT LEVEL OF A2	00-7F	74	O	X	X
144	OUTPUT LEVEL OF FM	00-7F	75	O	X	X

SHIPPING DATA OF IIC SERVICE MODE

(apply only when the memory IC, I002, change.)

1. Select the adjustment item, 323(Initialization of memory IC, I002) by pressing the ▲ or ▼ cursor button on Remote control handset.
2. Set data of adjustment item, 323 to "01" by pressing the ◀ or ▶ cursor button on Remote control handset.
3. Press the RECALL button on Remote control handset to memorize the data.

The data of adjustment item, 323 is changed to "00" after all memory IC's data are initialised.

4. Press AC power switch to turn off the TV set.
5. Press AC power switch to turn on the TV set.

Result : The memory IC, I002 is initialized.

6. After initialization, set the shipping data as show in Table 2.
7. Go to previous page and adjust the IIC data in Table 1

Table 2 : Shipping Data

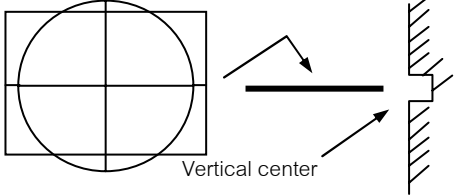
ADJ. NO.	INITIALIZED DATA												
		081S	051	191A	192	751	982	433	061	981	041	101	082
300	01	01	02	01	01	01	01	03	01	01	03	01	01
302	00	01	00	00	00	00	01	00	00	00	00	01	00
303	00	03	03	00	00	01	03	00	00	00	00	03	00
304	06	06	06	06	06	06	06	06	06	06	06	06	06
305	01	01	01	01	01	01	01	01	01	01	01	01	01
306	00	01	01	01	01	01	01	01	01	01	01	01	01
307	00	01	01	01	01	01	01	01	01	01	01	01	01
308	00	00	00	00	00	00	00	00	00	00	00	00	00
310	01	00	00	00	00	00	00	00	00	00	00	00	00
311	00	01	01	01	01	01	01	01	01	01	01	01	01
313	01	00	00	00	00	00	00	00	00	00	00	00	00
314	00	00	00	00	00	00	00	00	01	00	00	00	00
316	00	00	01	00	00	00	00	02	00	00	01	00	00
317	00	00	00	00	00	00	00	00	00	00	00	00	00
318	00	00	00	00	00	00	00	00	00	00	00	00	00
319	00	00	00	00	00	00	00	00	00	00	00	00	00
320	00	00	00	00	00	00	00	00	00	00	00	00	00
321	00	00	00	00	00	00	00	00	00	00	00	00	00
322	00	00	00	00	00	00	00	00	00	00	00	00	00
323	00	00	00	00	00	00	00	00	00	00	00	00	00
324	00	01	01	01	01	01	01	01	01	01	00	01	00
325	00	00	00	00	00	00	00	00	00	00	00	00	00
340	02	02	02	02	02	02	02	02	02	02	02	02	02
341	00	01	01	01	01	01	01	01	01	01	01	01	01
342	00	00	00	00	00	00	00	00	00	00	00	00	00

Note : Shipping data in boxes need to be adjusted.

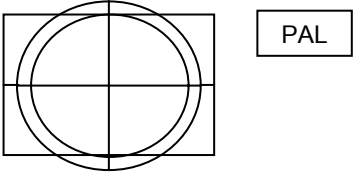
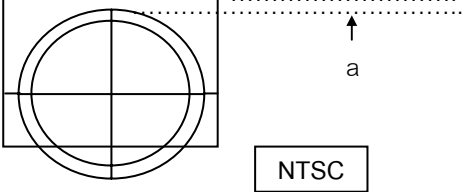
+B ADJUSTMENT

PREPARATION		PROCEDURES	
1.	AC input voltage $230 \pm 5V(50Hz)$	1.	Adjust R954 to obtain +B voltage as below
2.	Turns on the set and set the brightness and contrast to Max. (Signal : Philips Pattern)		$95 \pm 0.5V$
3.	After 30 sec heat-run, check & adjust the +B voltage		Measuring Points +B voltage : C935 + side GND : C935 - side

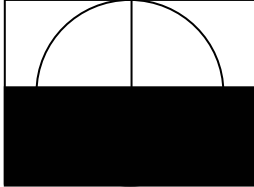
VERTICAL CENTER ADJUSTMENT

PREPARATION		PROCEDURES	
1.	Turns on the TV set & heat run about 5 min.	1.	Select the IIC control address No. 54.
2.	Receive the circular pattern signal	2.	Set the horizontal center line to vertical center marker of CRT by adjustment of IIC.
3.	AC $230 \pm 5V$		i.e.
			 <p>Vertical center marker of CRT</p>

VERTICAL SIZE ADJUSTMENT

PREPARATION		PROCEDURES	
1.	Turns on the TV set & heat run about 5 min.	1.	Select the IIC control address No. 55.
2.	Receive the circular pattern signal	2.	Adjust IIC data to obtain the following condition.
3.	Set all picture settings as below. i.e. Contrast : Max Brightness : Center		i.e.
4.	AC $230 \pm 1V$		 <p>Picture Top : Inner circle reach the edge of TV raster. Picture Bottom : Inner circle reach the edge of TV</p>
		3.	Receive the NTSC circular signal, and check the picture size after the above V-size adjustment.
		4.	If $a > 0mm$, go back to IIC control No. 54(V-center adjustment) and increase the IIC data by 1 position.
			

VERTICAL SLOPE ADJUSTMENT(Must be done before V. Center and V. Size Adjustments)

PREPARATION		PROCEDURES	
1.	Turns on the TV set & heat run about 5 min.	1.	Select the IIC control address No. 30.
2.	Receive the circular pattern signal (PLL)	2.	Press ◀ or ▶ key on remote con. handset so that the button half of the picture is blanked.
3.	Set all picture settings as below. i.e. Contrast : Max Brightness : Center		i.e.
4.	AC 230 ± 1V		
		3.	Select the IIC Control address No. 59.
		4.	Adjust the vertical slope until the horizontal center line is just at the position where the blanking starts.
		5.	Select the IIC Control address No. 30.
		6.	Press ◀ or ▶ key on remote con. handset so that picture appears again.

HORIZONTAL PHASE ADJUSTMENT

PREPARATION		PROCEDURES	
1.	Receive the circular pattern signal.	1.	Select the IIC control address No. 06.
		2.	Adjust the picture center to meet the CRT geometrical center.

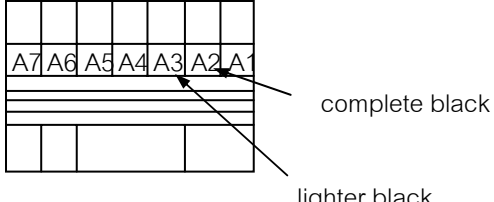
WHITE BALANCE ADJUSTMENT

PREPARATION		PROCEDURES	
<ol style="list-style-type: none"> 1. Switch on the TV set for at least 20 mins. 2. Adjust this adjustment after the Purity adjustment. 3. Ensure the vertical incident illumination on CRT surface to be 20 lux or less. 4. Receive the white balance raster. 5. Turns the low bright adjustment VRs R830, R831 & R832 fully counterclockwise. 6. Select the IIC control address No. 01 (White point red), No. 02 (White point green), No. 03 (White point blue) and set all data to 1FH 7. Turns the screen VR of FBT fully counterclockwise. 8. Select the IIC control address No. 10 (Sub-contrast) and set the data to 1FH. 9. Select the IIC control address No. 09 (Sub-brightness) and set the data to 26H. 	<ol style="list-style-type: none"> 1. Set black stretch (IIC service no. 58) to "0". 2. Set to lateral line mode (IIC service no. 80) from "0" to "1". 3. Turns the Screen VR of FBT clockwise and set it to the position where the bright color line starts to appear. 4. Takes the first appeared color as the reference, adjust R830(Green), R831(Blue) & R832(Red) till all appear to the same level as the reference color. Note : Don't turn the VR of the reference color. 5. Adjusts the Screen VR of FBT until the white raster line is just slightly seen. 6. Release the lateral line mode by changing IIC service no. 80 from "1" to "0". 7. Set black stretch (IIC service no. 58) to "1". 8. Set the White Balance meter probe at the center of the screen. 9. Adjusts the following keys of IIC and R830/R831/R832 to the desired W/B color temperature. 		
	<p><u>IIC Address No</u></p> <p>R Drive 01</p> <p>B Drive 03</p>		
	<p>Notes :</p> <p>a. Fix the G Drive at 1FH(IIC Address No. 02), do not adjust.</p> <p>b. To obtain the low brightness and high brightness conditions, adjust the brightness control of remote control handset.</p>		


SUB-TINT ADJUSTMENT

PREPARATION		PROCEDURES	
<ol style="list-style-type: none"> 1. Receive the color bar signal (NTSC). 2. Set the user control to Contrast: Max, Other: Center. 	<ol style="list-style-type: none"> 1. Select the IIC control address No. 08. 2. Set IIC address No. 08 to 1E. 		

SUB-BRIGHTNESS ADJUSTMENT

PREPARATION		PROCEDURES	
<ol style="list-style-type: none"> 1. Switch on the TV set for at least 20 min. 2. Ensure the vertical incident illumination on CRT surface to be 20 lux or less. 3. Receive the color bar pattern. 4. Set the following setting by remote control handset. Contrast : min Color : min Brightness : Center 	<ol style="list-style-type: none"> 1. Select the IIC control address No. 09 2. Adjust the data until A2 portion becomes black and A3 portion becomes lighter black. 		
			


REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE : Components marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing

SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
#0102	MJ01401	STL MS BH2.5X20 Y2P	C009	0800288R	ELECT CAP SMG 4.7UF 50V
#0103	8813123	STL SW M2.6 YZP			(NOT FOR BILINGUAL & NICAM/A2 MODELS)
#0104	8821113	STL HEX NUT TZM2.6 YZP	C012	0890115R	CER CAP SL 12PF 50V J
#0105	4243445	INSULATING WASHER	C013	0890115R	CER CAP SL 12PF 50V J
#0112	3442421	HEAT SINK S2 TC30 1MMT	C016	0800324R	ELECT CAP SMG 100UF 6.3V
#0113	MA01232	HEAT SINK	C017	0890087R	CER CAP B 1000PF 50V K
#0114	4519501	3X10B TNE SCREW	C018	0800325R	ELECT CAP SMG 100UF 10V
#0115	4519507	3X6 STL B7 BH YZP SCREW	C019	0890087R	CER CAP B 1000PF 50V K
#0153	3701202	G7 PCB HOLDER	C021	0880048R	CAP POLY FILM 0.022UF K 50V
#0155	3746073	IEC CORD HANGER CPT 213X	C022	0880044R	CAP POLY FILM 0.01UF K 50V
#0301	NA40151	V2 PROTECT METAL (FOR FRONT AV STEREO MODELS ONLY)	C023	0880035R	CAP POLY FILM 0.0022UF K 50V
#0661	3446473	POW HEATSINK H30 A6063S-T5	C024	0880039R	CAP POLY FILM 0.0047UF K 50V
#0662	4520881	M3X8 SCREW WITH WASHER	C025	0880037R	CAP POLY FILM 0.0033UF K 50V (NOT FOR NICAM/A2 MODELS)
#0902	4520883	M3X12 SCREW WITH WASHER	C026	0800279R	ELEC CAP SMG 1UF 50V
#0903	MA01313	HEAT SINK	C027	0880198R	CAP POLY FILM 0.22UF J 50V MMT
#0904	4340683C	HEAT SINK	C028	0880198R	CAP POLY FILM 0.22UF J 50V MMT
#0905	4520889	M3X10 SCREW W/WASHER CMT2990	C029	0880048R	CAP POLY FILM 0.022UF K 50V
#0906	4520881	M3X8 SCREW WITH WASHER	C030	0800282R	ELEC CAP SMG 2.2UF 50V
#0907	3720501	LEAD CLAMP CPT 143X/213X	C031	0800288R	ELECT CAP SMG 4.7UF 50V
#0908	8821234A	BS NUT M3(2)NIC	C032	0880016R	CAP POLY FILM 0.1UF K 50V AMZ
A02	JT21881	NICAM PCB ASSY (SKD)	C035	0880044R	CAP POLY FILM 0.01UF K 50V
B001	JK08131	V3AR MAIN PWB (TOOLING) (FOR 21" ROUND CPT MODELS ONLY)	C037	0880016R	CAP POLY FILM 0.1UF K 50V AMZ
B001	JK08132	V3AR MAIN PWB (TOOLING) (FOR 14,20" ROUND CPT MODELS ONLY)	C038	0880014R	MYLAR CAP 0.047UF K 50V AMZ T
C002	0800325R	ELECT CAP SMG 100UF 10V	C039	0800324R	ELECT CAP SMG 100UF 6.3V
C003	0800291R	ELEC CAP SMG 10UF 16V (NOT FOR NICAM/A2 MODELS)	C040	0880012R	MYLAR-CAP 0.022UF K 50V AMZ T
C004	0880039R	CAP POLY FILM 0.0047UF K 50V (NOT FOR NICAM/A2 MODELS)	C041	0890087R	CER CAP B 1000PF 50V K
C005	0890086R	CER CAP SL 820UF 50V (NOT FOR NICAM/A2 MODELS)	C042	0880016R	CAP POLY FILM 0.1UF K 50V AMZ
*C005	0890282R	ELEC CAP SMG 2.2UF 50V	C044	0880012R	MYLAR-CAP 0.022UF K 50V AMZ T
C006	0800316R	ELECT CAP SMG 47UF 10V (FULL MULTI SYS MODELS ONLY)	C046	0880012R	MYLAR-CAP 0.022UF K 50V AMZ T
C007	0800316R	ELECT CAP SMG 47UF 10V	C047	0800324R	ELECT CAP SMG 100UF 6.3V
C008	0800299R	ELECT CAP SME 22UF 16V	C048	0890087R	CKL-102K500B-DFT (FOR S-VIDEO MODELS ONLY)
			C049	0800324R	ELECT CAP SMG 100UF 6.3V
			C050	0880012R	MYLAR-CAP 0.022UF K 50V AMZ T
			C051	0800326R	ELECT CAP SMG 100UF 16V
			C052	0800326R	ELECT CAP SMG 100UF 16V
			C053	0800315R	CEL-470M6R3WMFT

* FOR NICAM/A2 MODELS ONLY


REPLACEMENT PARTS LIST

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
*C055	0890081R	CER CAP B 330PF 50V K	C427	0800325R	ELECT CAP SMG 100UF 10V
C056	0880051R	CAP POLY FILM 0.033UF K 50V	C445	0800368N	ELECT CAP YK 2200UF 25V
C057	0880044R	CAP POLY FILM 0.01UF K 50V	C445A	0880057R	CAP POLY FILM 0.1UF K 50V
C201	0880016R	CAP POLY FILM 0.1UF K 50V AMZ	C501	0890087R	CER CAP B 1000PF 50V K
C202	0800325R	ELECT CAP SMG 100UF 10V	C502	0800288R	ELEC CAP SMG 4.7UF 50V
*C203	0880044R	CAP POLY FILM 0.01UF K 50V	C604	0890092R	CER CAP B 2200PF 50V
C204	0800358R	ELECT CAP SMG 1000UF 6.3V	C605	0279693R	CAP POLY FILM 0.1UF K 100V AMZ (FOR 14" ROUND CPT MODELS ONLY)
C205	0800279R	ELECT-CAP SME 1UF 50V	C605	0880057R	CAP POLY FILM 0.1UF K 50V (FOR 20" & 21" ROUND CPT MODELS ONLY)
C206	0800317R	ELECT CAP SME 47UF 16V	C606	0880057R	CAP POLY FILM 0.1UF K 50V (NOT FOR 14" ROUND CPT MODELS)
*C207	0880044R	CAP POLY FILM 0.01UF K 50V	C607	0800294R	CAP POLY FILM 10UF K 50V
*C208	0880044R	CAP POLY FILM 0.01UF K 50V	C608	0279693R	CAP POLY FILM 0.1UF K 100V AMZ
C209	0880044R	CAP POLY FILM 0.01UF K 50V (FULL MULTI SYS MODELS ONLY)	C609	0279687R	CAP POLY FILM 0.01UF K 100V
C210	0800324R	ELECT CAP SMG 100UF 6.3V	C610	0279693R	CAP POLY FILM 0.1UF K 100V AMZ
C351	0800352R	ELECT CAP SMG 470UF 10V	C611	0279693R	CAP POLY FILM 0.1UF K 100V AMZ
C352	0800291R	ELEC CAP SMG 10UF 16V	C681	0880053R	CAP POLY FILM 0.047UF K 50V
C353	0800291R	ELEC CAP SMG 10UF 16V (NOT FOR AV MONO MODELS)	C683	0279691R	CAP POLY FILM 0.047UF K 100V
C408	0800291R	ELEC CAP SMG 10UF 16V	C723	0299918F	CAP POLY FILM 0.022UF 200V K
C409	0800291R	ELEC CAP SMG 10UF 16V (NOT FOR AV MONO MODELS)	C725	0800326R	ELECT CAP SMG 100UF 16V
C411	0800308R	ELEC CAP SMG 33UF 16V	C727	0880044R	CAP POLY FILM 0.01UF K 50V
C412	0800326R	ELECT CAP SMG 100UF 16V	C744	0258129F	CE04W2A221MF(KME)
C413	0800291R	ELEC CAP SMG 10UF 16V	C745	0800326R	ELECT CAP SMG 100UF 16V
*C415	0890081R	CER CAP B 330PF 50V K	C750	0800328R	ELEC CAP SMG 100UF 35V
*C416	0890081R	CER CAP B 330PF 50V K	C751	0800321R	ELEC CAP SMG 47UF 50V
C418	0800353R	ELEC CAP SMG 470UF 16V	C752	0244501R	CER CAP B 1000PF 500V K
C419	0800353R	ELEC CAP SMG 470UF 16V (NOT FOR AV MONO MODELS)	C753	0244501R	CER CAP B 1000PF 500V K
C421	0800291R	ELEC CAP SMG 10UF 16V	C754	0800362F	ELECT CAP SMG 1000UF 25V
C422	0800291R	ELEC CAP SMG 10UF 16V (FOR FRONT AV STEREO MODELS ONLY)	C755	0800335R	ELEC CAP SMG 220UF 16V
C423	0800039R	ELECT CAP SME 47UF 10V	C756	AL00029R	CE-220M251EWT10X20
C424	0880044R	CAP POLY FILM 0.01UF K 50V	C758	0880057R	CAP POLY FILM 0.1UF K 50V
C425	0800291R	CEL-100M160WMFT (FOR AV MONO MODELS ONLY)	C759	0244501R	CER CAP B 1000PF 500V K
C426	0800291R	CEL-100M160WMFT (FOR AV MONO MODELS ONLY)	C760	0800291R	ELEC CAP SMG 10UF 16V
			C781	AN01658F	CQ-113J152PHF DKRG (FOR 14" / 21" ROUND CPT MODELS ONLY)
			C781	AN01656F	0.0091uH 1.5 KV (FOR 20" ROUND CPT MODELS ONLY)

* FOR NICAM/A2 MODELS ONLY


REPLACEMENT PARTS LIST

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
C781A	AN01642F	FILM CAP DKRG 0.0027uF 1.5KV (NOT FOR 14" & 21" ROUND LG MODELS)	C941	0800294R	ELEC CAP SMG 10UF 50V
C782A	0244209	CK45R3D681K (FOR 21" ROUND LG MODELS ONLY)	C942	0800294R	ELEC CAP SMG 10UF 50V
C783	0244202	CK45R3D471K	C952	0244206	CK45R3D331K
C784	AN01178F	0.47uF 250V (FOR 20" ROUND CPT MODELS ONLY)	C953	0258129F	CE04W2A221MF(KME)
C784	AN01245F	FILM CAP DHSM 0.56UF J 250V (FOR 21" ROUND LG/T.CRT MODELS ONLY)	C955	0243507	CER CAP B 330PF 500V K
C784	AN01183F	0.68UF 250V (FOR 14"/21" ROUND SEG MODELS ONLY)	C956	0800368F	ELECT CAP SMG 2200UF 25V
C785	0244507R	CER CAP B 3300PF 500V K	C957	0800327R	ELEC CAP SMG 100UF 25V
C786	0243512R	CER CAP B 820PF 500V K	C958	0243509R	CER CAP B 470PF 500V K
C787	0800288R	ELEC CAP SMG 4.7UF 50V	C959	0800294R	ELEC CAP SMG 10UF 50V
C789	0890077R	CKL 181K500 BD FT-D3	C960	0880053R	CAP POLY FILM 0.047UF K 50V
C790	0244501R	CER CAP B 1000PF 500V K	C961	0880044R	CAP POLY FILM 0.01UF K 50V
C795	0880005R	MYLAR CAP 0.0022UF K 50V AMZ T	C998	AJ00821	CC-102M251C-D KX
C801	0890084R	CER CAP B 560PF 50V K	C999	AJ00823	CC-102M251E-D KX
C802	0890084R	CER CAP B 560PF 50V K	CK122	0800291R	CEL-100M160WMFT (FOR AV MONO MODELS ONLY)
C803	0890084R	CER CAP B 560PF 50V K	*CN01	0800325R	ELECT CAP SMG 100UF 10V
C805	AJ00559	CER CAP 2200PF K 2KV	CN02	0800325R	ELECT CAP SMG 100UF 10V
C901	AN01443S	POLY CAP 0.1UF-M 250V	CR083	0880044R	CAP POLY FILM 0.01UF K 50V (FOR BILINGUAL MODELS ONLY)
C902	AN01443S	POLY CAP 0.1UF-M 250V	D001	CH02081	LED SLR37VC3F
C903	0248593F	CER CAP F 4700PF 250V Z	D002	2338321M	DIODE 1SS270 TA
C904	0248593F	CER CAP F 4700PF 250V Z	D003	2339843M	ZENER DIODE HZS6A3 TA
C905	0248594F	CER CAP F 10000PF 250V Z	D005	2338321M	DIODE 1SS270 TA
C906	AL00097	ELEC CAP KMH 180UF 450V	D006	2338321M	DIODE 1SS270 TA (FOR FULL MULTI SYS MODELS ONLY)
C907	0244202	CK45R3D471K (FOR 14" ROUND CPT MODELS ONLY)	D051	2338321M	DIODE 1SS270 TA
C907	0244209	CK45R3D681K (FOR 20/21" ROUND CPT MODELS ONLY)	D056	2338321M	DIODE 1SS270 TA
C908	0890086R	CER CAP B 820PF 50V K	D101	2339972M	ZENER DIODE HZS33-2 TA
C909	0800327R	ELEC CAP SMG 100UF 25V	D351	2339869M	ZENER DIODE HZS9C3 TA (FOR S-VIDEO MODELS ONLY)
C910	0880035R	CAP POLY FILM 0.0022UF K 50V	D401	2338321M	DIODE 1SS270 TA
C911	AJ00542F	CER CAP B 4700PF K 1KV	D402	2338321M	DIODE 1SS270 TA
C912	0245153	CHL-102K202RDL	D421	2338321M	DIODE 1SS270 TA
C938	0800294R	ELEC CAP SMG 10UF 50V	D440	2338321M	DIODE 1SS270 TA
CR943	0800326R	ELECT CAP SMG 100UF 16V	D501	2339869M	ZENER DIODE HZS9C3 TA
			D502	2339869M	ZENER DIODE HZS9C3 TA
			D503	2339869M	ZENER DIODE HZS9C3 TA
			D504	2339858M	ZENER DIODE HZS7C2 TA

* FOR NICAM/A2 MODELS ONLY


REPLACEMENT PARTS LIST

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
D505	2339858M	ZENER DIODE HZS7C2 TA	D952	CH01981	DIODE FSF05A20
D512	2339869M	ZENER DIODE HZS9C3 TA	D953	CH00711M	DIODE 10ELS2-TA2B5
D513	2338321M	DIODE 1SS270 TA	D955	2337341M	DIODE 1SS270A TA (HM)
D514	2338321M	DIODE 1SS270 TA	D956	CH00711M	DIODE 10ELS2-TA2B5
D608	CH00711M	DIODE 10ELS2-TA2B5	D957	2339837M	ZENER DIODE HZS5C1 TA
D609	2337341M	DIODE 1SS270A TA (HM)	D958	CH00711M	DIODE 10ELS2-TA2B5
D610	2337341M	DIODE 1SS270A TA (HM)	D959	2338321M	DIODE 1SS270 TA
D611	2337341M	DIODE 1SS270A TA (HM)	D973	2339921M	ZENER DIODE HZS20-1 TA
D721	2339854M	ZENER DIODE HZS7B1 TA	D975	2339853M	ZENER DIODE HZS7A3TA (HM)
D741	CH00711M	DIODE 10ELS2-TA2B5	D976	CH00711M	DIODE 10ELS2-TA2B5
D742	2338321M	DIODE 1SS270 TA	D980	2339858M	ZENER DIODE HZS7C2 TA
D743	2338321M	DIODE 1SS270 TA	E203	2774731R	FERRITE BEAD CORE WITH LEAD
D750	2339972M	ZENER DIODE HZS33-2 TA	E301	2695261	6P PIN JACK WITH SUPPORT PLATE (AV STEREO MODELS ONLY)
D751	CH00712M	DIODE 10ELS4-TA2B5	E301	2695251	4P PIN JACK WITH SUPPORT PLATE (AV MONO MODELS ONLY)
D752	CH00712M	DIODE 10ELS4-TA2B5	E302	EY01161	S-TERMINAL W/SW YKF51-5503 (FOR S-VIDEO MODELS ONLY)
D753	2333001M	DIODE RU2M TAPE	E303	EQ00212	PIN JACK YKC21-5701 3P (FOR FRONT AV STEREO MODELS ONLY)
D754	2338321M	DIODE 1SS270 TA	E303	EQ00211	PIN JACK YKC21-5701 2P (FOR FRONT AV MONO MODELS ONLY)
D755	2339827M	ZENER DIODE HZS4C1 TA	E402	2902261	PIN POST ((V)B2B-EH)
D756	2339222M	ZENER DIODE HZS27-2LTA	E403	2902262	PIN POST ((V)B3B-EH) (NOT FOR 1 SPEAKER MODELS)
D757	CH00712M	DIODE 10ELS4-TA2B5	E801	2698673	CRT SOCKET CMT2579 (FOR 21" ROUND CPT MODELS ONLY)
D758	2338321M	DIODE 1SS270 TA	E801	EY00221	CRT SOCKET MININECK (FOR 14/20" MODELS ONLY)
D759	2339843M	ZENER DIODE HZS6A3 TA	E802	2964962	5P BOARD-IN-CONN W/WIRES
D760	2339862M	ZENER DIODE HZS9A2 TA (HM)	E803	2966825	3 WIRE 4J BOARD IN CONNECTOR
D762	CH00712M	DIODE 10ELS4-TA2B5	E804	ED03172	2P PLUG PIN
D763	CH00712M	DIODE 10ELS4-TA2B5	E903	EV00071C	AC POWER (CODE 051 ONLY)
D901A	2338314	DIODE RBV-406M(LF-A)	E903	2972581A	AC POWER (CODE 131/19*/751/98* ONLY)
D905	CH00711M	DIODE 10ELS2-TA2B5	E903	2972591A	AC POWER (CODE 081/081S/433 ONLY)
D906	CH00711M	DIODE 10ELS2-TA2B5			
D908	2339853M	ZENER DIODE HZS7A3TA (HM)			
D909	CH00711M	DIODE 10ELS2-TA2B5			
D910	2339835M	ZENER DIODE HZS5B2 TA			
D911	CH00711M	DIODE 10ELS2-TA2B5			
D912	CH00711M	DIODE 10ELS2-TA2B5			
D914	CH00712M	DIODE 10ELS4-TA2B5			
D914A	CH00712M	DIODE 10ELS4-TA2B5			
D915	2339222M	ZENER DIODE HZS27-2LTA			
D936	2339022M	ZENER DIODE HZS6B2L TA (JPN)			
D951	2338931	DIODE FMG-G26S			

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REPLACEMENT PARTS LIST

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
E905	EK00901	2J PROCESSED WIRE W/JST PIN	L011	2123102M	AXIAL COIL LAL02 TB 8R2K
E905	2276011	DEGUASING COIL 14" ROUND CPT			(FOR MULTI & FULL MULTI SYS MODELS ONLY)
E905	2276011A	DEGUASING COIL 14" ROUND CPT (CODE 071 ONLY)	L012	2123098M	AXIAL COIL LAL02 TB 4R7M (FOR MULTI & FULL MULTI SYS MODELS ONLY)
E905	2276001A	DEGUASING COIL 20" & 21" ROUND CPT	L013	2122253M	AXIAL COIL LAL04 TB 101K
E905	2276001	DEGUASING COIL 20" & 21" ROUND CPT (CODE 071 ONLY)	L201	2123103M	AXIAL COIL LAL02 TB 100K
E906	ED03172	2P PLUG PIN	L202	2122253M	AXIAL COIL LAL04 TB 101K
E906L	2729252BR	FUSE HOLDER TP00351-51	L203	2122253M	AXIAL COIL LAL04 TB 101K
E906R	2729252BR	FUSE HOLDER TP00351-51	L204	2123413M	AXIAL COIL LAL02 TB 1R5M
E950	3763751	SK BINDER (COMMON)	L205	2123116M	AXIAL COIL LAL02 TB 101K
EM	ED03659	TV50P-06-T3	L400	2123103M	AXIAL COIL LAL02 TB 100K
F901	2721615A	FUSE 3.15A	L402	2122253M	AXIAL COIL LAL04 TB 101K
I001	CP08161U	TDA9381PS/N2/2S (NOT FOR NICAM/A2 MODELS)	L601	BH00205R	HIGH FREQ. INDUCTOR 22UH
*I001	CP08081U	TDA9386PS/N2/2S	L705	BH00205R	HIGH FREQ. INDUCTOR 22UH (FOR 20/21" ROUND CPT MODELS ONLY)
I002	CP05274U	IC M24C04-BN6	L763	2125808N	HC-680KS1T(LHL08) (FOR 14,20" & 21" ROUND LG MODELS ONLY)
I004	CP04232	IC BA033T (AVR-1600)	L763	BH00205R	HIGH FREQ. INDUCTOR 22UH (FOR 21" ROUND T.CRT/SEG MODELS ONLY)
I005	CP02411	IC KIA7805API	L781	2164541B	HORIZONTAL LINEARITY COIL (FOR 20" & 21" ROUND CPT MODELS ONLY)
I401	2003981	IC BA7604N (S6 CHASSIS)	L781	2275661	HORIZONTAL LINEARITY COIL (FOR 14" ROUND CPT MODELS ONLY)
I402	CP05751	IC AN5276 (V2 CHASSIS)	L802	BH00729R	HC-470KS1T(FIXED IND (FOR 14" ROUND CPT MODELS ONLY)
I681	CP05651A	IC TDA8356/N6	L802	2125808N	HC-680KS1T(LHL08) (FOR 20" ROUND CPT MODELS ONLY)
I901	CZ01061	IC STR-F6454R	L802	BH00206R	HC-270K-1T7608A (FOR 21" ROUND CPT MODELS ONLY)
I902	CP06201	IC TCET1103G	L901	BZ03001	LINE FILTER
I932	CP06201	IC TCET1103G	L902	BZ03002	LINE FILTER
I933	CP06201	IC TCET1103G	L903	BH01162M	FERRITE BEAD WITH CORE 2.3UH
J401	2672041	3.5 MINI PHONE JACK (FOR EAR PHONE JACK MODELS ONLY)	L904	BH01162M	FERRITE BEAD WITH CORE 2.3UH
L001	2123468M	FERRITE CORE 0.8UH	L905	BH01161M	FERRITE BEAD WITH CORE 0.8UH
L003	2123468M	FERRITE CORE 0.8UH	L951	BH01162M	FERRITE BEAD WITH CORE 2.3UH
L004	2123468M	FERRITE CORE 0.8UH	L952	BH01162M	FERRITE BEAD WITH CORE 2.3UH
L005	2123103M	AXIAL COIL LAL02 TB 100K	L953	BH00734R	CHOKE COIL 100UH
L006	2123103M	AXIAL COIL LAL02 TB 100K	L954	BH01162M	FERRITE BEAD WITH CORE 2.3UH
L007	2123103M	AXIAL COIL LAL02 TB 100K			
L008	2123103M	AXIAL COIL LAL02 TB 100K			
L009	2123103M	AXIAL COIL LAL02 TB 100K			
L010	2123104M	AXIAL COIL LAL02 TB 120K (NOT FOR MULTI SYS MODELS)			

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
L955	BH00734R	CHOKE COIL 100UH	Q853	CF00951	TRS KTC3229
L956	BH01162M	FERRITE BEAD WITH CORE 2.3UH	Q931	CF01421R	TRS. KTC3198GR(AT)
*LN01	2122956M	AXIAL COIL LAL03 TB 101K	Q932	CF01431R	TRS. KTA1266Y(AT)
LK802	BH01162M	FERRITE BEAD WITH CORE 2.3UH (FOR 21" ROUND T.CRT MODELS ONLY)	Q933	2326631	THYRISTOR CR5AS-8
PR763	0119514S	RN14S2E100JF	Q934	CJ00161R	TRS. BT149-B
PR764	AZ00104M	PROTECTOR 2A/60V 491002T52	Q951	CF01821R	TRS KTC3206Y(AT)
PR765	AZ00105M	PROTECTOR 2.5A 49102.5T52	Q953	CF01431R	TRS. KTA1266Y(AT)
Q001	CF01421R	TRS. KTC3198GR(AT) (FOR FULL MULTI SYS MODELS ONLY)	Q954	CF01991R	TRS KTA1273
Q002	CF01431R	TRS. KTA1266Y(AT)	Q955	CF01421R	TRS. KTC3198GR(AT)
Q003	CF01421R	TRS. KTC3198GR(AT) (FOR FULL MULTI SYS MODELS ONLY)	Q956	CF01421R	TRS. KTC3198GR(AT)
Q004	CF01421R	TRS. KTC3198GR(AT) (FOR MULTI & FULL MULTI SYS MODELS ONLY)	R002	0700052M	RES CAR FILM 1/16W 6.8KJ
Q005	CF01421R	TRS. KTC3198GR(AT) (NOT FOR MULTI SYS MODELS)	R003	0700039M	RES-CAR 1/16W 820J T
*Q006	CF01421R	TRS. KTC3198GR(AT)	R004	0700042M	RES CAR FILM 1/16W 1.2KJ
Q051	CF01431R	TRS. KTA1266Y(AT)	R005	0700042M	RES CAR FILM 1/16W 1.2KJ
Q201	CF01011R	TRS KTC3197	R006	0700044M	RES CAR FILM 1/16W 1.8KJ
*Q202	CF01011R	TRS KTC3197	R007	0700047M	RES-CAR 1/16W 3.3KJ T
Q410	CF01421R	TRS. KTC3198GR(AT) (FOR AV MONO MODELS ONLY)	R008	0700047M	RES-CAR 1/16W 3.3KJ T
Q420	CF01421R	TRS. KTC3198GR(AT)	*R009	0700034M	RES-CAR FILM 1/16W 330J T
Q440	CF01431R	TRS. KTA1266Y(AT)	R010	0700045M	RES-CAR 1/16W 2.2KJ T
Q503	CF01421R	TRS. KTC3198GR(AT)	R011	0700038M	RES-CAR 1/16W 680J T
Q504	CF01421R	TRS. KTC3198GR(AT)	R012	0700056M	RES-CAR 1/16W 15KJ T
Q681	2323522M	2SD789E	R013	0700054M	RES CAR FILM 1/16W 10KJ
Q721	CF01061R	TRS. MPSA42(AT)	*R014	0700041M	RES CAR FILM 1/16W 1.0KJ
Q722	2320663M	TRS 2SC1213APC RR	R018	0700027M	RES CAR FILM 1/16W 100J
Q723	2312171	TRS 2SC3852	R019	0700027M	RES CAR FILM 1/16W 100J
Q724	CF01431R	TRS. KTA1266Y(AT)	R020	0700027M	RES CAR FILM 1/16W 100J
Q725	2312171	TRS 2SC3852	R021	0700045M	RES-CAR 1/16W 2.2KJ T
Q745	CJ00161R	TRS. BT149-B	R023	0700054M	RES CAR FILM 1/16W 10KJ
Q746	2320663M	TRS 2SC1213APC RR	R024	0700054M	RES CAR FILM 1/16W 10KJ
Q781	CF02221	TRS 2SD2578-HIT	R025	0700027M	RES CAR FILM 1/16W 100J
Q851	CF00951	TRS KTC3229	R026	0700041M	RES CAR FILM 1/16W 1.0KJ
Q852	CF00951	TRS KTC3229	R027	0700038M	RES-CAR 1/16W 680J T
			R028	0700027M	RES CAR FILM 1/16W 100J (FOR FULL MULTI SYS MODELS ONLY)
			R029	0700027M	RES CAR FILM 1/16W 100J
			R030	0700027M	RES CAR FILM 1/16W 100J
			R031	0700027M	RES CAR FILM 1/16W 100J
			R032	0700047M	RES-CAR 1/16W 3.3KJ T

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
R033	0700037M	RES-CAR 1/16W 560J T	R079	0700034M	RES-CAR FILM 1/16W 330J T
R034	0700047M	RES-CAR 1/16W 3.3KJ T			(NOT FOR MULTI SYS MODELS)
R035	0700041M	RES CAR FILM 1/16W 1.0KJ	R080	0700052M	RES CAR FILM 1/16W 6.8KJ
R037	0700027M	RES CAR FILM 1/16W 100J			(FOR FULL MULTI SYS MODELS ONLY)
R038	0700062M	RES CAR FILM 1/16W 39KJ	R081	0700045M	RES-CAR 1/16W 2.2KJ T
R039	0700027M	RES CAR FILM 1/16W 100J			(FOR FULL MULTI SYS MODELS ONLY)
R040	0700027M	RES CAR FILM 1/16W 100J	R082	0700033M	RES-CAR 1/16W 270J T
R041	0700056M	RES-CAR 1/16W 15KJ T			(NOT FOR MULTI SYS MODELS)
		(FOR FULL MULTI SYS MODELS ONLY)	R083	0700031M	RES-CAR 1/16W 180J T
R043	0700056M	RES-CAR 1/16W 15KJ T	R084	0700034M	RES-CAR FILM 1/16W 330J T
R044	0700056M	RES-CAR 1/16W 15KJ T	R085	0700027M	RES CAR FILM 1/16W 100J
R046	0700041M	RES CAR FILM 1/16W 1.0KJ	R086	0700064M	RES CAR FILM 1/16W 56KJ
		(FOR FULL MULTI SYS MODELS ONLY)			(FOR FULL MULTI SYS MODELS ONLY)
R047	0700027M	RES CAR FILM 1/16W 100J	R087	0700045M	RES-CAR 1/16W 2.2KJ T
R048	0700027M	RES CAR FILM 1/16W 100J			(FOR FULL MULTI SYS MODELS ONLY)
R049	0700027M	RES CAR FILM 1/16W 100J	R089	0700056M	RES-CAR 1/16W 15KJ T
R050	0700041M	RES CAR FILM 1/16W 1.0KJ	R090	0188171M	RES CAR FILM 1/2W 1M-J
R051	0700035M	RES-CAR 1/16W 390J T	R091	0700027M	RES CAR FILM 1/16W 100J
R057	0700059M	RES-CAR 1/16W 27KJ T			(FOR MULTI & FULL MULTI SYS MODELS ONLY)
R059	0700067M	RES CAR FILM 1/16W 100KJ	R092	0700045M	RES-CAR 1/16W 2.2KJ T
R061	0700027M	RES CAR FILM 1/16W 100J			(FOR MULTI & FULL MULTI SYS MODELS ONLY)
		(FOR S-VIDEO MODELS ONLY)	R093	0700045M	RES-CAR 1/16W 2.2KJ T
*R066	0700041M	RES CAR FILM 1/16W 1.0KJ			(FOR FULL MULTI SYS MODELS ONLY)
		(FOR NICAM & AV MONO MODELS)	R094	0700064M	RES CAR FILM 1/16W 56KJ
R067	0700047M	RES-CAR 1/16W 3.3KJ T			(FOR FULL MULTI SYS MODELS ONLY)
		(FOR FULL MULTI SYS MODELS ONLY)	R095	0100035M	RES CAR FILM SRD 1/8 PB 56 J
R068	0700041M	RES CAR FILM 1/16W 1.0KJ	R102	0700058M	RES-CAR FILM 1/16W 22KJ T
		(FOR FULL MULTI SYS MODELS ONLY)	R103	0700027M	RES CAR FILM 1/16W 100J
R069	0700027M	RES CAR FILM 1/16W 100J	R104	0700027M	RES CAR FILM 1/16W 100J
R070	0700027M	RES CAR FILM 1/16W 100J	R201	0700052M	RES CAR FILM 1/16W 6.8KJ
R071	0700048M	RES CAR FILM 1/16W 3.9KJ	R201A	0700027M	RES CAR FILM 1/16W 100J
R073	0700038M	RES-CAR 1/16W 680J T	R202	0700042M	RES CAR FILM 1/16W 1.2KJ
R074	0700059M	RES-CAR 1/16W 27KJ T	*R203	0700041M	RES CAR FILM 1/16W 1.0KJ
R076	0700027M	RES CAR FILM 1/16W 100J	*R204	0100029M	RES CAR FILM SRD 1/8 PB 33 J
		(FOR AV MONO MODELS ONLY)	R204	0700019M	RES CAR FILM SRD 1/8 PB 27 J
R077	0700027M	RES CAR FILM 1/16W 100J	*R205	0100041M	RES CAR FILM SRD 1/8 PB 270 J
R078	0700027M	RES CAR FILM 1/16W 100J	R205	0700033M	RES CAR FILM SRD 1/8 PB 270 J
			*R206	0700051M	RES CAR FILM 1/16W 5.6KJ

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
*R207	0700035M	RES-CAR 1/16W 390J T	R402	0700041M	RES CAR FILM 1/16W 1.0KJ
*R208	0700024M	RES CAR FILM 1/16W 56J			(FOR AV MONO MODELS ONLY)
R214	0700058M	RES-CAR FILM 1/16W 22KJ T	R410	0100059M	RES CAR FILM SRD 1/8 PB 560 J
R215	0700026M	RES CAR FILM 1/16W 82J			(FOR EAR PHONE JACK MODELS ONLY)
R351	0100038M	RES CAR FILM SRD 1/8 PB 75 J (FOR FRONT AV MODELS ONLY)	R411	0100059M	RES CAR FILM SRD 1/8 PB 560 J (FOR EAR PHONE JACK MODELS ONLY)
R352	0100041M	RES CAR FILM SRD 1/8 PB 100 J (FOR FRONT AV MODELS ONLY)	R419	0700054M	RES CAR FILM 1/16W 10KJ
R353	0100113M	RES CAR FILM SRD 1/8 PB 100K J (FOR FRONT AV MODELS ONLY)	R420	0100045M	RES CAR FILM SRD 1/8 PB 150 J
R354	0100041M	RES CAR FILM SRD 1/8 PB 100 J (FOR FRONT AV MODELS ONLY)	R421	0700027M	RES CAR FILM 1/16W 100J
R355	0100113M	RES CAR FILM SRD 1/8 PB 100K J (FOR FRONT AV STEREO MODELS ONLY)	R422	0700027M	RES CAR FILM 1/16W 100J (FOR AV MONO MODELS ONLY)
R356	0100041M	RES CAR FILM SRD 1/8 PB 100 J (FOR FRONT AV STEREO MODELS ONLY)	R423	0700058M	RES CAR FILM 1/16W 22KJ T
R357	0100038M	RES CAR FILM SRD 1/8 PB 75 J	R424	0700027M	RES CAR FILM 1/16W 100 J (FOR AV MONO MODELS ONLY)
R358	0100041M	RES CAR FILM SRD 1/8 PB 100 J	R428	0700054M	RES CAR FILM 1/16W 10KJ
R359	0100113M	RES CAR FILM SRD 1/8 PB 100K J	R440	0700051M	RES CAR FILM 1/16W 5.6KJ (NOT FOR 1 SPEAKER MODELS)
R360	0100041M	RES CAR FILM SRD 1/8 PB 100 J	R441	0700051M	RES CAR FILM 1/16W 5.6KJ
R361	0100113M	RES CAR FILM SRD 1/8 PB 100K J (NOT FOR AV MONO MODELS)	R442	0700038M	RES-CAR 1/16W 680J T (NOT FOR 1 SPEAKER MODELS)
R362	0100041M	RES CAR FILM SRD 1/8 PB 100 J (NOT FOR AV MONO MODELS)	R443	0114145M	RES CAR FILM SRD 1/4 PB 390 J (NOT FOR 1 SPEAKER MODELS)
R363	0100113M	RES CAR FILM SRD 1/8 PB 100K J	R444	0700038M	RES-CAR 1/16W 680J T
R364	0100037M	RES CAR FILM SRD 1/8 PB 68 J	R445	0700027M	RES CAR FILM 1/16W 100J
R365	0100113M	RES CAR FILM SRD 1/8 PB 100K J	R447	0114145M	RES CAR FILM SRD 1/4 PB 390 J
R366	0100041M	RES CAR FILM SRD 1/8 PB 100 J	R453	0700027M	RES CAR FILM 1/16W 100J
R367	0100113M	RES CAR FILM SRD 1/8 PB 100K J (NOT FOR AV MONO MODELS)	R516	0700058M	RES-CAR FILM 1/16W 22KJ T
R368	0100041M	RES CAR FILM SRD 1/8 PB 100 J (NOT FOR AV MONO MODELS)	R517	0700053M	RES CAR FILM 1/16W 8.2KJ
R369	0100038M	RES CAR FILM SRD 1/8 PB 75 J (FOR S-VIDEO MODELS ONLY)	R518	0700053M	RES CAR FILM 1/16W 8.2KJ
R370	0100041M	RES CAR FILM SRD 1/8 PB 100 J (FOR S-VIDEO MODELS ONLY)	R519	0700046M	RES-CAR 1/16W 2.7KJ T
R401	0700027M	RES CAR FILM 1/16W 100J (FOR AV MONO MODELS ONLY)	R520	0700056M	RES-CAR 1/16W 15KJ T (FOR 20" & 21" ROUND CPT MODELS ONLY)
			R520	0700054M	RES CAR FILM 1/16W 10KJ (FOR 14" ROUND CPT MODELS ONLY)
			R521	0700045M	RES-CAR 1/16W 2.2KJ T
			R522	0700034M	RES-CAR FILM 1/16W 330J T
			R523	0700054M	RES CAR FILM 1/16W 10KJ
			R603	0700054M	RES CAR FILM 1/16W 10KJ

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
R604	0700045M	RES-CAR 1/16W 2.2KJ T	R758	0119643M	1/8W RES MTL OXIDE 33K F
R605	0119722M	FUSING RES MTL FILM 1W 1J (NOT FOR 14" & 20" ROUND CPT MODELS)	R759	0110273S	2W RES MTL OXIDE 15KJ
R605	0119841M	RNL-R82J0001LT (FOR 21" ROUND CPT MODELS ONLY)	R760	0100093M	RES CAR FILM SRD 1/8 PB 15K J
R606	0700027M	RES CAR FILM 1/16W 100J	R761	0100077M	RES CAR FILM SRD 1/8 PB 3.3K J
R681	0110129S	1W RES MTL OXIDE 220J	R781	0147626	RW99J3Y4R7KM
R682	0100035M	RES CAR FILM SRD 1/8 PB 56 J	R782	0110285S	2W RES MTL OXIDE 47K J
R683	0700041M	RES CAR FILM 1/16W 1.0KJ	R783	0100091M	RES CAR FILM SRD 1/8 PB 12K J
R684	0100123M	RD14S2B274JB	R784	0113748M	CAR RES 1/2PB 820J
R720	0110361S	RS08B3F472JS (FOR 14" ROUND CPT MODELS ONLY)	R792	0700052M	RDL-682J1-16LT (FOR 14" ROUND CPT MODELS ONLY)
R720	0110359S	RS08B3F392JS (FOR 20" & 21" ROUND CPT MODELS ONLY)	R792	0700041M	RES CAR FILM 1/16W 1.0KJ (FOR 21" ROUND T.CRT MODELS ONLY)
R721	0110211S	2W RES MTL OXIDE 39JS	R801	0700027M	RES CAR FILM 1/16W 100J
R722	0110201S	2W RES MTL OXIDE 15JS	R802	0700027M	RES CAR FILM 1/16W 100J
R723	0100057M	RES CAR FILM SRD 1/8 PB 470 J	R803	0700027M	RES CAR FILM 1/16W 100J
R724	0700041M	RES CAR FILM 1/16W 1.0KJ	R804	0700033M	RES-CAR 1/16W 270J T
R725	0700054M	RES CAR FILM 1/16W 10KJ	R805	0700033M	RES-CAR 1/16W 270J T
R727	0700054M	RES CAR FILM 1/16W 10KJ	R806	0700033M	RES-CAR 1/16W 270J T
R730	0700047M	RES-CAR 1/16W 3.3KJ T	R807	0700042M	RES CAR FILM 1/16W 1.2KJ
R741	0700032M	RES-CAR 1/16W 220J T	R808	0700042M	RES CAR FILM 1/16W 1.2KJ
R742	0700055M	RES-CAR FILM 1/16W 12KJ T	R809	0700042M	RES CAR FILM 1/16W 1.2KJ
R743	0700052M	RES CAR FILM 1/16W 6.8KJ	R810	0100047M	RES CAR FILM SRD 1/8 PB 180 J (FOR 14 & 21" LG/SEG MODELS ONLY)
R743A	0700038M	RES-CAR 1/16W 680J T	R810	0114137M	RES CAR FILM 1/4W 180J (FOR 21" ROUND T.CRT MODELS ONLY)
R744	0100065M	RES CAR FILM SRD 1/8 PB 1K J	R811	0110271S	2W RES MTL OXIDE 12K J
R745	0700039M	RES-CAR 1/16W 820J T	R812	0110271S	2W RES MTL OXIDE 12K J
R751	0114221M	RD14S2E683JB (FOR 14" ROUND CPT MODELS ONLY)	R813	0110271S	2W RES MTL OXIDE 12K J
R751	0114219M	RD14S2E563JB (FOR 20" & 21" ROUND CPT MODELS ONLY)	R814	0113744M	CAR RES 1/2PB 560J
R752	0114221M	RD14S2E683JB (FOR 14" ROUND CPT MODELS ONLY)	R815	0113744M	CAR RES 1/2PB 560J
R752	0114213M	RD14S2E333JB (FOR 20" & 21" ROUND CPT MODELS ONLY)	R816	0113744M	CAR RES 1/2PB 560J
R753	0100049M	RES CAR FILM SRD 1/8 PB 220 J	R821	0113815M	CAR RES 1/2PB 470KJ
R756	0110273S	2W RES MTL OXIDE 15KJ	R830	AW00293	VAR RES NVG6TH1 500-B
R757	0118969M	1/4W MTL OXIDE 220K G	R831	AW00293	VAR RES NVG6TH1 500-B
			R832	AW00293	VAR RES NVG6TH1 500-B
			R833	0700039M	RES-CAR 1/16W 820J T
			R834	0700039M	RES-CAR 1/16W 820J T
			R835	0700039M	RES-CAR 1/16W 820J T

* FOR NICAM/A2 MODELS ONLY


REPLACEMENT PARTS LIST

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
R901	0144155A	RES W/WOUND 2W 68J RF-2TJ680	R959	0700046M	RES-CAR 1/16W 2.7KJ T
R902	0147614	RES WIRE WOUND 7W 1.5J 7ZK1R5	R962	0100075M	RES CAR FILM SRD 1/8 PB 2.7K J
R902A	0147616	RES WIRE WOUND 7W 1.8J	R963	0700043M	RES-CAR 1/16W 1.5KJ T
R904	0113799M	CAR RES 1/2PB 100KJ	R964	0113785M	CAR RES 1/2PB 27 KJ
R905	0114291M	RES CAR FILM SRD 1/4 PB 270K J	R965	0700063M	RES CAR FILM 1/16W 47KJ
R906	0113703M	CAR RES 1/2PB 12J	R966	0700049M	RES CAR FILM 1/16W 4.7KJ
R907	0100111M	RES CAR FILM SRD 1/8 PB 82K J	R967	0100075M	RES CAR FILM SRD 1/8 PB 2.7K J
R908	0100071M	RES CAR FILM SRD 1/8 PB 1.8K J	R968	0113723M	CAR RES 1/2PB 82J
R909	0100069M	RES CAR FILM SRD 1/8 PB 1.5K J	R969	0700049M	RES CAR FILM 1/16W 4.7KJ
R911	0100061M	RES CAR FILM SRD 1/8 PB 680 J	R970	0700049M	RES CAR FILM 1/16W 4.7KJ
R913	0148015	RES WIRE WOUND 2W 0.18J (FOR 14" ROUND CPT MODELS ONLY)	R971	0700054M	RES CAR FILM 1/16W 10KJ
R913	0148012	RES WIRE WOUND 2W 0.1J (FOR 20" & 21" ROUND CPT MODELS ONLY)	R972	0700041M	RES CAR FILM 1/16W 1.0KJ
R914	0100077M	RES CAR FILM SRD 1/8 PB 3.3K J	R973	0700054M	RES CAR FILM 1/16W 10KJ
R915	0114289M	RES CAR FILM SRD 1/4 PB 220K J	R974	0700049M	RES CAR FILM 1/16W 4.7KJ
R916	AT03477S	RES MTL OXIDE 2W 68K	R975	0700049M	RES CAR FILM 1/16W 4.7KJ
R917	0113799M	CAR RES 1/2PB 100KJ	R976	0113785M	CAR RES 1/2PB 27 KJ
R930	0113801M	CAR RES 1/2PB 120KJ	R977	0700041M	RES CAR FILM 1/16W 1.0KJ
R933	0113801M	CAR RES 1/2PB 120KJ	R980	0100065M	RES CAR FILM SRD 1/8 PB 1K J
R934	0114177M	RES CAR FILM SRD 1/4 PB 4.7K J	R998	0174704	METAL FIXED RES 10M J VR68
R935	0700046M	RES-CAR 1/16W 2.7KJ T	RC009	0700041M	RES CAR FILM 1/16W 1.0KJ (FOR BILINGUAL MODELS ONLY)
R936	0700054M	RES CAR FILM 1/16W 10KJ	RC757	0113774M	CAR RES 1/2PB 10KJ (FOR 14" ROUND CPT MODELS ONLY)
R937	0700054M	RES CAR FILM 1/16W 10KJ	RC940	0700041M	RES CAR FILM 1/16W 1.0KJ
R939	0113807M	RES CAR 1/2 PB 220K J	RK129	0700027M	RES CAR FILM 1/16W 100J
R939A	0114285M	RES CAR 1/4 PB 150 KJ	RK152	0700027M	RES CAR FILM 1/16W 100J
R940	0700027M	RES CAR FILM 1/16W 100J	RK184	0700049M	RES CAR FILM 1/16W 4.7KJ
R941	0700058M	RES-CAR FILM 1/16W 22KJ T	RL901	FJ00211U	RELAY 12V SDT-S-112LMR
R942	0700049M	RES CAR FILM 1/16W 4.7KJ	*RN01	0700027M	RES CAR FILM 1/16W 100J
R944	0700041M	RES CAR FILM 1/16W 1.0KJ	*RN02	0700027M	RES CAR FILM 1/16W 100J
R945	0700054M	RES CAR FILM 1/16W 10KJ	S01	FE00282	TACT SWITCH KSM0632AB31 3 KEY
R946	0100017M	RES CAR FILM SRD 1/8 PB 10 J	S02	FE00282	TACT SWITCH KSM0632AB31 3 KEY
R951	0110255S	2W RES MTL OXIDE 2.7K JS	S01	FE00282T	TACT SWITCH KSM0632AB31 3 KEY (LONG)
R952	0113791M	CAR RES 1/2PB 47 KJ	S02	FE00282T	TACT SWITCH KSM0632AB31 3 KEY(LONG)
R953	0113791M	CAR RES 1/2PB 47 KJ	SP01	GK00961	SPEAKER 3 OHM 5W
R954	AW00352	VAR RES NVZ6TL1 B1K	SP02	GK00961	SPEAKER 3 OHM 5W
R955	0100078M	RES CAR FILM SRD 1/8 PB 3.6K J			(NOT FOR 1 SPEAKER MODELS)
R957	0100125M	RES CAR FILM SRD 1/8 PB 330K J	SP01	TOP4001201	SPEAKER 3 OHM 5W (CODE 071 ONLY)

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
SP02	TOP4001201	SPEAKER 3 OHM 5W (CODE 071 ONLY) (NOT FOR 1 SPEAKER MODELS)	X003	BG01561	SAW FILTER K7252 (FOR FULL MULTI SYS MODELS ONLY)
S901	2634732	MAIN SWITCH SDDFC3 (S3,5,6)	X003	BG01491U	SAW FILTER TSF5370P (NOT FOR FULL MULTI SYS MODELS)
T721	BS00011	DRIVE TRANSFORMER	X004	2123451	FC-CERAMIC TRAP 4.5M (FOR FULL MULTI SYS MODELS ONLY)
T761	BW02521	FBT MIG99 (FOR 14" ROUND CPT MODELS ONLY)	X004	BN00171	CER.TRAP EFCS5M7MW5 (FOR PAL SYS & BILINGUAL MODELS ONLY)
T761	BW02525	FBT MIG99 (FOR 20" & 21" ROUND CPT MODELS ONLY)	X005	BN00171	CER.TRAP EFCS5M7MW5 (FOR MULTI & FULL MULTI SYS MODELS ONLY)
T901	BT01832	SMT (FOR 20" & 21" ROUND CPT MODELS ONLY)	X005	BJ00661	SIF FILTER 5.74MHZ (FOR BILINGUAL MODELS ONLY)
T901	BT01833	SMT (FOR 14" ROUND CPT MODELS ONLY)	X006	BN00172	CER.TRAP EFCS6M65MW5 (FOR MULTI & FULL MULTI SYS MODELS ONLY)
TH901	2341324	PTC THEMISTOR	X006	BJ00661	SIF FILTER 5.74MHZ (FOR BILINGUAL MODELS ONLY)
U001	HJ00472	TUNER	X007	BP01321	CRYSTAL 12MHZ
U701	BY00651	DEFLECTION YOKE 14"	Z504	9451104	VARNISH TUBE 0.8X1M YELLOW
U701	BY00661	DEFLECTION YOKE 20"	Z513	9451104	VARNISH TUBE 0.8X1M YELLOW
U701	BY01591	DEFLECTION YOKE 21" T.CRT	Z901	9414017	SILICONE GREASE G-746
U701	89299253	DEFLECTION YOKE 21" SEG	Z902	9414017	SILICONE GREASE G-746
U701	BY00682	DEFLECTION YOKE 21" LG	ZC035	9451104	VARNISH TUBE 0.8X1M YELLOW
U702	2776521	MAGNET (FOR 14" & 20" MODELS ONLY)	ZC210	9451104	VARNISH TUBE 0.8X1M YELLOW
U702	2776242A	MAGNET (FOR 21" ROUND T.CRT MODELS ONLY)	ZC445	9451104	VARNISH TUBE 0.8X1M YELLOW
V1	2358723	CPT14" A34JXV70X	ZR204	9451104	VARNISH TUBE 0.8X1M YELLOW
V1	2358733	CPT20" A48LGS10X	ZR519	9451104	VARNISH TUBE 0.8X1M YELLOW
V1	2358743	CPT21" ROUND T.CRTA51LMV30X	ZR521	9451104	VARNISH TUBE 0.8X1M YELLOW
V1	DE01881A	CPT21" ROUND SEG A51JSY63X	ZR522	9451104	VARNISH TUBE 0.8X1M YELLOW
V1	DE01711	CPT21" ROUND LG A51QAE320X	ZRK129	9451104	VARNISH TUBE 0.8X1M YELLOW
W001	9374948	1007 24 7/0.2 GREEN 04,04	ZVT1	9451104	VARNISH TUBE 0.8X1M YELLOW
W2	9374948	1007 24 7/0.20 GREEN 04,04	ZW001	9845300	HOT MELT AX1503C
W3	9374948	1007 24 7/0.20 GREEN 04,04	SUB SOUND PWB (FOR STEREO MODELS ONLY)		
W401	9374945	1007 24 7/0.20 GREEN 04,04 (FOR BILINGUAL MODELS ONLY)	BA01	JK06981B	V3A SOUND PCB (TOOLING)
W5	9374948	1007 24 7/0.20 GREEN 04,04	CA01	0800277R	ELECT CAP SMG 0.47UF 50V
W700	9449603	NITTO #747 TAPE W9MM L50M	CA02	0800277R	ELECT CAP SMG 0.47UF 50V
WC445	9449603	NITTO #747 TAPE W9MM L50M	CA03	0800277R	ELECT CAP SMG 0.47UF 50V
X001	CZ00641	IC GP1U281Q (V2 CHASSIS)	CA04	0800277R	ELECT CAP SMG 0.47UF 50V
*X002	BG01581	SAW FILTER TSB 5305	CA05	0800325R	ELECT CAP SMG 100UF 10V

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SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
CA06	0880013R	MYLAR CAP 0.033UF K 50V AMZ			
CA07	AN01025R	MYLAR CAP AMZ 0.0056UF-K 50V			
CA08	AN01025R	MYLAR CAP AMZ 0.0056UF-K 50V			
CA09	0880013R	MYLAR CAP 0.033UF K 50V AMZ			
CA10	0880013R	MYLAR CAP 0.033UF K 50V AMZ			
CA11	0800277R	ELECT CAP SMG 0.47UF 50V			
CA12	0880011R	MYLAR CAP 0.015UF K 50V AMZ T			
CA13	0800277R	ELECT CAP SMG 0.47UF 50V			
CA14	0800277R	ELECT CAP SMG 0.47UF 50V			
EA01	ED00374	15 PIN CONNECTOR			
EA02	1EA2002	8P "F" CONNECTOR			
EA03	1EA2002	8P "F" CONNECTOR			
IA01	CP05801U	IC TDA9859/V2 (V2 CHASSIS)			
LA01	2123103M	AXIAL COIL LAL02 TB 100K			
RA01	0700051M	RES CAR FILM 1/16W 5.6KJ			
RA02	0700027M	RES CAR FILM 1/16W 100J			
RA03	0700027M	RES CAR FILM 1/16W 100J			
RA04	0700027M	RES CAR FILM 1/16W 100J			
RA05	0700036M	RES-CAR 1/16W 470J T			
RA06	0700027M	RES CAR FILM 1/16W 100J			
RA07	0700036M	RES-CAR 1/16W 470J T			
RA08	0700027M	RES CAR FILM 1/16W 100J			
RA09	0700027M	RES CAR FILM 1/16W 100J			
RA10	0700027M	RES CAR FILM 1/16W 100J			
RA11	0700051M	RES CAR FILM 1/16W 5.6KJ			
RA12	0700051M	RES CAR FILM 1/16W 5.6KJ			
RA13	0700051M	RES CAR FILM 1/16W 5.6KJ			

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V3A BASIC CIRCUIT DIAGRAM

