



SERVICE MANUAL

CTM5130TXT

51CM CTV

TCL ELECTRONICS LTD

ALIGNMENT PROCEDURE

SYSTEM: PAL, SECAM and NTSC (AV)

Model: CTM5130TXT

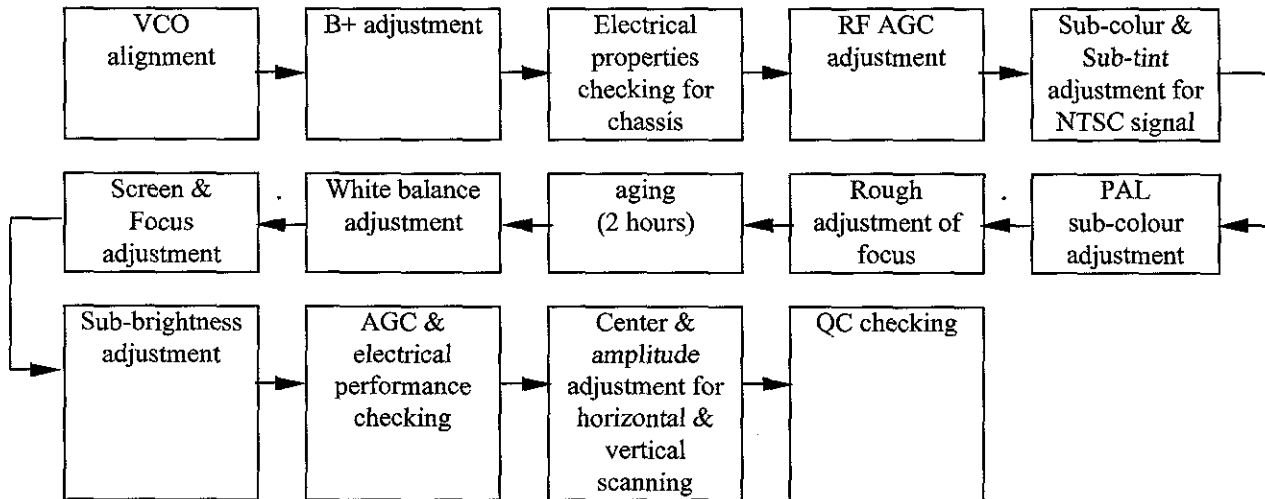
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VER 1.1

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Alignment Procedure of CTM5130TXT

FLOWCHART CHART OF ALIGNMENT PROCEDURE FOR TB1238N CHASSIS:



ALIGNMENT PROCEDURE FOR CTM5130TXT :

D-mode:

Enter D-Mode by pressing D-Mode ON/OFF, and then you can enter the D-mode

S-mode:

Enter S-Mode by pressing VOLUME DOWN key on the unit until the volume decrease to minimum level, then press the DISPLAY key on the remote handset (don't release the volume key) and you can enter the factory mode. In factory mode, you can adjust the following items.

After enter D-mode or S-mode, you can adjust the setting according to the following procedure,

Press "1" to enter the white balance alignment,

- RCUT (red cutoff)
- BCUT (blue cutoff)
- GCUT (green cutoff)
- BDRV (blue drive)
- GDRV (green drive)

Press "2" to enter picture geometry alignment,

- HPOS (PAL H. position)
- VP50 (PAL V. position)
- HIT (PAL vertical height)
- HPS (NTSC H. position)
- VP60 (NTSC V. position)
- HITS (NTSC V. height)

Press "3" to enter color alignment,

RAGC (RF AGC)
 CNTC (NTSC sub-contrast)
 BRTC (NTSC sub-brightness)
 COLC (NTSC sub-color)
 TNTC (NTSC sub-tint)
 COLP (PAL sub-color)

Press "0" to enter field linearity alignment,

VLIN (PAL V. linearity)
 VSC (V-S correction)
 VLIS (NTSC V. linearity)
 SRY (SECAM black adj. R-Y)
 SBY (SECAM black adj. B-Y)

For the alignment using "4", "5", "6", "7", "8", "9", "-/-", "TV/AV", please refer to the CPU menu (not use in production line).

I) Adjustment of VCO

1. Input a 38 MHz colour beam signal to the IF input terminal.
2. Connect an oscilloscope to the pin 48 of IC201 to measure the DC voltage.
3. Adjust coil T201 in clockwise direction until picture disappears. Then adjust the coil in anti-clockwise direction until picture appears again and record the voltage V1 at this point.
4. Adjust the coil in anti-clockwise direction until picture disappears. Then adjust the coil in clockwise direction until picture appears again and record the voltage V2 at this point.
5. Adjust the coil until the voltage V3 is the average value of V1 and V2, i.e. $V3 = (V1 + V2)/2$. The suggest value of V3 is 4.6 ± 0.2 .

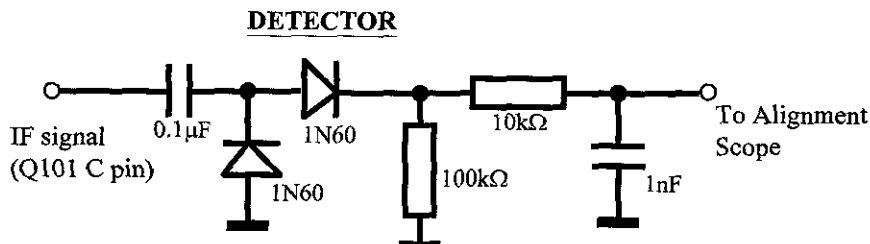
II) Adjustment of B+ voltage

1. Apply 220VAC($\pm 5V$) to mains power input, and Philips standard testing pattern to RF input.
2. Adjust VR801 in STANDARD mode until voltage at TP2 (B+) is $112V \pm 0.5V$.

III) Adjustment of the parameters of IIC bus by remote control

1. Press the hidden key at bottom-right corner on the remote control, which can turn ON/OFF the D-mode (factory setting mode).
2. Under D-mode, pressing PRO \pm can select the options of factory setting, while press VOL \pm can adjust the parameter of the highlighted factory setting options.

IV) The alignment procedure of RFAGC



With applying a 471.25MHz RF signal with amplitude $62dB \pm 2dB$ first, adjust RAGC to set the voltage level of RFAGC to just decrease from 7.2V to 6.4V.

V) Adjustment of Screen Voltage and White Balance

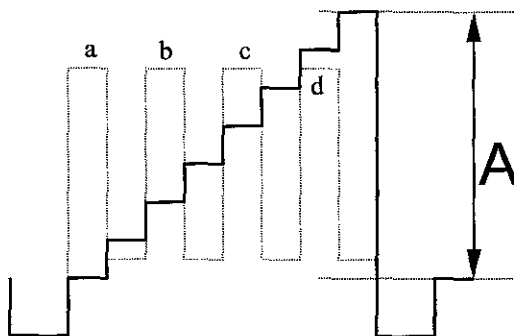
1. Key “-/-“ can turn the Vertical and RGB output ON/OFF. Turn off the vertical and a red line will appear on the screen. Then adjust the ‘screen’ switch on the flyback transformer to set the intensity of the red line to a *minimum level* (the red line can just be seen).
2. Then receive a black and white pattern.
3. Use a color analyzer to measure the black side of the screen. By changing the value of BCUT and GCUT, set the reading of the color analyzer to $x=281, y=311$.
4. Then measure the white side of the screen. By changing the value of BDRV and GDRV, set the reading of the color analyzer to $x=281, y=311$.
5. Repeat step 3&4 until you can get the correct reading for both black and white sides.

VI) Adjustment of Picture Geometry

1. Apply the Philips standard testing pattern(PAL signal) to the RF input, in Normal status.
2. Enter D-mode,
3. Select HPOS to adjust the PAL Horizontal center.
4. Select HP50 to adjust the PAL Vertical center.
5. Select HIT to adjust the PAL Vertical amplitude.
6. Quit D-mode, and then apply inverse Center-cross/Cross-hatch NTSC video signal to the AV input, in Normal status.
7. Re-enter D-mode,
8. Select HPS to adjust the NTSC Horizontal center.
9. Select HP60 to adjust the NTSC Vertical center.
10. Select HITS to adjust the NTSC Vertical amplitude.

VII) Adjustment of Sub-brightness, Sub-contrast, Sub-tint and Sub-colour for NSTC and PAL signal.

1. Apply the Grey-scale/Colour-bar (NTST signal) to the AV input, in Normal status.
2. Enter D-mode, and connect the probe of Oscilloscope to the conjunction between R217 and P201 (B-out).
3. Select BRTC to adjust the sub-brightness, until that the 2nd dark bar of 8 level grey scale just can be seen.
4. Select CNTC to adjust the sub-contrast, until that the amplitude “a” is 2.5V_{P-P} as shown below.



5. Select COLC to adjust the sub-colour by tuning the amplitude of “a” and “d” to the same.
6. Select TINTC to adjust the sub-tint by tuning the amplitude of “b” and “c” to the same.
7. Apply the Grey-scale/Colour-bar (PAL signal) to the AV input, in Normal status.
8. Re-enter D-mode, and connect the probe of Oscilloscope to the conjunction between R217 and P201 (B-out).

9. Select COLP to adjust the sub-colour by tuning the amplitude of "a", "b", "c" and "d" to the same.

VIII) The Fixed Default Parameters of D-mode,

OPTIONS	DEFAULT DATA	OPTIONS	DEFAULT DATA	OPTIONS	DEFAULT DATA
CNTX	3FH	TXCX	30H	SELF	00H
COLS	40H	RGCN	20H	OSD	07H
SCNT	0FH	VM0	80H	OPT	14H
CNTN	00H	VM1	00H		
BRTX	7FH	VLIN	0FH		
BRTN	00H	VSC	06H		
COLX	7FH	VLIS	00H		
COLN	00H	SBY	08H		
TNTX	7FH	SRY	08H		
TNTN	00H	AFT	80H		
ST3	20H	HAFC	00H		
SV3	17H	V25	2AH		
ST4	16H	V50	3EH		
SV4	16H	BRTS	00H		
SHPX	3FH	MOD0	00H		
SHPN	00H	MOD1	13H		

NOTE:

These fixed default parameters are the initial setting of the EEPROM via the IIC bus of the CPU. These data CANNOT be changed, otherwise the TV set cannot work properly.

PRODUCT SPECIFICATION

MODEL : CTM5130TXT

A: GENERAL SPECIFICATION:

1: CRT

- | | |
|---|---|
| <input type="checkbox"/> 14" _____ | <input type="checkbox"/> 20" _____ |
| <input checked="" type="checkbox"/> 21" _____ | <input type="checkbox"/> 25" _____ |
| <input type="checkbox"/> 29" _____ | <input type="checkbox"/> 34" _____ <input type="checkbox"/> OTHER _____ |

2: CHASSIS :

- | | | |
|--|---|--|
| <input type="checkbox"/> NICAM STEREO | <input checked="" type="checkbox"/> I ² C Chassis | <input type="checkbox"/> S.VHS |
| <input type="checkbox"/> ANALOG | <input type="checkbox"/> SURROUND SOUND | <input type="checkbox"/> GERMAN STEREO |
| <input checked="" type="checkbox"/> TELETEXT | <input checked="" type="checkbox"/> OTHER: <u>AV STEREO WITH MONO</u> | |

3: CPU:

- | | | | | |
|--|-------------------------------------|---------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> TSB M5C01 | <input type="checkbox"/> TSB M5C03 | <input type="checkbox"/> TSB M5ENG | <input type="checkbox"/> TSB M6/M6A | <input checked="" type="checkbox"/> TSB M7/M7A |
| <input type="checkbox"/> TSB M8A | <input type="checkbox"/> TSB M8B | <input type="checkbox"/> TSB CTS-654A | <input type="checkbox"/> TSB M2A | <input type="checkbox"/> SS M4F |
| <input type="checkbox"/> PHIL.CTV 222S | <input type="checkbox"/> MIT.(2911) | <input type="checkbox"/> SIE SDA 5252 | <input type="checkbox"/> OTHERS _____ | |

4: TV BROADCASTING SYSTEM AND COUNTRY

- | | | | |
|----------------------------------|--|----------------------------------|-----------------------------------|
| <input type="checkbox"/> PAL-1 | <input checked="" type="checkbox"/> PAL-BG | <input type="checkbox"/> PAL-DK | <input type="checkbox"/> SECAM-BG |
| <input type="checkbox"/> SECAM-L | <input type="checkbox"/> SECAM-DK | <input type="checkbox"/> PAL-N/M | <input type="checkbox"/> NTSC-M |

5: SCANNING LINES AND FREQUENCIES

- | |
|---|
| <input type="checkbox"/> 625 LINES 15.625KHz 50Hz |
| <input type="checkbox"/> 525 LINES 15.75KHz 60Hz |
| <input checked="" type="checkbox"/> 525/625 LINES 15.625KHz /15.75KHz 50/60Hz |

6: COLOUR SUB-CARRIER

- | | | |
|--|--|----------------------------------|
| <input checked="" type="checkbox"/> 4.433MHz | <input checked="" type="checkbox"/> 3.579MHz | <input type="checkbox"/> 3.58MHz |
|--|--|----------------------------------|

7: INTERMEDIATE FREQUENCIES

- | | |
|---|--|
| <input type="checkbox"/> PICTURE 39.5MHz | <input type="checkbox"/> SOUND 6.0MHz |
| <input checked="" type="checkbox"/> PICTURE 38.9MHz | <input checked="" type="checkbox"/> SOUND 5.5MHz |
| <input type="checkbox"/> PICTURE 38.0MHz | <input type="checkbox"/> SOUND 6.5MHz |
| <input type="checkbox"/> PICTURE 45.75MHz | <input type="checkbox"/> SOUND 4.5MHz |
| <input type="checkbox"/> OTHER _____ | <input type="checkbox"/> AM SOUND 6.5MHz |

8: POWER CONSUMPTION :

- | | | | | | |
|-------------------------------|-------------------------------|---|-------------------------------|--------------------------------------|-------------------------------|
| <input type="checkbox"/> 65W | <input type="checkbox"/> 70W | <input checked="" type="checkbox"/> 75W | <input type="checkbox"/> 80W | <input type="checkbox"/> 110W | <input type="checkbox"/> 120W |
| <input type="checkbox"/> 130W | <input type="checkbox"/> 140W | <input type="checkbox"/> 180W | <input type="checkbox"/> 190W | <input type="checkbox"/> OTHER _____ | |

9: POWER SOURCE :

- | |
|---|
| <input type="checkbox"/> AC 100 - 120V 50/60Hz +/-10% |
| <input type="checkbox"/> AC 180 - 240V 50/60Hz +/-10% |
| <input type="checkbox"/> AC 110V-240V 50/60Hz +/-10% |
| <input checked="" type="checkbox"/> OTHER <u>AC240V, 50Hz</u> |

10: AUDIO OUTPUT POWER(7%THD)

- 1.5W (mono)
- 2W (mono)
- 1.5W + 1.5W (R + L)
- 2W + 2W (R + L)
- 6W + 6W (R + L)
- 8W + 8W (R + L)
- OTHER _____

11: AERIAL INPUT IMPEDANCE

- 75 OHM UNBALANCED DIN JACK ANT.INPUT
- 75 OHM UNBALANCED F TYPE ANT.INPUT FOR NTSC
- 300 OHM BALANCED(TWO TERMINALS ANT.INPUT)
- OTHER _____

B: BASIC FEATURES OF CONTROLLER

1: CHANNEL TUNING METHOD

- VOLTAGE SYNTHESIZER (V.S.)
- PLL FREQUENCY SYNTHESIZER (F.S.)

2: PRESETTABLE PROGRAM

- 50 PROGRAMS 99 PROGRAMS
- 100 PROGRAMS 181 PROGRAMS
- OTHER _____

3: TUNING FOR VHF AND UHF BANDS

- AUTO SEARCH MANUAL TUNING
- FINE TUNING

4: PICTURE AND SOUND ADJUSTMENT

- BRIGHT, CONTRAST, COLOUR AND VOLUME CONTROL
- TINT CONTROL(NTSC)
- TREBLE, BASS, BALANCE CONTROL
- SHARPNESS CONTROL OTHER _____

5: TELETEXT

- SIMPLE TEXT TOP(TABLE OF PAGES)
- FLOF(FASTEXT) LIST

6: SLEEP TIMER

- 10-120 MINUTES WITH 10M.INCREMENT
- 30M, 60M, 90M SELECTABLE

7: AUTO OFF WHEN NO BROADCASTING SIGNAL

- 10 MINUTES 15 MINUTES 20 MINUTES

8: REMOTE EFFECTIVE DISTANCE 8 M

C: CONSTRUCTION OF FRONT PANEL

- | | |
|---|--|
| <input checked="" type="checkbox"/> MAIN POWER SWITCH | <input type="checkbox"/> FUNCTION SELECT |
| <input checked="" type="checkbox"/> REMOTE SENSOR | <input checked="" type="checkbox"/> MENU SELECT |
| <input type="checkbox"/> SYSTEM FUNCTION | <input type="checkbox"/> S.VHS INPUT |
| <input type="checkbox"/> MICROPHONE INPUT | <input checked="" type="checkbox"/> TV/AV SELECT |
| <input checked="" type="checkbox"/> STANDBY INDICATOR | <input checked="" type="checkbox"/> PROGRAM VOLUME UP/DOWN |
| <input type="checkbox"/> BAND SELECT | <input checked="" type="checkbox"/> RCA SOCKET |
| <input type="checkbox"/> EARPHONE INPUT | <input type="checkbox"/> OTHER |
| <input type="checkbox"/> AUTO SEARCH AND MANUAL TUNING SELECT | |

D: CONSTRUCTION OF REAR PANEL

- 75 OHM AERIAL TERMINAL
- 300OHM AERIAL TERMINAL
- RCA SOCKET (AV INPUT ONLY)
- RCA SOCKET (AV IN/OUT)
- RCA SOCKET (A-R+L IN/OUT, V- IN/OUT)
- RCA SOCKET (A-R+L /V INPUT X 2, OUTPUT X 1)
- SCART SOCKET
- S.VHS INPUT
- EXT/INT SPEAKER SELECT
- EXT.SPEAKERS(R+L) TERMINALS
- EXT.SPEAKERS(R+L) RCA SOCKET
- SUPER WOOFER TERMINAL
- OTHER

E: AUDIO AND VIDEO INPUT/OUTPUT

- RCA SOCKET
- SCART SOCKET (AV)
- SCART SOCKET (FULL)

SPECIFICATION	SCART	RCA
VIDEO INPUT 75 OHM	1V _{P-P}	1V _{P-P}
AUDIO INPUT 10K OHM (R+L)	0.5V _{mS}	0.5V _{mS}
VIDEO OUTPUT 75 OHM	1V _{P-P}	1V _{P-P}
AUDIO OUTPUT 1K OHM (R+L)	0.5V _{mS}	0.5V _{mS}
RGB INPUT 75 OHM	0.7V _{P-P}	
AUDIO LINE OUTPUT 1K OHM	1V _{P-P}	

F: AMBIENT CONDITIONS

1. Ambient Temperature :
 - Operating : -10c ~ +40c
 - Storage : -15c ~ +45c
2. Humidity:
 - Operating : <80%
 - Storage : <90%
3. Air Pressure : 86 ~ 106kpa

General Specification of Electrical Properties

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This electrical specification is generally used for our current models in China market. For overseas market, the additional requirement from customers, if any, will be listed in Engineer Memo and forwarded to related departments.

Item	Basic Parameters		Unit	Standard	Condition	
1	Noise-Limited Sensitivity	VHF	μV	≤ 250	75 Ω antenna, S/N= 30dB	
		UHF	μV	≤ 350		
2	Chrominance Sensitivity	RF input	Color	μV	≤ 75	75 Ω antenna
			B/W	μV	≤ 75	
		Burst	%	≤ 30	Standard Video input value	
3	Synchronizing Sensitivity	RF input	μV	≤ 75	75 Ω antenna	
		Sync	%	≤ 20	Standard Video input value	
4	AGC		dB	≥ 60	Picture signal variation = $\pm 1.5\text{dB}$	
5	ACC		dB	$\geq +6$	Signal variation = $\pm 1.5\text{dB}$	
			dB	≤ -6	Signal variation = $\pm 1.5\text{dB}$	
6	AFT Pull-in Range		MHz	$\leq +1; \leq -0.7$		
7	Selectivity	Picture Carrier at Upper Adjacent channel	dB	≥ 35		
		Over the Picture Carrier of Upper adjacent channel	dB	≥ 30		
		Sound Carrier at Lower Adjacent channel	dB	≥ 40		
		Below the Sound Carrier of Lower Adjacent channel	dB	≥ 30		
8	IF Rejection		dB	≥ 45		
9	Image Rejection	VHF	dB	≥ 45		
		UHF	dB	≥ 40		
10	Suppression of Chrome beat Interference		dB	≥ 10		
11	Max. RF input voltage		mV	≥ 100		
12	Linear Waveform Response in Luminance Channel - Field Frequency Square-Wave Response - 2T Pulse Response. - 2T Bar/Pulse Response - Chrominance Sub-carrier response of Luminance channel		%	≤ 5		
			%	≤ 12		
			%	≤ 12		
			%	≤ 5		
13	Linear Wave form Response in Chrominance Channel - Field Frequency Square-Wave Response - 2T Pulse Response. - 2T Bar/Pulse Response		%	≤ 5		
			%	≤ 10		
			%	≤ 10		
14	Distortion of DC components in Luminance Channel		%	≤ 30		
15	Luminance/Chrominance Delay Inequality		nS	$\leq \pm 100 $		
16	Line-time Non-linearity of Luminance signal		%	≤ 5		
17	Line-time Non-linearity of Chrominance signal		%	≤ 10		
18	Error of Chrominance Signal Demodulation Angle (PAL system)	Error of Chrominance Signal Demodulation Angle (PAL system)	$^{\circ}$	$\leq \pm 15 $		
		Delayed Prominence Carrier signal phase Matching	$^{\circ}$	$\leq \pm 15 $		
		Amplitude Matching of Delayed and Direct Chrominance Carrier signal	%	≤ 15		
19	Voltage Distortion between odd and even field.		%	≤ 10		

General Specification of Electrical Properties

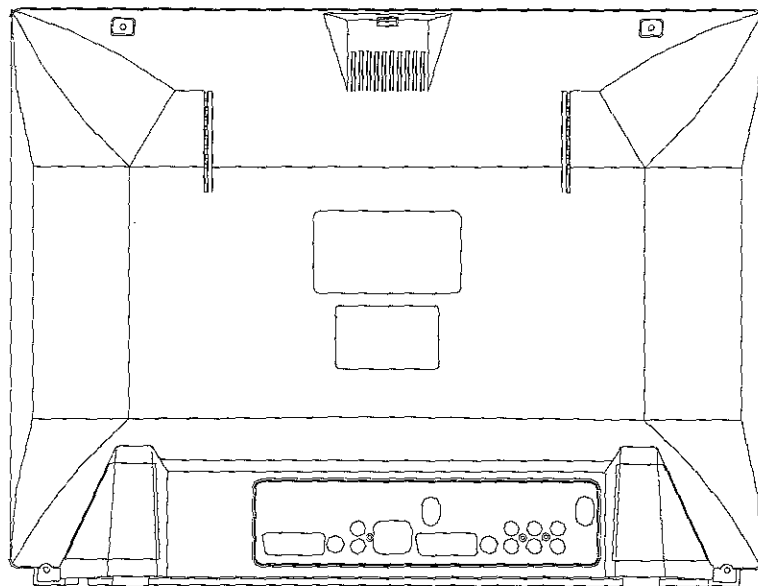
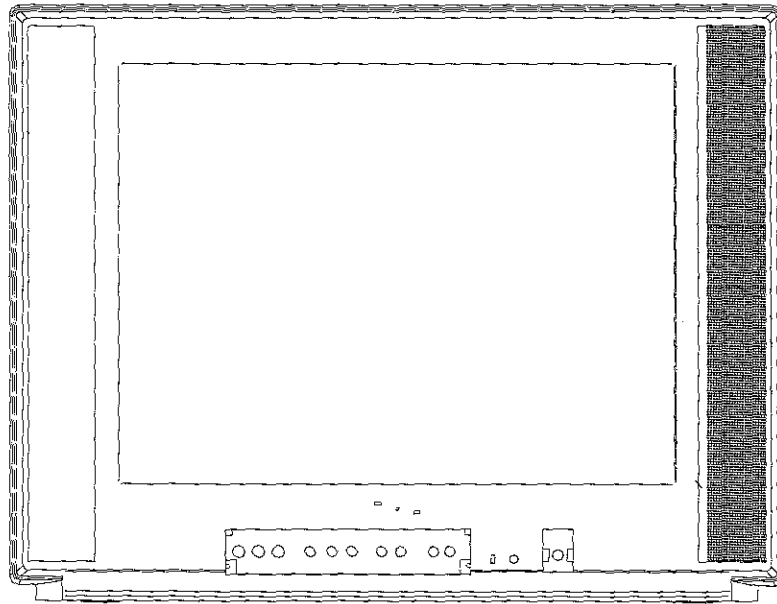
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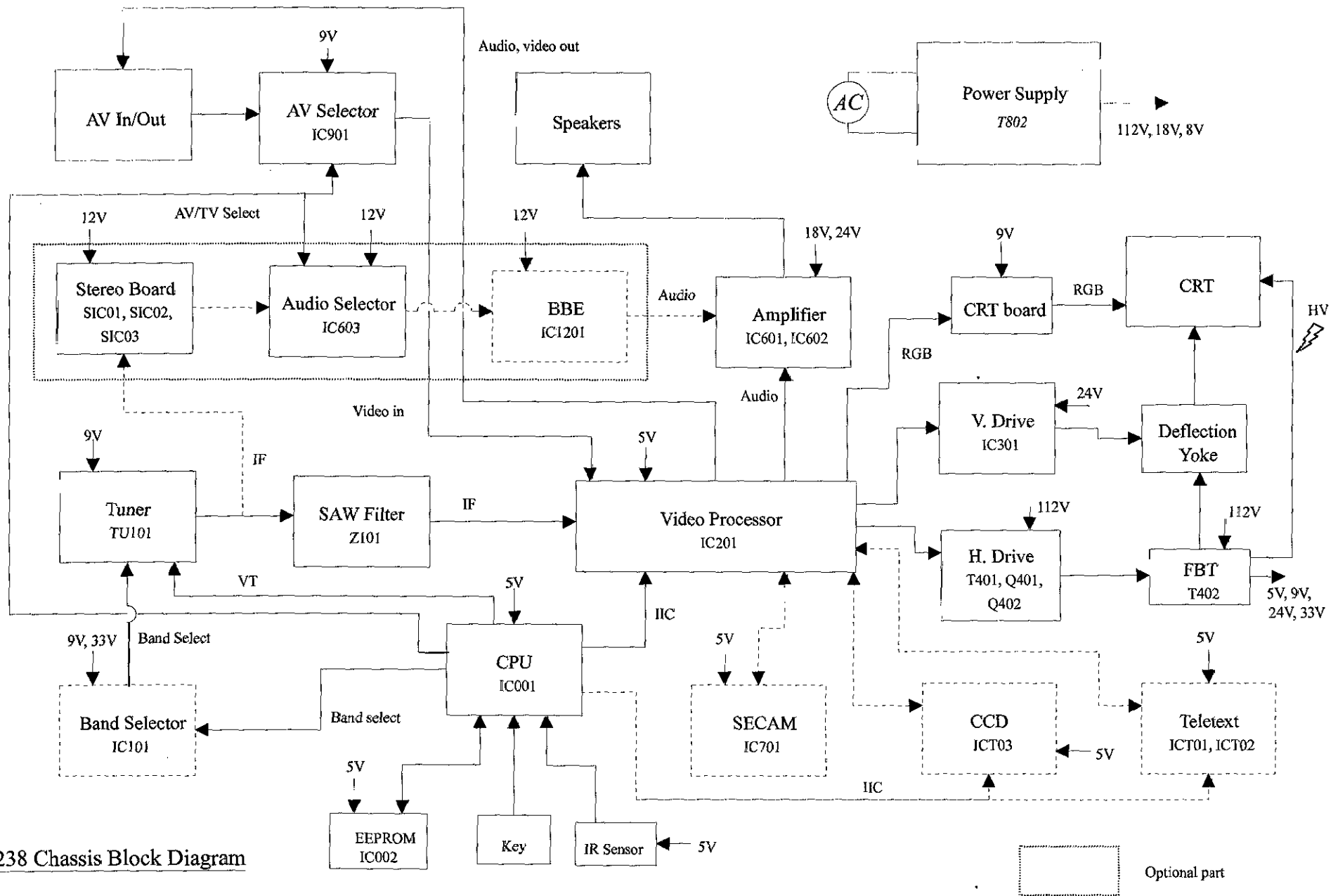
20	Range of Color Saturation		%	150 ~ 200	
21	Frequency Response of Video signal	PAL	MHz	≥ 3.5	
		NTSC	MHz	≥ 2.5	
22	Effective Scanning Area	V	%	90 ~ 95	Philips Pattern Generator
		H	%	90 ~ 95	Philips Pattern Generator
23	Non-linearity of Raster	V	%	≤ 8	
		H	%	≤ 10	
24	Geometrical Distortion		%	≤ 3	
25	Range of Horizontal Scan	Pull-in	Hz	$\geq \pm 200$	
		Hold	Hz	$\geq \pm 400$	
26	Range of Vertical Scan		Hz	≥ 6	
27	Range of Color Synchronization	Pull-in	Hz	≥ 200	
		Hold	Hz	≥ 300	
28	Convergence	14"	Center	mm	≤ 0.4
			Sides	mm	≤ 1.1
			Corners	mm	≤ 1.6
		20", 21", 22"	Center	mm	≤ 0.4
			Sides	mm	≤ 1.2
			Corners	mm	≤ 1.8
		25"	Center	mm	≤ 0.4
			Sides	mm	≤ 1.5
			Corners	mm	≤ 2.0
		28", 29"	Center	mm	≤ 0.4
			Sides	mm	≤ 1.7
			Corners	mm	≤ 2.2
29	Max. Brightness on Screen	14"	cd/m ²	$\geq 120(140)$	Remark: (): for high transparent tube other: Black tube
		20"	cd/m ²	$\geq 110(120)$	
		21"	cd/m ²	$\geq 110(120)$	
		25"	cd/m ²	≥ 90	
		28"	cd/m ²	≥ 90	
30	Range of Voltage Variation without affect picture		%	+10 / -20	
31	Stability of Anode Voltage		%	≤ 5	
32	Power Consumption	14"	W	≤ 65	
		20"	W	≤ 70	
		21"	W	≤ 75	
		22"	W	≤ 80	
		25"	W	≤ 110	
		28"	W	≤ 120	
		29"	W	≤ 130	
33	Noise-Limited Sensitivity of audio signal	VHF	μV	≤ 80	75 Ω antenna, S/N= 30dB
		UHF	μV	≤ 120	75 Ω antenna, S/N= 30dB

General Specification of Electrical Properties

34	Effective power output for audio signal	14"	W	$\geq 1.5(+1.5)$	THD = 7%	
		20"	W	$\geq 2.0(+2.0)$		
		21"	W	$\geq 2.0(+2.0)$		
		25"	W	$\geq (6+6)$		
		28"	W	$\geq (6+6)$		
		29"	W	$\geq (6+6)$		
35	Frequency Response of Audio Channels	-3dB B/W	Hz	100 ~ 10K	Output = 0.25 (max. effective output)	
		Deviation	dB	≤ 5	at 1kHz frequency	
36	Harmonic Distortion of Audio Channels		%	≤ 10	F = 100Hz ~ 8 kHz M = 100% (max. effective output)	
37	Noise Ratio of Audio Channels		dB	≤ -40	1. Sound modulation index = 100% 2. 75Ω antenna, S/N= 30dB 3. Max. Volume Position.	
38	Range of Remote Controlling	Direction	0°	m	≥ 8.5	Nature Light : 200~400Lx
			$\pm 30^\circ$	m	≥ 6.5	Fluorescent Light: 150~250Lx
			$\pm 30^\circ$	m	≥ 6.5	
			0° with Interference	m	≥ 2.5	Point the inverted fluorescent lamp at position same as the remote control to the IR sensor.

CTM5130TXT Cabinets





1238 Chassis Block Diagram

Optional part

Item No.	Item Description	Qty	Designator
08-02109C-MAY	ASS'Y - MAIN BD		
10-0FR104-EB1	DIODE FR104 (FAST RECOVERY)	3	D401, D402, D403
10-1N4001-EB1	DIODE 1N4001 (RECTIFIER)	1	D301
10-1N4002-EB1	DIODE 1N4002 (RECTIFIER)	1	D411
10-1N4148-AB1	DIODE 1N4148 (SWITCHING)	11	D005, D006, D007, D008, D009, D206, D312, D313, D314, D601, D602
10-79C5V1-DB1	DIODE ZENER 5V1 1/2W 5%	2	D004, D208
10-79C9V1-DB1	DIODE ZENER 9V1 1/2W 5%	1	D404
10-PC574J-DJ1	DIODE ZENER UPC 574J	1	D001
11-2N3904-0B1	TRANSISTOR 2N3904	1	Q001
11-SA1015-YB1	TRANSISTOR 2SA1015Y	4	Q007, Q202, Q203, Q601
11-SC1815-YB1	TRANSISTOR 2SC1815Y	15	Q004, Q005, Q006, Q204, Q205, Q206, Q602, Q603, Q604, Q605, Q608, Q901, Q902, Q903, Q905
11-SC2482-0B1	TRANSISTOR 2SC2482	1	Q401
11-SC3779-DB1	TRANSISTOR 2SC3779D (RF AMPL)	1	Q101
11-SD2499-0A1	TRANSISTOR 2SD2499 (HORIZ O/P)	1	Q402
11-TA124E-SB1	TRANSISTOR DTA124ES (TP)	1	Q304
11-TC144E-SB1	TRANSISTOR DTC144ES (TP)	3	Q207, Q606, Q607
13-000040-66P	IC 4066 (ANALOG SW.)	1	IC603
13-00AN52-65S	IC AN5265 (AUDIO AMPL.)	2	IC601, IC602
13-00MC78-09S	IC MC7809C LINEAR +9V 1A	1	IC401
13-0TA840-3KS	IC TA8403K (VERT. OUTPUT)	1	IC301
13-M24C04-00P	IC M24C04 EEPROM 4K	1	IC002
13-TB1238-ANP	IC TB1238AN (P/SIF/VCD)	1	IC201
18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%	2	R238, R251
18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	17	R001, R011, R012, R017, R019, R020, R033, R034, R038, R043, R222, R415, R605, R615, R633, R636, R915
18-CB0104-JNX	RES. C.F. 100K OHM 1/6W +/-5%	4	R035, R037, R042, R218
18-CB0106-JNX	RES. C.F. 10M OHM 1/6W +/-5%	1	R134
18-CB0123-JNX	RES. C.F. 12K OHM 1/6W +/-5%	1	R231
18-CB0151-JNX	RES. C.F. 150 OHM 1/6W +/-5%	2	R107, R109
18-CB0152-JNX	RES. C.F. 1.5K OHM 1/6W +/-5%	1	R023
18-CB0153-JNX	RES. C.F. 15K OHM 1/6W +/-5%	6	R014, R016, R046, R054, R641, R642
18-CB0183-JNX	RES. C.F. 18K OHM 1/6W +/-5%	1	R922A
18-CB0221-JNX	RES. C.F. 220 OHM 1/6W +/-5%	3	R024, R601, R611
18-CB0222-JNX	RES. C.F. 2.2K OHM 1/6W +/-5%	8	R022, R230, R603, R613, R622, R629, R632, R637
18-CB0223-JNX	RES. C.F. 22K OHM 1/6W +/-5%	5	R602, R627, R628, R630, R631
18-CB0224-JNX	RES. C.F. 220K OHM 1/6W +/-5%	1	R232
18-CB0271-JNX	RES. C.F. 270 OHM 1/6W +/-5%	4	R028, R215, R216, R217
18-CB0272-JNX	RES. C.F. 2.7K OHM 1/6W +/-5%	1	R266
18-CB0303-JNX	RES. C.F. 30K OHM 1/6W +/-5%	1	R210
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	6	R048, R049, R239, R273, R282, R284
18-CB0332-JNX	RES. C.F. 3.3K OHM 1/6W +/-5%	2	R018, R021
18-CB0333-JNX	RES. C.F. 33K OHM 1/6W +/-5%	4	R004, R005, R006, R922
18-CB0391-JNX	RES. C.F. 390 OHM 1/6W +/-5%	2	R219, R220
18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	4	R009, R010, R026, R061
18-CB0471-JNX	RES. C.F. 470 OHM 1/6W +/-5%	6	R027, R110, R401, R906, R908, R923

18-CB0472-JNX	RES. C.F. 4.7K OHM 1/6W +/-5%	8	R013, R015, R029, R030, R031, R047, R050, R644
18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	2	R036, R902
18-CB0560-JNX	RES. C.F. 56 OHM 1/6W +/-5%	1	R112
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	1	R247
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	1	R040
18-CB0821-JNX	RES. C.F. 820 OHM 1/6W +/-5%	1	R608
18-CD0100-JNX	RES. C.F. 10 OHM 1/4W +/-5%	1	R039
18-CD0153-JNX	RES. C.F. 15K OHM 1/4W +/-5%	1	R003
18-CD0479-JNX	RES. C.F. 4.7 OHM 1/4W +/-5%	2	R606, R616
18-CE0109-JNX	RES. C.F. 1 OHM 1/2W +/-5%	1	R303
18-CE0121-JNX	RES. C.F. 120 OHM 1/2W +/-5%	1	R221
18-CE0479-JNX	RES. C.F. 4.7 OHM 1/2W +/-5%	1	R640
18-FF0103-JGX	RES. M.O. 10K OHM 1W +/-5%	2	R404, R413
18-FF0122-JGX	RES. M.O. 1.2K OHM 1W +/-5%	1	R441
18-FF0189-JGX	RES. M.O. 1.8 OHM 1W +/-5%	1	R305
18-FF0331-JGX	RES. M.O. 330 OHM 1W +/-5%	1	R336
18-FF0472-JGX	RES. M.O. 4.7K OHM 1W +/-5%	1	R408
18-FG0100-JHX	RES. M.O. 10 OHM 2W +/-5%	2	R607, R617
18-FH0242-JIX	RES. M.O. 2.4K OHM 3W +/-5%	1	R402
25-BCA102-M11	CAP. ELEC 1000 UF 16V +/-20%	2	C416, C635
25-BCB100-M11	CAP. ELEC 10 UF 16V +/-20%	8	C041, C217, C245, C604, C605, C613, C614, C615
25-BCB101-M11	CAP. ELEC 100 UF 16V +/-20%	8	C030, C101, C225, C236, C426, C601, C610, C611
25-BCB220-M11	CAP. ELEC 22 UF 16V +/-20%	1	C903
25-BCB221-M11	CAP. ELEC 220 UF 16V +/-20%	2	C102, C224
25-BCB470-M11	CAP. ELEC 47 UF 16V +/-20%	5	C015, C028, C202, C241, C273
25-BCB471-M11	CAP. ELEC 470 UF 16V +/-20%	4	C418, C423, C608, C618
25-BDA102-M11	CAP. ELEC 1000 UF 25V +/-20%	2	C607, C617
25-BDA471-M11	CAP. ELEC 470 UF 25V +/-20%	1	C306
25-BEA471-M11	CAP. ELEC 470 UF 35V +/-20%	1	C413
25-BEB101-M11	CAP. ELEC 100 UF 35V +/-20%	2	C308, C320
25-BFB109-K1A	CAP. ELEC 1 UF 50V 10% CEC-K	1	C220
25-BFB109-M11	CAP. ELEC 1 UF 50V +/-20%	8	C211, C234, C602, C612, C621, C622, C623, C624
25-BFB220-M11	CAP. ELEC 22 UF 50V +/-20%	1	C219
25-BFB229-K1A	CAP. ELEC 2.2UF 50V 10% CEC-K	1	C305
25-BFB229-M11	CAP. ELEC 2.2 UF 50V +/-20%	2	C003, C323A
25-BFB479-M11	CAP. ELEC 4.7 UF 50V +/-20%	1	C104
25-BHA100-M11	CAP. ELEC 10 UF 100V +/-20%	1	C420
25-BJA470-M11	CAP. ELEC 47 UF 160V +/-20%	1	C411
25-BLA100-M11	CAP. ELEC 10 UF 250V +/-20%	1	C408
26-ABC222-KBX	CAP. CER 2200 PF 50V +/-10% B	1	C212
26-ABC472-KBX	CAP. CER 4700 PF 50V +/-10% B	1	C235
26-ABC473-ZFX	CAP. CER 0.047 UF 50V +80-20%F	1	C314
26-AIC102-KBX	CAP. CER 1000 PF 500V +/-10% B	1	C401
26-AIC332-KBX	CAP. CER 3300 PF 500V +/-10% B	1	C405
26-AIC391-KBX	CAP. CER 390 PF 500V +/-10% B	3	C407, C412, C414
26-EBP104-ZF1	CAP. CER 0.1UF 50V +80-20% F	4	C036, C214, C215, C216
26-EBP120-JC1	CAP. CER 12 PF 50V +/-5% CH	1	C201
26-EBP220-JZ1	CAP. CER 22 PF 50V 5% SL TUBU	2	C022, C023
Item No.	Item Description	Qty	Designator
26-EBP270-JC1	CAP. CER 27 PF 50V +/-5% CH	1	C116
26-EBP300-JZ1	CAP. CER 30 PF 50V +/-5% SL	2	C024, C025
26-EBP470-JZ1	CAP. CER 47 PF 50V +/-5% SL	1	C001
26-EBP471-JC1	CAP. CER 470 PF 50V +/-5% CH	1	C044
26-EBP829-JC1	CAP. CER 8.2PF 50V +/-5% CH	2	C020, C115
27-MBC224-J01	CAP. M. P.E. 0.22 UF 50V +/-5%	1	C229
27-MBC474-J01	CAP. M. P.E. 0.47 UF 50V +/-5%	1	C222
27-PBC472-J01	CAP. P.E. 0.0047 UF 50V +/-5%	1	C231
27-PBC473-J01	CAP. P.E. 0.047 UF 50V +/-5%	2	C609, C619

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27-PBC562-J01	CAP. P.E. 0.0056 UF 50V +/-5%	1	C422	
27-PBC682-J01	CAP. P.E. 0.0068 UF 50V +/-5%	2	C606, C616	
27-RHQ563-J01	CAP. PP 0.056 UF 400V +/-5%	1	C410	
34-A109K0-1IX	COIL CHOKE 1 UH +/-10%	1	L102	
34-A608K6-1BX	COIL CHOKE 0.6 UH +/-10%	1	L402	
34-R220J2-0EX	COIL PL - 22 UH +/-5%	3	L001, L002, L403	
34-R229J2-0EX	COIL PL - 2.2 UH +/-5%	1	L003	
34-R330J2-0EX	COIL PL - 33 UH +/-5%	2	L202, L203	
36-107483-A02	TRANSFORMER HORIZ DRIVER	1	T401	
38-236560-000	COIL I.F.T. 236560 FOR VCO	1	T201	
38-257980-00X	COIL I.F.T. 3350D	1	T101	
41-WJ0060-B00	WIRE BARE JUMPER 6MM	17	J004, J007, J021, J032A, J104, J207, J218, J263, J614, J617, J901, J902, J916, J917, R002, R044	R116
41-WJ0085-B00	WIRE BARE JUMPER 8.5MM	8	J001, J213, J215, J234, J246, J252, J254, J256	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	19	J003, J006, J017, J105, J205, J216, J220, J221, J227, J248, J255, J267, J305, J602, J610, J611	J613, J620, J621
41-WJ0150-B00	WIRE BARE JUMPER 15MM	13	J013, J014, J020, J041, J201, J202, J203, J204, J217, J225, J258, J302, J601	
41-WJ0165-B00	WIRE BARE JUMPER 16.5MM	1	J253	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	8	J019, J030, J031, J040, J209, J210, J211, J212	
41-WJ0200-B00	WIRE BARE JUMPER 20MM	2	J231, J404	
41-WJ0225-B00	WIRE BARE JUMPER 22.5MM	3	J229, J230, J232	
45-107190-100	CRYSTAL 4.43 MHZ	1	X202	
45-252300-101	CRYSTAL 8 MHZ	1	X001	
46-10964W-067	PIN BASE *6 TJC3-6A	1	P101	FOR W.BAL. ADJUST
46-12866W-027	PIN BASE *2 TJC3-2A	1	P602	FOR 46-14026H-027 (SPK L)
46-12866W-027	PIN BASE *2 TJC3-2A	1	P001	FOR AGING TEST
46-12866W-02X	PIN BASE *2 S11-02W	1	P601	FOR 46-13092H-02X (SPK R)
46-20598W-047	PIN BASE *4 TJC1-4A	1	P401	FOR DY CONNECTOR
62-10654X-00F	UNI - TIE 2.5X95MM	8		
62-227680-0UA	HOLDER CABLE FOR FBT	1		
63-B4015X-AB2	S/T SCREW B 4 X 15 AB	1	MTG FBT & H.SINK	
64-P3008X-104	M/C SCREW P 3 X 8	2	FOR IC601 & IC602	
64-P3010X-104	M/C SCREW P 3 X 10	2	FOR IC301 & Q402	
65-Z3005X-23M	NUT M 3	2	FOR IC301 & Q402	
67-H20302-0M2	HEAT SINK	2	FOR IC601 & IC602	
67-H30752-0A0	HEAT SINK HOR. OUTPUT	2	FOR IC301 & Q402	
71-270870-0A9	LABEL	3		
90-209770-000	SILICONE GREASE G-746	0	FOR Q402	
Item No.	Item Description	Qty/Req	Designator	
90-269080-000	CLEAN COATING	0		
41-WJ0055-B00	WIRE BARE JUMPER 5.5 MM	1	J110	
41-WJ0115-B00	WIRE BARE JUMPER 11.5MM	1	J108	
41-WJ0155-B00	WIRE BARE JUMPER 15.5MM	3	J022, J023, J024	
41-WJ0130-B00	WIRE BARE JUMPER 13MM	4	J026, J027, J028, J029	
41-WJ0065-B00	WIRE BARE JUMPER 6.5MM	1	R133	
02-296220-000	IR RECEIVER MODULE GP1U281U	1	IR001	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	6	J036, L201, L204, L205, L206, L207	
46-10960W-047	PIN BASE *4 TJC3-4A	1	P402	FOR 46-30615H-047 (CRT BD P502)
46-13541W-057	PIN BASE *5 TJC3-5A	1	P201	FOR 46-27240H-057 (CRT BD P503)

41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	18	J009, J102, J107, J112, J206, J208, J222, J242, J257, J259, J303, J402, J403, J409, J603, J605	J616, J618
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	20	J002, J005, J008, J012, J016, J018, J032, J226, J235, J238, J245, J260, J261, J301, J607, J612	J615, J904, J915, R920
41-WJ0090-B00	WIRE BARE JUMPER 9MM	1	L904	
26-EBP102-KB1	CAP. CER 1000PF 50V 10% B TUBU	4	C033, C221, C309, C404	
26-EBP103-ZF1	CAP. CER 0.01UF 50V +80-20% F	22	C021, C026, C027, C029, C042, C112, C113, C114, C203, C210, C218, C223, C226, C237, C242, C244	C415, C417, C425, C636, C638, C639
62-291630-0HH	SUPPORTER	1	FOR FBT & H.SINK	
40-2101MC-MAC	P.C.B. MAIN BD	1		
18-CB0750-JNX	RES. C.F. 75 OHM 1/6W +/-5%	2	R235, R904	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	28	R032, R041, R059, R129, R226, R227, R234, R236, R267, R268, R269, R289, R301, R302, R411, R604	R609, R614, R903
25-BFB478-M11	CAP. ELEC 0.47 UF 50V +/-20%	2	C213, C230	
27-MBC104-J01	CAP. M. P.E. 0.1 UF 50V +/-5%	8	C005, C006, C007, C232, C233, C238, C251, C313	
26-EBP101-JC1	CAP. CER 100 PF 50V +/-5% CH	8	C002, C016, C017, C018, C019, C031, C239, C630	
08-324740-OTN	ASS'Y - OTHER PARTS M.BD			
11-SC1815-YB1	TRANSISTOR 2SC1815Y	4	Q008, Q009, Q208, Q904	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	7	R208, R211, R283, R905, R907, R910, R912	
18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	6	R025, R062, R064, R916, R917, R918	
18-CB0223-JNX	RES. C.F. 22K OHM 1/6W +/-5%	4	D903, D904, D905, D906	
18-CB0271-JNX	RES. C.F. 270 OHM 1/6W +/-5%	2	R287, R292	
18-CB0331-JNX	RES. C.F. 330 OHM 1/6W +/-5%	1	R295	
18-CB0473-JNX	RES. C.F. 47K OHM 1/6W +/-5%	2	R304, R306	
18-CB0683-JNX	RES. C.F. 68K OHM 1/6W +/-5%	1	R307	
18-CB0820-JNX	RES. C.F. 82 OHM 1/6W +/-5%	2	R909, R914	
18-CE0104-JNX	RES. C.F. 100K OHM 1/2W +/-5%	1	R412	
Item No.	Item Description	Requ	Designator	
18-DF0109-JGX	RES. M.F. 1 OHM 1W +/-5%	1	R407	
18-EF0109-JG1	RES. FUS. 1 OHM 1W +/-5% (LS)	4	R403, R405, R406, R409	
25-BCB220-M11	CAP. ELEC 22 UF 16V +/-20%	3	C246, C906, C909	
26-EBP102-KB1	CAP. CER 1000PF 50V 10% B TUBU	1	C272	
26-EBP470-JZ1	CAP. CER 47 PF 50V +/-5% SL	2	C269, C270	
27-AHR394-J01	CAP. M.PP 0.39 UF 400V +/-5%	1	C421	
27-ALR103-J01	CAP. M PP 0.01 UF 1.6KV +/-5%	1	C406	
27-PBC152-J01	CAP. P.E. 0.0015 UF 50V +/-5%	2	C257, C311	
34-R120J2-0EX	COIL PL - 12 UH +/-5%	2	L208, L212	
36-130580-017	COIL LINEARITY 39 UH	1	L412	
36-272270-00X	COIL WIDTH 64 UH	1	L411	
37-JF0501-A02	FLYBACK JF0501-1214A (54CM)	1	T402	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	3	C1202, C1211, J625	
41-WJ0055-B00	WIRE BARE JUMPER 5.5 MM	1	J223	
41-WJ0060-B00	WIRE BARE JUMPER 6MM	2	J010, J247	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	3	D204, J251, J622	
45-107742-401	CER. FILTER 5.5MHZ	1	X206	
45-135070-600	CER. TRAP TPS 5.5MHZ	1	X204	

48-231010-00B	SW. TACT VERT. (H=4MM L=6.4MM)	6	S001, S002, S003, S004, S005, S006	
34-R330J2-0EX	COIL PL - 33 UH +/-5%	1	L103	
41-WJ0080-B00	WIRE BARE JUMPER 8 MM	1	L905	
47-318350-00G	RCA JACK 6P RED/SW. WHT. YEL	1	P901	
64-P3006X-104	M/C SCREW P 3 X 6	1	FOR IC401	
67-H10918-4M2	HEAT SINK	1	FOR IC401	
70-271510-00A	SERVICE CARD	1	FOR PRODUCTION USE	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	R310	
26-AMM331-JZ1	CAP. CER 330 PF 2KV +/-5% SL	1	C402	
14-255670-LR2	LED RED L-53ID (5MM)	1	D051A	
62-226920-0HA	HOLDER (LED)	1		
41-WJ0090-B00	WIRE BARE JUMPER 9MM	1	L906	
18-FG0120-JHX	RES. M.O. 12 OHM 2W +/-5%	1	R410	
07-V57D27-F10	TUNER ENV57D27F1 (HB IEC 38.9)	1	TU101	
13-0AN78L-05A	IC 78L05 VOLT REGULATOR 0.5A	1	IC402	
13-TCLM07-VAP	CPU TMP87CM38N-3634	1	IC001	
18-CB0124-JNX	RES. C.F. 120K OHM 1/6W +/-5%	1	R294	
18-CB0393-JNX	RES. C.F. 39K OHM 1/6W +/-5%	1	R209	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	1	R410A	
45-296080-300	SAW FILTER K2955M(PIF 38.9MHZ)	1	Z101	
13-000040-53P	IC 4053 (ANALOG SW)	1	IC901	
18-CB0220-JNX	RES. C.F. 22 OHM 1/6W +/-5%	1	R901	
25-BCB101-M11	CAP. ELEC 100 UF 16V +/-20%	1	C901	
25-BFB109-M11	CAP. ELEC 1 UF 50V +/-20%	4	C904, C905, C907, C908	
26-EBP103-ZF1	CAP. CER 0.01UF 50V +80-20% F	1	C902	
41-WJ0155-B00	WIRE BARE JUMPER 15.5MM	1	FOR P1 - P7 OF IC1201	
41-WJ0155-B00	WIRE BARE JUMPER 15.5MM	1	FOR P14 - P20 OF IC1201	
46-10964W-067	PIN BASE *6 TJC3-6A	1	P904	FOR 46-31530H-067 (F. AV BD)
08-02109C-PW2	ASS'Y - POWER PARTS "AUST"			
10-0001H8-EB1	DIODE 1H8 (FAST RECOVERY)	1	D804A	
10-0FR104-EB1	DIODE FR104 (FAST RECOVERY)	3	D806, D830, D831	
10-0RL255-EB1	DIODE RL255 (RECTIFIER)	4	D801, D802, D803, D804	
10-1N4148-AB1	DIODE 1N4148 (SWITCHING)	2	D807, D832	
10-79C8V2-DB1	DIODE ZENER 8V2 1/2W 5%	1	D833	
11-BUZ91A-0A1	TRANSISTOR BUZ91A	1	Q801	
11-KSD882-0A1	TRANSISTOR KSD882 (POWER)	2	Q804, Q805	
11-SC1815-YB1	TRANSISTOR 2SC1815Y	1	Q806	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R829	
18-CB0222-JNX	RES. C.F. 2.2K OHM 1/6W +/-5%	1	R827	
Item No.	Item Description	Quantity	Designator	
18-CD0100-JNX	RES. C.F. 10 OHM 1/4W +/-5%	1	R808A	
18-CE0222-JNX	RES. C.F. 2.2K OHM 1/2W +/-5%	1	R832	
18-FG0153-JHX	RES. M.O. 15K OHM 2W +/-5%	1	R824	
25-BDA471-M11	CAP. ELEC 470 UF 25V +/-20%	1	C842	
25-BJG221-M11	CAP. ELEC 220 UF 160V +/-20%	1	C827	
26-AIC221-KBX	CAP. CER 220 PF 500V +/-10% B	2	C840, C843	
26-AIM103-KBX	CAP. CER 0.01 UF 500V +/-10% B	2	C808, C826	
26-APK102-MEJ	CAP. CER 1000PF 400VAC +/-20% E	2	C824, C835	
26-AQK472-ZF1	CAP. CER 4700PF 250VAC +80-20%F	2	C804, C805	
27-MQW683-M01	CAP M.PE 0.068UF 250VAC +/-20%	1	C818	
27-PBC102-J01	CAP. P.E. 0.001 UF 50V +/-5%	1	C811	
27-PBC103-J01	CAP. P.E. 0.01 UF 50V +/-5%	2	C812, C817	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J803	
41-WJ0150-B00	WIRE BARE JUMPER 15MM	2	J801, J804A	
46-28559W-028	PIN BASE *2 TJC1-2A	1	P802	
64-P3010X-104	M/C SCREW P 3 X 10	1	FOR Q801	
65-Z3005X-23M	NUT M 3	1	FOR Q801	
74-010050-40C	POLYBAG FOR POWER CORD	1		
90-209770-000	SILICONE GREASE G-746	0	FOR Q801	
18-FE0822-JNX	RES. M.O. 8.2K OHM 1/2W +/-5%	1	R830	
18-FG0563-JHX	RES. M.O. 56K OHM 2W +/-5%	1	R809	
22-202BG3-602	POSISTOR PTH451C202BG360N270	1	RT801	
26-EBP103-ZF1	CAP. CER 0.01UF 50V +80-20% F	3	C841, C844, C848	
26-EBP220-JZ1	CAP. CER 22 PF 50V 5% SL TUBU	1	C810	

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36-215530-A02	LINE FILTER	1	T803	
36-284180-A02	LINE FILTER (TB1231N)	1	T801	
50-26930D-1VS	FUSE 2.0AT 250V 5X20MM BELL	1	F801	
67-H28649-0A0	HEAT SINK (POWER. 2101)	1		
71-221930-0AA	LABEL FUSE REPLACEMENT	1	STICK ON POWER SW.	
71-242640-0A2	LABEL WARNING LIVE PARTS	1	STICK ON POWER H.SINK	
35-139730-00X	FERR. BEAD BF60	2	FOR L801	
35-139730-00X	FERR. BEAD BF60	2	FOR D831 (L810 & L811)	
35-237250-00X	FERR. BEAD HF70	2	FOR D824 (L806 & L807)	
35-139730-00X	FERR. BEAD BF60	2	FOR D830 (L808 & L809)	
18-CD0101-JNX	RES. C.F. 100 OHM 1/4W +/-5%	1	R808	
18-EF0228-JG1	RES. FUS. 0.22 OHM 1W +/-5%	2	R834, R836	
18-FG0121-JHX	RES. M.O. 120 OHM 2W +/-5%	1	R819A	
10-BYT138-EB1	DIODE BYT13-800 (FAST RECT.)	1	D824	
18-FE0120-JNX	RES. M.O. 12 OHM 1/2W +/-5%	1	R825	
18-CE0102-JNX	RES. C.F. 1K OHM 1/2W +/-5%	1	R808B	
18-CD0153-JNX	RES. C.F. 15K OHM 1/4W +/-5%	1	R811	
18-CB0563-JNX	RES. C.F. 56K OHM 1/6W +/-5%	2	R806, R812	
13-TDA168-46P	IC TDA16846 (SMPS)	1	IC801	
26-EBP561-JC1	CAP. CER 560 PF 50V +/-5% CH	1	C815	
20-TR05HC-521	TRIMMER B5K HORIZ TYPE WDC	1	VR801	
34-R101K2-1B3	COIL CHOKE 100 UH +/-10%	1	L804	
48-256460-0C0	SW. POWER TV8 (PCB MOUNTING)	1	S801	
54-315250-000	SILICONE RUBBER 13X18MM	1	FOR Q801	
54-315260-000	BUSHING 3X2.5MM	1	FOR Q801	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	J805	
36-306240-A02	TRANSFORMER CONVERTER(TDA4605)	1	T802	
25-BEB470-M11	CAP. ELEC 47UF 35V +/-20%	1	C847	
27-MBC224-J01	CAP. M. P.E. 0.22 UF 50V +/-5%	1	C814	
27-MBC474-J01	CAP. M. P.E. 0.47 UF 50V +/-5%	1	C837	
41-AJ0150-BEE	WIRE BARE JUMPER 15MM	1	L801	FOR FERR. BEAD BF60 X2
25-315130-M11	CAP. ELEC 330UF 400V 20% 35X30	1	C806	
18-CB0752-JNX	RES. C.F. 7.5K OHM 1/6W +/-5%	1	R810	
25-BDA470-M11	CAP. ELEC 47 UF 25V +/-20%	1	C816	
18-KE0105-JN1	RES. C.C. 1M OHM 1/2W +/-5%	2	R802, R807	
Item No.	Item Description	Quantity	Designator	
18-KE0475-JN1	RES. C.C. 4.7M OHM 1/2W +/-5%	3	R805, R835, R835A	
22-00S236-503	NTC RESISTOR S236-5.0M	1	R801	
27-MHM104-K01	CAP. METAL P.E. 0.1UF 400V 10%	1	C803	
46-10962W-027	PIN BASE *2 TJC2-2A	1	P801	FOR DEGAUSSING COIL
66-20516X-0B0	FUSE HOLDER	2	FOR F801	
41-WJ0050-B00	WIRE BARE JUMPER 5MM	2	L805, L806	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	1	J804	
18-EF0229-JG1	RES. FUS. 2.2 OHM 1W +/-5%	1	R831	
18-CB0470-JNX	RES. C.F. 47 OHM 1/6W +/-5%	1	R826A	
26-AMM221-JZ1	CAP. CER 220 PF 2KV +/-10% SL	2	C819, C839	
26-AMM331-JZ1	CAP. CER 330 PF 2KV +/-5% SL	1	C830	
25-BDA222-M1B	ELEC 2200UF 25V +/-20% 13X25MM	1	C845	
18-CB0472-JNX	RES. C.F. 4.7K OHM 1/6W +/-5%	2	R826, R828	
27-AQT224-MVF	CAP. M.PP 0.22UF 250VAC 20% CB	2	C801, C802	
51-JC0243-0CH	POWER CORD SAA PLUG W/HOUSING	1		
08-02129S-CRY	ASS'Y - CRT BD			
10-1N4148-AB1	DIODE 1N4148 (SWITCHING)	2	D501, D502	
11-A562TM-0B1	TRANSISTOR 2SA562TM-0	1	Q507	
11-SC1815-YB1	TRANSISTOR 2SC1815Y	3	Q502, Q504, Q506	
11-SC2482-0B1	TRANSISTOR 2SC2482	3	Q501, Q503, Q505	
18-BE0272-KN1	RES. C.C. 2.7K OHM 1/2W +/-10%	3	R519, R520, R521	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	R515	
18-CB0272-JNX	RES. C.F. 2.7K OHM 1/6W +/-5%	1	R514	
18-CB0681-JNX	RES. C.F. 680 OHM 1/6W +/-5%	5	R502, R506, R509, R511, R522	
18-FG0153-JHX	RES. M.O. 15K OHM 2W +/-5%	3	R516, R517, R518	
25-BCB471-M11	CAP. ELEC 470 UF 16V +/-20%	1	C506	
25-BLA100-M11	CAP. ELEC 10 UF 250V +/-20%	1	C504	
26-ABC391-JZX	CAP. CER 390 PF 50V +/-5% SL	3	C501, C502, C503	

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26-AMK102-KR1	CAP. CER 1000 PF 2KV +/-10% R	1	C505	
26-EBP102-KB1	CAP. CER 1000PF 50V 10% B TUBU	2	C508, C509	
34-R100K2-1B3	COIL CHOKE 10 UH +/-10%	1	L502	
35-139730-00X	FERR. BEAD BF60	2	FOR C508 (L505 & L506)	
40-2129MS-CRA	P.C.B. CRT BD	1		
41-WJ0050-B00	WIRE BARE JUMPER 5MM	3	L501, L503, L504	
41-WJ0060-B00	WIRE BARE JUMPER 6MM	3	R504, R507, R512	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	1	J503	
46-10967W-017	PIN BASE *1 TJC1-1A	1	FOR CRT GROUNDING	
47-265540-0U7	SOCKET CRT GZS10-2-4 B	1	S501	
18-CB0561-JNX	RES. C.F. 560 OHM 1/6W +/-5%	3	R501, R505, R510	
18-CB0821-JNX	RES. C.F. 820 OHM 1/6W +/-5%	3	R503, R508, R513	
46-27240H-057	HS 5P24 450 F/W TJC3-5Y/SCN-5	1	P503	FOR 46-13541W-057 (M.BD P201)
46-30615H-047	HS 4P24 460 F/W TJC3-4Y/SCN3	1	P502	FOR 46-10960W-047 (M.BD P402)
08-02109S-TXY	ASS'Y - TEXT/1PAGE BD			
10-0BB809-BB1	DIODE BB809	1	DT15	
10-1N4148-AB1	DIODE 1N4148 (SWITCHING)	7	DT01, DT02, DT03, DT04, DT05, DT06, DT07	
11-2N3904-0B1	TRANSISTOR 2N3904	1	QT01	
11-SC1815-YB1	TRANSISTOR 2SC1815Y	1	QT02	
11-TC144E-SB1	TRANSISTOR DTC144ES (TP)	2	QT06, QT07	
13-000040-66P	IC 4066 (ANALOG SW.)	1	ICT04	
13-0CF701-95P	IC CF70195NW UNITEXT DECODER	1	ICT02	
13-0CF723-06P	IC CF72306 DATA SLICER	1	ICT01	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	RT01	
18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%	1	RT12	FOR QT02(E) TO GND
18-CB0103-JNX	RES. C.F. 10K OHM 1/6W +/-5%	5	RT02, RT11, RT24, RT25, RT34	
18-CB0152-JNX	RES. C.F. 1.5K OHM 1/6W +/-5%	1	RT09	
18-CB0154-JNX	RES. C.F. 150K OHM 1/6W +/-5%	1	RT30	
Item No.	Item Description	Quantity	Designator	
18-CB0220-JNX	RES. C.F. 22 OHM 1/6W +/-5%	1	RT27	
18-CB0333-JNX	RES. C.F. 33K OHM 1/6W +/-5%	3	RT29, RT32, RT35	
18-CB0472-JNX	RES. C.F. 4.7K OHM 1/6W +/-5%	2	RT10, RT13	
18-CB0682-JNX	RES. C.F. 6.8K OHM 1/6W +/-5%	4	RT03, RT04, RT28, RT36	
18-CB0822-JNX	RES. C.F. 8.2K OHM 1/6W +/-5%	1	RT33	
18-CB0823-JNX	RES. C.F. 82K OHM 1/6W +/-5%	1	RT31	
18-CE0229-JNX	RES. C.F. 2.2 OHM 1/2W +/-5%	1	R240	
25-BCB101-M11	CAP. ELEC 100 UF 16V +/-20%	3	C240, CT24, CT39	
25-BCB220-M11	CAP. ELEC 22 UF 16V +/-20%	1	CT07	
26-ABC222-KBX	CAP. CER 2200 PF 50V +/-10% B	1	CT43	
26-ABC271-JZX	CAP. CER 270 PF 50V +/-5% S	1	CT45	
26-ABC339-CZX	CAP. CER 3.3 PF 50V +/-0.25 SL	1	CT46	
26-EBP100-JC1	CAP. CER 10 PF 50V +/-5% CH	5	CT12, CT15, CT16, CT17, CT19	
26-EBP103-ZF1	CAP. CER 0.01UF 50V +80-20% F	2	CT05, CT14	
26-EBP104-ZF1	CAP. CER 0.1UF 50V +80-20% F	5	CT03, CT08, CT09, CT10, CT44	
26-EBP150-JC1	CAP. CER 15 PF 50V +/-5% CH	2	CT01, CT06	
26-EBP221-JC1	CAP. CER 220 PF 50V +/-5% CH	2	CT02, CT04	
26-EBP470-JC1	CAP. CER 47 PF 50V +/-5% CH	1	CT48	
26-EBP820-JC1	CAP. CER 82 PF 50V +/-5% CH	1	CT47	
34-A189J0-0I1	COIL PL - 1.8 UH +/-5%	1	LT03	
34-R220J2-0EX	COIL PL - 22 UH +/-5%	1	LT02	
41-WJ0060-B00	WIRE BARE JUMPER 6MM	6	JT08, JT11, JT19, RT05, RT06, RT07	
41-WJ0075-B00	WIRE BARE JUMPER 7.5MM	12	JT01, JT03, JT12, JT13, JT14, JT17, JT18, JT20, JT21, JT24, JT26, RT08	
41-WJ0100-B00	WIRE BARE JUMPER 10MM	3	JT02, JT09, JT16	
41-WJ0125-B00	WIRE BARE JUMPER 12.5MM	1	JT04	
41-WJ0175-B00	WIRE BARE JUMPER 17.5MM	1	JT06	
45-258150-100	CRYSTAL 13.875MHZ	1	XT01	
46-21550W-067	HEADER *6 TS6B-SQ-1	1	PT02	

SPARE PARTS -

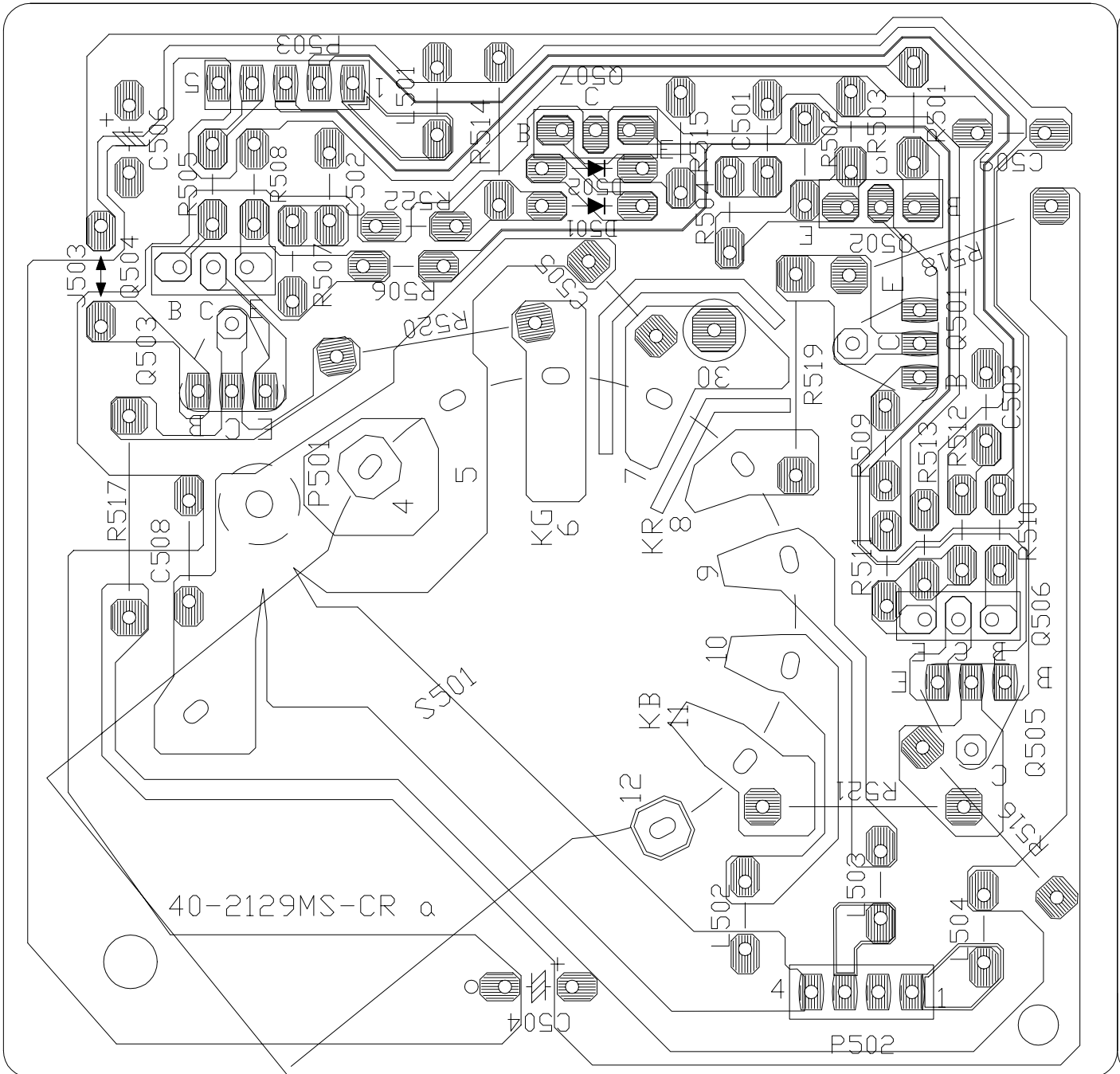
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46-21550W-127	HEADER *12 TS12B-SQ-1 L=10MM	1	PT01	
67-257870-1T0	BRACKET IF BD	1		
67-257870-2T0	BRACKET IF BD	1		
40-2129MS-TCC	P.C.B. 1P/TXT & CCD BD	1		
47-214720-0UX	JACK RCA JPJ2022-01-040 YELLOW	1	P1101	
47-214710-0UX	JACK RCA JPJ2022-01-030 WHITE	1	P1102	
63-B2608X-AB4	S/T SCREW B 2.6 X 8 AB	2	MTG F. AV BD TO F.CAB.	
46-31530H-067	HS 6P24 F/W 300 TJC3/JC25-6Y	1	P1104B	FOR 46-10964W-067 (M.BD P904)
47-309810-004	RCA JACKET RED (RCA-101P)	1	P1103	
40-02139A-AVA	P.C.B. FRONT AV BD	1		
08-HS45E0-RM1	ASS'Y - REMOTE HANDSET(M7/"E")			
10-1N4148-AB1	DIODE 1N4148 (SWITCHING)	3	D1502, D1503, D1504	
15-00SFH4-150	DIODE INFRARED SFH415	1	D1501	
18-CB0109-JNX	RES. C.F. 1 OHM 1/6W +/-5%	1	R1501	
25-297410-M11	CAP. ELEC 47UF 10V 20% 4.2X7MM	1	C1502	
26-EBP101-JC1	CAP. CER 100 PF 50V +/-5% CH	2	C1503, C1504	
45-120550-201	CER RESONATOR 455KHZ	1	X1501	
13-KS5185-0DE	IC KS51850-D2 (REMOTE)	1	IC1501	
49-HS45E0-00XAA	RUBBER PAD KEYS	1		
40-2129MS-RMB	P.C.B. IR HANDSET BD	1		
67-296820-0E2	BATTERY CONTACT SPRING (+)	1		
74-009022-60C	POLYBAG HANDSET	1		
54-302000-00X	FELT TAPE 15 X 4 CM	1		
67-26968X-0E2	BATT. TERMINAL (+/-)	1		
26-EBP104-ZF1	CAP. CER 0.1UF 50V +80-20% F	1	C1501	
67-296810-1E2	BATTERY CONTACT SPRING (-)	1		
55-HS45EB-0HAAC	CASE LOWER - REMOTE HANDSET	1		
Item No.	Item Description	Requ	Designator	
55-HS45ED-0HAAC	DOOR BATT. - REMOTE HANDSET	1		
55-HS45ET-1HAAF	CASE UPPER - REMOTE HANDSET	1		
56-HS45EK-1HAAI	KEY KNOB (OVAL) LEFT	1		
56-HS45EK-1HAAJ	KEY KNOB (OVAL) RIGHT	1		
56-HS45EK-2HAAI	KEY KNOB (OVAL) UPPER	1		
56-HS45EK-2HAAJ	KEY KNOB (OVAL) LOWER	1		
58-HS45E0-3UIAB	INLAY IR TRANSMITTER BD (TEXT)	1		
02-271360-00X	ASS'Y-CRT GND WIRE & HOUS.(21)	1	FOR CRT GROUNDING	
48-259140-003	SW. DOOR LOCK PR5	1		
54-205140-000	SPACER CRT MOUNTING T=2MM	4	MTG CRT & F.CAB. STICK ON	
59-130460-00X	RUBBER PAD 25MM X 7MM	2	F.CAB.(FOOTING)	
62-216340-0UA	HOLDER POWER CORD	1		
63-B2608X-AB4	S/T SCREW B 2.6 X 8 AB	3	MTG PUSH BUTTON & F.CAB.	
63-H6025X-AB4	S/T SCREW H 6 X 25 AB	4	MTG CRT & F.CAB	
63-W3010X-AB4	S/T SCREW W 3 X 10 AB	8	FOR SPEAKING	
65-A6018X-20E	WASHER 6 X 18 X 2MM	4	FOR CRT	
67-250450-0E0	SPRING KNOB	1		
36-204121-001	DEGAUSSING COIL 2600 + 20MM	1		
46-14026H-027	HS 2P24 570/7 F/W TJC3-2Y	1	P602H	FOR 46-12866W-027 (M.BD)
54-113971-0UE	PVC TUBE #6 L=160MM	2	FOR SPK HOUSING	
62-10654X-00F	UNI - TIE 2.5X95MM	4	FOR DEGAUSSING COIL	
63-B2608X-AB4	S/T SCREW B 2.6 X 8 AB	1	MTG LENS SENSOR & F.CAB.	
42-287350-006	SPEAKER 50X120MM 8 OHM 3W	2	W601, W602	
46-13902H-02X	HS 2P24 360/5 F/W S11-02H	1	P601H	FOR 46-12866W-02X (M.BD)
62-312090-0HA	ADAPTOR - PWR KNOB (NEW PCB)	1		
67-126680-0E0	SPRING CRT 6 X 40 X 0.5 MM	1		
46-26514H-047	HS 4P A/B 500/13 RBGW TJC1-4Y	1	P401H	FOR 46-20598W-047 (M.BD)
56-2111FB-0HAAA	PUSH BOTTON	1		
56-2111LS-0HCAA	LENS - SENSOR & LED	1		
56-2111PK-0HAAA	POWER KNOB	1		
58-2111FI-3UIAA	INLAY FRONT AV (RCA-3 MONO)	1		
55-2111FC-0CAAC	FRONT CABINET	1		
55-2111FD-0HAAC	FRONT DOOR	1		

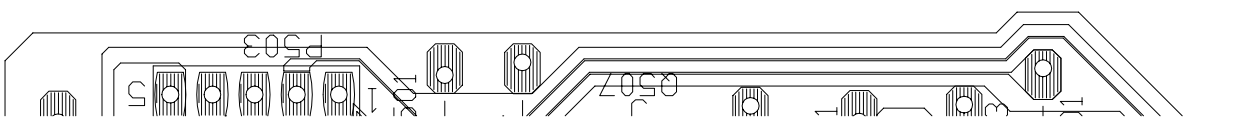
SPARE PARTS -

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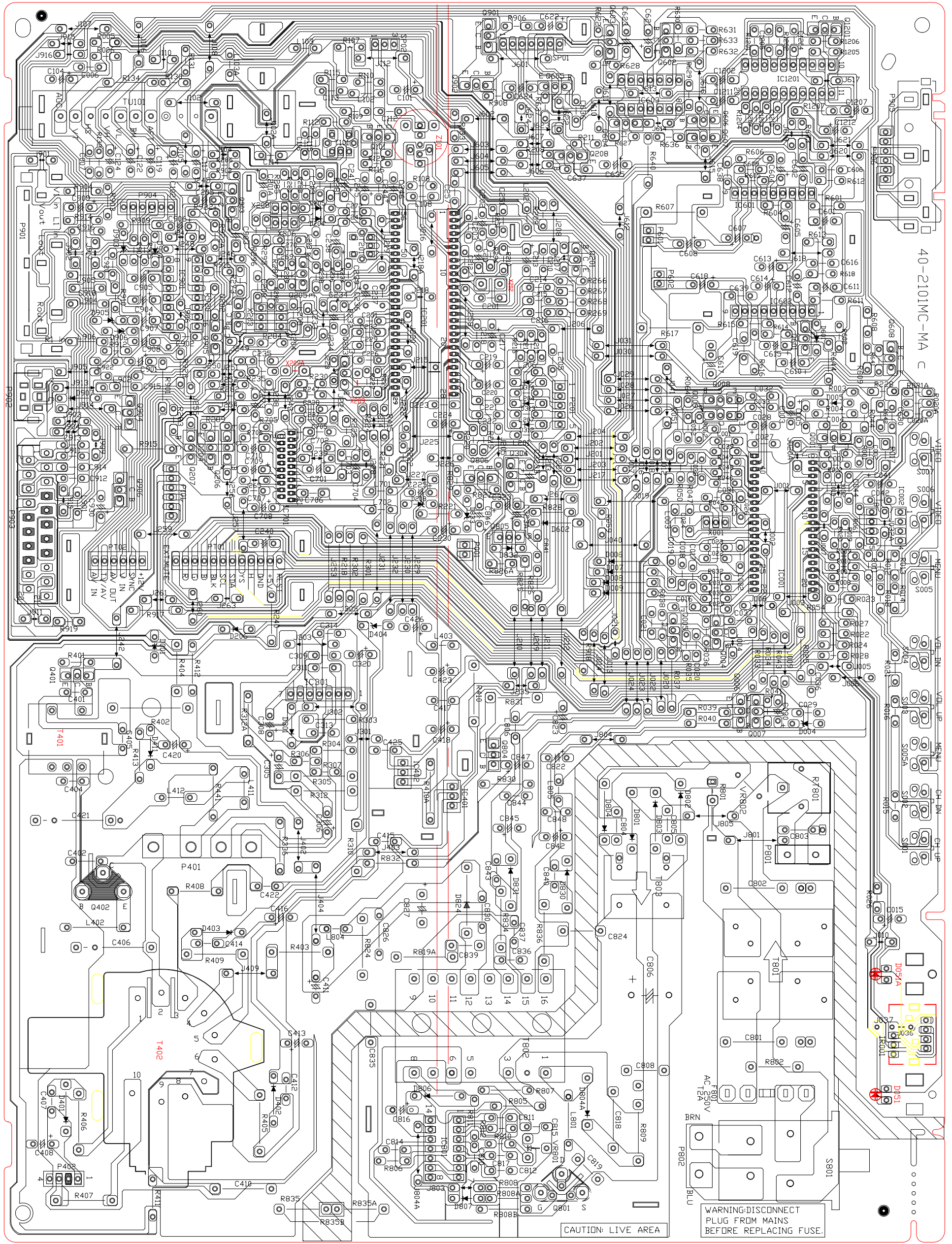
44-210FLS-SG1	CRT 54CM A51JSY63X13(CR) RED	1	CRT01	
			STICK ON REAR CAB.	
54-114000-00X	FELT TAPE 150X19MM	9		
63-B4020X-AB2	S/T SCREW B 4 X 20 AB	4	MTG F.CAB & R.CAB	
62-314340-0UN	FBT SUPPORTER	1		
			MTG SUPPORTER	
63-W3010X-AB4	S/T SCREW W 3 X 10 AB	4	BKT & REAR CAB.	
			MTG RCA JACK &	
63-F3010X-BT3	S/T SCREW F 3 X 10 BT (BLACK)	2	REAR CAB.	
58-1438RI-0UIAB	INLAY TERM.BD(M7/IN1 MONO)	1		
58-2111MP-0UIAC	PLATE MODEL NO.	1		
55-2111RC-0ANAA	REAR CABINET (94-0 100%)	1		
74-022032-6WE	POLYBAG 22 X 32CM	1		
75-2111LL-CC0	POLYFOAM (LL)	1		
75-2111LR-CC0	POLYFOAM (LR)	1		
75-2111UL-CC0	POLYFOAM (UL)	1		
75-2111UR-CC0	POLYFOAM (UR)	1		
71-275970-0A0	LABEL SERIAL NO.	2		
74-104088-6YC	POLYBAG W/SUFFOCATION WARNING	1		
76-002111-02EAD	CARTON BOX	1		
70-320280-00AAA	WARRANTY CARD	1		
70-320290-00AAA	SERVICE CENTRE LIST	1		
72-2111C4-E01AA	OPERATION MANUAL	1		



40-2129MS-CR a



40-2101MC-MA C

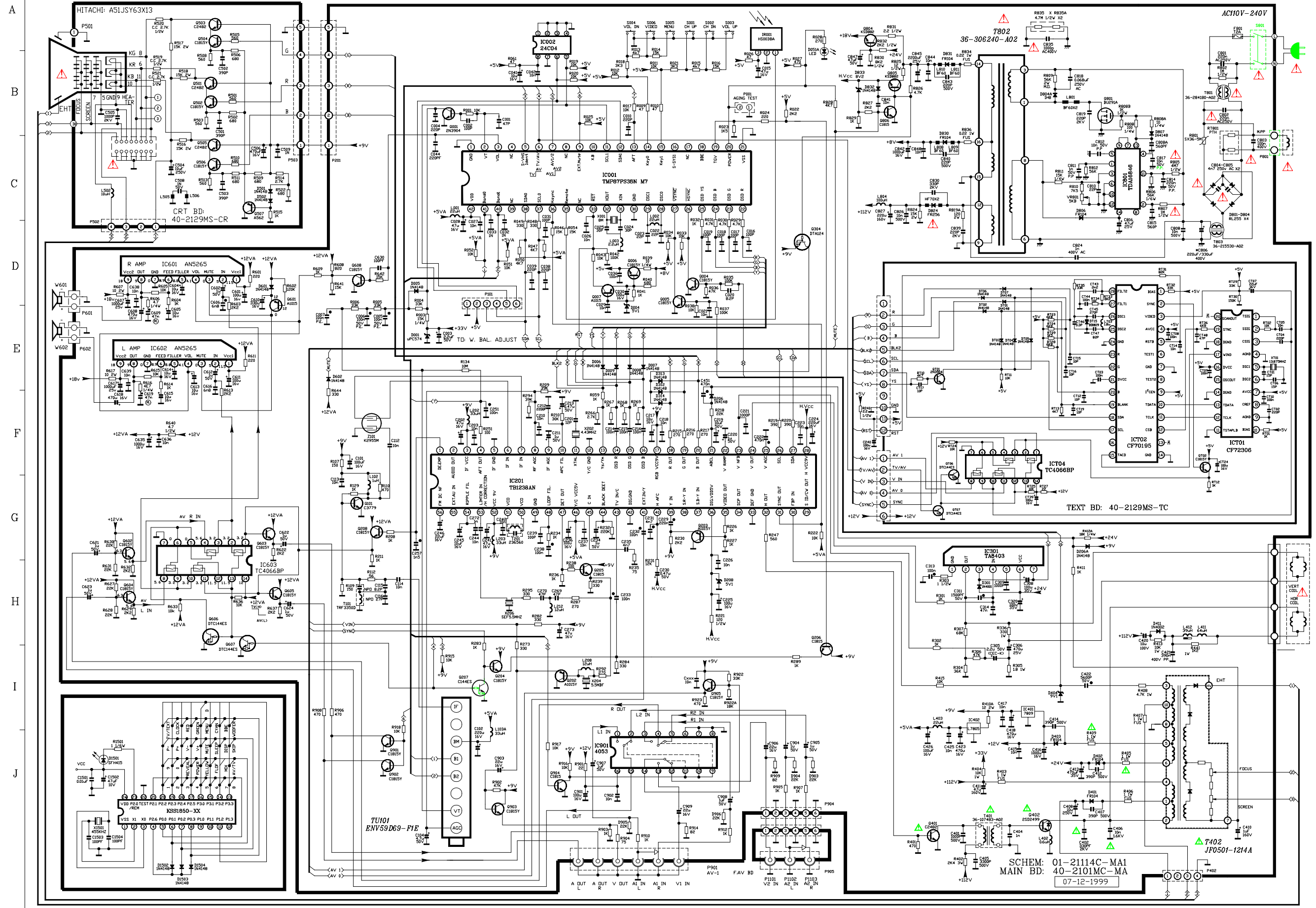


CAUTION: LIVE AREA

WARNING-DISCONNECT
PLUG FROM MAINS
BEFORE REPLACING FUSE.

MODEL: TV-21" PAL B/G (NTSC 3.58/4.43AV) TEXT/1PG RCA: IN X 2

CIRCUIT CONSTANTS AND CIRCUIT ITSELF ARE SUBJECT TO CHANGE WITHOUT NOTICE



SCHEM: 01-21114C-MA1
MAIN BD: 40-2101MC-MA
07-12-1999

TEXT BD: 40-2129MS-TC

T402 JP0501-1214A

TU101 ENV59D69-FYE

KSS1850-XX

CRT BD: 40-2129MS-CR

HITACHI: A51JSY63X13

AC110V-240V