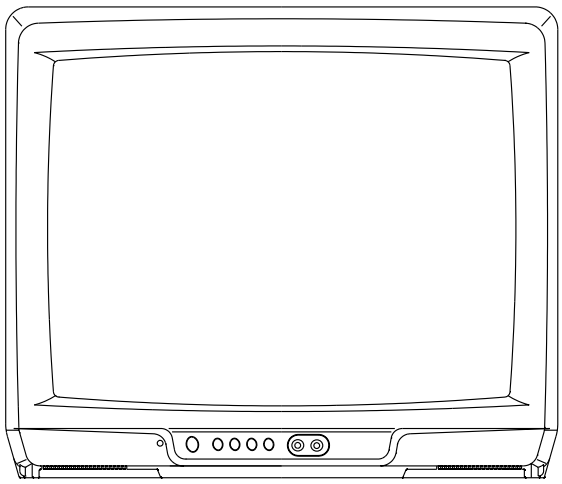
DURABRAND

DBTV1901

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION A

DURABRAND

DBTV1901

SERVICE MANUAL

COLOR TELEVISION RECEIVER

REVISION 1
MFR'S VERSION C

MFR'S VERSION	PCB010	PCB110
A	TMX494A	TCX352A
C	TMX494B	TCX352B

Please file this revision with the original version.

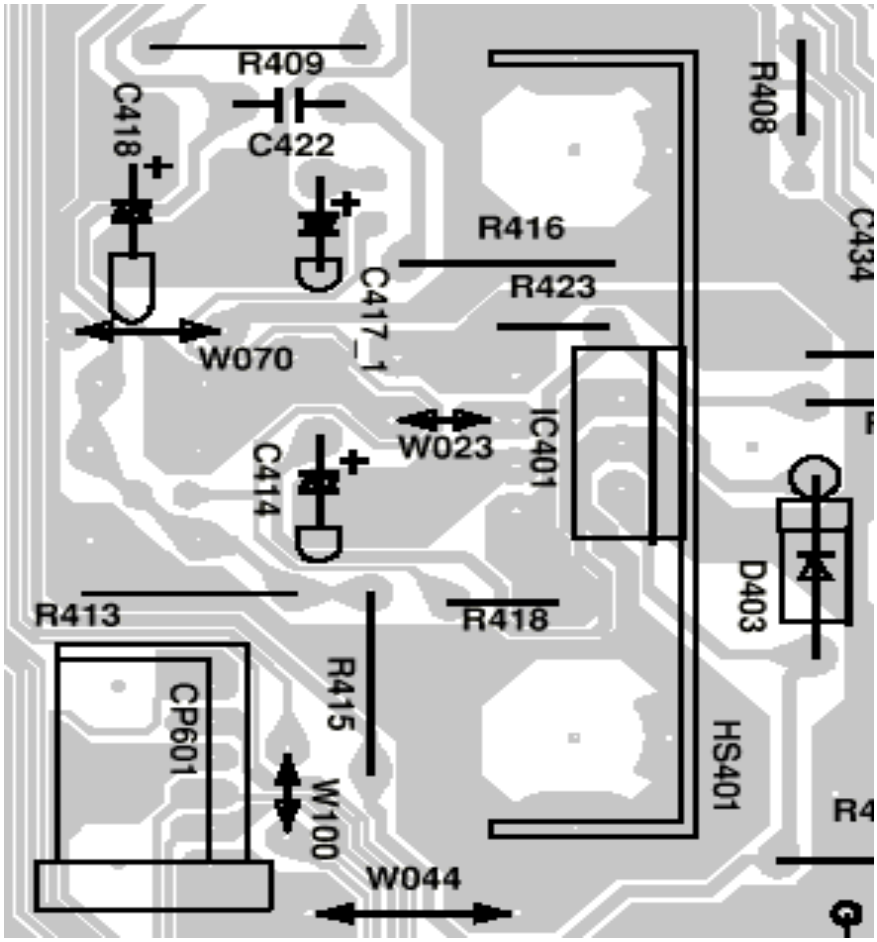
Change of PCB

ELECTRICAL REPLACEMENT PARTS LIST

	MFR'S VERSION A		MFR'S VERSION C	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
R416			R002T2010J	RC 1 OHM 1/2W
C422			P613T1154J	CMPL 0.15 UF 100V TF
PCB010	A3J907A01A	MAIN PCB ASS'Y (VERSION A) TMX494A	A3J907A010	MAIN PCB ASS'Y (VERSION C) TMX494B
PCB110	A3J907A11A	CRT PCB ASS'Y (VERSION A) TCX352A	A3J907A110	CRT PCB ASS'Y (VERSION C) TCX352B

MAIN PCB's and CRT PCB's are not interchangeable.

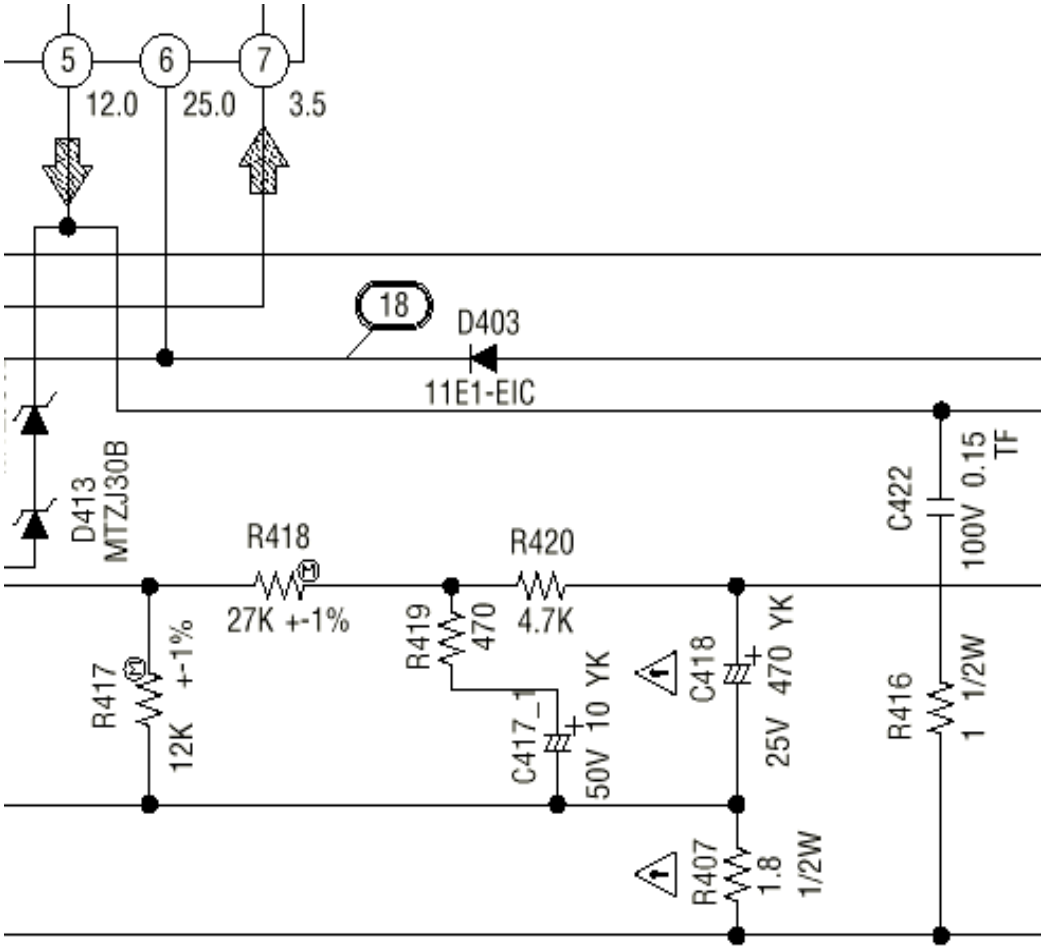
PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE
(VERSION C)



ADD R416
C422

DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)
(VERSION C)

IC401

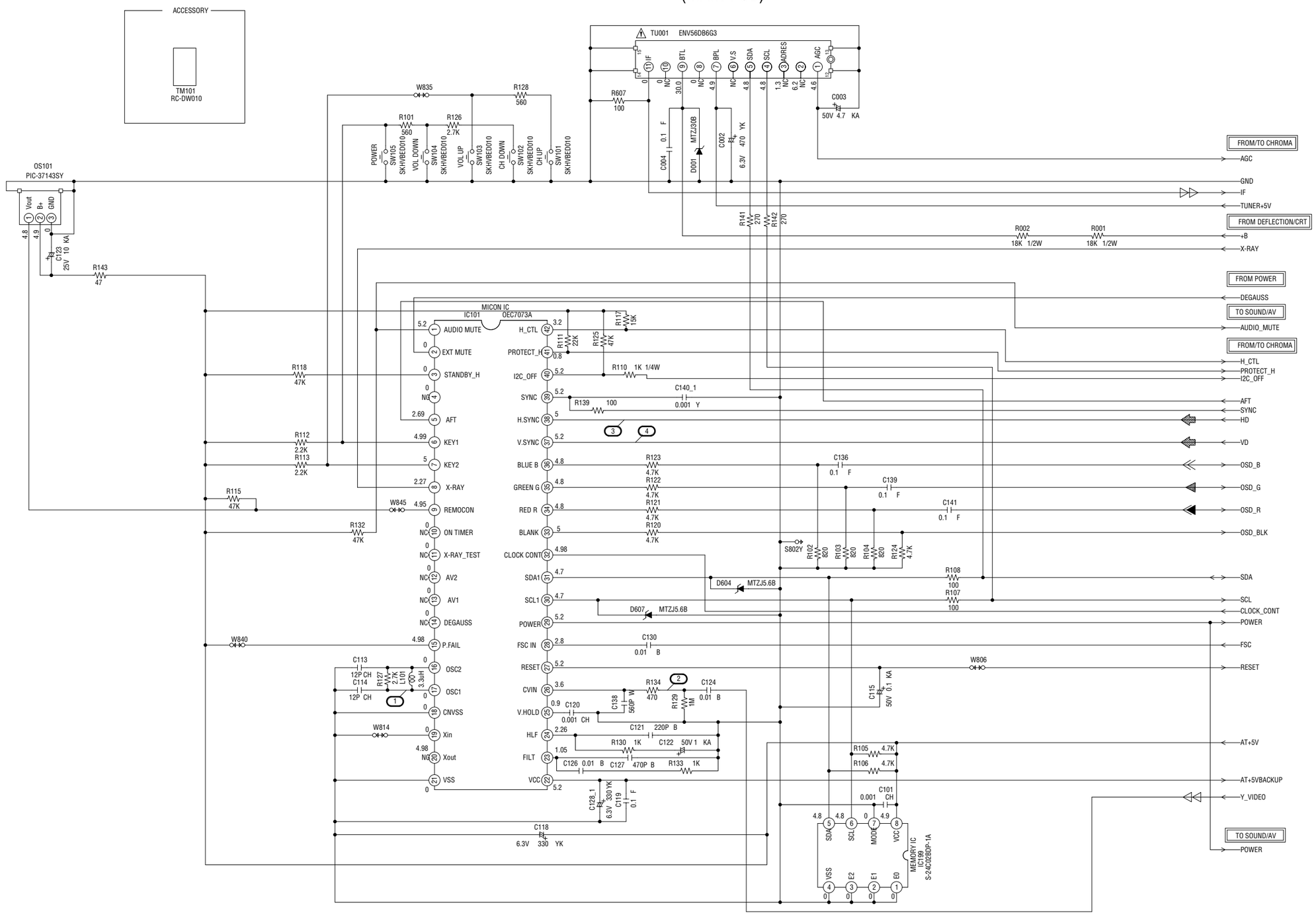


ADD R416
C422

SPEC.NO.	M3J9-07A
O/R NO.	W163007

MICON/TUNER SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

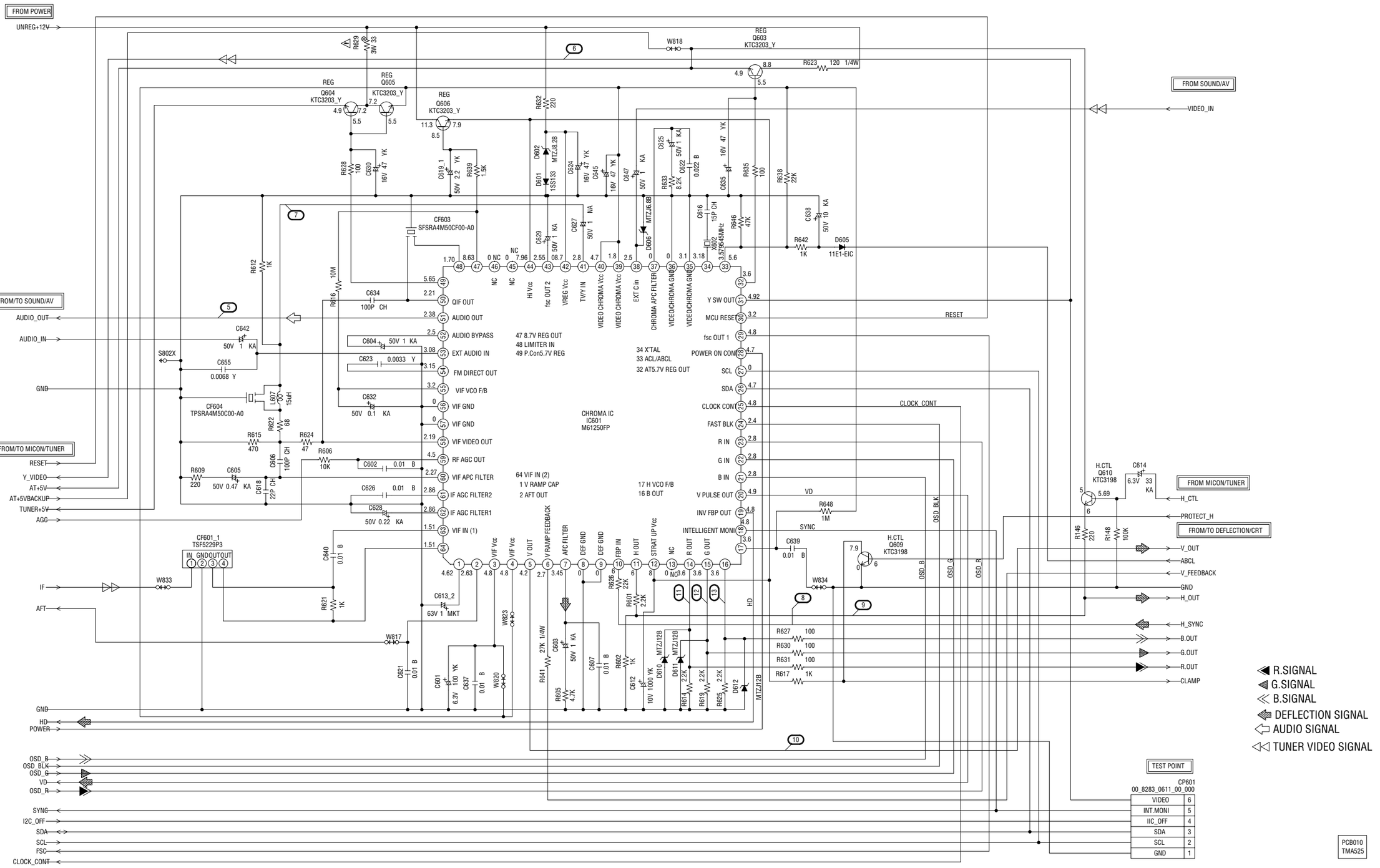
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DEFLECTION SIGNAL
TUNER VIDEO SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL

CHROMA SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

POWER SCHEMATIC DIAGRAM
(MAIN PCB)

4A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 4A 125V (F501) FUSE.

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 4A 125V (F501).

TO MICON/TUNER
DEGAUSS

TO SOUND/AV
GND
SOUND+B
SOUND_GND

TO DEFLECTION/CRT
+B
UNREG+12V
GND

TO CHROMA
UNREG+12V

W828
R529 47K 1/4W
DEGAUSS COIL L503 8R200029
CP502 A1561WV2-2P
R530 3.3M 1/2W +-10%
W821
W837
TH501_2 PTDA1BF3R0D100
L501_1 1R0A562F20
NC
C505 0.1 PHE840 275V
F501 51MS040LCC
FH501 EYF-52BC
233004-MB000
FH502 EYF-52BC
4A 125V
AC120V_60Hz CD501_2 0R414903
BLACK
WHITE
BLADE WIDE
S501A
S501B
C506 250V 0.0047 KX
D501 1N4005-EIC
D502 1N4005-EIC
D503 1N4005-EIC
D504 1N4005-EIC
C502 500V 0.001 B
C503 500V 0.001 B
R501 3.3 5W
R514 0.22 1W
C526 200V 330 UP
R510 1.2M 1/4W
R511 1.2M 1/4W
D509 MTZJ18B
T502 8129092S
10.0
NC
0
132.3
0
0
11.3
NC
NC
1.7
NC
144.0
NC
10.3
6.6
10.3
W829
B501 W5RH3.5 X5X1.0
B502 W5RH3.5 X5X1.0
C514 2KV 680P RR
144.0
FET Q501 STP5NC50FP
D
G
S
0.1
4.8
R508 220 1W
C509 0.047 M
D508 1SS133
D512 1SS133
W844
B503 W5RH3.5X5X1.0
R542 0.47 1W
BUFFER Q502 KTC3198
4.8
0.1
0
R506_1 1K 1/4W
R520 56K 1/4W
R509 100 1/4W
C501 0.0068 M
HS501 763WSAA013
C511 50V 1 KA
D506 MTZJ18B
D505 SB290S
C518 500V 470P B
R517 5.6 2W
C519 16V 470 YK
S801X
D510 RU2AM-EIC
C517 2KV 470P RR
C521 160V 100 MHE
W824
D513 SB290S
C515 16V 1000 YK
FEED BACK SWITCHING Q507 KTC3198-AT (Y,GR)
C513_1 0.082 MMT
R515 120K 1/2W
9.5
6.0
5.5
D514 1SS133
D522 1SS133
FEED BACK Q504 LTV-817M-VB
11.5
10.5
0.1
9.5
R512 47K
R513 2.2K
R519 1.2K
D528 MTZJ5.6B
R527 12
R518 5.6K +-1%

PCB010
TMA525

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)

FROM CHROMA
CLAMP
G.OUT
R.OUT
B.OUT

V-OUT IC IC401 AN5522
THERMAL PROTECTION
PUMP UP
AMP
1 3.5 | 2 25.0 | 3 2.0 | 4 0 | 5 12.0 | 6 25.0 | 7 3.5
C414 100 35V YK

CP802A 9253_010_000_000
CP802B 9253_010_000_000
GND 1
CLAMP 2
G.OUT 3
R.OUT 4
B.OUT 5
NC 6
HEATER 7
GND 8
NC 9
180V 10

14 R423 100 1/4W
R424 6.8K
18 D403 11E1-EIC
19
R418_1 27K
R420 4.7K
R419 560
C417 10 50V YK
C418 470 25V YK
C422 0.15 MKT
R410 330 1/2W
R415 1.8K 1/2W
R416 1 1/2W
R413 2.2K 1/2W
R422 1.8 1/2W
R417 12K 1/4W
HS401 763WSAA013

TO DY
CP401 A1561WV2-A5P
5 4 3 NC 2 1

CD801 SM1098-009-1A
CP801_1 A2361WV2-2P
V801 A48LGS30X19N45
9 10 8 6 11 R G B
5 7 1

W843 0.45

RED OUT Q801_1 KTC4217(O,Y)
GREEN OUT Q802_1 KTC4217(O,Y)
BLUE OUT Q803_1 KTC4217(O,Y)
3.2 2.7 128.0
3.2 2.7 126.0
3.2 2.7 120.5
R809 4.7K D801 1SS133
R811 4.7K D802 1SS133
R814 4.7K D803 1SS133
C808 470P B R813 330
C809 470P B R815 330
C810 470P B R816 330

20 21 22
R803 12K 2W
R802_1 2.7K 1/4W
R805 12K 2W
R804_1 2.7K 1/4W
R807 12K 2W
R806 2.7K 1/4W

R808 22 1/2W

TO MICON/TUNER
X-RAY
+B

R429_1 3.9 2W
D411 AU02A-E1C
C434 22 100V YK
D619 MTZJ5.1B
R408 10K +-1%
R409 27K +-1%
R401 27K +-1%

T401 ETH09K14BZ
15 16 17
NC
R446 470 1/2W
W832
W831
W809
W896
C437 0.39 250V PMS
C443_1 0.0056 1.25KV MPP
W812
W897
R427 100 1/4W
W835

FROM/TO CHROMA
GND
V_FEEDBACK
V_OUT
ABCL
H_OUT
H_SYNC
H.DRIVE Q402 2SC1627_Y
27.0 0.3 0
C440 0.0012 500V B
C446 22 50V YK

FROM POWER
GND
S801Y
HS402 763WSAA013
L402 18uH
R402 12 1/2W
C402 200V 0.012 PP
+B

H.OUTPUT Q401 2SD2627S-CBC11
130.0 0 0

FB401 3220052F
130.0 COL
132.5 VIDEO
132.5 B+
48.0 AFC
7.0 HEA TER
0 GND
NC E12
25.0 E25
HV
F
S
GND 0
ABL 4.3
GND 0
E8 NC

R403 22K 1/4W
C406 500V 39P SL
D407 1SS133
D404 MTZJ6.2B
C407 56P CH
UNREG+12V
D406_1 1SS133
D405 AU02A-E1C
D410 AU02A-E1C

R448_1 390 2W
C403 470 35V YK
C448 22 200V MHE
R445 120K 1/4W
C435 0.1 100V MHE
R421 100K 1/4W
D408 11E1-E1C

FOCUS
CP806 SCREEN
C819 0.001 2KV B
96.4 101.6 0 0 0 0 6.4 99.6
J801 ISMS01S

PCB110 TCA384A
PCB010 TMA525

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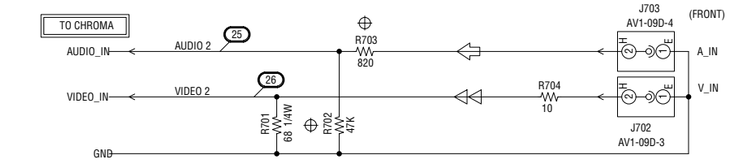
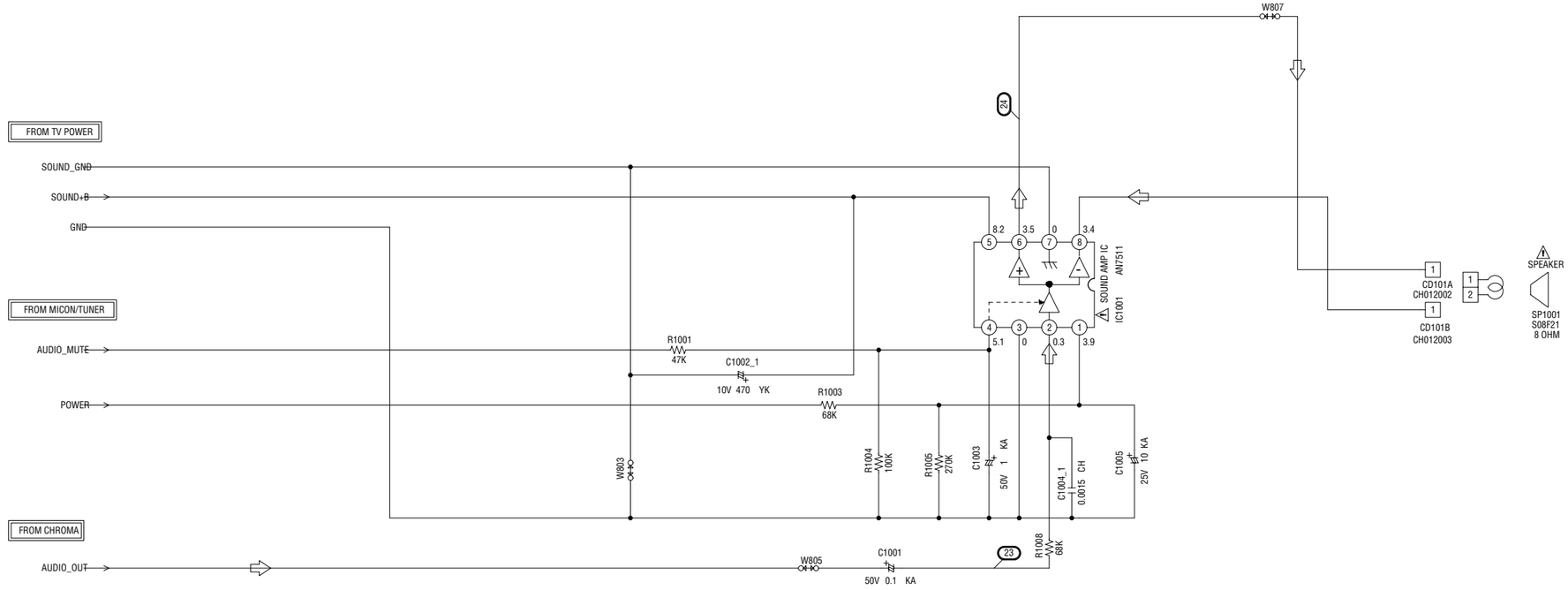
R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL

SOUND/AV SCHEMATIC DIAGRAM

(MAIN PCB)





PCB010
TMA525

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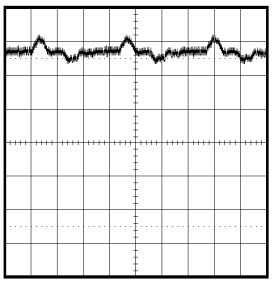
◁◁ TUNER VIDEO SIGNAL

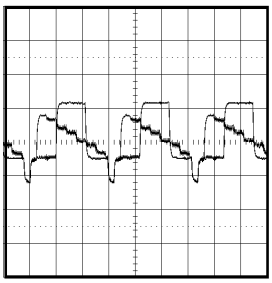
⇦ AUDIO SIGNAL

WAVEFORMS

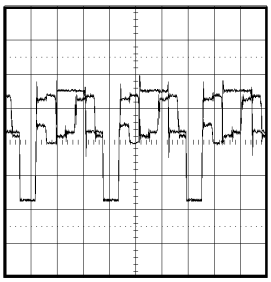
MICON/TUNER



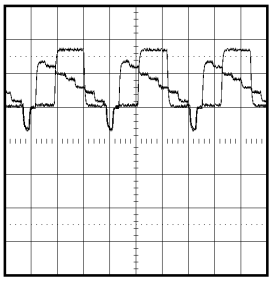
① 200mV 5ms/div



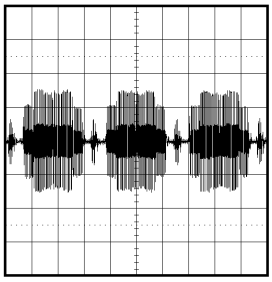
⑥ 0.5V 20µs/div



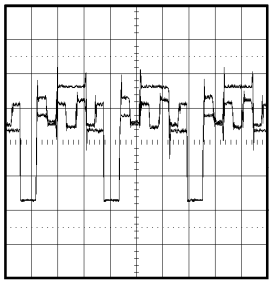
⑪ 1V 20µs/div



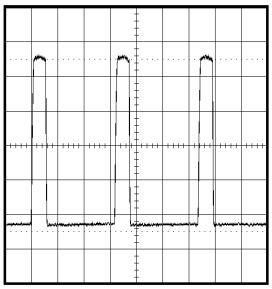
② 0.5V 20µs/div



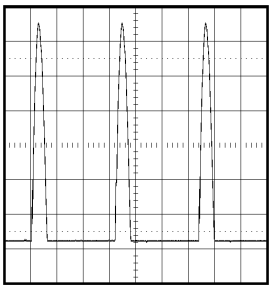
⑦ 200mV 20µs/div



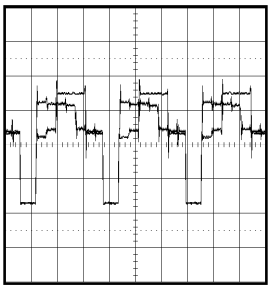
⑫ 1V 20µs/div



③ 200mV 20µs/div

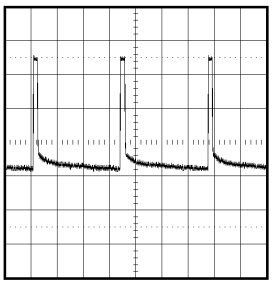


⑧ 20V 20µs/div

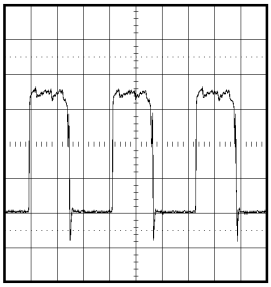


⑬ 1V 20µs/div

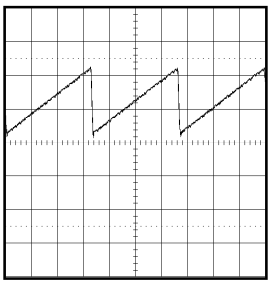
DEFLECTION/CRT



④ 200mV 5ms/div

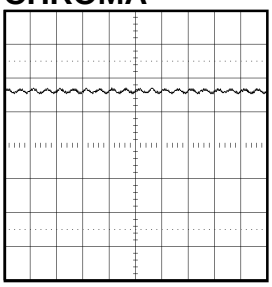


⑨ 200mV 20µs/div

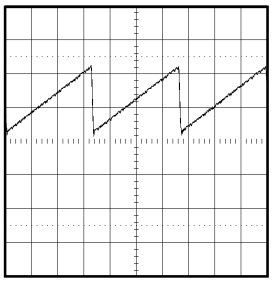


⑭ 0.5V 5ms/div

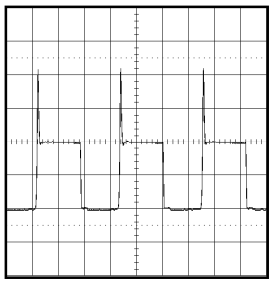
CHROMA



⑤ 0.5V 2ms/div



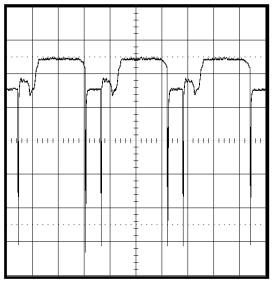
⑩ 0.5V 5ms/div



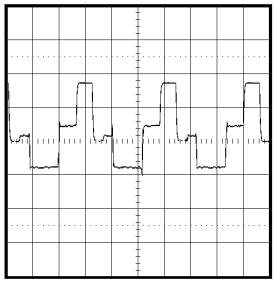
⑮ 20V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

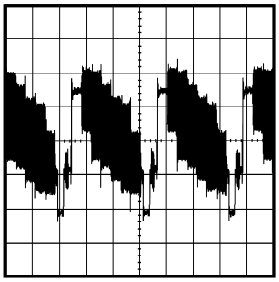
WAVEFORMS



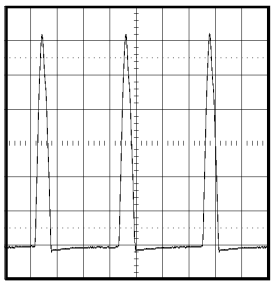
⑯ 2V 20µs/div



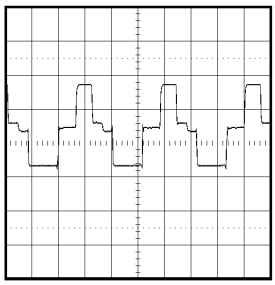
㉑ 50V 20µs/div



㉖ 500mV 20us/div

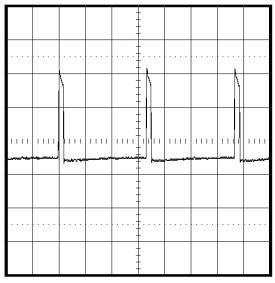


⑰ 200V 20µs/div

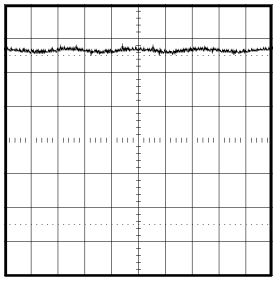


㉒ 50V 20µs/div

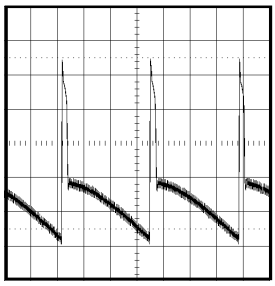
SOUND/AV



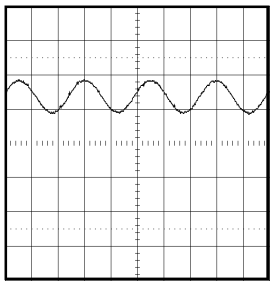
⑱ 10V 5ms/div



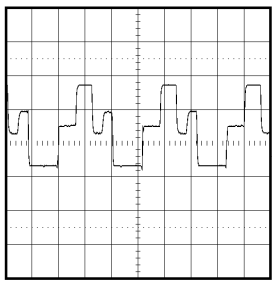
㉓ 0.5V 1ms/div



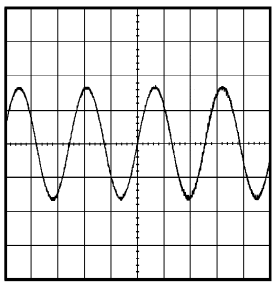
⑲ 10V 5ms/div



㉔ 1V 1ms/div



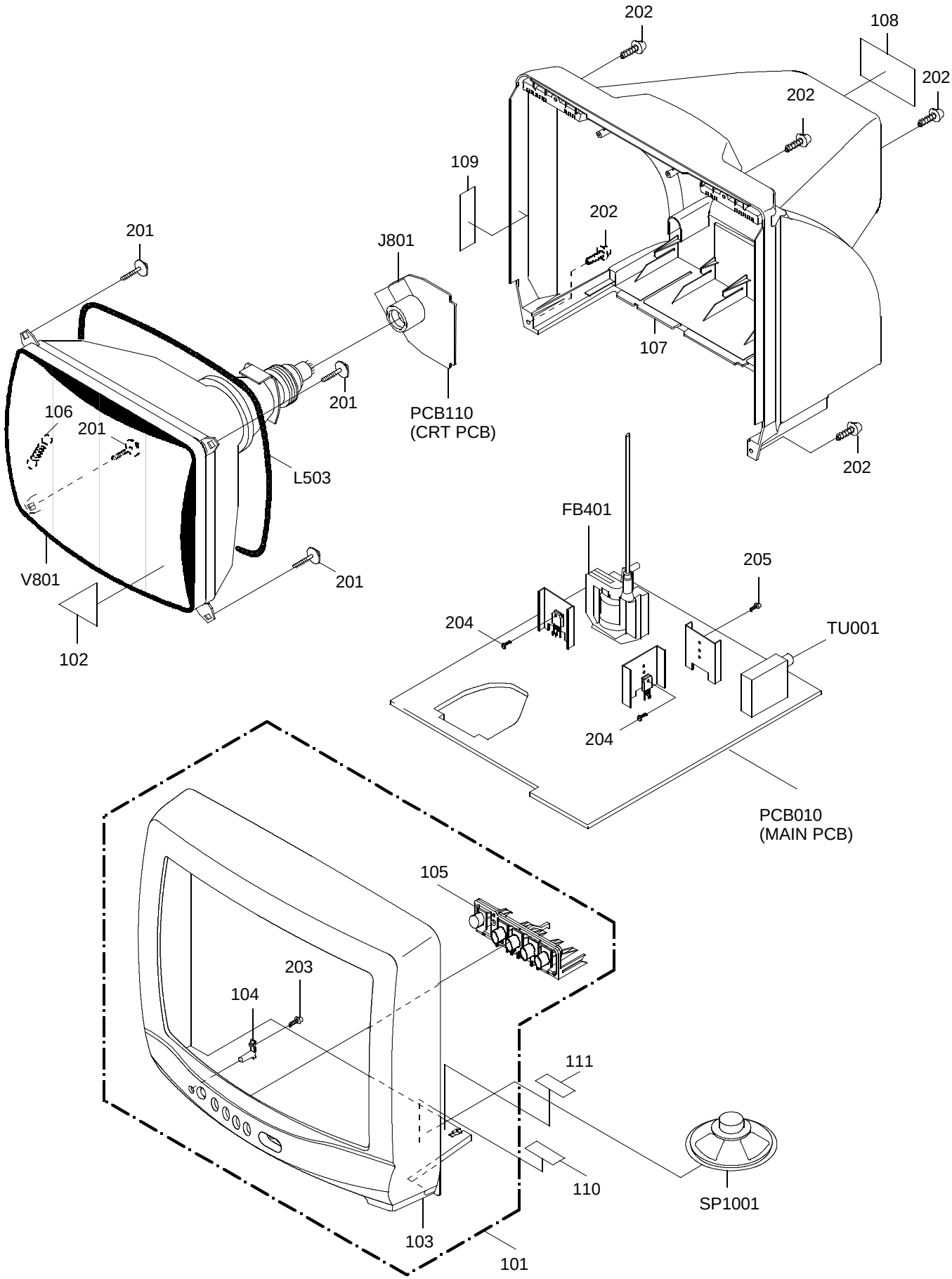
⑳ 50V 20µs/div



㉕ 500mV 1ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A3L211C720	CABINET,FRONT ASSY		
102	723000B325	FILM,DECORATION		
103	701WPJB715	CABINET,FRONT		
104	713WPAA047	GUIDE ,REMOCON		
105	735WPAA417	BUTTON,FRAME		
106	741WUA0019	SPRING,EARTH		
107	702WPAA183	CABINET,BACK		
108	722552A019	SHEET,RATING		
109	7220001119	SHEET,CSA WARNING		
110	7220001107	SHEET,HWC		
111	7230006818	SHEET,CAUTION		
201	8121F50B84	SCREW,TAPPING(BO)	FAI20 FLAT	5x28
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
204	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
205	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
---	791WHAA017	LAMIFILM BAG		
---	792WHAA040	PACKAGE,TOP		
---	792WHAA041	PACKAGE,BOTTOM		
---	793WCDB237	GIFT BOX		
---	JB5K0200	POLYBAG,INSTRUCTION		
---	J3L10502	WARRANTY SHEET		
---	J3L21101	INSTRUCTION BOOK		
---	A3L211C975	INSTRUCTION BOOK KIT		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		RESISTORS		
R148	R00106104J	RC	100K OHM 1/6W	or
	R001T6104J	RC	100K OHM 1/6W	
⚠ R401	R4X5T6273F	R,METAL	27K OHM 1/6W	
⚠ R409	R4X5T6273F	R,METAL	27K OHM 1/6W	
⚠ R429	R6558A3R9J	R,FUSE	3.9 OHM 2W	
R448	R3X18A391J	R,METAL OXIDE	390 OHM 2W	
⚠ R500	R0G3K2335K	RC	3.3M OHM 1/2W	
⚠ R501	R5Y2CD3R3J	R,CEMENT	3.3 OHM 5W	
R508	R3X181221J	R,METAL OXIDE	220 OHM 1W	
R514	R63581R22J	R,FUSE	0.22 OHM 1W	
⚠ R515	R002T2124J	RC	120K OHM 1/2W	
⚠ R517	R3X28A5R6J	R,METAL OXIDE	5.6 OHM 2W	
⚠ R518	R4X5T6562F	R,METAL	5.6K OHM 1/6W	
⚠ R519	R001T6122J	RC	1.2K OHM 1/6W	
⚠ R542	R3X181R47J	R,METAL OXIDE	0.47 OHM 1W	
⚠ R629	R3X28B330J	R,METAL OXIDE	33 OHM 3W	
⚠ R641	R002T4273J	RC	27K OHM 1/4W	
⚠ R803	R3X18A123J	R,METAL OXIDE	12K OHM 2W	
⚠ R805	R3X18A123J	R,METAL OXIDE	12K OHM 2W	
⚠ R807	R3X18A123J	R,METAL OXIDE	12K OHM 2W	
		CAPACITORS		
C402	P3N1F2123J	CPP	0.012 UF 200V	
⚠ C403	E02LT4471M	CE	470 UF 35V	
⚠ C414	E02LT4101M	CE	100 UF 35V	
⚠ C418	E02LT3471M	CE	470 UF 25V	
C437	P4J7F3394J	CMPP	0.39 UF 250V PMS	
⚠ C443	P4N8FJ562H	CMPP	0.0056UF 1.25KV	
⚠ C446	E02LT5220M	CE	22 UF 50V	
⚠ C448	E5EZ0C220M	CE	22 UF 200V	
⚠ C502	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C503	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C505	P2472B104M	CMP	0.1 UF 275V PHE840	
⚠ C506	CD39E0MQ3M	CC	0.0047UF 250V	
⚠ C511	E50HU5010M	CE	1 UF 50V	
C513	P23200823J	CMPL	0.082 UF 50V MMT	or
	P232W0823J	CMPL	0.082 UF 50V MMTS	
C514	C0PLRR7U2K	CC	680 PF 2KV RR	
⚠ C515	E02LT2102M	CE	1000 UF 16V	
C517	C0PLRR7Q2K	CC	470 PF 2KV RR	or
	C01BBP7Q2K	CC	470 PF 2KV BP	or
	C01TBP7Q2K	CC	470 PF 2KV BP	
⚠ C519	E02LT2471M	CE	470 UF 16V	
⚠ C521	E5EZFB101M	CE	100 UF 160V	
⚠ C526	E51CGC331M	CE	330 UF 200V	
C634	CQG0CH412J	CC	100 PF 50V CH	or
	CQGTCH412J	CC	100 PF 50V CH	
C819	C0JBB0713K	CC	0.001 UF 2KV B	
		DIODES		
D001	D97U03001B	DIODE,ZENER	MTZJ30B T-77	
D403	D2WT011E10	DIODE SILICON	11E1-EIC	or
	D28T11E2N2	DIODE SILICON	11E2N-TA1B2	
D404	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77	
⚠ D405	D2WTAU02A0	DIODE SILICON	AU02A-EIC	
D406	D1VT001330	DIODE,SILICON	1SS133T-77	
D407	D1VT001330	DIODE,SILICON	1SS133T-77	
D408	D2WT011E10	DIODE SILICON	11E1-EIC	or
	D28T11E2N2	DIODE SILICON	11E2N-TA1B2	
⚠ D410	D2WTAU02A0	DIODE SILICON	AU02A-EIC	
⚠ D411	D2WTAU02A0	DIODE SILICON	AU02A-EIC	
⚠ D501	D2WXN40050	DIODE SILICON	1N4005-EIC	
⚠ D502	D2WXN40050	DIODE SILICON	1N4005-EIC	
⚠ D503	D2WXN40050	DIODE SILICON	1N4005-EIC	
⚠ D504	D2WXN40050	DIODE SILICON	1N4005-EIC	
⚠ D505	D2WXB290S0	DIODE SILICON	SB290S	
D506	D97U01801B	DIODE,ZENER	MTZJ18B T-77	
D508	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D509	D97U01801B	DIODE,ZENER	MTZJ18B T-77	
⚠ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC	
D512	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D513	D2WXB290S0	DIODE SILICON	SB290S	
D514	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D522	D1VT001330	DIODE,SILICON	1SS133T-77	
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D601	D1VT001330	DIODE,SILICON	1SS133T-77	
D602	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77	
D604	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D605	D2WT011E10	DIODE SILICON	11E1-EIC	or

REF. NO.	PART NO.	DESCRIPTION		
		DIODES		
	D28T11E2N2	DIODE SILICON	11E2N-TA1B2	
D606	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77	
D607	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D610	D97U01201B	DIODE,ZENER	MTZJ12B T-77	
D611	D97U01201B	DIODE,ZENER	MTZJ12B T-77	
D612	D97U01201B	DIODE,ZENER	MTZJ12B T-77	
D619	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77	
D801	D1VT001330	DIODE,SILICON	1SS133T-77	
D802	D1VT001330	DIODE,SILICON	1SS133T-77	
D803	D1VT001330	DIODE,SILICON	1SS133T-77	
		ICS		
IC101	I56F07073A	IC	OEC7073A	
IC199	A3L211C015	IC	S-24C02BDP-1A	
⚠ IC401	I01TD55220	IC	AN5522	
IC601	I06FC61250	IC	M61250FP	
IC1001	I01DP75110	IC	AN7511	
		TRANSISTORS		
⚠ Q401	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11	
⚠ Q402	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)	
Q501	TJXG5NC500	FET	STP5NC50FP	
⚠ Q502	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)	
⚠ Q504	0002E00610	PHOTO COUPLER	LTV-817M-VB	
Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)	
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	
Q604	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	
Q605	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	
Q606	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	
Q609	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)	
Q610	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)	
Q801	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)	
Q802	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)	
Q803	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)	
		COILS &TRANSFORMERS		
L101	021LA63R3K	COIL	3.3 UH	
L402	02186G180M	COIL	18 UH	
⚠ L501	029T000104	COIL,LINE FILTER	1R0A562F20	
⚠ L503	028R200029	COIL,DEGAUSS	8R200029	
L607	021LA6150K	COIL	15 UH	
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ	
⚠ T502	048129092S	TRANSFORMER,SWITCHING	8129092S	
		JACKS		
J702	060Q401077	RCA JACK	AV1-09D-3	
J703	060Q401076	RCA JACK	AV1-09D-4	
⚠ J801	066F120018	SOCKET,CATHODE RAY TUBE	ISMS01S	
		SWITCHES		
SW101	0504201T31	SWITCH,TACT	SKHVBED010	
SW102	0504201T31	SWITCH,TACT	SKHVBED010	
SW103	0504201T31	SWITCH,TACT	SKHVBED010	
SW104	0504201T31	SWITCH,TACT	SKHVBED010	
SW105	0504201T31	SWITCH,TACT	SKHVBED010	
		P.C.BOARD ASSEMBLIES		
PCB010	A3L211C010	PCB ASS'Y	TMA525A	
PCB110	A3L208C110	PCB ASS'Y	TCA384A	
		MISCELLANEOUS		
B501	024HT03553	CORE,BEADS	W5RH3.5X5X1.0	
B502	024HT03553	CORE,BEADS	W5RH3.5X5X1.0	
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0	
⚠ CD501	120R414903	CORD AC BUSH	0R414903	
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A	
CF601	1029045R7G	FILTER,SAW	TSF5229P3	
CF603	1012T4R520	FILTER,CERAMIC	SFSRA4M50CF00-A0	
CF604	1012T4R519	FILTER,CERAMIC TRAP	TPSRA4M50C00-A0	
CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P	
CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P	
CP601	069E260659	CONNECTOR PCB SIDE	00_8283_0611_00_000	or
	0694260139	CONNECTOR PCB SIDE	173979-6	or
	0694260669	CONNECTOR PCB SIDE	175489-6	
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P	
CD101A	06CH012002	CORD CONNECTOR	CH012002	
CD101B	06CH012003	CORD CONNECTOR	CH012003	
CP802A	067N010039	WIRE HOLDER	9253_010_000_000	or
	067U010049	WIRE HOLDER	B2013H02-10P	
CP802B	067N010039	WIRE HOLDER	9253_010_000_000	or
	067U010049	WIRE HOLDER	B2013H02-10P	
EL002	124120301A	EYE LET	XRY20X30BD	
⚠ F501	081PC04004	FUSE	51MS040LCC	
⚠ FB401	043220052F	TRANSFORMER,FLYBACK	3220052F	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS101	077Q037003	REMOTE RECEIVER	PIC-37143SY
S101	WHL6032038	FLAT CABLE	AWG26 10C BLACK 320MM
⚠ SP1001	070Y132018	SPEAKER	S08F21
TH501	DF20A3R0Q0	DEGAUSS ELEMENT	PTDAA1BF3R0Q100
TM101	076N0DW010	TRANSMITTER	RC-DW010
⚠ TU001	0145100059	TUNER,VHF-UHF	ENV56DB6G3
⚠ V801	098Y200480	COLOR PICTURE TUBE W/DY	A48LGS30X19N45
X602	100CT3R505	CRYSTAL	HC-49/C

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

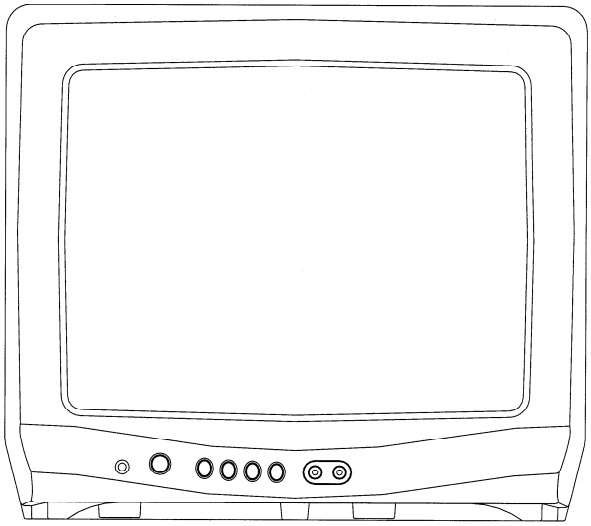
SPEC.NO.	M3L2-11C
O/R NO.	W223003

DURABRAND

DBTV1901 Series B

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION B

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

CONTENTS

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size		19 inch / 480.0mmV
			CRT Type		Normal
			Deflection		90 degree
			Magnetic Field BV/BH		+0.45G/0.18G
		Color System			NTSC
		Speaker			1Speaker
			Position		Bottom
			Size		3 Inch
			Impedance		8 ohm
		Sound Output	MAX		1.5 W
			10%(Typical)		1.0 W
		NTSC3.58+4.43 /PAL60Hz			No
G-2	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		Ohers
			Tuning System		F-Synth
			Input Impedance		VHF/UHF 75 ohm
			CH Coverage		2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84
		Intermediate Frequency	Picture(FP)		45.75MHz
			Sound(FS)		41.25MHz
			FP-FS		4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
		Tuner Sound Muting			Yes
G-3	**Power**	Power Source	AC		120V AC 60Hz
			DC		
		Power Consumption		at AC	
					73 W at AC 120 V 60 Hz
			Stand by (at AC)		5 W at AC 120 V 60 Hz
			Per Year		-- kWh/Year
		Protector	Power Fuse		Yes
G-4	**Regulation**		Safety		UL / CSA
			Radiation		FCC / IC
			X-Radiation		DHHS / HWC
G-5	**Temperature**		Operation		+5°C ~ +40°C
			Storage		-20°C ~ +60°C
G-6	**Operating Humidity**				Less then 80% RH
G-7	**On Screen Display**	Menu			Yes
			Menu Type		Character
			Picture		Yes
				Contrast	Yes
				Brightness	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
			Audio		No
				Bass	No
				Treble	No
				Balance	No
				BBE On/Off	No
				Stable Sound On/Off	No
			CH Set Up		Yes
				TV/CATV	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			Language		Yes
			V-chip		Yes
				CH Label	No
				Favorite CH	No
				Color Stream DVD/DTV	No
			Control Level		Yes
				Volume	Yes
				Brightness	Yes

GENERAL SPECIFICATIONS

			Contrast	Yes
			Color	Yes
			Tint (NTSC Only)	Yes
			Sharpness	Yes
			Tuning	No
			Bass	No
			Treble	No
			Balance	No
			Back Light	No
		Stereo,Audio Output,SAP		No
		Video		Yes
		Color Stream		No
		Channel(TV/Cable)		Yes
		CH Label		No
		Sleep Timer		Yes
		Sound Mute		Yes
		V-chip Rating		Yes
G-8	**OSD Language**			English French Spanish
		OSD Language Setting		English
G-9	**Clock and Timer**	Sleep Timer	Max Time	120 Min
			Step	10 Min
		On/Off Timer	Program(On Tim / Off Tim)	No
		Wake Up Timer		No
		Timer Back-up (at Power Off Mode) more than		-- Min Sec
G-10	**Remote Control**	Unit		RC-DW
		Glow in Dark Remocon		No
		Format		NEC
		Custom Code		86-05 h
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		27 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			100	No
			CH Up	Yes
			CH Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			TV/Caption/Text	Yes
			CH1/CH2	Yes
			TV/Video(TV/AV)	Yes
			CH RTN/CH ENT(Quick View)	Yes
			Sleep	Yes
			RE Call(Call)	Yes
			Reset	Yes
			Menu	Yes
			Enter	Yes
			Mute	Yes
			Exit	No
			MTS(Audio Select)	No
			Set +	Yes
			Set -	Yes
		Multi Brand Keys	CH Up(VCR)	No
			CH Down(VCR)	No
			Pause/Still	No

GENERAL SPECIFICATIONS

			TV/VCR(VCR)	No
			Code	No
			FF	No
			Rew	No
			Rec	No
			Play	No
			Stop	No
			TV	No
			VCR	No
			Cable	No
G-11	Features	Auto Degauss		Yes
		Auto Shut Off		Yes
		Canal+		No
		CATV		Yes
		Anti-theft		No
		Rental		No
		Memory(Last CH)		Yes
		Memory(Last Volume)		Yes
		V-Chip		Yes
			Type	USA,ORION Type
		BBE		No
		Auto Search		No
		CH Allocation		No
		SAP		No
		Channel Lock		No
		Just Clock Function		No
		Game Position		No
		CH Label		No
		VM Circuit		No
		Full OSD		No
		Premiere		No
		Comb Filter		No
				Lines
		Auto CH Memory		Yes
		Hotel Lock		No
		Closed Caption		Yes
		Stable Sound		No
		Energy Star		No
		Favorite CH		No
G-12	Accessories	Owner's Manual	Language	English /French
			w/Guarantee Card	No
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	
			Terminal	
		Loop Antenna		No
			Terminal	
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		Yes
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery		No
			UM size x pcs	
			OEM Brand	No
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card		No

GENERAL SPECIFICATIONS

		PTB Sheet			No
		300 ohm to 75 ohm Antenna Adapter			No
G-13	**Interface**	Switch	Front	Power	Yes
				System Select	No
				Main Power SW	No
				Sub Power	No
				Channel Up/Reset	Yes
				Channel Down/Enter	Yes
				Volume Up/Set Up	Yes
				Volume Down/Set Down	Yes
				MENU=Volume Up+Volume Down	Yes
			Rear	AC/DC	No
				TV/CATV Selector	No
				Degauss	No
				Main Power SW	No
		Indicator		Power	No
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA
				Audio Input	RCA x 1
				Other Terminal	No
			Rear	Video Input(Rear1)	No
				Video Input(Rear2)	No
				Audio Input(Rear1)	No
				Audio Input(Rear2)	No
				Video Output	No
				Audio Output	No
				Euro Scart	No
				Color Stream	No
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
				AC Outlet	No
G-14	**Set Size**			Approx. W x D x H (mm)	488 x 465 x 416
G-15	**Weight**			Net (Approx.)	17.5kg (38.6 lbs)
				Gross (Approx.)	20.0kg (44.1lbs)
G-16	**Carton**	Master Carton			No
				Content	---- Sets
				Material	-- /--
				Dimensions W x D x H(mm)	-- x -- x --
				Description of Origin	No
		Gift Box			Yes
				Material	Double Full Color Carton W/Photo
				Dimensions W x D x H(mm)	546 x 526 x 472
				Design	As per Buyer's
				Description of Origin	Yes
		Drop Test			Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	46
		Container Stuffing			436 Sets/40' container
G-17	**Cabinet Material**			Cabinet Front	PS 94V0 DECABROM
				Cabinet Rear	PS 94V0 DECABROM

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated screwdriver, touch the support of the Anode with the tip of the screwdriver.
   A cracking noise will be heard as the voltage is discharged.

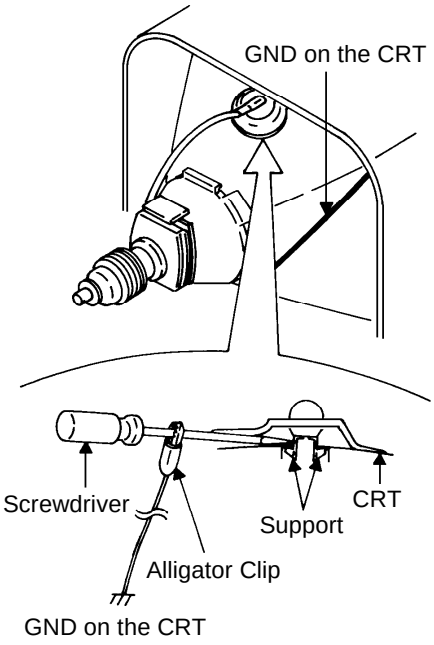


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

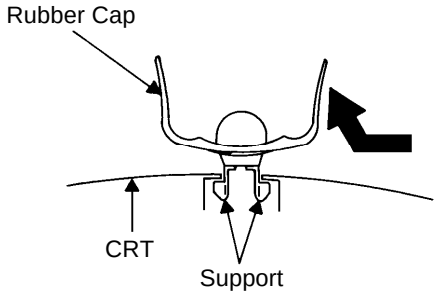


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

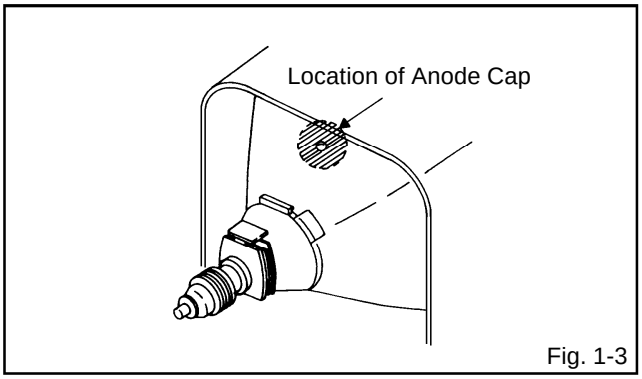


Fig. 1-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**

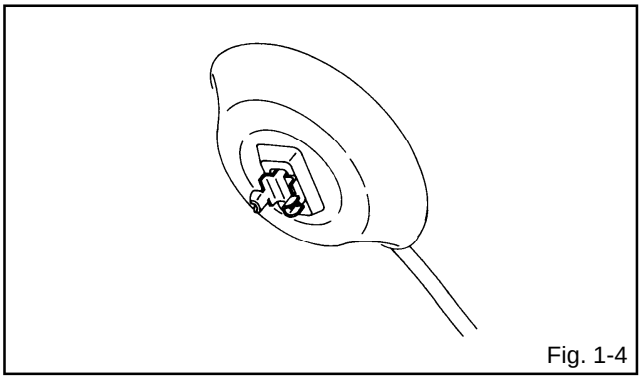


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5**.

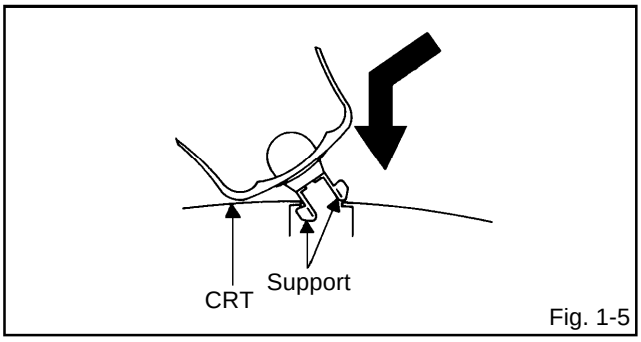


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

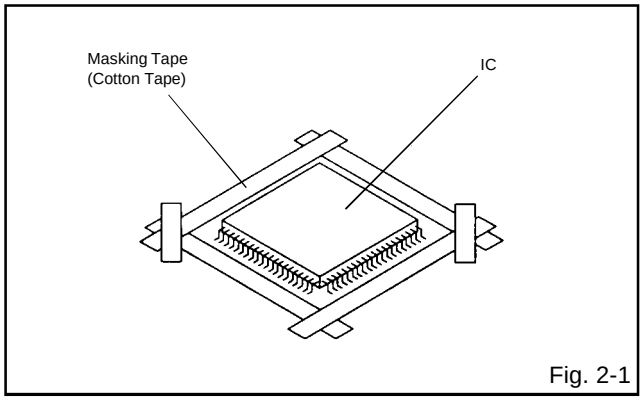


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

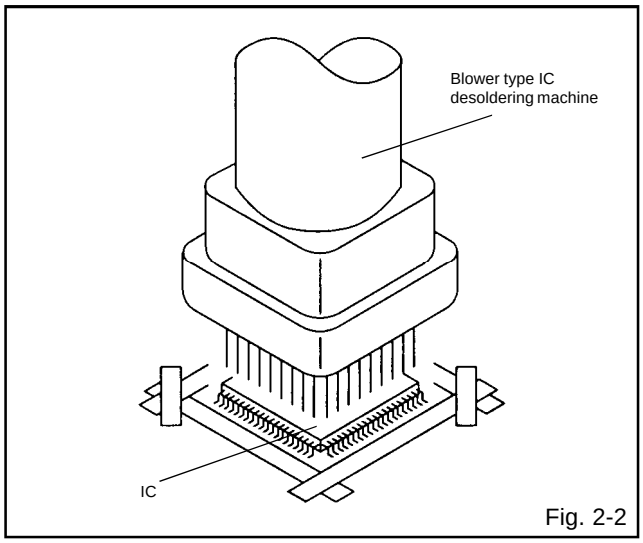


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

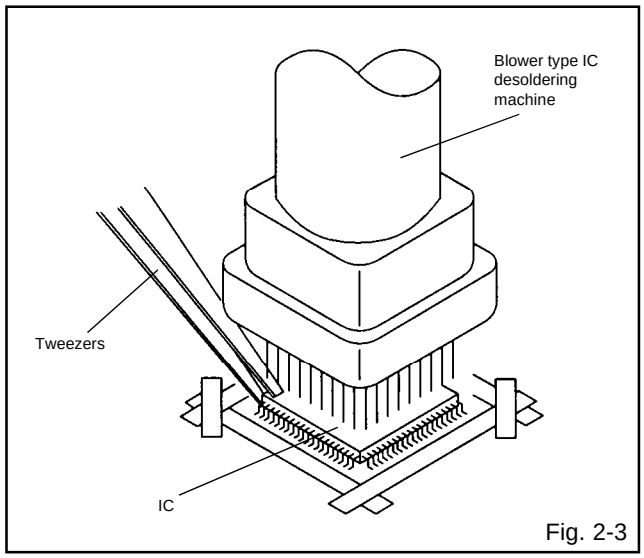


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

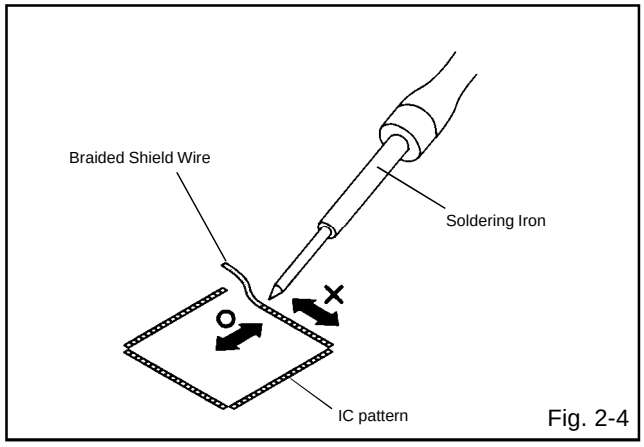


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

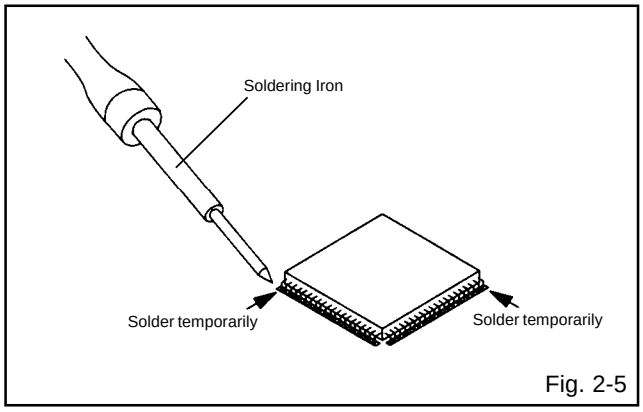


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

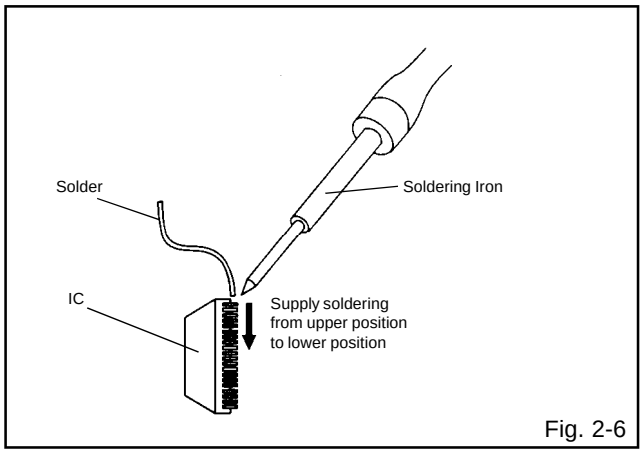


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

   NOTE

   Do not absorb the solder to excess.

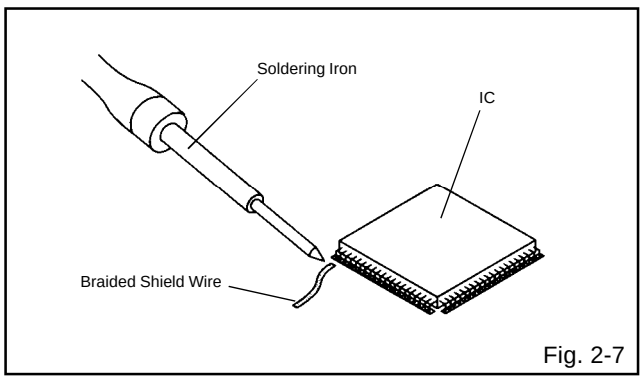


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 2-8.)**

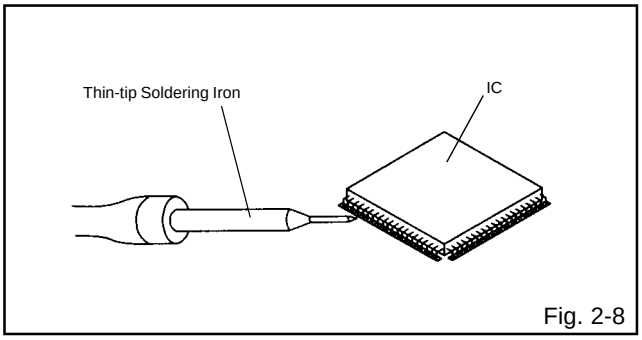


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.

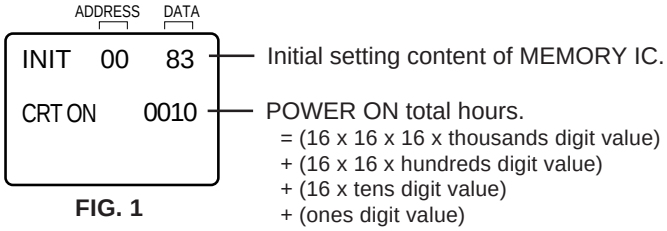


FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	08	20	99	02	09	B3	24	19	01	00	44	05	00	D5	FF	A5

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors. When
- When you exchange IC and Transistor for a heat sink, apply the silicon grease **(YG6260M)** on the contract section of the heat sink, Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Synchro Scope
2. Digital Voltmeter

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

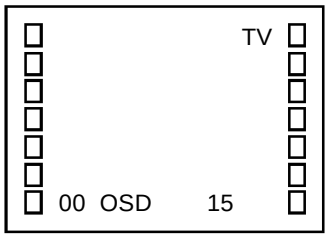


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	16	CONTRAST CENT
01	CUT OFF	17	CONTRAST MAX
02	RF DELAY	18	CONTRAST MIN
03	VIF VCO	19	COLOR CENT
04	H.VCO	20	COLOR MAX
05	H.PHASE	21	COLOR MIN
06	V.SIZE	22	TINT
07	V.SHIFT	23	SHARPNESS
08	R.DRIVE	24	FM LEVEL
09	B.DRIVE	25	LEVEL
10	R.BIAS	26	SEPARATION 1
11	G.BIAS	27	SEPARATION 2
12	B.BIAS	28	TEST MONO
13	BRIGHT CENT	29	TEST STEREO
14	BRIGHT MEX	30	X-RAY TEST
15	BRIGHT MIN		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: RF AGC DELAY

1. Place the set with Aging Test for more than 15 minutes.
2. Receive an 63dB monoscope pattern.
3. Connect the digital voltmeter to **W043**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF.AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.50 ± 0.05V.

2-2: CUT OFF

1. Adjust the unit to the following settings.
   R.DRIVE=10, B.DRIVE=10, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRIGHTNESS=125, CONTRAST=60.
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the adjustment control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R.BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R.BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "R.DRIVE", "B.DRIVE", "G.BIAS" or "B.BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R.DRIVE, B.DRIVE, G.BIAS or B.BIAS.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-4: SUB TINT/SUB COLOR

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP023**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(22)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes as straight line **(Refer to Fig. 2-1**)
5. Connect the oscilloscope to **TP022**.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(19)** on the remote control to select "COL.CENT".
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 120% of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2~7.

ELECTRICAL ADJUSTMENTS

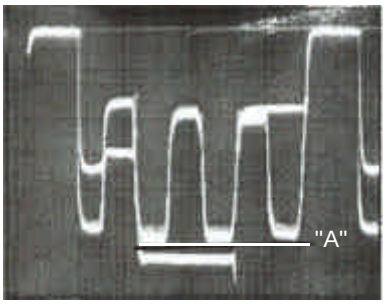


Fig. 2-1

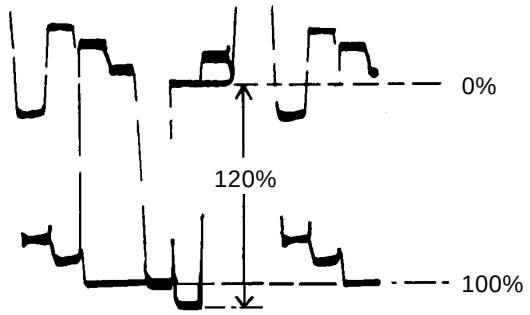


Fig. 2-2

2-5: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H.PHAS".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-6: VERTICAL SIZE

1. Receive the crosshatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V.SIZE".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes 10 ± 2%.
4. Receive a broadcast and check if the picture is normal.

2-7: VERTICAL SHIFT

1. Receive the crosshatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V.SFT".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-8: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

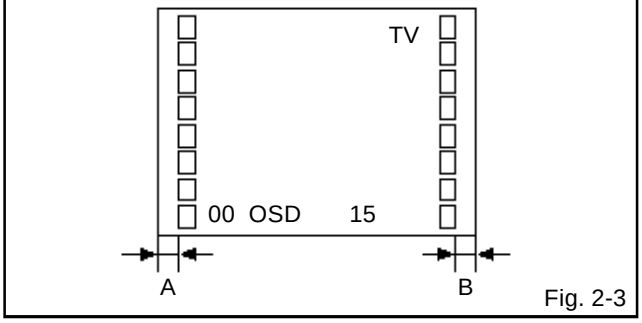


Fig. 2-3

2-9: VIF VCO

1. Place the set with Aging Test for more than 10 minutes.
2. Receive an 80dB monoscope pattern.
3. Connect the digital voltmeter between the **pin 5 of CP601** and the **GND**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "V.VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.

2-10: SUB BRIGHTNESS

1. Receive an 70dB monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRI.CENT".
3. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2, 3.

2-11: SUB CONTRAST MANUAL

1. Receive an 70dB the color bar pattern.
2. Activate the adjustment mode display of **Fig. 1-1** press the channel button **(17)** on the remote control to select "CONT.MAX".
3. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "66".
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2, 3.

2-12: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

ELECTRICAL ADJUSTMENTS

2-13: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV
04	H VCO	04	04
14	BRIGHT MAX	183	183
15	BRIGHT MIN	60	60
16	CONT CENT	30	30
18	CONT MIN	12	12
20	COLOR MAX	70	70
21	COLOR MIN	01	01
23	SHARPNESS	40	40
24	FM LEVEL	00	00
25	LEVEL	00	00
26	SEPARATION 1	00	00
27	SEPARATION 2	00	00
28	TEST MONO	00	00
29	TEST STERO	00	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

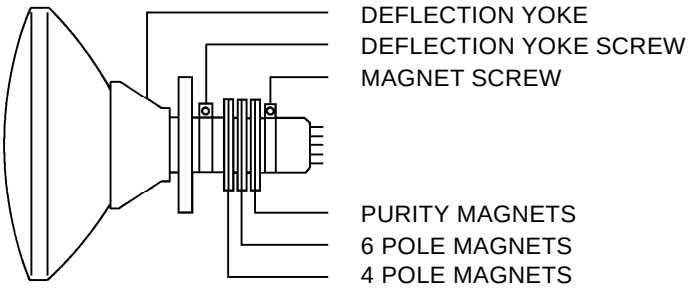


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

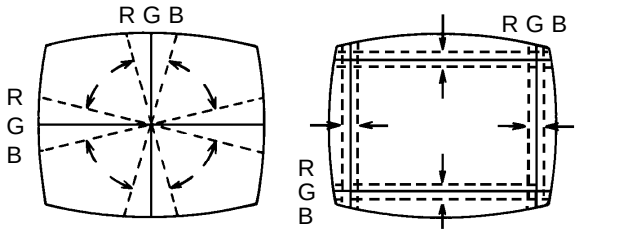
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

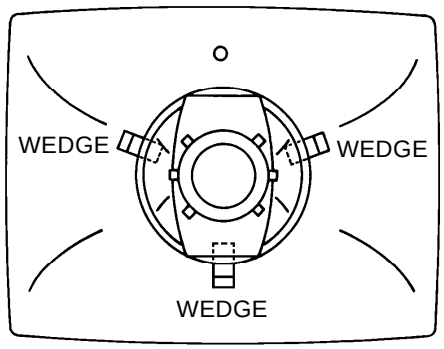
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and
   CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

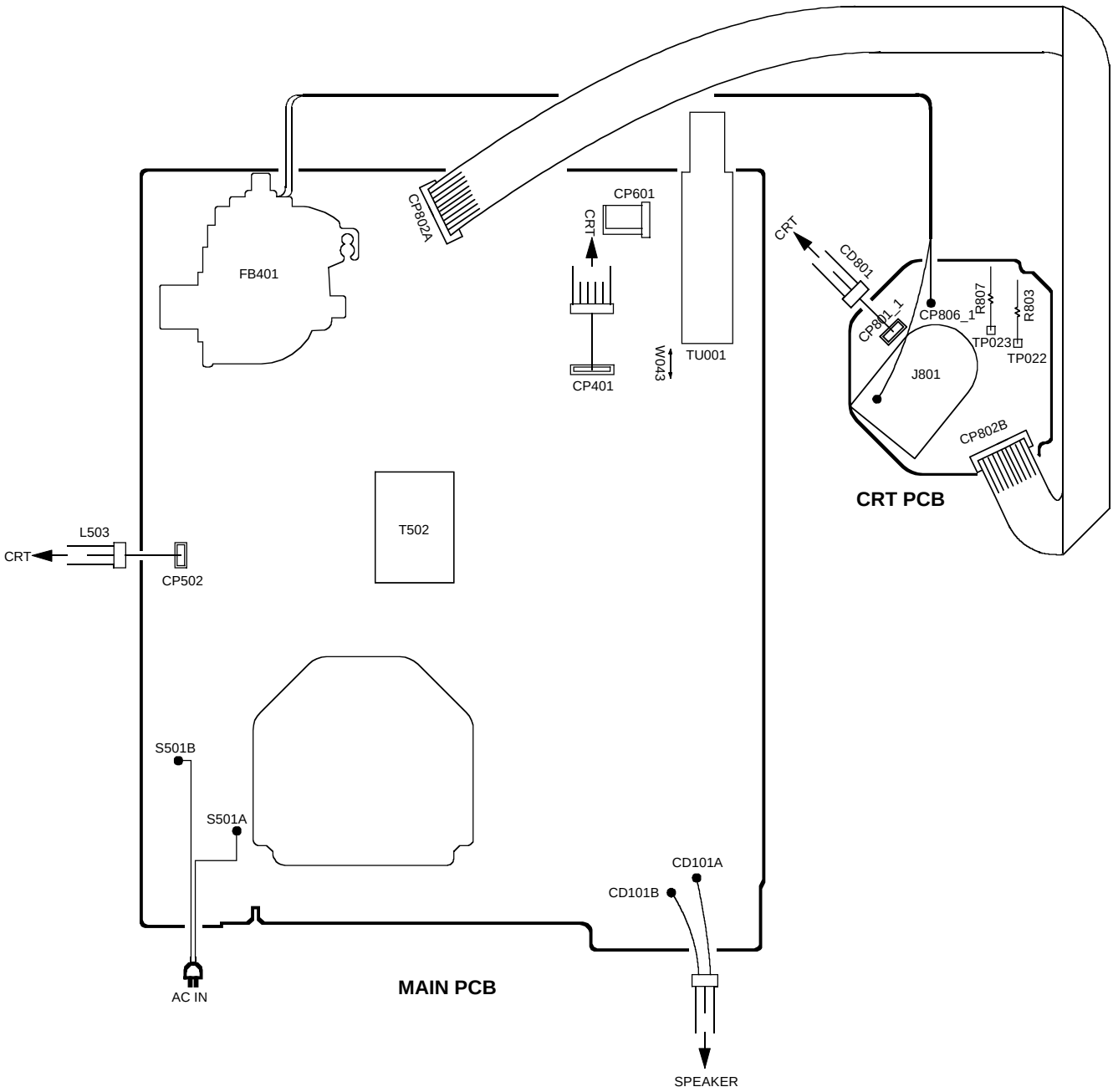


WEDGE POSITION

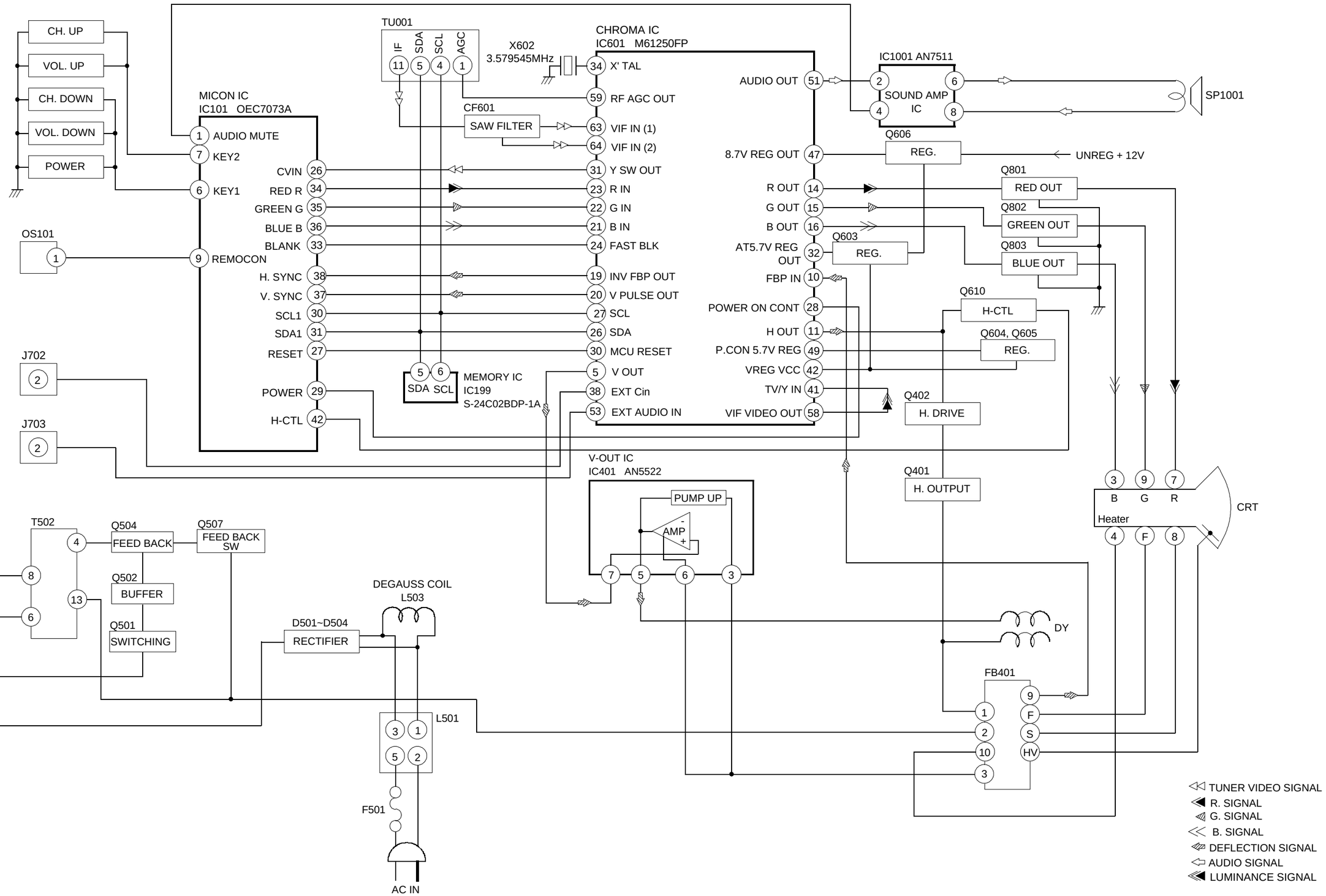
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

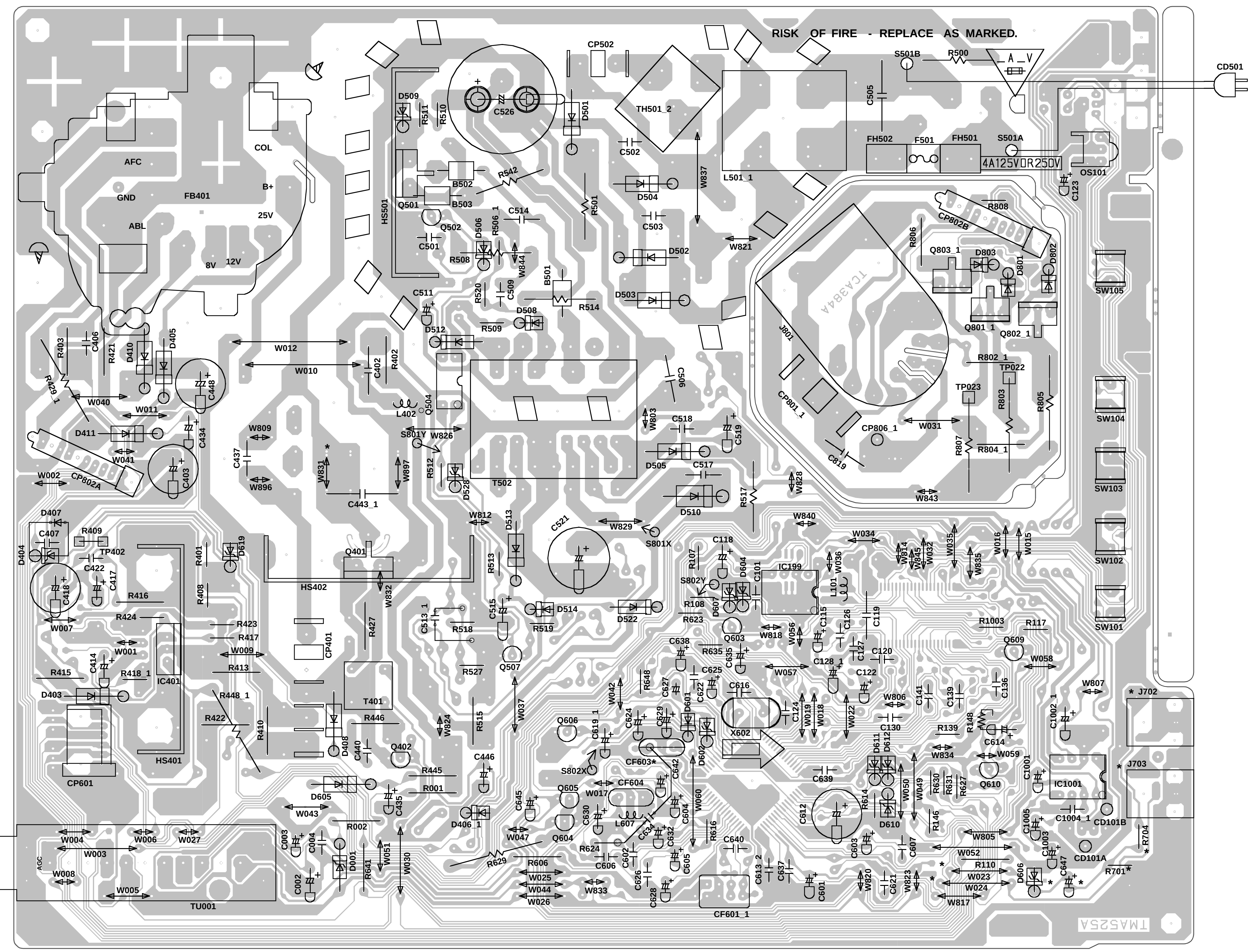
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



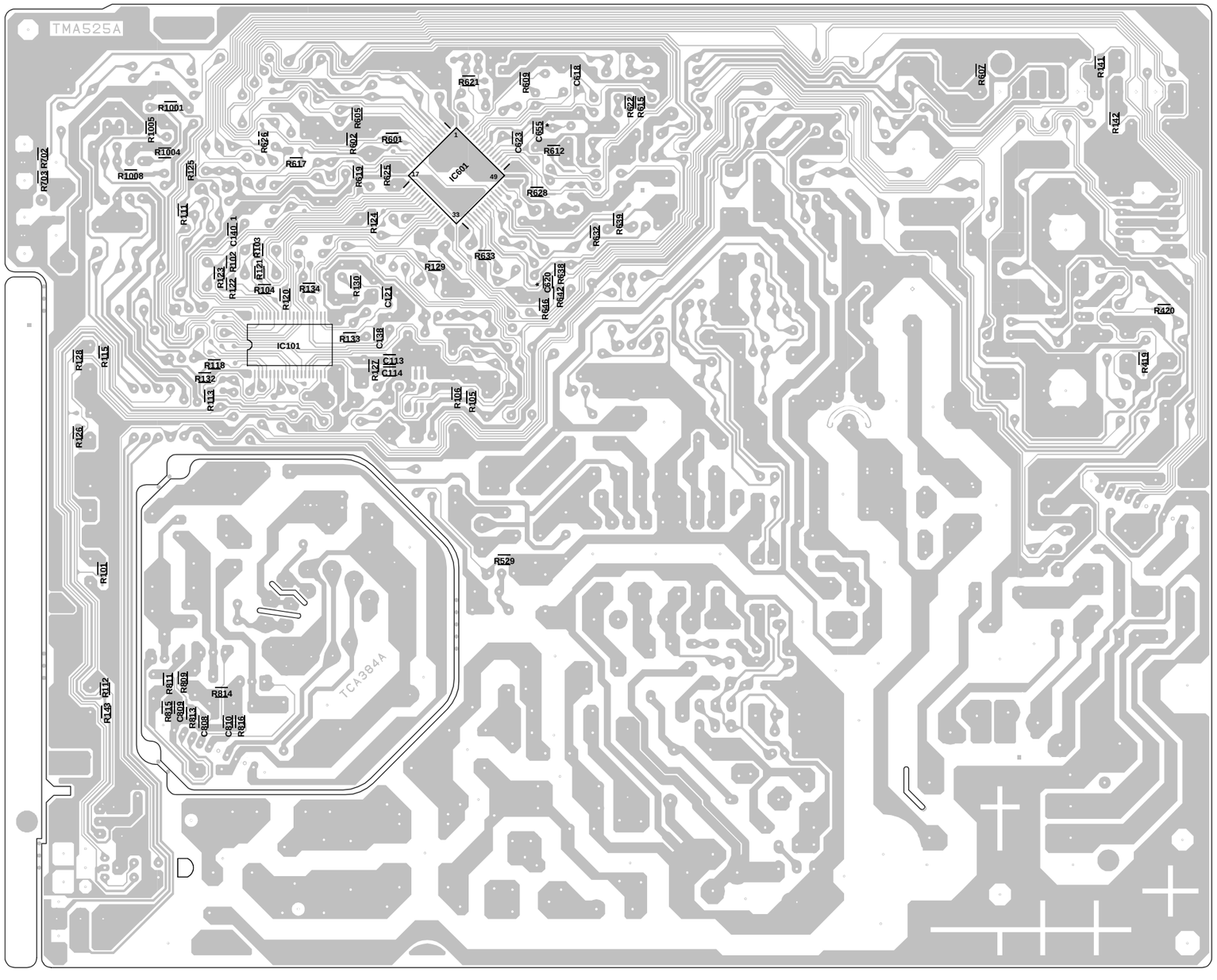
BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON/TUNER SCHEMATIC DIAGRAM
(MAIN PCB)

ACCESSORY
TM101
RC-DW010

TU001 ENV56D66G3
IF, BTL, BPL, V.S, SDA, SCL, ADRES, AGC

OS101
PIC-28143SY-2
Vout, B+, GND

MICON IC
IC101 OEC7045B

P50/H.SYNC
P51/V.SYNC
P00/EXT MUTE
P01/I2C_OFF
P02/AUDIO MUTE
P03/(Surround)
P04
P05/(Center_SP)
INT2/P.FAIL
INT1/REMOCON
P23/SYNC
P24
P25/ON_TIMER
AVCC
HLF
V.HOLD
CVIN
CNVSS
Xin
Xout
VSS

RED R
GREEN G
BLUE B
OUT1/BLANK BL
P20/AV2
P21/AV1
P22/POWER
P10/DEGAUSS_H
SCL1
SCL2
SDA1
SDA2
X-RAY
AD4/AFT
AD5/KEY1
AD6/KEY2
RESET
OSC1
OSC2
VCC

X101_1
EFOEC8004T4

MEMORY IC
IC102
S-24C02BDP-1A
SDA, SCL, MODE, VCC, VSS, E2, E1, E0

FROM/TO CHROMA
AGC
GND
TUNER+5V
IF
I2C_OFF
VD
HD
OSD_R
OSD_G
OSD_B
OSD_BLK

TO SOUND/AV
AUDIO_MUTE
POWER

FROM DEFLECTION/CRT
+B
X-RAY

FROM/TO CHROMA
POWER
SCL
SDA
AFT

RESET
AT+5V
Y_VIDEO
SYNC

POWER SW105 SKHVBED010
VOL DOWN SW104 SKHVBED010
VOL UP SW103 SKHVBED010
CH DOWN SW102 SKHVBED010
CH UP SW101 SKHVBED010

PCB010
TMX494

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL
TUNER VIDEO SIGNAL

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CHROMA SCHEMATIC DIAGRAM
(MAIN PCB)

FROM TV POWER
UNREG+12V
R623 120 1/4W
REG Q603 KTC3203_Y-AT
L607 15uH
CF604 EFCT4R5MW5
R622 120
CF603 EFCT4R5YS5A
R615 470
L606 2.2uH
C636 0.01 Y
R636 33K
R635 100
C635 16V 47 YK
C630 16V 47 YK
W816
C627 50V 1 NA
C625 50V 1 KA
C622 0.015 M
R633 8.2K
REG Q604 KTC3203_Y-AT
REG Q605 KTC3203_Y-AT
R629 3W 33
REG Q606 KTC3203_Y-AT
R639 100
C619_1 50V 1 KA
R628 100
C616 15P CH
X602 3.579545MHz
C647 50V 1 KA
FROM SOUND/AV
VIDEO_IN
R638 22K
R646 47K
C638_1 50V 4.7 KA
R642 1K
D605 11E1-EIC
FROM/TO SOUND/AV
AUDIO_OUT
AUDIO_IN
GND
W806
R611 10K
R634 10K
C642 50V 1 KA
C604 50V 1 KA
C655_1 0.0068 Y
C623 0.0033 M
C632 50V 2.2 KA
R618 10M 1/4W
R632 220
C629 10P SL
D602 MTZ8.2B
D601 1SS133
C624 16V 47 YK
D605 50V 0.47 KA
R609 470
C618 22P SL
C621 0.01 Y
W817
C626 0.001 Y
FROM/TO MICON/TUNER
Y_VIDEO
AT+5V
SYNC
TUNER+5V
RESET
AFT
AGC
IF
R606 10K
C606 50V 0.22 KA
SAW FILTER CF601 SAF45MFY220ZR
OUT OUT G IN IN
L601_2 1.2uH
L605_2 1uH
C605 0305
R621 2.7K
C609 0.01 Y
C634 0.01 Y
C639 0.01 Y
R647 2K
R603 1.5K
C601 6.3V 1000 YK
R626 3.3K
R601 2.2K
R602 1K
W829
C603 50V 0.01 KA
C607_1
D610 MTZJ12B
D611 MTZJ12B
D612 MTZJ12B
R614 2.2K
R619 2.2K
R625 2.2K
R605 47K
R627 100
R630 100
R631 100
SWITCHING Q607 DTC114ES
R620 56
D613 1SS133
D615 1SS133
D616 1SS133
R613_1 560 1/2W
C645 16V 47 YK
W810
R641_1 27K 1/4W
C613_3 63V 1 MKT
W818
C612 10V 1000 YK
D603 MTZJ12B
FROM/TO DEFLECTION/CRT
V_OUT
ABCL
V_FEEDBACK
GND
H_OUT
H_SYNC
B.OUT
G.OUT
R.OUT
CLAMP
TEST POINT
CP601 173979-6

B.OUT	6
INT.MONI	5
IIC_OFF	4
SDA	3
SCL	2
GND	1

HD
POWER
OSD_B
OSD_BLK
OSD_G
VD
OSD_R
I2C_OFF
SDA
SCL

CHROMA IC IC601 M61206FP

49	2.3	AUDIO OUT	
50	2.4	AUDIO BYPASS	
51	2.2	EXT AUDIO IN	
52	3.0	FM DIRECT OUT	
53	2.9	VIF VCO F/B	
54	3.2	VREG Vcc	
55	8.7	VIF APC FILTER	
56	3.2	VIF VIDEO OUT	
57	2.2	VIF GND	
58	0		
59	0	AFT OUT	
60	1.9	QIF IN	
61	2.8	RF AGC OUT	
62	4.6	RF AGC FILTER	
63	2.9	VIF Vcc	
64	1.5	H VCO F/B	
1	1.5	SCL	
2	4.9	FBP IN	
3	4.9	H OUT	
4	0	DEF	
5	4.9	SDA	
6	0	AFC FILTER	
7	0	INV FBP OUT	
8	0	POWER ON CONT	
9	0	R OUT	
10	4.9	G OUT	
11	3.4	V OUT	
12	3.9	STRAT UP Vcc	
13	4.9	B IN	
14	2.0	V RAMP FEEDBACK	
15	2.0	V RAMP CAP	
16	2.0	VIDEO CHROMA Vcc	
17	3.6		
18	7.9	fsc OUT	
19	0	SPOT KILLER	
20	2.8	FAST BLK	
21	4.7	G IN	
22	4.9	V PULSE OUT	
23	4.9	R IN	
24	2.8	ACL/ABCL	
25	NC		
26	NC		
27	0		
28	4.7		
29	0		
30	0		
31	2.6		
32	3.3		
33	8.5	CHROMA APC FILTER	
34	1.9	VIDEO/CHROMA GND	
35	3.2	TV/Y IN	
36	2.5	Y SW OUT	
37	0	5v REG	
38	0	5.7V REG OUT(FOR CPU)	
39	5.6	MCU RESET	
40	0	INTELLIGENT MONI	
41	5.7	Hi Vcc	
42	0		
43	0		
44	7.9		
45	7.9		
46	0		
47	2.2		
48	3.0		

46 SW REG CONT
47 LIMITER IN
48 IF AGC
49 QIF OUT

34 EXT C in
33 8.7V REG OUT
32 X'TAL

64 VIF IN (1)
1 VIF IN (2)

17 V OUT
16 B OUT

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL
AUDIO SIGNAL
LUMINANCE SIGNAL
TUNER VIDEO SIGNAL

PCB010
TMX494

TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)

4A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 4A 125V (F501) FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 4A 125V (F501).

DEGAUSS COIL L503 8R200029
CP502 TV-50P-02-A1
TP002 JWF-50K-1
TH501 ZPB45BL3R0A
R500_1 2.7M 1/2W +-10%
W821
L501_1 1R5A102F20
NC
F501 51MS040LCC
233004-MB000
FH501 EYF-52BC
FH502 EYF-52BC
C505 250V 0.1 ECOUL
AC120V_60Hz CD501_2 0R414903
BLACK
WHITE
S501A
S501B
C506 250V 0.0047 KH
W823
R504 18 3W
C514_1 2KV 680P YR
SWITCHING Q501 2SK2662
R505 1.5K 1W
C509 0.047 M
BUFFER Q502 KTC3203_Y-AT
R542 0.47 1W
HS501 763WSAA013
R506 680
R508 2.7K 1/4W
C501 0.0082 M
D507 MTZJ15B
D508 1SS133
D512 1SS133
C511_1 50V 22 KA
D506 MTZJ18B
R509 2.2K
FEED BACK Q504 LTV-817M-VB
D501 1N4005-EIC
D515 1N4005-EIC
D504 1N4005-EIC
D520 1N4005-EIC
D521 1N4005-EIC
D502 1N4005-EIC
D522 1N4005-EIC
D503 1N4005-EIC
C502 500V 0.001 B
C503 500V 0.001 B
R501 3.3 5W
C526_2 200V 330 UP
D509 MTZJ18B
R510 1.2M 1/4W
R511 1.2M 1/4W
T502 81290184
W804
D505 SB290S
C516 500V 470P B
R517_1 5.6 2W
C519_1 16V 470 YK
D510 RU2AM-EIC
W840
C517_2 2KV 470P YR
C521_1 160V 100 MHE
D513 SB290S
C515 16V 470 YK
D518 1SS133
R520 150K 1/2W
R512 2.2K
R513 5.6K
FEED BACK SWITCHING Q507 KTC3198-AT(Y,GR)
R515 68K 1/2W
R519 1.2K
D514 1SS133
D517 1SS133
D519 1SS133
R507 560 1/4W
R527_1 8.2K 1/4W
R518_1 2.7K 1/4W
D528 MTZJ5.6B

TO SOUND/AV
GND
SOUND+B
SOUND_GND
TO DEFLECTION/CRT
+B
UNREG+12V
GND
TO CHROMA
UNREG+12V

PCB010
TMX494

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)

FROM CHROMA
CLAMP
G.OUT
R.OUT
B.OUT
V-OUT IC IC401 AN5522
THERMAL PROTECTION
PUMP UP
C414 35V 100 YK
R414 100 1/4W
R423 6.8K
D403 11E1-EIC
R418 33K +-1%
R420 3.3K
R419 470
C417_1 50V 10 YK
R417 12K +-1%
C418 25V 470 YK
R407 1.8 1/2W
R410 330 1/2W
R415 1.8K 1/2W
R413 2.2K 1/2W
C427_1 50V 10 YK
HS401 763WSAA013
R426 2.7K 1/4W
R406 2.2K
R405 18K 1/4W +-1%
R408 10K +-1%
R401 100K 1/4W +-1%
D401 HZ7-1L
D402 HZ11B1L
R409 12K +-1%
TO MICON/TUNER
X-RAY
+B
C434 100V 22 YK
D411 AU02A-EIC
R429_1 1.8 2W
TO DY
CP401 B05B-DVS
CP802A 51048-1000
CD802 2EDA3001
CP802B 51048-1000
GND
CLAMP
G.OUT
R.OUT
B.OUT
NC
HEATER
GND
NC
180V
CD801 8M82025A
CP801_1 TS-80P-02-V1
L801_1 220uH 0305
V801 A48AGY13X77
R
G
B
470P B
330
C804_1
R808
C805_1
R811
C806_1
R814
3.2
2.7
128.0
126.0
120.5
RED OUT Q801_1 2SC4217
GREEN OUT Q802_1 2SC4217
BLUE OUT Q803_1 2SC4217
R813 4.7K
R815 4.7K
R816 4.7K
20
21
22
TP022
TP024
TP023
R803 12K 2W
R802_1 2.7K 1/4W
R805 12K 2W
R804 2.7K 1/4W
R807 12K 2W
R806_1 2.7K 1/4W
C801 330P B
FROM/TO CHROMA
GND
V_FEEDBACK
V_OUT
ABCL
H_OUT
H_SYNC
FROM TV POWER
GND
C439 500V 22P SL
H.DRIVE Q402_1 KTC3207-AT
27.0
0.3
0
C440 500V 0.0022 B
C446_1 50V 22 YK
R446 4.7K 1/2W
T401 305Y002
NC
130.0
H.OUTPUT Q401_1 2SD2627LS-CBC11
W832
W831
W891
C437 250V 0.39 PMS
FB401 3220052F
COL
VIDEO
B+
AFC
HEA
TER
GND
E12
E25
HI
F
S
GND
ABL
GND
E8
NC
0.0068 MPP
C442_1 2KV 470P YR
R427 100 1/4W
HS402 763WSAA013
C443_2 1.25KV
W897
L402 18uH
C402_1 200V 0.012 PP
R402 6.8 1/2W
R403 10K 1/4W
+B
UNREG+12V
R645 331/2W
D406 1SS133
D404 MTZJ6.2B
D405 AU02A-EIC
D410 AU02A-EIC
R411_1 4.7K 3.9K 1/4W
R404_1 68 1/4W
R445 120K 1/4W
C403 35V 470 YK
C448 200V 22 MHE
C435 100V 0.1 MHE
R421_1 100K 1/2W
D408 11E1-EIC
FOCUS
SCREEN
CP806_1
C819_1 2KV 0.001 B
PCB110 TCX352
6.4
96.4
NC
101.6
99.6
J801_1 CVT3275-5102
PCB010 TMX494

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL

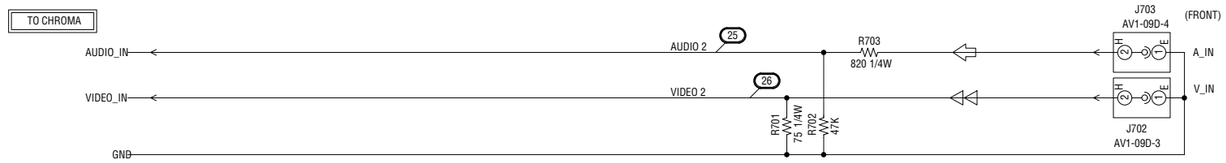
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

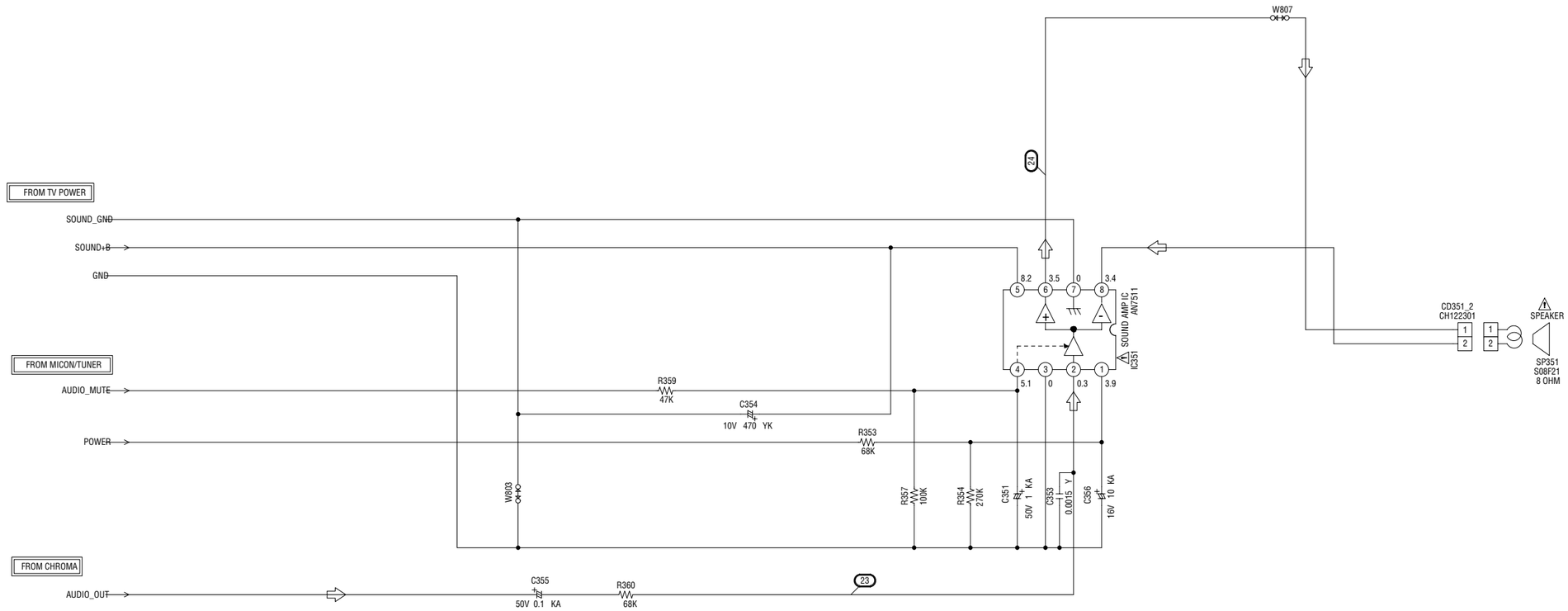
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

SOUND/AV SCHEMATIC DIAGRAM
(MAIN PCB)





NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

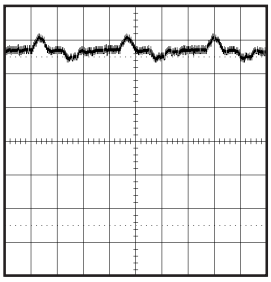
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◁◁ TUNER VIDEO SIGNAL

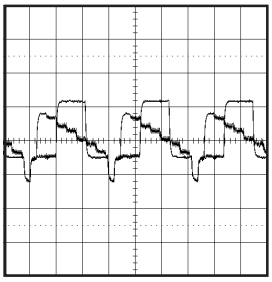
◁ AUDIO SIGNAL

WAVEFORMS

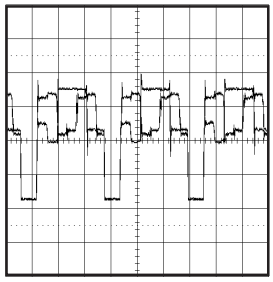
MICON/TUNER



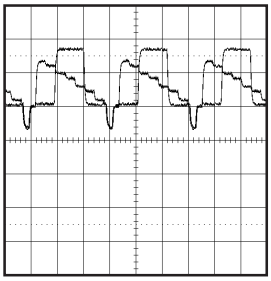
① 200mV 5ms/div



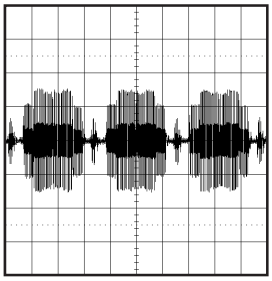
⑥ 0.5V 20µs/div



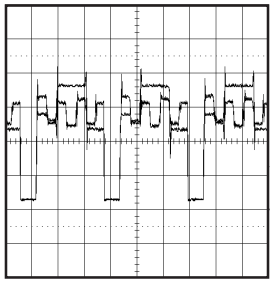
⑪ 1V 20µs/div



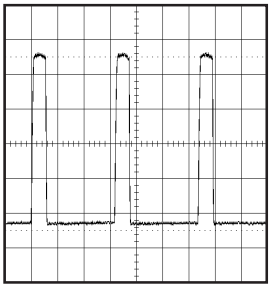
② 0.5V 20µs/div



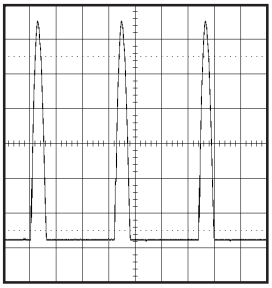
⑦ 200mV 20µs/div



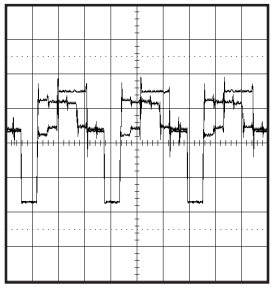
⑫ 1V 20µs/div



③ 200mV 20µs/div

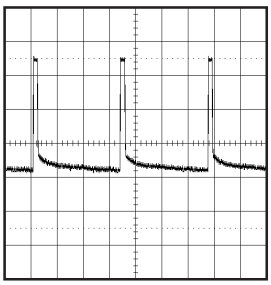


⑧ 20V 20µs/div

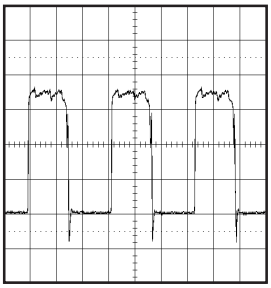


⑬ 1V 20µs/div

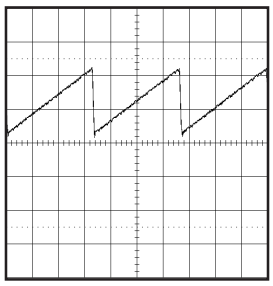
DEFLECTION/CRT



④ 200mV 5ms/div

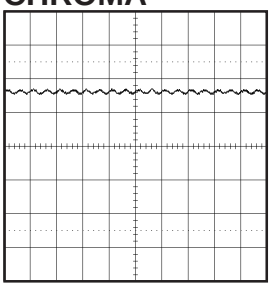


⑨ 200mV 20µs/div

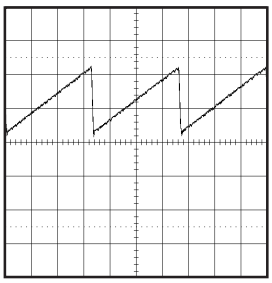


⑭ 0.5V 5ms/div

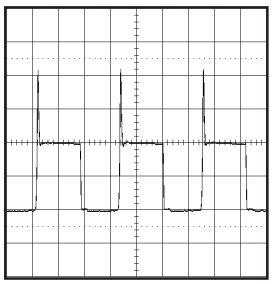
CHROMA



⑤ 0.5V 2ms/div



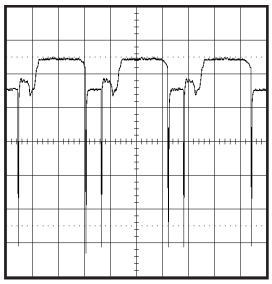
⑩ 0.5V 5ms/div



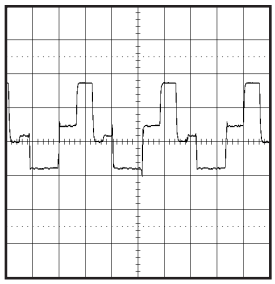
⑮ 20V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

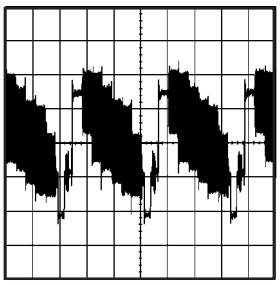
WAVEFORMS



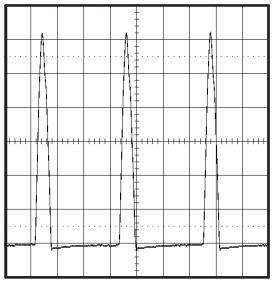
⑯ 2V 20µs/div



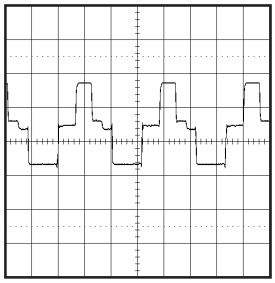
㉑ 50V 20µs/div



㉖ 500mV 20us/div

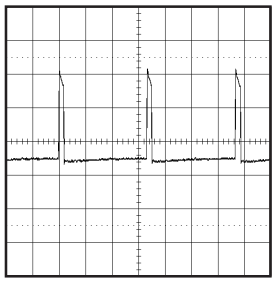


⑰ 200V 20µs/div

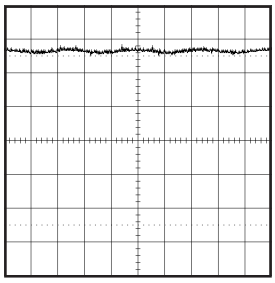


㉒ 50V 20µs/div

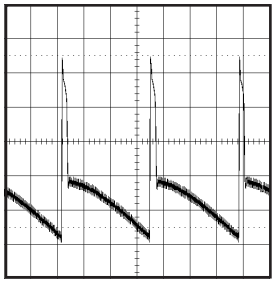
SOUND/AV



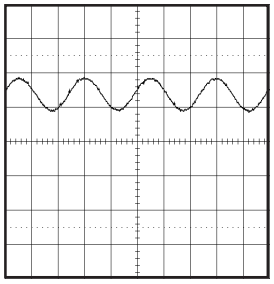
⑱ 10V 5ms/div



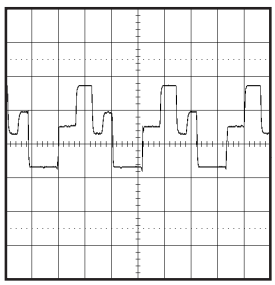
㉓ 0.5V 1ms/div



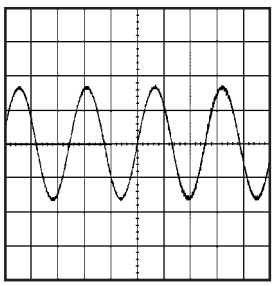
⑲ 10V 5ms/div



㉔ 1V 1ms/div



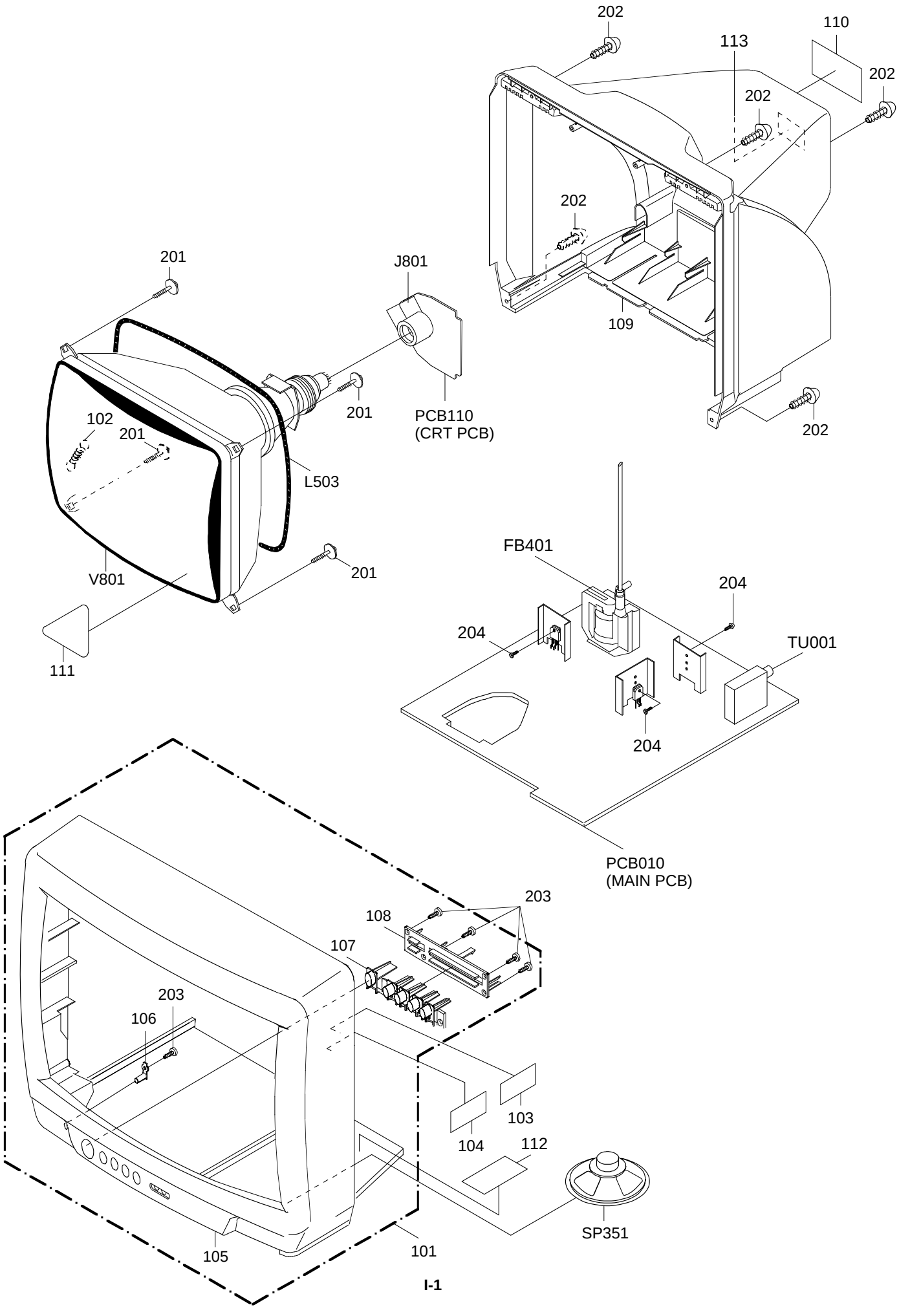
⑳ 50V 20µs/div



㉕ 500mV 1ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A3J907A720	CABINET,FRONT ASS'Y		
102	741WUA0019	SPRING,EARTH		
103	7220001107	SHEET,HWC		
104	7220001119	SHEET,CSA WARNING		
105	701WPJB006	CABINET,FRONT		
106	713WPA0090	GUIDE,REMOCON		
107	735WPA0381	BUTTON,FRAME		
108	735WPA0382	BUTTON,HOLDER		
109	702WPA0557	CABINET,BACK		
110	722552A007	SHEET,RATING		
111	723000B325	FILM,DECORATION		
112	7230006818	SHEET,CAUTION		
113	726000A019	SHEET,CRT SERVICEMAN		
201	8121F50B84	SCREW,TAPPING (B0)	GW20 FLAT	5x28
202	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16
203	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10
204	8109I30A04	SCREW,TAP TITE (B)	WH7	3x10
---	JB5K0100	POLY BAG		
---	J3J80401	INSTRUCTION BOOK		
---	791WHAA017	LAMIFILM BAG		
---	A3J804C975	INSTRUCTION BOOK KIT		
---	792WHA0244	PACKAGE,BOTTOM		
---	792WHA0245	PACKAGE,TOP		
---	793WCDA974	GIFT BOX		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
RESISTORS				
⚠ R401	R4X5T4104F	R, METAL	100K OHM 1/4W	
⚠ R405	R4X5T4183F	R, METAL	18K OHM 1/4W	
⚠ R406	R903N8222J	RC	2.2K OHM 1/8W	
⚠ R407	R002T21R8J	RC	1.8 OHM 1/2W	
⚠ R408	R4X5T6103F	R, METAL	10K OHM 1/6W	
⚠ R409	R4X5T6123F	R, METAL	12K OHM 1/6W	
R423	R001T6682J	RC	6.8K OHM 1/6W	
⚠ R426	R002T4272J	RC	2.7K OHM 1/4W	
⚠ R429	R6558A1R8J	R ,FUSE	1.8 OHM 2W	
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W	
⚠ R501	R5X2CD3R3J	R, CEMENT	3.3 OHM 5W	or
	R5Y2CD3R3J	R, CEMENT	3.3 OHM 5W	
⚠ R504	R3X28B180J	R, METAL OXIDE	18 OHM 3W	
⚠ R505	R3X181152J	R, METAL	1.5K OHM 1W	
R509	R903N8222J	RC	2.2K OHM 1/8W	
R515	R002T2683J	RC	68K OHM 1/2W	
⚠ R517	R3X28A5R6J	R, METAL	5.6 OHM 2W	
⚠ R518	R002T4272J	RC	2.7K OHM 1/4W	
⚠ R519	R903N8122J	RC	1.2K OHM 1/8W	
⚠ R542	R3X181R47J	R, METAL	0.47 OHM 1W	
⚠ R629	R3X28B330J	R, METAL OXIDE	33 OHM 3W	
⚠ R641	R002T4273J	RC	27K OHM 1/4W	
R647	R001T6202J	RC	2K OHM 1/6W	
⚠ R803	R3X18A123J	R, METAL OXIDE	12K OHM 2W	
⚠ R805	R3X18A123J	R, METAL OXIDE	12K OHM 2W	
⚠ R807	R3X18A123J	R, METAL OXIDE	12K OHM 2W	
CAPACITORS				
C402	P3N1F2123J	CPP	0.012 UF 200V	or
	P341F2123J	CPP	0.012 UF 200V	
⚠ C403	E02LT4471M	CE	470 UF 35V	
⚠ C414	E02LT4101M	CE	100 UF 35V	
⚠ C418	E02LT3471M	CE	470 UF 25V	
⚠ C434	E02LT8220M	CE	22 UF 100V	
C437	P4J7F3394J	CMPP	0.39 UF 250V PMS	
⚠ C440	C0JTB05H3K	CC	0.0022UF 500V B	
C442	C0JLYR7Q2K	CC	470 PF 2KV YR	
⚠ C443	P4N8FJ682H	CMPP	0.0068UF 1.25KV	
⚠ C446	E02LT5220M	CE	22 UF 50V	
⚠ C448	E5EZTC220M	CE	22 UF 200V	
C502	C0JTB0513K	CC	0.001 UF 500V B	
C503	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C505	P2122B104M	CMP	0.1 UF 250V ECQUL	or
	P2472B104M	CMP	0.1 UF 275V	
⚠ C506	CB3LE0MQ3M	CC	0.0047UF 250V	or
	CBLLYEMQ3M	CC	0.0047UF 250V	
⚠ C511	E50HU5220M	CE	22 UF 50 V	
C514	C0JLYR7U2K	CC	680 PF 2KV YR	
⚠ C515	E02LT2471M	CE	470 UF 16V	
C517	C0JLYR7Q2K	CC	470 PF 2KV YR	
⚠ C519	E02LT2471M	CE	470 UF 16V	
⚠ C521	E5EZFB101M	CE	100 UF 160V	
⚠ C526	E51CGC331M	CE	330 UF 200V	
C819	C0JBB0713K	CC	0.001 UF 2KV B	
DIODES				
D001	D97U03001B	DIODE, ZENER	MTZJ30B T-77	
⚠ D401	D94TA27011	DIODE, ZENER	HZ27-1L TD	
⚠ D402	D94TA11B11	DIODE, ZENER	HZ11B1L TD	
D403	D2WT011E10	DIODE, SILICON	11E1-EIC	
D404	D97U06R21B	DIODE, ZENER	MTZJ6.2B T-77	
⚠ D405	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D406	D1VT001330	DIODE, SILICON	1SS133T-77	
D408	D2WT011E10	DIODE, SILICON	11E1-EIC	
⚠ D410	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D411	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D501	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D502	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D503	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D504	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D505	D2WXB290S0	DIODE, SILICON	SB290S	
D506	D97U01801B	DIODE, ZENER	MTZJ18B T-77	
D507	D97U01501B	DIODE, ZENER	MTZJ15B T-77	
D508	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D509	D97U01801B	DIODE, ZENER	MTZJ18B T-77	
⚠ D510	D2WXRU2AM0	DIODE, SILICON	RU2AM-EIC	
D512	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D513	D2WXB290S0	DIODE, SILICON	SB290S	
D514	D1VT001330	DIODE, SILICON	1SS133T-77	

REF. NO.	PART NO.	DESCRIPTION		
DIODES				
⚠ D515	D2WXN40050	DIODE, SILICON	1N4005-EIC	
D518	D1VT001330	DIODE, SILICON	1SS133T-77	
D519	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D520	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D521	D2WXN40050	DIODE, SILICON	1N4005-EIC	
⚠ D522	D2WXN40050	DIODE, SILICON	1N4005-EIC	
D528	D97U05R61B	DIODE, ZENER	MTZJ5.6B T-77	
D601	D1VT001330	DIODE, SILICON	1SS133T-77	
D602	D97U08R21B	DIODE, ZENER	MTZJ8.2B T-77	
D603	D97U01201B	DIODE, ZENER	MTZJ12B T-77	
D605	D2WT011E10	DIODE, SILICON	11E1-EIC	
D610	D97U01201B	DIODE, ZENER	MTZJ12B T-77	
D611	D97U01201B	DIODE, ZENER	MTZJ12B T-77	
D612	D97U01201B	DIODE, ZENER	MTZJ12B T-77	
D613	D1VT001330	DIODE, SILICON	1SS133T-77	
D615	D1VT001330	DIODE, SILICON	1SS133T-77	
D616	D1VT001330	DIODE, SILICON	1SS133T-77	
ICS				
IC101	I56F07045B	IC	OEC7045B	
IC199	A3J907A015	IC	S-24C02BDP-1A	
⚠ IC351	I01DP75110	IC	AN7511	
⚠ IC401	I01TD55220	IC	AN5522	
IC601	I06FC61206	IC	M61206FP	
TRANSISTORS				
⚠ Q401	TD30026270	TRANSISTOR, SILICON	2SD2627LS-CBC11	
⚠ Q402	TCAT032070	TRANSISTOR, SILICON	KTC3207-AT	
⚠ Q501	T25FK26620	TRANSISTOR, FIELD EFFECT	2SK2662	
⚠ Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
⚠ Q504	0002E00610	PHOTO COUPLER	LTV-817M-VB	
Q507	TCATC31980	TRANSISTOR, SILICON	KTC3198-AT(Y,GR)	
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q604	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q605	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q606	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q607	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP	
⚠ Q801	TC3F042170	TRANSISTOR, SILICON	2SC4217(D,E)-RAC	
⚠ Q802	TC3F042170	TRANSISTOR, SILICON	2SC4217(D,E)-RAC	
⚠ Q803	TC3F042170	TRANSISTOR, SILICON	2SC4217(D,E)-RAC	
COILS &TRANSFORMERS				
L101	021LA63R3K	COIL	3.3 UH	
L402	02186G180M	COIL	18 UH	
⚠ L501	029T00A7M1	COIL, LINE FILTER	1R5A102F20	
⚠ L503	028R200029	COIL, DEGAUSS	8R200029	
L601	0216731R2K	COIL	1.2 UH	
L605	02167F1R0K	COIL	1 UH	
L606	021LA62R2K	COIL	2.2 UH	
L607	021LA6150K	COIL	15 UH	
L801	02167F221J	COIL	220 UH	
T401	03305Y002S	TRANS, HORIZONTAL DRIVE	305Y002	
⚠ T502	0481290184	TRANSFORMER, SWITCHING	81290184	
JACKS				
J702	060Q401077	RCA, JACK	AV1-09D-3	
J703	060Q401076	RCA, JACK	AV1-09D-4	
⚠ J801	066C130015	SOCKET, CRT	CVT3275-5102	
SWITCHES				
SW101	0504201T31	SWITCH, TACT	SKHVBED010	
SW102	0504201T31	SWITCH, TACT	SKHVBED010	
SW103	0504201T31	SWITCH, TACT	SKHVBED010	
SW104	0504201T31	SWITCH, TACT	SKHVBED010	
SW105	0504201T31	SWITCH, TACT	SKHVBED010	
P.C.BOARD ASSEMBLIES				
PCB010	A3J907A01A	PCB ASS'Y	TMX494A	
PCB110	A3J907A11A	PCB ASS'Y	TCX352A	
MISCELLANEOUS				
CD351	06CH122301	CORD, CONNECTOR	CH122301	
⚠ CD501	120R414903	CORD, AC	0R414903	
CD801	068M82025A	CORD, CONNECTOR	8M82025A	
CF601	1022T45R72	FILTER, SAW	SAF45MFY220ZR	
CF603	1011T4R504	FILTER, CERAMIC	EFCT4R5YS5A	
CF604	1011T4R517	FILTER, CERAMIC	EFCT4R5MW5	
⚠ CP401	069X450029	CONNECTOR PCB SIDE	B05B-DVS	
⚠ CP502	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1	or

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		MISCELLANEOUS		
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P	
CP601	0694260139	CONNECTOR PCB SIDE	173979-6	
CP801	069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1	or
	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P	
CP802A	067R010019	WIRE HOLDER	51048-1000	or
	067U010049	WIRE HOLDER	B2013H02-10P	
CP802B	067R010019	WIRE HOLDER	51048-1000	or
	067U010049	WIRE HOLDER	B2013H02-10P	
⚠ F501	081PC04004	FUSE	51MS040LCC	
⚠ FB401	043220052F	TRANSFORMER, FLYBACK	3220052F	
FH501	06710T0006	HOLDER, FUSE	EYF-52BC	
FH502	06710T0006	HOLDER, FUSE	EYF-52BC	
OS101	077Q014003	REMOTE RECEIVER	PIC-28143SY-2	
⚠ SP351	070Y132018	SPEAKER	S08F21	
⚠ TH501	DF5EL3R0A0	DEGAUSS, ELEMENT	ZPB45BL3R0A	
TM101	076N0DW010	TRANSMITTER	RC-DW010	
⚠ TU001	0145S00052	TUNER, VHF-UHF	ENV56D66G3	
⚠ V801	098Q200481	CRT W/DY	A48AGY13X77	
X101	1001T8R004	CERAMIC, OSCILLATOR	EFOEC8004T4	
X602	100CT3R505	CRYSTAL HC-49/C	3.579545MHz	

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M3J9-07A
O/R NO.	W133021

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

CONTENTS

GENERAL SPECIFICATIONS

G-1	TV System	CRT		CRT Size / Visual Size	19 inch / 480.0mmV
				CRT Type	Normal
				Deflection	90 degree
				Magnetic Field BV/BH	+0.45G/0.18G
		Color System			NTSC
		Speaker			1Speaker
				Position	Bottom
				Size	3 Inch
				Impedance	8 ohm
		Sound Output		MAX	1.5 W
				10%(Typical)	1.0 W
		NTSC3.58+4.43 /PAL60Hz			No
G-2	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH		System	1Tuner
				Destination	Ohers
				Tuning System	F-Synth
				Input Impedance	VHF/UHF 75 ohm
				CH Coverage	2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84
		Intermediate Frequency		Picture(FP)	45.75MHz
				Sound(FS)	41.25MHz
				FP-FS	4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
		Tuner Sound Muting			Yes
G-3	Power	Power Source		AC	120V AC 60Hz
				DC	
		Power Consumption		at AC	73 W at AC 120 V 60 Hz
				Stand by (at AC)	5 W at AC 120 V 60 Hz
				Per Year	-- kWh/Year
		Protector		Power Fuse	Yes
G-4	Regulation			Safety	UL /CSA
				Radiation	FCC /DOC
				X-Radiation	DHHS/HWC
G-5	Temperature			Operation	+5oC ~ +40oC
				Storage	-20oC ~ +60oC
G-6	Operating Humidity				Less then 80% RH
G-7	On Screen Display	Menu			Yes
			Menu Type		Character
			Picture		Yes
				Contrast	Yes
				Brightness	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
			Audio		No
				Bass	No
				Treble	No
				Balance	No
				BBE On/Off	No
				Stable Sound On/Off	No
			CH Set Up		Yes
				TV/CATV	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			Language		Yes
			V-chip		Yes
				CH Label	No
				Favorite CH	No
				Color Stream DVD/DTV	No
			Control Level		Yes
				Volume	Yes
				Brightness	Yes
				Contrast	Yes
				Color	Yes
				Tint (NTSC Only)	Yes
				Sharpness	Yes
				Tuning	No
				Bass	No
				Treble	No
				Balance	No
				Back Light	No
			Stereo,Audio Output,SAP		No
			Video		Yes
			Color Stream		No
			Channel(TV/Cable)		Yes
			CH Label		No
			Sleep Timer		Yes
			Sound Mute		Yes
			V-chip Rating		Yes

GENERAL SPECIFICATIONS

G-8	OSD Language	OSD Language Setting		English French Spanish English
G-9	Clock and Timer	Sleep Timer	Max Time	120 Min
			Step	10 Min
		On/Off Timer	Program(On Tim / Off Tim)	No
		Wake Up Timer		No
		Timer Back-up (at Power Off Mode)	more than	-- Min Sec
G-10	Remote Control	Unit		RC-DW
		Glow in Dark Remocon		No
		Format		NEC
		Custom Code		86-05 h
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		27 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			100	No
			CH Up	Yes
			CH Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			TV/Caption/Text	Yes
			CH1/CH2	Yes
			TV/Video(TV/AV)	Yes
			CH RTN/CH ENT(Quick View)	Yes
			Sleep	Yes
			RE Call(Call)	Yes
			Reset	Yes
			Menu	Yes
			Enter	Yes
			Mute	Yes
			Exit	No
			MTS(Audio Select)	No
			Set +	Yes
			Set -	Yes
		Multi Brand Keys	CH Up(VCR)	No
			CH Down(VCR)	No
			Pause/Still	No
			TV/VCR(VCR)	No
			Code	No
			FF	No
			Rew	No
			Rec	No
			Play	No
			Stop	No
			TV	No
			VCR	No
			Cable	No

GENERAL SPECIFICATIONS

G-11	Features	Auto Degauss	Yes
		Auto Shut Off	Yes
		Canal+	No
		CATV	Yes
		Anti-theft	No
		Rental	No
		Memory(Last CH)	Yes
		Memory(Last Volume)	Yes
		V-Chip	Yes
		Type	USA,ORION Type
		BBE	No
		Auto Search	No
		CH Allocation	No
		SAP	No
		Channel Lock	No
		Just Clock Function	No
		Game Position	No
		CH Label	No
		VM Circuit	No
		Full OSD	No
		Premiere	No
		Comb Filter	No
			Lines
		Auto CH Memory	Yes
		Hotel Lock	No
		Closed Caption	Yes
		Stable Sound	No
		Favorite CH	No
G-12	Accessories	Owner's Manual Language	English /French
		w/Guarantee Card	Yes
		Remote Control Unit	Yes
		Rod Antenna	No
		Poles	
		Terminal	
		Loop Antenna	No
		Terminal	
		U/V Mixer	No
		DC Car Cord (Center+)	No
		Guarantee Card	No
		Warning Sheet	No
		Circuit Diagram	No
		Antenna Change Plug	No
		Service Facility List	No
		Important Safeguard	No
		Dew/AHC Caution Sheet	No
		AC Plug Adapter	No
		Quick Set-up Sheet	No
		Battery	No
		UM size x pcs	
		OEM Brand	No
		AC Cord	No
		AV Cord (2Pin-1Pin)	No
		Registration Card	No
		PTB Sheet	No
		300 ohm to 75 ohm Antenna Adapter	No

GENERAL SPECIFICATIONS

G-13	**Interface**	Switch	Front	Power	Yes
				System Select	No
				Main Power SW	No
				Sub Power	No
				Channel Up/Reset	Yes
				Channel Down/Enter	Yes
				Volume Up/Set Up	Yes
				Volume Down/Set Down	Yes
				MENU=Volume Up+Volume Down	Yes
			Rear	AC/DC	No
				TV/CATV Selector	No
				Degauss	No
				Main Power SW	No
		Indicator		Power	No
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA
				Audio Input	RCA x 1
				Other Terminal	No
			Rear	Video Input(Rear1)	No
				Video Input(Rear2)	No
				Audio Input(Rear1)	No
				Audio Input(Rear2)	No
				Video Output	No
				Audio Output	No
				Euro Scart	No
				Color Stream	No
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
				AC Outlet	No
G-14	**Set Size**			Approx. W x D x H (mm)	488 x 465 x 416
G-15	**Weight**			Net (Approx.)	17.5kg (38.6 lbs)
				Gross (Approx.)	20.0kg (44.1lbs)
G-16	**Carton**		Master Carton		No
				Content	---- Sets
				Material	-- /--
				Dimensions W x D x H(mm)	-- x -- x --
				Description of Origin	No
			Gift Box		Yes
				Material	Double Full Color
				Dimensions W x D x H(mm)	546 x 526 x 472
				Design	As per Buyer's
				Description of Origin	Yes
			Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	46
			Container Stuffing		436 Sets/40' container
G-17	**Cabinet Material**			Cabinet Front	PS 94V0 DECABROM
				Cabinet Rear	PS 94V0

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated screwdriver, touch the support of the Anode with the tip of the screwdriver.
   A cracking noise will be heard as the voltage is discharged.

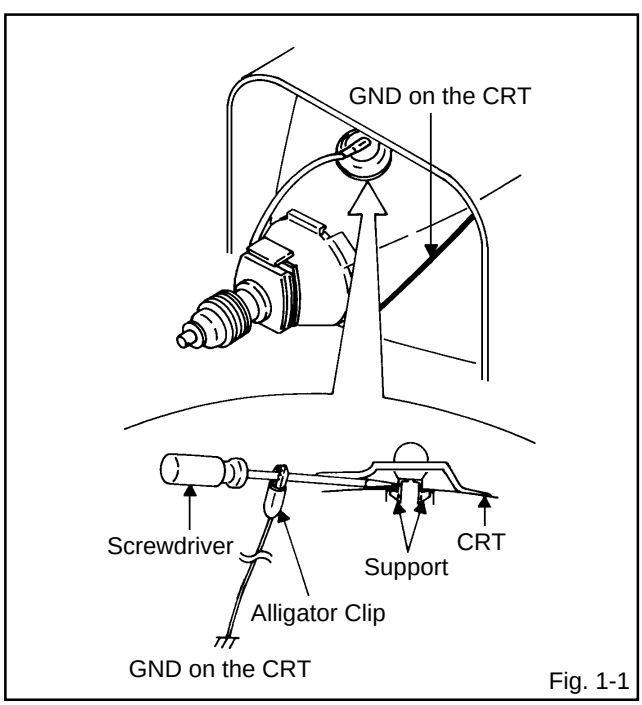


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

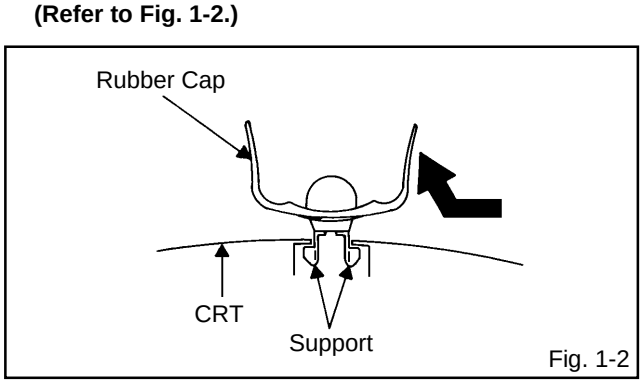


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

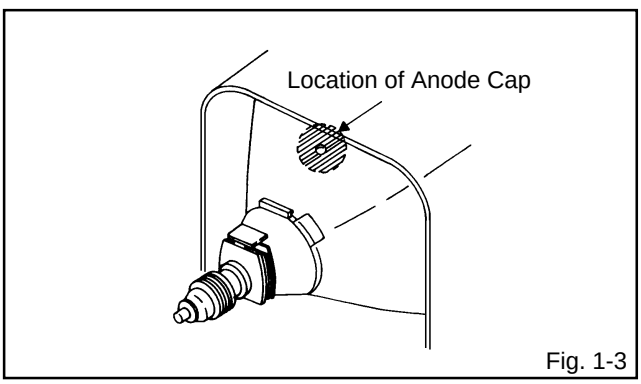


Fig. 1-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**

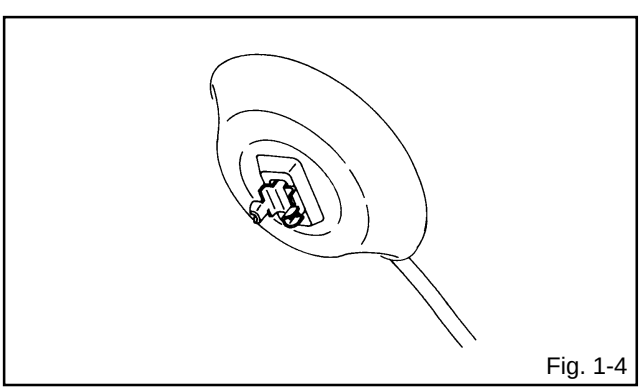


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5**.

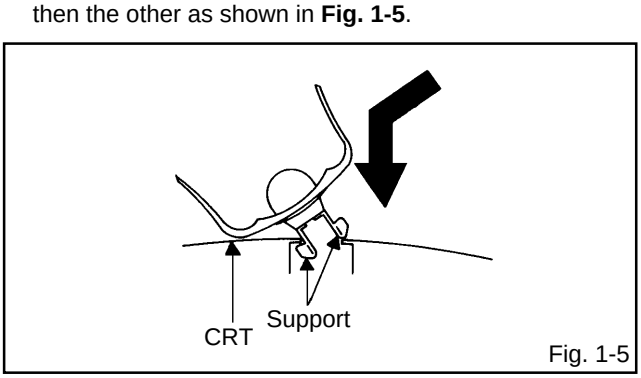


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF USING HOURS". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF USING HOURS

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.

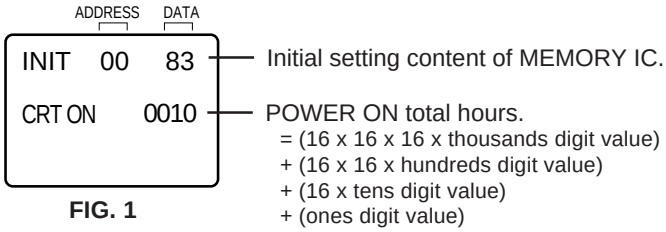


FIG. 1

NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A
70	A8	0A	A2	09	06	63	24	19	21	20	FF

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
  Remove all old silicon before applying new silicon.

Prepare the following measurement tools for electrical adjustments.

1. Synchro Scope
2. Digital Voltmeter

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

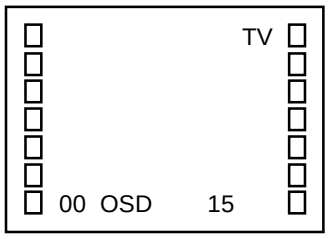


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF AGC DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R BIAS	23	TEST STEREO
11	G BIAS	24	X-RAY TEST
12	B BIAS		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: RF AGC DELAY

1. Place the set with Aging Test for more than 15 minutes.
2. Receive an 80dB monoscope pattern.
3. Connect the digital voltmeter to **R606**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF AGC DELAY".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.15 ± 0.05V.

2-2: CUT OFF

1. Adjust the unit to the following settings.
   R.DRIVE=10, B.DRIVE=10, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRIGHTNESS=130, CONTRAST=100.
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the adjustment control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R.BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R.BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "R.DRIVE", "B.DRIVE", "G.BIAS" or "B.BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R.DRIVE, B.DRIVE, G.BIAS or B.BIAS.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-5: SUB TINT/SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP023**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-1**.
5. Connect the oscilloscope to **TP022**.
6. Press the CH DOWN button once to set to "COLOR" mode.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 120% of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

ELECTRICAL ADJUSTMENTS

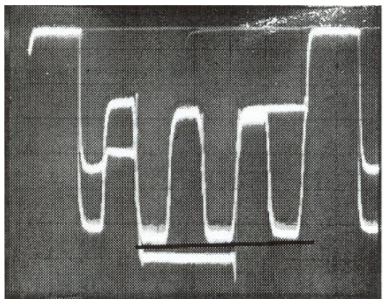


Fig. 2-1

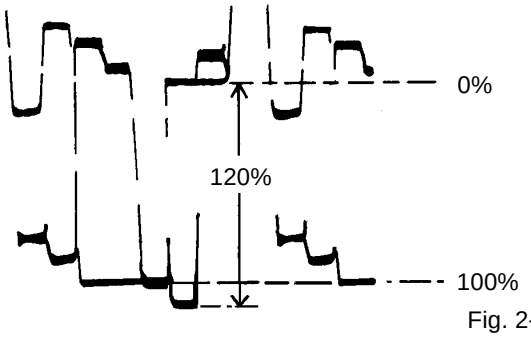


Fig. 2-2

2-6: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-6

1. Receive the crosshatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
3. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
4. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL SHIFT

NOTE: Adjust after performing adjustments in section 2-7

1. Receive the crosshatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-9: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

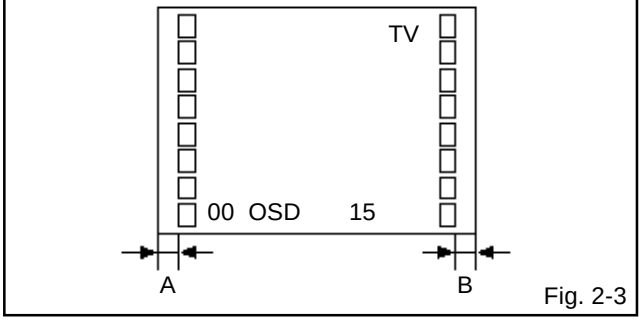


Fig. 2-3

2-10: VIF VCO

1. Place the set with Aging Test for more than 10 minutes.
2. Receive an 80dB monoscope pattern.
3. Connect the digital voltmeter between the **pin 5 of CP601** and the **GND**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.

2-11: SUB CONTRAST MANUAL

1. Receive an 70db the color bar pattern. (RF Input)
2. Activate the adjustment mode display of **Fig. 1-1** press the channel button **(14)** on the remote control to select "CONTRAST".
3. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "108".
4. Receive an 70db the color bar pattern. (Audio Video Input)
5. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2, 3.

2-12: SUB BRIGHTNESS

1. Receive an 70db the black pattern*. (RF Input)
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
3. Press the VOL. UP/DOWN button on the remote control unit the screen begin to shine.
4. Receive an 70db the black pattern*. (Audio Video Input)
5. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2, 3.

*The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

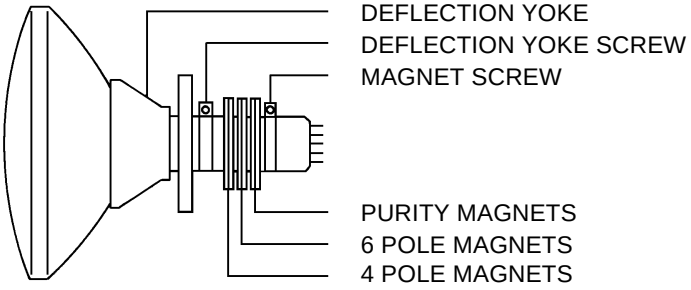


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

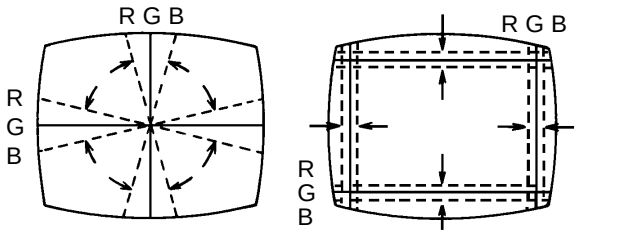
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

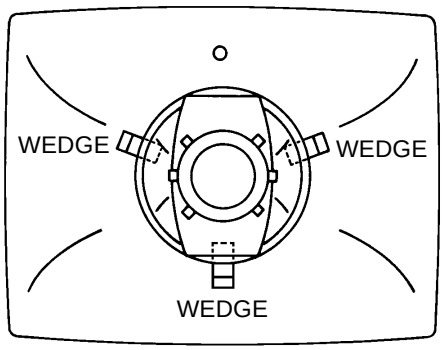
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

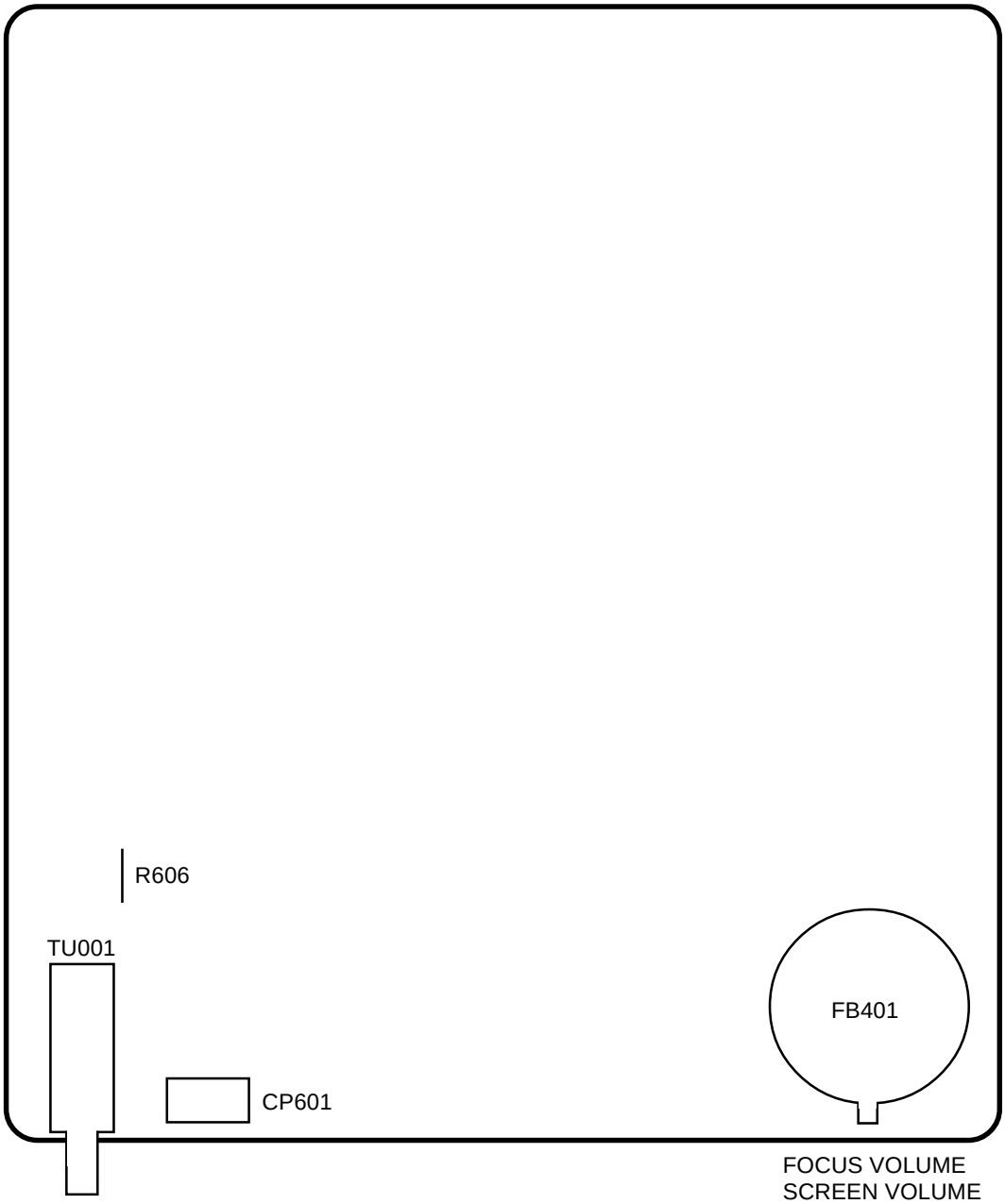
Fig. 3-2-a



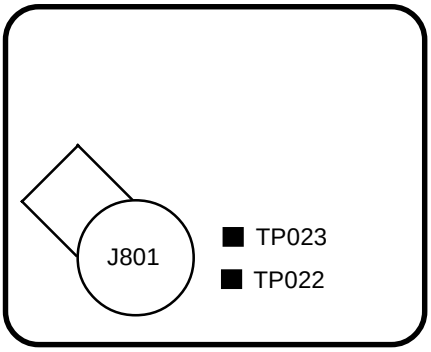
WEDGE POSITION

Fig. 3-2-b

MAJOR COMPONENTS LOCATION GUIDE

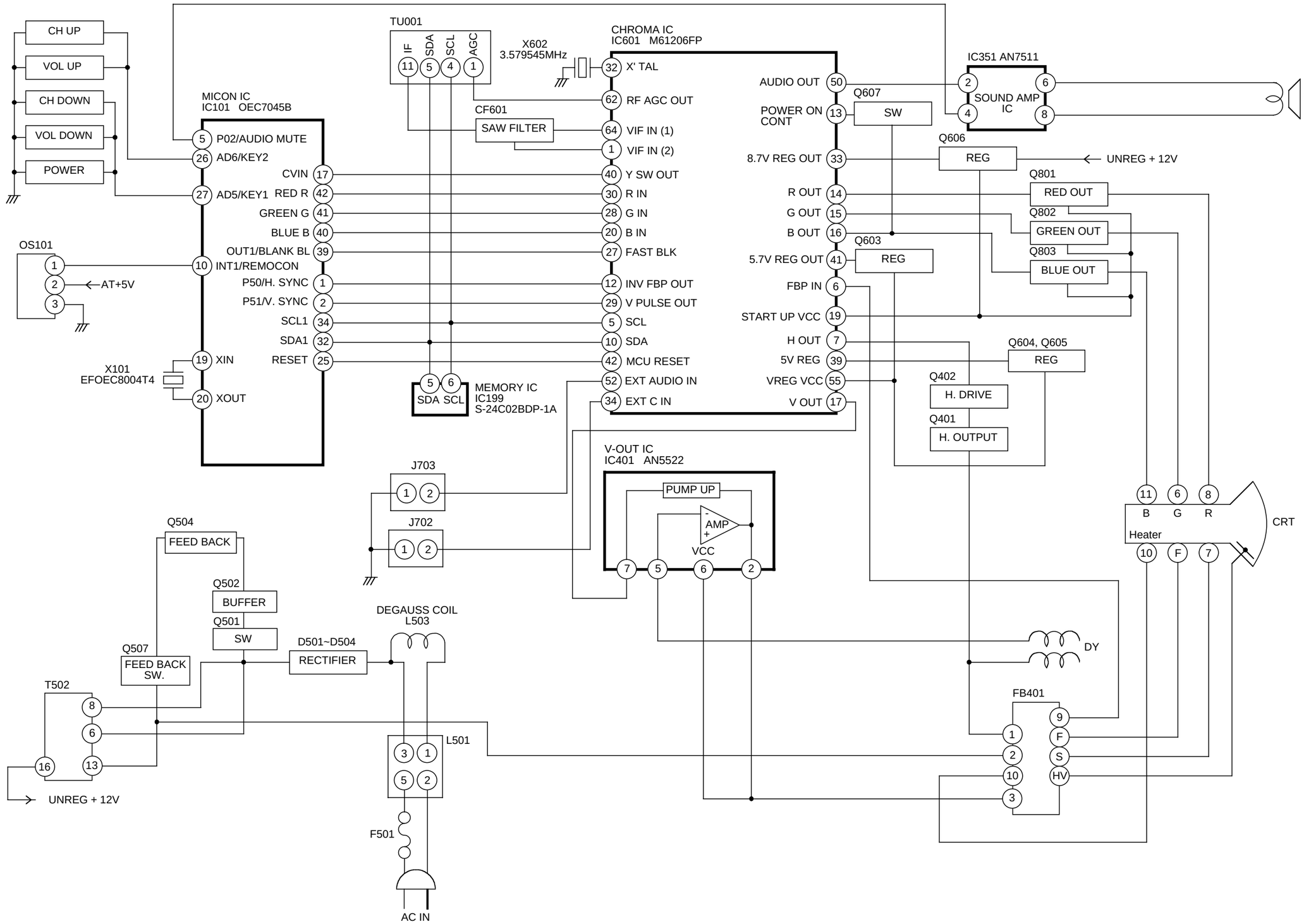


MAIN PCB

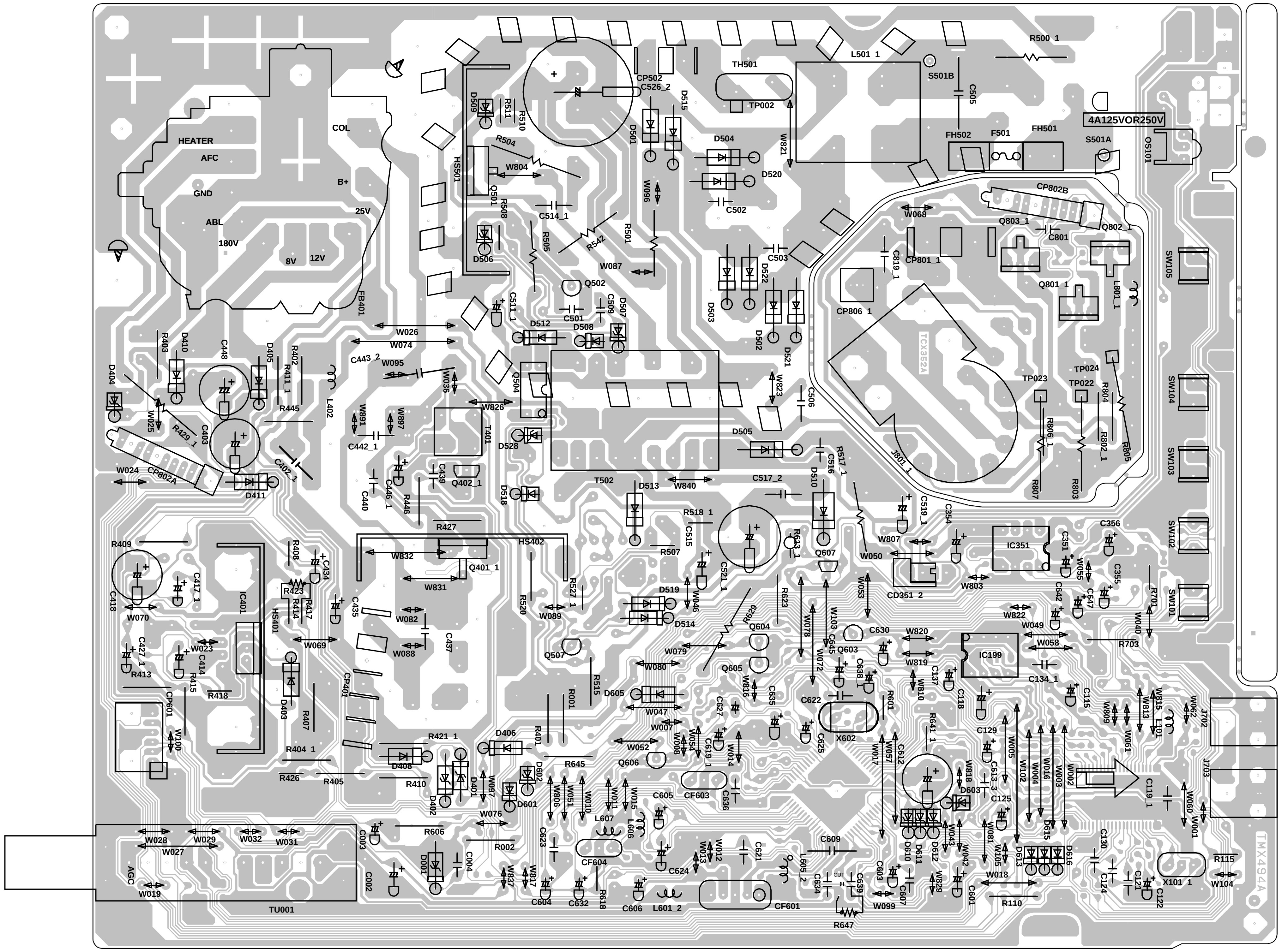


CRT PCB

BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE