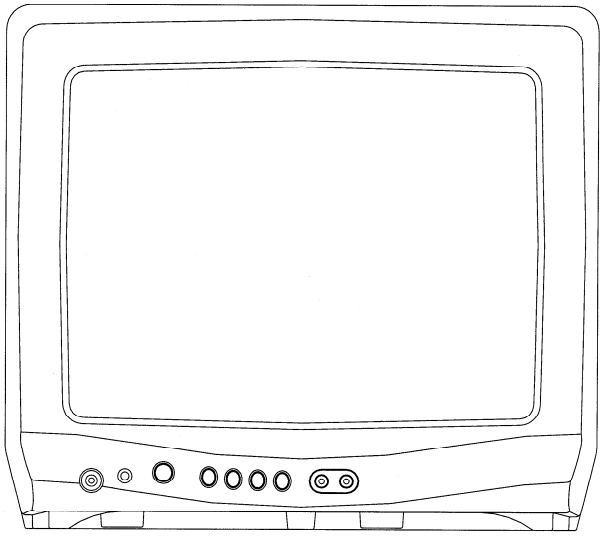
DURABRAND

DBTV1301

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION B

DURABRAND

DBTV1301

SERVICE MANUAL

COLOR TELEVISION RECEIVER

REVISION 2
MFR'S VERSION H

MFR'S VERSION	PCB010	TU001	V801
C	TMX494A	NJH3022U268	A34AGT13X98(L)
H	TMX494B	TECC1040PG32D	A34JXV70X28N45
I			A34AGT13X98(L)

Change of CRT

ELECTRICAL REPLACEMENTPARTS LIST

REF. NO.	MFR'S VERSION I		MFR'S VERSION H	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
⚠ V801	098Q1404B2	CRT W/DY A34AGT13X98(L)	098Y140497	CRT W/DY A34JXV70X28N45
⚠ R429	R655812R7J	R,FUSE 2.7 OHM 1W	R655812R2J	R,FUSE 2.2 OHM 1W
C804	CS0KB04K2K	CC 270 PF 50V B	CS0KB04L2K	CC 330 PF 50V B
C805	CS0KB04K2K	CC 270 PF 50V B	CS0KB04L2K	CC 330 PF 50V B
C806	CS0KB04K2K	CC 270 PF 50V B	CS0KB04L2K	CC 330 PF 50V B
⚠ CP401	069X450029	CONNECTOR PCB SIDE B05B-DVS	069D450049	CONNECTOR PCB SIDE TD-50-5P
PCB010	A3J804A010	MAIN PCB ASS'Y (VERSION I) TMX494B	A3J804C010	MAIN PCB ASS'Y (VERSION H) TMX494B

MAIN PCB's are not interchangeable.

SPEC.NO.	M3J8-04C
O/R NO.	K193015

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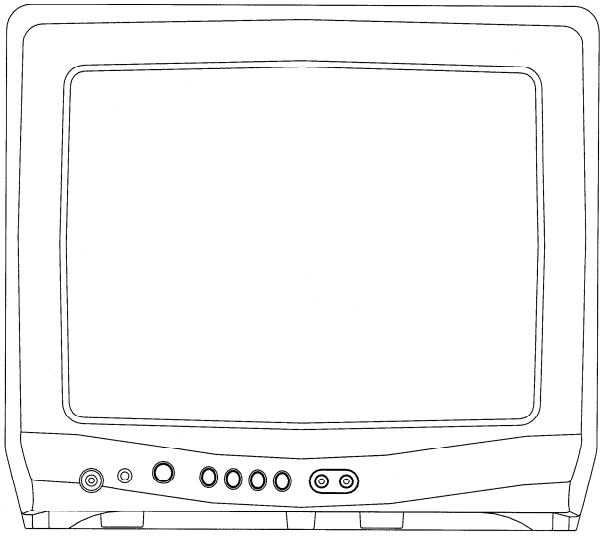


ORIGINAL
MFR'S VERSION B

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
Earphone jack

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		13 inch / 335.4mmV
			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		1.0 W
			10%(Typical)		0.8 W
		NTSC3.58+4.43 /PAL60Hz			No
G-2	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		Others
			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	
					54 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		+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
				Sound	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

GENERAL SPECIFICATIONS

		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
			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

GENERAL SPECIFICATIONS

		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	
		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	Ear Phone	
			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)	362 x 360 x 320.5	
G-15	Weight			Net (Approx.)	9.5 kg	(20.9 lbs)
				Gross (Approx.)	11.0kg	(24.4lbs)
G-16	Carton		Master Carton		No	
				Content	----	Sets

GENERAL SPECIFICATIONS

			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)	440 x 408 x 380
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	62
		Container Stuffing		866 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.

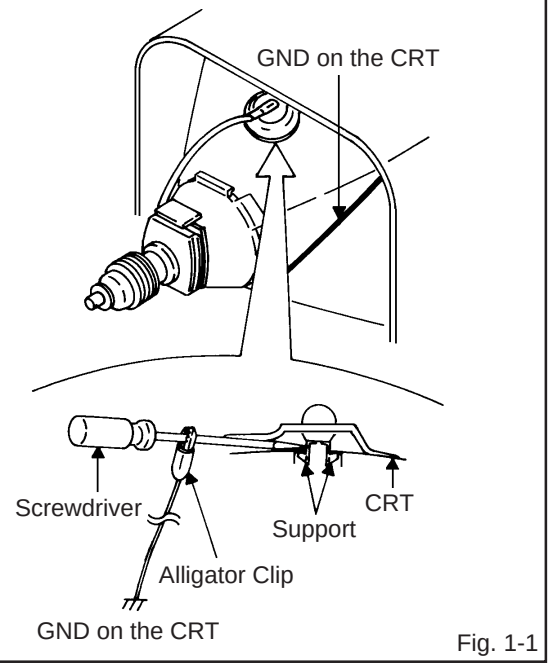


Fig. 1-1

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.)**

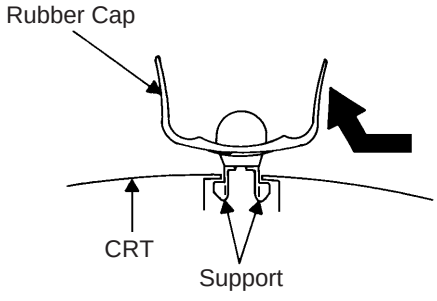


Fig. 1-2

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.)**

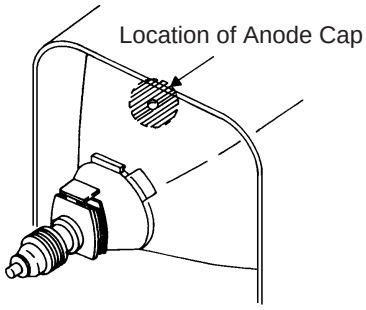


Fig. 1-3

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.)**

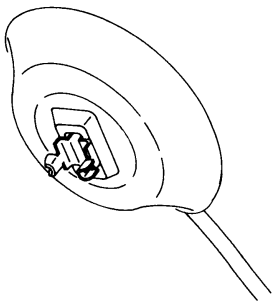


Fig. 1-4

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

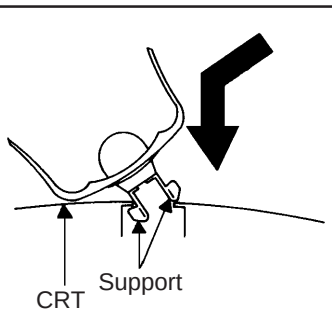


Fig. 1-5

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.

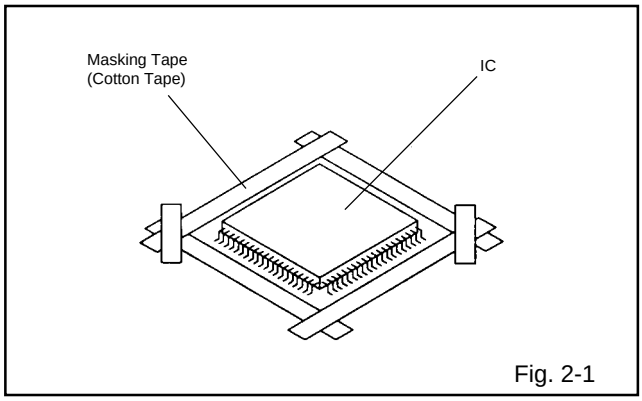


Fig. 2-1

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.

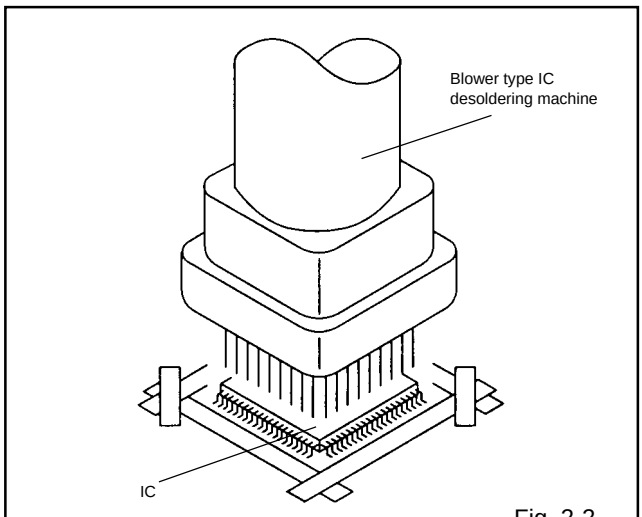


Fig. 2-2

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.

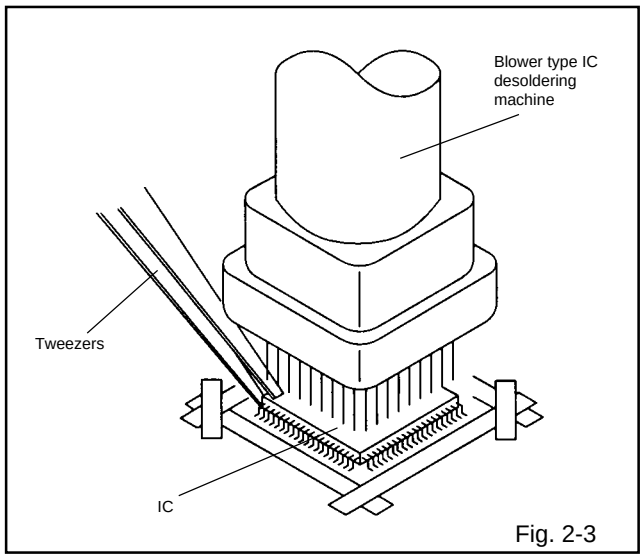


Fig. 2-3

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.

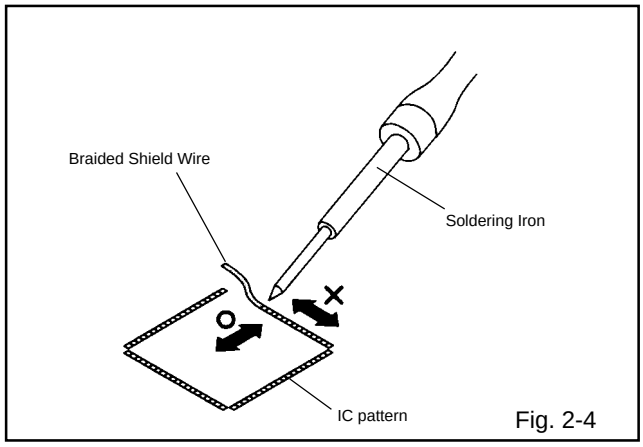


Fig. 2-4

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.)**

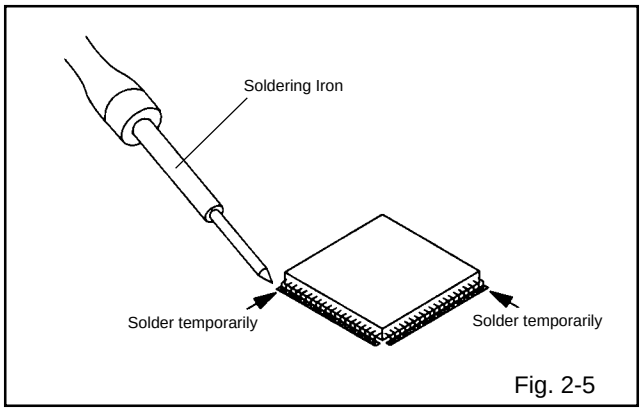


Fig. 2-5

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.)**

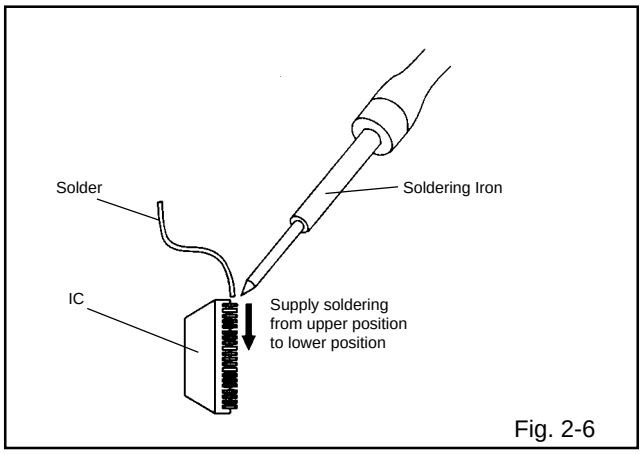


Fig. 2-6

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.

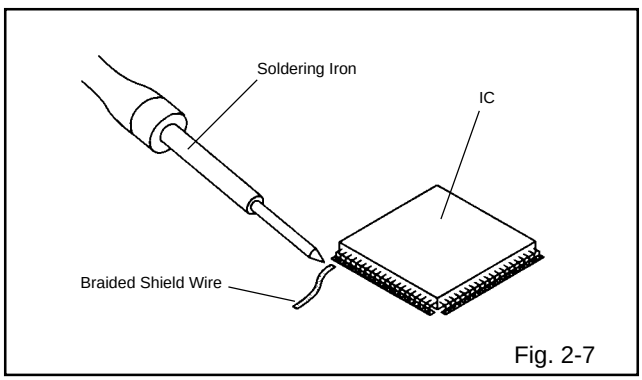


Fig. 2-7

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.)**

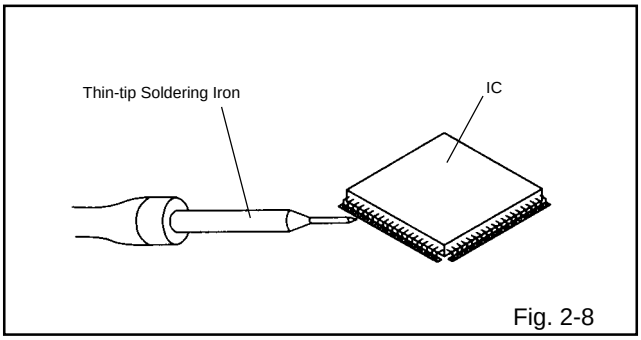


Fig. 2-8

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 reser such as the clock setting, the cheannel 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.

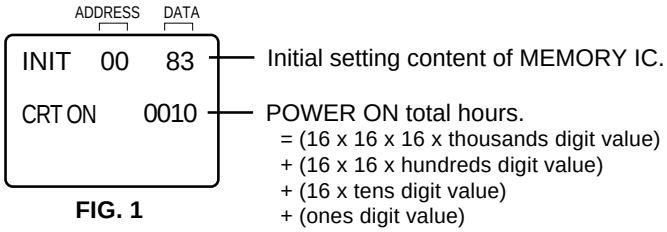


FIG. 1

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	98	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**.

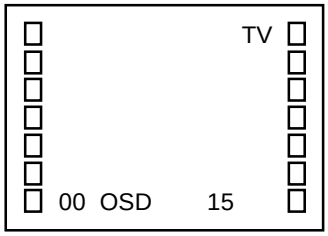


Fig. 1-1

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 MAX	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 2.5V ± 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=120, CONTRAST=40.
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.

ELECTRICAL ADJUSTMENTS

2-5: 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 100% 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

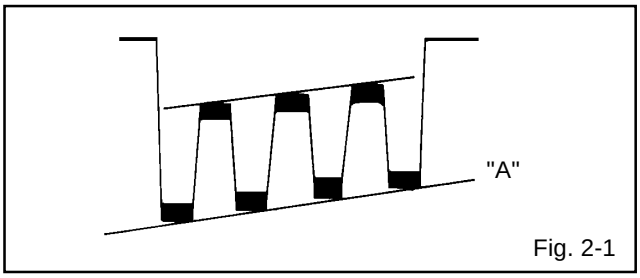


Fig. 2-1

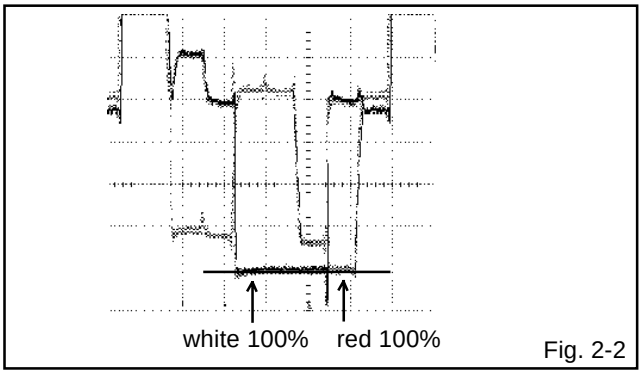


Fig. 2-2

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.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.

2-7: 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 SHIFT quantity of the OVER SCAN on upside and downside becomes 10 ± 2%.
4. Receive a broadcast and check if the picture is normal.

2-8: 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.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.

2-9: 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)**

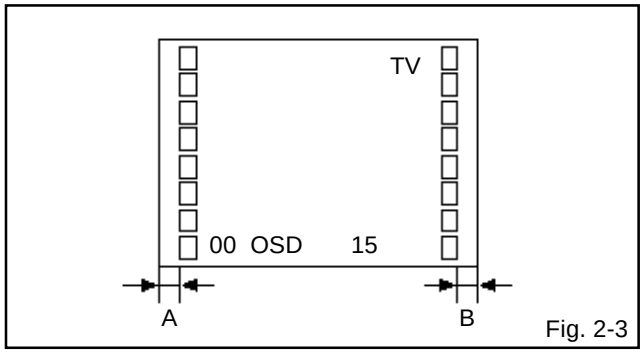


Fig. 2-3

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 "V.VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.

2-11: 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.

2-12: SUB CONTRAST

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. become "40".
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2.
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. become "38".

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	140	140
15	BRIGHT MIN	60	60
16	CONT CENT	30	30
18	CONT MIN	12	12
20	COLOR MAX	74	75
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.

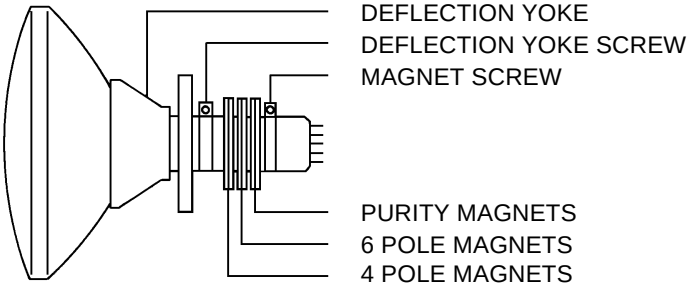


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

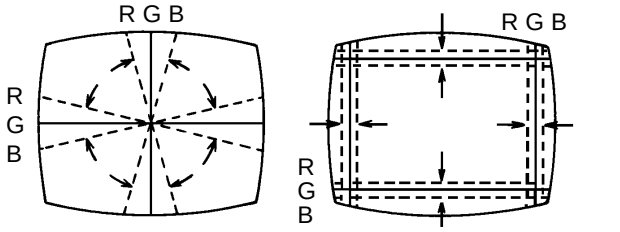
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

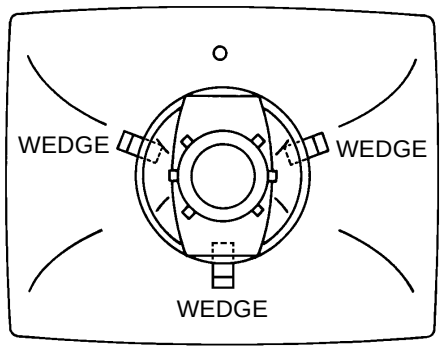
Adjust after performing adjustments in section 3-3.

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

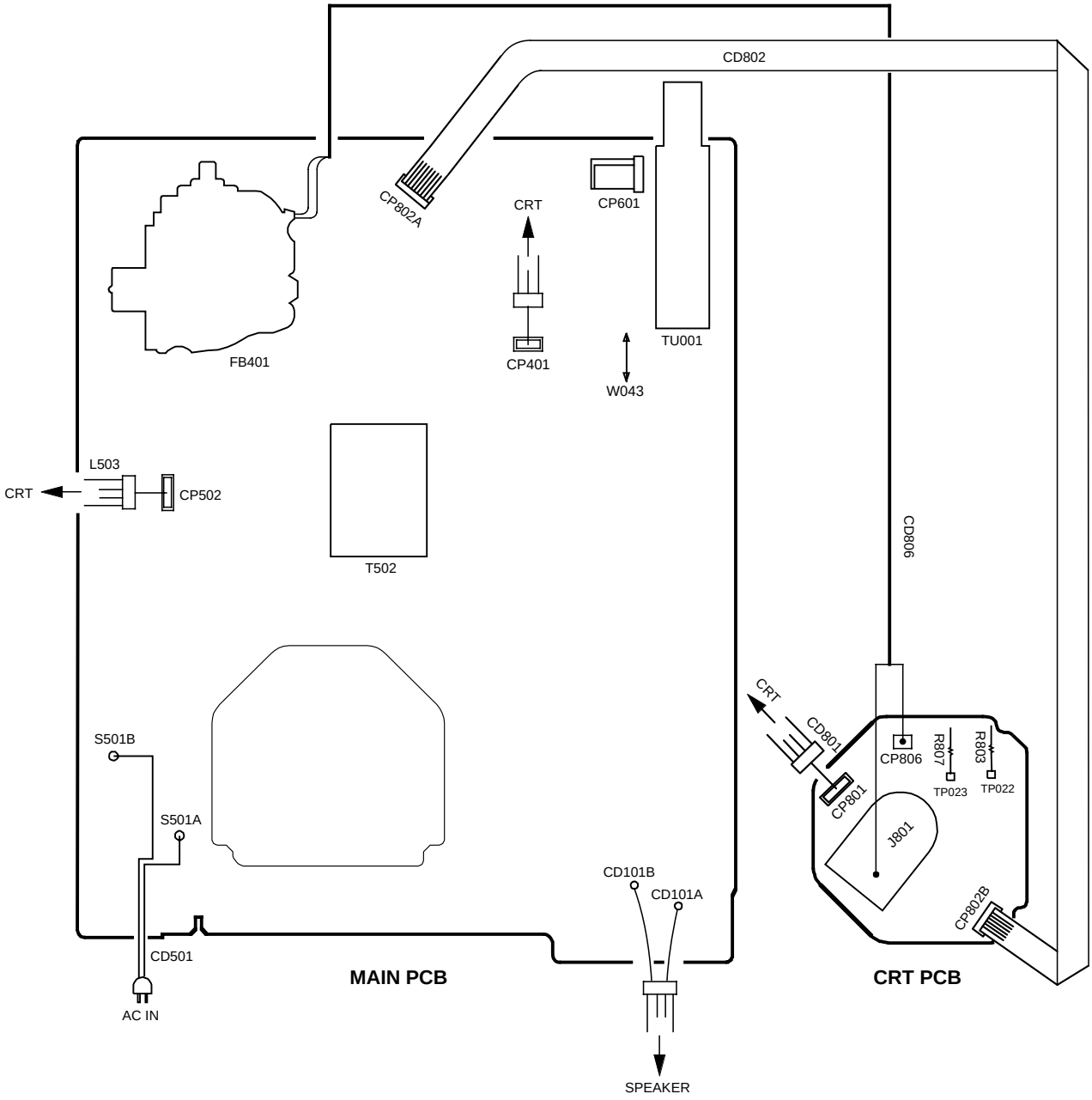


WEDGE POSITION

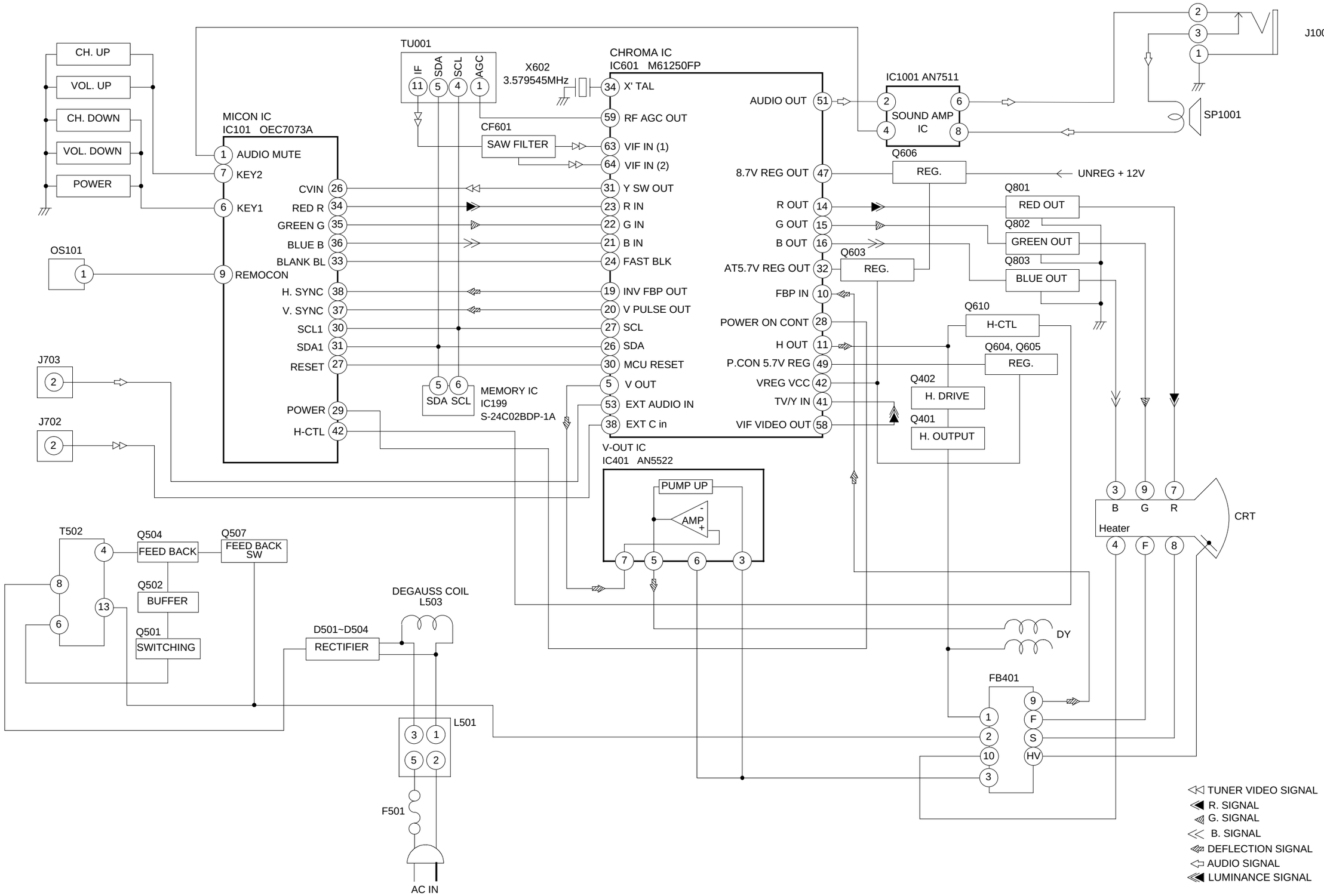
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

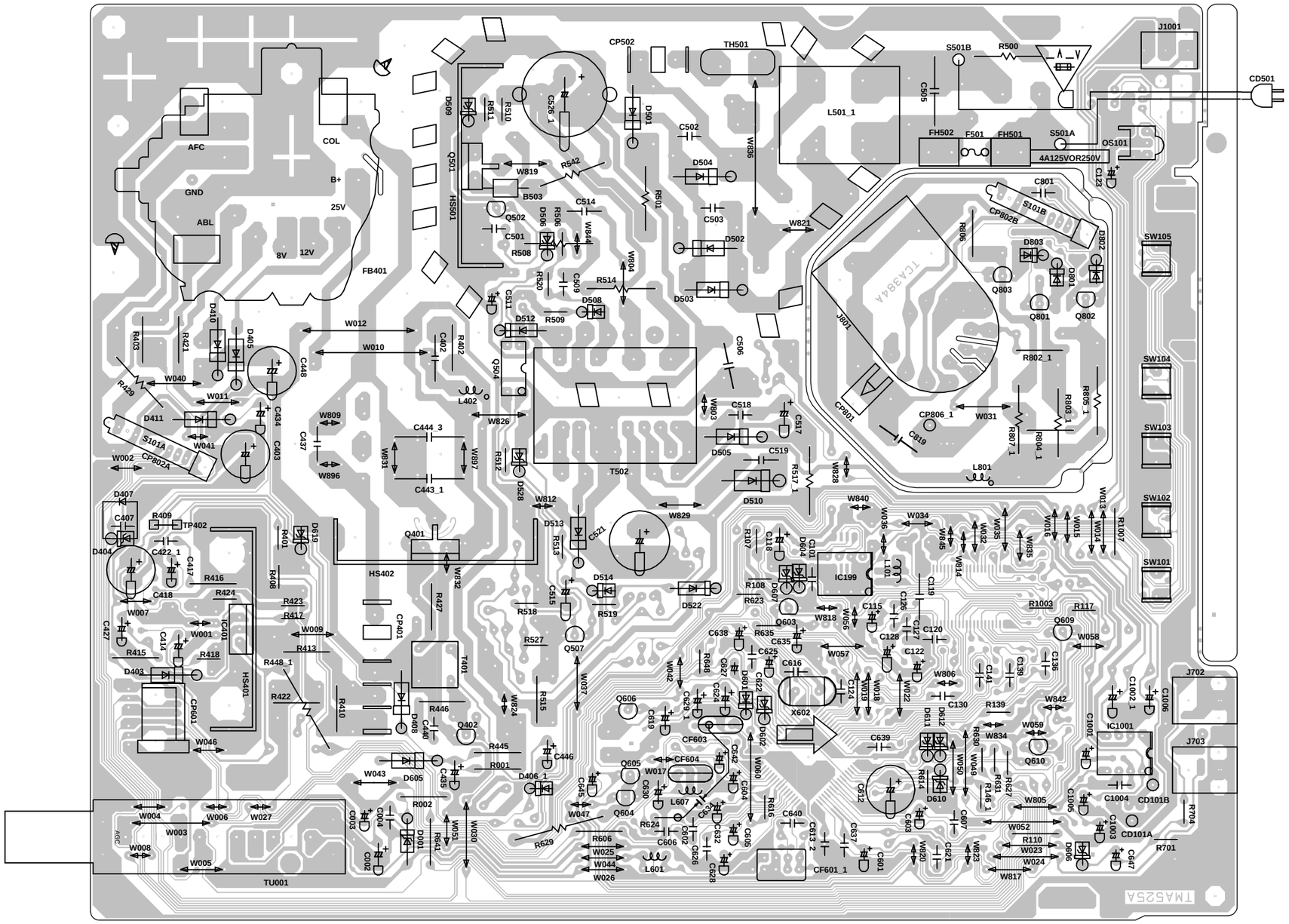
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



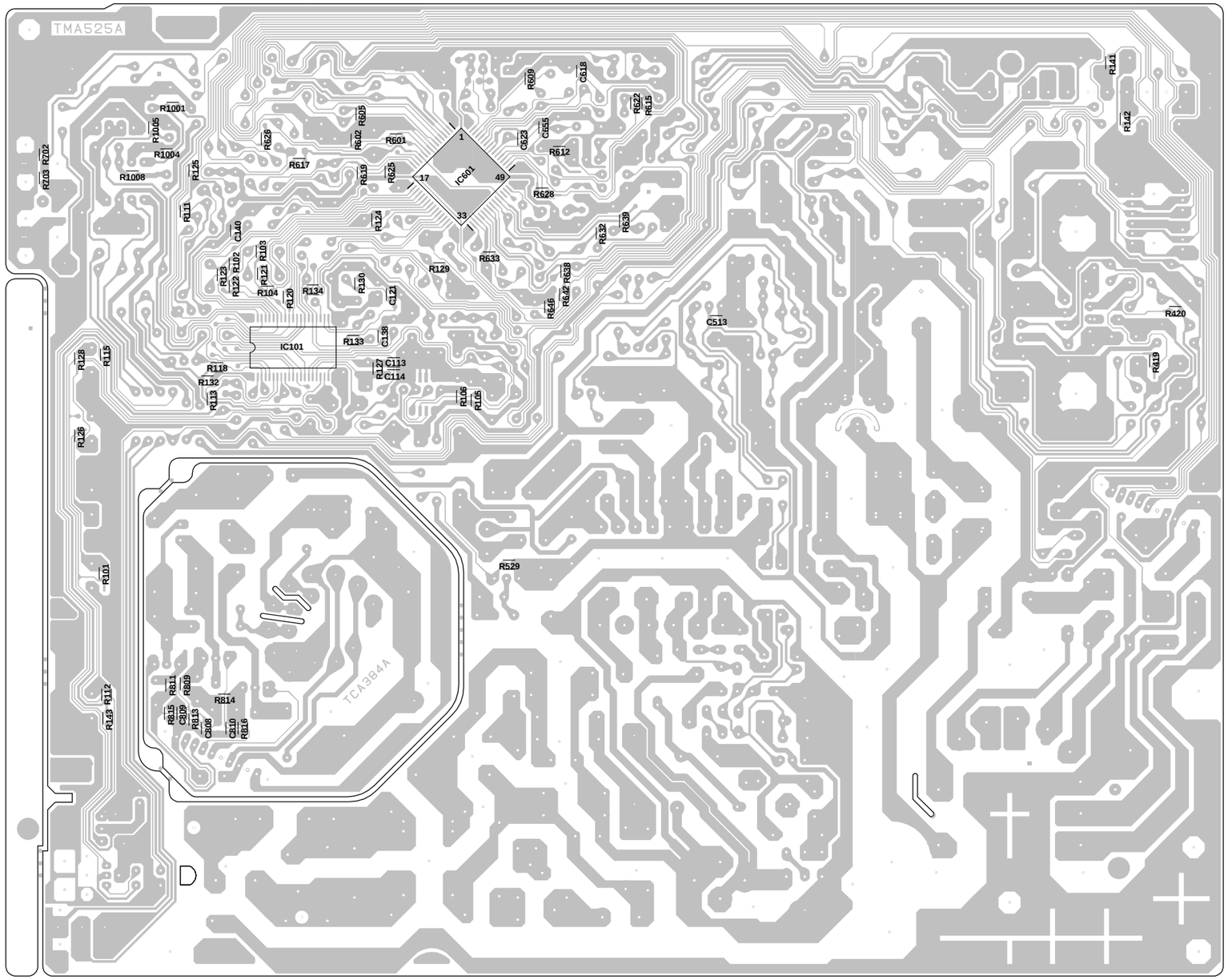
BLOCK DIAGRAM



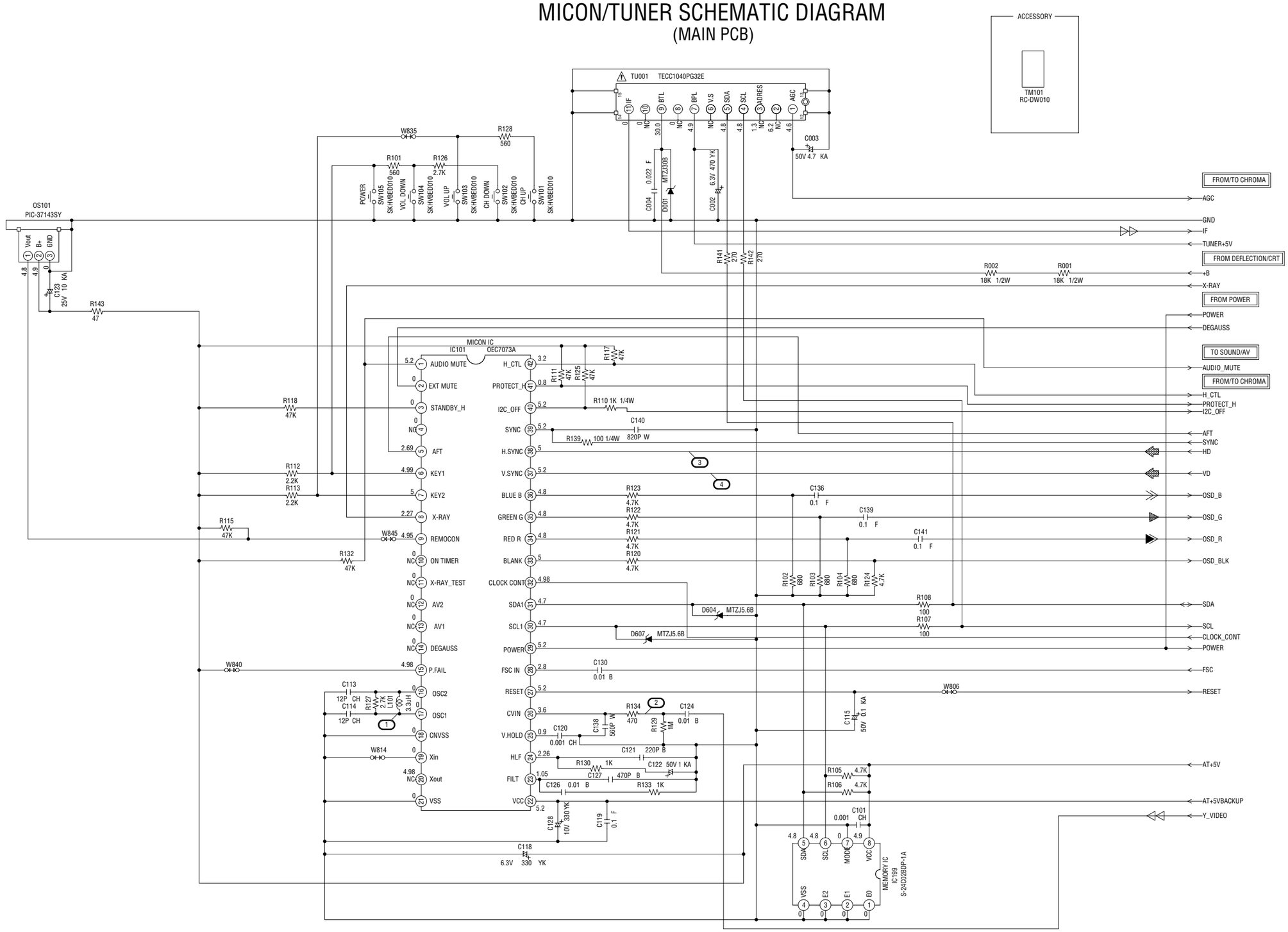
PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



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



MICON/TUNER SCHEMATIC DIAGRAM
(MAIN PCB)



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.

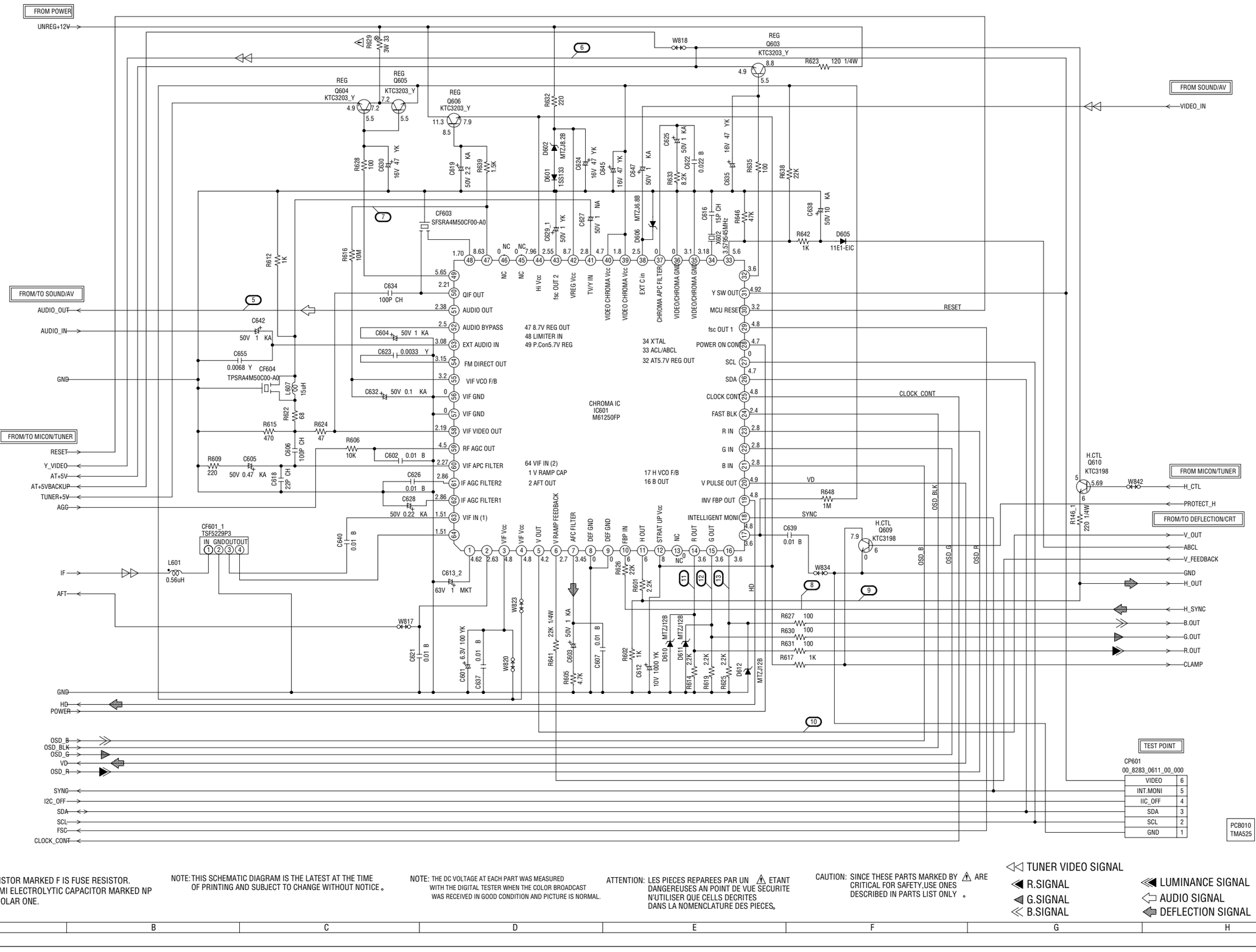
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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。

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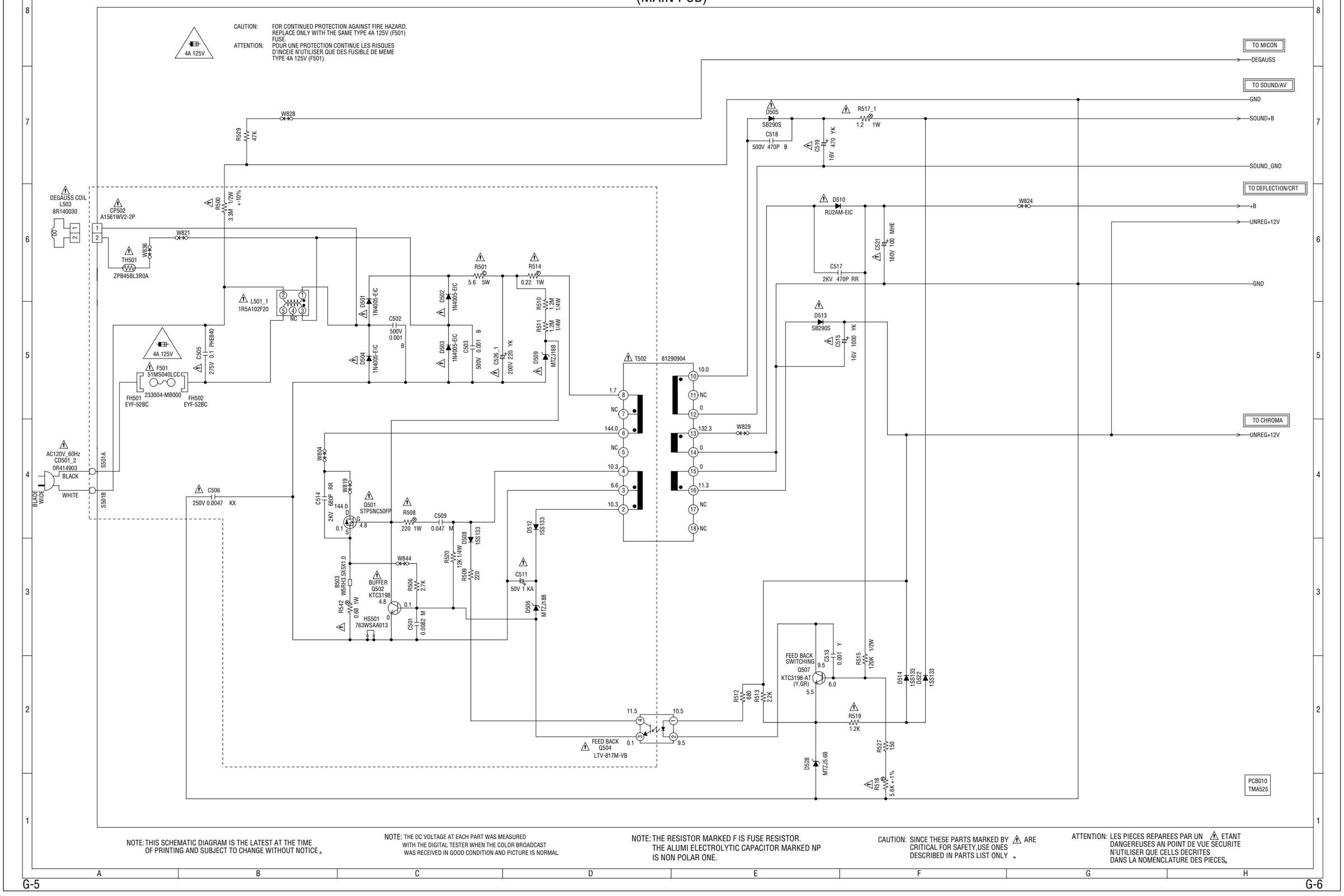
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

◁◁ TUNER VIDEO SIGNAL
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL
⋘ LUMINANCE SIGNAL
⇦ AUDIO SIGNAL
⇚ DEFLECTION SIGNAL

POWER SCHEMATIC DIAGRAM
(MAIN PCB)



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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
C414 35V 100 YK
R423 100 1/4W
R424 470
D403 11E1-EIC
R418 22K 1/4W
R420 3.3K
R419 470
C417 50V 10 YK
C418 25V 470 YK
R417 10K 1/4W
C422_1 100V 0.15 TF
R410 330 1/2W
R415 1.8K 1/2W
R416 1 1/2W
R413 2.2K 1/2W
R422 2.2 1/2W
C427 50V 10 YK
HS401 763WSAA013
TO DY
CP802A 9253_010_000_000
CD802 6032014
CP802B 9253_010_000_000
GND
CLAMP
G.OUT
R.OUT
B.OUT
NC
HEATER
GND
NC
180V
CD801_1 0
CP801 TBS-X01X-A1
L801 220uH
V801 A34JXV70X53N45
R
G
B
CP401 A1561WV2-A5P
RED OUT Q801 2SC1473A 3.2
GREEN OUT Q802 2SC1473A 3.2
BLUE OUT Q803 2SC1473A 3.2
R809 4.7K
R811 4.7K
R814 4.7K
D801 1SS133
D802 1SS133
D803 1SS133
100.6
98.4
95.4
2.7
C808 470P B
C809 470P B
C810 470P B
R813 330
R815 330
R816 330
20
21
22
R803_1 15K 1W
R802_1 2.7K 1/4W
R805_1 15K 1W
R804_1 2.7K 1/4W
R807_1 15K 1W
R806 2.7K 1/4W
C801 330P B
TO MICON/TUNER
X-RAY
+B
D619 MTZJ5.1B
R408 10K +-1%
C434 100V 22 YK
D411 AU02A-EIC
R429 2.7 1W
R409 27K +-1%
R401 27K +-1%
T401 ETH09K14BZ
W896
C437 250V 0.47 PMS
FROM/TO CHROMA
GND
V_FEEDBACK
V_OUT
ABCL
H_OUT
H_SYNC
H.DRIVE Q402 2SC1627_Y
R446 470 1/2W
C440 500V 0.0012 B
C446 50V 22 YK
W832
W809
W831
H.OUTPUT Q401 2SD2627LS-CBC11
C443_1 1.25KV 0.0047 MPP
C444_3 1.25KV 470P MPP
R427 100 1/4W
W863
W812
W897
FB401 3214029F
COL
VIDEO
B+
AFC
HEATER
GND
E12
E25
E8
HV
F
S
GND
ABL
GND
NC
FROM POWER
GND
+B
L402 18uH
R402 12 1/2W
C402 200V 0.01 PP
R403 22K 1/4W
FOCUS
SCREEN
CP806_1 0
C819 2KV 0.001 B
96.4
101.6
99.6
6.4
J801 ISMS01S
D406_1 1SS133
UNREG+12V
D407 1SS133
D404 MTZJ6.2B
C407 56P CH
D405 AU02A-EIC
D410 AU02A-EIC
R448_1 820 2W
C403 35V 470 YK
C448 200V 22 MHE
R445 180K 1/4W
C435 100V 0.1 MHE
R421 1W 220K 1/4W
D408 11E1-EIC
PCB110 TCA384
PCB010 TMA525

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

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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.

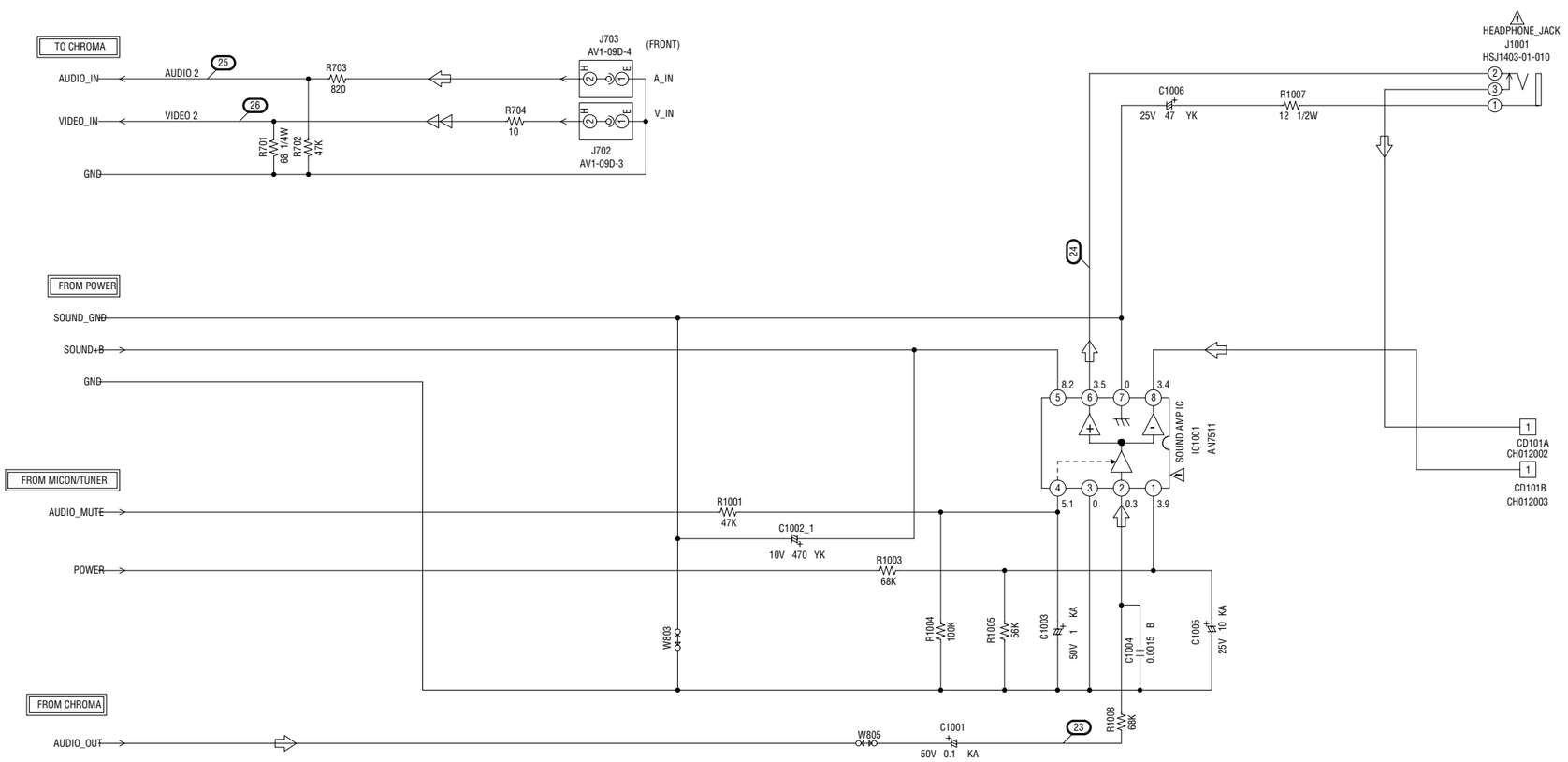
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL

SOUND/AV SCHEMATIC DIAGRAM

(MAIN PCB)



PCB010
TMA525

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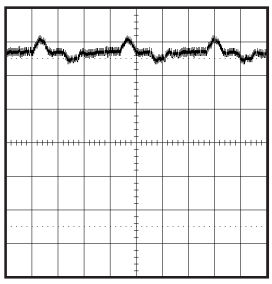
◁◁ TUNER VIDEO SIGNAL

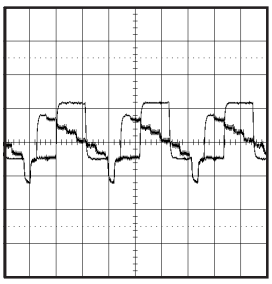
⇦ AUDIO SIGNAL

WAVEFORMS

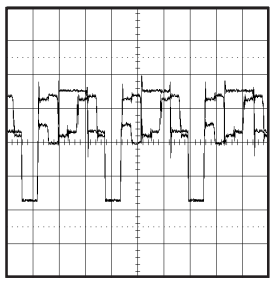
MICON/TUNER



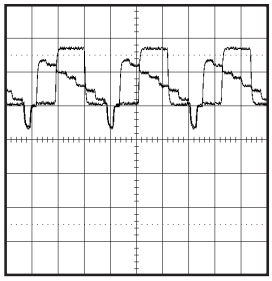
① 200mV 5ms/div



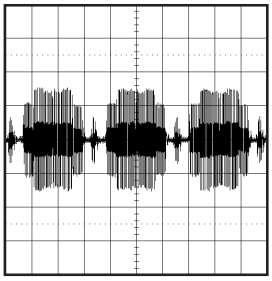
⑥ 0.5V 20µs/div



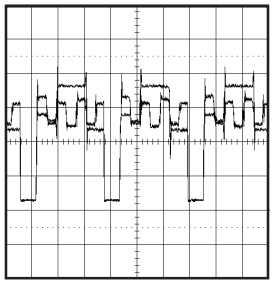
⑪ 1V 20µs/div



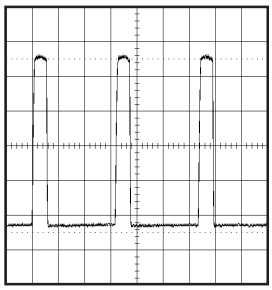
② 0.5V 20µs/div



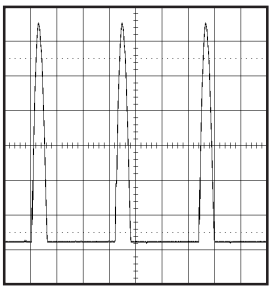
⑦ 200mV 20µs/div



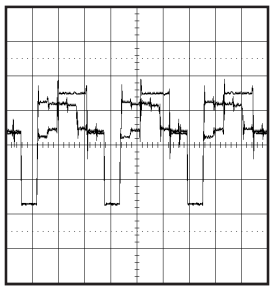
⑫ 1V 20µs/div



③ 200mV 20µs/div

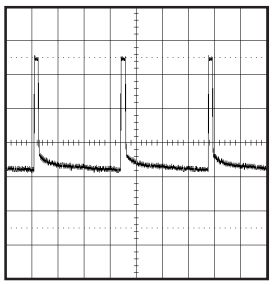


⑧ 20V 20µs/div

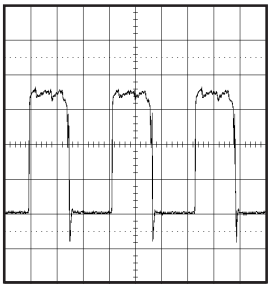


⑬ 1V 20µs/div

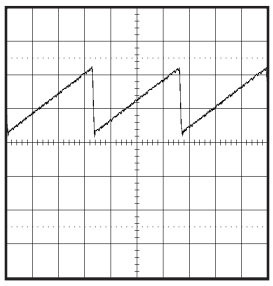
DEFLECTION/CRT



④ 200mV 5ms/div

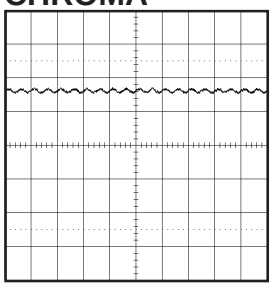


⑨ 200mV 20µs/div

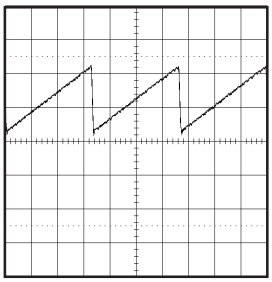


⑭ 0.5V 5ms/div

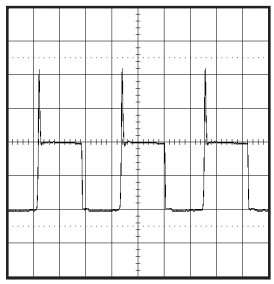
CHROMA



⑤ 0.5V 2ms/div



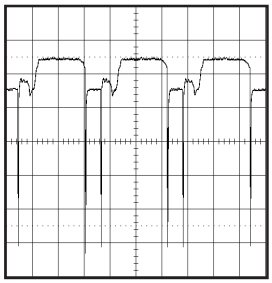
⑩ 0.5V 5ms/div



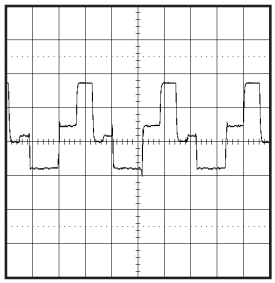
⑮ 20V 20µs/div

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

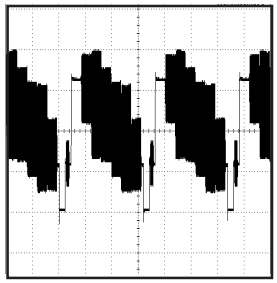
WAVEFORMS



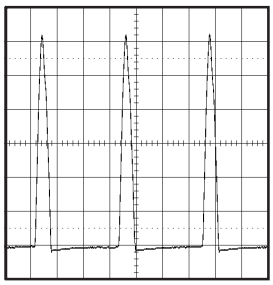
⑯ 2V 20µs/div



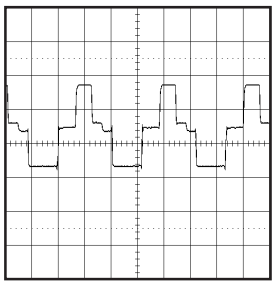
㉑ 50V 20µs/div



㉖ 500mV 20µs/div

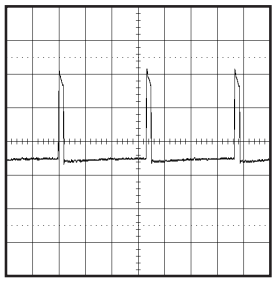


⑰ 200V 20µs/div

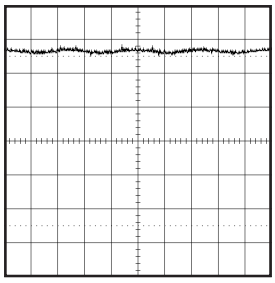


㉒ 50V 20µs/div

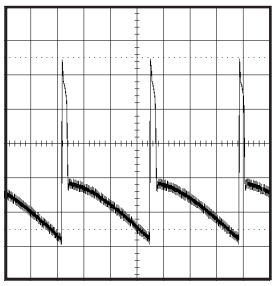
SOUND/AV



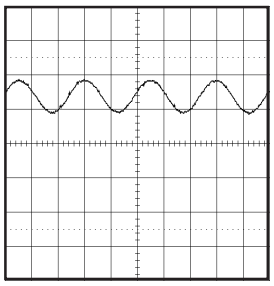
⑱ 10V 5ms/div



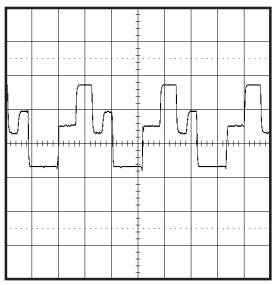
㉓ 0.5V 1ms/div



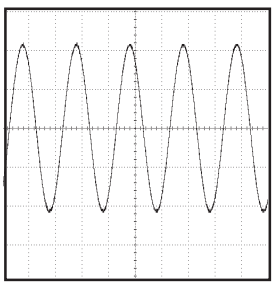
⑲ 10V 5ms/div



㉔ 1V 1ms/div



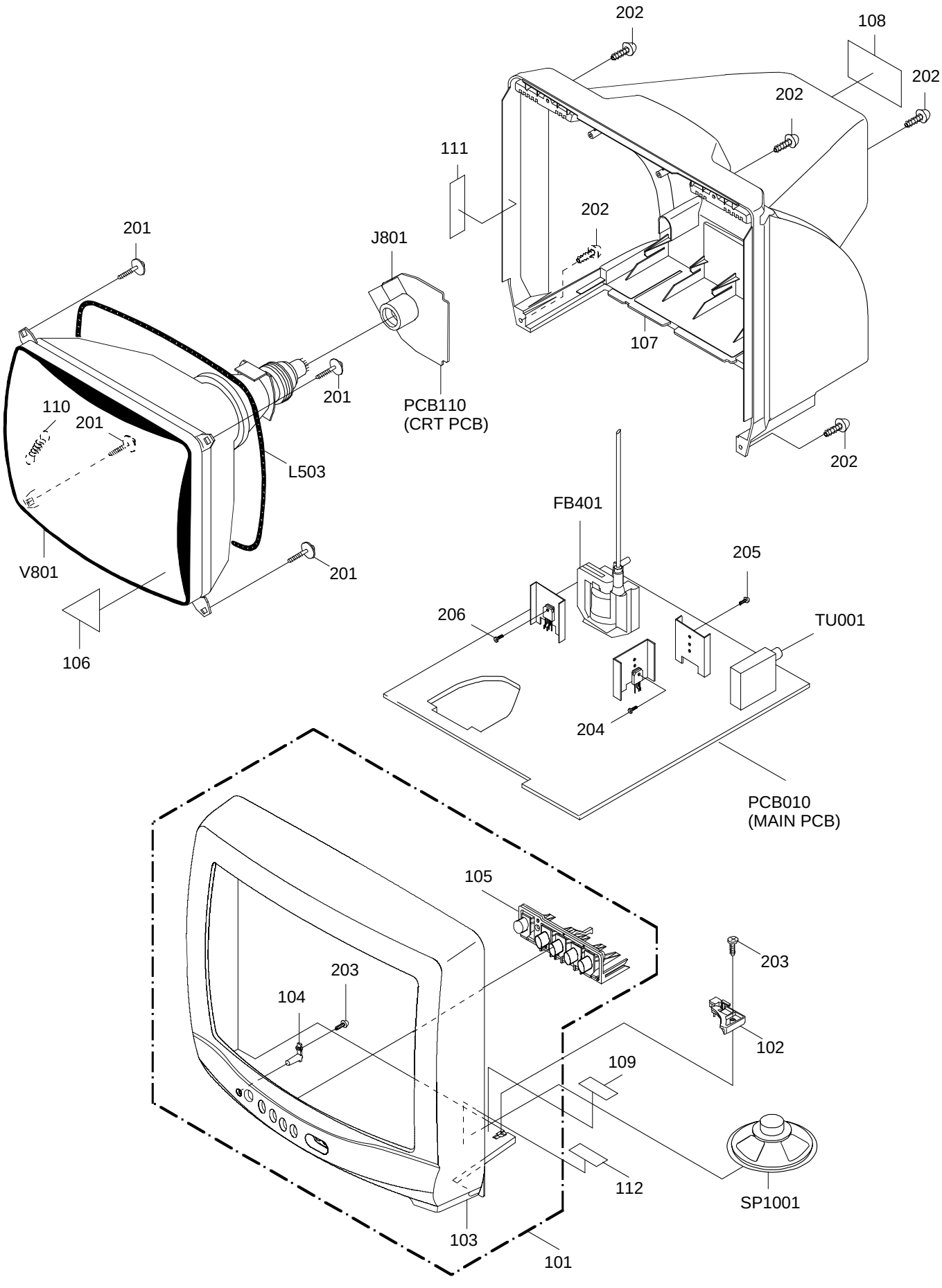
⑳ 50V 20µs/div



㉕ 200mV 500µs/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	A3L122C720	CABINET,FRONT ASS'Y		
102	735WPA0396	SPEAKER,HOLDER		
103	701WPJB679	CABINET,FRONT		
104	713WPAA048	GUIDE,REMOCON		
105	735WPAA417	BUTTON,FRAME		
106	723000B319	FILM,DECORATION		
107	702WPAA134	CABINET,BACK		
108	722552A020	SHEET,RATING		
109	7230006818	SHEET,CAUTION		
110	741WUA0019	SPRING,EARTH		
111	7220001119	SHEET,CSA WARNING		
112	722000A023	SHEET,HWC		
201	8121J50B54	SCREW,TAPPING(B0)	GW20	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
206	8109I30604	SCREW,TAP TITE(B)	WH7	3x6
---	JB5K0200	POLYBAG,INSTRUCTION		
---	J3L10502	WARRANTY SHEET		
---	J3L21101	INSTRUCTION BOOK		
---	791WHA0023	LAMIFILM BAG		
---	A3L211C975	INSTRUCTION BOOK KIT		
---	792WHAA018	PACKAGE,BOTTOM		
---	792WHAA019	PACKAGE,TOP		
---	793WCDB256	GIFT BOX		
---	7230007398	SECURITY TAG		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R401	R4X5T6273F	R,METAL	27K OHM 1/6W
⚠ R408	R4X5T6103F	R,METAL	10K OHM 1/6W
⚠ R409	R4X5T6273F	R,METAL	27K OHM 1/6W
⚠ R429	R655812R7J	R,FUSE	2.7 OHM 1W
R448	R3X18A821J	R,METAL OXIDE	820 OHM 2W
⚠ R500	R0G3K2335K	RC	3.3M OHM 1/2W
⚠ R501	R5Y2CD5R6J	R,CEMENT	5.6 OHM 5W
⚠ R508	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R509	R001T6221J	RC	220 OHM 1/6W
⚠ R514	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R515	R002T2124J	RC	120K OHM 1/2W
⚠ R517	R3X1811R2J	R,METAL OXIDE	1.2 OHM 1W
⚠ R518	R4X5T6562F	R,METAL	5.6K OHM 1/6W
⚠ R519	R001T6122J	RC	1.2K OHM 1/6W
⚠ R542	R3X181R68J	R,METAL OXIDE	0.68 OHM 1W
⚠ R629	R3X28B330J	R,METAL OXIDE	33 OHM 3W
⚠ R803	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R805	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R807	R3X181153J	R,METAL OXIDE	15K OHM 1W
		CAPACITORS	
C402	P3N1F2103J	CPP	0.01 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	P4J7F3474J	CMPP	0.47 UF 250V PMS
⚠ C443	P4N8FJ472H	CMPP	0.0047UF 1.25KV
C444	P4N8FJ471J	CMPP	470 PF 1.25KV or
	C0PLRR7Q2K	CC	470 PF 2KV RR
⚠ C446	E02LT5220M	CE	22 UF 50V
⚠ C448	E5EZ0C220M	CE	22 UF 200V
⚠ C503	C0JTB0513K	CC	0.001 UF 500V B
⚠ C505	P2472B104M	CMP	0.1 UF 275V PHE840
C506	CB3930MQ3M	CC	0.0047UF 250V
C514	C0PLRR7U2K	CC	680 PF 2KV RR
⚠ C515	E02LT2102M	CE	1000 UF 16V
C517	C0PLRR7Q2K	CC	470 PF 2KV RR
⚠ C519	E02LT2471M	CE	470 UF 16V
C521	E5EZFB101M	CE	100 UF 160V
⚠ C526	E02LFC221M	CE	220 UF 200V
C634	CQG0CH412J	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
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
⚠ 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
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

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D802	D1VT001330	DIODE,SILICON	1SS133T-77
D803	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
IC101	I56F07073A	IC	OEC7073A
IC199	A3L101C015	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	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q802	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q803	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
		COILS &TRANSFORMERS	
L101	021LA63R3K	COIL	3.3 UH
L402	02186G180M	COIL	18 UH
⚠ L501	029T00A7M1	COIL,LINE FILTER	1R5A102F20
⚠ L503	028R140030	COIL,DEGAUSS	8R140030
L601	021LA6R56M	COIL	0.56 UH
L607	021LA6150K	COIL	15 UH
L801	021673221K	COIL	220 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T502	0481290904	TRANSFORMER,SWITCHING	81290904
		JACKS	
J702	060Q401077	RCA JACK	AV1-09D-3
J703	060Q401076	RCA JACK	AV1-09D-4
⚠ J801	066F120018	SOCKET,CRT	ISMS01S
J1001	0602121012	JACK,RCA 3.5	HSJ1403-01-010
		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	A3L122C010	PCB ASS'Y	TMA525A
PCB110	A3L117C110	PCB ASS'Y	TCA384A
		MISCELLANEOUS	
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	120R414903	CORD AC BUSH	0R414903
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
CP801	069W010030	CONNECTOR PCB SIDE	TBS-X01X-A1
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
⚠ F501	081PC04004	FUSE	51MS040LCC
⚠ FB401	043214029F	TRANSFORMER FLYBACK	3214029F
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS101	077Q037003	REMOTE RECEIVER	PIC-37143SY
S101	WHL6032014	FLAT CABLE	AWG26 10C BLACK 320MM
SP1001	070Y132018	SPEAKER	S08F21
⚠ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
TM101	076N0DW010	TRANSMITTER	RC-DW010
⚠ TU001	0145K00056	TUNER,VHF-UHF	TECC1040PG32E
⚠ V801	098Y1404B9	CRT W/DY	A34JXV70X53N45
X602	100CT3R505	CRYSTAL	HC-49/C

ELECTRICAL REPLACEMENT PARTS LIST

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.	M3L1-22C
O/R NO.	K223001

DURABRAND

DBTV1301

SERVICE MANUAL

COLOR TELEVISION RECEIVER

ORIGINAL 1
MFR'S VERSION I

MFR'S VERSION	PCB010	TUNER
C	TMX494A	NJH3022U268
I	TMX494B	TECC1040PG32D

ELECTRICAL ADJUSTMENTS

(MFR'S VERSION I)

2. BASIC ADJUSTMENTS

2-1: RF AGC DELAY

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the VHF HIGH (63dB).
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 2.7 ± 0.05V.

ELECTRICAL REPLACEMENT PARTS LIST

PCB VERSION UP

	MFR'S VERSION C		MFR'S VERSION I	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
PCB010	A3J804A010	MAIN PCB ASS'Y (VERSION C) TMX494A	A3J804A010	MAIN PCB ASS'Y (VERSION I) TMX494B

MAIN PCB's are interchangeable.

Change of TUNER

	MFR'S VERSION C		MFR'S VERSION I	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
⚠ TU001	0145W00052	TUNER,VHF-UHF NJH3022U268	0145K00055	TUNER,VHF-UHF TECC1040PG32D
R622	R903N8121J	RC 120 OHM 1/8W	R903N8271J	RC 270 OHM 1/8W
PCB010	A3J804A010	MAIN PCB ASS'Y (VERSION C) TMX494A	A3J804A010	MAIN PCB ASS'Y (VERSION I) TMX494B

MAIN PCB's are interchangeable.

SPEC.NO.	M3J8-04A
O/R NO.	K163008

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
Earphone jack

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		13 inch / 335.4mmV
			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		1.0 W
			10%(Typical)		0.8 W
		NTSC3.58+4.43 /PAL60Hz			No
G-2	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		Others
			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	
					54 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		+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
				Sound	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

GENERAL SPECIFICATIONS

		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
			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

GENERAL SPECIFICATIONS

		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	
		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	Ear Phone	
			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)	362 x 360 x 320.5	
G-15	Weight			Net (Approx.)	9.5 kg	(20.9 lbs)
				Gross (Approx.)	11.0kg	(24.4lbs)
G-16	Carton		Master Carton		No	
				Content	----	Sets

GENERAL SPECIFICATIONS

			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)	440 x 408 x 380
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	62
		Container Stuffing		866 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.

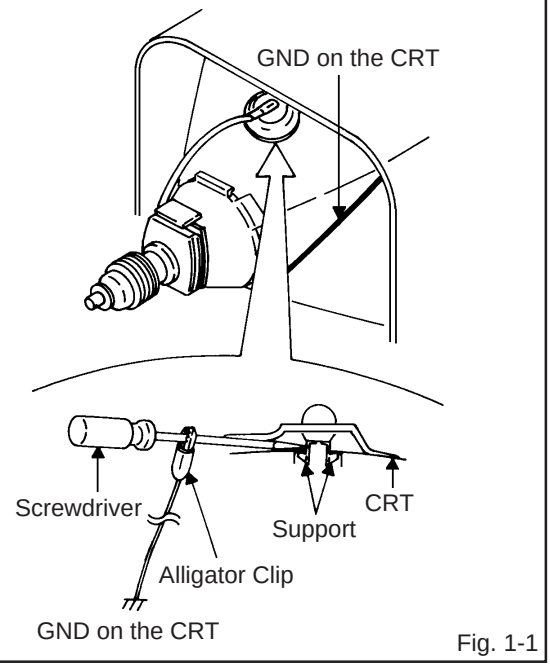


Fig. 1-1

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.)**

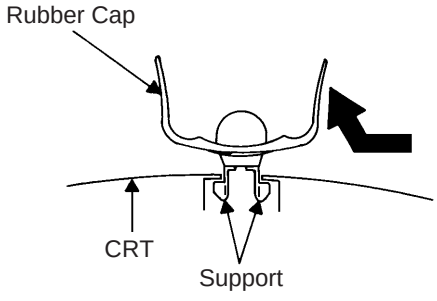


Fig. 1-2

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.)**

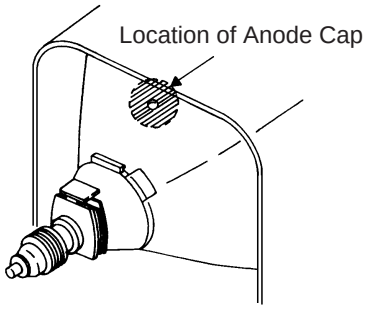


Fig. 1-3

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.)**

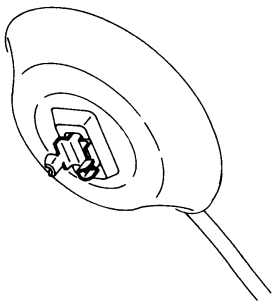


Fig. 1-4

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

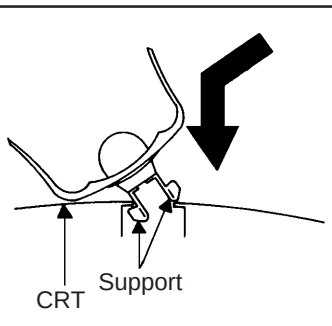


Fig. 1-5

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.

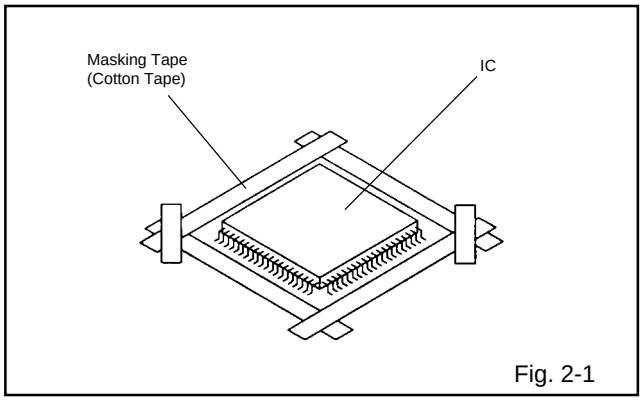


Fig. 2-1

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.

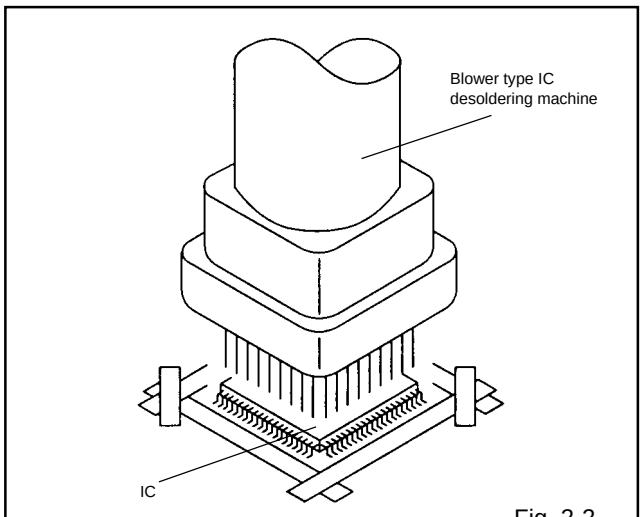


Fig. 2-2

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.

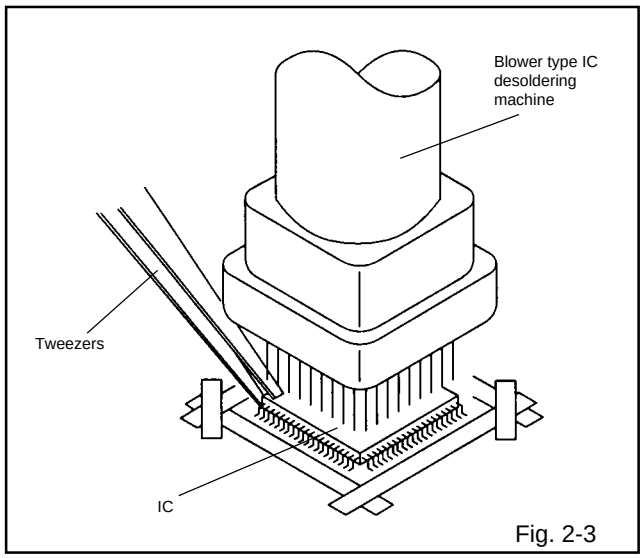


Fig. 2-3

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.

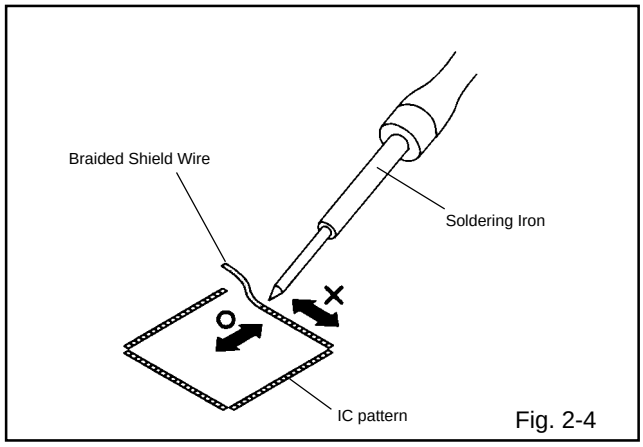


Fig. 2-4

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.)**

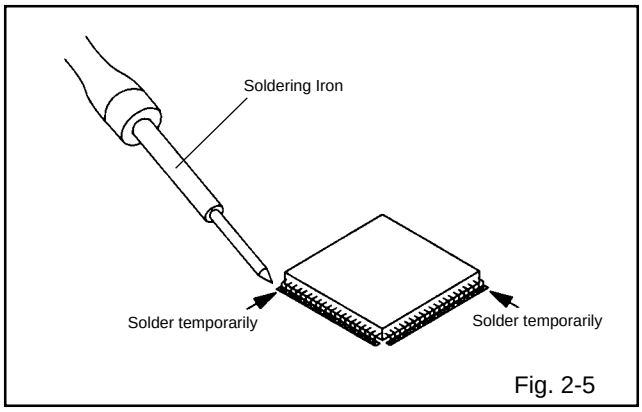


Fig. 2-5

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.)**

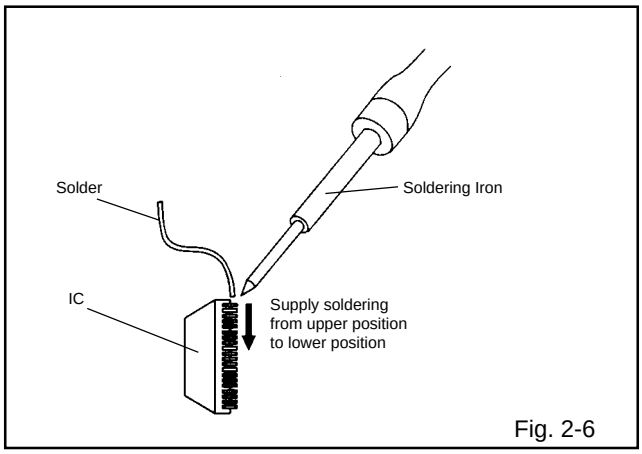


Fig. 2-6

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.

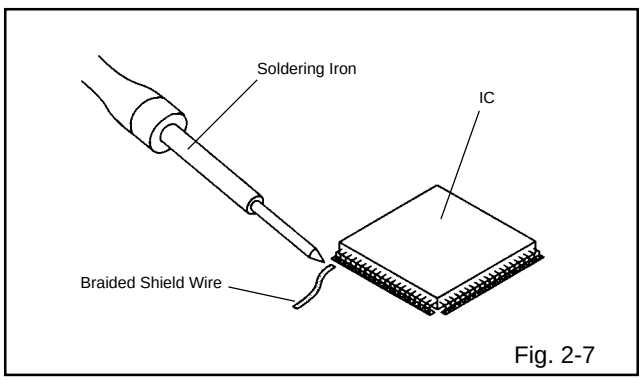


Fig. 2-7

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.)**

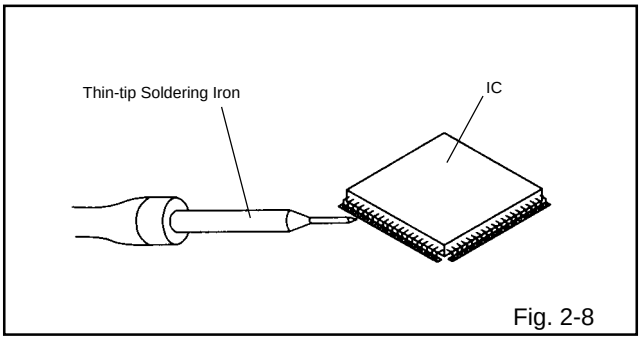


Fig. 2-8

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 reser such as the clock setting, the cheannel 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.

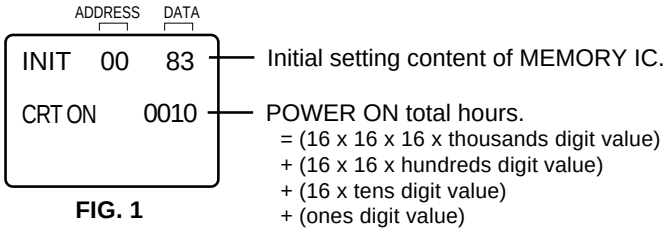


FIG. 1

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	98	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**.

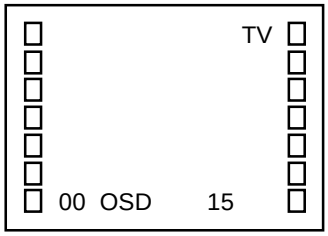


Fig. 1-1

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 MAX	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 2.5V ± 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=120, CONTRAST=40.
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.

ELECTRICAL ADJUSTMENTS

2-5: 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 100% 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

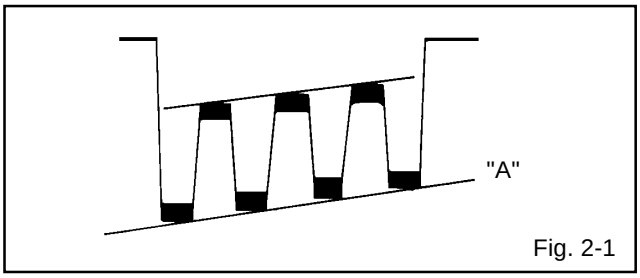


Fig. 2-1

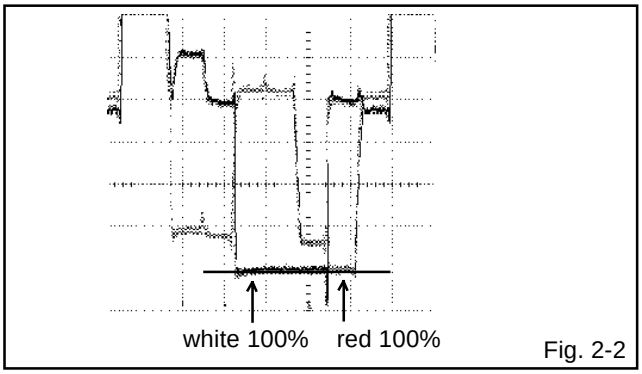


Fig. 2-2

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.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.

2-7: 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 SHIFT quantity of the OVER SCAN on upside and downside becomes 10 ± 2%.
4. Receive a broadcast and check if the picture is normal.

2-8: 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.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.

2-9: 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)**

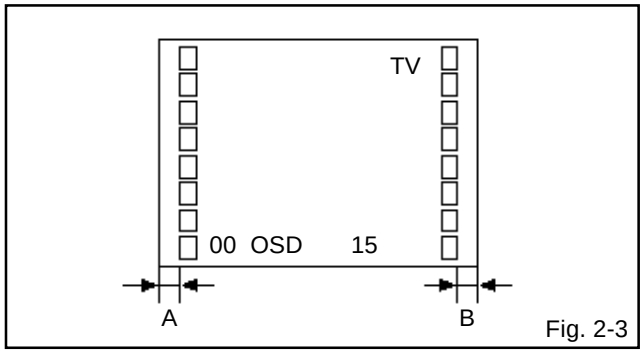


Fig. 2-3

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 "V.VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.

2-11: 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.

2-12: SUB CONTRAST

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. become "40".
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2.
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. become "38".

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	140	140
15	BRIGHT MIN	60	60
16	CONT CENT	30	30
18	CONT MIN	12	12
20	COLOR MAX	74	75
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.

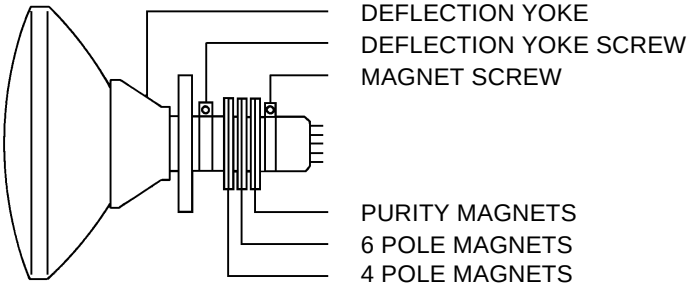


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

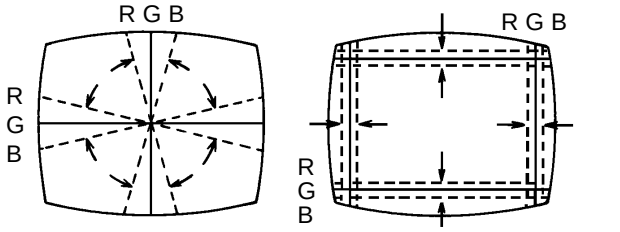
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

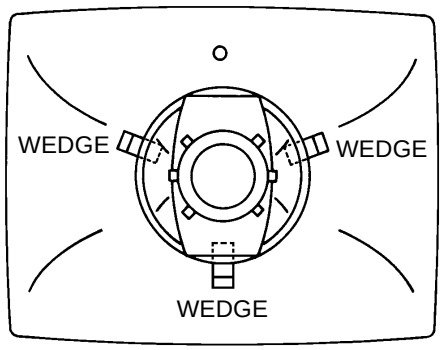
Adjust after performing adjustments in section 3-3.

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

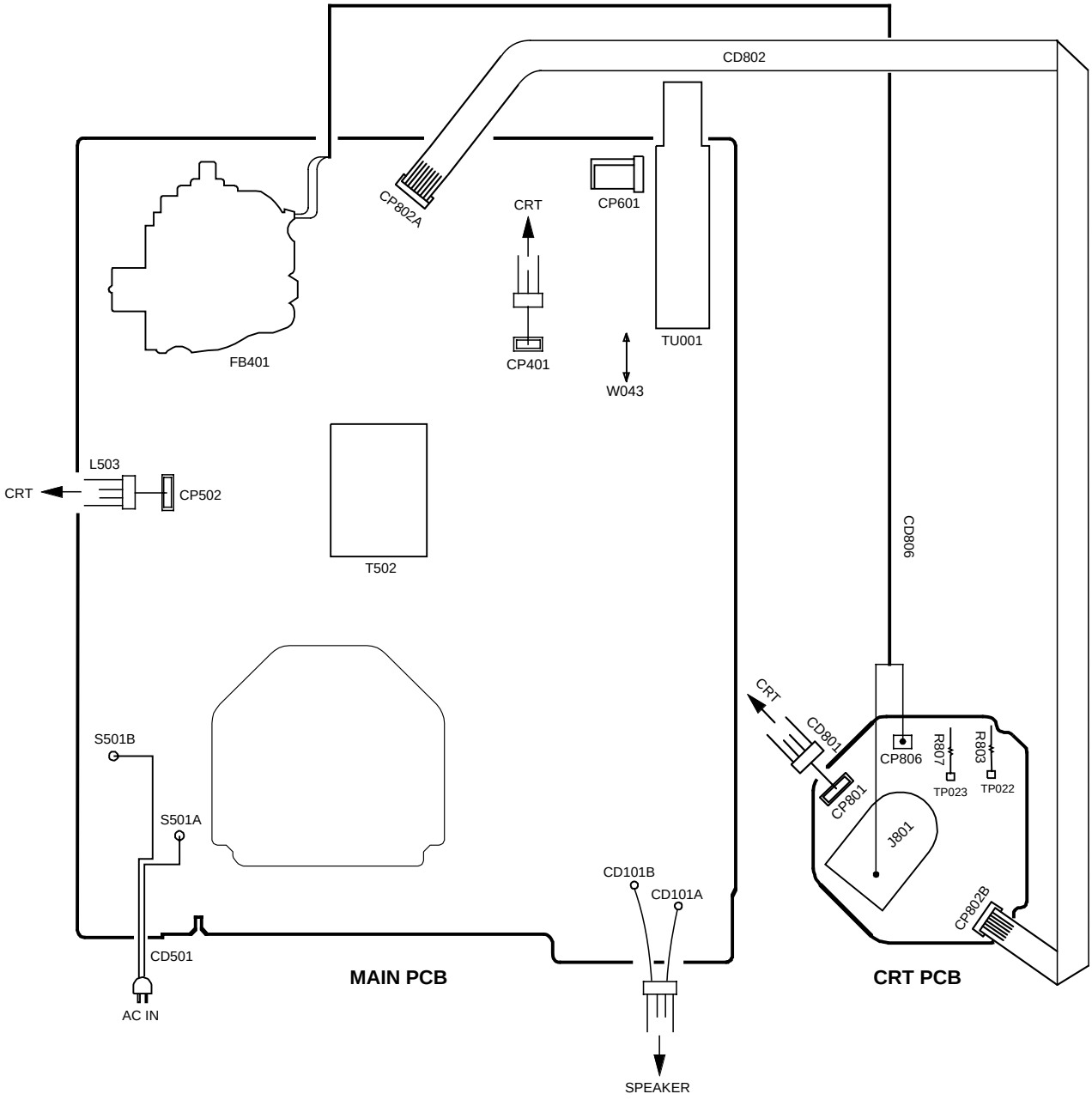


WEDGE POSITION

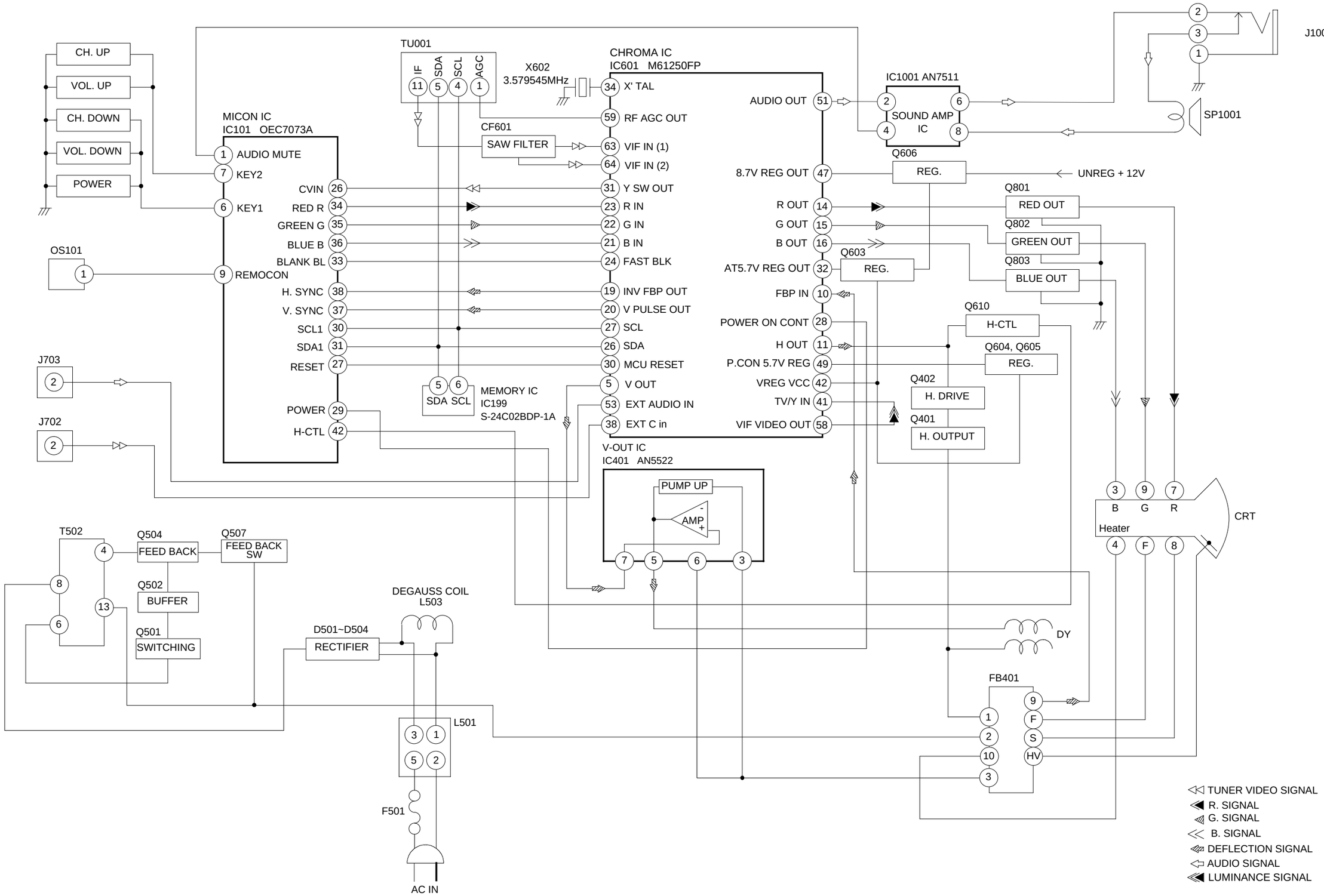
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

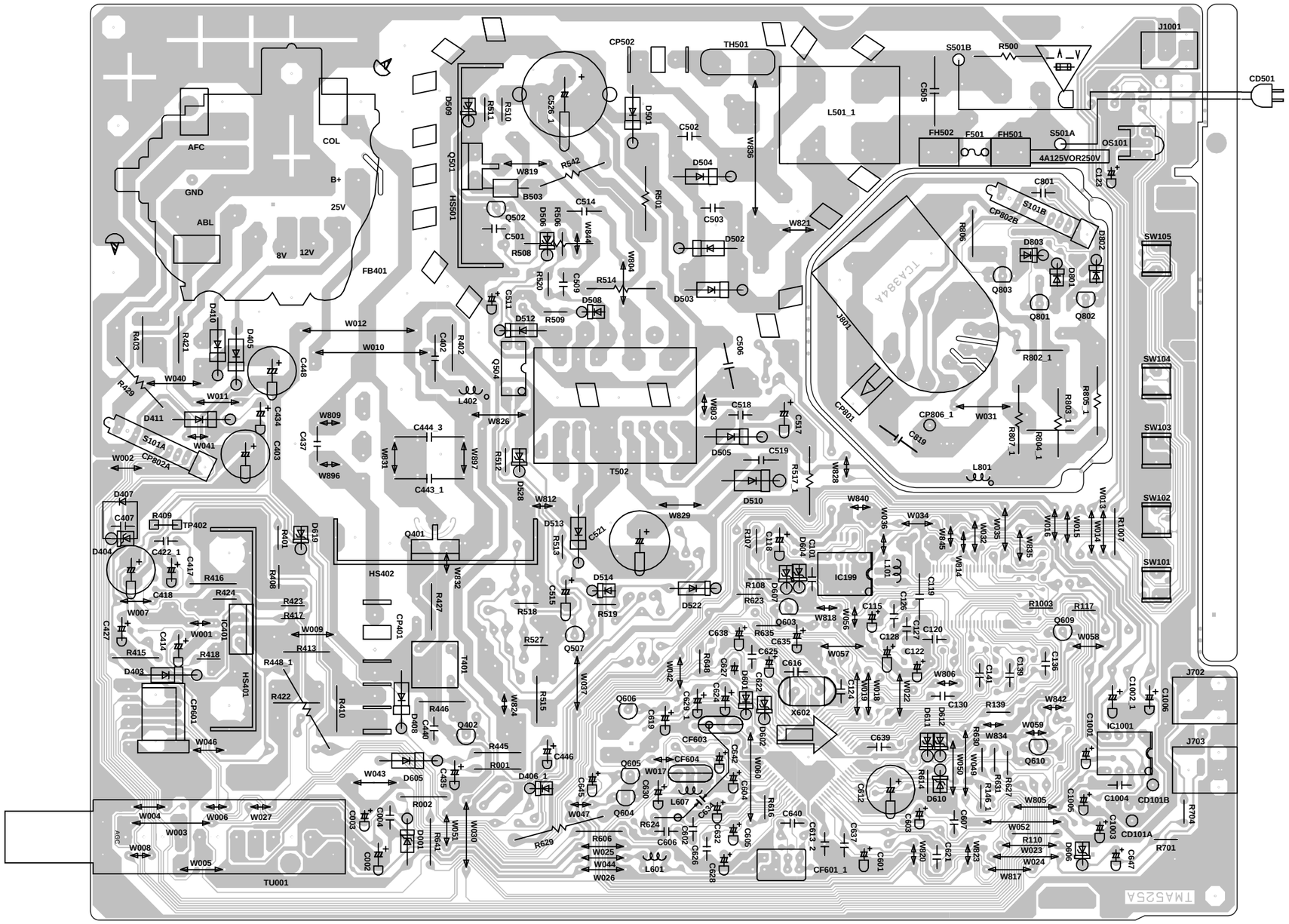
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



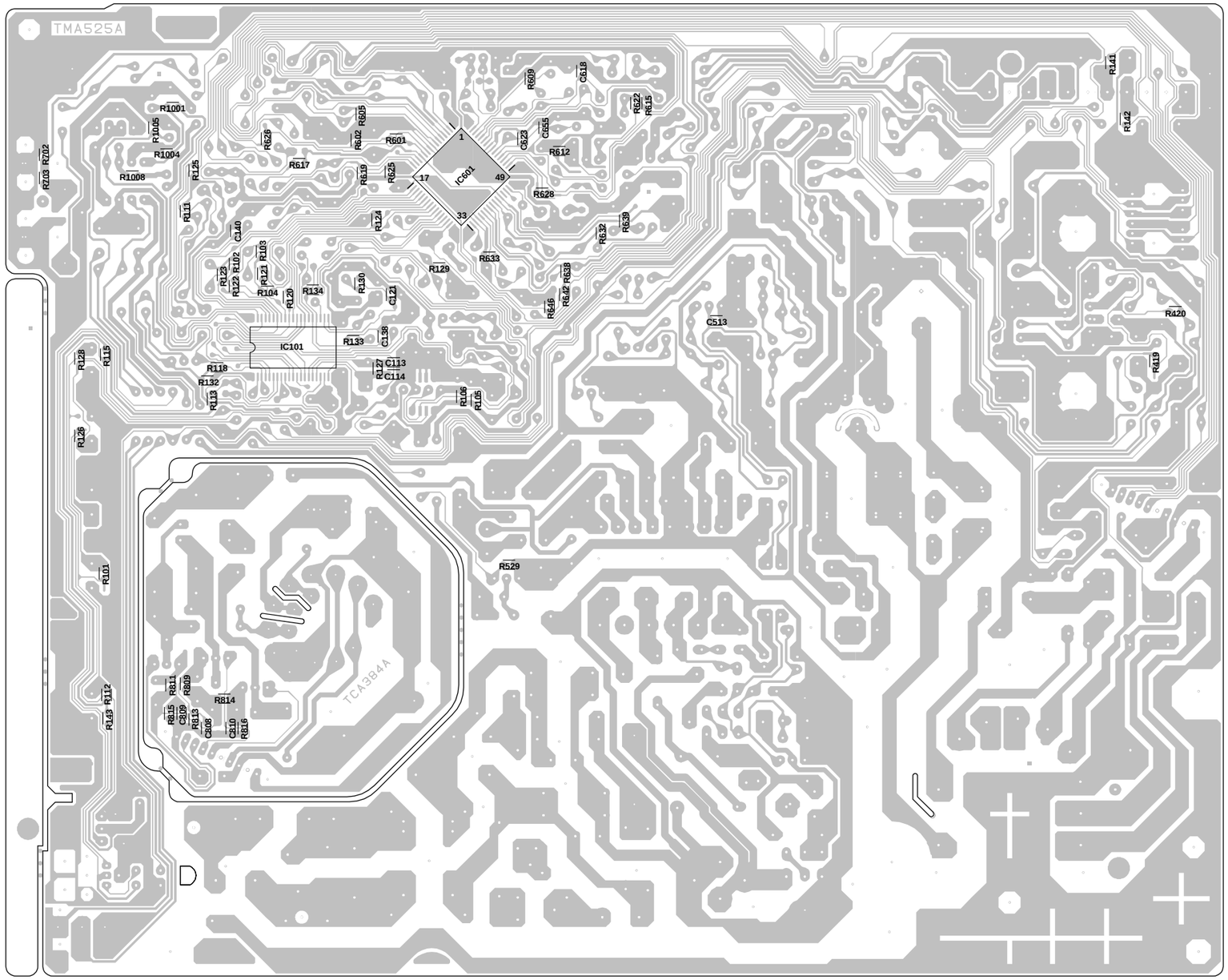
BLOCK DIAGRAM



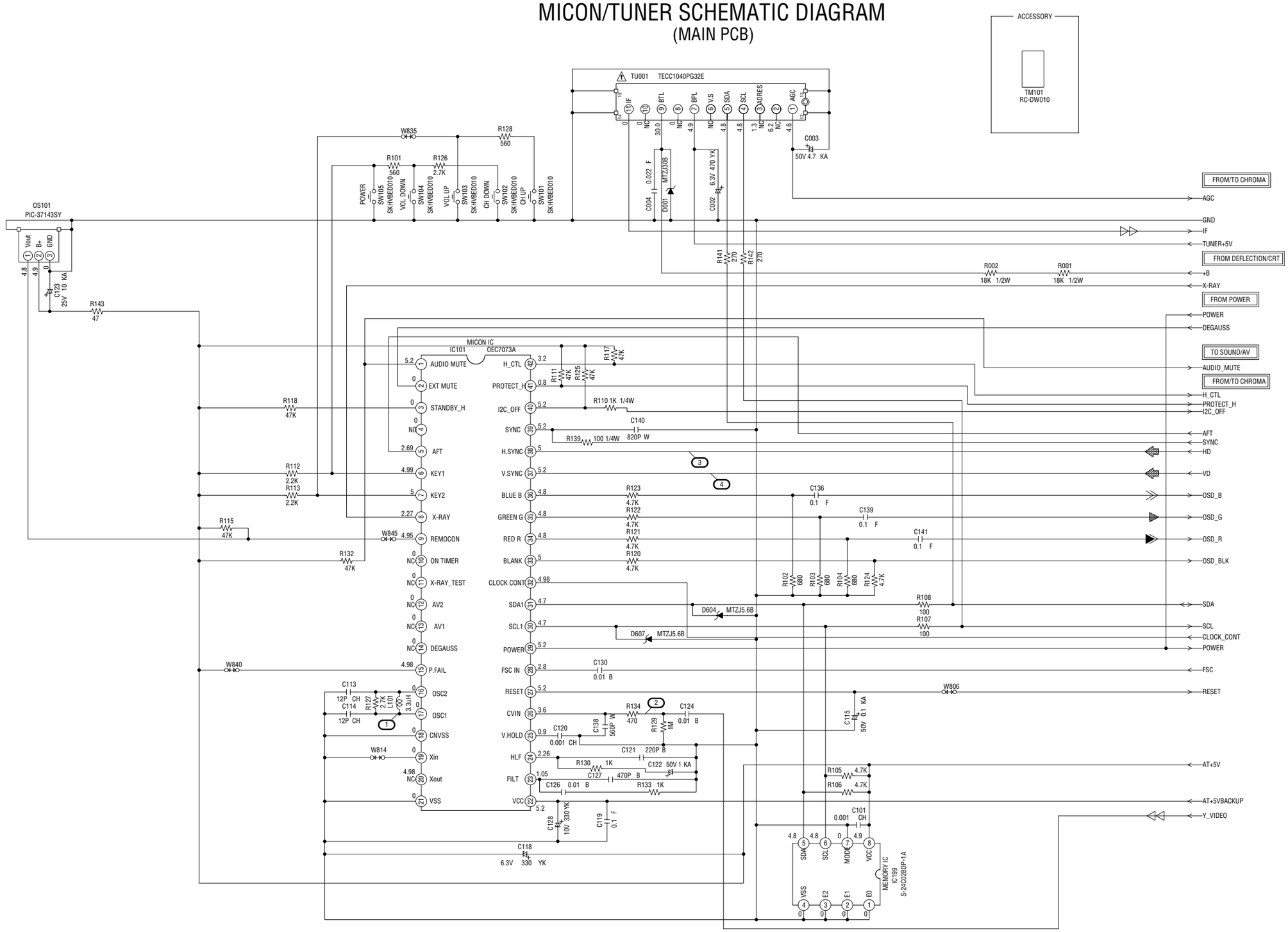
PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



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



MICON/TUNER SCHEMATIC DIAGRAM
(MAIN PCB)



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.

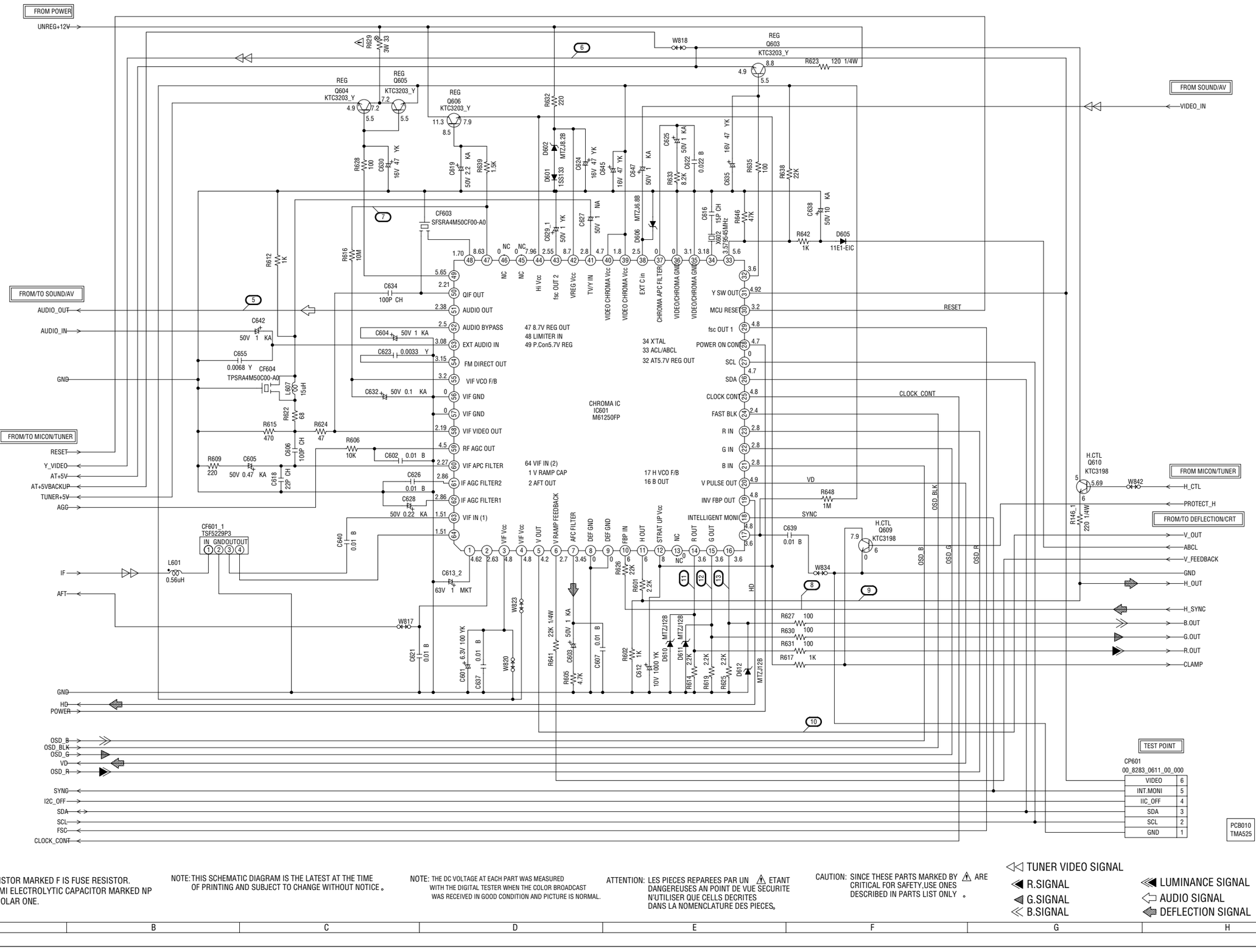
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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.

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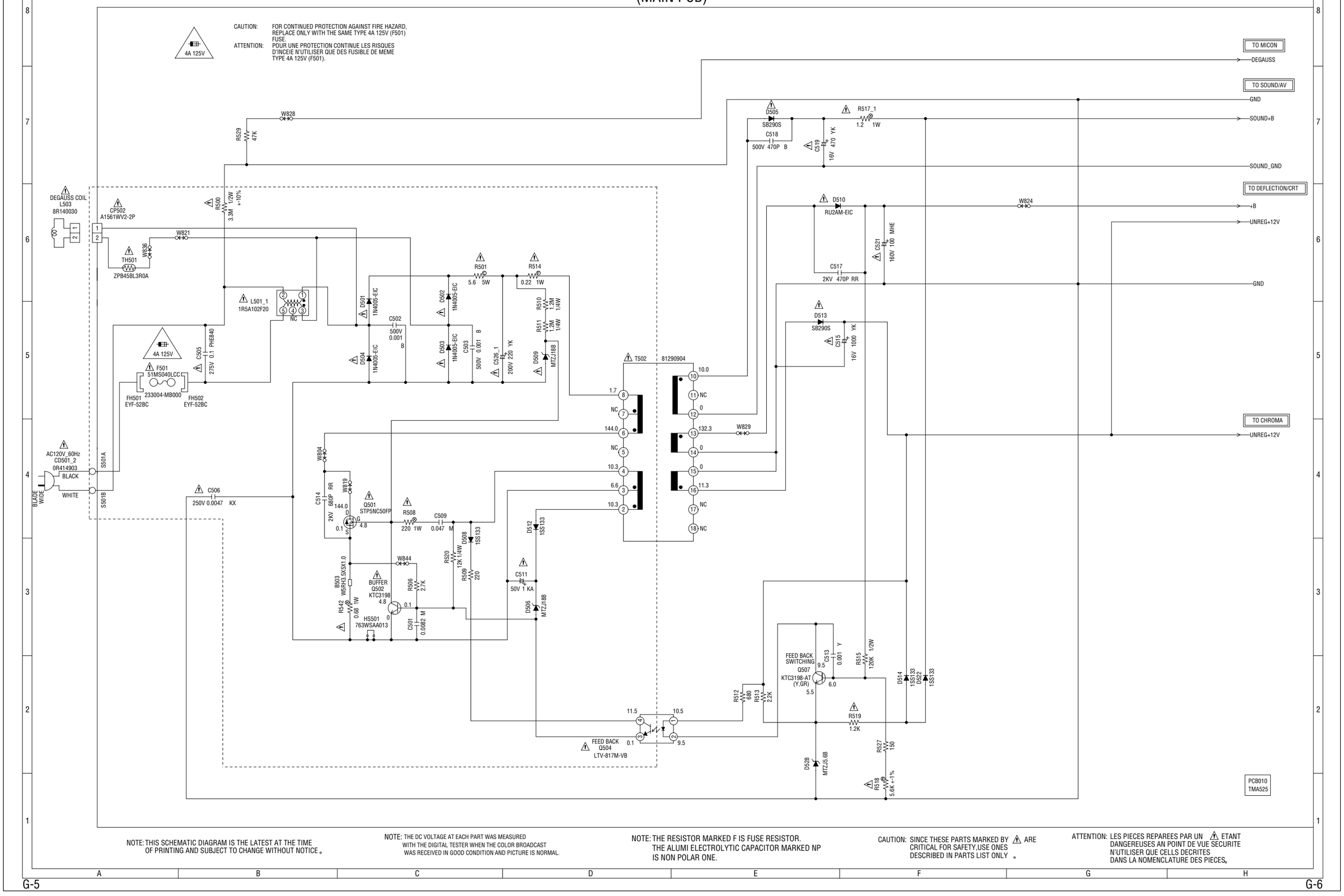
◁◁ TUNER VIDEO SIGNAL
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL
⋘ LUMINANCE SIGNAL
⇦ AUDIO SIGNAL
⇚ DEFLECTION SIGNAL

POWER SCHEMATIC DIAGRAM
(MAIN PCB)



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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
C414 35V 100 YK
R423 100 1/4W
R424 470
D403 11E1-EIC
R418 22K 1/4W
R420 3.3K
R419 470
C417 50V 10 YK
C418 25V 470 YK
R417 10K 1/4W
C422_1 100V 0.15 TF
R410 330 1/2W
R415 1.8K 1/2W
R416 1 1/2W
R413 2.2K 1/2W
R422 2.2 1/2W
C427 50V 10 YK
HS401 763WSAA013
TO DY
CP802A 9253_010_000_000
CD802 6032014
CP802B 9253_010_000_000
GND
CLAMP
G.OUT
R.OUT
B.OUT
NC
HEATER
GND
NC
180V
CD801_1 0
CP801 TBS-X01X-A1
L801 220uH
V801 A34JXV70X53N45
R
G
B
CP401 A1561WV2-A5P
RED OUT Q801 2SC1473A 3.2
GREEN OUT Q802 2SC1473A 3.2
BLUE OUT Q803 2SC1473A 3.2
R809 4.7K
R811 4.7K
R814 4.7K
D801 1SS133
D802 1SS133
D803 1SS133
100.6
98.4
95.4
2.7
C808 470P B
C809 470P B
C810 470P B
R813 330
R815 330
R816 330
20
21
22
R803_1 15K 1W
R802_1 2.7K 1/4W
R805_1 15K 1W
R804_1 2.7K 1/4W
R807_1 15K 1W
R806 2.7K 1/4W
C801 330P B
TO MICON/TUNER
X-RAY
+B
D619 MTZJ5.1B
R408 10K +-1%
C434 100V 22 YK
D411 AU02A-EIC
R429 2.7 1W
R409 27K +-1%
R401 27K +-1%
T401 ETH09K14BZ
W896
C437 250V 0.47 PMS
FROM/TO CHROMA
GND
V_FEEDBACK
V_OUT
ABCL
H_OUT
H_SYNC
H.DRIVE Q402 2SC1627_Y
R446 470 1/2W
C440 500V 0.0012 B
C446 50V 22 YK
W832
W809
W831
H.OUTPUT Q401 2SD2627LS-CBC11
C443_1 1.25KV 0.0047 MPP
C444_3 1.25KV 470P MPP
R427 100 1/4W
W863
W812
W897
FB401 3214029F
COL
VIDEO
B+
AFC
HEATER
GND
E12
E25
E8
HV
F
S
GND
ABL
GND
NC
FROM POWER
GND
+B
L402 18uH
R402 12 1/2W
C402 200V 0.01 PP
R403 22K 1/4W
FOCUS
SCREEN
CP806_1 0
C819 2KV 0.001 B
96.4
101.6
99.6
6.4
J801 ISMS01S
D406_1 1SS133
UNREG+12V
D407 1SS133
D404 MTZJ6.2B
C407 56P CH
D405 AU02A-EIC
D410 AU02A-EIC
R448_1 820 2W
C403 35V 470 YK
C448 200V 22 MHE
R445 180K 1/4W
C435 100V 0.1 MHE
R421 1W 220K 1/4W
D408 11E1-EIC
PCB110 TCA384
PCB010 TMA525

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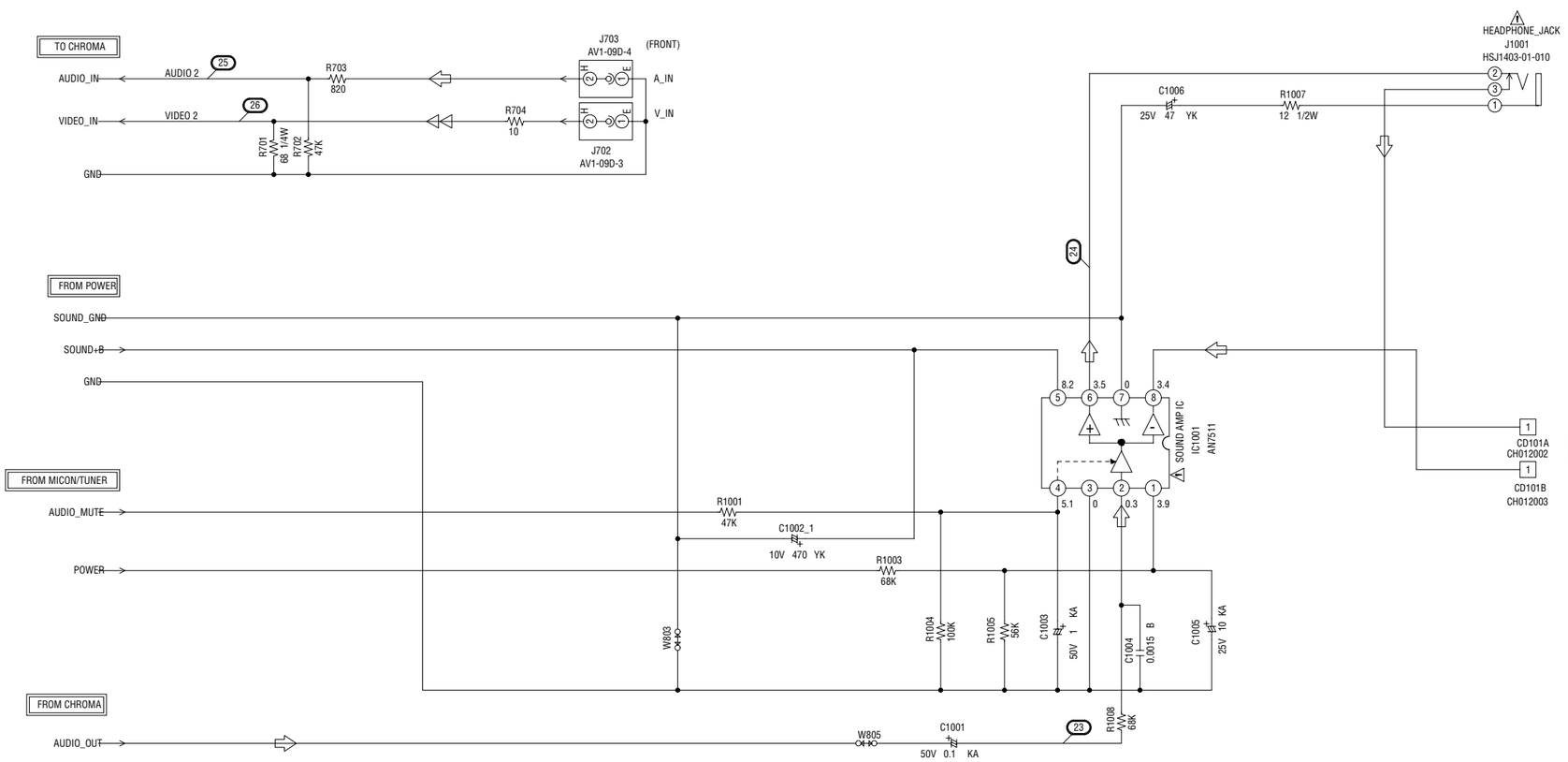
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL

SOUND/AV SCHEMATIC DIAGRAM

(MAIN PCB)



PCB010
TMA525

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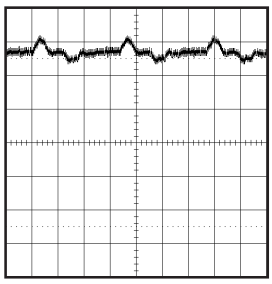
◁◁ TUNER VIDEO SIGNAL

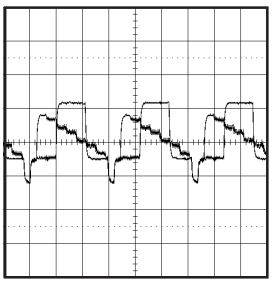
⇦ AUDIO SIGNAL

WAVEFORMS

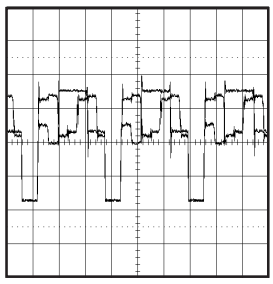
MICON/TUNER



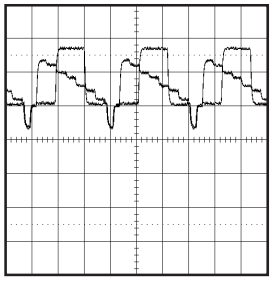
① 200mV 5ms/div



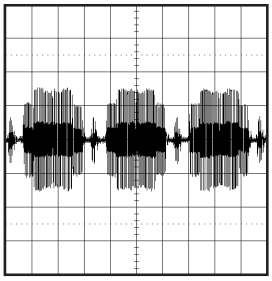
⑥ 0.5V 20µs/div



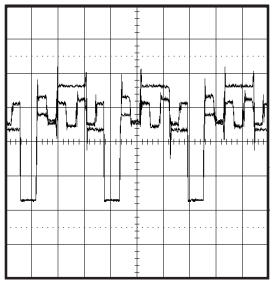
⑪ 1V 20µs/div



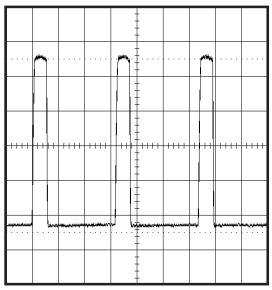
② 0.5V 20µs/div



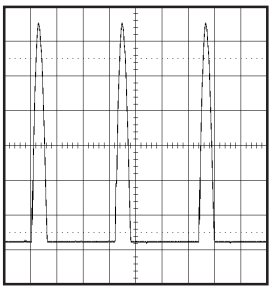
⑦ 200mV 20µs/div



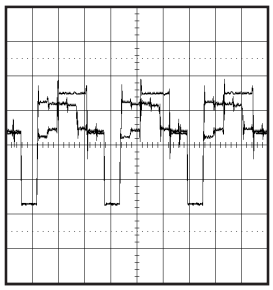
⑫ 1V 20µs/div



③ 200mV 20µs/div

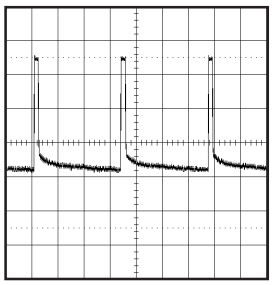


⑧ 20V 20µs/div

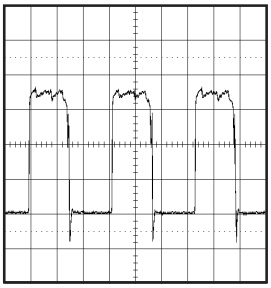


⑬ 1V 20µs/div

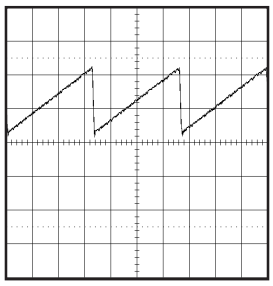
DEFLECTION/CRT



④ 200mV 5ms/div

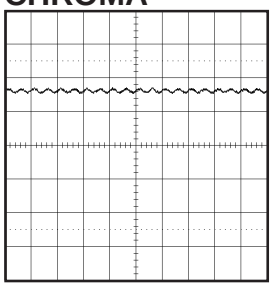


⑨ 200mV 20µs/div

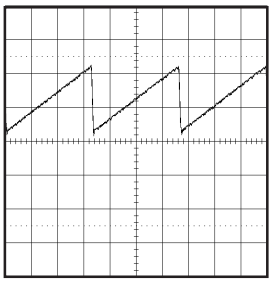


⑭ 0.5V 5ms/div

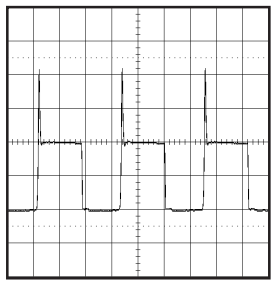
CHROMA



⑤ 0.5V 2ms/div



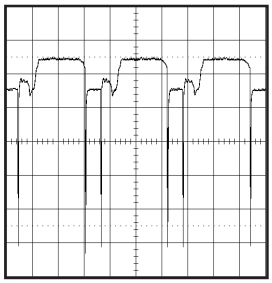
⑩ 0.5V 5ms/div



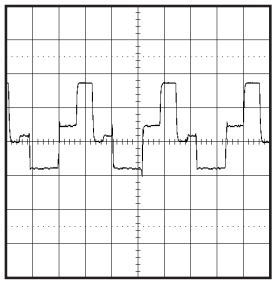
⑮ 20V 20µs/div

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

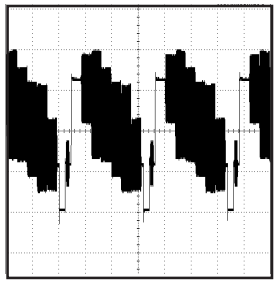
WAVEFORMS



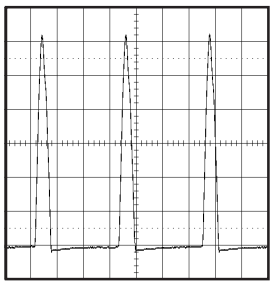
⑯ 2V 20µs/div



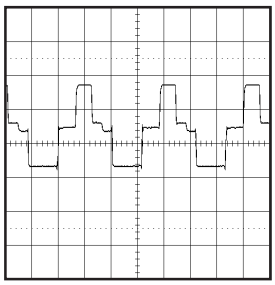
㉑ 50V 20µs/div



㉖ 500mV 20µs/div

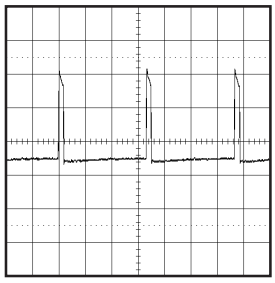


⑰ 200V 20µs/div

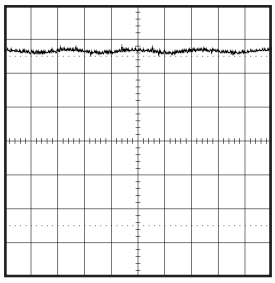


㉒ 50V 20µs/div

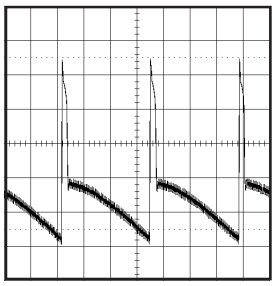
SOUND/AV



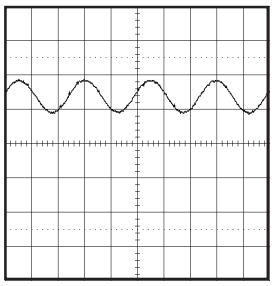
⑱ 10V 5ms/div



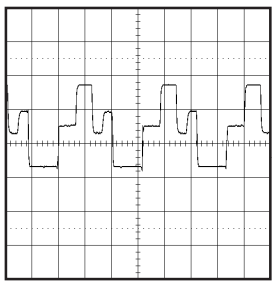
㉓ 0.5V 1ms/div



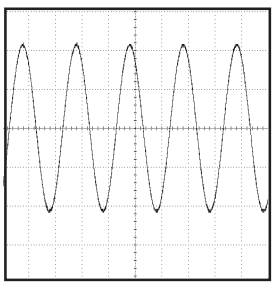
⑲ 10V 5ms/div



㉔ 1V 1ms/div



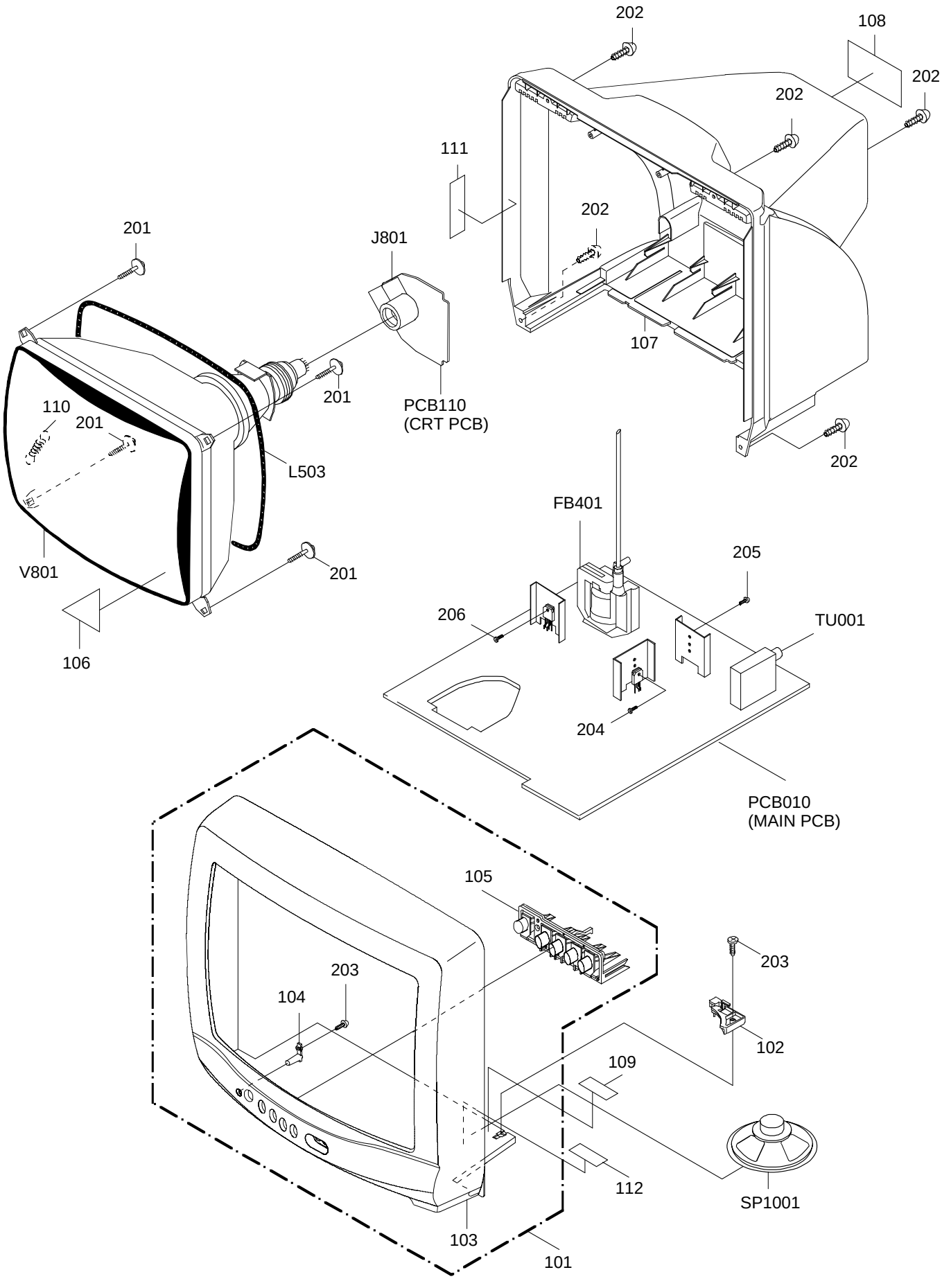
⑳ 50V 20µs/div



㉕ 200mV 500µs/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	A3L122C720	CABINET,FRONT ASS'Y		
102	735WPA0396	SPEAKER,HOLDER		
103	701WPJB679	CABINET,FRONT		
104	713WPAA048	GUIDE,REMOCON		
105	735WPAA417	BUTTON,FRAME		
106	723000B319	FILM,DECORATION		
107	702WPAA134	CABINET,BACK		
108	722552A020	SHEET,RATING		
109	7230006818	SHEET,CAUTION		
110	741WUA0019	SPRING,EARTH		
111	7220001119	SHEET,CSA WARNING		
112	722000A023	SHEET,HWC		
201	8121J50B54	SCREW,TAPPING(B0)	GW20	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
206	8109I30604	SCREW,TAP TITE(B)	WH7	3x6
---	JB5K0200	POLYBAG,INSTRUCTION		
---	J3L10502	WARRANTY SHEET		
---	J3L21101	INSTRUCTION BOOK		
---	791WHA0023	LAMIFILM BAG		
---	A3L211C975	INSTRUCTION BOOK KIT		
---	792WHAA018	PACKAGE,BOTTOM		
---	792WHAA019	PACKAGE,TOP		
---	793WCDB256	GIFT BOX		
---	7230007398	SECURITY TAG		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R401	R4X5T6273F	R,METAL	27K OHM 1/6W
⚠ R408	R4X5T6103F	R,METAL	10K OHM 1/6W
⚠ R409	R4X5T6273F	R,METAL	27K OHM 1/6W
⚠ R429	R655812R7J	R,FUSE	2.7 OHM 1W
R448	R3X18A821J	R,METAL OXIDE	820 OHM 2W
⚠ R500	R0G3K2335K	RC	3.3M OHM 1/2W
⚠ R501	R5Y2CD5R6J	R,CEMENT	5.6 OHM 5W
⚠ R508	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R509	R001T6221J	RC	220 OHM 1/6W
⚠ R514	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R515	R002T2124J	RC	120K OHM 1/2W
⚠ R517	R3X1811R2J	R,METAL OXIDE	1.2 OHM 1W
⚠ R518	R4X5T6562F	R,METAL	5.6K OHM 1/6W
⚠ R519	R001T6122J	RC	1.2K OHM 1/6W
⚠ R542	R3X181R68J	R,METAL OXIDE	0.68 OHM 1W
⚠ R629	R3X28B330J	R,METAL OXIDE	33 OHM 3W
⚠ R803	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R805	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R807	R3X181153J	R,METAL OXIDE	15K OHM 1W
		CAPACITORS	
C402	P3N1F2103J	CPP	0.01 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	P4J7F3474J	CMPP	0.47 UF 250V PMS
⚠ C443	P4N8FJ472H	CMPP	0.0047UF 1.25KV
C444	P4N8FJ471J	CMPP	470 PF 1.25KV or
	C0PLRR7Q2K	CC	470 PF 2KV RR
⚠ C446	E02LT5220M	CE	22 UF 50V
⚠ C448	E5EZ0C220M	CE	22 UF 200V
⚠ C503	C0JTB0513K	CC	0.001 UF 500V B
⚠ C505	P2472B104M	CMP	0.1 UF 275V PHE840
C506	CB3930MQ3M	CC	0.0047UF 250V
C514	C0PLRR7U2K	CC	680 PF 2KV RR
⚠ C515	E02LT2102M	CE	1000 UF 16V
C517	C0PLRR7Q2K	CC	470 PF 2KV RR
⚠ C519	E02LT2471M	CE	470 UF 16V
C521	E5EZFB101M	CE	100 UF 160V
⚠ C526	E02LFC221M	CE	220 UF 200V
C634	CQG0CH412J	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
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
⚠ 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
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

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D802	D1VT001330	DIODE,SILICON	1SS133T-77
D803	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
IC101	I56F07073A	IC	OEC7073A
IC199	A3L101C015	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	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q802	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
⚠ Q803	TCKT1473A0	TRANSISTOR SILICON	2SC1473A-TA-(RQ)
		COILS &TRANSFORMERS	
L101	021LA63R3K	COIL	3.3 UH
L402	02186G180M	COIL	18 UH
⚠ L501	029T00A7M1	COIL,LINE FILTER	1R5A102F20
⚠ L503	028R140030	COIL,DEGAUSS	8R140030
L601	021LA6R56M	COIL	0.56 UH
L607	021LA6150K	COIL	15 UH
L801	021673221K	COIL	220 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T502	0481290904	TRANSFORMER,SWITCHING	81290904
		JACKS	
J702	060Q401077	RCA JACK	AV1-09D-3
J703	060Q401076	RCA JACK	AV1-09D-4
⚠ J801	066F120018	SOCKET,CRT	ISMS01S
J1001	0602121012	JACK,RCA 3.5	HSJ1403-01-010
		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	A3L122C010	PCB ASS'Y	TMA525A
PCB110	A3L117C110	PCB ASS'Y	TCA384A
		MISCELLANEOUS	
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	120R414903	CORD AC BUSH	0R414903
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
CP801	069W010030	CONNECTOR PCB SIDE	TBS-X01X-A1
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
⚠ F501	081PC04004	FUSE	51MS040LCC
⚠ FB401	043214029F	TRANSFORMER FLYBACK	3214029F
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS101	077Q037003	REMOTE RECEIVER	PIC-37143SY
S101	WHL6032014	FLAT CABLE	AWG26 10C BLACK 320MM
SP1001	070Y132018	SPEAKER	S08F21
⚠ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
TM101	076N0DW010	TRANSMITTER	RC-DW010
⚠ TU001	0145K00056	TUNER,VHF-UHF	TECC1040PG32E
⚠ V801	098Y1404B9	CRT W/DY	A34JXV70X53N45
X602	100CT3R505	CRYSTAL	HC-49/C

ELECTRICAL REPLACEMENT PARTS LIST

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.	M3L1-22C
O/R NO.	K223001