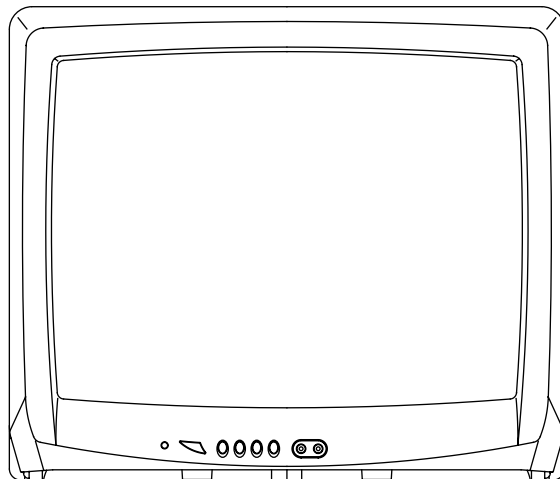


Memorex

MT1194

SERVICE MANUAL

COLOR TELEVISION RECEIVER



**ORIGINAL
MFR'S VERSION A**

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 \triangle 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 external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

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

1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.

When replacing an IC's or transistors, use only specified silicon grease (YG6260M).

Remove all old silicon before applying new silicon.

CONTENTS

SERVICING NOTICES ON CHECKING	A1-1
HOW TO ORDER PARTS	A1-1
IMPORTANT	A1-1
CONTENTS	A2-1
GENERAL SPECIFICATIONS	A3-1~A3-4
DISASSEMBLY INSTRUCTIONS	
1. REMOVAL OF ANODE CAP	B1-1
2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC	B2-1, B2-2
SERVICE MODE LIST	C-1
CONFIRMATION OF HOURS USED	C-1
WHEN REPLACING EEPROM (MEMORY) IC	C-2
ELECTRICAL ADJUSTMENTS	D-1~D-4
BLOCK DIAGRAM	E-1, E-2
PRINTED CIRCUIT BOARDS	
MAIN/CRT	F-1~F-4
SCHEMATIC DIAGRAMS	
MICON/CHROMA/TUNER	G-1, G-2
TV POWER	G-3, G-4
DEFLECTION/CRT	G-5, G-6
SOUND/AV	G-7, G-8
WAVEFORMS	H-1, H-2
MECHANICAL EXPLODED VIEW	I-1
MECHANICAL REPLACEMENT PARTS LIST	J1-1
ELECTRICAL REPLACEMENT PARTS LIST	J2-1, J2-2

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	19 inch / 480.0mmV	
			CRT Type	Normal	
			Deflection	90 degree	
			Magnetic Field BV/BH	+0.45G/0.18G	
			Color System	NTSC	
			Speaker	1Speaker	
				Position	Bottom
				Size	3 Inch
				Impedance	8 ohm
			Sound Output	MAX	1.5 W
		10%(Typical)	1.0 W		
		NTSC3.58+4.43 /PAL60Hz	No		
G-2	Tuning System	Broadcasting System		US System M	
		Tuner and Receive CH	System	1Tuner	
			Destination	USA(W/ CATV)	
			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	
			Stand by (at AC) Per Year		73 W at AC 120 V 60 Hz 5 W at AC 120 V 60 Hz -- kWh/Year
	Protector	Power Fuse	Yes		
		Safety Circuit	Yes		
		IC Protector(Micro Fuse)	No		
G-4	Regulation	Safety		UL	
		Radiation		FCC	
		X-Radiation		DHHS	
G-5	Temperature	Operation		+5°C ~ +40°C	
		Storage		-20°C ~ +60°C	
G-6	Operating Humidity			Less than 80% RH	
G-7	On Screen Display	Menu		Yes	
		Menu Type		Character	
		Picture		Yes	
			Contrast	Yes	
			Brightness	Yes	
			Color	Yes	
			Tint	Yes	
			Sharpness	Yes	
			Audio		No
			Bass		No
			Treble		No
			Balance		No
			BBE On/Off		No
			Stable Sound On/Off		No
			CH Set Up		Yes
			TV/CATV		Yes
			Auto CH Memory		Yes
			Add/ Delete		Yes
			Language		Yes
			V-chip		Yes
				CH Label	No
				Favorite CH	No
				Color Stream DVD/DTV	No
			Control Level		Yes
				Volume	Yes
				Brightness	Yes
				Contrast	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
				Tuning	No
				Bass	No
				Treble	No
				Balance	No
				Back Light	No
				Stereo,Audio Output,SAP	No
				Video	Yes

GENERAL SPECIFICATIONS

		Color Stream	No	
		Channel(TV/Cable)	Yes	
		CH Label	No	
		Sleep Timer	Yes	
		Sound Mute	Yes	
		V-chip Rating	Yes	
G-8	OSD Language		English French Spanish	
G-9	Clock and Timer	Sleep Timer	Max Time	120 Min
			Step	10 Min
		On/Off Timer	Program(On Timer / Off Timer)	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	

GENERAL SPECIFICATIONS

		Channel Lock	No		
		Just Clock Function	No		
		Game Position	No		
		CH Label	No		
		VM Circuit	No		
		Full OSD	No		
		Premiere	No		
		Comb Filter	No		
		_ Lines			
		Auto CH Memory	Yes		
		Hotel Lock	No		
		Closed Caption	Yes		
		Stable Sound	No		
		Energy Star	No		
		Power On Memory	No		
		Favorite CH	No		
G-12	Accessories	Owner's Manual	Language w/Guarantee Card	English / Spanish	
				Yes	
		Remote Control Unit		Yes	
		Rod Antenna		No	
			Poles Terminal		
		Loop Antenna	Terminal	No	
		U/V Mixer		No	
		DC Car Cord (Center+)		No	
		Guarantee Card		No	
		Warning Sheet		No	
		Circuit Diagram		No	
		Antenna Change Plug		No	
		Service Facility List		No	
		Important Safeguard		No	
		Dew/AHC Caution Sheet		No	
		AC Plug Adapter		No	
		Quick Set-up Sheet		No	
		Battery	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	No
			Rear	Video Input(Rear1)	No
				Video Input(Rear2)	No
				Audio Input(Rear1)	No
				Audio Input(Rear2)	No
				Video Output	No
				Audio Output	No
				Euro Scart	No
				Color Stream	No
		Diversity	No		
		Ext Speaker	No		
		DC Jack 12V(Center +)	No		
		VHF/UHF Antenna Input	F Type		
		AC Outlet	No		
G-14	Set Size	Approx. W x D x H (mm)	488 x 465 x 416		
G-15	Weight	Net (Approx.)	17.5kg (38.6 lbs)		

GENERAL SPECIFICATIONS

G-16	Carton	Master Carton	Gross (Approx.)	20.0kg (44.1lbs)
			Content	--- Sets
			Material	-- /--
		Dimensions W x D x H(mm)	-- x -- x --	
		Description of Origin	No	
		Gift Box	Yes	
			Material	Double/Brown
			Dimensions W x D x H(mm)	546 x 526 x 472
			Design	As per Buyer's
		Drop Test	Description of Origin	Yes
			Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces	
			Height (cm)	46
Container Stuffing	436 Sets/40' container			
G-17	Cabinet Material	Cabinet	Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0 DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No
G-18	Environment	Pb Free	Lead-free Solder	No
			Other	No
		Cd Free		No
				No

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.

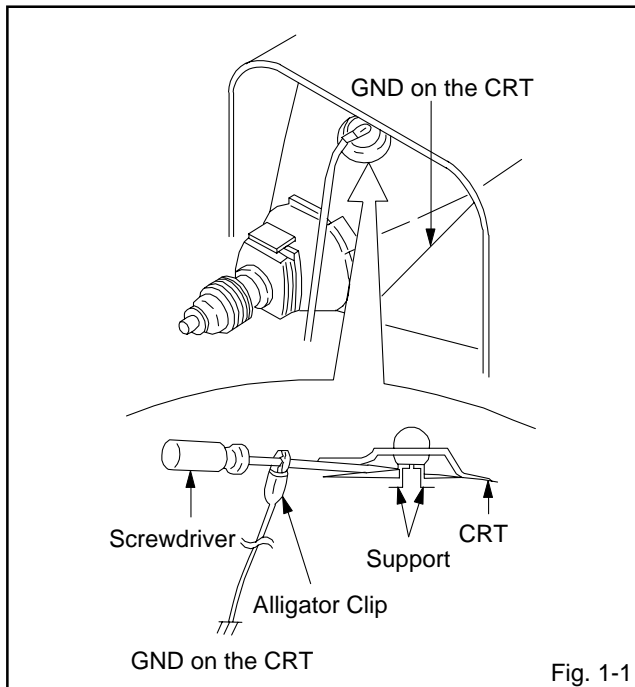


Fig. 1-1

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.)

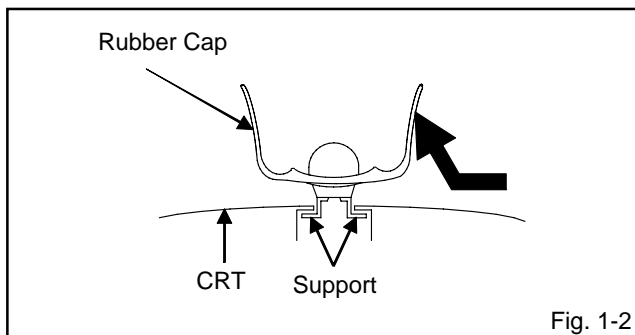


Fig. 1-2

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.)

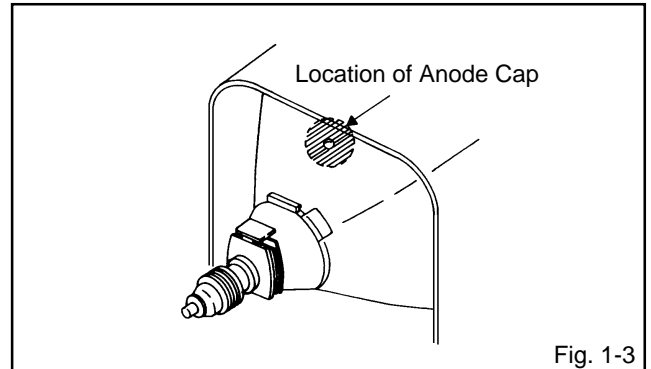


Fig. 1-3

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.)

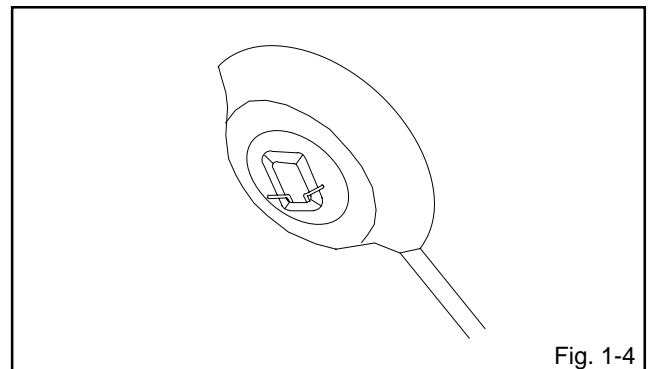


Fig. 1-4

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

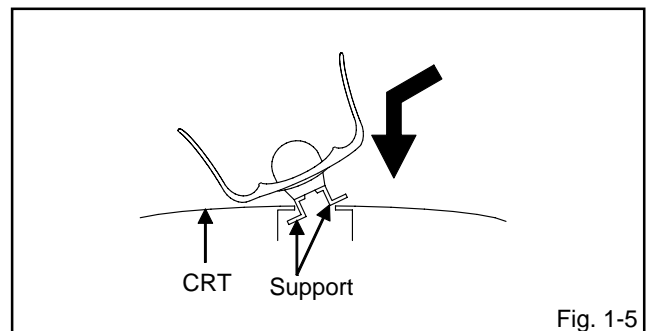


Fig. 1-5

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

DISASSEMBLY INSTRUCTIONS

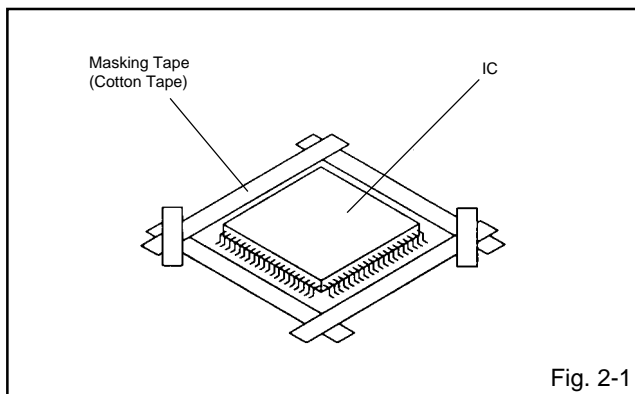
2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

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

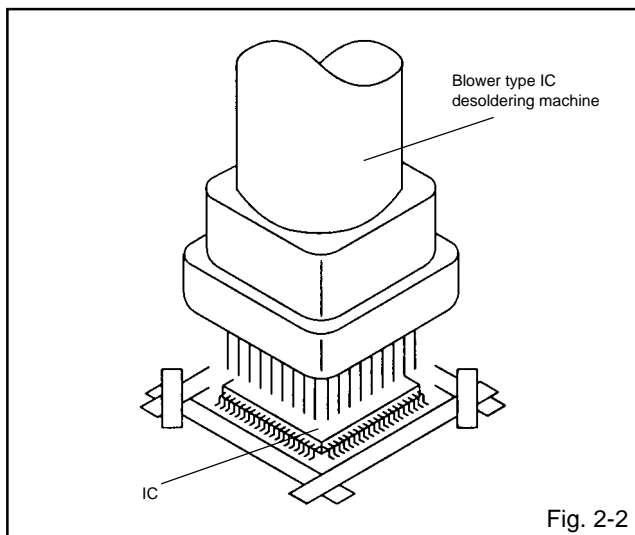
Masking is carried out on all the parts located within 10 mm distance from IC leads.



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

NOTE

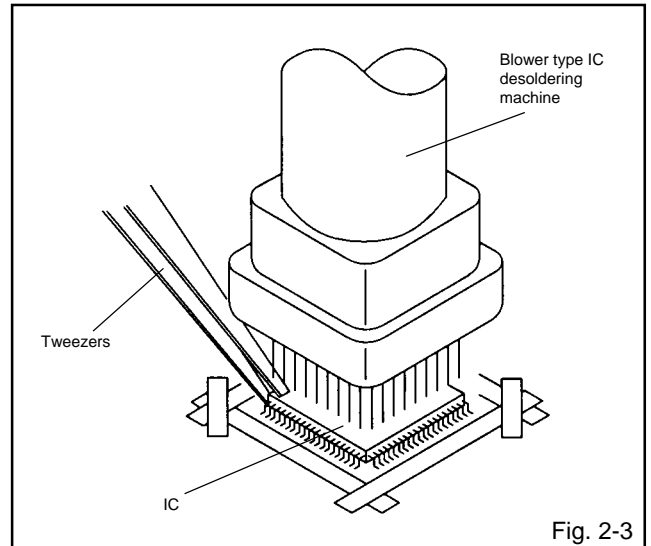
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



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

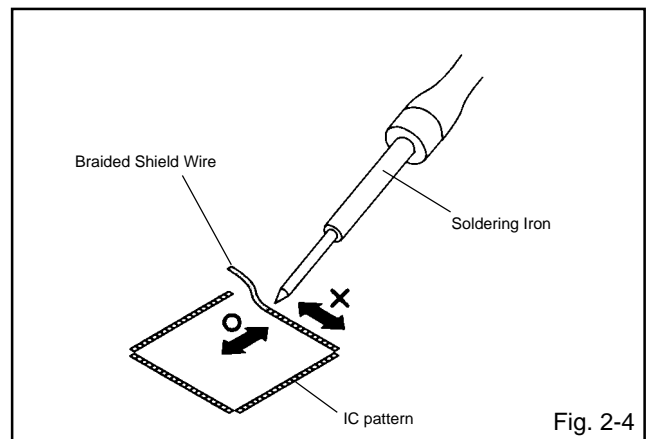
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



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.



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.)

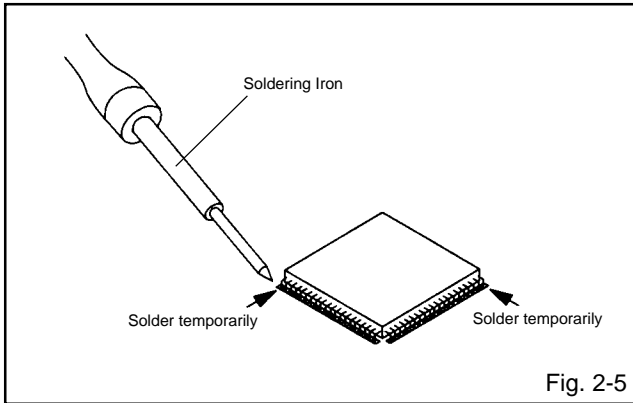


Fig. 2-5

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.)

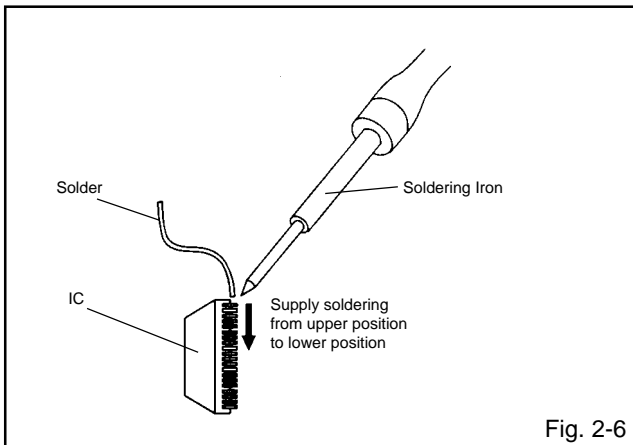


Fig. 2-6

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.

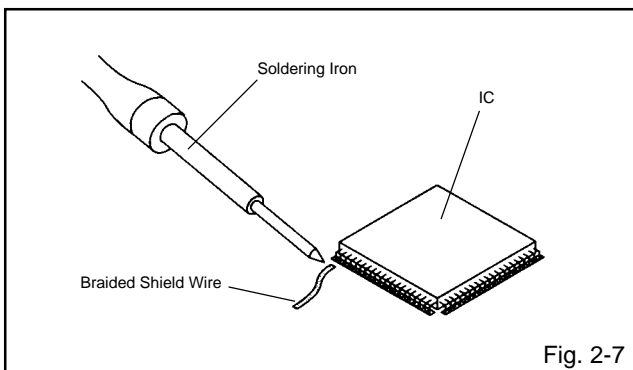


Fig. 2-7

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.)

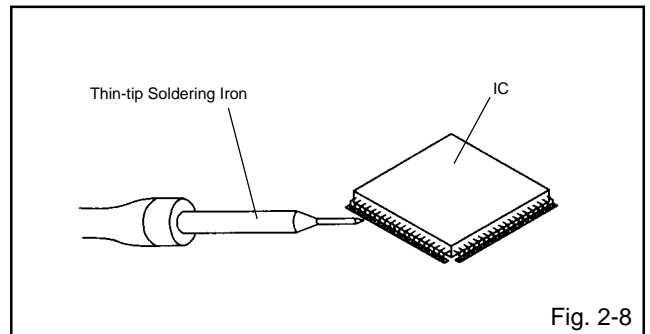


Fig. 2-8

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.

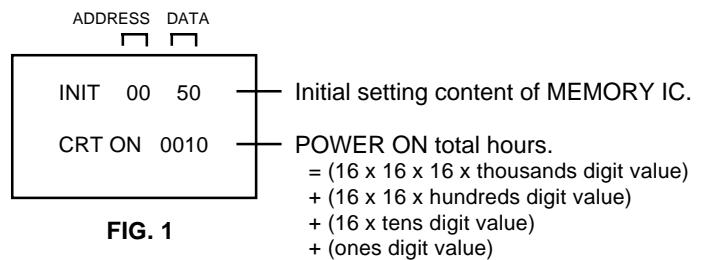
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reser such as the clock setting, the cheannel setting, the POWER ON total hours, 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.

NOTE: If you set a factory initialization, the total hours is reset to "0".

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 2 second.
3. After the confirmation of using hours, turn off the power.



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	50	04	EB	47	07	B3	24	79	31	00	00	05	10	D5	00	07

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

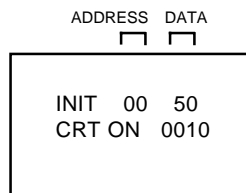


Fig. 1

3. ADDRESS is now selected and should "blink". Using the VOL. +/- button 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 VOL. +/- button 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.

After the data input, set to the initializing of shipping.

9. Turn POWER on.
10. While holding down VOLUME button on front cabinet, press key 1 on remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

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.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease (**YG6260M**) on the contact 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
3. Pattern Generator

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**.

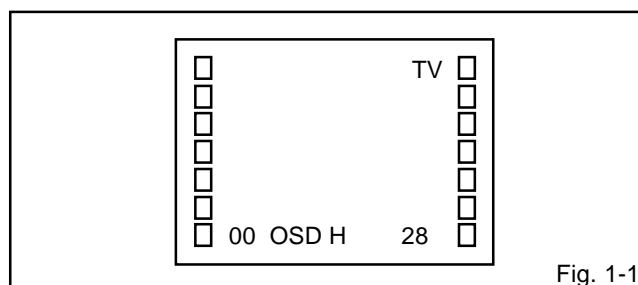


Fig. 1-1

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
04	H.VCO	18	CONTRAST MIN
05	H.PHASE	19	COLOR CENT
06	V.SIZE	20	COLOR MAX
07	V.SHIFT	21	COLOR MIN
08	R.DRIVE	22	TINT
09	B.DRIVE	23	SHARPNESS
10	R.BIAS	24	FM LEVEL
11	G.BIAS	25	LEVEL
12	B.BIAS	26	SEPARATION 1
13	BRIGHT CENT	27	SEPARATION 2
14	BRIGHT MAX	28	TEST MONO
15	BRIGHT MIN	29	TEST STEREO

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: 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, BRI.CENT=105, CONT.MAX=65.
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.

2-2: FOCUS

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

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

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

2-4: SUB TINT/SUB COLOR

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP023**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**22**) on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes as straight line (**Refer to Fig. 2-1**)
5. Connect the oscilloscope to **TP022**.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**19**) on the remote control to select "COL.CENT".
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 10\%$ of the white level. (**Refer to Fig. 2-2**)
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7

ELECTRICAL ADJUSTMENTS

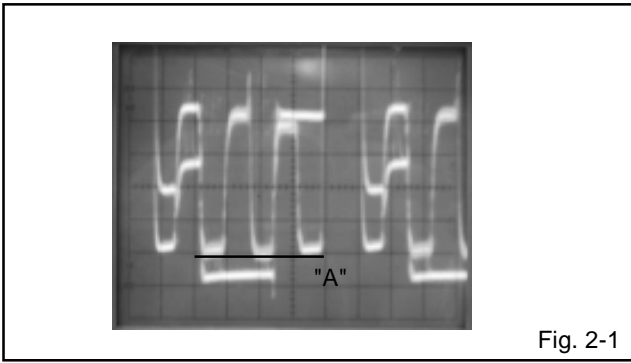


Fig. 2-1

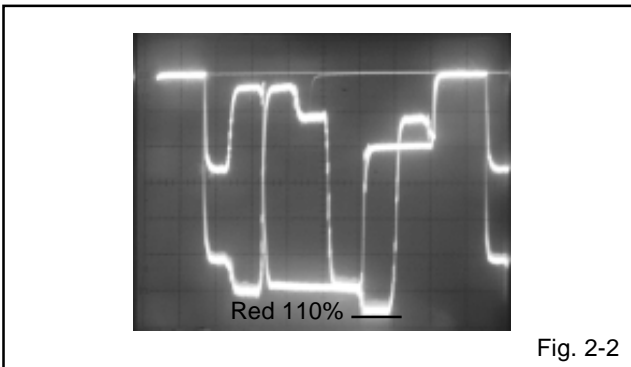


Fig. 2-2

2-5: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Using the adjustment control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**05**) on the remote control to select "H.PHAS".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-6: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-5

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 $10 \pm 2\%$.
4. Receive a broadcast and check if the picture is normal.

2-7: VERTICAL SHIFT

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 (**07**) on the remote control to select "V.SFT".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-8: OSD HORIZONTAL

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

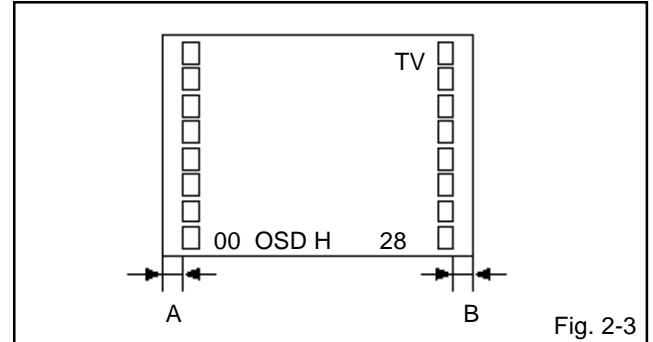


Fig. 2-3

2-9: SUB BRIGHTNESS

1. Receive an 70dB monoscope pattern.
2. Using the adjustment control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**13**) on the remote control to select "BRI.CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible.
5. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2~4.

2-10: 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. becomes "60".
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 2, 3.

2-11: 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	150	150
15	BRIGHT MIN	45	45
16	CONT CENT	45	45
18	CONT MIN	15	15
20	COLOR MAX	74	74
21	COLOR MIN	00	00
23	SHARPNESS	45	45
24	FE LEVEL	00	00
25	LEVEL	00	00
26	SEPARATION 1	00	00
27	SEPARATION 2	00	00
28	TEST MONO	00	00
29	TEST STEREO	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.

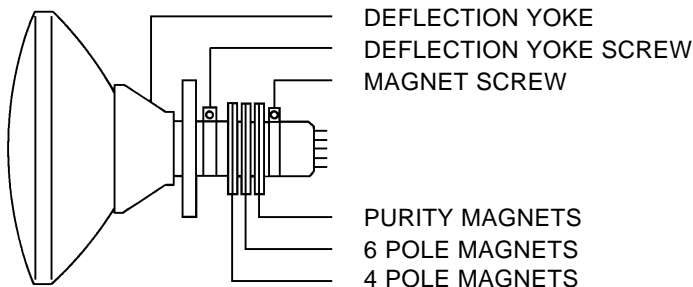


Fig. 3-1

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)**

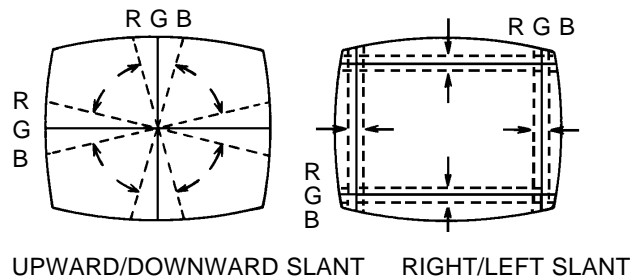
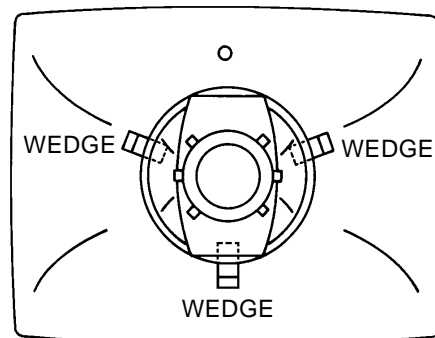


Fig. 3-2-a

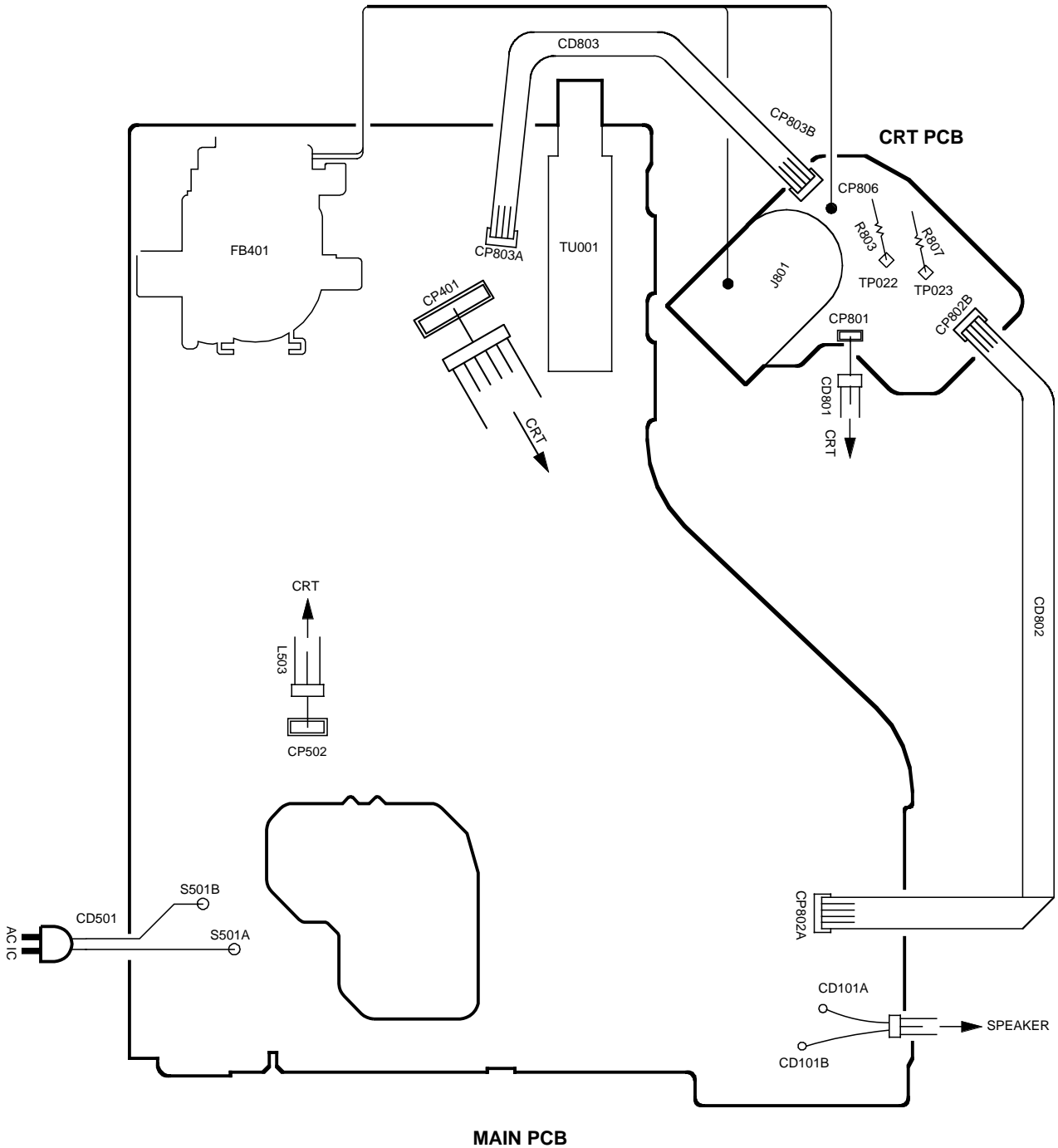


WEDGE POSITION

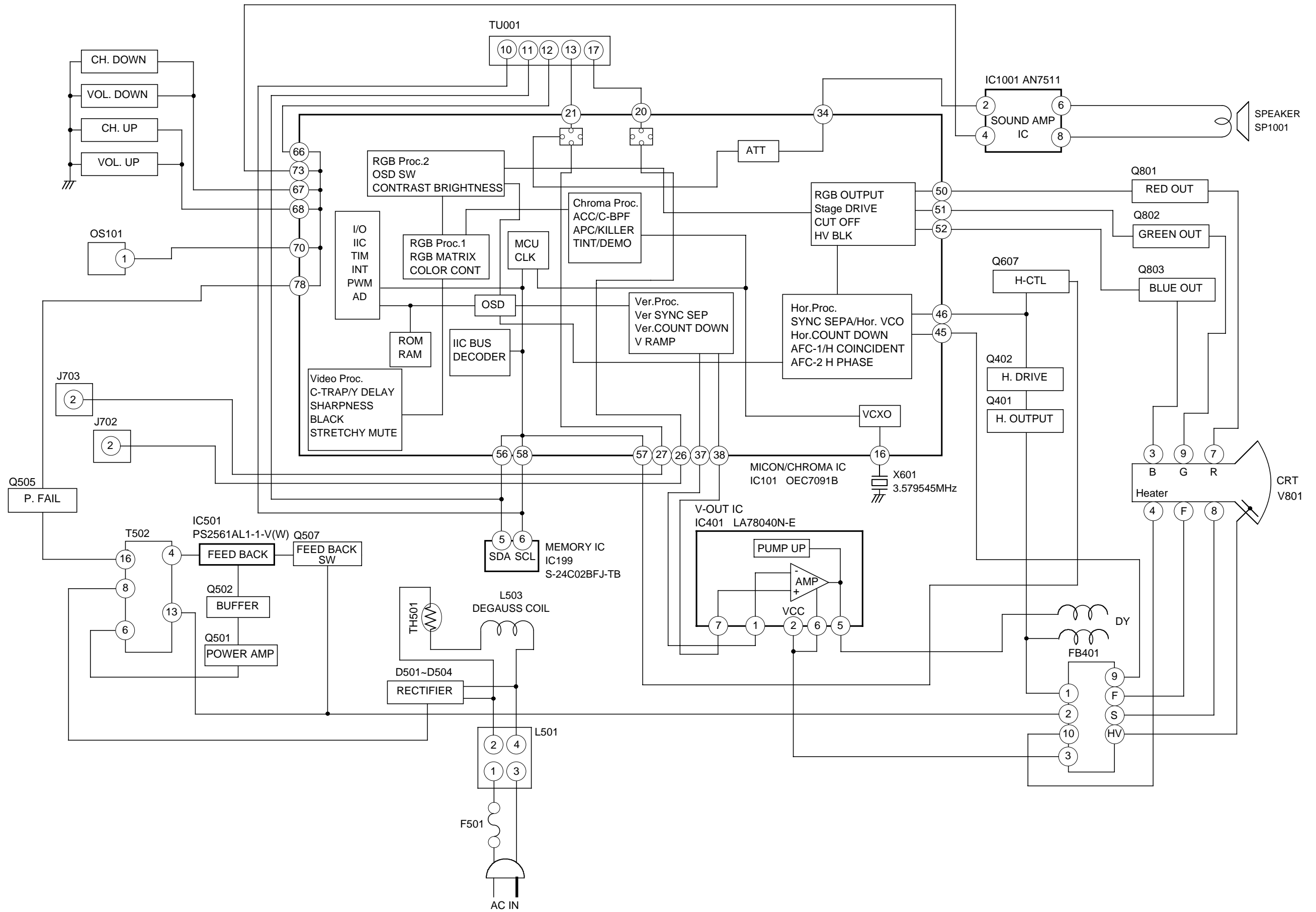
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

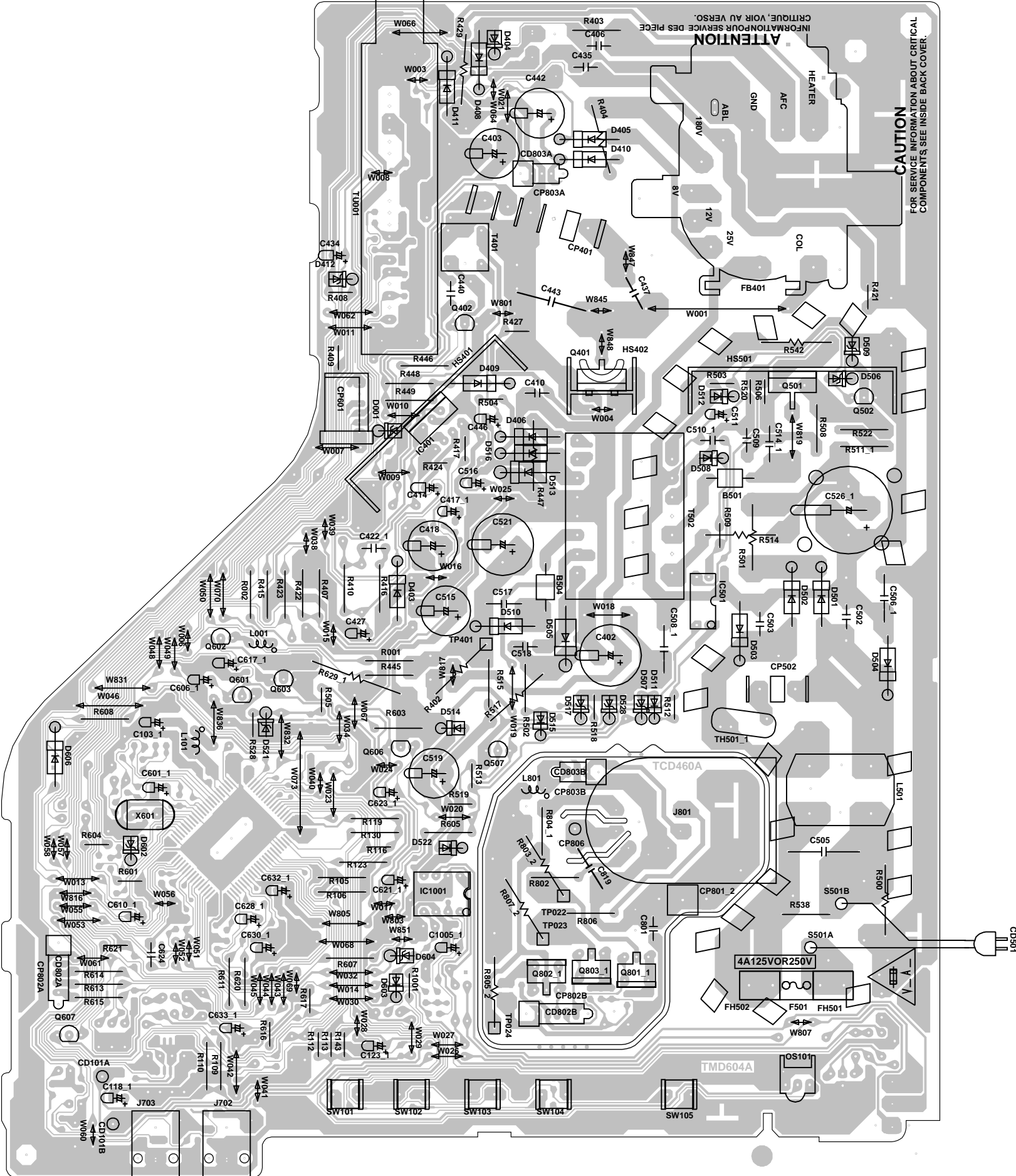
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



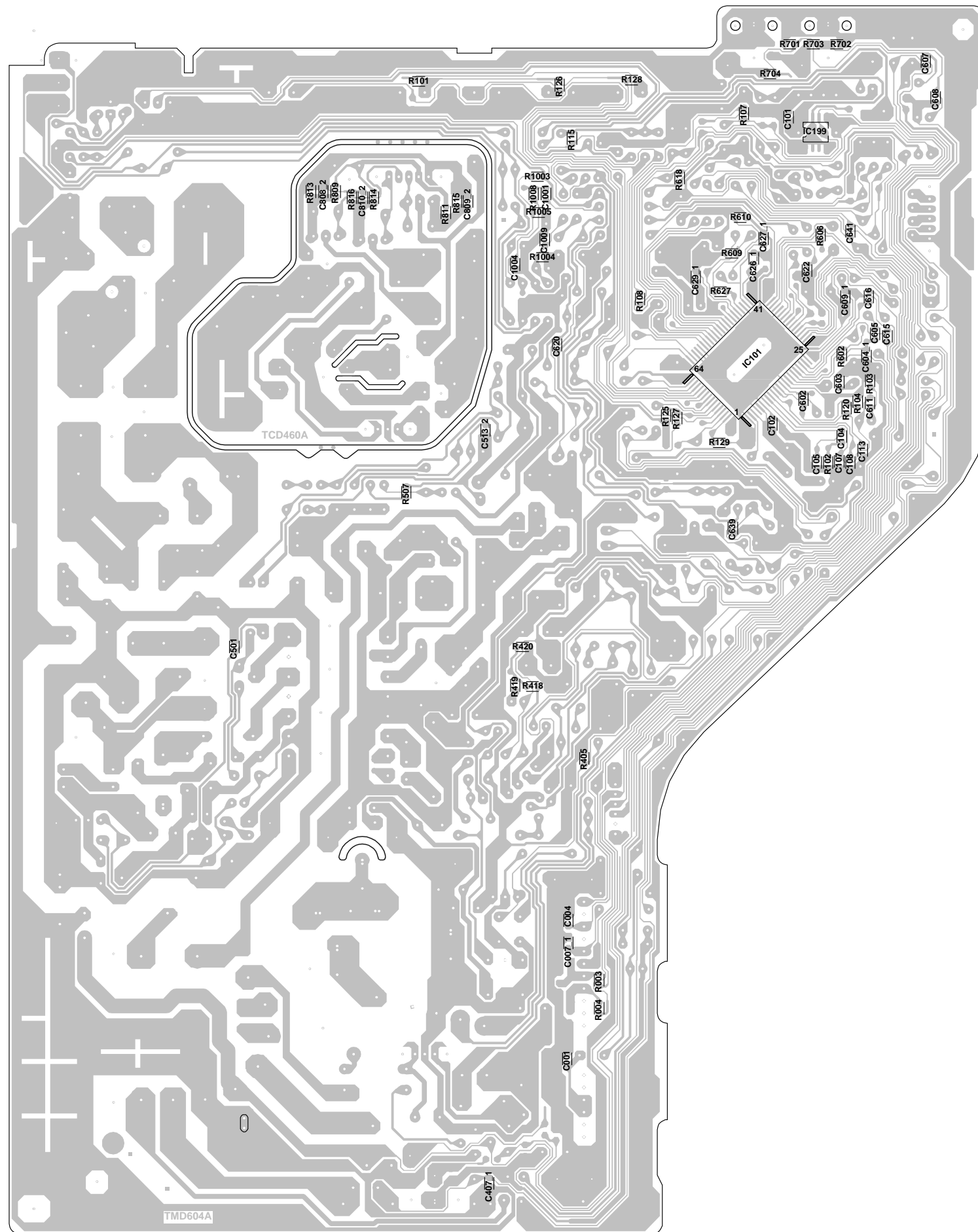
BLOCK DIAGRAM



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

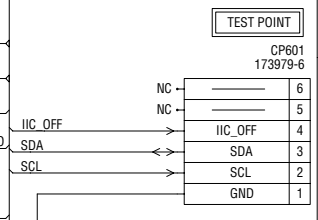
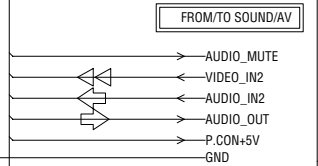
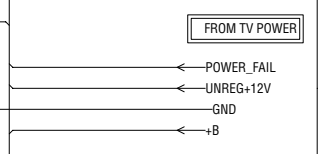
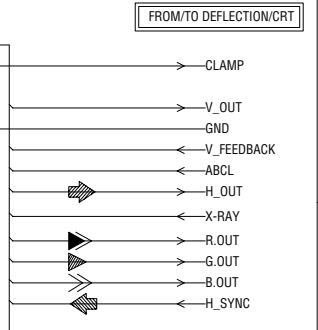
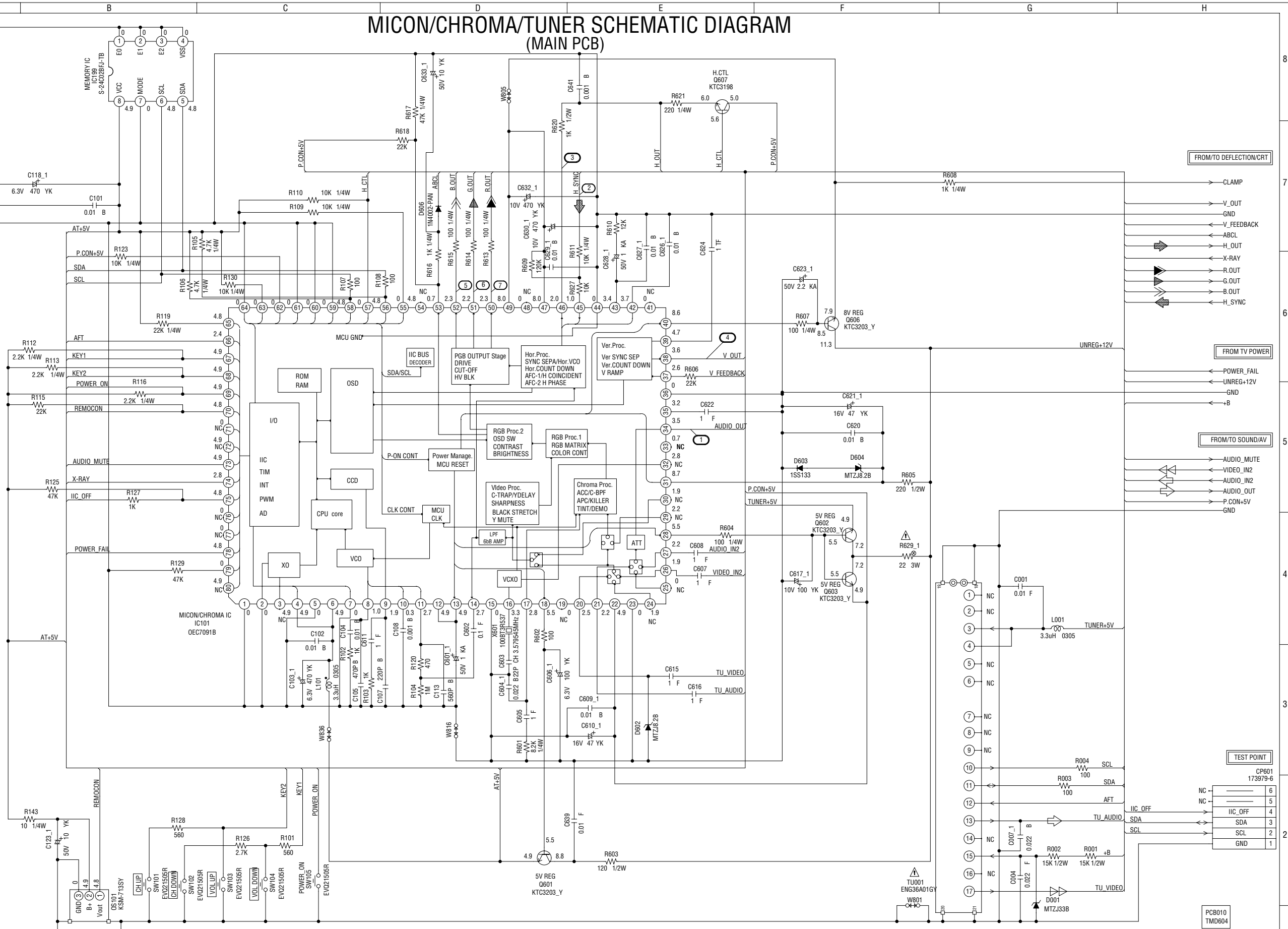


PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON/CHROMA/TUNER SCHEMATIC DIAGRAM (MAIN PCB)

1	CNVSS	41	NC
2	XIN	42	HVCO F/B
3	XOUT	43	AFC FILTER
4	TEST1	44	DEF GND
5	VSS	45	FBP IN
6	MCU VCC	46	H OUT
7	TEST0	47	DEF VCC
8	FILT	48	NC
9	HLT	49	HI VCC
10	VHOLD	50	R OUT
11	CVIN	51	G OUT
12	RESET IN	52	B OUT
13	MCU RESET OUT	53	ACL
14	Y SW OUT	54	NC
15	V/C GND	55	PROTECT
16	3.58 XTAL	56	SDA
17	C-APC	57	H_CTL
18	MCUS.7V REG OUT	58	SCL
19	NC	59	NC
20	CVBS IN3	60	NC
21	AUDIO IN3	61	NC
22	V/C VCC	62	DEGAUSS_H
23	MCU TEST	63	STANDBY_H
24	CVBS IN2	64	VOLUME
25	AUDIO IN2	65	NC
26	CVBS IN1	66	AFT
27	AUDIO IN1	67	KEY1
28	5.7V REG OUT	68	KEY2
29	C(Y/C) IN	69	POWER_ON
30	Y(Y/C) IN	70	REMOCON
31	VREG VCC	71	AV2
32	FSC OUT	72	AV1
33	MONITOR OUT	73	AUDIO_MUTE
34	AUDIO ATT OUT	74	X-RAY
35	AUDIO ATT FILTER	75	IIC_OFF
36	NC	76	ON_TIMER
37	V RAMP F/B	77	SYNC
38	V RAMP OUT	78	POWER FAIL
39	V RAMP CAP	79	X-RAY_TEST
40	6.7V REG OUT	80	EXT_MUTE



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.

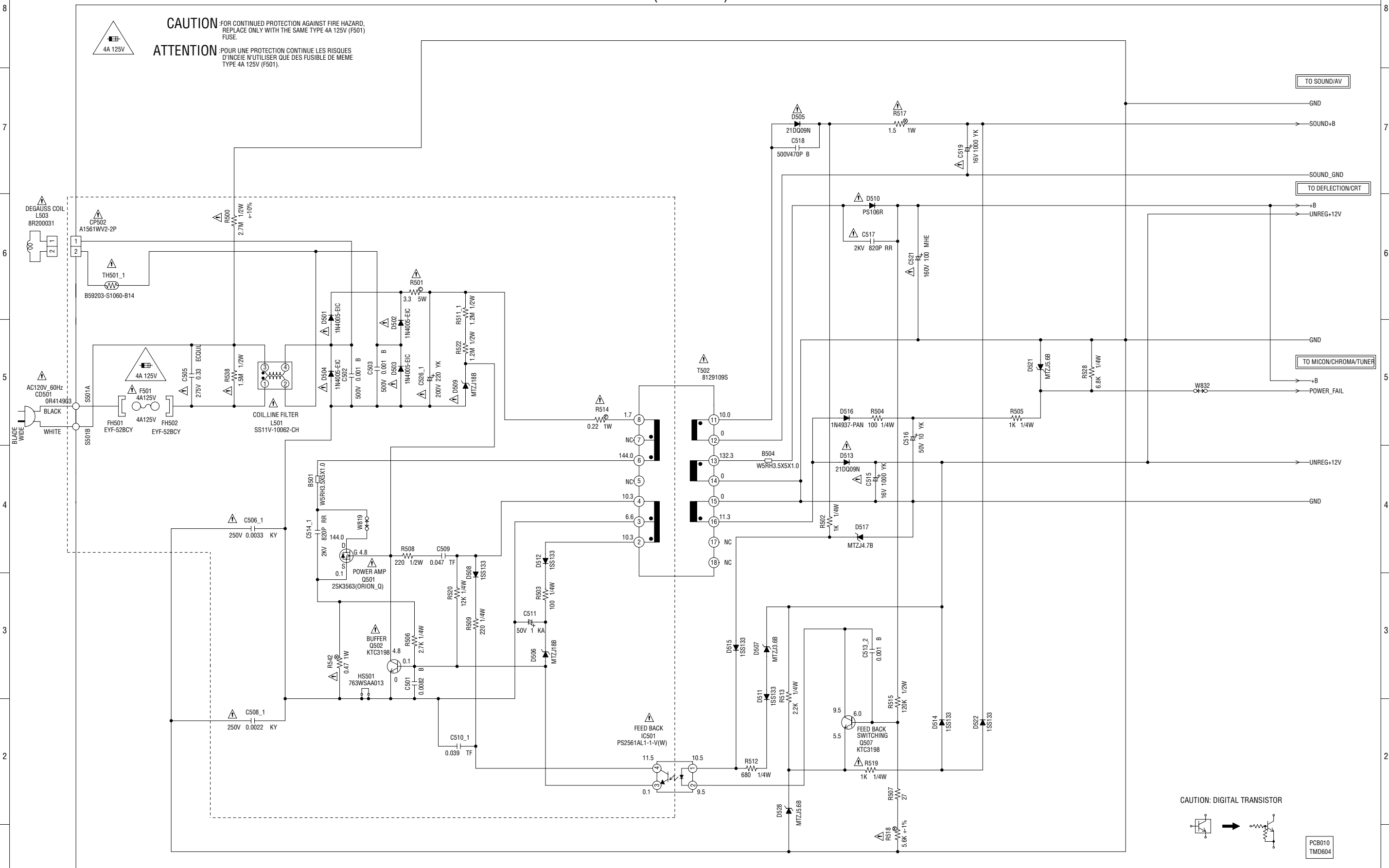
ATTENTION LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE NUTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

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

TV POWER SCHEMATIC DIAGRAM (MAIN PCB)

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

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



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.

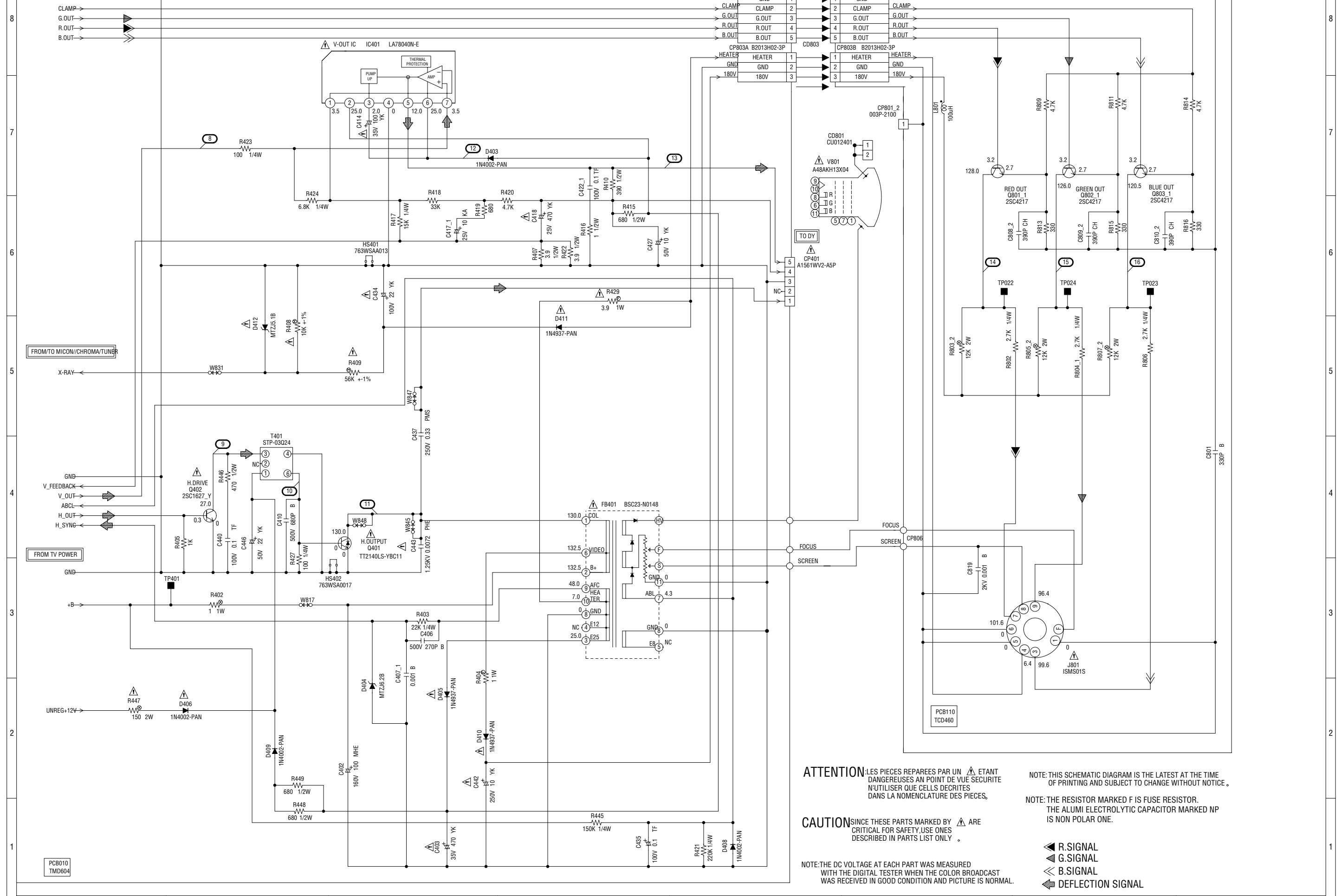
ATTENTION LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: DIGITAL TRANSISTOR

PC8010
TMD604

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

DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)



ATTENTION LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

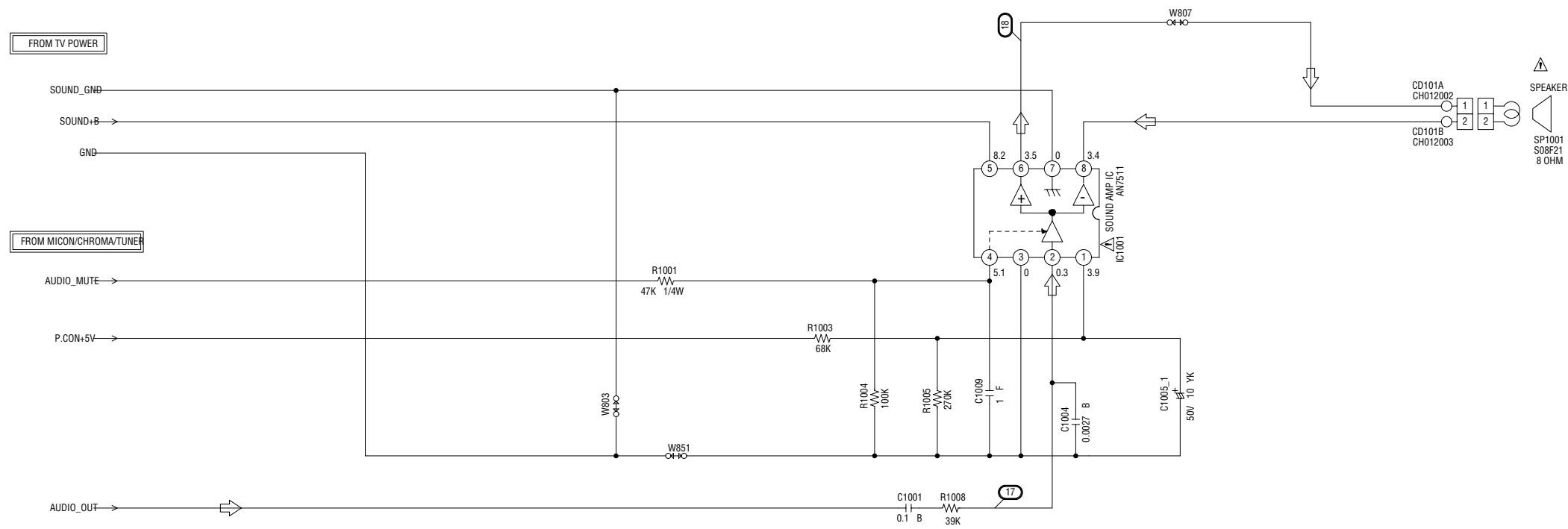
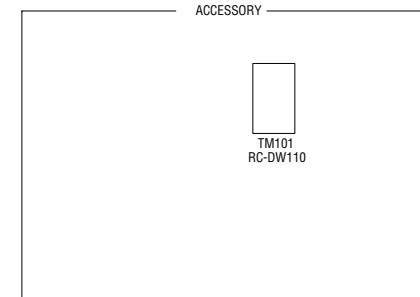
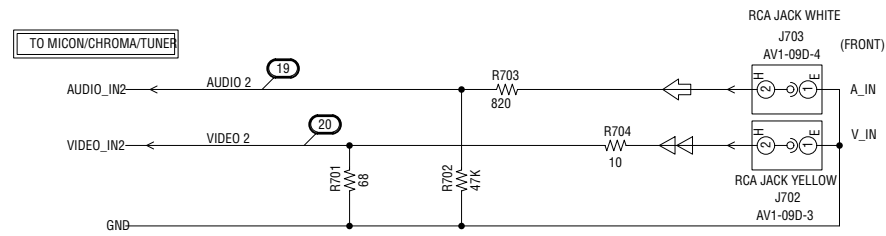
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

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.

- R. SIGNAL
- G. SIGNAL
- B. SIGNAL
- DEFLECTION SIGNAL

SOUND/AV SCHEMATIC DIAGRAM (MAIN PCB)



PCB010
TMD604

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

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

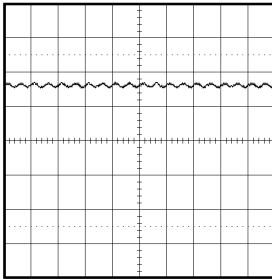
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIÈCES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

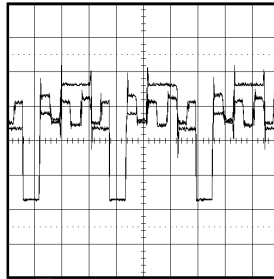
TUNER VIDEO SIGNAL
 AUDIO SIGNAL

WAVEFORMS

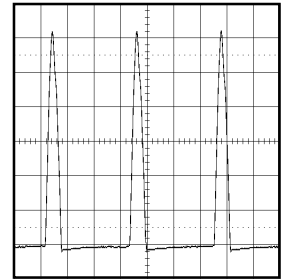
MICON/CHROMA/TUNER



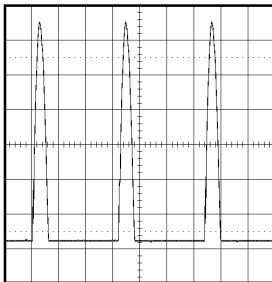
① 0.5V 2ms/div



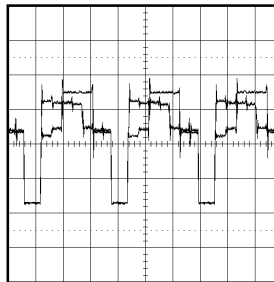
⑥ 1V 20µs/div



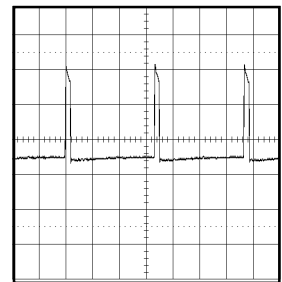
⑪ 200V 20µs/div



② 20V 20µs/div

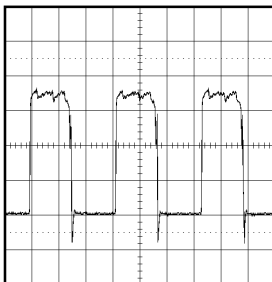


⑦ 1V 20µs/div

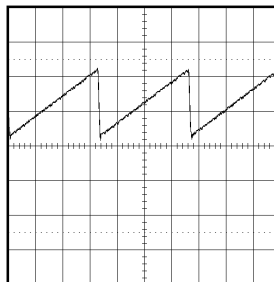


⑫ 10V 5ms/div

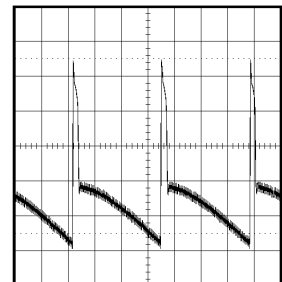
DEFLECTION/CRT



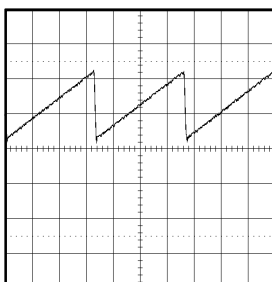
③ 200mV 20µs/div



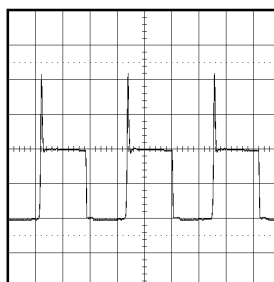
⑧ 0.5V 5ms/div



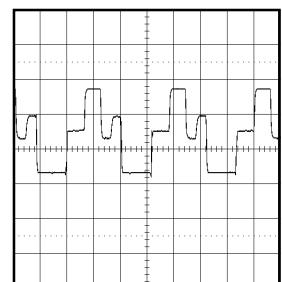
⑬ 10V 5ms/div



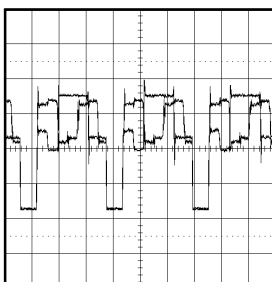
④ 0.5V 5ms/div



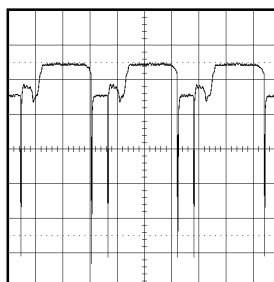
⑨ 20V 20µs/div



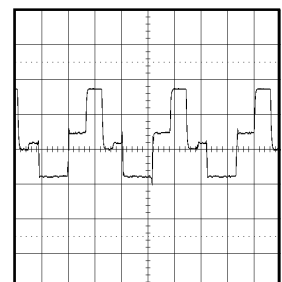
⑭ 50V 20µs/div



⑤ 1V 20µs/div



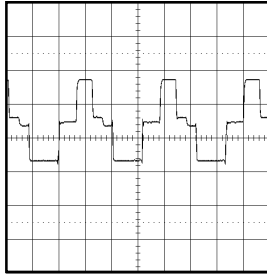
⑩ 2V 20µs/div



⑮ 50V 20µs/div

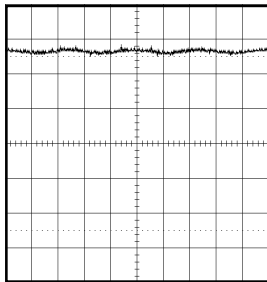
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

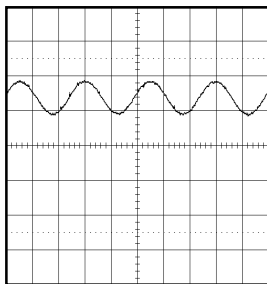


①⑥ 50V 20 μ s/div

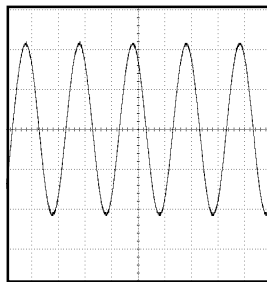
SOUND/AV



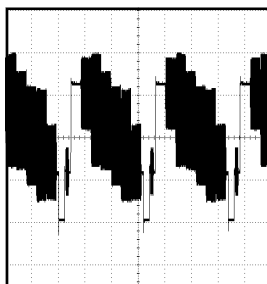
①⑦ 0.5V 1ms/div



①⑧ 1V 1ms/div



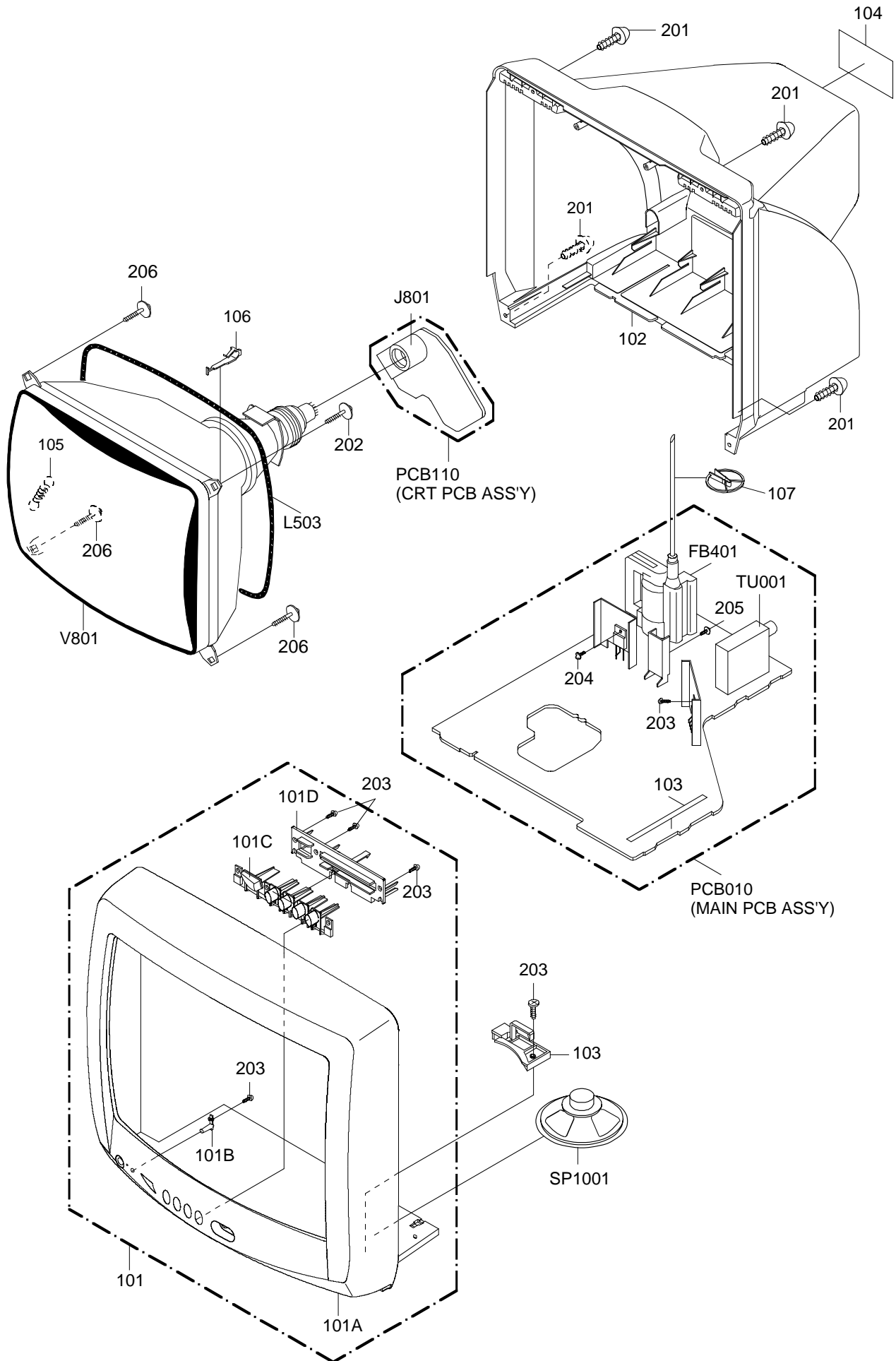
①⑨ 200mV 500 μ s/div



②⑩ 500mV 20 μ s/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	7A701A126A	FRONT CABI ASS'Y		
101A	701WPJC696	CABINET,FRONT		
101B	713WPAA124	GUIDE,REMOCON		
101C	735WPBB125	BUTTON,FRAME		
101D	735WPAA610	BUTTON,BASE		
102	A3R107Q740	CABINET,BACK ASS'Y		or
	702WPAA476	CABINET,BACK		or
	702WPAA504	CABINET,BACK		or
	702WPAA680	CABINET,BACK		
103	735WPAA647	HOLDER,SPEAKER		
104	722A08A148	SHEET,RATING		
105	741WUA0019	SPRING,EARTH		
106	8994201000	HOLDER,CRT WIRE		
107	899HV3T000	HOLDER,ANODE WIRE		
108	800WQ0A024	FELT,SHEET	5x80 T=0.5	
201	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
202	8109I30804	SCREW,TAP TITE(B)	WH7	3x8
203	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
204	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
205	8109I30604	SCREW,TAP TITE(B)	WH7	3x6
206	8121F50B84	SCREW,TAP TITE(P)	FAI20 FLAT	5x28
---	A3R006V975	INSTRUCTION BOOK KIT		
---	791WHAA017	LAMIFILM BAG		
---	792WHAA050	PACKAGE, TOP		
---	792WHAA051	PACKAGE, BOTTOM		
---	793WCDC312	GIFT, BOX		
---	J3R00601A	INSTRUCION BOOK		
---	J3R00602A	WARRANTY SHEET		
---	JB5U0200	POLYBAG, INSTRUCTION		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
RESISTORS					
R402	R3T181010J	R,METAL OXIDE			
	R3K581010J	R,METAL OXIDE			
R404	R63581010J	R,FUSE			
△ R408	R4X5T6103F	R,METAL			
	R4T5T6103F	R,METAL			
△ R409	R4X5T6563F	R,METAL			
	R4T5T6563F	R,METAL			
△ R429	R635813R9J	R,FUSE			
△ R447	R3T28A151J	R,METAL OXIDE			
	R3K58A151J	R,METAL OXIDE			
△ R500	R0G3K2275K	RC			
△ R501	R5T2CD3R3J	R,CEMENT			
	R5X2CD3R3J	R,CEMENT			
△ R508	R002T2221J	RC			
△ R509	R002T4221J	RC			
△ R514	R63581R22J	R,FUSE			
△ R515	R002T124J	RC			
△ R517	R3T1811R5J	R,METAL OXIDE			
△ R518	R4X5T6562F	R,METAL			
	R4T5T6562F	R,METAL			
△ R519	R002T4102J	RC			
△ R538	R002T2155J	RC			
△ R542	R3T181R47J	R,METAL OXIDE			
	R3K581R47J	R,METAL OXIDE			
△ R629	R3T28B220J	R,METAL OXIDE			
	R3K58B220J	R,METAL OXIDE			
△ R803	R3T28A123J	R,METAL OXIDE			
△ R805	R3T28A123J	R,METAL OXIDE			
△ R807	R3T28A123J	R,METAL OXIDE			
CAPACITORS					
C402	E5EZFB101M	CE			
△ C403	E02LT4471M	CE			
△ C414	E02LU4101M	CE			
△ C418	E02LT3471M	CE			
△ C434	E02LU8220M	CE			
C437	P4J7F3334J	CMPP			
△ C443	P4G8FJ722H	CMPP			
△ C446	E02LU5220M	CE			
△ C503	C0JTB0513K	CC			
△ C505	P122B3334M	CMP			
△ C506	CC3LE0ML3M	CC			
△ C508	CC3LE0MH3M	CC			
C514	C0PLRR7W2K	CC			
C517	C0PLRR7W2K	CC			
△ C519	E02LT2102M	CE			
C521	E5EZFB101M	CE			
△ C526	E02LFC221M	CE			
△ C801	CHGTB04L2K	CC			
C819	C0JBB0713K	CC			
DIODES					
D001	D97U03301B	DIODE,ZENER			
D403	D2MXN40020	DIODE,FAST RECOVERY			
	D2WT011E10	DIODE SILICON			
D404	D97U06R21B	DIODE,ZENER			
△ D405	D2MXN49370	DIODE,FAST RECOVERY			
	D2WTAU02A0	DIODE SILICON			
D406	D2MXN40020	DIODE,FAST RECOVERY			
	D2WT011E10	DIODE SILICON			
D408	D2MXN40020	DIODE,FAST RECOVERY			
	D2WT011E10	DIODE SILICON			
D409	D2MXN40020	DIODE,FAST RECOVERY			
	D2WT011E10	DIODE SILICON			
△ D410	D2MXN49370	DIODE,FAST RECOVERY			
	D2WTAU02A0	DIODE SILICON			
△ D411	D2MXN49370	DIODE,FAST RECOVERY			
	D2WTAU02A0	DIODE SILICON			
△ D412	D97U05R11B	DIODE,ZENER			
△ D501	D2WXN40050	DIODE SILICON			
△ D502	D2WXN40050	DIODE SILICON			
△ D503	D2WXN40050	DIODE SILICON			
△ D504	D2WXN40050	DIODE SILICON			
△ D505	D28T21DQN9	DIODE SCHOTTKY			
D506	D97U01801B	DIODE,ZENER			
D507	D97U03R61B	DIODE,ZENER			
D508	D1VT001330	DIODE,SILICON			
△ D509	D97U01801B	DIODE,ZENER			
△ D510	D2WXRU2AM0	DIODE SILICON			
DIODES					
	D511	D1VT001330	DIODE,SILICON		
△	D512	D1VT001330	DIODE,SILICON		
	D513	D28T21DQN9	DIODE SCHOTTKY		
	D514	D1VT001330	DIODE,SILICON		
	D515	D1VT001330	DIODE,SILICON		
△	D516	D2MXN49370	DIODE,FAST RECOVERY		
	D2WXN49370	DIODE SILICON			
	D517	D97U04R71B	DIODE,ZENER		
	D521	D97U05R61B	DIODE,ZENER		
	D522	D1VT001330	DIODE,SILICON		
	D528	D97U05R61B	DIODE,ZENER		
	D602	D97U08R21B	DIODE,ZENER		
	D603	D1VT001330	DIODE,SILICON		
	D604	D97U08R21B	DIODE,ZENER		
	D606	D2MXN40020	DIODE,FAST RECOVERY		
	D606	D2WT011E10	DIODE SILICON		
ICs					
	IC101	I56F07091B	IC		
	IC199	A3R101Q015	INIT DATA		
△	IC401	I03TD804N0	IC		
△	IC501	000220002W	PHOTO COUPLER		
	IC1001	I01DP75110	IC		
TRANSISTORS					
△	Q401	TD3Q021400	TRANSISTOR SILICON		
△	Q402	TC5T01627Y	TRANSISTOR SILICON		
△	Q501	T25F035630	FET		
△	Q502	TCATC31980	TRANSISTOR,SILICON		
	Q507	TCATC31980	TRANSISTOR,SILICON		
	Q601	TCAT032034	TRANSISTOR,SILICON		
	Q602	TCAT032034	TRANSISTOR,SILICON		
	Q603	TCAT032034	TRANSISTOR,SILICON		
	Q606	TCAT032034	TRANSISTOR,SILICON		
	Q607	TCATC31980	TRANSISTOR,SILICON		
△	Q801	TC3F042170	TRANSISTOR,SILICON		
△	Q802	TC3F042170	TRANSISTOR,SILICON		
COILS & TRANSFORMERS					
	L001	02167F3R3J	COIL		
	L101	02167F3R3J	COIL		
△	L501	029X000417	COIL,LINE FILTER		
△	L503	028R200031	COIL,DEGAUSS		
	L801	021673101K	COIL		
	T401	045011001L	TRANS,HORIZONTAL DRIVE		
△	T502	048129109S	TRANSFORMER,SWITCHING		
JACKS					
	J702	060Q401077	RCA JACK		
	J703	060Q401076	RCA JACK		
△	J801	066F120018	SOCKET,CATHODE RAY TUBE		
SWITCHES					
	SW101	0504101T34	SWITCH,TACT		
	SW102	0504101T34	SWITCH,TACT		
	SW103	0504101T34	SWITCH,TACT		
	SW104	0504101T34	SWITCH,TACT		
	SW105	0504101T34	SWITCH,TACT		
P.C. BOARD ASSEMBLIES					
	PCB010	A3R107Q010	PCB ASS'Y		
	PCB110	A3R101Q110	PCB ASS'Y		
MISCELLANEOUS					
	B501	024HT03553	CORE,BEADS		
	B504	024HT03553	CORE,BEADS		
△	CD501	1209414909	CORD AC BUSH		
		120R414903	CORD AC BUSH		
	CD801	06CU012401	CORD CONNECTOR		
	CD802	WCL6848038	FLAT CABLE AWM2468		
△	CP401	069S450089	CONNECTOR PCB SIDE		
△	CP502	069S420110	CONNECTOR PCB SIDE		
	CP601	0694260139	CONNECTOR PCB SIDE		
	CP801	069D01001A	CONNECTOR PCB SIDE		
	CD101A	06CH012002	CORD CONNECTOR		
	CD101B	06CH012003	CORD CONNECTOR		
	CP802A	067U005049	WIRE HOLDER		
	CP802B	067U005049	WIRE HOLDER		
	CP803A	067U003029	WIRE HOLDER		
	CP803B	067U003029	WIRE HOLDER		
△	F501	081PC04005	FUSE		
△	FB401	043219018Y	TRANSFORMER,FLYBACK		
	FH501	06710T0009	HOLDER,FUSE		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
MISCELLANEOUS			
FH502	06710T0009	HOLDER,FUSE	EYF-52BCY
OS101	077Q000025	REMOTE RECEIVER	KSM-713SY
SP1001	070Y132018	SPEAKER	S08F21
△ TH501	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
TM101	076N0DW110	TRANSMITTER	RC-DW110
TU001	0163100011	RF UNIT	ENG36A01GY or
	0163300005	RF UNIT	115-V-K015AR_B
△ V801	098Q200490	CRT W/DY	A48AKH13X04
X601	100BT3R537	CRYSTAL	HC-49U

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.	M3R1-07Q
O/R NO.	W443056