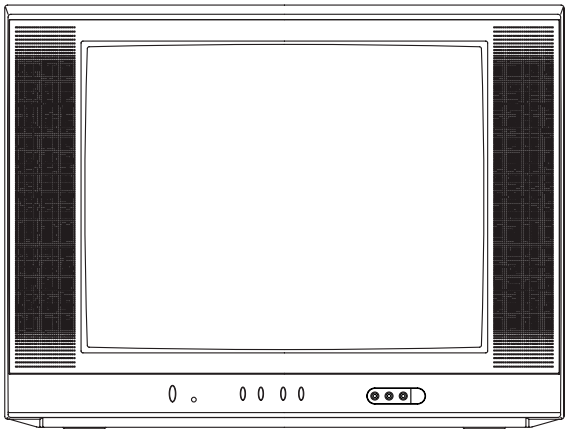
Memorex®

MT2206 Series A

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 ⚠ mark, the designated parts must be used.

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

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

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

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

6. AVOID AN X-RAY

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

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

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

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

IMPORTANT

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

CONTENTS

GENERAL SPECIFICATIONS

G-1	TV System	CRT		CRT Size / Visual Size	20 inch / 480.0mmV
				CRT Type	Normal
				Deflection	90 degree
				Magnetic Field BV/BH	+0.45G/0.18G
		Color System			NTSC
		Speaker			2Speaker
				Position	Front
				Size	2 x 4.7 Inch
				Impedance	8 ohm
		Sound Output		MAX	2.5+2.5 W
				10%(Typical)	2.0+2.0 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			Yes
		Tuner Sound Muting			Yes
G-3	Power	Power Source		AC	120V AC 60Hz
				DC	
		Power Consumption		at AC	
					90 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
				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	Yes
				Surround 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		Yes
			Video		Yes
			Color Stream		No

GENERAL SPECIFICATIONS

		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		28 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)	Yes
			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		Yes
		Tone Control		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			Yes
		Surround			No
		Energy Star			No
		Power On Memory			No
		Favorite CH			No
G-12	Accessories	Owner's Manual		Language	English / Spanish
				w/Guarantee Card	No
		Buyer Model No.			MT2206 SeriesA
		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 2
				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

GENERAL SPECIFICATIONS

G-14	Set Size		Approx. W x D x H (mm)	590 x 492 x 447
G-15	Weight		Net (Approx.)	21.0kg (46.3 lbs)
			Gross (Approx.)	23.8kg (52.5lbs)
G-16	Carton	Master Carton		No
			Content	---- Sets
			Material	-- /--
			Dimensions W x D x H(mm)	-- x -- x --
			Description of Origin	No
		Gift Box		Yes
			Material	Double / Brown
			Dimensions W x D x H(mm)	658 x 575 x 529
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	46
		Container Stuffing		288 Sets/40' container
G-17	Material	Cabinet	Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0 DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	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.

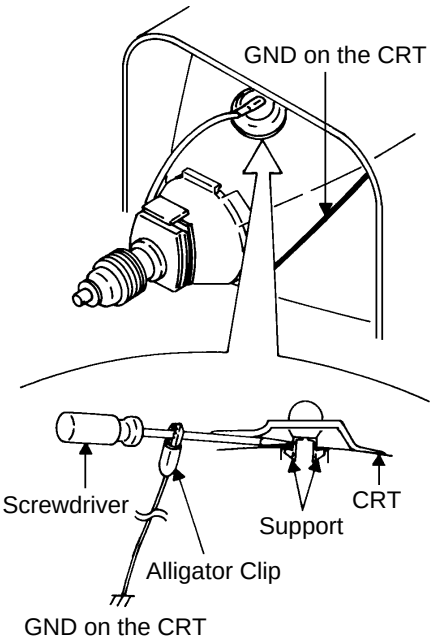


Fig. 1-1

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.)**

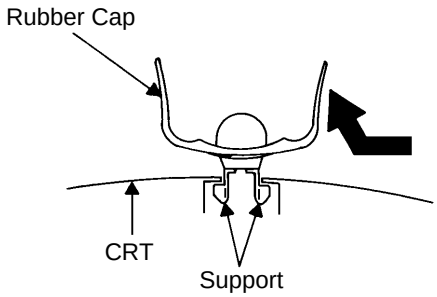


Fig. 1-2

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.)**

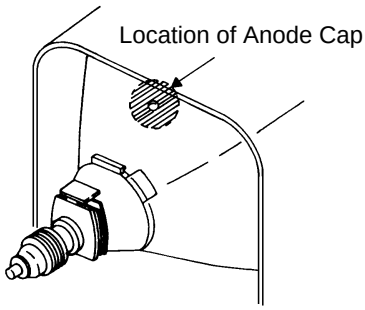


Fig. 1-3

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.)**

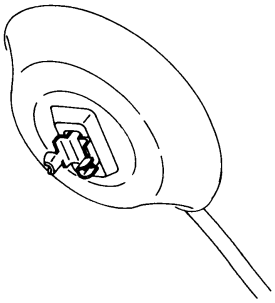


Fig. 1-4

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

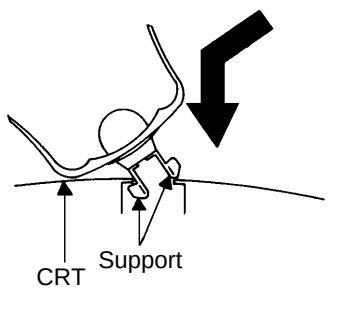


Fig. 1-5

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.

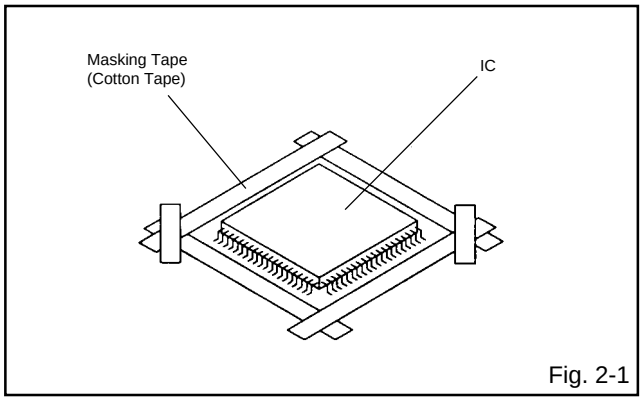


Fig. 2-1

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.

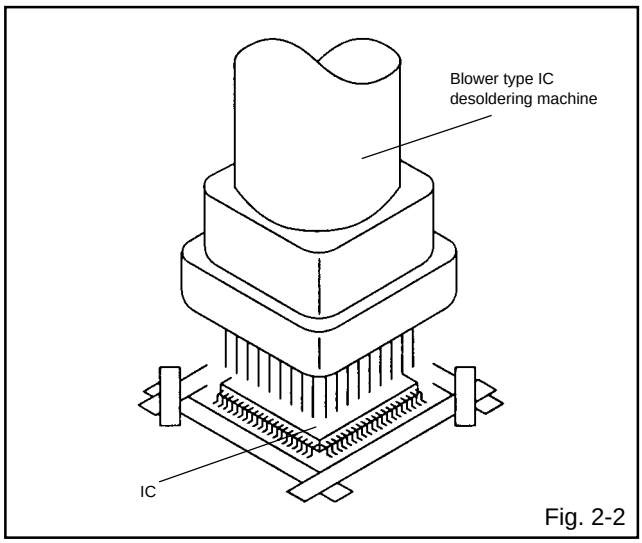


Fig. 2-2

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.

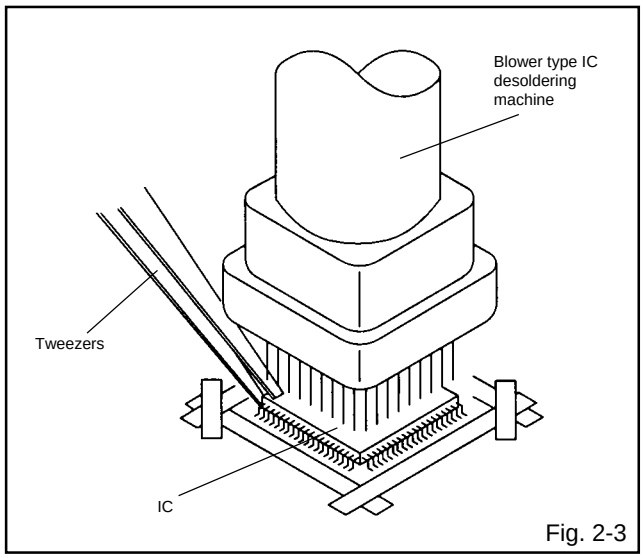


Fig. 2-3

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.

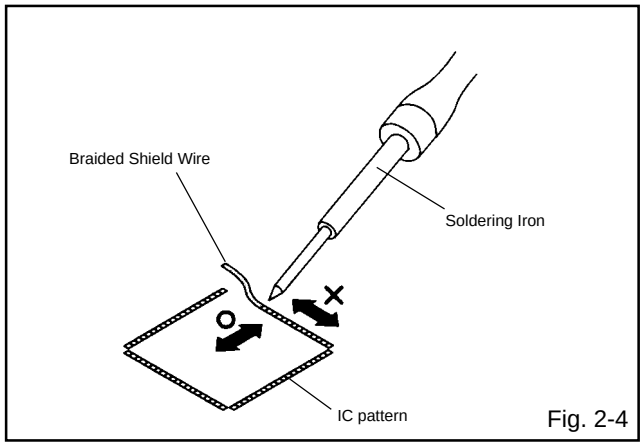


Fig. 2-4

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.)**

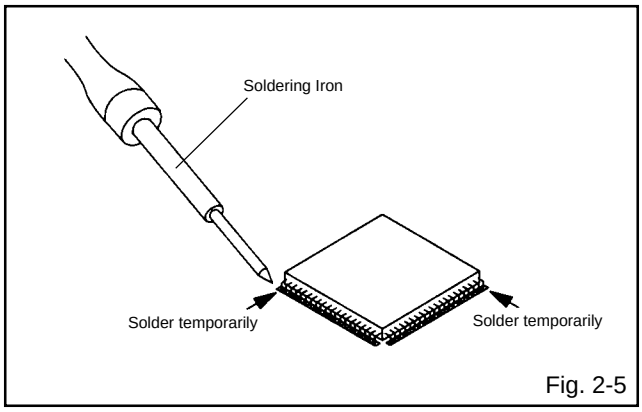


Fig. 2-5

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.)**

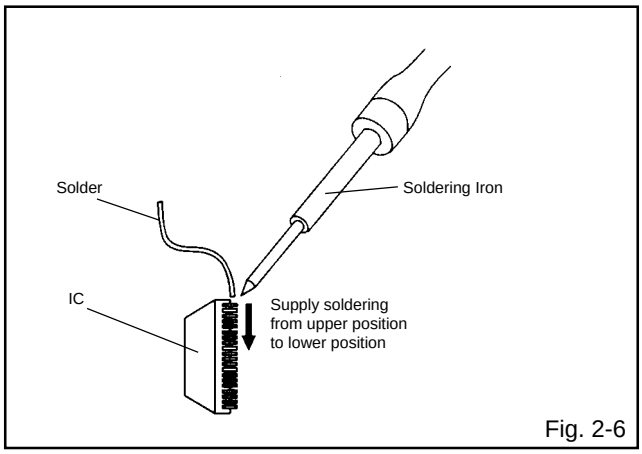


Fig. 2-6

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.

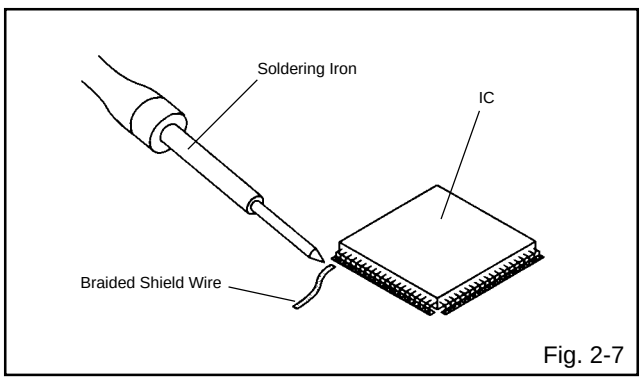


Fig. 2-7

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.)**

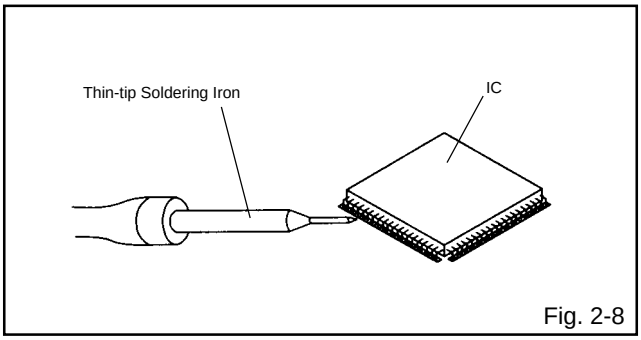


Fig. 2-8

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

CONFIRMATION OF HOURS USED

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

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

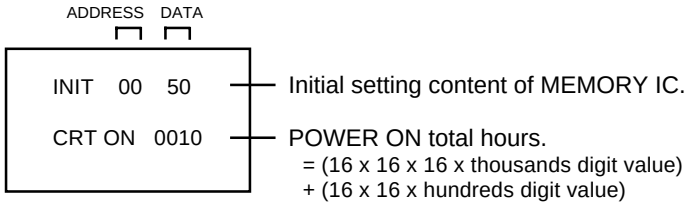


FIG. 1

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	50	04	4F	4C	17	B3	24	39	33	00	AA	20	14	4F	00	03

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 1 second. ADDRESS and DATA should appear as 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 1 second.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

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 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. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. 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**.

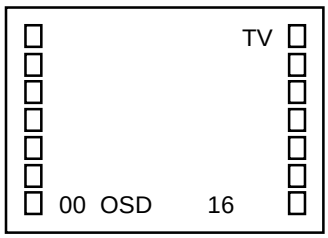


Fig. 1-1

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	17	CONTRAST MAX
01	CUT OFF	18	CONTRAST MIN
04	H.VCO	19	COLOR CENT
05	H.PHAS	20	COLOR MAX
06	V.SIZE	21	COLOR MIN
07	V.SHIFT	22	TINT
08	R.DRIVE	23	SHARPNESS
09	B.DRIVE	24	FM LEVEL
10	R.BIAS	25	LEVEL
11	G.BIAS	26	SEPARATION 1
12	B.BIAS	27	SEPARATION 2
13	BRIGHT CENT	28	TEST MONO
14	BRIGHT MAX	29	TEST STEREO
15	BRIGHT MIN	30	X-RAY TEST
16	CONTRAST CENT		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CUT OFF

1. Adjust the unit to the following settings. R.DRIVE=64, B.DRIVE=64, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRI CENT=110, CONT MAX=90.
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. Press the CH. UP/DOWN button on the remote control to select the "R. BIAS", "G. BIAS", "B. BIAS", R. DRIVE or "B. DRIVE".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R. BIAS, G. BIAS, B. BIAS, R. DRIVE, and B. DRIVE at each step tone sections equally.
7. 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. (RF Input)
2. Connect the oscilloscope to **TP024**.
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. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales
8. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110% of the white level. **(Refer to Fig. 2-2)**
9. Receive the color bar pattern. (Audio Video Input)
10. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~8**.**

ELECTRICAL ADJUSTMENTS

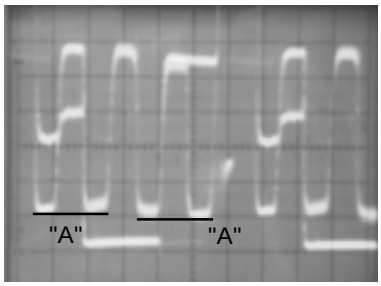


Fig. 2-1

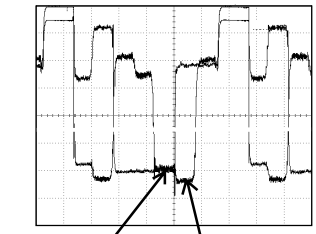


Fig. 2-2

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 SHIFT

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Check if the step No. V. SHIFT is "3".
4. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.

2-7: VERTICAL SIZE

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 **(06)** on the remote control to select "V.SIZE".
4. 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%.
5. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-7. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR402** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

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 and up 2 steps. **(Refer to Fig. 2-3)**

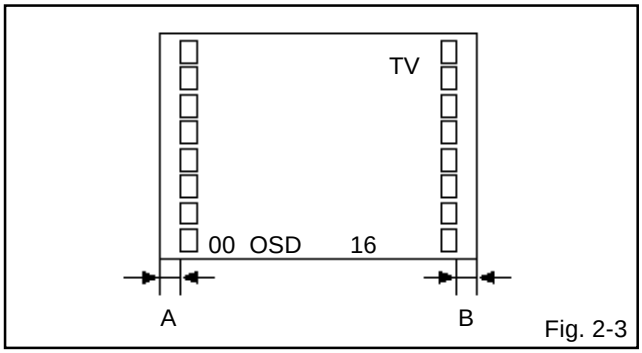


Fig. 2-3

2-10: SUB BRIGHTNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRI.CENT".
2. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
3. Receive a broadcast and check if the picture is normal.
4. Press the TV/AV button on the remote to set to the AV mode. Then perform the above adjustment 1~3.

2-11: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Connec the digital voltmeter to the **TP402**.
3. Adjust the **VR502** until the digital voltmeter is 117 ± 1V.

2-12: SEPARATION 1, 2

Please do the method (1) or method (2) adjustment.

Method (1)

1. Set the multi-sound signal generator for each different L-ch and R-ch frequency (Ex. L-ch=2KHz, R-ch=400Hz) and receive the RF.
2. Connect the oscilloscope to the **pin 6 of CP601 and pin 7 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "SEP 1".
4. Press the VOL. UP/DOWN button on the remote control to adjust it until the audio output wave becomes a fine sine wave.
5. Press the CH UP button once the set to "SEP 2" mode. Then perform the above adjustment 4.

ELECTRICAL ADJUSTMENTS

Method (2)

1. Set the multi-sound signal generator L-ch=1KHz, R-ch =Non input and receive the RF.
2. Connect the oscilloscope to the **pin 7 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "SEP 1".
4. Press the VOL. UP/DOWN button on the remote control to adjust it until the R-ch output becomes minimum.
5. Set the multi-sound signal generator L-ch=Non input, R-ch=1KHz and receive the RF.
6. Connect the oscilloscope to the **pin 6 of CP601**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "SEP 2".
8. Press the VOL. UP/DOWN button on the remote control to adjust it until the L-ch output becomes minimum.

2-13: LEVEL

1. Receive a 70~80dB monoscope pattern.
2. Connect the AC voltmeter to the **pin 6 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(25)** on the remote control to select "LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 75 ± 1mV.

2-14: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "CONT MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "90".
3. Receive a broadcast and check if the picture is normal.
4. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-15: 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	03	03
14	BRIGHT MAX	155	181
15	BRIGHT MIN	50	50
16	CONT CENT	40	40
18	CONT MIN	12	12
20	COLOR MAX	86	86
21	COLOR MIN	00	00
23	SHARPNESS	43	43
24	FM LEVEL	01	01
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.

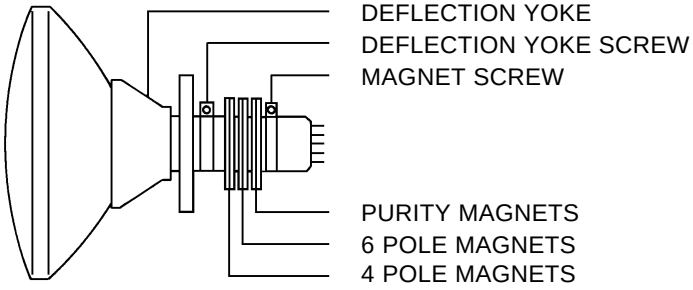


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

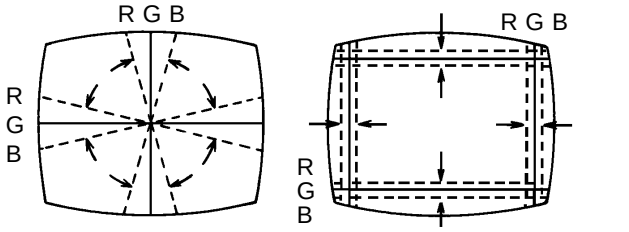
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

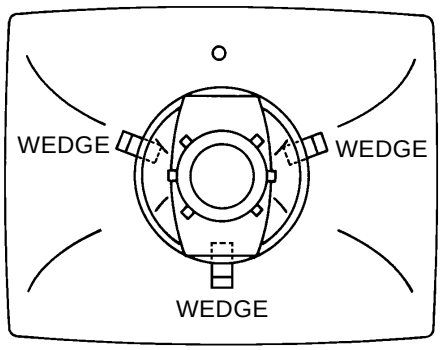
Adjust after performing adjustments in section 3-3.

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)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

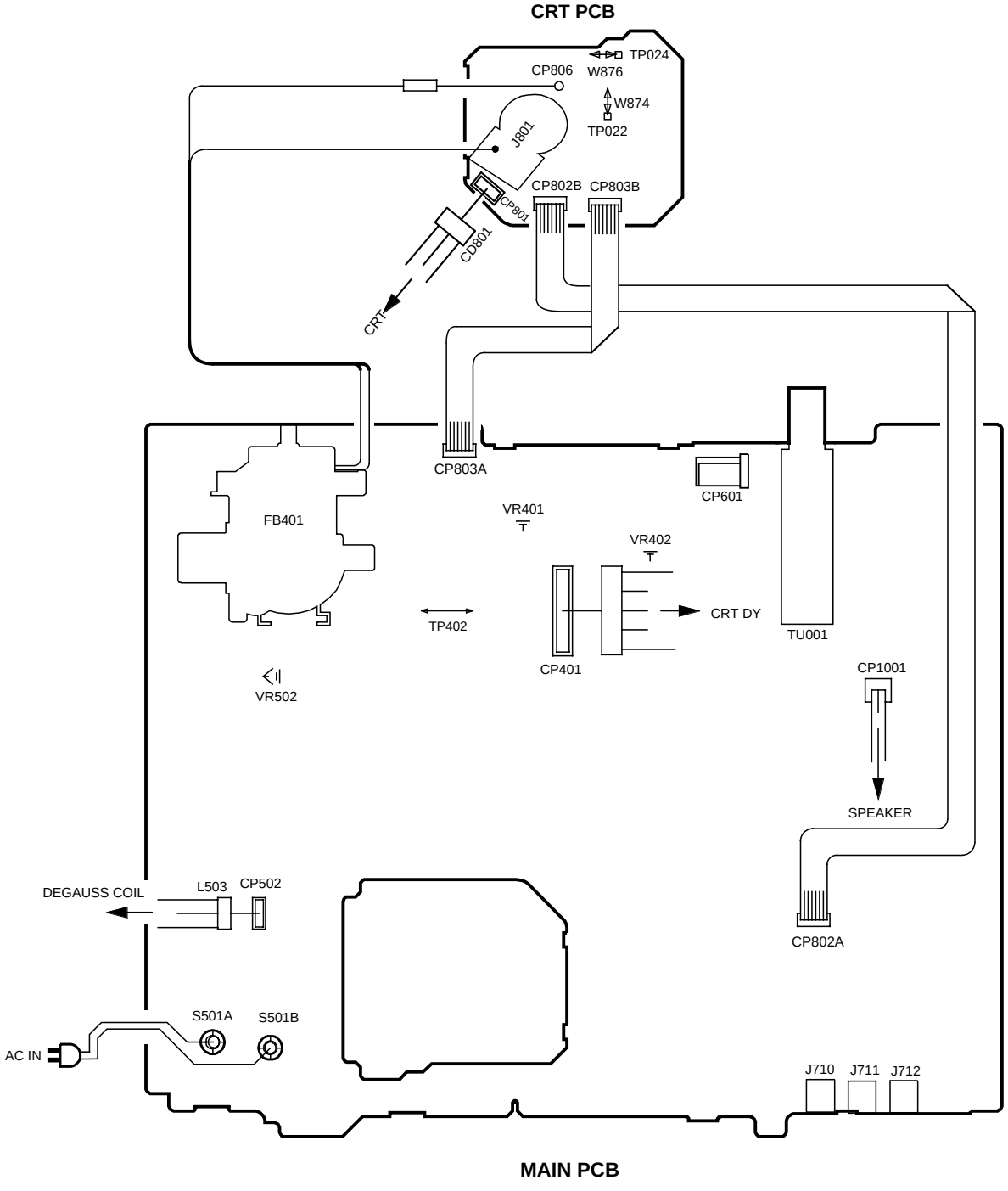


WEDGE POSITION

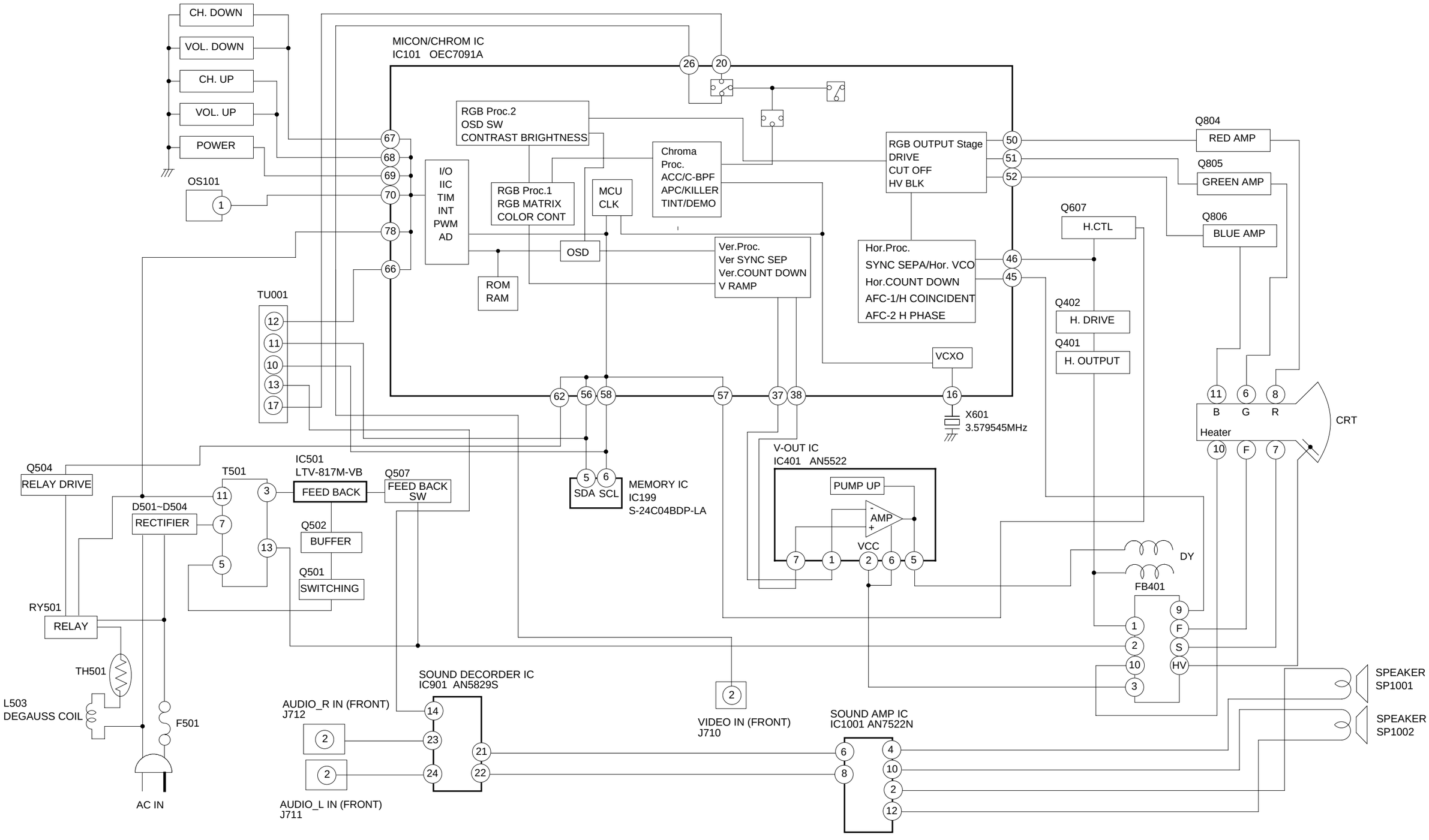
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

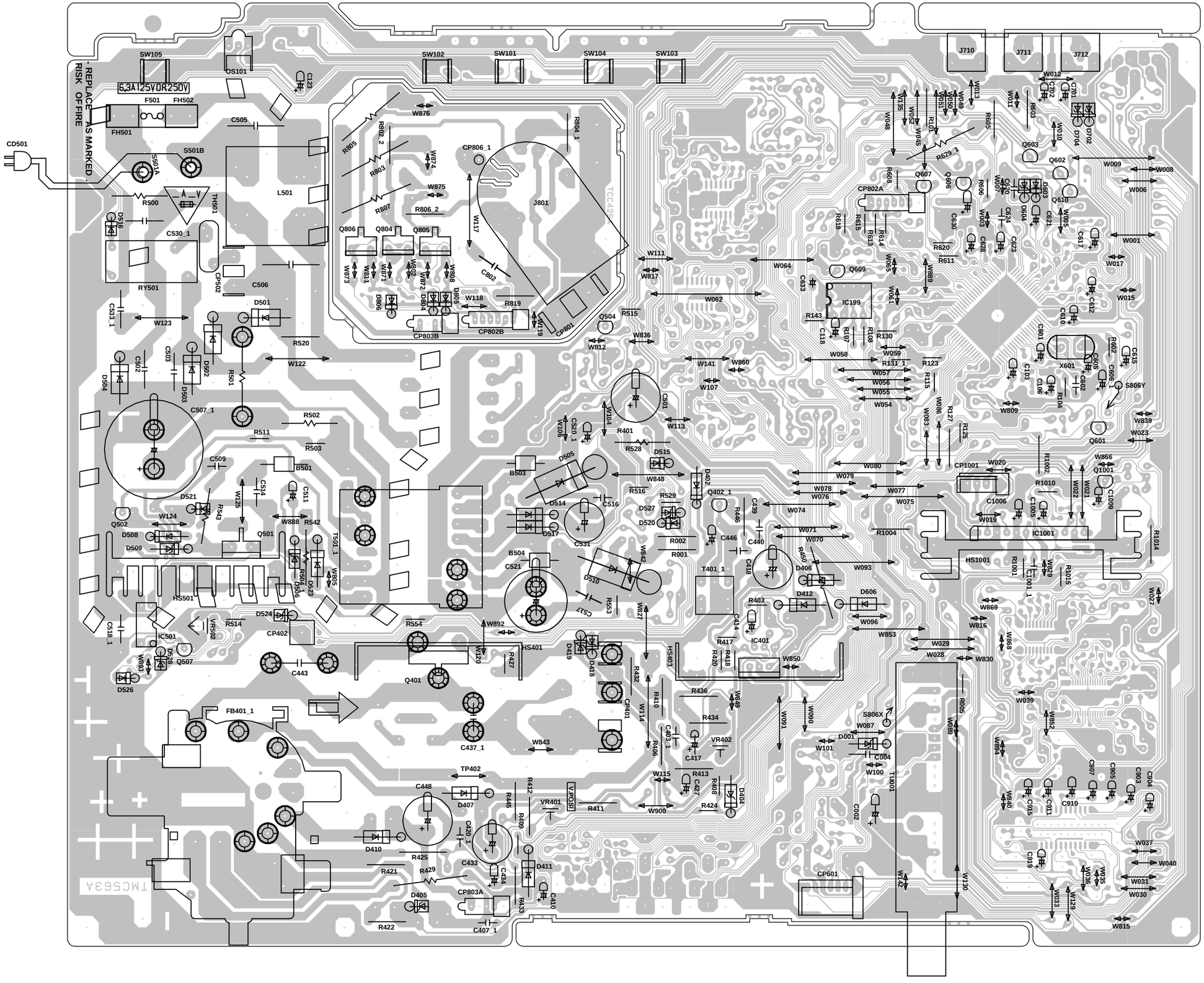
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



BLOCK DIAGRAM



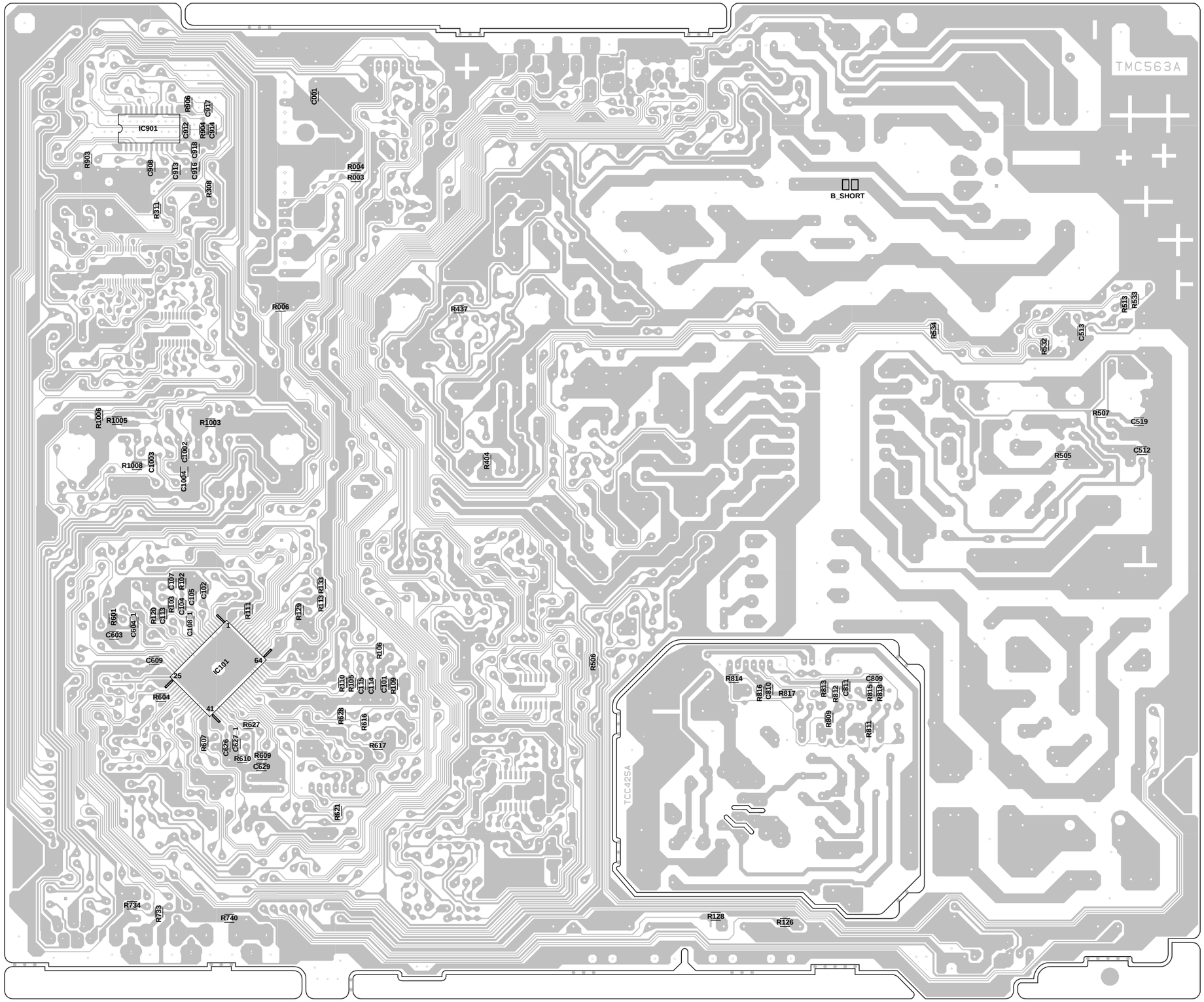
PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



F-1

F-2

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	MCU5.7V 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	TEST3	76	ON_TIMER
37	V RAMP F/B	77	BBE
38	V RAMP OUT	78	POWER FAIL
39	V RAMP CAP	79	X-RAY_TEST
40	8.7V 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.

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

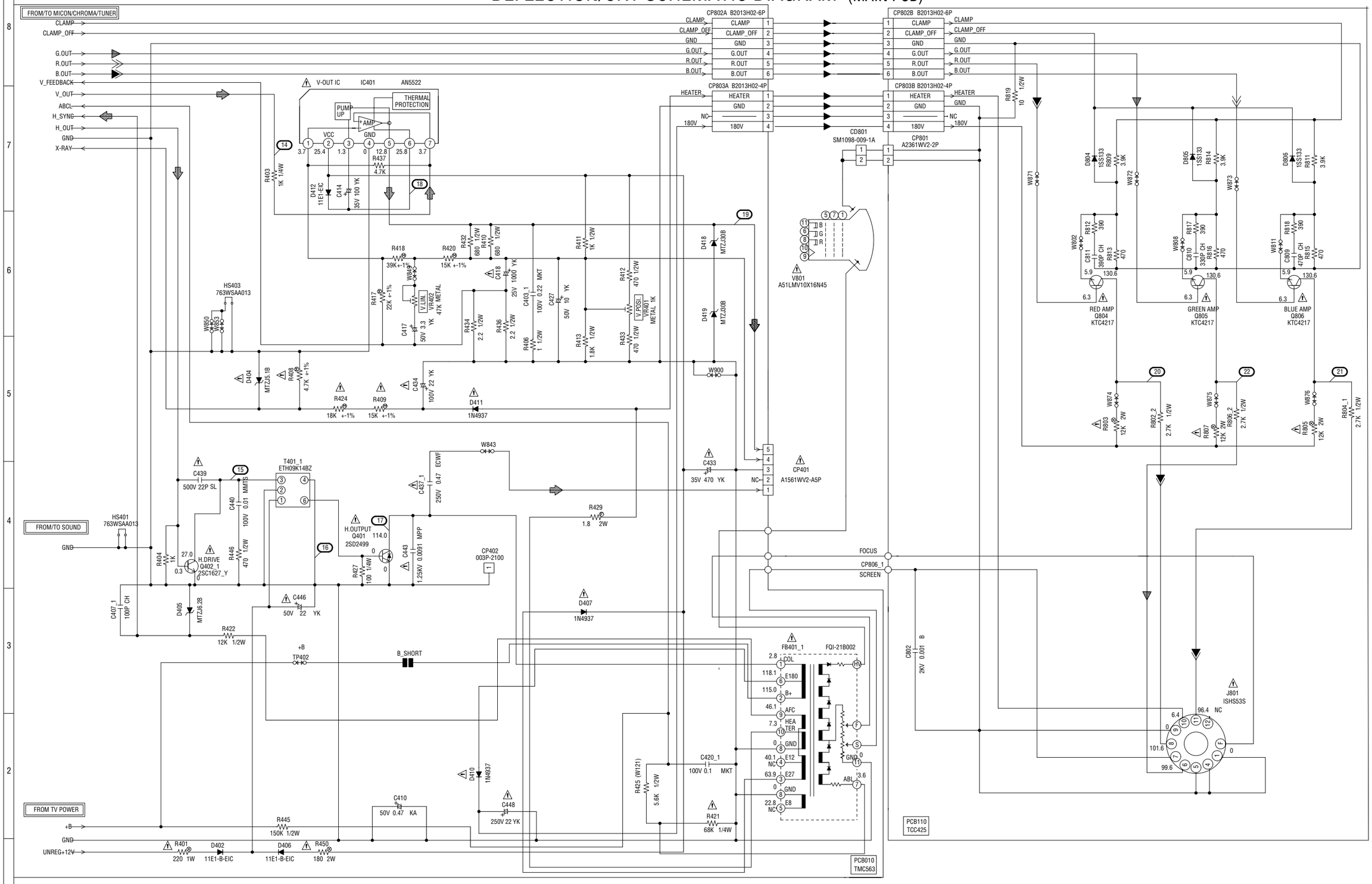
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

G-1

G-2

DEFLECTION/CRT 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.

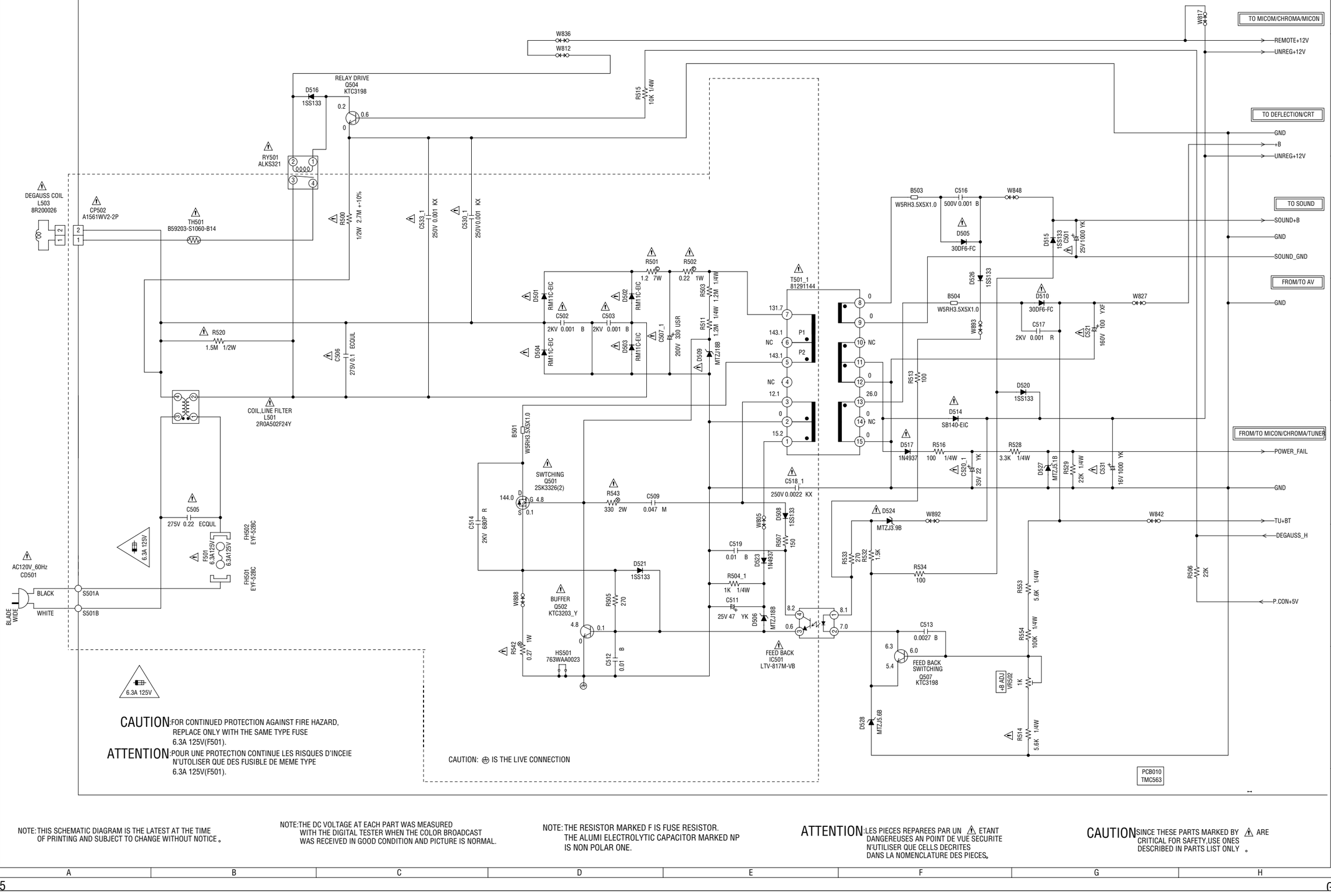
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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

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

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL
◀▨ DEFLECTION SIGNAL

TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)



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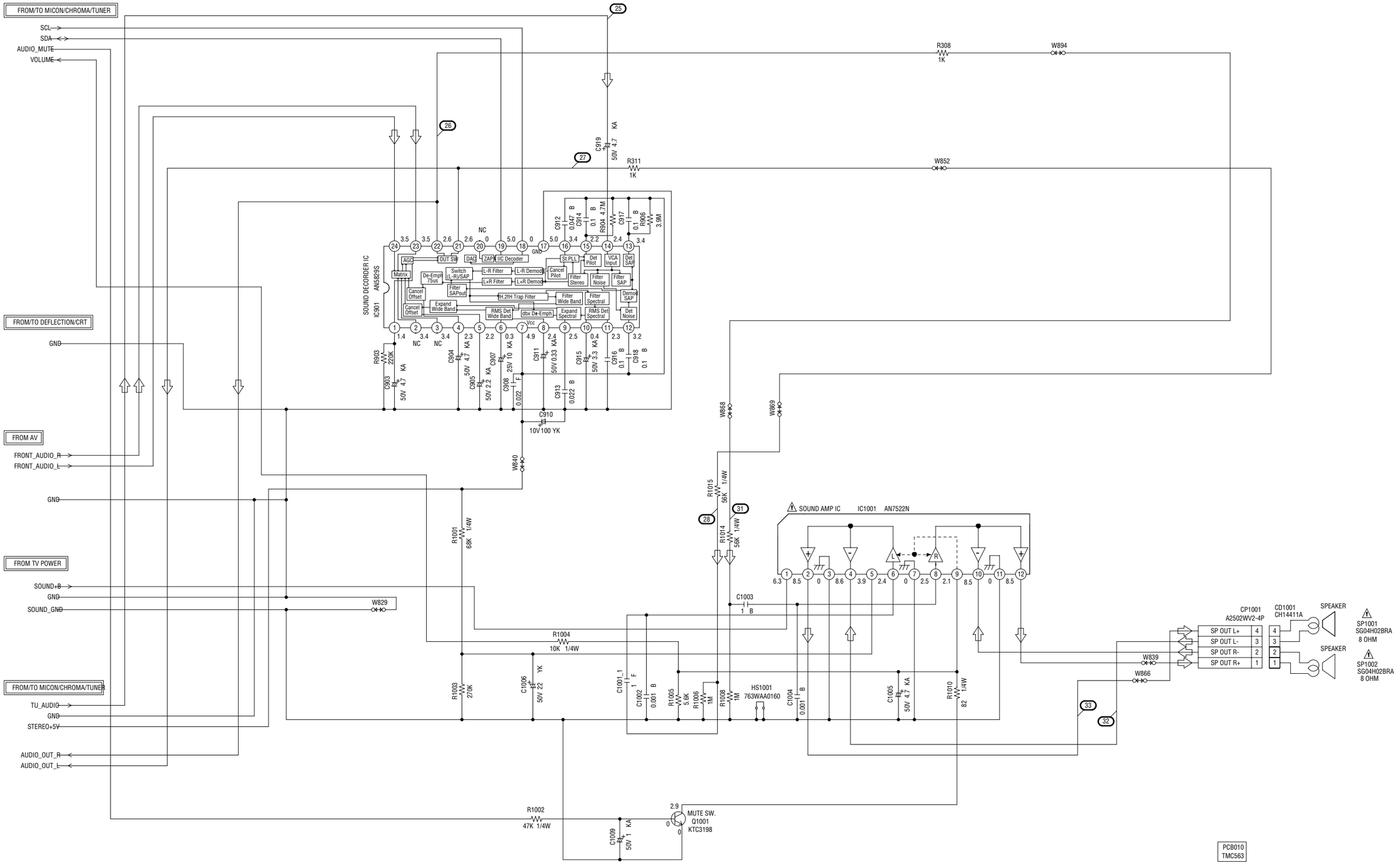
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

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

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)



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

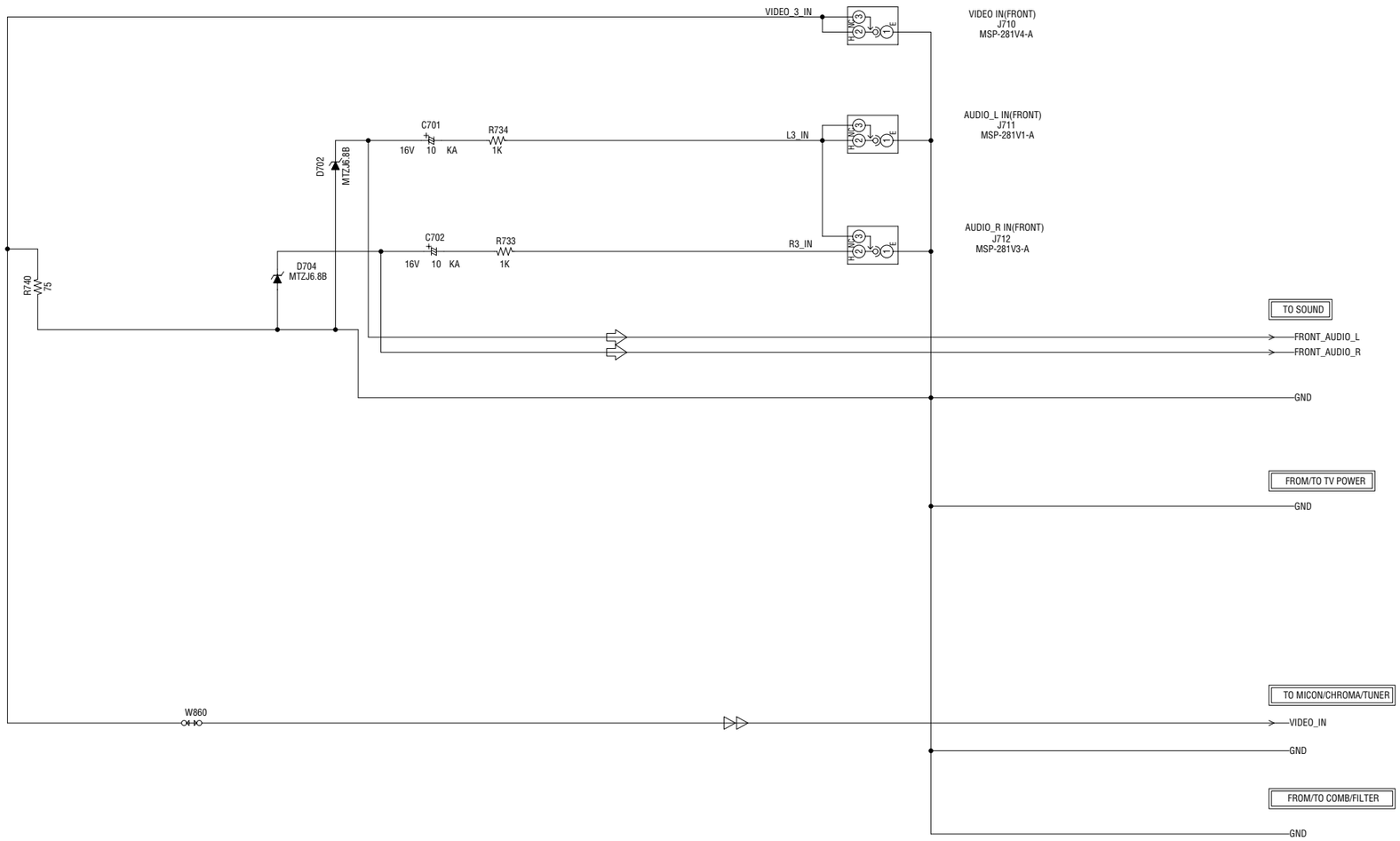
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

⇦ AUDIO SIGNAL

AV SCHEMATIC DIAGRAM
(MAIN PCB)



PCB010
TMC563

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

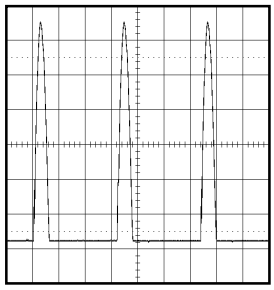
NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

⇦ AUDIO SIGNAL

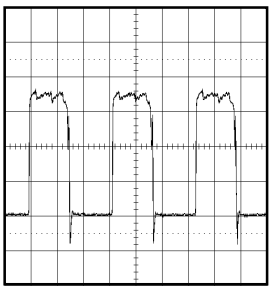
◁◁ TUNER VIDEO SIGNAL

WAVEFORMS

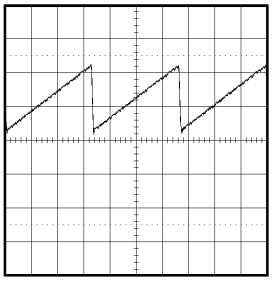
MICON/CHROMA/TUNER



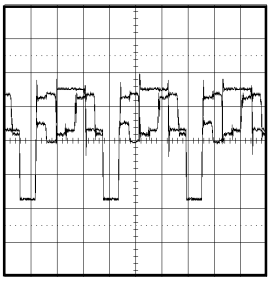
② 20V 20µs/div



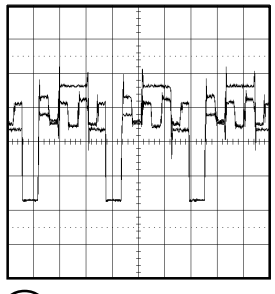
③ 200mV 20µs/div



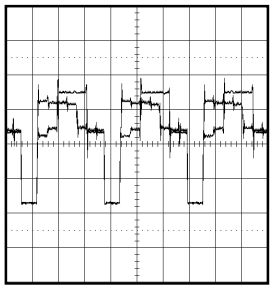
④ 0.5V 5ms/div



⑤ 1V 20µs/div

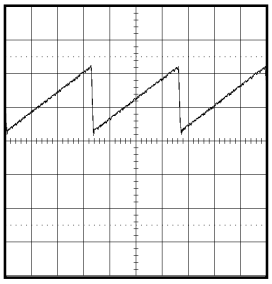


⑥ 1V 20µs/div

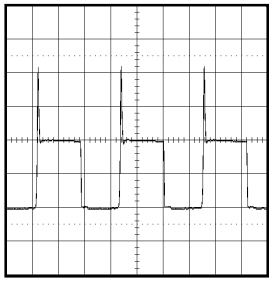


⑦ 1V 20µs/div

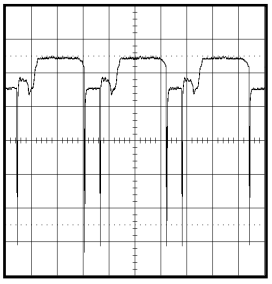
DEFLECTION/CRT



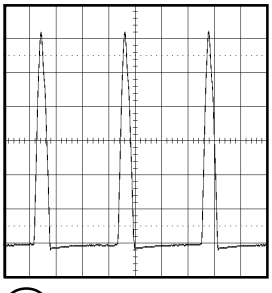
⑭ 0.5V 5ms/div



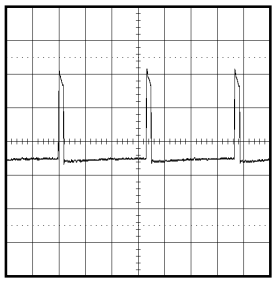
⑮ 20V 20µs/div



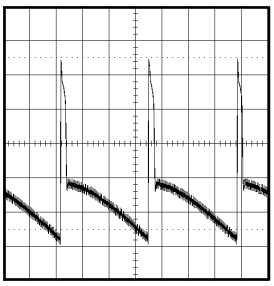
⑯ 2V 20µs/div



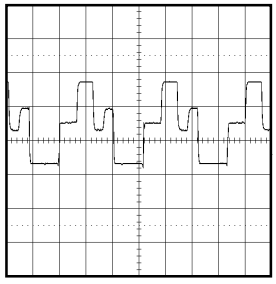
⑰ 200V 20µs/div



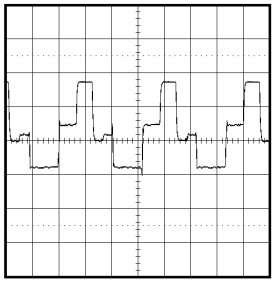
⑱ 10V 5ms/div



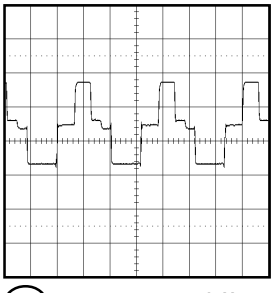
⑲ 10V 5ms/div



⑳ 50V 20µs/div



㉑ 50V 20µs/div

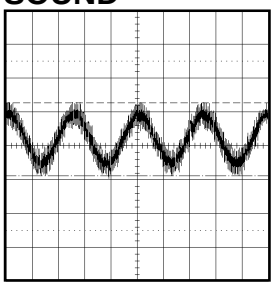


㉒ 50V 20µs/div

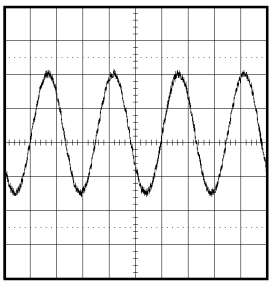
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

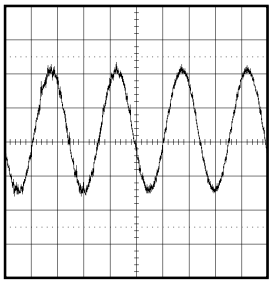
SOUND



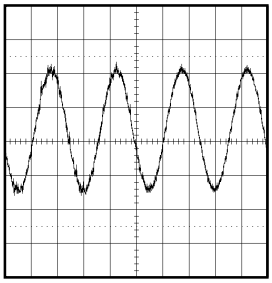
(25) 0.5V 1ms/div



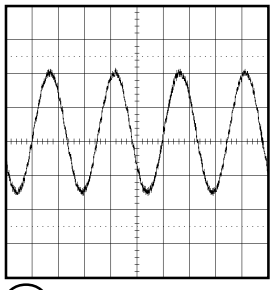
(26) 200mV 1ms/div



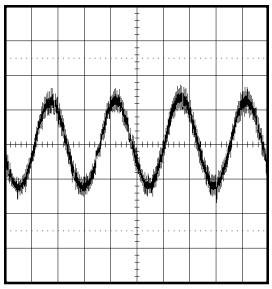
(27) 200mV 1ms/div



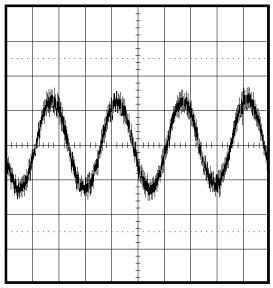
(28) 200mV 1ms/div



(31) 200mV 1ms/div



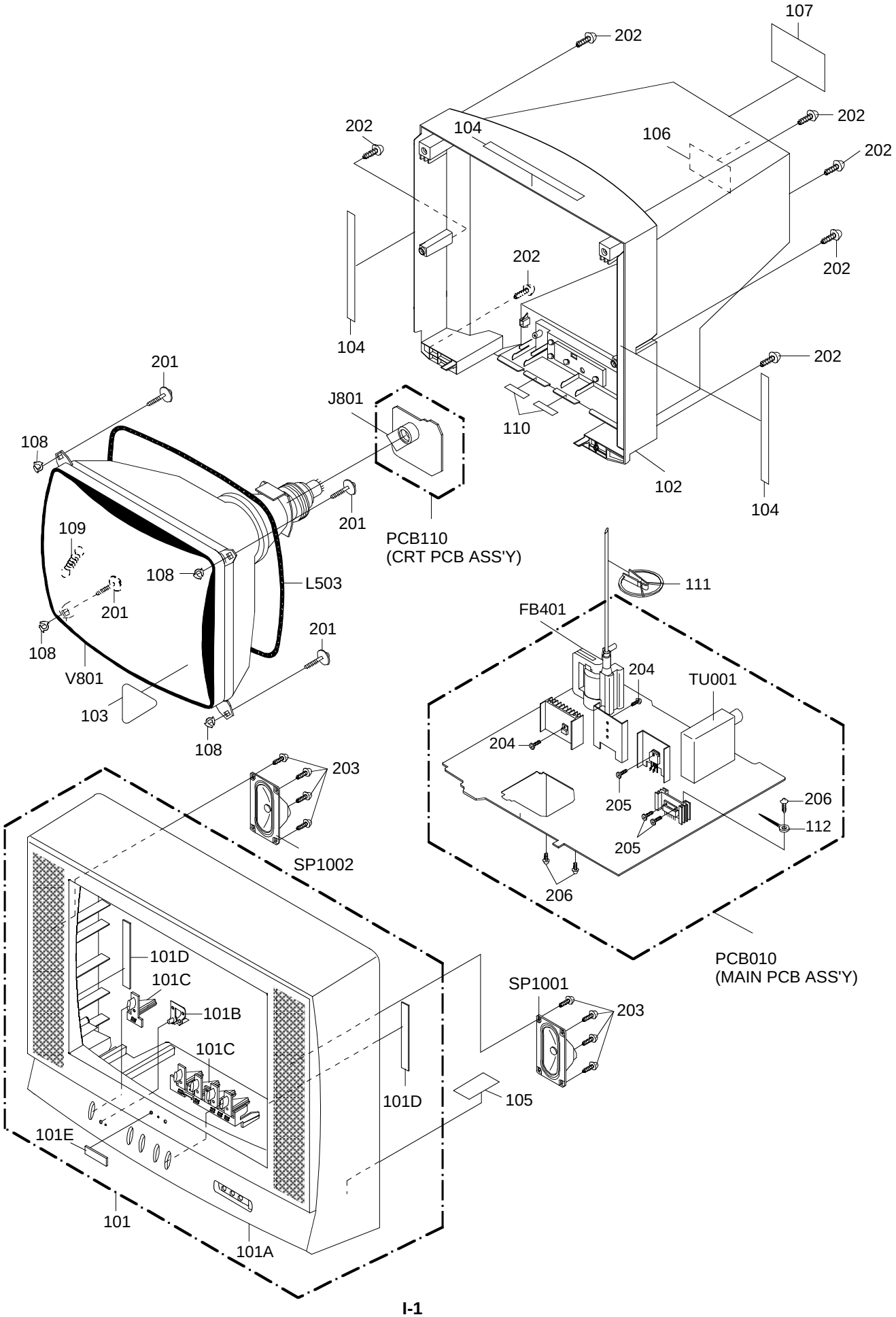
(32) 0.5V 1ms/div



(33) 0.5V 1ms/div

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

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A3M907X720	CABINET,FRONT ASSY		
101A	701WPJC309	CABINET,FRONT		
101B	713WPA0205	GUIDE,REMOCON		
101C	735WPBA785	BUTTON,FRAME		
101D	800WQ00045	FELT SHEET		5x150xT0.5
102	A3M907X740	CABINET,BACK ASS'Y		
103	723000B881	FILM,DECORATION		
104	800WQ00068	FELT,SHEET		18x350xT=0.5
105	7230006755	SHEET,CAUTION		
106	726000A043	SHEET,CRT NO		
107	722A08A140	SHEET,RATING		
108	769WSAA005	WASHER CRT T=1		
109	741WUA0001	SPRING,EARTH		
110	800WQ0A018	FELT,SHEET		18x60xT0.5
111	899HV3T000	HOLDER,ANODE WIRE		
112	8995034000	CORD CLIP UL CO.		
201	8141J50C54	SCREW,TAP TITE(P)	GW22	5x35
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
204	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
205	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
206	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
---	791WHA0025	LAMIFILM BAG		
---	792WHA0370	PACKAGE,TOP		
---	792WHA0371	PACKAGE,BOTTOM		
---	793WCDB807	GIFT BOX		
---	795WCAA139	PAD		635x550
---	J3J81702C	WARRANTY SHEET		
---	J3M90701A	INSTRUCTION BOOK		
---	JB5U0200	POLYBAG,INSTRUCTION		
---	A3M907X975	INSTRUCTION BOOK KIT		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
R401	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R408	R4X5T6472F	R,METAL	4.7K OHM 1/6W
⚠ R409	R4X5T6153F	R,METAL	15K OHM 1/6W
⚠ R424	R4X5T6183F	R,METAL	18K OHM 1/6W
R425	R00202562J	RC	5.6K OHM 1/2W or
	R002T2562J	RC	5.6K OHM 1/2W
⚠ R429	R6558A1R8J	R,FUSE	1.8 OHM 2W
⚠ R450	R3X18A181J	R,METAL OXIDE	180 OHM 2W
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W
⚠ R501	R5X2AE1R2J	R,CEMENT	1.2 OHM 7W
R502	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R520	R002T2155J	RC	1.5M OHM 1/2W
⚠ R542	R3X181R27J	R,METAL OXIDE	0.27 OHM 1W
R543	R3X28A331J	R,METAL OXIDE	330 OHM 2W
R629	R3X28B270J	R,METAL OXIDE	27 OHM 3W
⚠ R803	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R805	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R807	R3X18A123J	R,METAL OXIDE	12K OHM 2W
		CAPACITORS	
⚠ C414	E02LU4101M	CE	100 UF 35V
C418	E02LF3102M	CE	1000 UF 25V
⚠ C433	E02LT4471M	CE	470 UF 35V
⚠ C437	P411F3474J	CMPP	0.47 UF 250V ECWF
C443	P4N8FJ912H	CMPP	0.0091UF 1.25KV
⚠ C448	E0ELFD220M	CE	22 UF 250V
⚠ C501	E02LF3102M	CE	1000 UF 25V
C502	C0JBB0713K	CC	0.001 UF 2KV B
C503	C0JBB0713K	CC	0.001 UF 2KV B
⚠ C505	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠ C506	P2122B104M	CMP	0.1 UF 275V ECQUL
⚠ C507	E52DGC331M	CE	330 UF 200V
C514	C0PLRR7U2K	CC	680 PF 2KV R
C517	C0PLRR713K	CC	0.001 UF 2KV R
C518	CD39E0MH3M	CC	0.0022UF 250V
⚠ C521	E62NFB101M	CE	100 UF 160V
C530	CD39E0M13M	CC	0.001 UF 250V
⚠ C531	E02LT2102M	CE	1000 UF 16V
C533	CD39E0M13M	CC	0.001 UF 250V
C802	C0JBB0713K	CC	0.001 UF 2KV B
		DIODES	
D001	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D402	D2W0011E10	DIODE SILICON	11E1-B-EIC
D404	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
⚠ D405	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77
D406	D2W0011E10	DIODE SILICON	11E1-B-EIC
⚠ D407	D2WXN49370	DIODE SILICON	1N4937
⚠ D410	D2WXN49370	DIODE SILICON	1N4937
⚠ D411	D2WXN49370	DIODE SILICON	1N4937
D412	D2WT011E10	DIODE SILICON	11E1-EIC
D418	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D419	D97U03001B	DIODE,ZENER	MTZJ30B T-77
⚠ D501	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D502	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D503	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D504	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D505	D28F30DF60	DIODE RECTIFIER	30DF6-FC
D506	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D508	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D509	D97U01801B	DIODE,ZENER	MTZJ18B T-77
⚠ D510	D28F30DF60	DIODE RECTIFIER	30DF6-FC
⚠ D514	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D515	D1VT001330	DIODE,SILICON	1SS133T-77
D516	D1VT001330	DIODE,SILICON	1SS133T-77
D517	D2WXN49370	DIODE SILICON	1N4937
D520	D1VT001330	DIODE,SILICON	1SS133T-77
D521	D1VT001330	DIODE,SILICON	1SS133T-77
D523	D2WXN49370	DIODE SILICON	1N4937
D524	D97U03R91B	DIODE,ZENER	MTZJ3.9B T-77
D526	D1VT001330	DIODE,SILICON	1SS133T-77
D527	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D603	D1VT001330	DIODE,SILICON	1SS133T-77
D604	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D606	D2WT011E10	DIODE SILICON	11E1-EIC
D702	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D704	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D804	D1VT001330	DIODE,SILICON	1SS133T-77

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D805	D1VT001330	DIODE,SILICON	1SS133T-77
D806	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
IC101	I56F07091A	IC	OEC7091A
IC199	A3M907X015	IC	S-24C04BDP-LA
⚠ IC401	I01TD55220	IC	AN5522
IC501	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC901	I01FF58290	IC	AN5829S
⚠ IC1001	I0FSP7522N	IC	AN7522N
		TRANSISTORS	
⚠ Q401	TDUF024990	TRANSISTOR SILICON	2SD2499
⚠ Q402	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
Q501	T220033260	FET	2SK3326(2)
Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q504	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q601	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q602	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q606	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q607	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q609	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q610	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
⚠ Q804	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q805	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q806	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
Q1001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
		COILS &TRANSFORMERS	
⚠ L501	029T000100	COIL,LINE FILTER	2R0A502F24Y
⚠ L503	028R200026	COIL,DEGAUSS	8R200026
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T501	0481291144	TRANSFORMER,SWITCHING	81291144
		JACKS	
J710	060J421032	RCA JACK	MSP-281V4-A
J711	060J421031	RCA JACK	MSP-281V1-A
J712	060J421023	RCA JACK	MSP-281V3-A
⚠ J801	066F130020	SOCKET,CATHODE RAY,TUBE	ISHS53S
		SWITCHES	
SW101	0504101T34	SWITCH,TACT	EVQ21505R
SW102	0504101T34	SWITCH,TACT	EVQ21505R
SW103	0504101T34	SWITCH,TACT	EVQ21505R
SW104	0504101T34	SWITCH,TACT	EVQ21505R
SW105	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS	
VR401	V1K6313BTE	VOLUME,SEMI FIXED	NVG6TLTAB102
VR402	V1K63Q4BTE	VOLUME,SEMI FIXED	NVG6TLTAB473
VR502	V116313BTC	VOLUME,SEMI FIXED	EVNCYAA03B13
		P.C.BOARD ASSEMBLIES	
PCB010	A3M907X010	PCB ASS'Y	TMC563A
PCB110	A3M908X110	PCB ASS'Y	TCC425A
		MISCELLANEOUS	
B501	024H003553	CORE,BEADS	W5RH3.5X5X1.0
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B504	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	1209415910	CORD AC BUSH	9415910 or
	120R415906	CORD AC BUSH	0R415906
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A
CD802	WDL6046038	FLAT CABLE	AWG26 6C BLACK 460MM
CD803	WBL6032038	FLAT CABLE	AWG26 4C BLACK 320MM
⚠ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP402	069D01001A	CONNECTOR PCB SIDE	003P-2100
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP601	0694270139	CONNECTOR PCB SIDE	173979-7
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD1001	06CH14411A	CORD CONNECTOR	CH14411A
CP1001	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP802A	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	067U006049	WIRE HOLDER	B2013H02-6P
CP803A	067U004029	WIRE HOLDER	B2013H02-4P
CP803B	067U004029	WIRE HOLDER	B2013H02-4P
EL001	124116281A	EYE LET	XRY16X28BD
EL002	124120301A	EYE LET	XRY20X30BD
⚠ F501	081PC6R305	FUSE	51MS063L
⚠ FB401	043221012F	TRANSFORMER,FLYBACK	FQI-21B002
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS101	0773071001	REMOTE RECEIVER	RPM7138-H5

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
MISCELLANEOUS			
⚠ RY501	0560V20115	RELAY	ALKS321
⚠ SP1001	070C546004	SPEAKER	SG04H02BRA
⚠ SP1002	070C546004	SPEAKER	SG04H02BRA
⚠ TH501	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
TM101	076N0DW130	TRANSMITTER	RC-DW130
⚠ TU001	0163300005	RF UNIT	115-V-K015AR_B
⚠ V801	098Y210434	CRT W/DY	A51LMV10X16N45
X601	100CT3R505	CRYSTAL	HC-49/C

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

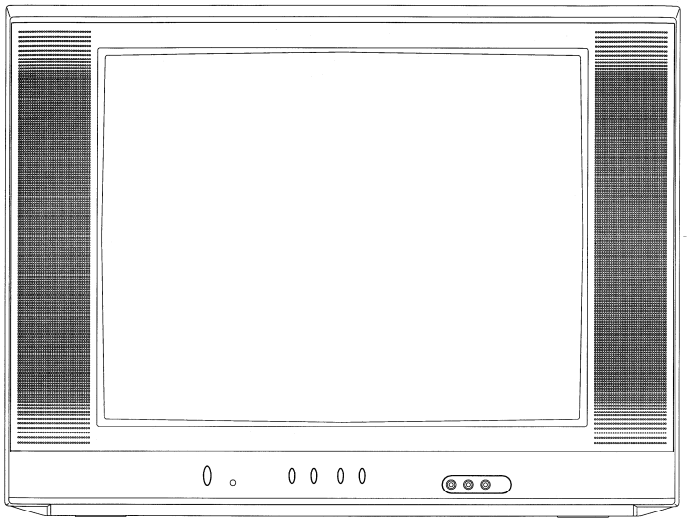
SPEC.NO.	M3M9-07X
O/R NO.	W363006

Memorex®

MT2206

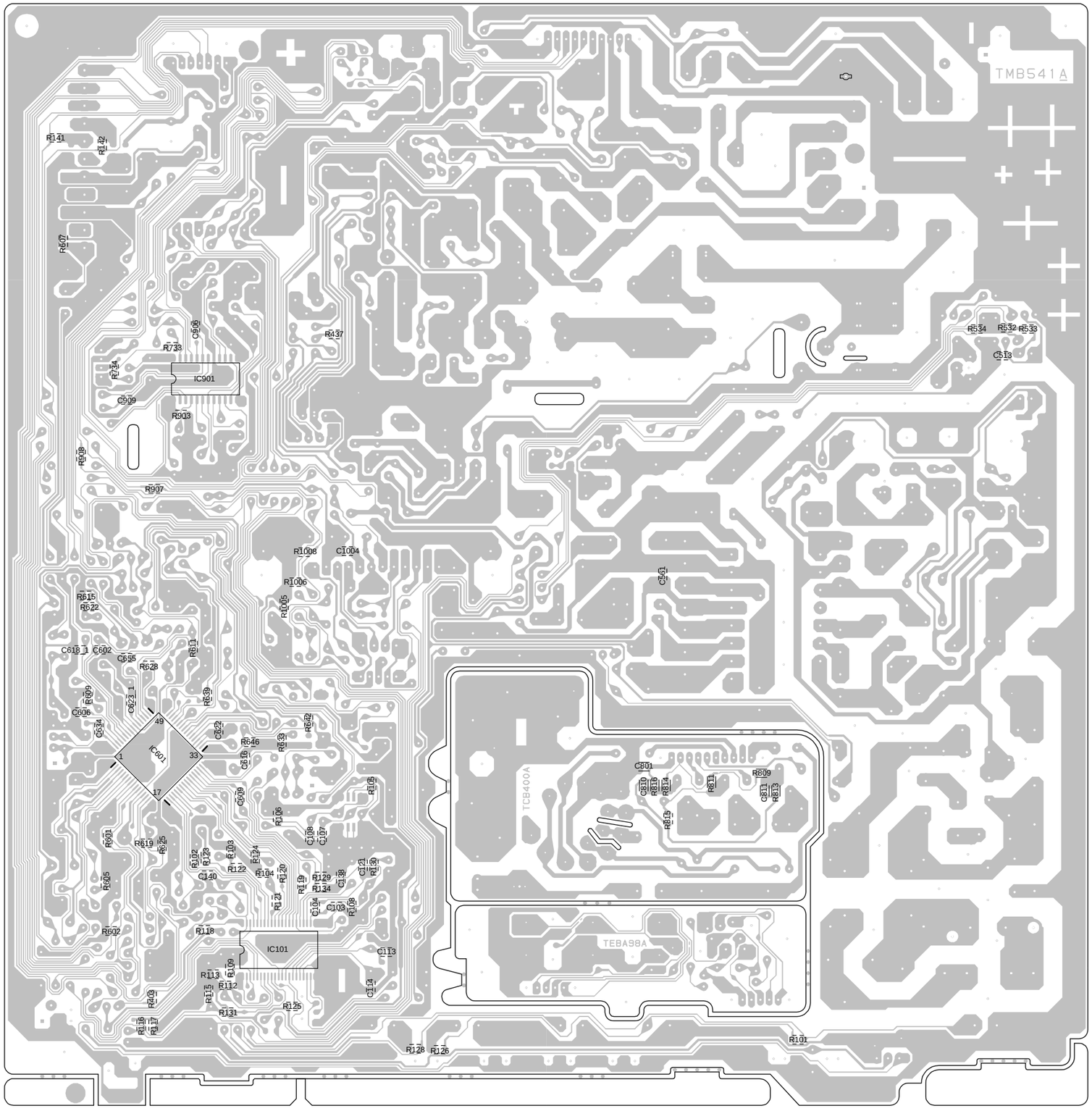
SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION B

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



MICON/TUNER SCHEMATIC DIAGRAM

(MAIN PCB)

ACCESSORY
TM101
RC-DW040

TU001 ENV56DB6G3
(11) IF 0
(10) NC 0
(9) BTL 30.0
(8) NC 0
(7) BPL 4.9
(6) V.S NC
(5) SDA 4.8
(4) SCL 4.8
(3) ADRES 1.3 NC
(2) NC 6.2
(1) AGC 4.6

R607 100
C003 50V 4.7 YK
C004 0.022 F
D001 MTZJ30B
C002 6.3V 470 YK

R101 560
R126 2.7K
R128 560
POWER SW105 SKHVBED010
VOL DOWN SW104 SKHVBED010
VOL UP SW103 SKHVBED010
CH DOWN SW102 SKHVBED010
CH UP SW101 SKHVBED010

OS101
PIC-37143SY
(1) Vout 4.8
(2) B+ 4.9
(3) GND 0
C123 50V 10 YK
R140 47 1/4W

R109 47K
R141 270
R142 270
R001 2.7K 1/4W

MICON IC IC101 OEC7072A

4.94	(1) AUDIO MUTE		H_CTL (42)	4.94	R118 47K, R107 47K 1/4W, R111 22K 1/4W
4.94	NC (2) EXT MUTE		PROTECT (41)	4.94	
4.94	(3) STANDBY_H		I2C_OFF (40)	4.99	R110 1K 1/4W
4.94	(4) VOLUMT		SYNC (39)	4.94	C140 0.001 Y
4.94	(5) AFT		H.SYNC (38)	4.94	R139 100 1/4W
4.98	(6) KEY1		V.SYNC (37)	4.94	
4.94	(7) KEY2		BLUE B (36)	4.89	R123 4.7K
2.68	(8) X-RAY		GREEN G (35)	4.89	R122 4.7K
4.94	(9) REMOCON		RED R (34)	4.89	R121 4.7K
0	(10) ON_TIMER		BLANK (33)	4.99	R120 4.7K
0	(11) X-RAY_TEST		CLOCK CONT (32)	4.94	
0	NC (12) AV2		SDA1 (31)	4.89	
0	NC (13) AV1		SCL1 (30)	4.89	
0	NC (14) DEGAUSS_H		POWER (29)	0	
4.94	(15) P.FAIL		FSC IN (28)	2.65	
1.65	(16) OSC2		RESET (27)	4.94	
1.65	(17) OSC1		CVIN (26)	2.50	R134 470, R129 1M, C124 0.1 F, C138 560P
0	(18) CNVSS		V.HOLD (25)	0.20	C120 0.001 B
0	(19) Xin		HLF (24)	2.50	C121 220P B, R130 1K, C122 50V 1 KA
4.94	NC (20) Xout		FILT (23)	1.01	C103 470P B, C104 0.01 F, R108 1K
0	(21) VSS		VCC (22)	4.9	W811, C128 6.3V 100 YK

C113 15P CH
C114 15P CH
L101 CQ 2.7uH
W819
C118 6.3V 470 YK

R117 10K
R116 10K
R112 2.2K
R113 2.2K
R115 47K
R131 100
R125 22K
R114 10K 1/4W

C126 16V 47 YK

R102 680
R103 680
R104 680
R124 4.7K
R106 4.7K
R105 4.7K

C137 50V 0.1 YK
C129 50V 0.1 YK
C125 50V 0.1 YK
C115 50V 0.47 KA
C107 220P B
C108 220P B

MEMORY IC IC199 S-24C04BDP-LA

4.8	(5) SDA			
4.8	(6) SCL			
0	(7) MODE			
4.9	(8) VCC			
0	(4) VSS			
0	(3) E2			
0	(2) E1			
0	(1) E0			

TO SOUND
AUDIO_MUTE
VOLUME

FROM/TO DEFLECTION/CRT
X-RAY
X-RAY_TEST

FROM/TO CHROMA
AGC
GND
IF
TUNER+5V

FROM POWER
AT+40V
GND

TO DEFLECTION/CRT
AT+5V
H_CTL

FROM/TO CHROMA
PROTECT
AFT
SYNC
HD
VD
OSD_B
OSD_G
OSD_R
OSD_BLK
I2C_OFF
SDA
SCL
CLOCK_CONT
AT+5V
POWER
FSC
RESET
Y_VIDEO

FROM/TO SOUND
SDA
SCL

PCB010
TMB541

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

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

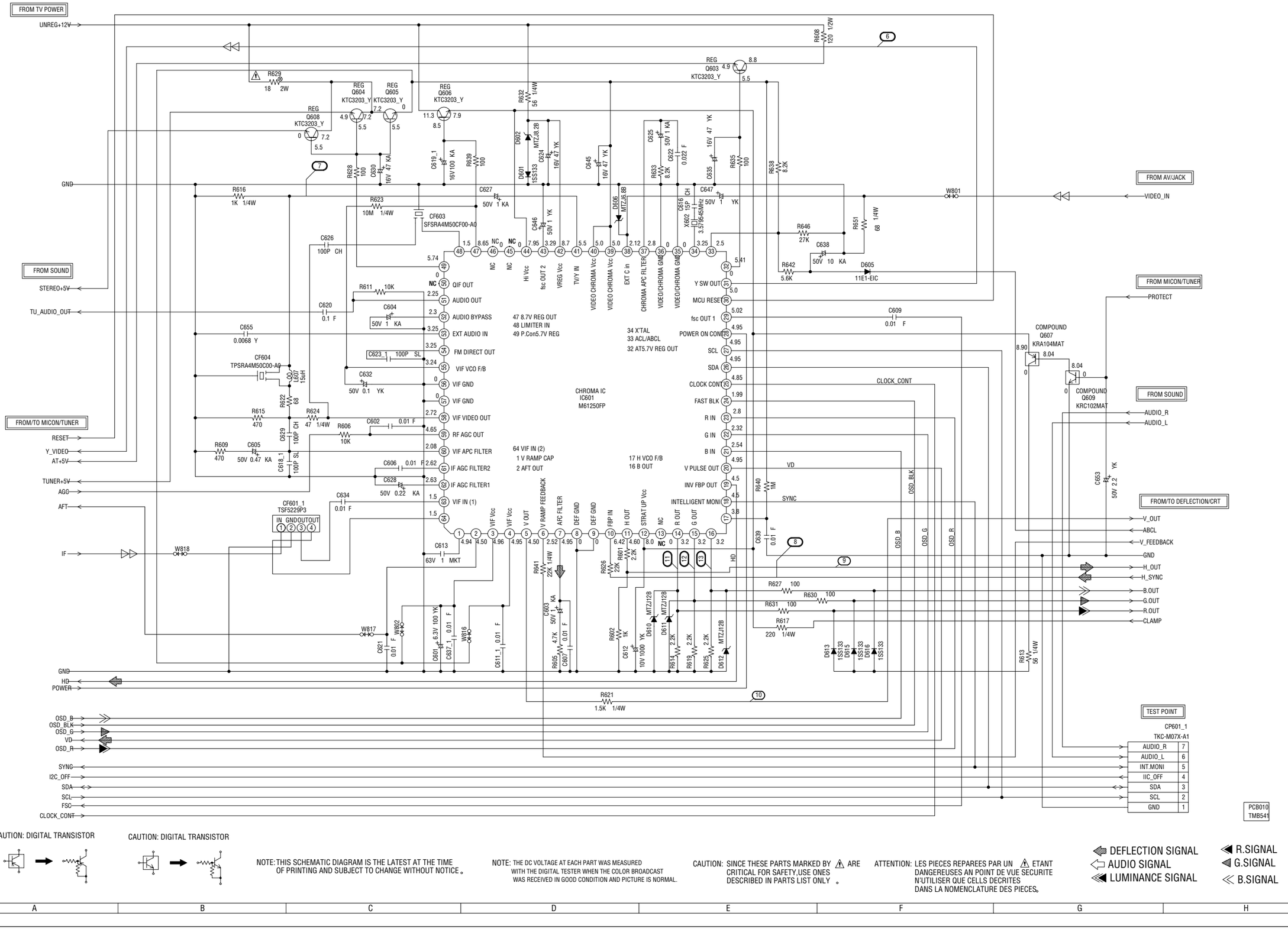
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

CHROMA SCHEMATIC DIAGRAM

(MAIN PCB)



DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)

FROM/TO CHROMA

CLAMP
G.OUT
B.OUT
R.OUT
V_FEEDBACK
V_OUT
ABCL
H_SYNC
H_OUT
GND

V-OUT IC IC401 AN5522
THERMAL PROTECTION
PUMP UP
AMP
VCC GND
1 2 3 4 5 6 7
3.9 26.1 2.2 0 13 26 3.9

R437 2.7K
D403 11E1-EIC
C414 35V 100 YK
C412 0.033 M
R418 33K 1/4W
R419 470 1/4W
R420 3.3K 1/4W
R417 15K 1/4W
R425 470 1/4W
C417 50V 10 YK
R430_1 100 1/4W
C418_1 25V 1000 YK
R410 330 1/2W
C430 100V 0.022 MKT
R411 820 1/2W
C427 50V 10 YK
R416 680 1/2W
R407 2.2 1/2W
R436 2.2 1/2W
W840
R405 1/2W
C403 100V 0.22 MKT 1

HS401 763WAA0232
COMPOUND Q404 KRC102MAT
D404 MTZ5.1B
R408 4.7K +-1%
X-RAY TEST SW. Q403 KRA104MAT
R424 18K +-1%
R409 15K +-1%
C434 50V 22 YK
R429 1.5 2W
D411 AU02A-EIC

FROM/TO MICON/TUNER

X-RAY
X-RAY_TEST
AT+5V
H_CTL

R403 10K
Q405 KTC3198-AT(Y,GR)
R404 220 1/4W
S802X
C439 500V 22P SL
T401_1 ETH09K14BZ
C440 500V 0.0022 B
R446 4.7K 1/2W
H.DRIVE Q402_1 2SC1627_Y
H.OUTPUT Q401 2SD2499(LBOEC1)
R427 100 1/4W
C443_1 1.25KV 0.0056 CMPP
C444_2 2KV 0.001 R
D408 1SS133
D405 MTZJ6.2B
W858
C401_1 500V 56P SL
R422 22K 1/2W
C446_1 50V 10 KA
W862 W861 W843
C437 200V 0.62 FHS
W860
FB401 3220055F
112.0 COL
128.0 VIDEO
128.0 B+
AFC
HEA
TER
GND
E12
E25
NC
0.3
F S GND ABL GND E8 NC
-27.0
W844
D407 AU02A-EIC
C433 35V 470 YK
CP401_1 A1561WV2-A5P

+B TP402
L406 18uH
C416 200V 0.012 PP
R428 8.2 1/2W
R450_2 820 2W
D410 AU02A-EIC
R448_1 270K 1/2W
R445 270K 1/2W
C448 250V 10 YK
D413 11E1-EIC
C435 100V 0.1 MHE
R421 100K 1/4W

FROM POWER
+B
GND
AT+40V

PCB010 TMB541

CP802A B2013H02-10P
GND CLAMP G.OUT B.OUT R.OUT NC HEATER NC 180V
1 2 3 4 5 6 7 8 9 10

CP802B B2013H02-10P
1 GND
2 CLAMP
3 G.OUT
4 B.OUT
5 R.OUT
6 NC
7 HEATER
8 GND
9 NC
10 180V

CD801 SM1098-009-1A
CP801 A2361WV2-2P

V801 A51LMV10X20N45

FOCUS
CP806

C802_1 2KV 0.001 B

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

PCB110 TCB400

TP022 TP023 TP024

R809 4.7K
R814 4.7K
R811 4.7K
100.6 98.4 95.4
RED OUT Q801 KTC4217(O,Y)
GREEN OUT Q803 KTC4217(O,Y)
BLUE OUT Q802 KTC4217(O,Y)
C811 470P B
C810 470P B
C809 470P B
R813 390
R816 390
R815 390

R803 12K 2W
R802_1 2.7K 1/4W
R807 12K 2W
R806_1 2.7K 1/4W
R805 12K 2W
R804 2.7K 1/4W

W857
C801 330P B

J801 ISHS53S
96.4 NC 6.4 101.6 99.6 0

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.

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。

R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL

POWER SCHEMATIC DIAGRAM
(MAIN PCB)

6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)

DEGAUSS COIL L503 8R200026

CP502 A1561WV2-2P

TH501 ZPB45BL3R0A

W810

CP503 003P-2100

R500 2.7M 1/2W

C530 +-10% 250V 0.001 KY

C533 250V 0.001 KY

F501 6.3A125V

FH501 EYF-52BC

FH502 EYF-52BC

R504 1.5M 1/2W

C505 275V 0.1 PHE840

L501 2R0A502F24Y

C506 275V 0.1 PHE840

D501 RM11C-EIC

D504 RM11C-EIC

C502 2KV 0.001 B

C503 2KV 0.001 B

D502 RM11C-EIC

D503 RM11C-EIC

R501 3.3 7W

R502 0.22 1W

R503 2.2M 1/4W

C507_1 200V 330 USR

W807

D511 MTZJ18B

AC120V_60Hz CD501 07415905

BLACK

WHITE

BLADE WIDE

S501A

S501B

B501 W5RH3.5*5*1.0

B503 W5RH3.5*5*1.0

T501 8135075S

P1

P2

153.5

167.4

167.4

202.0

14.25

0

14.26

38.1

14.26

NC

10.77

0

129.8

0

10.59

W814

D518 AU02A-EIC

C520 500V 0.0022 B

C504 50V 47 YK

D509 SB290S

D505 SB290S

R517 1 2W

D507 1SS133

C501_1 16V 1000 YK

D515 1SS133

C561 680P W

B504 W5RH3.5X5X1.0

D510 RU2AM-EIC

C560_2 2KV 330P R

C517_2 2KV 330P R

C521 160V 100 YXF

W827

D514 SB140-EIC

C531 16V 1000 YK

D520 1SS133

TO CHROMA

UNREG+12V

GND

TO DEFLECTION/CRT

+B

AT+40V

GND

TO SOUND

SOUND+B

GND

SOUND_GND

TO MICON/TUNER

AT+40V

GND

Q501 STP5NC50FP

144.0 D

G

4.8

0.1 S

R543 220 1W

C509 0.047 M

W823

R507 1K 1/4W

FEED BACK IC501 LTV-817M-VB

D512 1SS133

6.0

6.0

76.40

76.20

R533 220

R532 820

R534 100

C513 0.001 Y 6.0

6.3

5.4

FEED BACK SWITCHING Q507 KTC3198

R553_1 18K 1/4W

R554 100K 1/4W

+B ADJ VR502 1K

R514 5.6K 1/4W

D528 MTZJ5.6B

C514_1 2KV 820P R

B502 W5RH3.5X5X1.0

BUFFER Q502 KTC3203_Y

4.8

0.1

R542 0.22 1W

HS501 0 0763WAA0181

D521 1SS133

R506 2.2K 1/4W

C512 0.0082 M

R509 22K 1/4W

C511 50V 1 YK

D506 MTZJ24B

C518_1 0.0022 KY

PCB010 TMB541

CAUTION: ⚠ IS THE LIVE CONNECTION

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

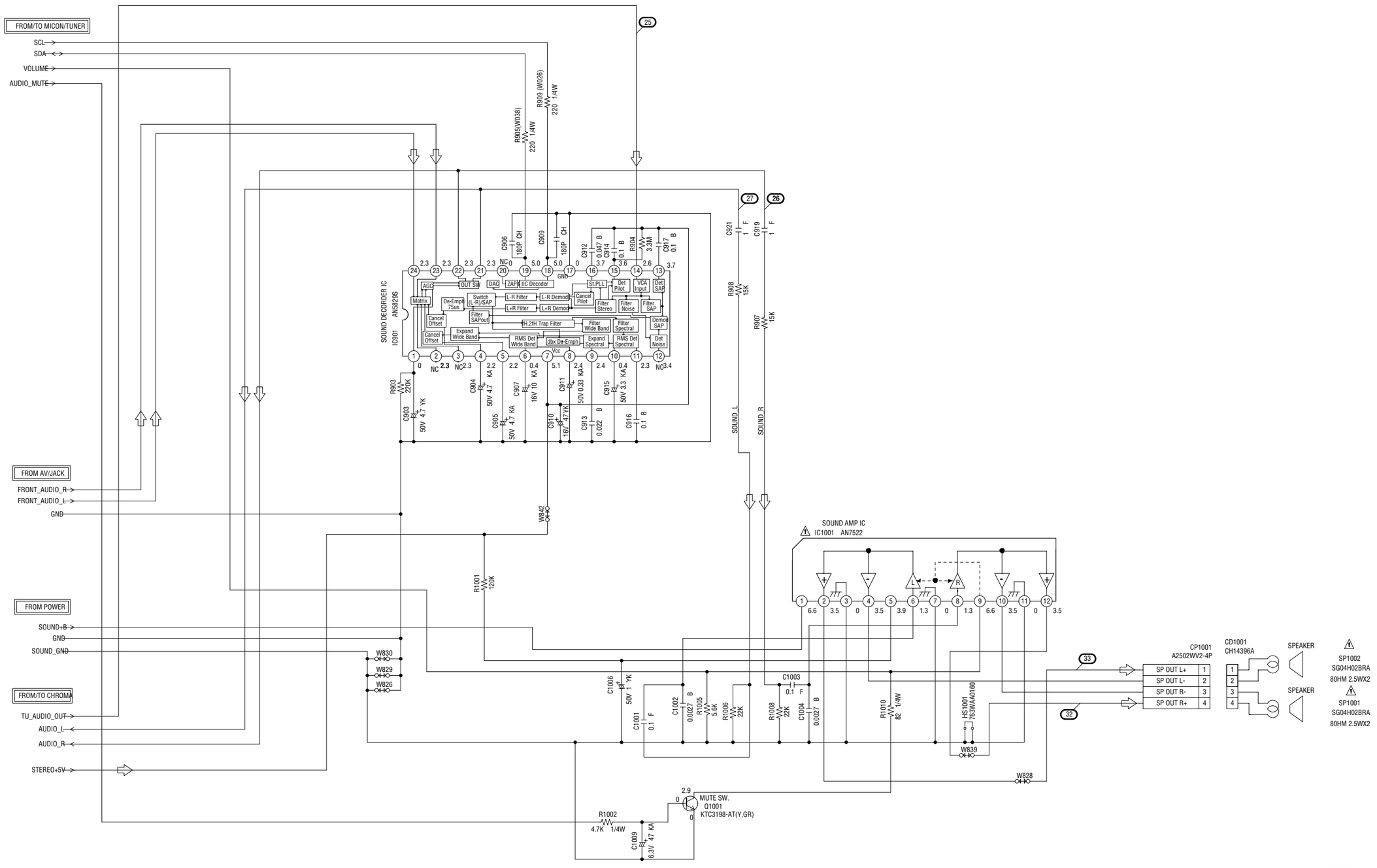
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

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

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

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)



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

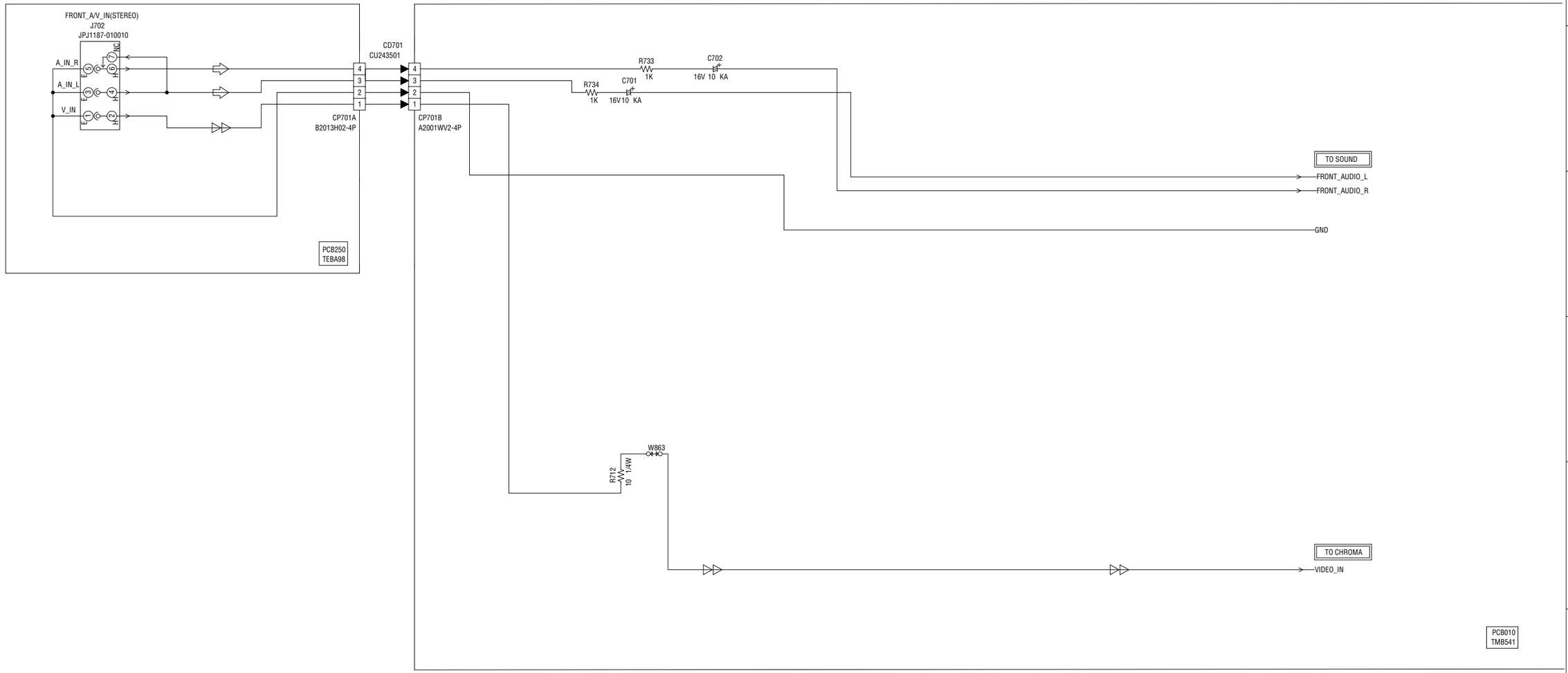
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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。

⇦ AUDIO SIGNAL

JACK/SOUND SCHEMATIC DIAGRAM
(MAIN PCB)



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

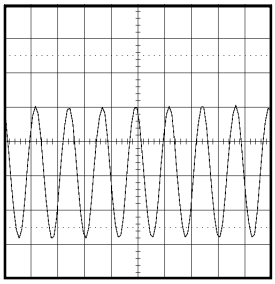
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

⇦ AUDIO SIGNAL

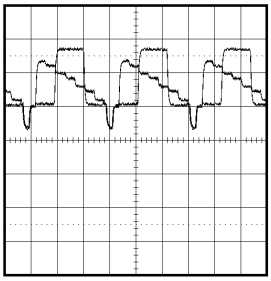
◁◁ TUNER VIDEO SIGNAL

WAVEFORMS

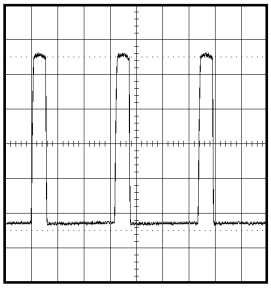
MICON/TUNER



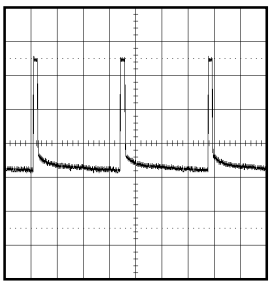
① 1V 0.1µs/div



② 0.5V 20µs/div

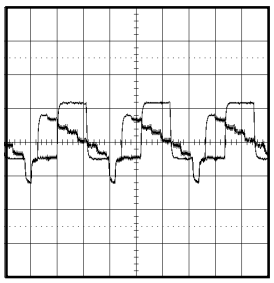


③ 200mV 20µs/div

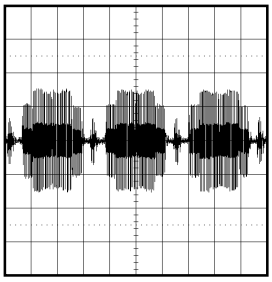


④ 200mV 5ms/div

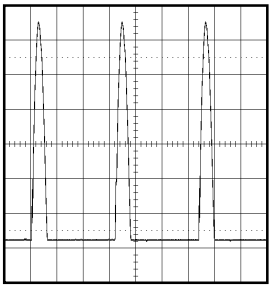
CHROMA



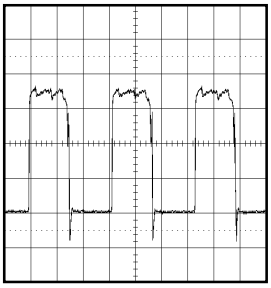
⑥ 0.5V 20µs/div



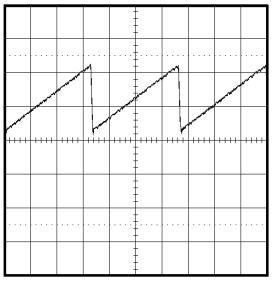
⑦ 200mV 20µs/div



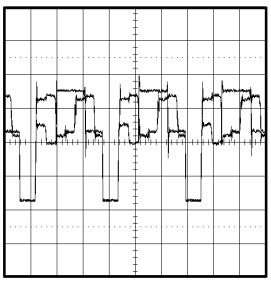
⑧ 20V 20µs/div



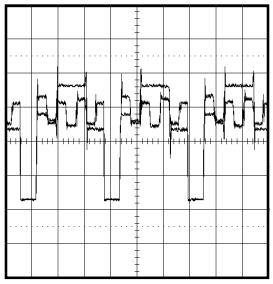
⑨ 200mV 20µs/div



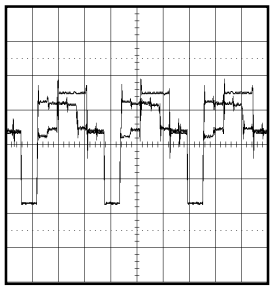
⑩ 0.5V 5ms/div



⑪ 1V 20µs/div

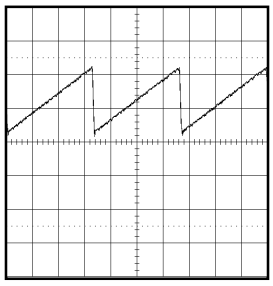


⑫ 1V 20µs/div

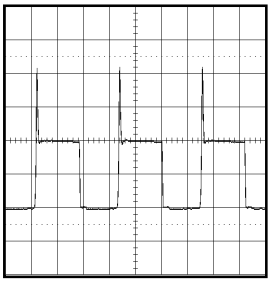


⑬ 1V 20µs/div

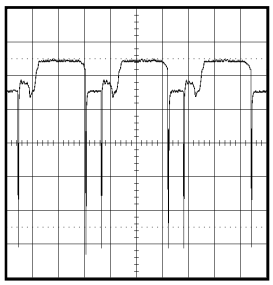
DEFLECTION/CRT



⑭ 0.5V 5ms/div



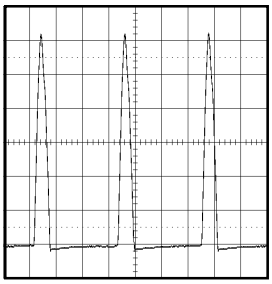
⑮ 20V 20µs/div



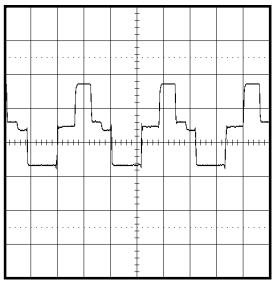
⑯ 2V 20µs/div

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

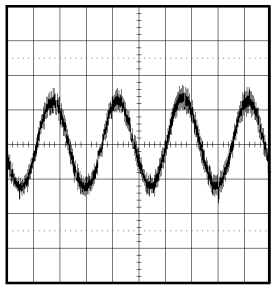
WAVEFORMS



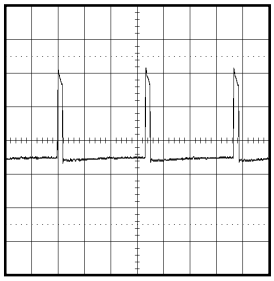
17 200V 20µs/div



22 50V 20µs/div

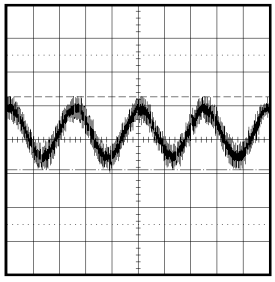


33 0.5V 1ms/div

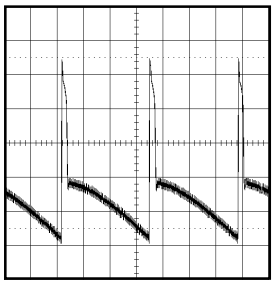


18 10V 5ms/div

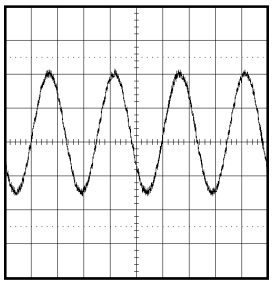
SOUND



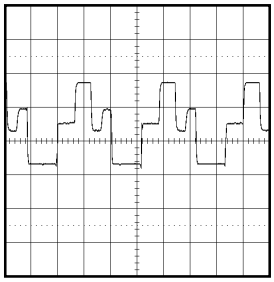
25 0.5V 1ms/div



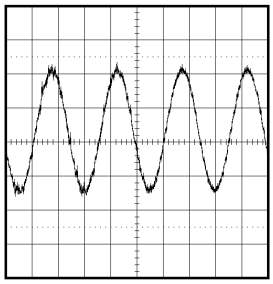
19 10V 5ms/div



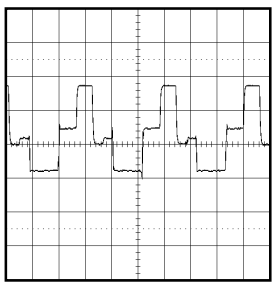
26 200mV 1ms/div



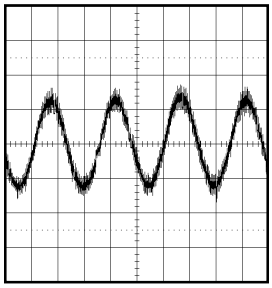
20 50V 20µs/div



27 200mV 1ms/div



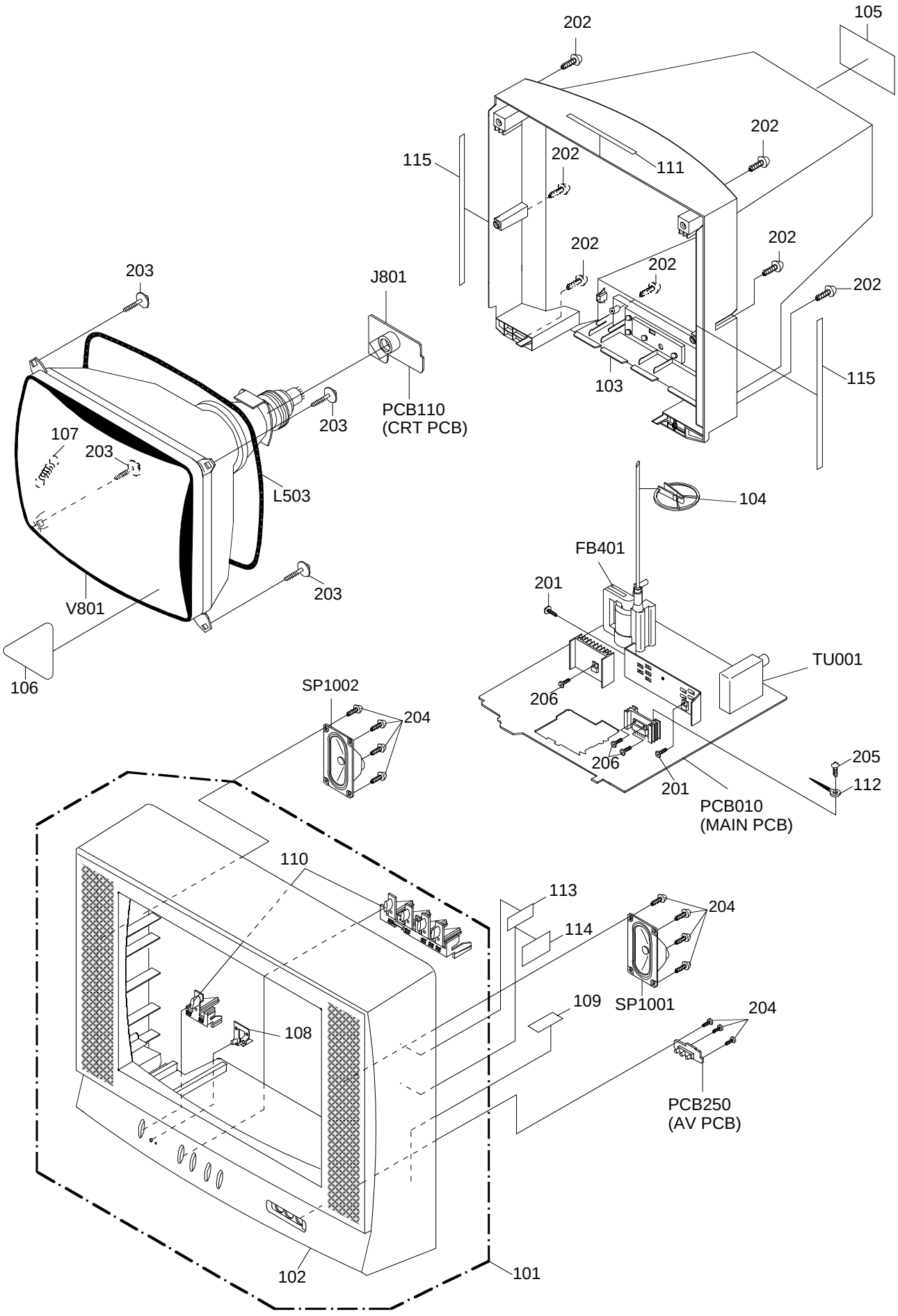
21 50V 20µs/div



32 0.5V 1ms/div

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

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A3L703X720	CABINET,FRONT ASSY		
102	701WPJB653	CABINET,FRONT		
103	702WPA0901	CABINET,BACK		
104	899HV3T000	HOLDER,ANODE WIRE		
105	722A08A111	SHEET,RATING		
106	723000A900	FILM,DECORATION		
107	741WUA0001	SPRING,EARTH		
108	713WPA0205	GUIDE,REMOCON		
109	7230006818	SHEET,CAUTION		
110	735WPBA388	BUTTON,FRAME		
111	800WQ00045	FELT SHEET		
112	8995034000	CORD CLIP UL CO.		
113	7220001107	SHEET,HWC		
114	7220001119	SHEET,CSA WARNING		
115	800WQ00068	FELT,SHEET		
201	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8121J50B54	SCREW,TAPPING(B0)	GW20	5x28
204	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
205	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
206	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
---	7230007398	SECURITY TAG		
---	791WHA0025	LAMIFILM BAG		
---	792WHA0370	PACKAGE,TOP		
---	792WHA0371	PACKAGE,BOTTOM		
---	793WCDB222	GIFT BOX		
---	JB5K0200	POLYBAG,INSTRUCTION		
---	J3L70301	INSTRUCTION BOOK		
---	J5A3A002	WARRANTY SHEET		
---	A3L703X975	INSTRUCTION BOOK KIT		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R407	R002T22R2J	RC	2.2 OHM 1/2W
⚠ R408	R4X5T6472F	R,METAL	4.7K OHM 1/6W
⚠ R424	R4X5T6183F	R,METAL	18K OHM 1/6W
⚠ R429	R6558A1R5J	R,FUSE	1.5 OHM 2W
⚠ R450	R3X18A821J	R,METAL OXIDE	820 OHM 2W
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W
⚠ R501	R5Y2CE3R3J	R,CEMENT	3.3 OHM 7W
⚠ R502	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R503	R002T4225J	RC	2.2M OHM 1/4W
⚠ R506	R002T4222J	RC	2.2K OHM 1/4W
⚠ R514	R002T4562J	RC	5.6K OHM 1/4W
⚠ R517	R3X28A010J	R,METAL OXIDE	1 OHM 2W
⚠ R542	R3X181R22J	R,METAL OXIDE	0.22 OHM 1W
⚠ R543	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R629	R3X18A180J	R,METAL OXIDE	18 OHM 2W
⚠ R803	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R805	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R807	R3X18A123J	R,METAL OXIDE	12K OHM 2W
		CAPACITORS	
⚠ C414	E02LT4101M	CE	100 UF 35V
C416	P3N1F2123J	CPP	0.012 UF 200V
⚠ C433	E02LT4471M	CE	470 UF 35V
⚠ C437	P447F2624J	CMPP	0.62 UF 200V FHS
C443	P4N8FJ562H	CMPP	0.0056UF 1.25KV
⚠ C444	C03L0R713K	CC	0.001 UF 2KV R
⚠ C448	E0ELTD100M	CE	10 UF 250V
⚠ C501	E02LF2102M	CE	1000 UF 16V
⚠ C505	P2472B104M	CMP	0.1 UF 275V PHE840
⚠ C506	P2472B104M	CMP	0.1 UF 275V PHE840
⚠ C507	E52DGC331M	CE	330 UF 200V
C514	C03L0R7W2K	CC	820 PF 2KV R
C517	C03L0R7L2K	CC	330 PF 2KV R
⚠ C518	CC3LE0MH3M	CC	0.0022UF 250V
⚠ C521	E62NFB101M	CE	100 UF 160V
⚠ C530	CC3LE0M13M	CC	0.001 UF 250V
⚠ C533	CC3LE0M13M	CC	0.001 UF 250V
C560	C03L0R7L2K	CC	330 PF 2KV R
		DIODES	
D001	D97U03001B	DIODE,ZENER	MTZJ30B T-77
⚠ D403	D2WT011E10	DIODE SILICON	11E1-EIC
D404	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
⚠ D405	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77
⚠ D407	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D408	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D410	D2WTAU02A0	DIODE SILICON	AU02A-EIC
⚠ D411	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D413	D2WT011E10	DIODE SILICON	11E1-EIC
⚠ D501	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D502	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D503	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D504	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D505	D2WXB290S0	DIODE SILICON	SB290S
⚠ D506	D97U02401B	DIODE,ZENER	MTZJ24B T-77
D507	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D509	D2WXB290S0	DIODE SILICON	SB290S
⚠ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
⚠ D511	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D512	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D514	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D515	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D518	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D520	D1VT001330	DIODE,SILICON	1SS133T-77
D521	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
D605	D2WT011E10	DIODE SILICON	11E1-EIC
D606	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D610	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D611	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D612	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D613	D1VT001330	DIODE,SILICON	1SS133T-77
D615	D1VT001330	DIODE,SILICON	1SS133T-77
D616	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
IC101	I56F07072A	IC	OEC7072A
IC199	A3L703X015	IC	S-24C04BDP-LA

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
⚠ IC401	I01TD55220	IC	AN5522
⚠ IC501	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC601	I06FC61250	IC	M61250FP
IC901	I01FF58290	IC	AN5829S
IC1001	I0FSP75220	IC	AN7522
		TRANSISTORS	
⚠ Q401	TDUU024990	TRANSISTOR SILICON	2SD2499(LB0EC1)
⚠ Q402	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
Q403	TPATD03003	COMPOUND	KRA104MAT
Q404	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
Q405	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q501	TJXG5NC500	FET	STP5NC50FP
Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
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
Q607	TPATD03003	COMPOUND	KRA104MAT
Q608	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q609	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
⚠ Q801	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q802	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q803	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
Q1001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
		COILS &TRANSFORMERS	
L101	021LA62R7K	COIL	2.7 UH
L406	021U6D180K	COIL	18 UH
⚠ L501	029T000100	COIL,LINE FILTER	2R0A502F24Y
L503	028R200026	COIL,DEGAUSS	8R200026
L607	021LA6150K	COIL	15 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T501	048135075S	TRANSFORMER,SWITCHING	8135075S
		JACKS	
J702	0602431013	RCA JACK	JPJ1187-010010
J801	066F130020	SOCKET,CATHODE RAY,TUBE	ISHS53S
		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
		VARIABLE RESISTOR	
VR502	V116313BTC	VOLUME,SEMI FIXED	EVNCYAA03B13
		P.C.BOARD ASSEMBLIES	
PCB010	A3L703X010	PCB ASS'Y	TMB541A
PCB110	A3L704X110	PCB ASS'Y	TCB400A
PCB250	A3L704X250	PCB ASS'Y	TEBA98A
		MISCELLANEOUS	
B501	024H003553	CORE,BEADS	W5RH3.5*5*1.0 or
	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B502	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B503	024H003553	CORE,BEADS	W5RH3.5*5*1.0 or
	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B504	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	1207415905	CORD AC BUSH	7415905
CD701	06CU243501	CORD CONNECTOR	CU243501
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A
CF601	1029045R7G	FILTER,SAW	TSF5229P3
CF603	1012T4R520	FILTER,CERAMIC	SFSRA4M50CF00-A0
CF604	1012T4R519	FILTER,CERAMIC TRAP	TPSRA4M50C00-A0
⚠ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP503	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP601	0697270650	CONNECTOR PCB SIDE	TKC-M07X-A1
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD1001	06CH14396A	CORD CONNECTOR	CH14396A
CP1001	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP701A	067U004029	WIRE HOLDER	B2013H02-4P
CP701B	069S240629	CONNECTOR PCB SIDE	A2001WV2-4P
CP802A	067U010049	WIRE HOLDER	B2013H02-10P
CP802B	067U010049	WIRE HOLDER	B2013H02-10P
EL001	124116281A	EYE LET	XRY16X28BD
EL002	124120301A	EYE LET	XRY20X30BD
⚠ F501	081PC6R305	FUSE	51MS063L
⚠ FB401	043220055F	TRANSFORMER,FLYBACK	3220055F
FH501	06710T0006	HOLDER,FUSE	EYF-52BC

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
	FH502	06710T0006	HOLDER,FUSE EYF-52BC
	OS101	077Q037003	REMOTE RECEIVER PIC-37143SY
	S101	WHL6038038	FLAT CABLE AWG26 10C BLACK 380MM
⚠	SP1001	070C546004	SPEAKER SG04H02BRA
⚠	SP1002	070C546004	SPEAKER SG04H02BRA
	TH501	DF5EL3R0A0	DEGAUSS ELEMENT ZPB45BL3R0A
	TM101	076N0DW040	TRANSMITTER RC-DW040
	TU001	0145100059	TUNER,VHF-UHF ENV56DB6G3
⚠	V801	098Y210435	CRT W/DY A51LMV10X20N45
	X602	100CT3R505	CRYSTAL HC-49/C

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M3L7-03X
O/R NO.	W243007

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. AVOID AN ELECTRIC SHOCK

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

3. USE THE DESIGNATED PARTS

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

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

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

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

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

6. AVOID AN X-RAY

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

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

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

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

IMPORTANT

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

CONTENTS

GENERAL SPECIFICATIONS

G-1	TV System	CRT		CRT Size / Visual Size	20 inch / 508.0mmV
				CRT Type	Normal
				Deflection	90 degree
				Magnetic Field BV/BH	+0.45G/0.18G
		Color System			NTSC
		Speaker			2Speaker
				Position	Front
				Size	2 x 4.7 Inch
				Impedance	8 ohm
		Sound Output		MAX	2.5+2.5 W
				10%(Typical)	2.0+2.0 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			Yes
		Tuner Sound Muting			Yes
G-3	Power	Power Source		AC	120V AC 60Hz
				DC	
		Power Consumption		at AC	
					90 W at AC 120 V 60 Hz
				Stand by (at AC)	5 W at AC 120 V 60 Hz
				Per Year	-- kWh/Year
		Protector		Power Fuse	Yes
G-4	Regulation			Safety	UL / CSA
				Radiation	FCC / IC (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
				Volume	Yes
				Brightness	Yes
				Contrast	Yes
				Color	Yes
				Tint (NTSC Only)	Yes
				Sharpness	Yes
				Tuning	No
				Bass	No
				Treble	No
				Balance	No
				Back Light	No
			Stereo,Audio Output,SAP		Yes
			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		28 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)	Yes
			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		Yes
		Tone Control		No
		Channel Lock		No

GENERAL SPECIFICATIONS

		Just Clock Function			No
		Game Position			No
		CH Label			No
		VM Circuit			No
		Full OSD			No
		Premiere			No
		Comb Filter			No Lines
		Auto CH Memory			Yes
		Hotel Lock			No
		Closed Caption			Yes
		Stable Sound			No
		Energy Star			No
		Favorite CH			No
G-12	Accessories	Owner's Manual		Language	English /French
				w/Guarantee Card	Yes
		Remote Control Unit			Yes
		Rod Antenna			No
				Poles	
				Terminal	
		Loop Antenna			No
				Terminal	
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			No
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Facility List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery			No
				UM size x pcs	
				OEM Brand	No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card			No
		PTB Sheet			No
		300 ohm to 75 ohm Antenna Adapter			No
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 2
				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)	590 x 492 x 447
G-15	Weight			Net (Approx.)	21.0kg (46.3 lbs)
				Gross (Approx.)	23.8kg (52.5lbs)

GENERAL SPECIFICATIONS

G-16	**Carton**	Master Carton		No
			Content	---- Sets
			Material	-- /--
			Dimensions W x D x H(mm)	-- x -- x --
			Description of Origin	No
		Gift Box		Yes
			Material	Double /White
			Dimensions W x D x H(mm)	658 x 575 x 529
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	46
		Container Stuffing		288 Sets/40' container
G-17	**Cabinet Material**		Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

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

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

REMOVAL

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

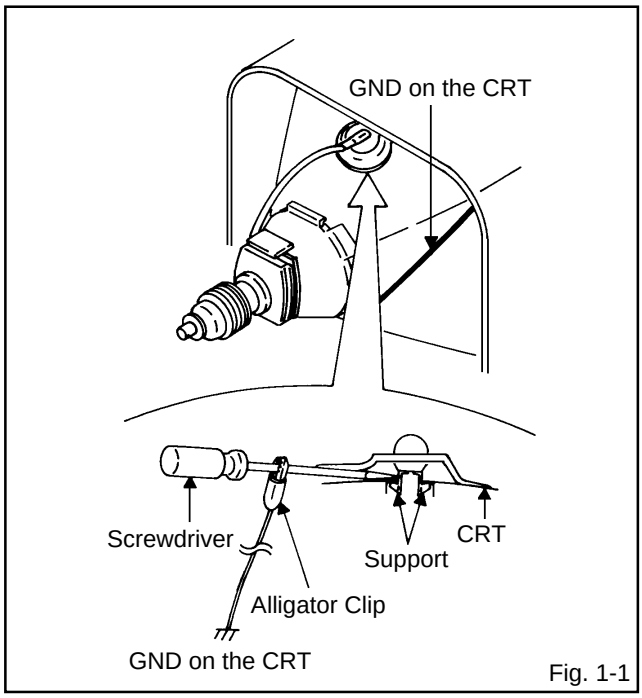


Fig. 1-1

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

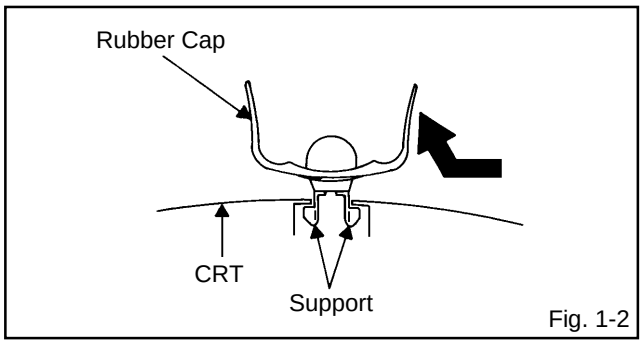


Fig. 1-2

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

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

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

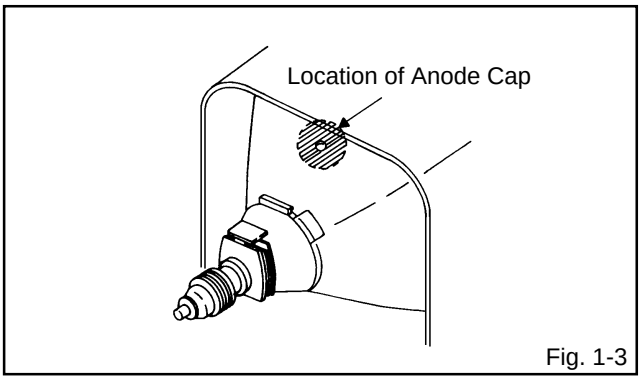


Fig. 1-3

NOTE

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

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

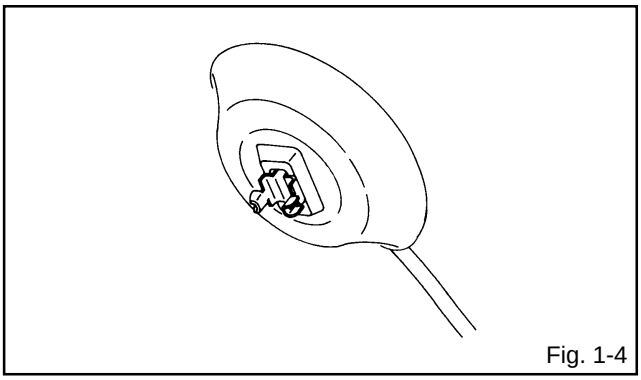


Fig. 1-4

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

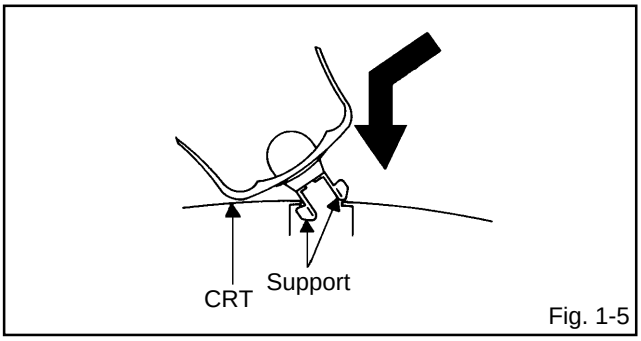


Fig. 1-5

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

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

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

   NOTE

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

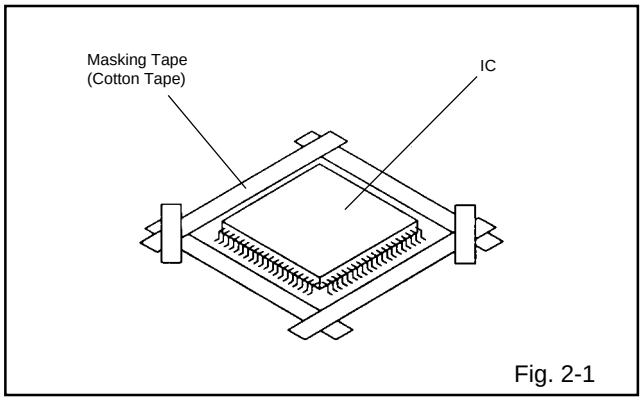


Fig. 2-1

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

   NOTE

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

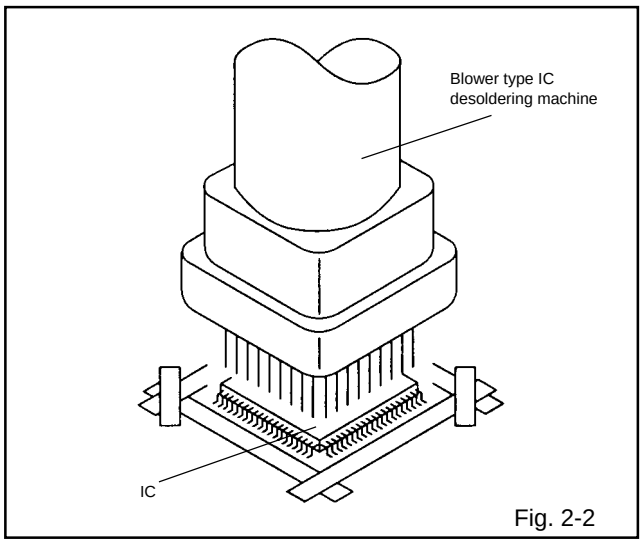


Fig. 2-2

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

   NOTE

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

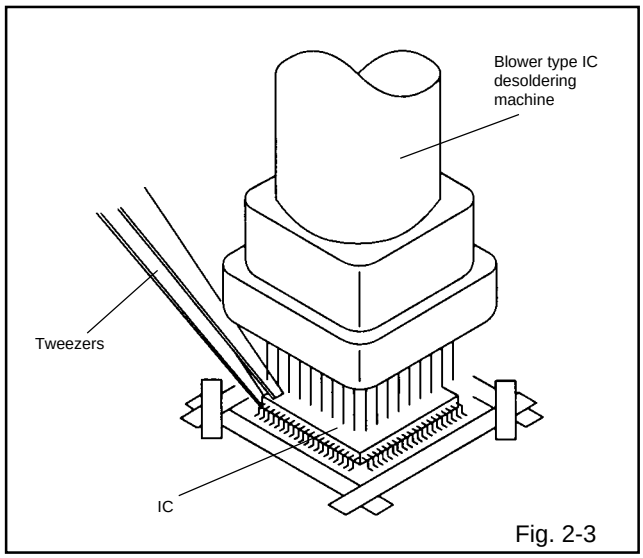


Fig. 2-3

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

   NOTE

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

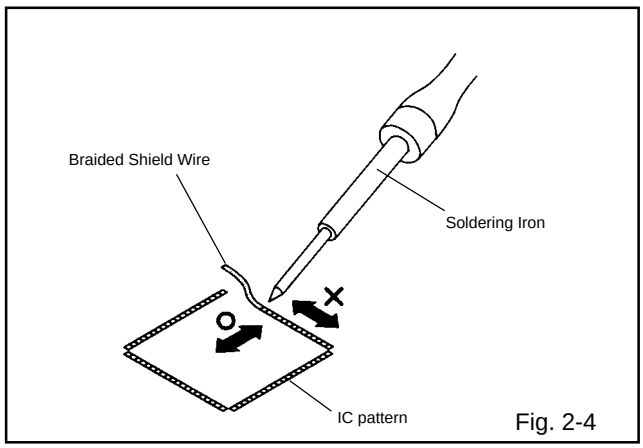


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

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

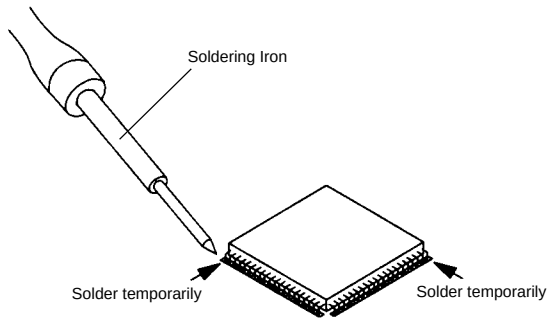


Fig. 2-5

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

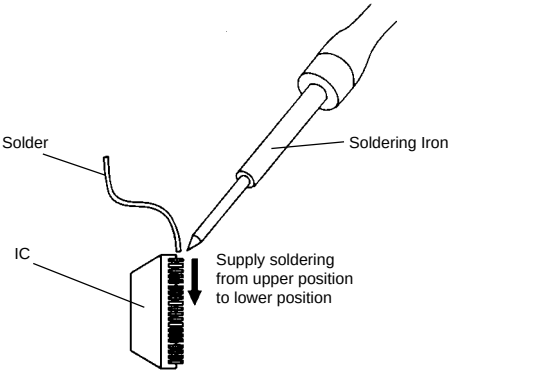


Fig. 2-6

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

   NOTE

   Do not absorb the solder to excess.

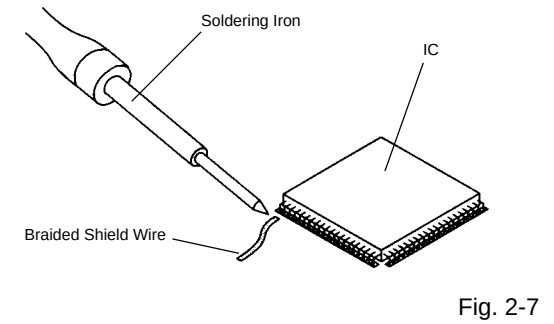


Fig. 2-7

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

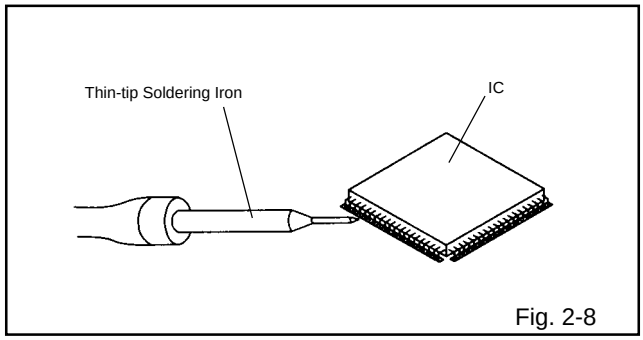


Fig. 2-8

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

   NOTE

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

SERVICE MODE LIST

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

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

CONFIRMATION OF HOURS USED

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

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

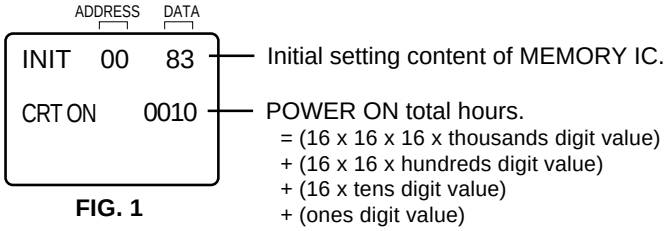


FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

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

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	08	60	89	02	1B	B3	24	39	83	C0	44	03	04	4C	42	A5
10	00	10	20	30	39	40	49	4C	51	53	55	57	5A	60	64	68
20	6D	70	75	79	7C	7D	7E	7F	80	81	82	84	87	89	8B	90
30	94	98	9B	9F	A2	A4	A6	A8	AA	AD	AF	B0	B4	B8	BC	C0
40	C3	C6	C8	CC	D0	D4	D8	DC	E0	E4	E8	EC	F0	F4	F8	FF

Table 1

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

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

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

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

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When 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**.

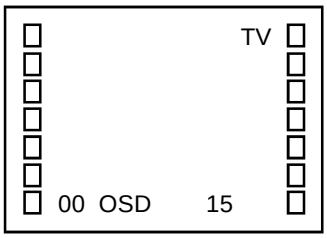


Fig. 1-1

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 AGC	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

1. Place the set with Aging Test for more than 15 minutes.
2. Receive an 63dB monoscope pattern.
3. Connect the digital voltmeter to the **W062**.
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 2.5 ± 0.05V.

2-2: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
3. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: FOCUS

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

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

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

2-5: VIF VCO

1. Place the set with Aging Test for more than 15 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.

ELECTRICAL ADJUSTMENTS

2-6: SUB TINT/SUB COLOR

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP024**.
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% 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

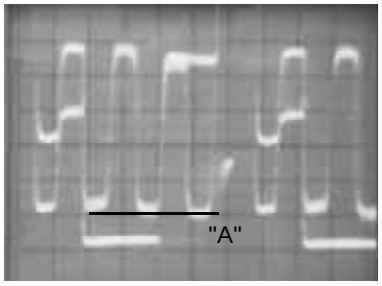


Fig. 2-1

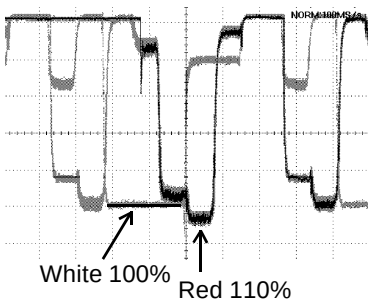


Fig. 2-2

2-7: 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.

2-8: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-8.

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 **(06)** on the remote control to select "V.SIZE".
4. 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%.
5. Receive a broadcast and check if the picture is normal.

2-9: VERTICAL SHIFT

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: 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)**

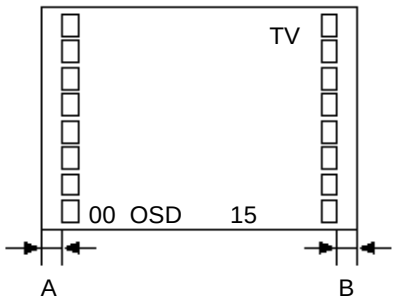


Fig. 2-3

2-11: CONSTANT VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Connect the digital voltmeter to the **TP402**.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Adjust the **VR502** until the digital voltmeter is 128 ± 1V.

ELECTRICAL ADJUSTMENTS

2-12: SEPARATION 1, 2

Please do the method (1) or method (2) adjustment.

Method (1)

1. Set the multi-sound signal generator for each different L-ch and R-ch frequency (Ex. L-ch=2KHz, R-ch=400Hz) and receive the RF.
2. Connect the oscilloscope to the **pin 6 and pin 7 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "SEP 1".
4. Press the VOL. UP/DOWN button on the remote control to adjust it until the audio output wave becomes a fine sine wave.
5. Press the CH UP button once the set to "SEP 2" mode. Then perform the above adjustment 4.

Method (2)

1. Set the multi-sound signal generator L-ch=1KHz, R-ch =Non input and receive the RF.
2. Connect the oscilloscope to the **pin 6 and pin 7 of CP601**
3. Press the AUDIO SELECT button on the remote control to set to the stereo mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "SEP 1".
5. Press the VOL. UP/DOWN button on the remote control to adjust it until the R-ch output becomes minimum.
6. Set the multi-sound signal generator L-ch=Non input, R-ch=1KHz and receive the RF.
7. Connect the oscilloscope to the **pin 6 and pin 7 of CP601**
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "SEP 2".
9. Press the VOL. UP/DOWN button on the remote control to adjust it until the L-ch output becomes minimum.

2-13: FM LEVEL

1. Receive a 80dB monoscope pattern.
2. Connect the AC voltmeter to the **pin 14 of IC901** or **W058**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(24)** on the remote control to select "FM LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 75 ± 5mV.

2-14: LEVEL

1. Receive a 80dB monoscope pattern.
2. Connect the AC voltmeter to the **pin 6 of CP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(25)** on the remote control to select "LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 100mV.

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.

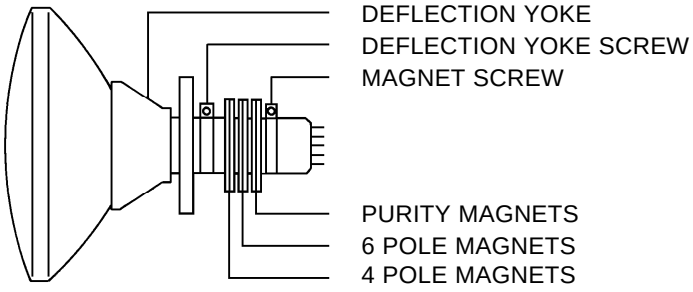


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

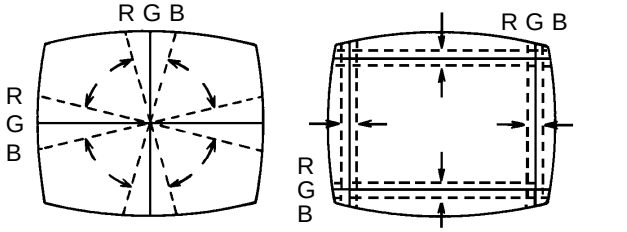
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

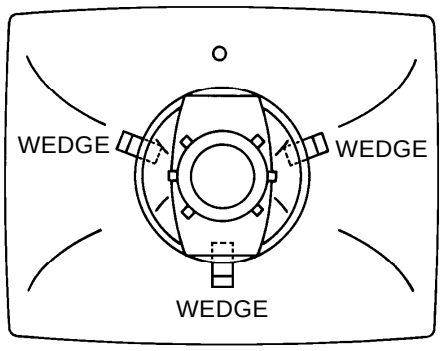
Adjust after performing adjustments in section 3-3.

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

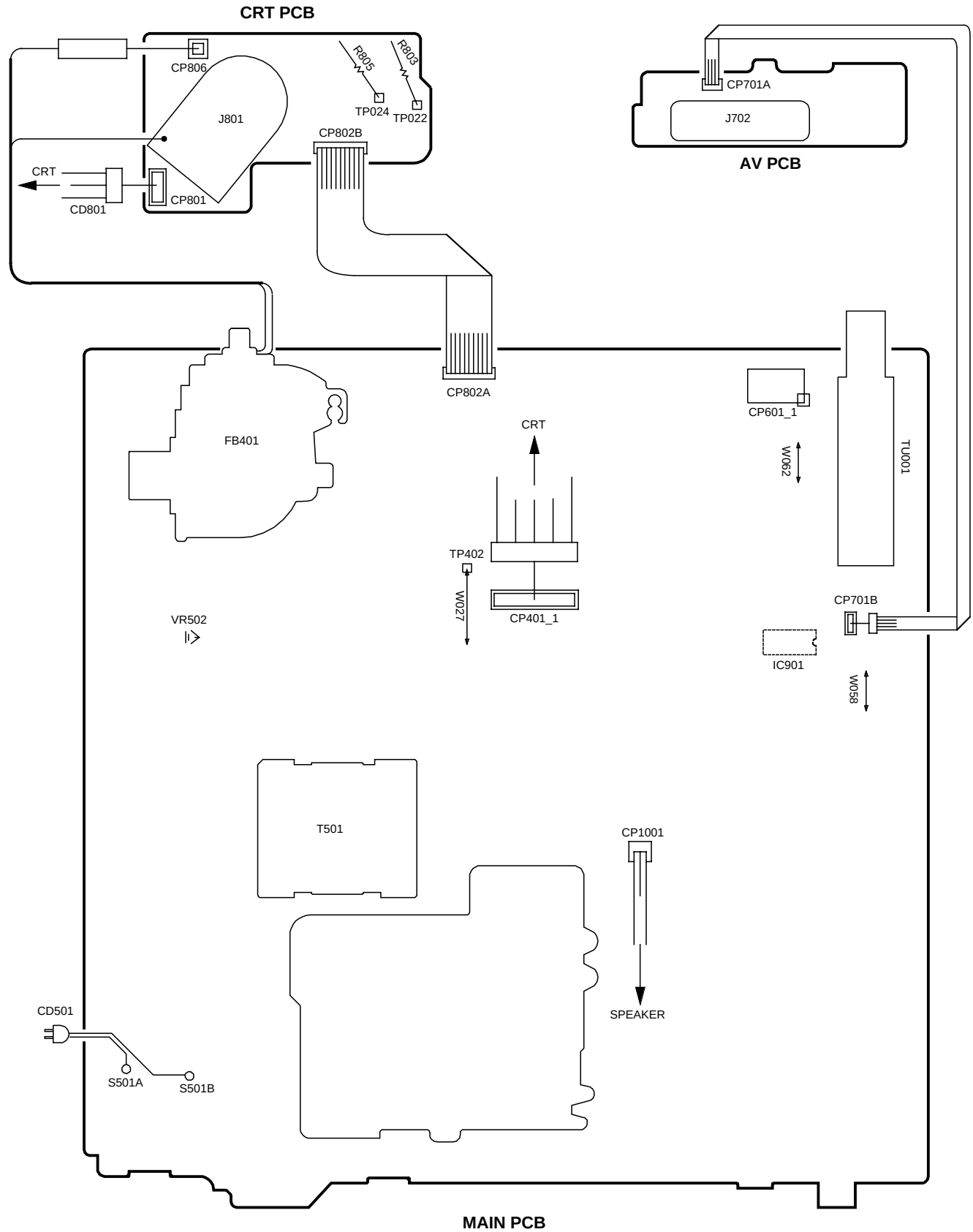


WEDGE POSITION

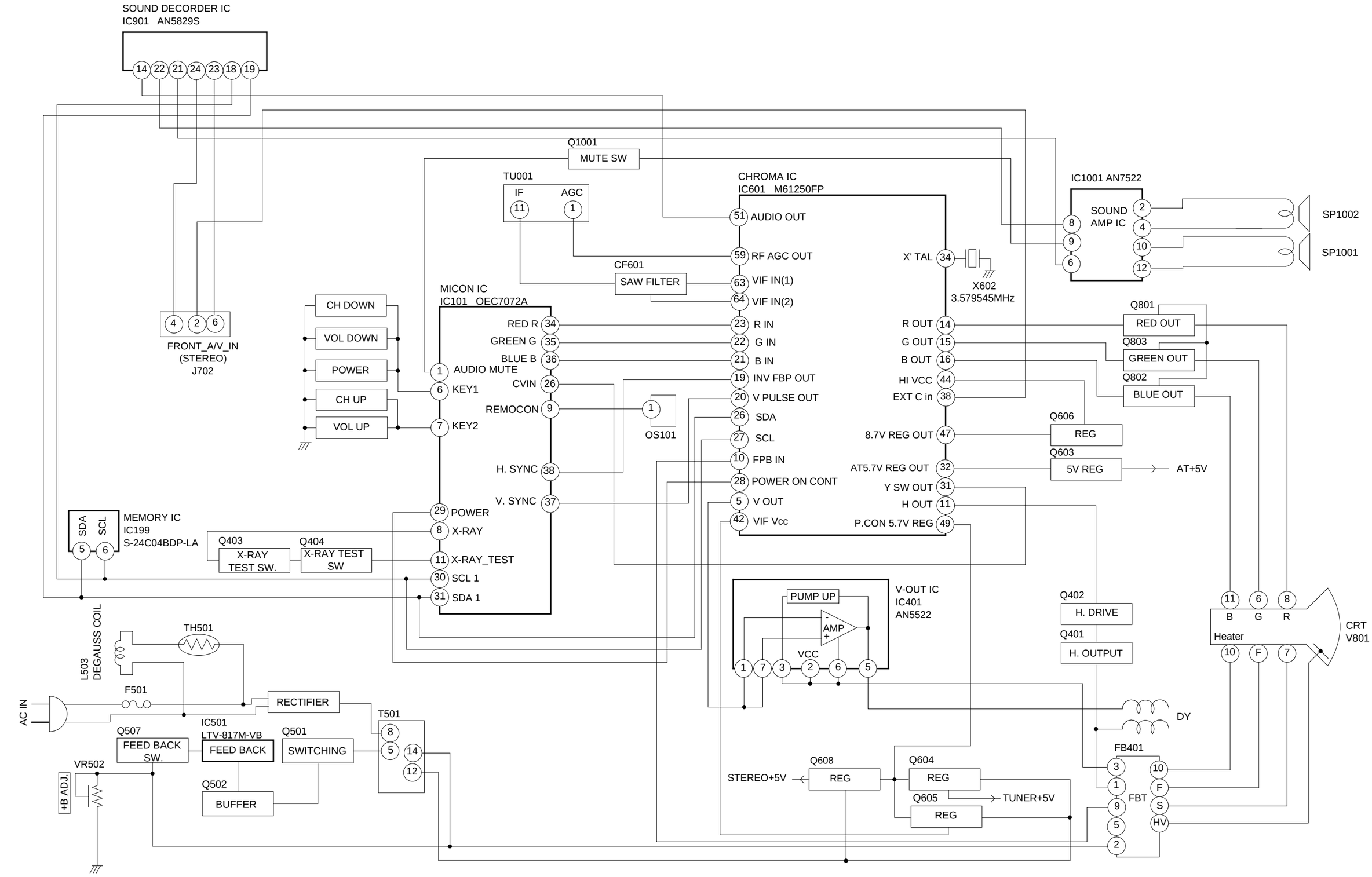
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



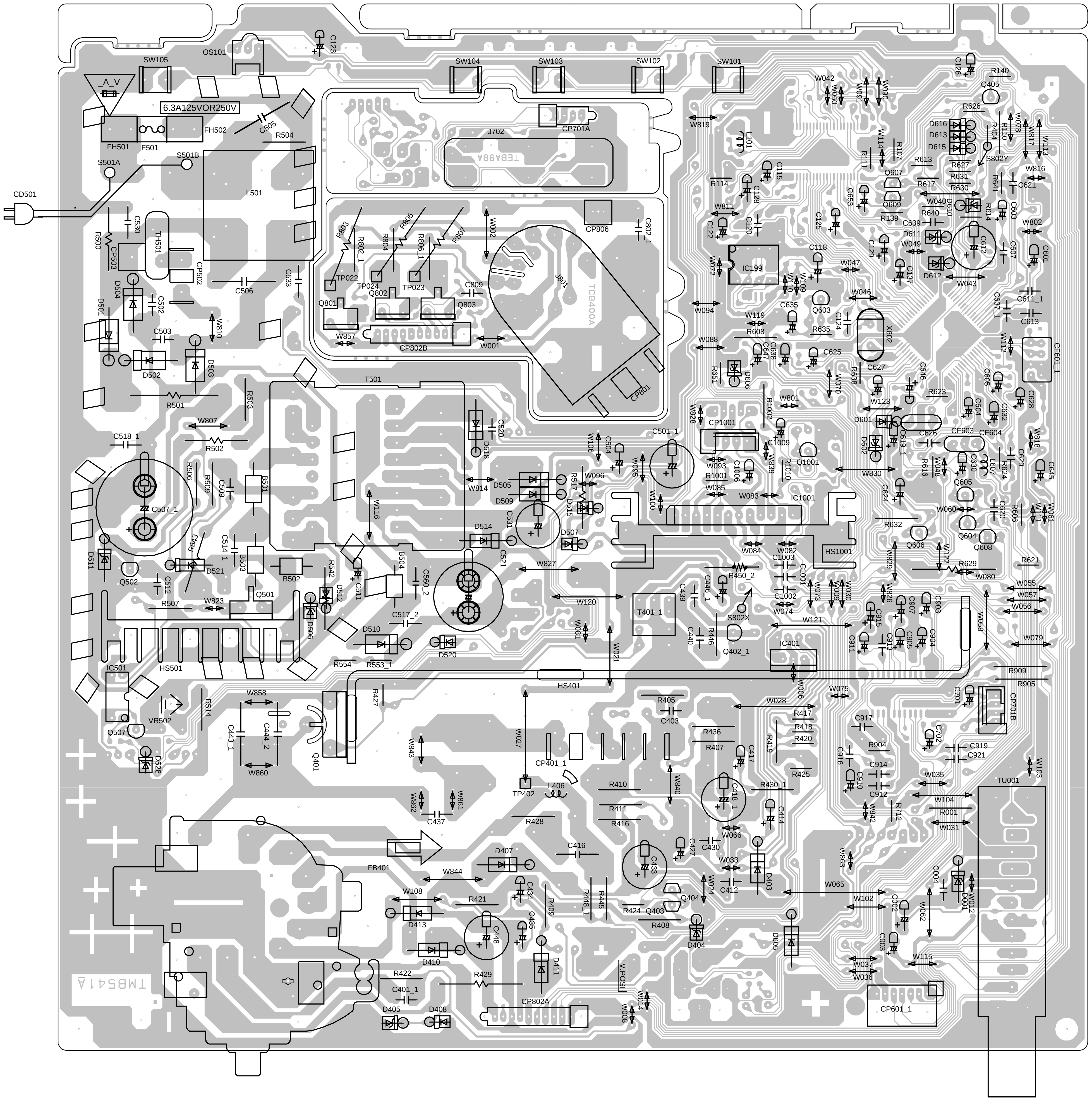
BLOCK DIAGRAM



E-1

E-2

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



F-1

F-2