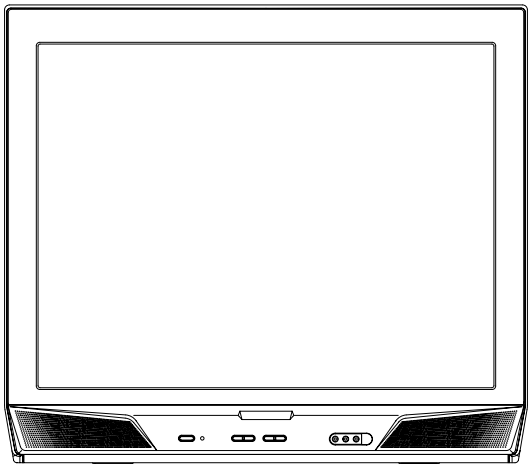
Memorex®

MT2327

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	32 inch / 800.1mmV
				CRT Type	Normal
				Deflection	110 degree
				Magnetic Field BV/BH	+0.45G/0.18G
		Color System			NTSC
		Speaker			2Speaker
				Position	Front
				Size	1.8 x 3.9 Inch
				Impedance	8 ohm
		Sound Output		MAX	5.0 + 5.0 W
				10%(Typical)	4.0 + 4.0 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	
					130 W at AC 120 V 60 Hz
				Stand by (at AC)	5 W at AC 120 V 60 Hz
				Per Year	-- kWh/Year
		Protector		Power Fuse	Yes
G-4	Regulation			Safety	UL / CSA
				Radiation	FCC / IC
				X-Radiation	DHHS / HWC
G-5	Temperature			Operation	+5°C ~ +40°C
				Storage	-20°C ~ +60°C
G-6	Operating Humidity				Less 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		Yes
				Bass	Yes
				Treble	Yes
				Balance	Yes
				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		No
				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	Yes
				Treble	Yes
				Balance	Yes
				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		No
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-DJ
		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		42 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)	Yes
			CH Down(VCR)	Yes
			Pause/Still	Yes
			TV/VCR(VCR)	Yes
			CH Enter	Yes
			Code Set (Code)	Yes
			FF	Yes
			Rew	Yes
			Rec	Yes
			Play	Yes
			Stop	Yes
			TV	Yes
			VCR	Yes
			Cable	Yes
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		No
			Type	-
		BBE		No
		Auto Search		No
		CH Allocation		No
		SAP		Yes
		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			Yes 2 Lines
		Auto CH Memory			Yes
		Hotel Lock			No
		Closed Caption			Yes
		Stable Sound			No
		Energy Star			No
		Power On Memory			No
		Favorite CH			No
G-12	Accessories	Owner's Manual		Language	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: Vol Up + Vol 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)	RCA
				Video Input(Rear2)	No
				Audio Input(Rear1)	RCA x 2
				Audio Input(Rear2)	No
				Video Output	RCA
				Audio Output	RCA x 2
				S-Input	Yes
				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)	751 x 554 x 659
G-15	Weight			Net (Approx.)	52.0kg (114.7 lbs)
				Gross (Approx.)	58.0Kg (127.9 lbs)

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 CORRUGATED CARTON
			Dimensions W x D x H(mm)	840 x 625 x 757
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	25
		Container Stuffing		104 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.

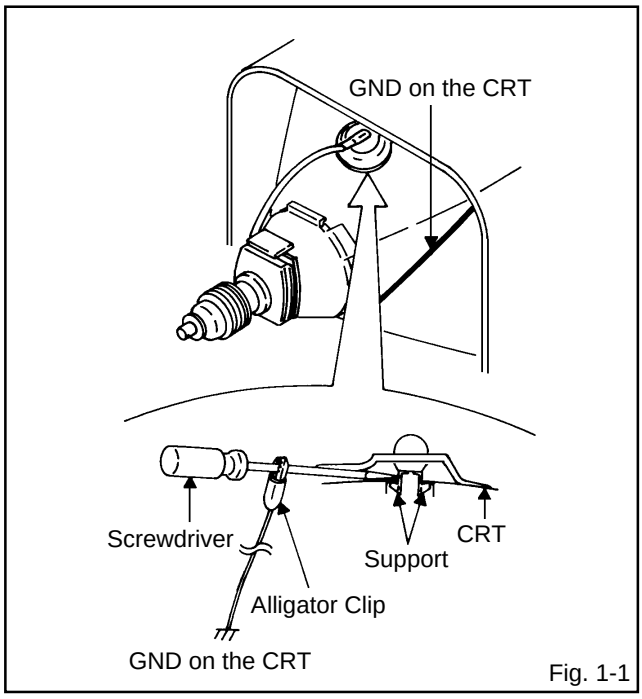


Fig. 1-1

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.)**

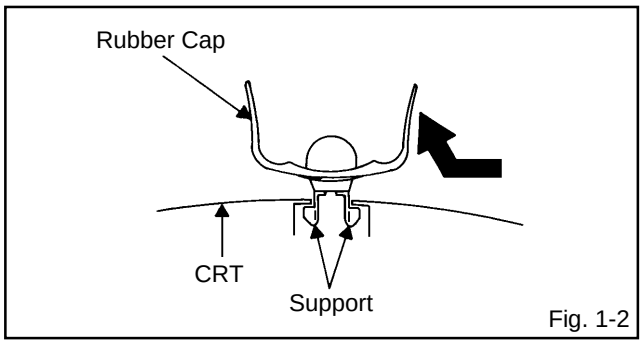


Fig. 1-2

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.)**

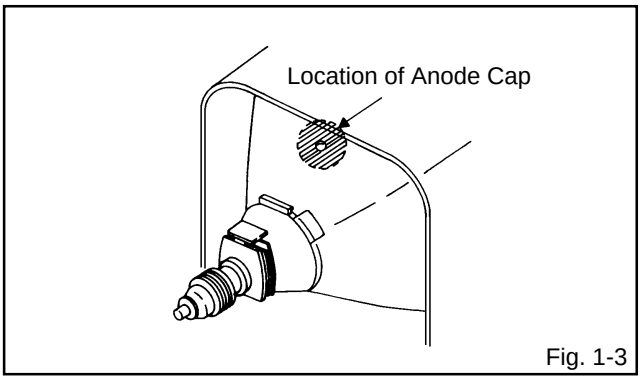


Fig. 1-3

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.)**

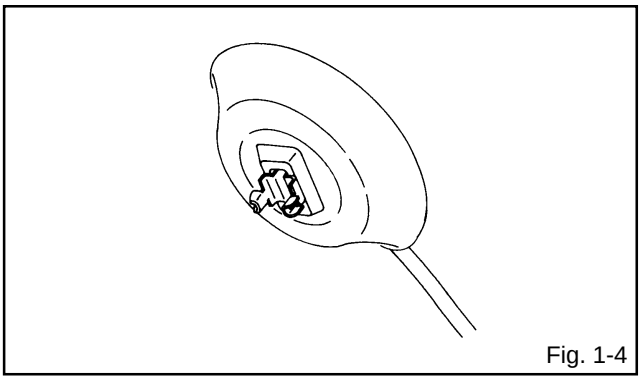


Fig. 1-4

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

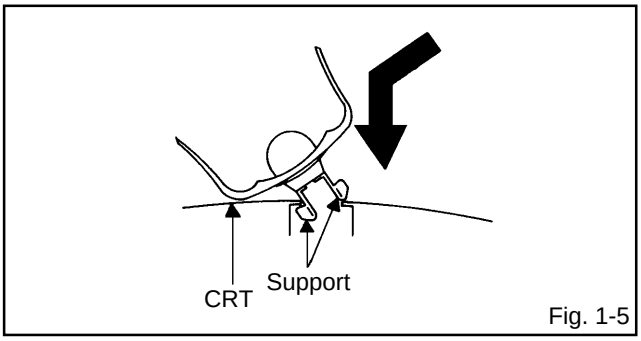


Fig. 1-5

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.

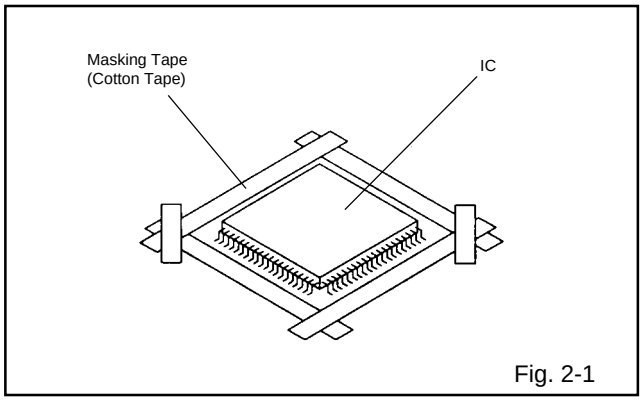


Fig. 2-1

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.

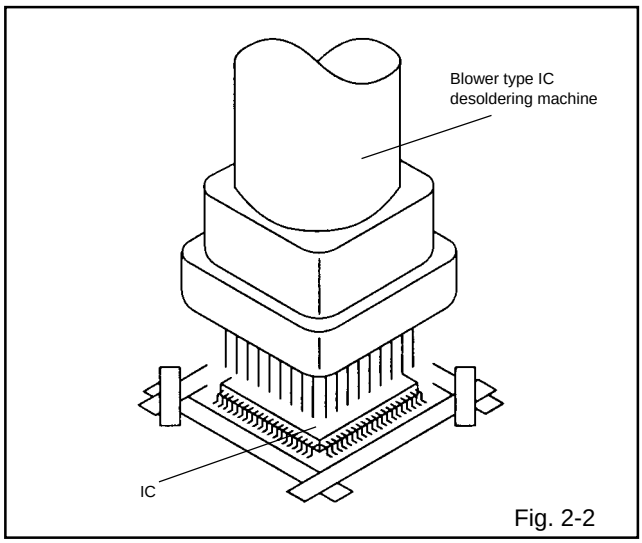


Fig. 2-2

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.

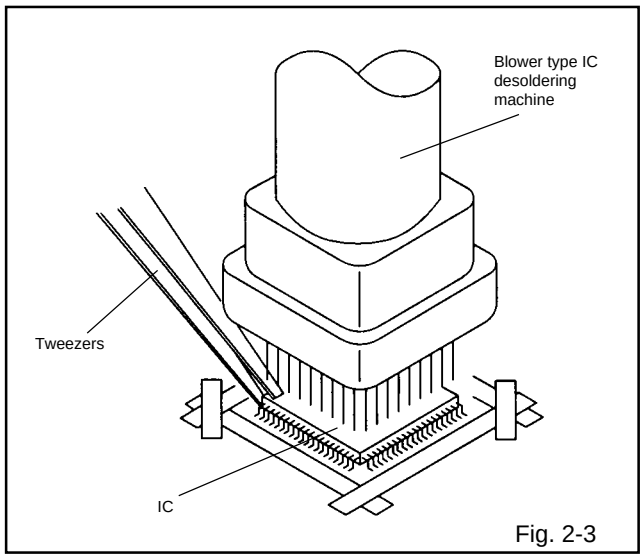


Fig. 2-3

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.

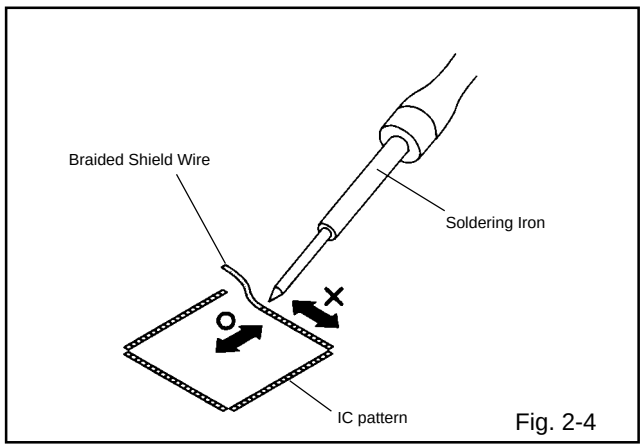


Fig. 2-4

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.)**

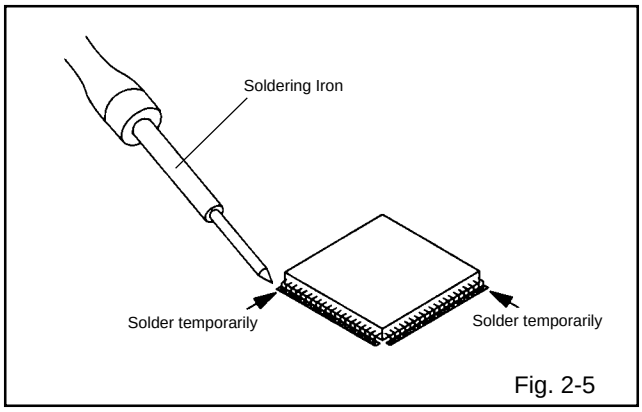


Fig. 2-5

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.)**

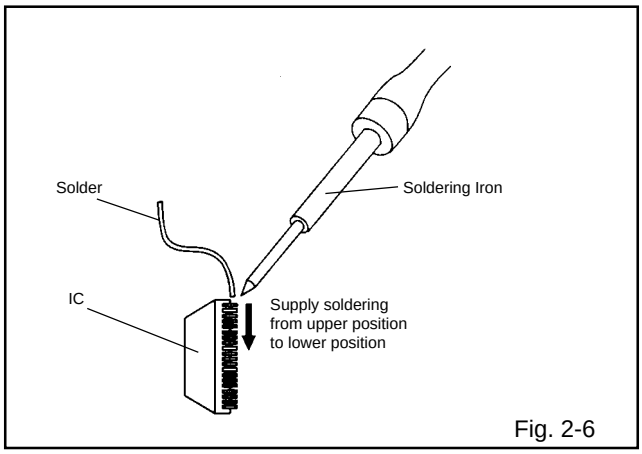


Fig. 2-6

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.

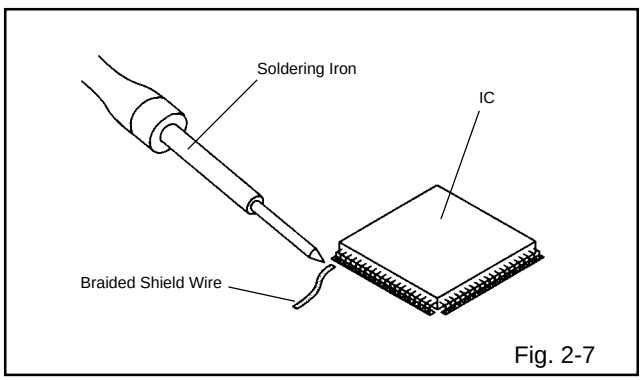


Fig. 2-7

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.)**

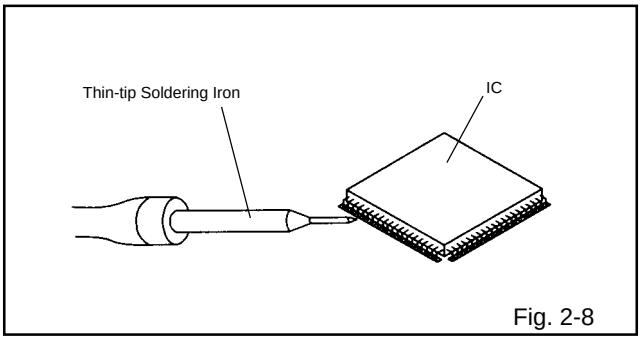


Fig. 2-8

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.
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.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

CONFIRMATION OF HOURS USED

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

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

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

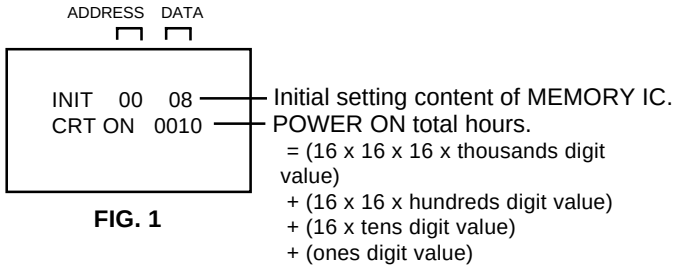


FIG. 1

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	30	8B	0A	68	B7	24	3B	02	00	44	00	0C	3B	3D	0A
10	62	45	26	07	48	4A	6B	4D	4E	4F	50	51	52	53	54	55
20	56	76	57	77	77	58	58	78	78	59	59	79	79	5A	5A	5A
30	7A	7A	7A	5B	5B	5B	7B	7B	7B	5C	5C	5C	7C	7C	7C	5D
40	5D	5D	7D	7D	5E	7E	7E	5F	5F	5F	5F	7F	7F	7F	7F	7F

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

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

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

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

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease **(YG6260M)** on the 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. 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 2 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

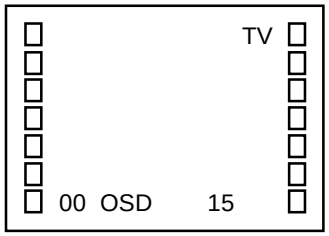


Fig. 1-1

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		
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 ± 1dB monoscope pattern.
3. Connect the digital voltmeter to the **TP001**.
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 2.40 ± 0.15V.

2-2: CUT OFF

1. Adjust the unit to the following settings. R.DRIVE=64, B.DRIVE=64, R.BIAS=127, G.BIAS=127, B.BIAS=127, BRI.CENT=150, CON.MAX=100.
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: FOCUS

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

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

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

2-5: 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 ± 10% of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

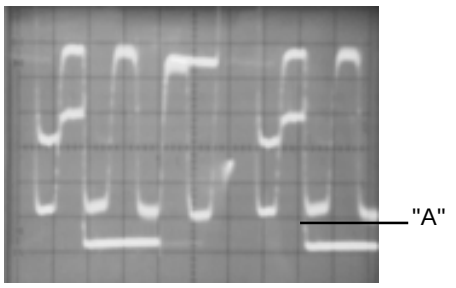


Fig. 2-1

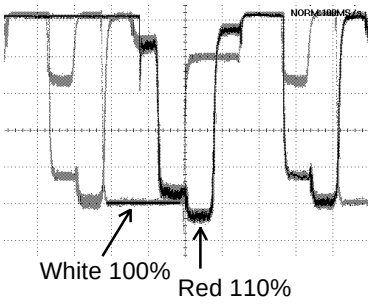


Fig. 2-2

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 SHIFT, VERTICAL LINEARITY

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 "0"
4. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.
5. Adjust the **VR402** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-9: 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 9 ± 2%.
5. Receive a broadcast and check if the picture is normal.

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)**

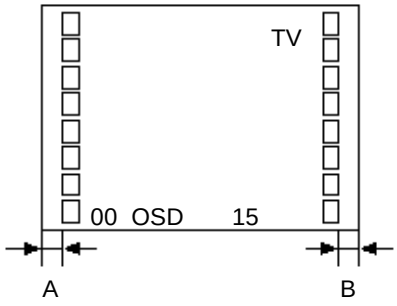


Fig. 2-3

2-11: SUB BRIGHTNESS

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

2-12: PALABOLA CORR

1. Receive the chosshatch pattern.
2. Adjust the **VR403**, so that the 3rd length line becomes straight from the outside of the right and left.

ELECTRICAL ADJUSTMENTS

2-13: CONSTANT VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Connect the digital voltmeter to the **TP401**.
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 135 ± 1V.

2-14: 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.

2-15: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR404** until the SHIFT quantity of the OVER SCAN on the right and left becomes 10%

2-16: LEVEL

1. Receive a 70dB monoscope pattern.
2. Connect the AC voltmeter to the **pin 6 of CP601** and the **GND**.
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 ± 2mV.

2-17: CONTRAST MAX

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "CONT MAX".
4. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "100".
5. Receive a broadcast and check if the picture is normal.
6. Receive the color bar pattern. (Audio Video Input)
7. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

2-18: Confirmation of Fixed Value (step No.)

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

NO.	FUNCTION	RF	AV
04	H VCO	04	---
07	V SHIFT	00	---
14	BRIGHT MAX	140	140
15	BRIGHT MIN	64	64
16	CONT CENT	50	50
18	CONT MIN	25	25
20	COLOR MAX	55	55
21	COLOR MIN	05	05
23	SHARPNESS	34	34
24	FM LEVEL	74	---
28	TEST MONO	00	---
29	TEST STERIO	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.

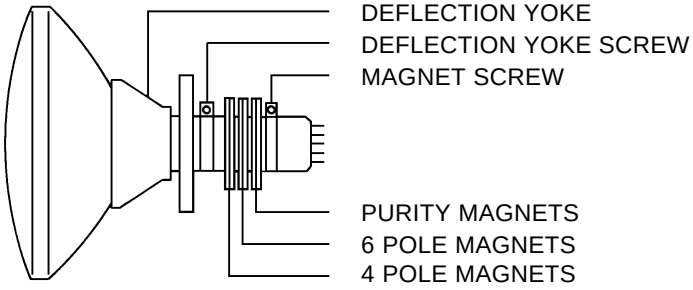


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

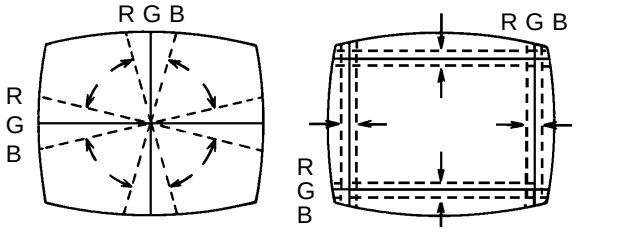
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

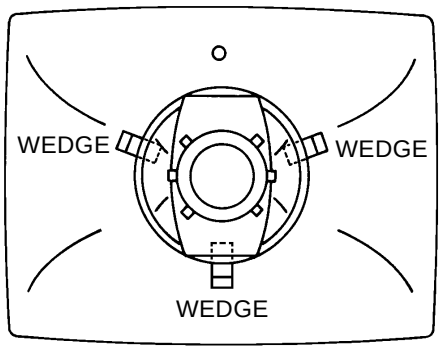
Adjust after performing adjustments in section 3-3.

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

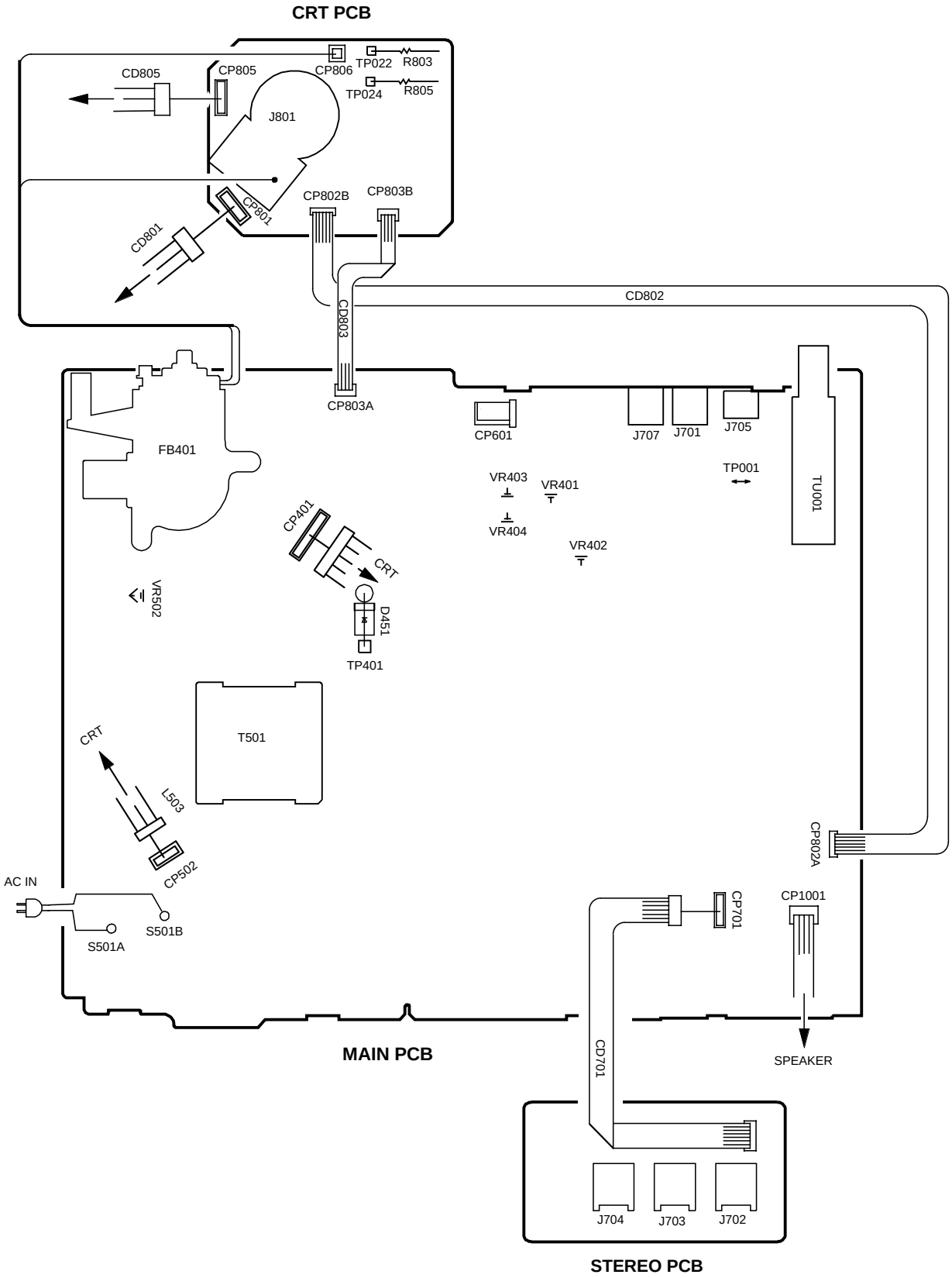


WEDGE POSITION

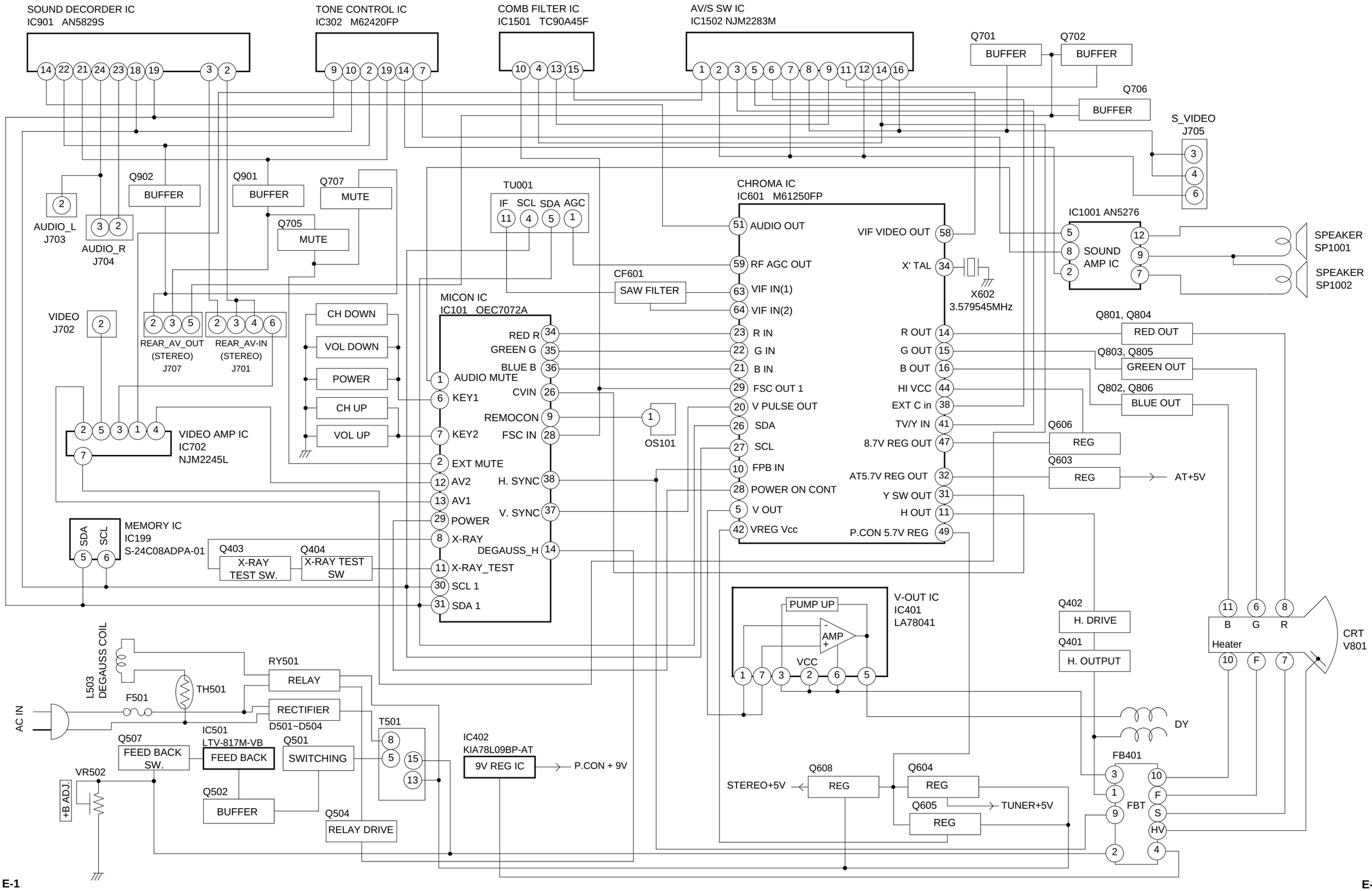
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



BLOCK DIAGRAM

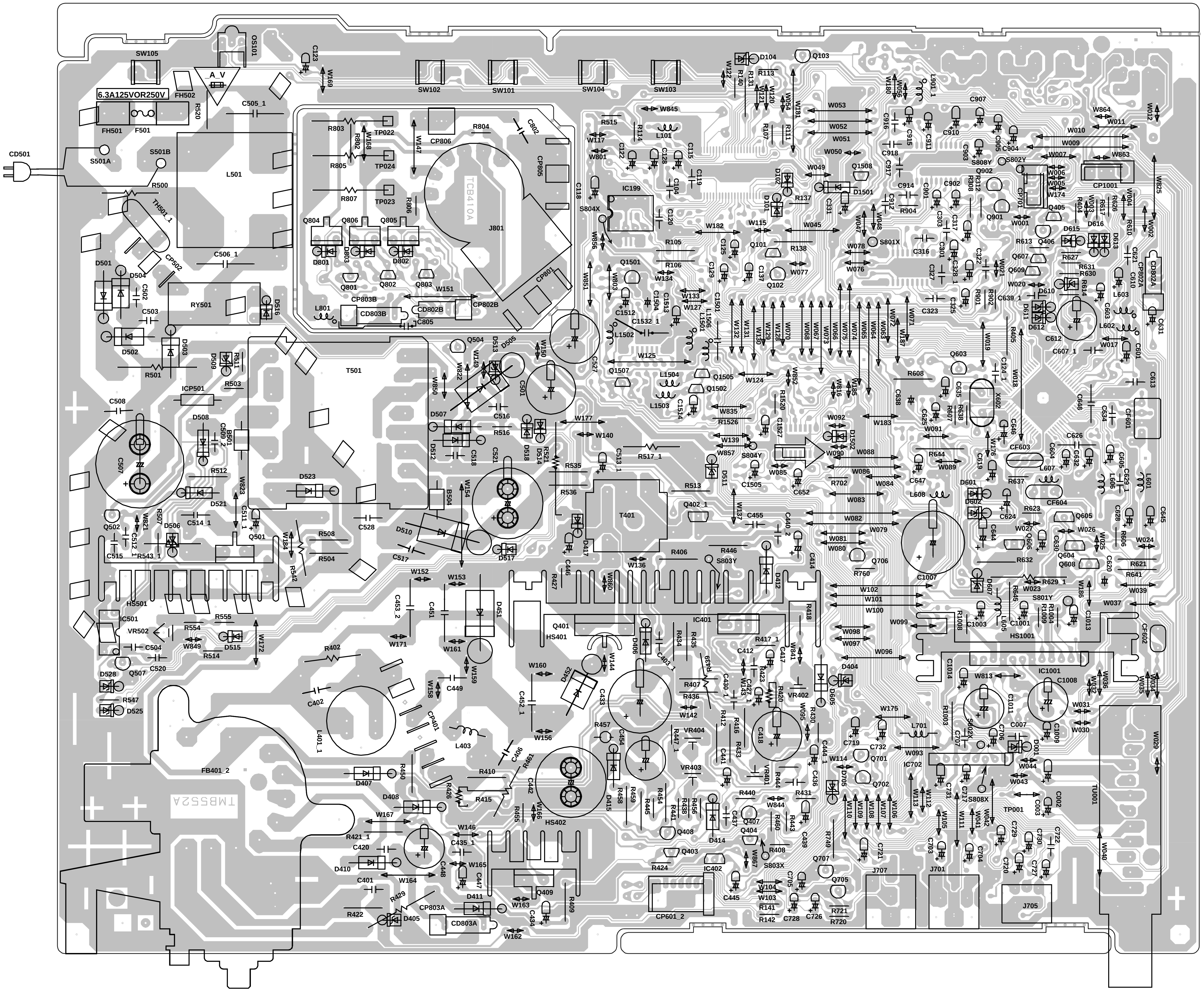


E-1

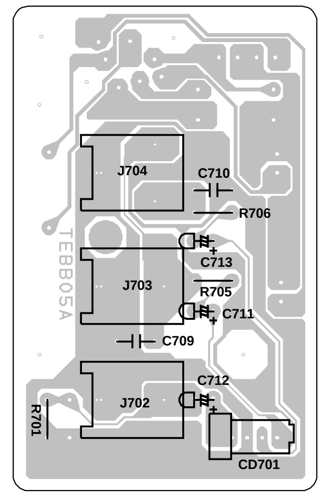
E-2

PRINTED CIRCUIT BOARDS

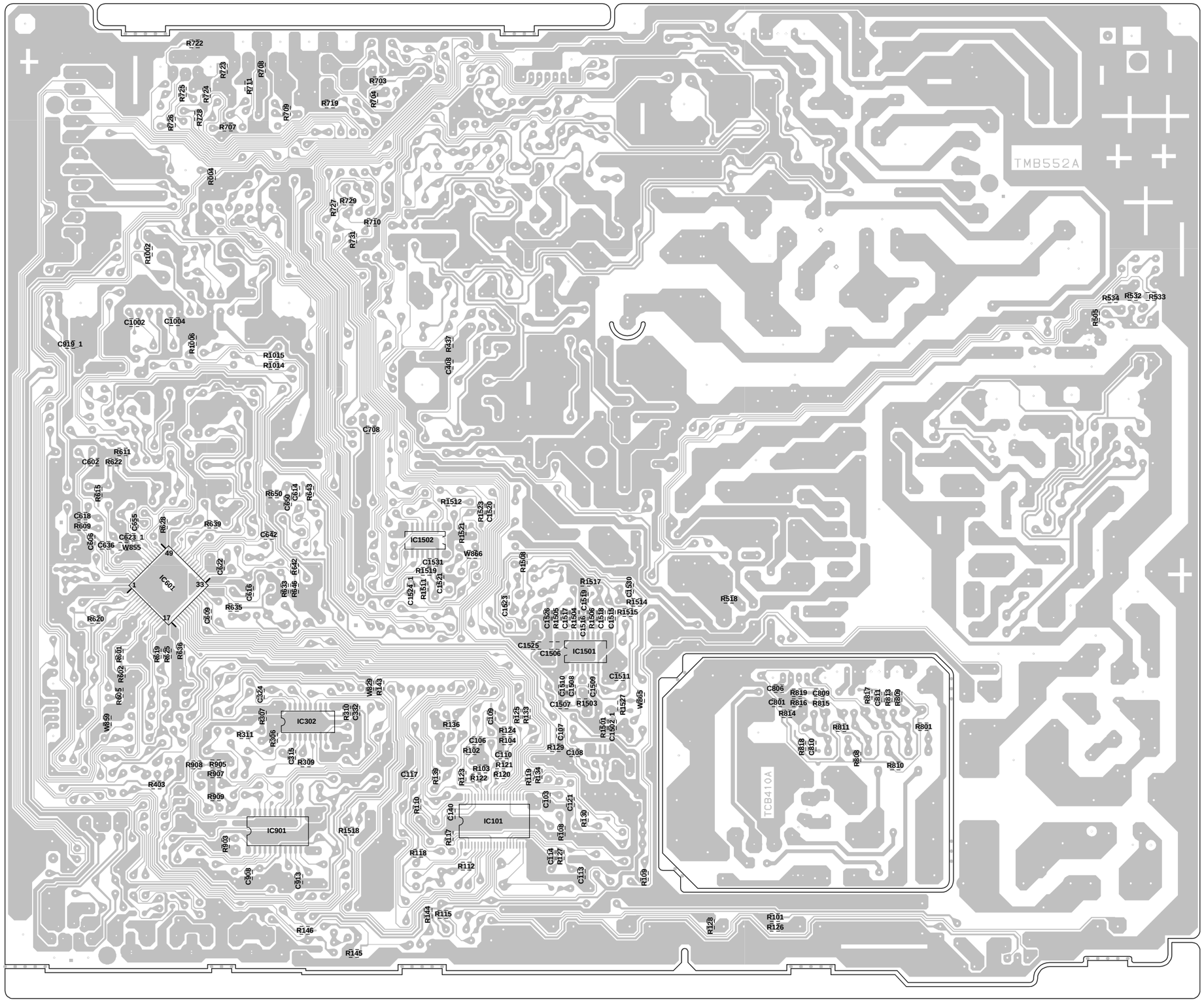
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



STEREO
SOLDER SIDE



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



MICON/TUNER SCHEMATIC DIAGRAM

(MAIN PCB)

TU001 ENV56DB6G3

ACCESSORY

TM101 R25-1784

OS101 RPM7138-H5

MICON IC IC101 OEC7072A

FROM/TO POWER: +30V, PROTECT_A, GND, DEGAUSS_H

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

FROM/TO DEFLECTION/CRT: X-RAY, X-RAY_TEST, POWER, H_SYNC

TO AV: AV2, EXT_MUTE, AV1

TO COMB/FILTER: AV1

FORM/TO SOUND: SDA, SCL, AUDIO_MUTE

MEMORY I/C IC109 S-24C08ADPA-01

S810X

PCB010 TMB552

CAUTION: DIGITAL TRANSISTOR

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。

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

CHROMA SCHEMATIC DIAGRAM
(MAIN PCB)

FROM POWER
UNREG+12V
GND
W851
R644 10 3W X
R629_1 3W 10 X
R608 120 1/2W
L605 56uH
R645 10K 1/4W
REG Q603 KTC3203_Y
REG Q604 KTC3209_Y
REG Q605 KTC3209_Y
REG Q606 KTC3209_Y
REG Q608 KTC3209_Y
W829
R632 100 1/2W
C652 50V 0.22 KA
TO AV
TU_VIDEO
D602 MTZJ8.2B
D601 1SS133
D607 MTZJ15B
C619 16V 47 YK
C624 16V 47 YK
C625 50V 1 KA
C622 50V 0.022 F
C635 16V 47 YK
C645 16V 47 YK
C642 0.001 B
C644 16V 470 YK
R628 100
R630 100
R639 100
R633 8.2K
R635 100
R638 8.2K 1/4W
C647 50V 0.1 KA
C614 220P B
R643 560
FROM/TO COMB FILTER
STEREO+5V
Y_IN
C_IN
FSC
L608 6.8uH
C650 220P B
R650 2.2K
C646 50V 1 YK
C616 15P CH
X602 3.579545MHz
R637 10M 1/4W
CF603 SFSRA4M50CF00-A0
R646 27K
C638 16V 22 KANP
R642 5.6K
D605 11E1-EIC
TO SOUND
STEREO+5V
TU_AUDIO_OUT
C620 50V 4.7 NA
C655 0.0068 Y
R623 1.8K 1/4W
CF604 TPSRA4M50C00-A0
L607 18uH
R622 82
R615 470
L606 2.2uH
C629_1 100P B 500V
C618 100P SL 500V
R609 220
C605 50V 0.47 KA
R611 10K
C604 50V 1 KA
C623_1 39P SL
C626 100P CH
C632 50V 1 KA
C602 0.01 F
R606 10K 1/4W
C636 220P B
C606 0.001 Y
C628 50V 0.22 KA
W855
C634 0.01 B
C609 0.01 F
SWITCHING Q607 KRA104MAT
SWITCHING Q609 KRC102MAT
FROM SOUND
AUDIO_OUT_R
AUDIO_OUT_L
FROM/TO DEFLECTION/CRT
ABCL
P.CON+5V
H_OUT
H_SYNC
B.OUT
G.OUT
R.OUT
V_OUT
CLAMP
V_FEEDBACK
CLOCK_CONT
VD
OSD_BLK
OSD_B
OSD_G
OSD_R
SYNC
R607 1M 1/4W
R636 33K
C639_1 0.01 B
FROM/TO MICON/TUNER
RESET
Y_VIDEO
AT+5V
TUNER+5V
AGC
IF
AFT
PROTECT
SAW FILTER CF601 TSF5229P3
L601 1uH
CF602 MK147.3MC110P-TF
C648 0.1 F
C613 63V 1 MKT
R620 120K
R610 27K 1/4W
R641 22K 1/4W
R626 22K 1/4W
R601 1K
C603 50V 1 KA
C607_1 0.01 B
C621 0.01 B
L602 100uH 0305
C601 100 YK 6.3V
L603 100uH 0305
C610 100 YK 6.3V
R605 4.7K
R602 1K
C612 1000 YK 10V
D610 MTZJ12B
D611 MTZJ12B
R614 2.2K 1/4W
R619 2.2K
R625 2.2K
D612 MTZJ12B
R627 100 1/4W
R630 100 1/4W
R631 100 1/4W
R617 470 1/4W
D613 1SS133
D615 1SS133
D616 1SS133
R613 270 1/4W
R621 1.5K 1/4W
POWER
OSD_B
OSD_BLK
OSD_G
VD
OSD_R
SYNC
I2C_OFF
SDA
SCL
FSC
CLOCK_CONT
CHROMA IC IC601 M61250FP
64 VIF IN (2)
1 V RAMP CAP
2 AFT OUT
17 H VCO F/B
16 B OUT
47 8.7V REG OUT
48 LIMITER IN
49 P.Con5.7V REG
34 X'TAL
33 ACL/ABCL
32 AT5.7V REG OUT
TEST POINT
CP601_2
173979-7

AUDIO_OUT_R	7
AUDIO_OUT_L	6
INT.MONI	5
IIC_OFF	4
SDA	3
SCL	2
GND	1

PCB010
TMB552

CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR

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

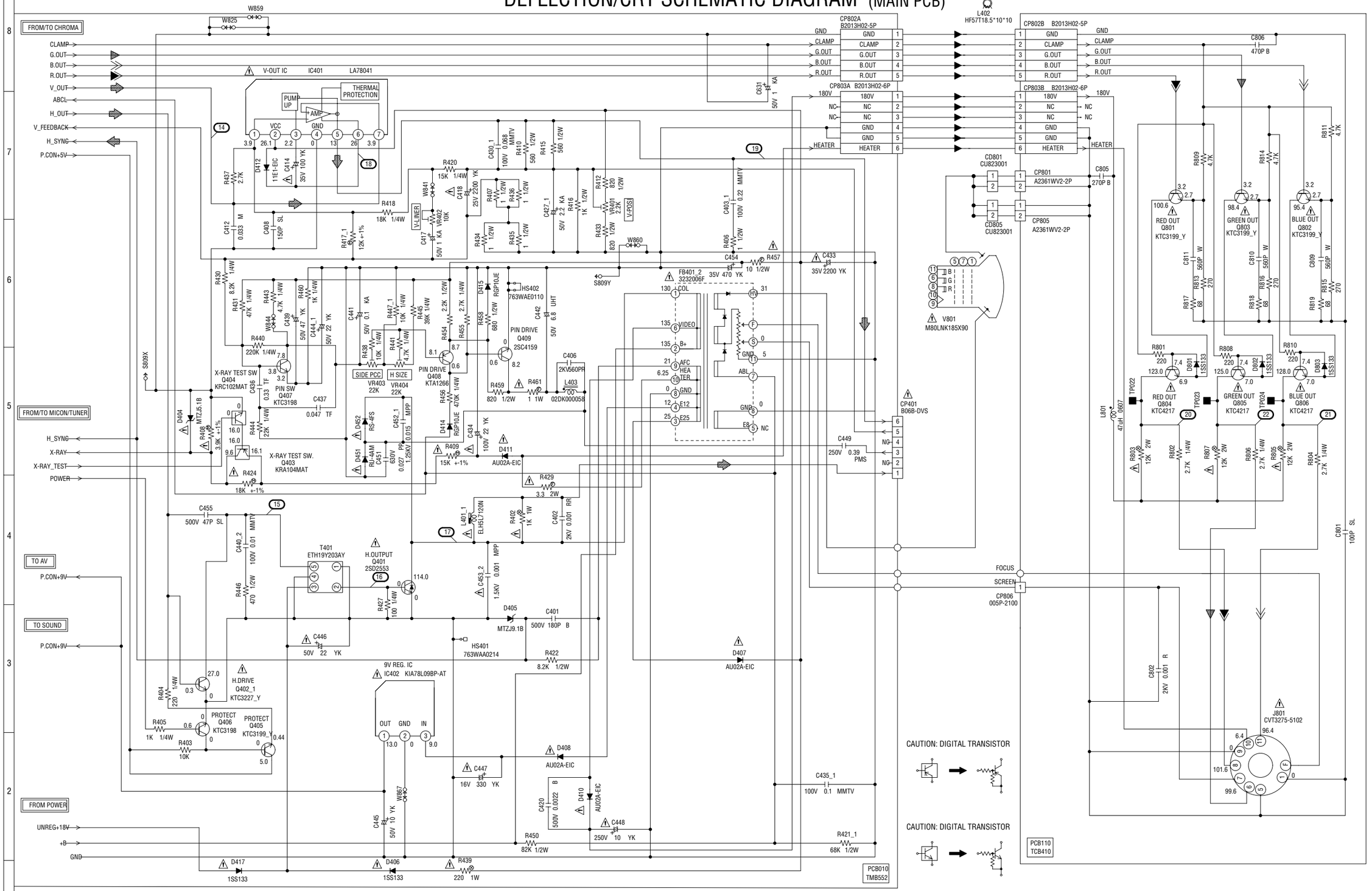
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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。

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

DEFLECTION/CRT 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 。

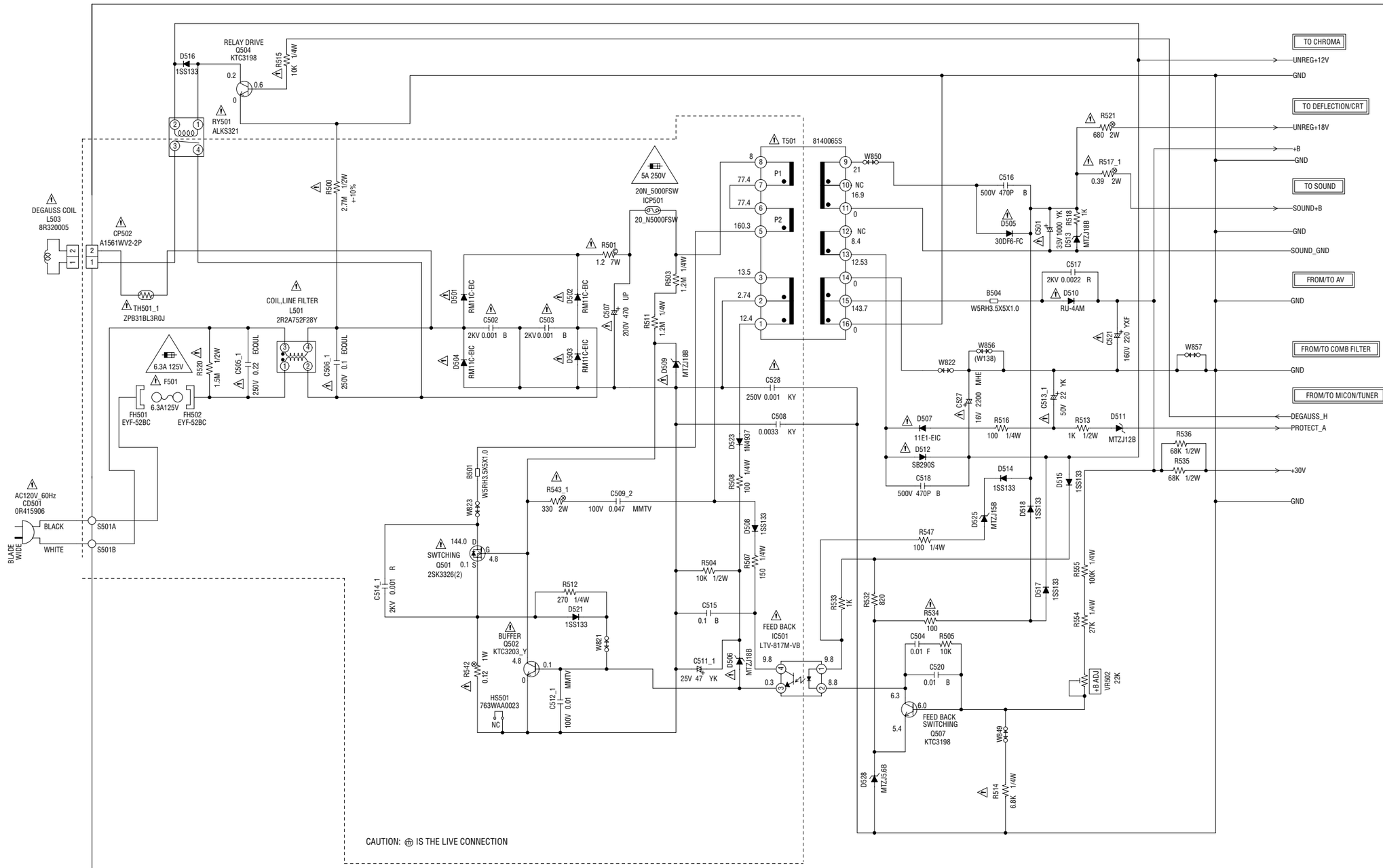
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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 5A 250V

CAUTION:FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501),5A 250V(ICP501)

ATTENTION:POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTOLISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501),5A 250V(ICP501)

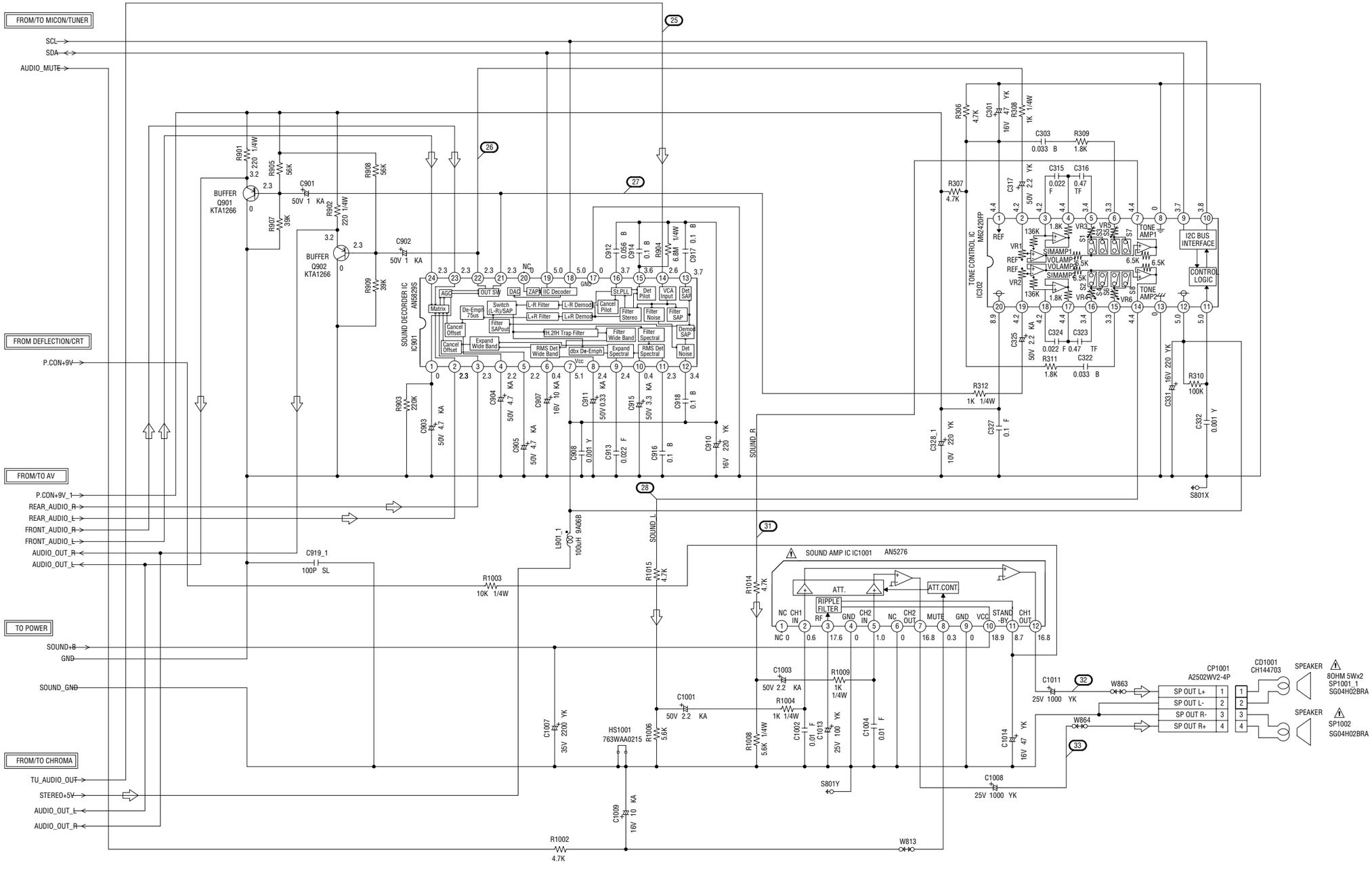
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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.

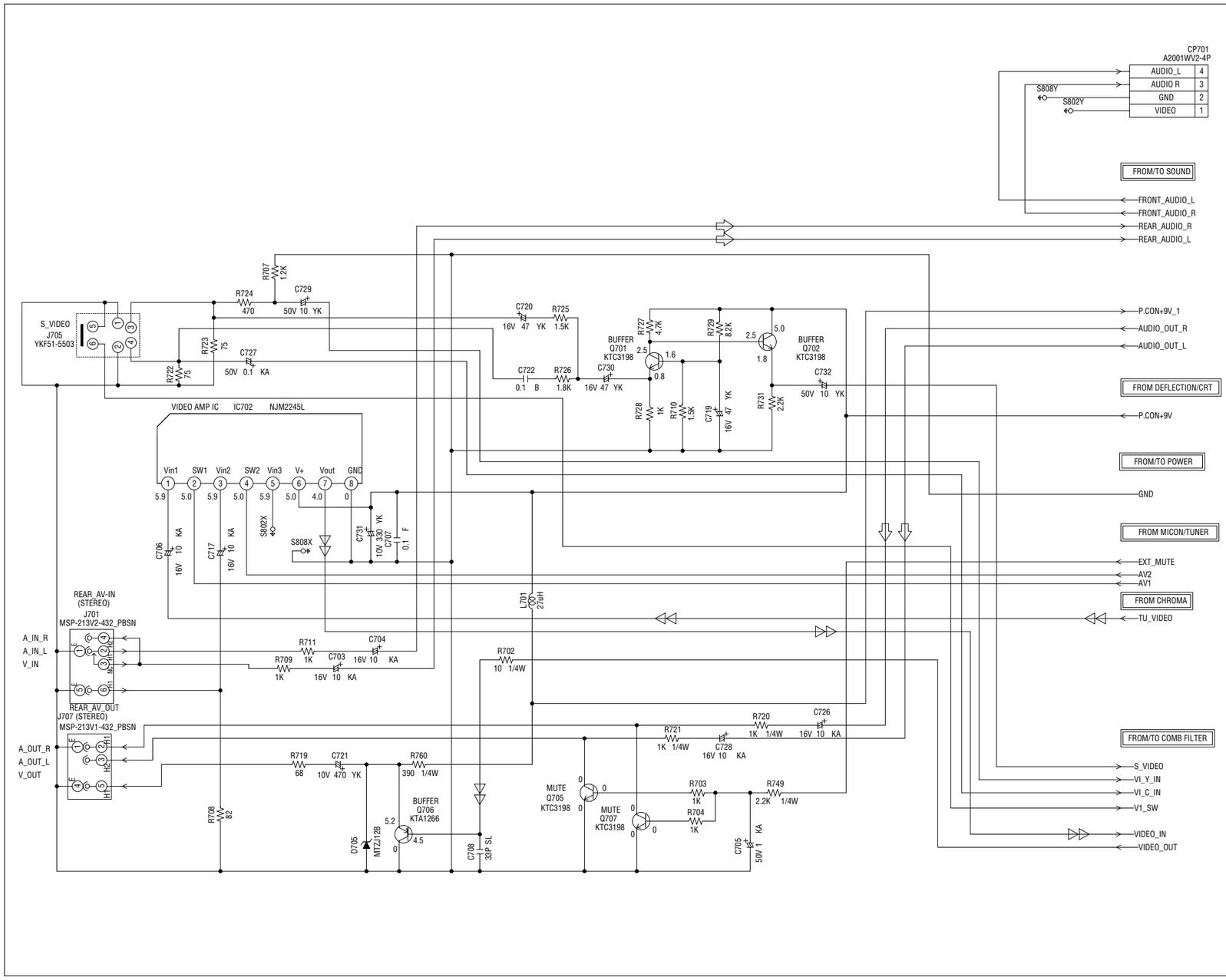
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)



AV SCHEMATIC DIAGRAM
(MAIN PCB)



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

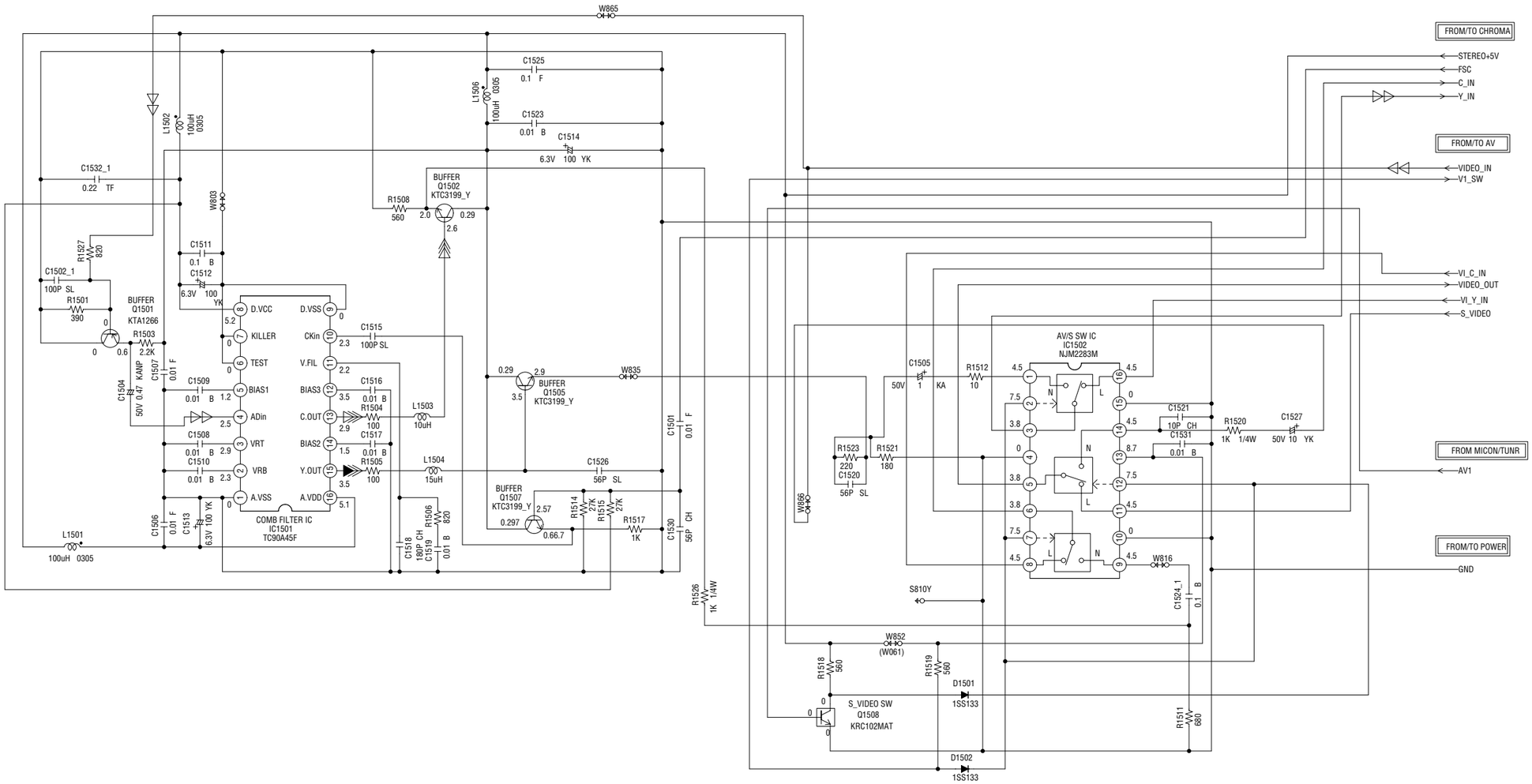
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

⇦ AUDIO SIGNAL

⇦⇦ TUNER VIDEO SIGNAL

COMB/FILTER SCHEMATIC DIAGRAM

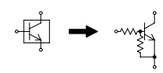
(MAIN PCB)



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

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

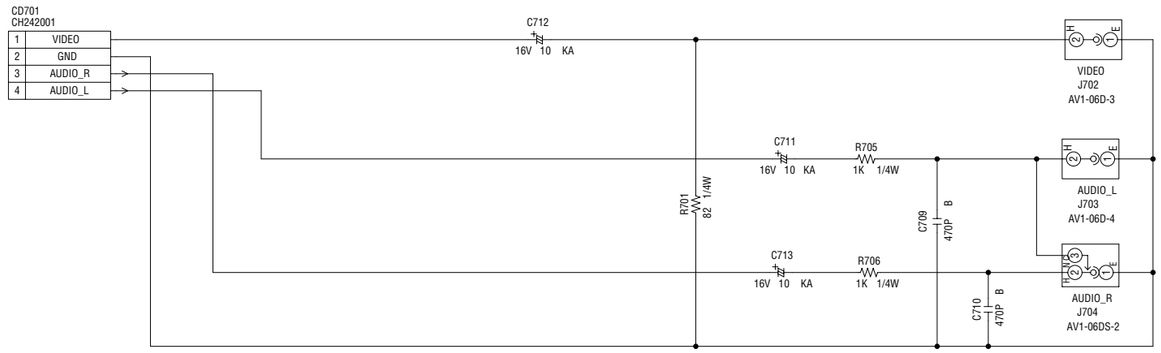
CAUTION: DIGITAL TRANSISTOR



PCB010
TMB552

AV JACK SCHEMATIC DIAGRAM

(AV JACK PCB)



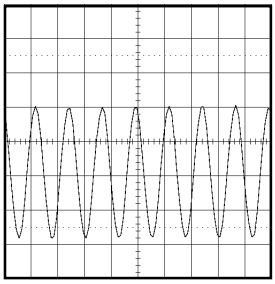
NOTE : THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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.

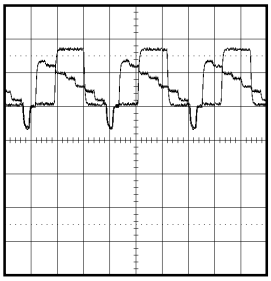
PCB280
TEBB05

WAVEFORMS

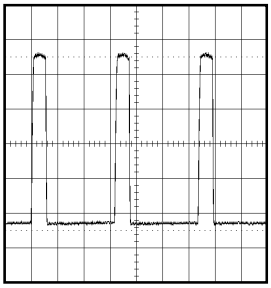
MICON/TUNER



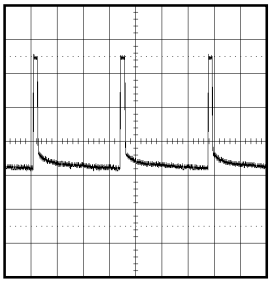
① 1V 0.1µs/div



② 0.5V 20µs/div

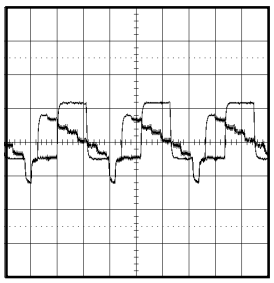


③ 200mV 20µs/div

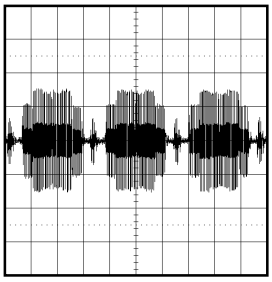


④ 200mV 5ms/div

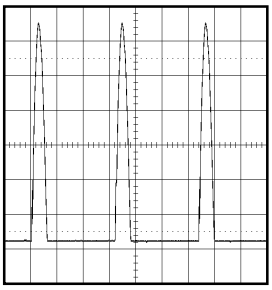
CHROMA



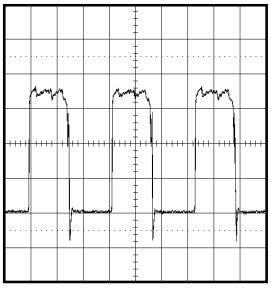
⑥ 0.5V 20µs/div



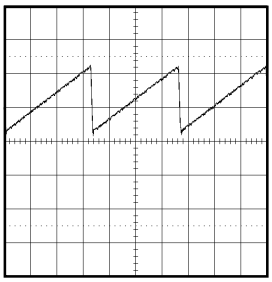
⑦ 200mV 20µs/div



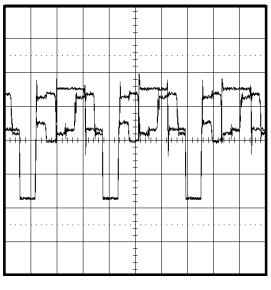
⑧ 20V 20µs/div



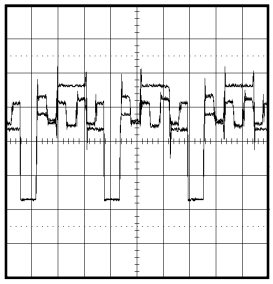
⑨ 200mV 20µs/div



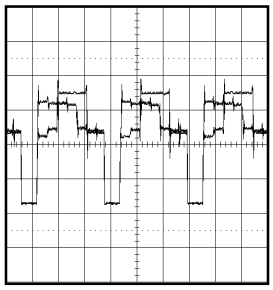
⑩ 0.5V 5ms/div



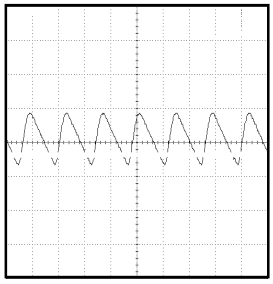
⑪ 1V 20µs/div



⑫ 1V 20µs/div

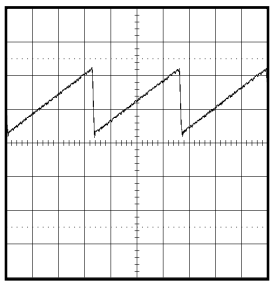


⑬ 1V 20µs/div

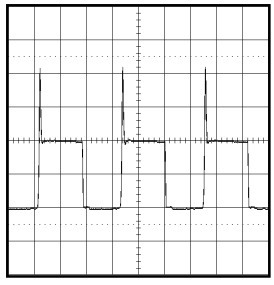


㉙ 500mV 200ns/div

DEFLECTION/CRT



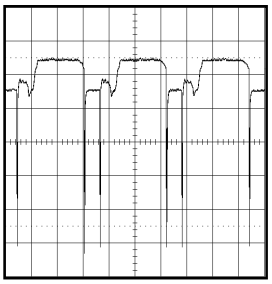
⑭ 0.5V 5ms/div



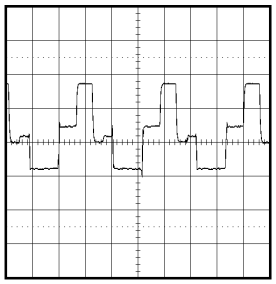
⑮ 20V 20µs/div

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

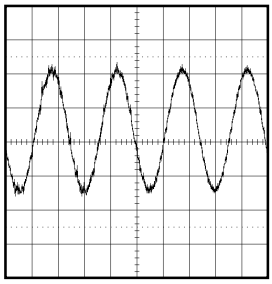
WAVEFORMS



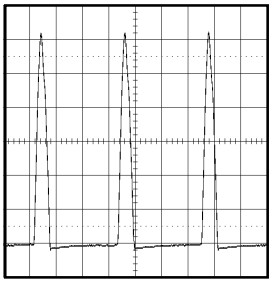
16 2V 20µs/div



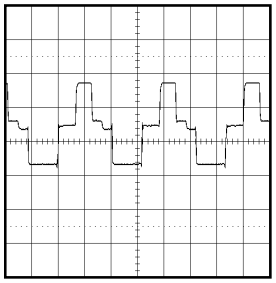
21 50V 20µs/div



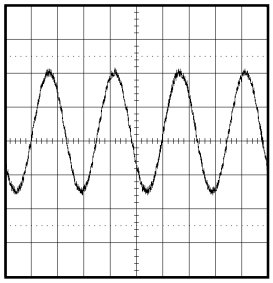
28 200mV 1ms/div



17 200V 20µs/div

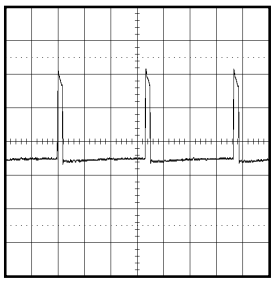


22 50V 20µs/div

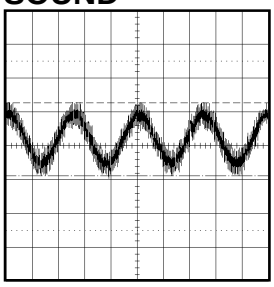


31 200mV 1ms/div

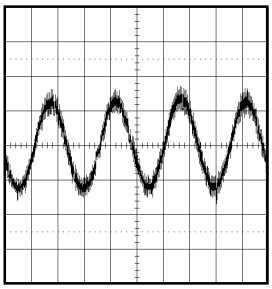
SOUND



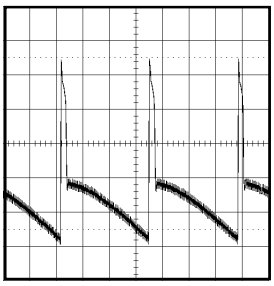
18 10V 5ms/div



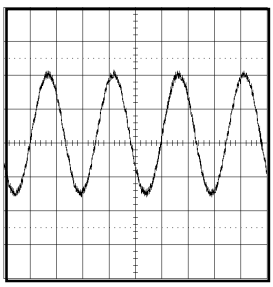
25 0.5V 1ms/div



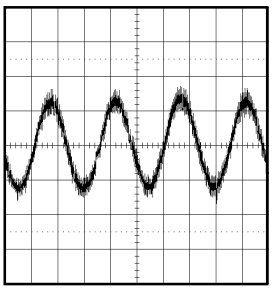
32 0.5V 1ms/div



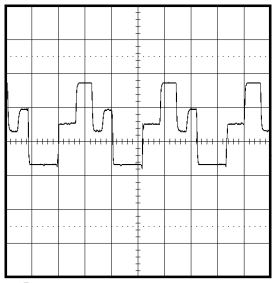
19 10V 5ms/div



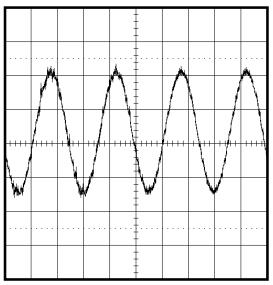
26 200mV 1ms/div



33 0.5V 1ms/div



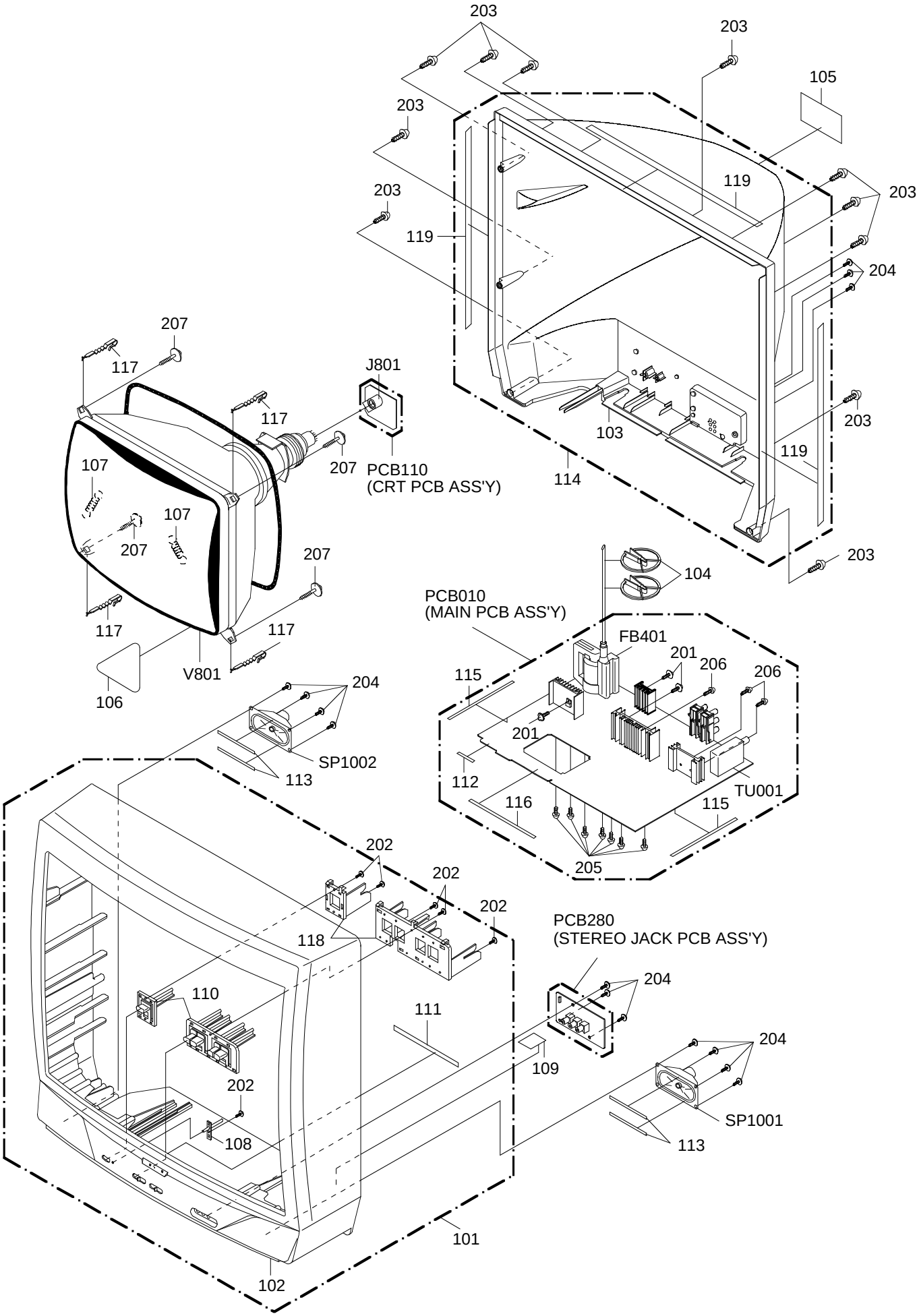
20 50V 20µs/div



27 200mV 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	A3M002N720	CABINET,FRONT ASSY		
102	701WPJB843	CABINET,FRONT		
103	702WPA0920	CABINET,BACK(1/6)		
104	899HV3T000	HOLDER,ANODE WIRE		
105	722A08A127	SHEET,RATING		
106	723000C005	FILM,DECORATION		
107	741WUA0021	SPRING,EARTH		
108	713WPA0229	GUIDE,REMOCON		
109	724000A002	SHEET,CSA		
110	735WPA0693	BUTTON,FRAME		
111	800WQ00045	FELT SHEET		5x150xT0.5
112	800WQ0A013	FELT,SHEET		5x30xT0.5
113	800WQ00054	FELT,SHEET		5x80xT0.8
114	A3M002N740	CABINET, BACK ASS'Y		
115	800WQ0A008	FELT,SHEET		150x5 T=0.3
116	800WQ0A002	FELT,SHEET		5x130xT0.5
117	762WPA0009	HOLDER,CRT WIRE		
118	735WPA0694	STOPPER,BUTTON		
119	800WQ00041	FELT,SHEET		390x18xT0.5
201	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
202	8110630A24	SCREW,TAP TITE(P)	BRAZIER	3x12
203	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20
204	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
205	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
206	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
207	8111J50D04	SCREW,TAPPING(A)	GW22	5x40
---	7230007398	SECURITY TAG		
---	791WHAA035	LAMIFILM,BAG		
---	792WHA0390	PACKAGE,TOP		
---	792WHA0391	PACKAGE,BOTTOM		
---	793WCDB404	GIFT BOX		
---	JB5U0300	POLYBAG,INSTRUCTION		
---	J3I60229	INFORMATION SHEET		
---	J3M00201A	INSTRUCTION BOOK		
---	J4F21002	WARRANTY SHEET		
---	A3M002M975	INSTRUCTION BOOK KIT		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS			
⚠ R402	R3X181102J	R,METAL OXIDE	1K OHM 1W
⚠ R408	R4X5T6392F	R,METAL	3.9K OHM 1/6W
⚠ R409	R4X5T6153F	R,METAL	15K OHM 1/6W
⚠ R424	R4X5T6183F	R,METAL	18K OHM 1/6W
⚠ R429	R6558A3R3J	R,FUSE RNF	3.3 OHM 2W
⚠ R439	R3X181221J	R,METAL OXIDE	220 OHM 1W
⚠ R457	R635U2100J	R,FUSE	10 OHM 1/2W
⚠ R461	R65581010J	R,FUSE	1 OHM 1W
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W
⚠ R501	R5X2AE1R2J	R,CEMENT	1.2 OHM 7W
⚠ R514	R002T4682J	RC	6.8K OHM 1/4W
⚠ R515	R002T4103J	RC	10K OHM 1/4W
⚠ R516	R002T4101J	RC	100 OHM 1/4W
⚠ R517	R3X28AR39J	R.METAL OXIDE	0.39 OHM 2W
⚠ R521	R3X18A681J	R,METAL OXIDE	680 OHM 2W
⚠ R534	R801R7101J	RC	100 OHM 1/10W
⚠ R542	R3X181R12J	R,METAL OXIDE	0.12 OHM 1W
⚠ R543	R3X28A331J	R,METAL OXIDE	330 OHM 2W
⚠ R629	R3X28B100J	R,METAL OXIDE	10 OHM 3W
⚠ R644	R3X28B100J	R,METAL OXIDE	10 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			
C402	C0PLRR713K	CC	0.001 UF 2KV RR
C406	C03L0R7S2K	CC	560 PF 2KV R
⚠ C414	E02LT4101M	CE	100 UF 35V
⚠ C418	E02LF3222M	CE	2200 UF 25V
⚠ C433	E0ELF4222M	CE	2200 UF 35V
⚠ C434	E02LU8220M	CE	22 UF 100V
C442	E53FF56R8M	CE	6.8 UF 50V NP
⚠ C446	E02LU5220M	CE	22 UF 50V
⚠ C447	E02LU2331M	CE	330 UF 16V
⚠ C448	E0ELTD100M	CE	10 UF 250V
C449	P4J7F3394J	CMPP	0.39 UF 250V PMS
C451	P3N1F5273J	CPP	0.027 UF 630V
C452	P4N8FJ153H	CMPP	0.015 UF 1.25KV
⚠ C453	P4N8FK102H	CMPP	0.001 UF 1.5KV
⚠ C501	E02LF4102M	CE	1000 UF 35V
⚠ C505	P2122B224M	CMP	0.22 UF 250V ECQUL or
	P2472B224M	CMP	0.22UF 275V PHE840
⚠ C506	P2122B104M	CMP	0.1 UF 250V ECQUL or
	P2472B104M	CMP	0.1 UF 275V PHE840
⚠ C507	E51CGC471M	CE	470 UF 200V
⚠ C508	CC3LE0ML3M	CC	0.0033UF 250V
⚠ C513	E02LU5220M	CE	22 UF 50V
C514	C03L0R713K	CC	0.001 UF 2KV R
C517	C03L0R7H3K	CC	0.0022UF 2KV R
⚠ C521	E62NFB221M	CE	220 UF 160V
⚠ C527	E5EZF2222M	CE	2200 UF 16V
⚠ C528	CC3LE0M13M	CC	0.001 UF 250V
C802	C03L0R713K	CC	0.001 UF 2KV R
C1007	E0ELF4222M	CE	2200 UF 35V
C1008	E02LF3102M	CE	1000 UF 25V
C1011	E02LF3102M	CE	1000 UF 25V
DIODES			
D001	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D101	D1VT001330	DIODE,SILICON	1SS133T-77
D102	D1VT001330	DIODE,SILICON	1SS133T-77
D104	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D404	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D405	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
⚠ D406	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D407	D2WTAU02A0	DIODE SILICON	AU02A-EIC
⚠ D408	D2WTAU02A0	DIODE SILICON	AU02A-EIC
⚠ D410	D2WTAU02A0	DIODE SILICON	AU02A-EIC
⚠ D411	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D412	D2WT011E10	DIODE SILICON	11E1-EIC
D414	D2LTP10JE0	DIODE,RECTIFIER	RGP10JE-G3
D415	D2LTP10JE0	DIODE,RECTIFIER	RGP10JE-G3
⚠ D417	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D451	D2BFRU4AM0	DIODE,SILICON	RU-4AM
⚠ D452	D2BFRS4FS0	DIODE,SILICON	RS-4FS
⚠ D501	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D502	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D503	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D504	D2WTRM11C0	DIODE SILICON	RM11C-EIC

REF. NO.	PART NO.	DESCRIPTION	
DIODES			
⚠ D505	D28F30DF60	DIODE RECTIFIER	30DF6-FC
⚠ D506	D97U01801B	DIODE,ZENER	MTZJ18B T-77
⚠ D507	D2WT011E10	DIODE SILICON	11E1-EIC
D508	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D509	D97U01801B	DIODE,ZENER	MTZJ18B T-77
⚠ D510	D2BFRU4AM0	DIODE,SILICON	RU-4AM
D511	D97U01201B	DIODE,ZENER	MTZJ12B T-77
⚠ D512	D2WXB290S0	DIODE SILICON	SB290S
D513	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D514	D1VT001330	DIODE,SILICON	1SS133T-77
D515	D1VT001330	DIODE,SILICON	1SS133T-77
D516	D1VT001330	DIODE,SILICON	1SS133T-77
D517	D1VT001330	DIODE,SILICON	1SS133T-77
D518	D1VT001330	DIODE,SILICON	1SS133T-77
D521	D1VT001330	DIODE,SILICON	1SS133T-77
D523	D2WXN49370	DIODE SILICON	1N4937
D525	D97U01501B	DIODE,ZENER	MTZJ15B T-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
D607	D97U01501B	DIODE,ZENER	MTZJ15B 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
D705	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D801	D1VT001330	DIODE,SILICON	1SS133T-77
D802	D1VT001330	DIODE,SILICON	1SS133T-77
D803	D1VT001330	DIODE,SILICON	1SS133T-77
D1501	D1VT001330	DIODE,SILICON	1SS133T-77
D1502	D1VT001330	DIODE,SILICON	1SS133T-77
ICS			
IC101	I56F07072A	IC	OEC7072A
IC199	A3M002M015	IC	S-24C08ADPA-01
IC302	I06F062420	IC	M62420FP
⚠ IC401	I03TD80410	IC	LA78041
⚠ IC402	I1KJ98L090	IC	KIA78L09BP-AT
⚠ IC501	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC601	I06FC61250	IC	M61250FP
IC702	I0QS02245L	IC	NJM2245L
IC901	I01FF58290	IC	AN5829S
⚠ IC1001	I0FSP52760	IC	AN5276
IC1501	I05FE90A45	IC	TC90A45F
IC1502	I0QF022830	IC	NJM2283M
TRANSISTORS			
Q101	TNATA03002	COMPOUND TRANSISTOR	KRC101MAT
Q102	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q103	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠ Q401	TD50025530	TRANSISTOR SILICON	2SD2553
⚠ Q402	TCAT03227Y	TRANSISTOR SILICON	KTC3227_Y-AT
Q403	TPATD03003	COMPOUND	KRA104MAT
Q404	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
Q405	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q406	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q407	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q408	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q409	TC30041590	TRANSISTOR,SILICON	2SC4159(D,E)
⚠ 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)
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q604	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q605	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q606	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q607	TPATD03003	COMPOUND	KRA104MAT
Q608	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q609	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
Q701	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q702	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q705	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q706	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q707	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠ Q801	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		TRANSISTORS	
⚠ Q802	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠ Q803	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠ Q804	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q805	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q806	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
Q901	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q902	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q1501	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q1502	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q1505	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q1507	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q1508	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
		COILS &TRANSFORMERS	
L101	021LA62R7K	COIL	2.7 UH
⚠ L401	022100031A	COIL,LINEARITY	ELH5L7120N
L402	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10
L403	02DK000058	COIL CHOKE	02DK000058
⚠ L501	029T000101	COIL,LINE FILTER	2R2A752F28Y
⚠ L503	028R320005	COIL,DEGAUSS	8R320005
L601	021LA61R0M	COIL	1 UH
L602	02167F101J	COIL	100 UH
L603	02167F101J	COIL	100 UH
L605	021LA6560J	COIL	56 UH
L606	021LA62R2K	COIL	2.2 UH
L607	021LA6180K	COIL	18 UH
L608	021LA66R8K	COIL	6.8 UH
L701	021LA6270K	COIL	27 UH
L801	02167D470K	COIL	47 UH
L901	021375101K	COIL	100 UH or
	02167D101K	COIL	100 UH
L1501	02167F101J	COIL	100 UH
L1502	02167F101J	COIL	100 UH
L1503	021LA6100J	COIL	10 UH
L1504	021LA6150J	COIL	15 UH
L1506	02167F101J	COIL	100 UH
T401	0450190161	TRANS,HORIZONTAL DRIVE	ETH19Y203AY
⚠ T501	048140065S	TRANSFORMER,SWITCHING	8140065S
		JACKS	
J701	060J431019	RCA JACK	MSP-213V2-432 PBSN
J702	060Q401048	RCA JACK	AV1-06D-3
J703	060Q401049	RCA JACK	AV1-06D-4
J704	060Q421018	RCA JACK	AV1-06DS-2
J705	063Q700002	JACK	YKF51-5503
J707	060J411018	RCA JACK	MSP-213V1-432 PBSN
⚠ J801	066C130015	SOCKET,CATHODE RAY TUBE	CVT3275-5102
		SWITCHES	
SW101	0504201T31	SWITCH,TACT	SKHVBED010
SW102	0504201T31	SWITCH,TACT	SKHVBED010
SW103	0504201T31	SWITCH,TACT	SKHVBED010
SW104	0504201T31	SWITCH,TACT	SKHVBED010
SW105	0504201T31	SWITCH,TACT	SKHVBED010
		VARIABLE RESISTORS	
VR401	V1163H3BTC	VOLUME,SEMI FIXED	EVNCYAA03BE3
VR402	V116314BTC	VOLUME,SEMI FIXED	EVNCYAA03B14
VR403	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
VR404	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
VR502	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
		P.C.BOARD ASSEMBLIES	
PCB010	A3M002N010	PCB ASS'Y	TMB552A
PCB110	A3M001N110	PCB ASS'Y	TCB410A
PCB280	A3M001N280	PCB ASS'Y	TEBB05A
		MISCELLANEOUS	
B501	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B504	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	120R415906	CORD AC BUSH	0R415906
CD701	06CH242001	CORD CONNECTOR	CH242001
CD801	06CU823001	CORD CONNECTOR	CU823001
CD802	WCL6866038	FLAT CABLE	AWG26 5C GRAY 660MM
CD803	WDL6046038	FLAT CABLE	AWG26 6C BLACK 460MM
CD805	06CU823001	CORD CONNECTOR	CU823001
CF601	1029045R7G	FILTER,SAW	TSF5229P3
CF602	1012T04702	FILTER,CERAMIC TRAP	MKT47.3MC110P-TF
CF603	1012T4R520	FILTER,CERAMIC	SFSRA4M50CF00-A0
CF604	1012T4R519	FILTER,CERAMIC TRAP	TPSRA4M50C00-A0
⚠ CP401	069X460029	CONNECTOR PCB SIDE	B06B-DVS
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP601	0694270139	CONNECTOR PCB SIDE	173979-7

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
CP701	069S240629	CONNECTOR PCB SIDE	A2001WV2-4P
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP805	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP806	069W010010	CONNECTOR PCB SIDE	005P-2100
CD1001	06CH144703	CORD CONNECTOR	CH144703
CP1001	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP802A	067U005049	WIRE HOLDER	B2013H02-5P
CP802B	067U005049	WIRE HOLDER	B2013H02-5P
CP803A	067U006049	WIRE HOLDER	B2013H02-6P
CP803B	067U006049	WIRE HOLDER	B2013H02-6P
CUS012	800WFAA008	CUSHION C	
EL001	124116281A	EYE LET	XRY16X28BD
EL002	124120301A	EYE LET	XRY20X30BD
⚠ F501	081PC6R305	FUSE	51MS063L
⚠ FB401	043232006F	TRANSFORMER,FLYBACK	3232006F
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
⚠ ICP501	0835A05005	MICRO FUSE	20N_5000FSW
OS101	0773071001	REMOTE RECEIVER	RPM7138-H5
⚠ RY501	0560V20115	RELAY	ALKS321
⚠ SP1001	070C546004	SPEAKER	SG04H02BRA
⚠ SP1002	070C546004	SPEAKER	SG04H02BRA
⚠ TH501	DF5EL3R0C0	DEGAUSS ELEMENT	ZPB31BL3R0J
TM101	076R0DJ020	TRANSMITTER	R25-1784 or
	07660DJ020	TRANSMITTER	SBKM0P003A
⚠ TU001	0145100059	TUNER,VHF-UHF	ENV56DB6G3
⚠ V801	0981320603	CRT W/DY	M80LNK185X90Y1
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.	M3M0-02N
O/R NO.	W273017