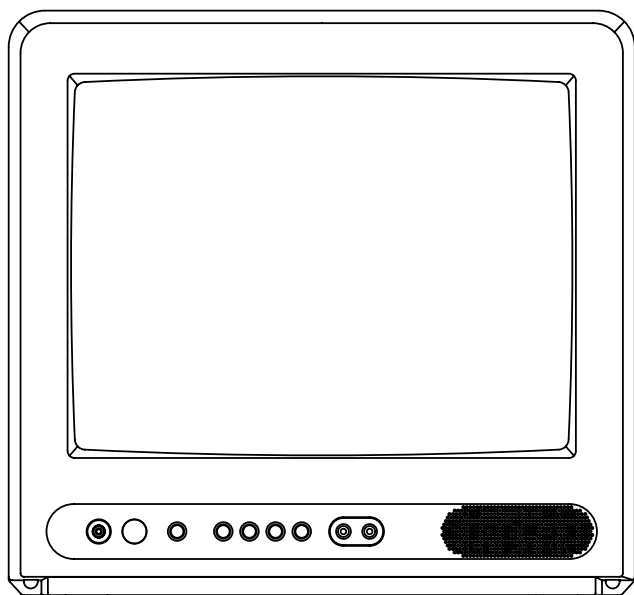


Service Manual

Color Television

Main Manual



Panasonic

Models
CT-Z1425

Chassis
TMC573

This service manual is issued as a service guide for the model listed above. Included in this manual are a set of schematic, block diagrams, functional descriptions, alignment procedures, disassembly procedures and a complete parts list.

“WARNING! This Service Manual is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. **Products powered by electricity should be serviced or repaired only by experienced professional technicians.** Any attempt to service or repair the product or products dealt with in this Service Manual by anyone else could result in serious injury or death.”

The service technician is required to read and follow the “**Safety Precautions**” and “**Important Safety Notice**” in this Main Manual.


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Important Safety Notice

Special components are used in this television set which are important for safety. These parts are identified on the schematic diagram by the symbol  and printed in **BOLD TYPE** on the replacement part list. It is essential that these critical parts are replaced with the manufacturer's specified replacement part to prevent X-ray radiation, shock, fire or other hazards. Do not modify the original design without the manufacturer's permission.

Safety Precautions

General Guidelines

An **Isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always Replace Protective Devices, such as fishpaper, isolation resistors and capacitors, and shields after servicing the Receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this Receiver is operating. Operation of the Receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high-voltage equipment.

Extreme care should be practiced when **Handling the Picture Tube**. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. **Discharge the picture tube** by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.

Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to X-ray radiation.

The **Test Picture Tube** used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against X-ray radiation as well as implosion. The magnetic shield limits the X-ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling **50kV** without causing X-ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. **Do not use a line isolation transformer when testing.**

Leakage Current Cold Check

Unplug the AC cord and connect a jumper between the two plug prongs.

Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a return path to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage Current Hot Check (Fig. 1)

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check.

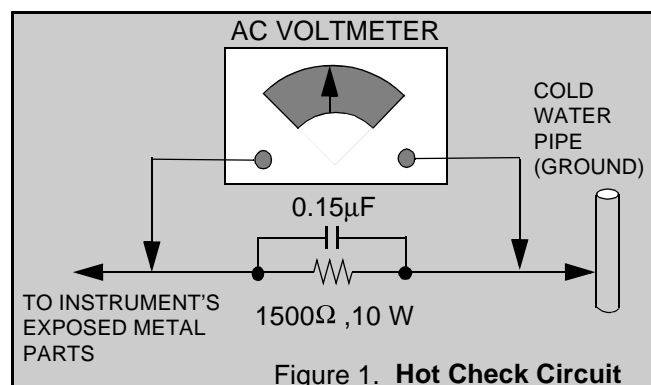
Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS.

A leakage current tester (such a Simpson Model 229, Sencore Model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliamp. If any measurement is out of the specified limits, there is a possibility of a shock hazard and the Receiver must be repaired and rechecked before it is returned to the customer.



X-ray Radiation

WARNING: The potential source of X-ray radiation in the TV set is in the High Voltage section and the picture

Note: It is important to use an accurate, calibrated high voltage meter.

Set the **brightness and picture** controls to Minimum. Measure the High Voltage. The high voltage should be **24.5 \pm 1.0kV**. If the upper limit is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

Service Notes

Note: These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless Chip Component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code - 1st and 2nd significant digits and a multiplier.

Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper). Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

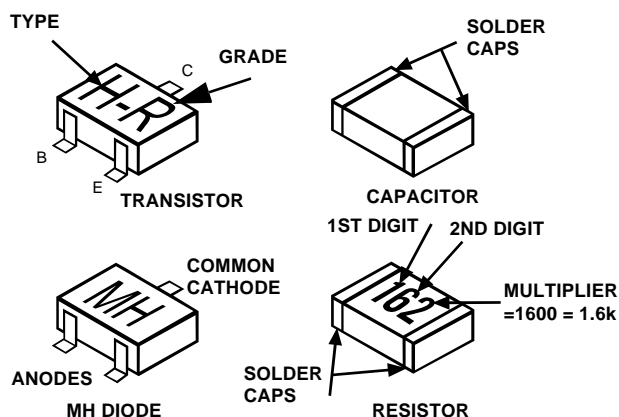
Component Removal

1. Use solder wick to remove solder from component end caps or terminal.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

Chip Component Installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

Chip Components



How to Replace Flat-IC

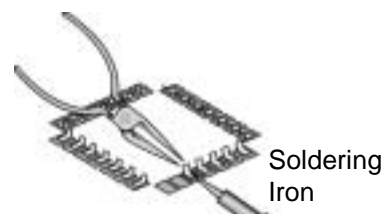
- Required Tools -

- Soldering iron
- Needle nose pliers
- Wire cutters (sharp & small)
- De-solder braids
- Magnifier

1. Cut the pins of a defective IC with wire cutters. Remove IC from board. If IC is glued to the board, heat the IC and release the IC. See Note above.



2. Using soldering iron and needle nose pliers remove the IC pins from the board.



3. Using de-soldering braid and soldering iron remove solder from affected area on board (pads).



4. Position the new Flat-IC in place (apply the pins of the Flat-IC to the soldering pads where the pins need to be soldered). Determine the positions of the soldering pads and pins by correctly aligning the polarity symbol. Solder pin #1 first, align the IC.

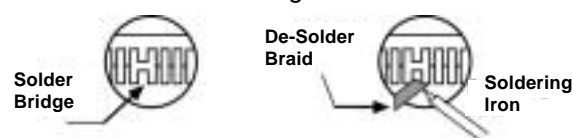


Solder the pin opposite to pin #1. This will assist positioning the IC.

5. Solder all pins to the soldering pads using a fine tipped soldering iron.



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de-solder braid as shown in the figure below.




Service Notes (Continued)

IMPORTANT: To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires and CRT DAG wire are securely connected.

CAUTION: The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the Receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground (∇) or (\nearrow) when servicing, or incorrect voltages will be measured.

WARNING: This Receiver has been designed to meet or exceed applicable safety and X-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to X-ray radiation and shock and fire hazard, parts indicated with the symbol  on the schematic must be replaced with identical parts. Order parts from the manufacturer's parts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.


About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

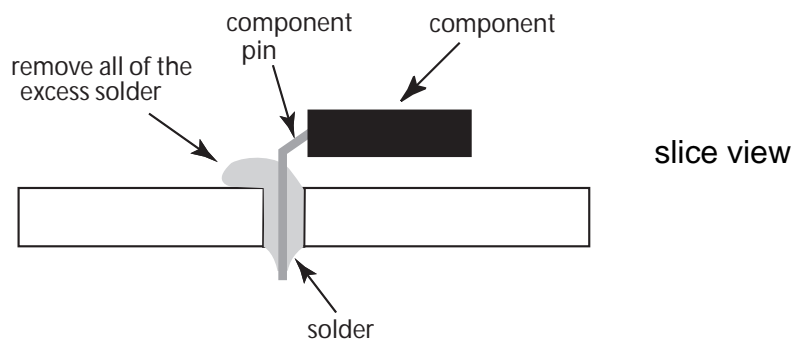
The Lead Free Solder used in our manufacturing process and discussed below is Sn(Tin)+Ag(Silver) + Cu(Copper).

This model uses Pb Free solder in it's manufacture due to environmental conservation issues.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol  stamped on the front of PCB.

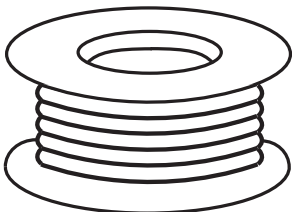
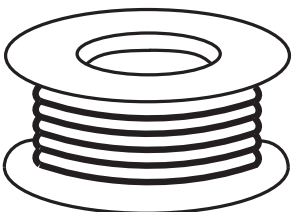
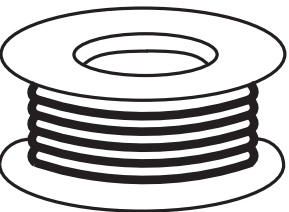
Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 30 ~ 40 °C higher. Please use a high temperature soldering iron and set it to $350 \pm 5^{\circ}\text{C}$.
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. Although, this product can be used only Sn+Ag+Cu(tin, silver, copper) solder

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	13 inch / 335.4mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	+0.35G/0.18G
		Color System		NTSC
		Speaker		1Speaker
			Position	Front
			Size	1.5 x 2.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.0 W
G-2	Tuning System		10%(Typical)	0.8 W
		NTSC3.58+4.43 /PAL60Hz		No
		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
G-3	Power		FP-FS	4.50MHz
		Preset CH		No
		Stereo/Dual TV Sound		No
		Tuner Sound Muting		Yes
		Power Source	AC	120V AC 60Hz
			DC	-
		Power Consumption	at AC	54 W at AC 120 V 60 Hz
			Stand by (at AC)	3 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	0oC ~ +40oC
			Storage	-20oC ~ +60oC
G-6	Operating Humidity			Less than 80% RH

GENERAL SPECIFICATIONS

G-7	On Screen Display	Menu		Yes		
		Menu Type		Picture(Matsusita Type)		
		Picture		Yes		
		Contrast(Picture)		Yes		
		Brightness		Yes		
		Color		Yes		
		Tint		Yes		
		Sharpness		Yes		
		Normal		Yes		
		Audio		No		
		Bass		No		
		Treble		No		
		Balance		No		
		BBE On/Off		No		
		Stable Sound On/Off		No		
		SET UP		Yes		
		Language		Yes		
		Mode		Yes		
		Auto Program		Yes		
		Manual Program		Yes		
		CC		Yes		
		Timer		Yes		
		Lock		Yes		
		Exit		Yes		
		CH Label		No		
		Favorite CH		No		
		Color Stream DVD/DTV		No		
		Control Level		Yes		
		Sound		Yes		
		Brightness		Yes		
		Contrast(Picture)		Yes		
		Color		Yes		
		Tint		Yes		
		Sharpness		Yes		
		Tuning		No		
		Bass		No		
		Treble		No		
		Balance		No		
		Back Light		No		
		Stereo,Audio Output,SAP		No		
		Video(Aux)		Yes		
		Color Stream		No		
		Channel(TV/Cable)		Yes		
		CH Label		No		
		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	<u> 10 </u> Min		
		On/Off Timer	Program(On Tim / Off Tim)	<u> No </u>		
		Wake Up Timer		<u> No </u>		
		Timer Back-up (at Power Off Mode)	more than	--	Min	Sec

GENERAL SPECIFICATIONS

G-10	Remote Control	Unit	RC-GP
		Glow in Dark Remocon	No
		Format	KASEIKYO
		Custom Code	08-00 h
		Power Source	3V
		Voltage(D.C)	UM-3(AA) x 2 pcs
		UM size x pcs	
		Total Keys	20 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(UP)	Yes
		CH Down(DOWN)	Yes
		Volume Up(Right)	Yes
		Volume Down(Left)	Yes
		TV/Caption/Text	No
		CH1/CH2	No
		TV/Video(TV/AV)	Yes
		CH RTN/CH ENT(Quick View)	Yes
		Sleep	No
		RE Call(Call)	Yes
		Reset	No
		Menu	No
		Enter	No
		Mute	Yes
		Action	Yes
		Exit	No
		MTS(Audio Select)	No
		Set +	No
		Set -	No
G-11	Features	Auto Degauss	Yes
		Auto Shut Off	Yes
		Canal+	No
		CATV	Yes
		Anti-theft	No
		Rental	No
		Memory(Last CH)	Yes
		Memory(Last Volume)	Yes
		V-Chip	Yes
		Type	USA,ORION Type
		BBE	No
		Auto Search	No
		CH Allocation	No
		SAP	No
		Just Clock Function	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
		FBT Leak Test Protect	Yes
		CH Lock	No
		Video Lock	No
		Game Timer	No
		Power On Memory	Yes
		Energy Star	Yes
		Favorite CH	No

GENERAL SPECIFICATIONS

G-12	Accessories	Owner's Manual		Language	Spanish
				W/ Warranty	No
		Remote Control Unit			Yes
		Rod Antenna			Yes
				Poles	1Poles
				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 Safety Instruction			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM3(AA) x 2
				OEM Brand	Yes
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card (NDL Card)			No
		ESP 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
				CH Up(UP)	Yes
				CH Down(DOWN)	Yes
				Volume Up(Right)	Yes
				Volume Down(Left)	Yes
				ACTION=Volume Up+Volume Down	Yes
				Rear	AC/DC	No
		TV/CATV Selector	No		
		Degauss	No		
		Main Power SW	No		
		Indicator		Power	No
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA
				Audio Input	RCA x 1
				Other Terminal	Ear Phone
			Rear	Video Input(Rear1)	No
				Video Input(Rear2)	No
				Audio Input(Rear1)	No
				Audio Input(Rear2)	No
				Video Output	No
				Audio Output	No
				Euro Scart	No
				Color Stream	No
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
				AC Outlet	No
G-14	Set Size	Approx. W x D x H (mm)		359.4 x 354 x 337	
G-15	Weight	Net (Approx.)		9.5 kg (20.9 lbs)	
		Gross (Approx.)		11.0kg (24.4lbs)	
G-16	Carton	Master Carton		No	
			Content	---- Sets	
			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)	440 x 408 x 396	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces	
				Height (cm)	62
			Container Stuffing	725	Sets/40' container

GENERAL SPECIFICATIONS

G-17	Material	Cabinet	Cabinet Front	PS 94V0 NONDECABROM
			Cabinet Rear	PS 94V0 NONDECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	Yes
G-18	Environment	Environmental standard requirement (by buyer)		Green procurement of MATSUSHITA
		Pb-free		Phase3(Ph

DISASSEMBLY INSTRUCTIONS

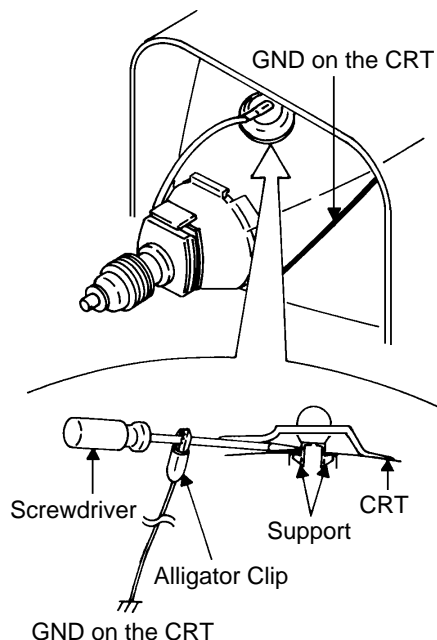
1. REMOVAL OF ANODE CAP

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

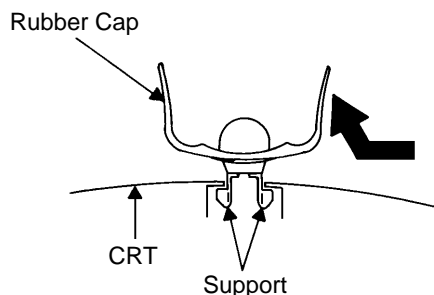
- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap.
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.



2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.



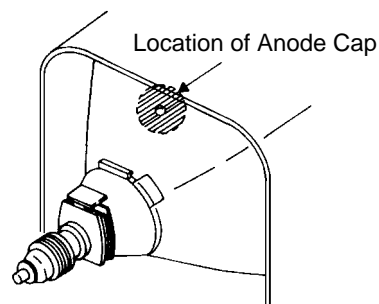
3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

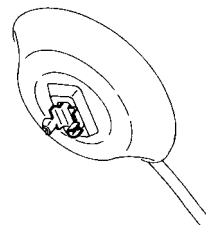
1. Clean the spot where the cap was located with a small amount of alcohol.



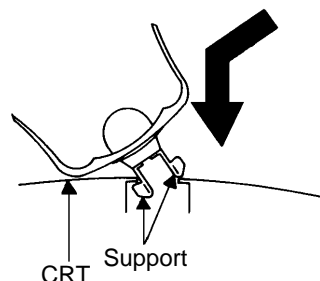
NOTE

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.



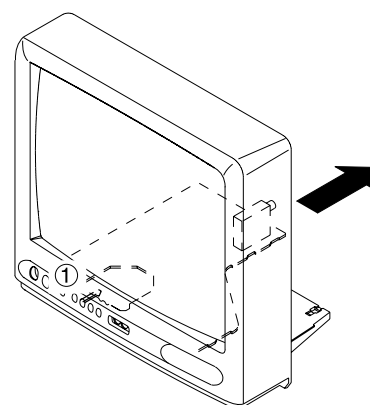
4. Insert one end of the Anode Support into the anode button, then the other as shown in the figure below.



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

2. NOTE FOR THE REMOVAL OF THE MAIN PCB

When the removal of the Main PCB, remove the hook ① first, then draw it in the direction of the arrow.



SERVICE MODE LIST

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

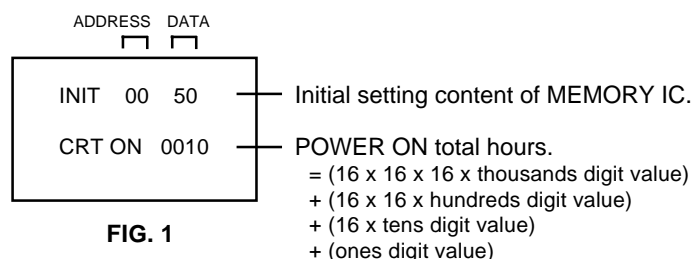
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of factory data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and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



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	FB	4C	46	B3	24	69	39	30	CC	05	90	D4	00	07

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the CH. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press VOL. UP/DOWN to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using CH. UP/DOWN button until required DATA value has been selected.
6. Pressing VOL. UP/DOWN 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 with a heat sink, apply silicon grease (**YG6260M**) on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)
- **The adjustments are needed for each mode, RF mode and AV mode. Perform the adjustments referring each adjustment items.**

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**.

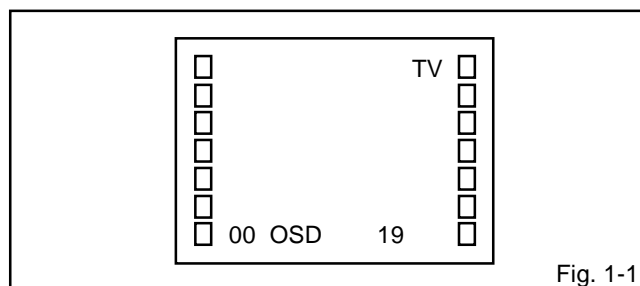


Fig. 1-1

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 ACTION button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	14	BRIGHT MAX
01	CUT OFF	15	BRIGHT MIN
04	H.VCO	16	CONTRAST CENT
05	H.PHASE	17	CONTRAST MAX
06	V.SIZE	18	CONTRAST MIN
07	V.SHIFT	19	COLOR CENT
08	R.DRIVE	20	COLOR MAX
09	B.DRIVE	21	COLOR MIN
10	R.BIAS	22	TINT
11	G.BIAS	23	SHARPNESS
12	B.BIAS	28	TEST MONO
13	BRIGHT CENT	29	TEST STEREO

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CUT OFF (RF)

1. Adjust the unit to the following settings.
R.DRIVE=10, B.DRIVE=10, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRI.CENT=120, CONT.MAX=40.
2. Place the set in 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 (RF)

1. Receive a broadcast.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the Focus Volume until picture is distinct.

2-3: WHITE BALANCE (RF)

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in 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 achieved.

2-4: SUB TINT/SUB COLOR (RF, AV)

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP023**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**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 "COLOR CENT".
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 10\%$ of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

ELECTRICAL ADJUSTMENTS

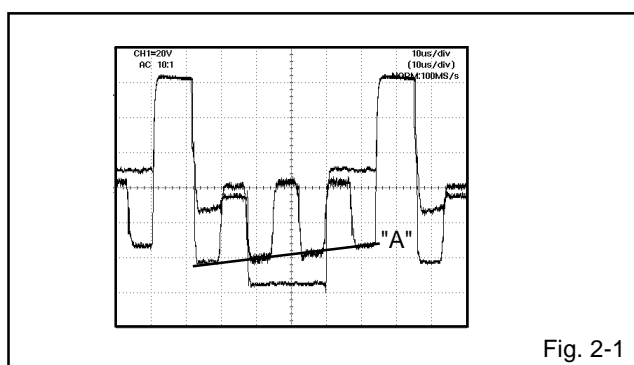


Fig. 2-1

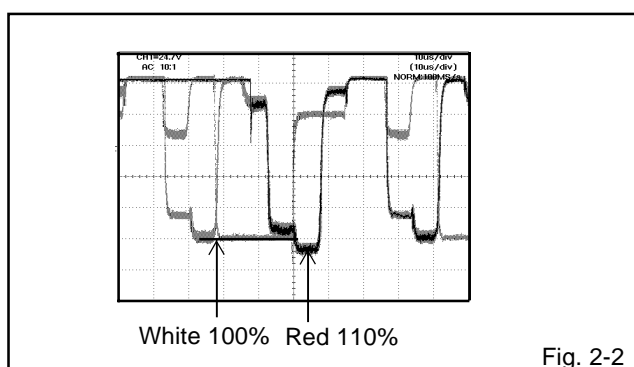


Fig. 2-2

2-5: HORIZONTAL PHASE (RF)

1. Receive the center cross signal from the Pattern Generator.
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.PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-6: VERTICAL SIZE (RF)

1. Receive the cross hatch signal from the Pattern Generator.
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 $10 \pm 2\%$.

2-7: VERTICAL SHIFT (RF)

1. Receive the center cross signal from the Pattern Generator.
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 **(07)** on the remote control to select "V.SHIFT".
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-8: OSD HORIZONTAL (RF)

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

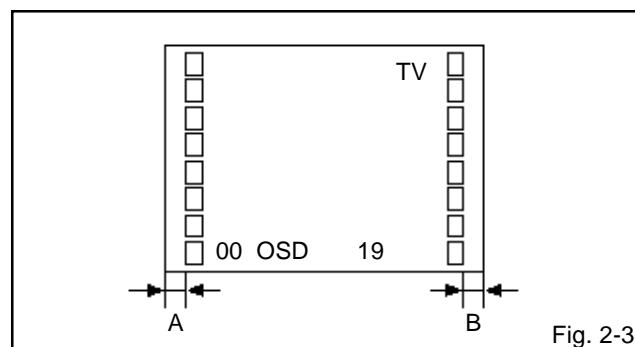


Fig. 2-3

2-9: BRIGHT MANUAL (RF, AV)

1. Receive the black 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 "BRIGHT CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible.
5. Press the TV/VIDEO button on the remote to set to the AV mode. Then perform the above adjustment 2~4.
6. Receive a broadcast and check if the picture is normal.

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

2-10: SUB CONTRAST (RF, AV)

1. Receive an 70dB the color bar pattern.
2. Activate the adjustment mode display of **Fig. 1-1** press the channel button **(17)** on the remote control to select "CONTRAST MAX".
3. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "44".
4. Press the TV/VIDEO button on the remote control to set to the AV mode.
5. Activate the adjustment mode display of **Fig. 1-1** press the channel button **(17)** on the remote control to select "CONTRAST MAX".
6. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "48".
7. Receive a broadcast and check if the picture is normal.

2-11: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below. (RF/AV)

NO.	FUNCTION	STEP NO.
04	H VCO	04
14	BRIGHT MAX	140
15	BRIGHT MIN	60
16	CONTRAST CENT	30
18	CONTRAST MIN	17
20	COLOR MAX	74
21	COLOR MIN	00
23	SHARPNESS	40

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 color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

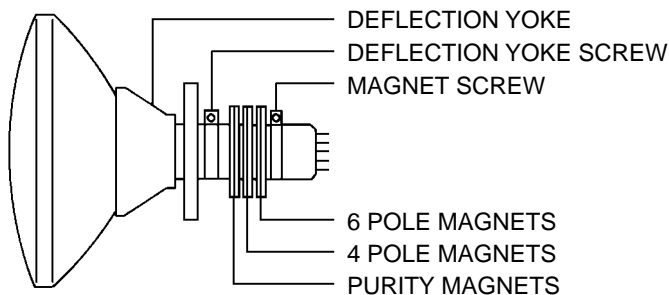


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

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

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

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

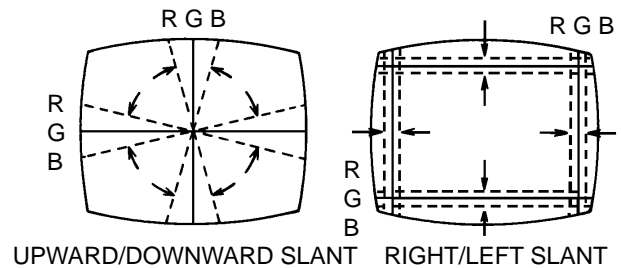
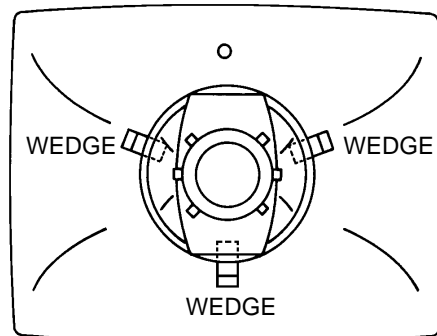


Fig. 3-2-a

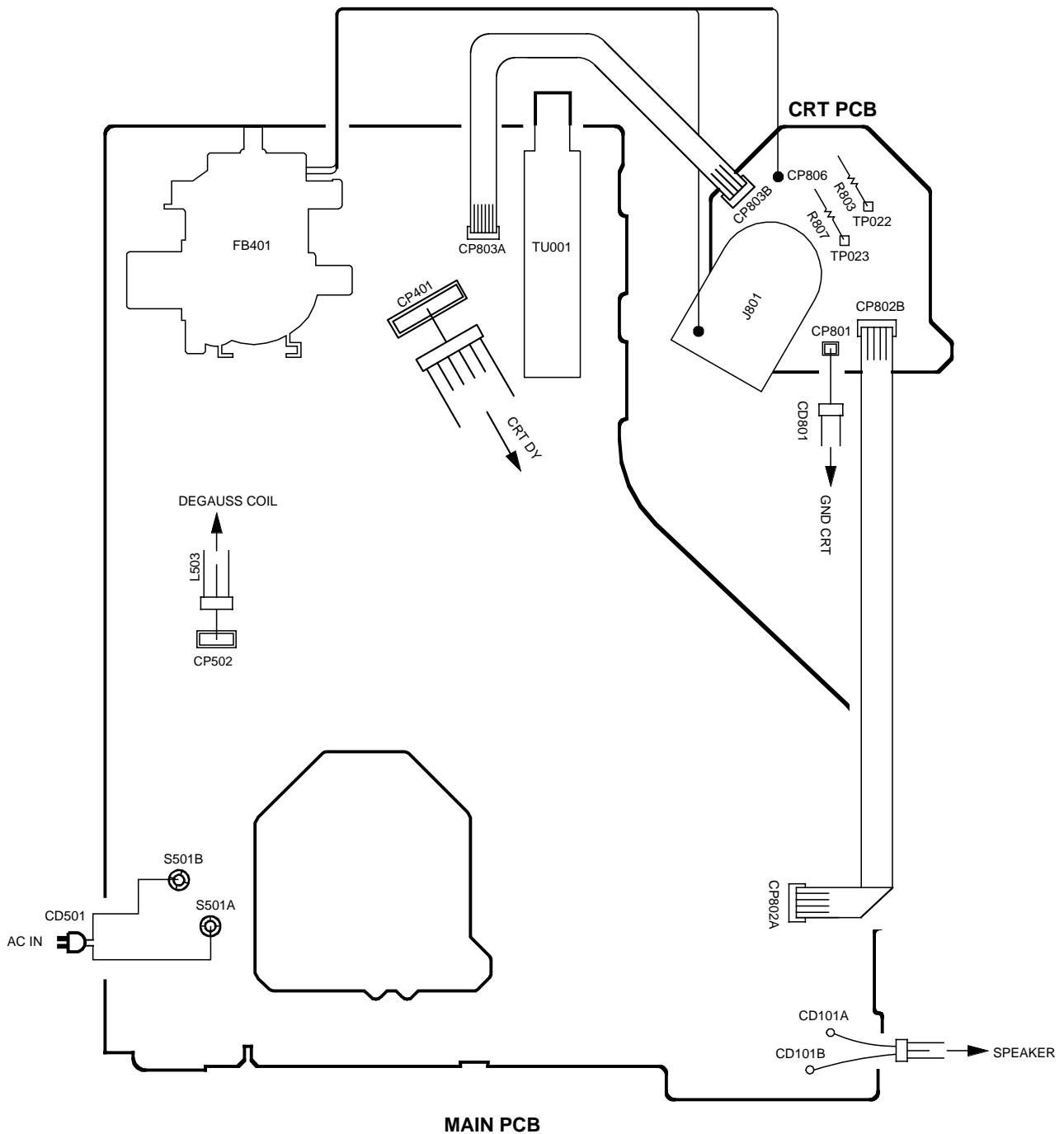


WEDGE POSITION

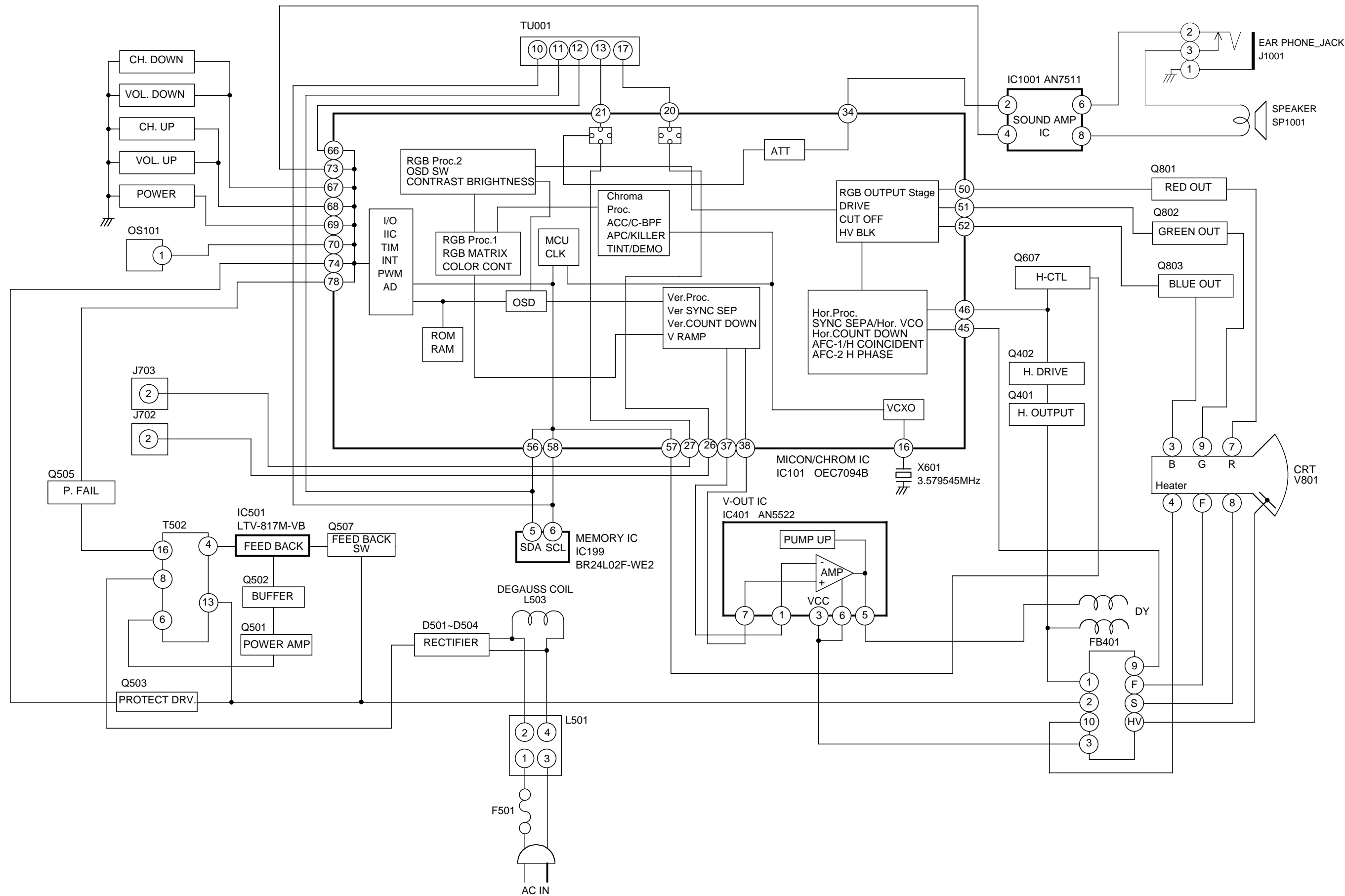
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

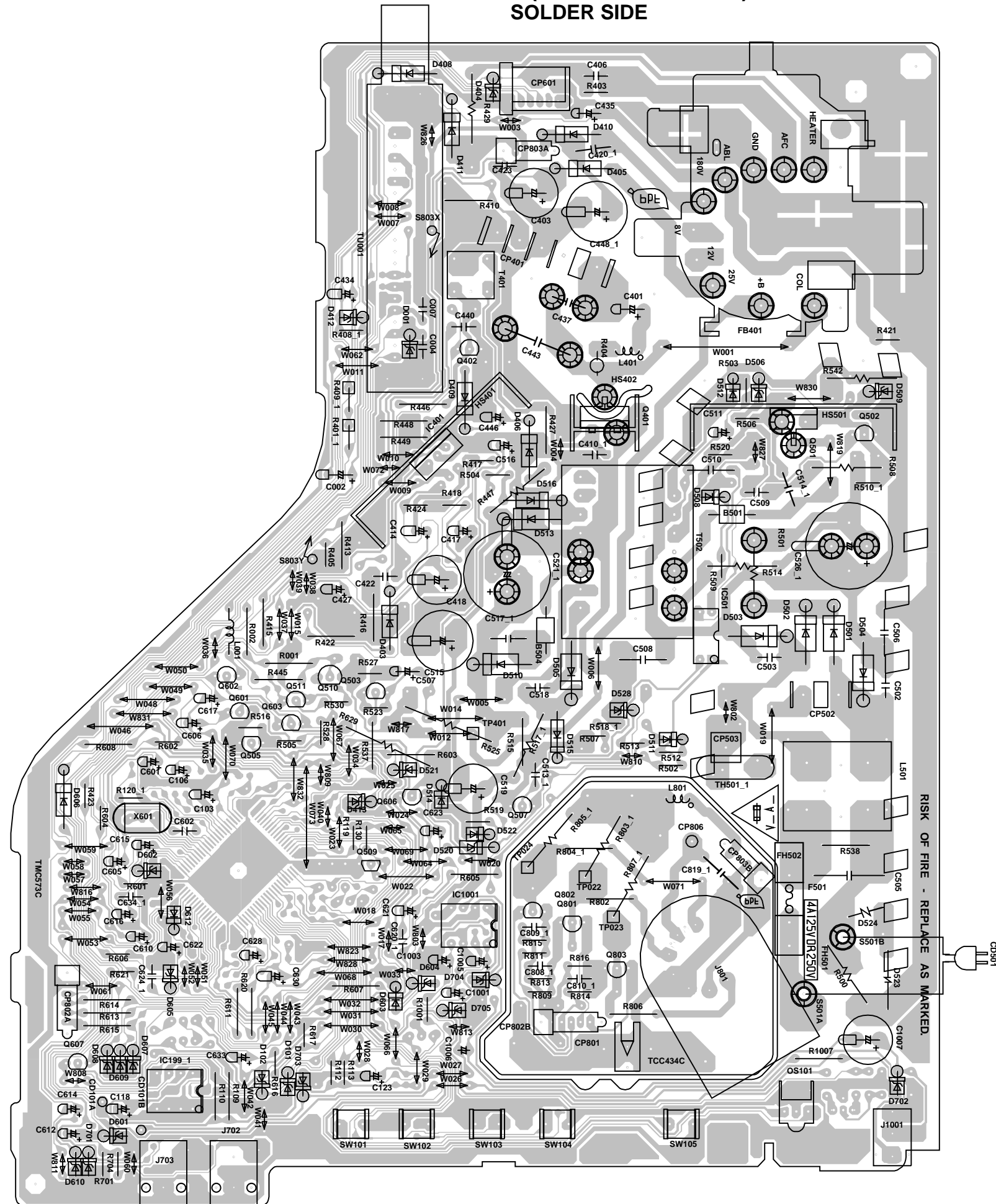
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



BLOCK DIAGRAM

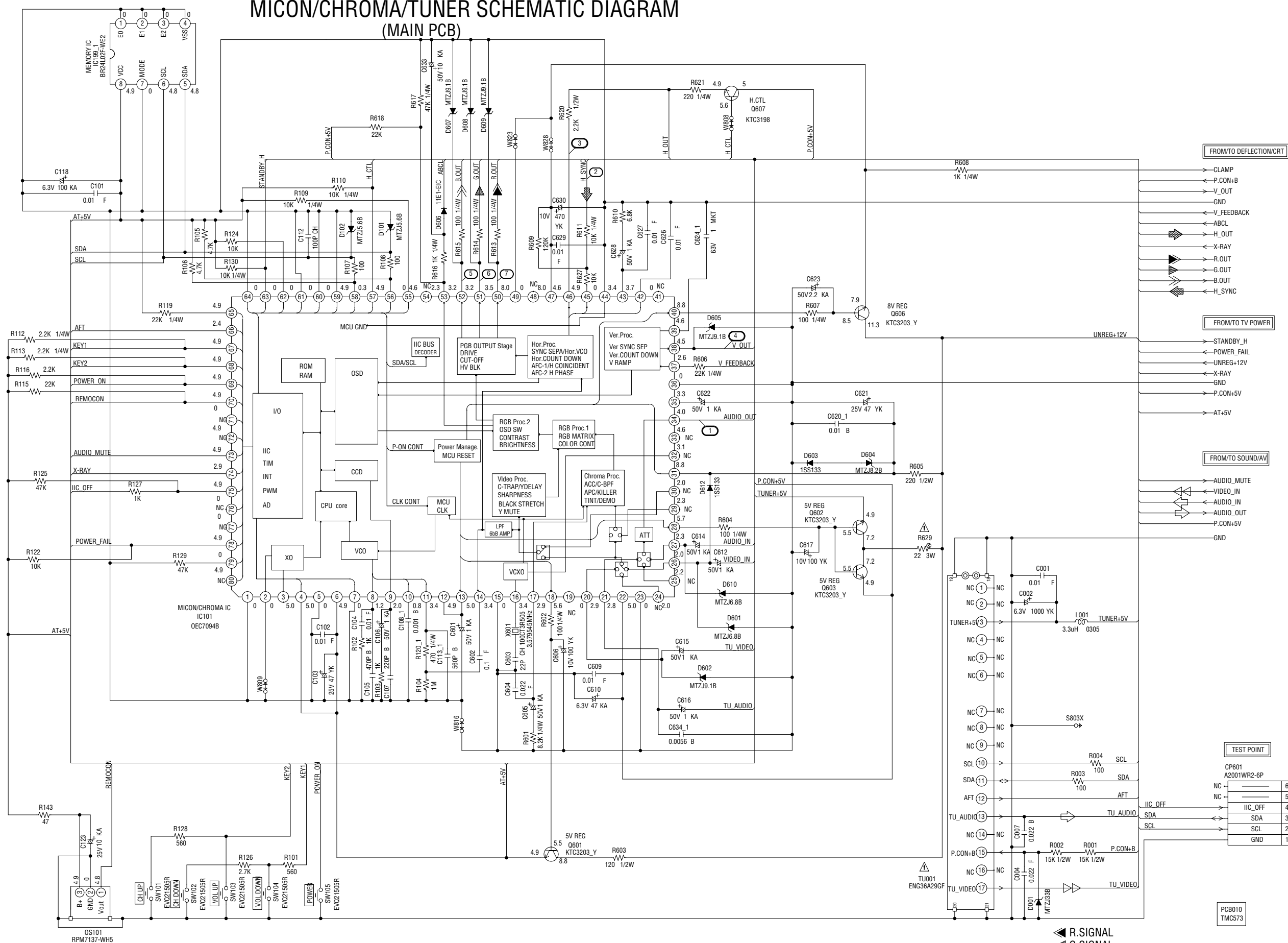


**PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE**

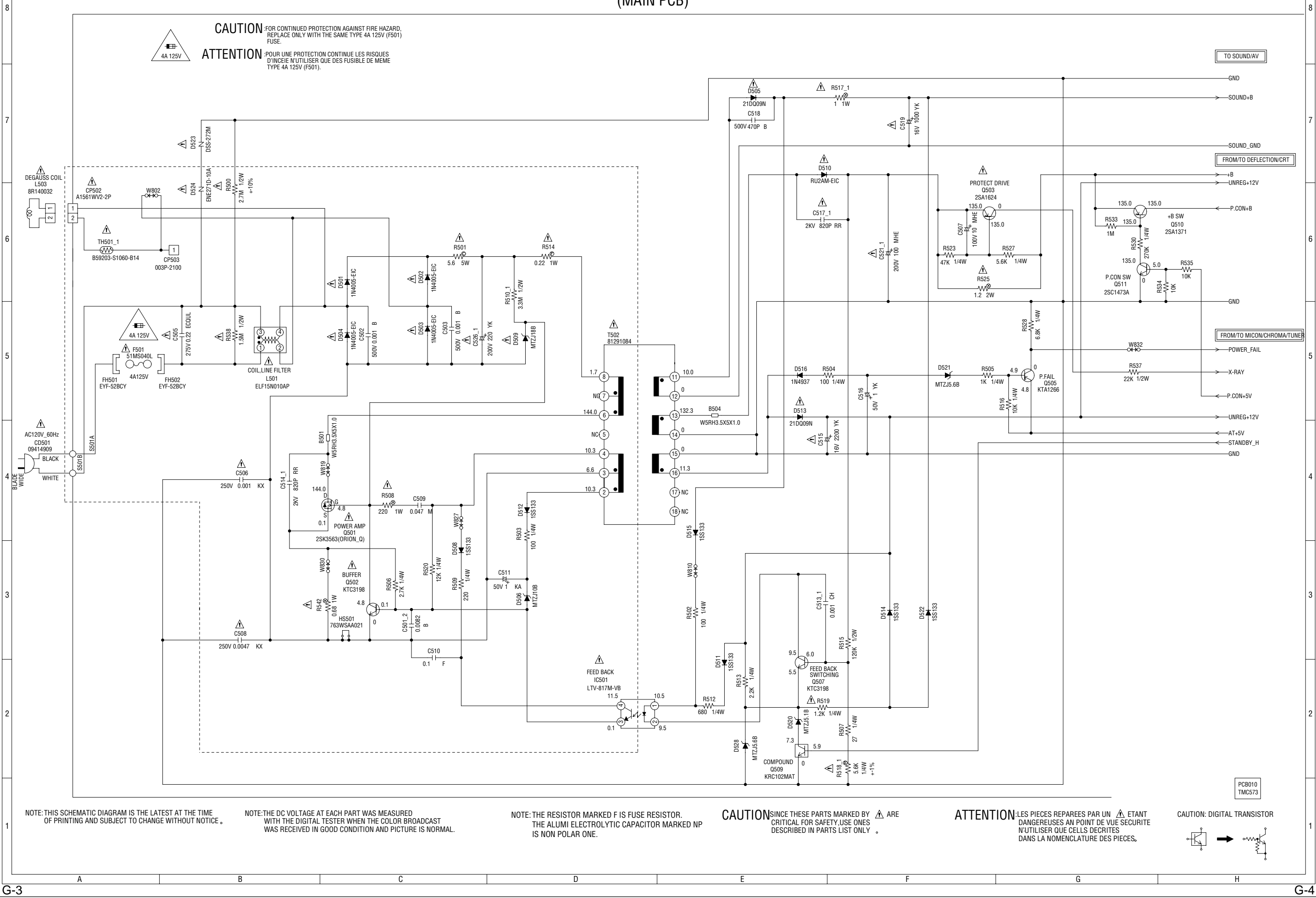


MICON/CHROMA/TUNER SCHEMATIC DIAGRAM (MAIN PCB)

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	TESTO	47	DEF VCC
8	FILT	48	NC
9	HILT	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	TEST 3	76	ON_TIMER
37	V RAMP F/B	77	SYNC
38	V RAMP OUT	78	POWER FAIL
39	V RAMP CAP	79	NC
40	8.7V REG OUT	80	EXT_MUTE

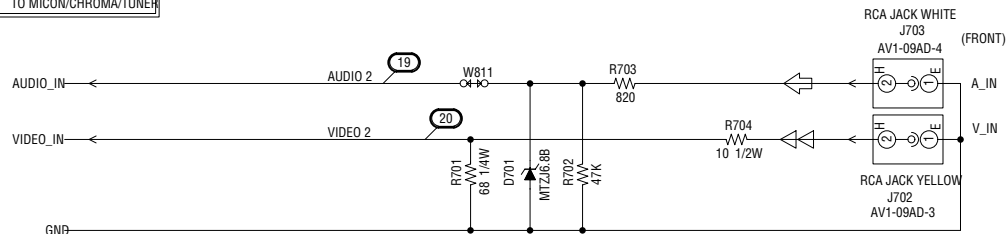


TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)

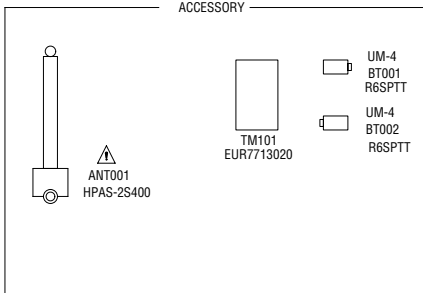


SOUND/AV SCHEMATIC DIAGRAM
(MAIN PCB)

TO MICON/CHROMA/TUNER



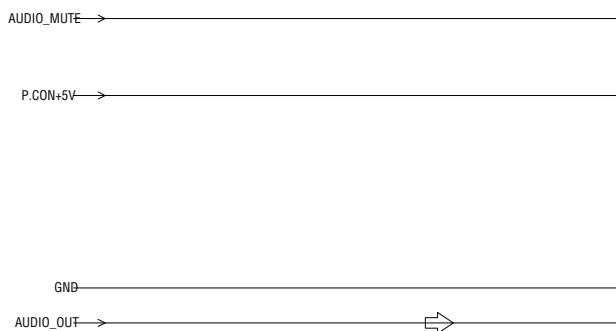
ACCESSORY



FROM TV POWER



FROM MICON/CHROMA/TUNER



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

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

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

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

TUNER VIDEO SIGNAL
 AUDIO SIGNAL

PCB010
TMC573

VOLTAGE LIST

IC

IC101			
Pin	Volt.	Pin	Volt.
1	0	33	4.6
2	0	34	4
3	5	35	3.3
4	5	36	0
5	0	37	2.6
6	4.9	38	4.5
7	0	39	4.6
8	1.2	40	8.8
9	2	41	0
10	0.8	42	0
11	3.4	43	3.7
12	4.9	44	3.4
13	5	45	0
14	3.4	46	4.9
15	0	47	4.6
16	3.4	48	8
17	2.9	49	0
18	5.6	50	8
19	0	51	3.5
20	2.9	52	3.2
21	2.8	53	3.2
22	5	54	2.3
23	0	55	4.6
24	2	56	0
25	2.2	57	4.9
26	2	58	0.3
27	2.3	59	4.9
28	5.7	60	0
29	2.3	61	0
30	2	62	0
31	8.8	63	0
32	3.1	64	0

IC199	
Pin	Volt.
1	0
2	0
3	0
4	0
5	4.8
6	4.8
7	0
8	4.9

IC1001	
Pin	Volt.
1	3.9
2	0.3
3	0
4	5.1
5	8.2
6	3.5
7	0
8	3.4

IC401	
Pin	Volt.
1	3.5
2	25
3	2
4	0
5	12
6	25
7	3.5

IC501	
Pin	Volt.
1	10.5
2	9.5
3	0.1
4	11.5

TRANSISTOR

Q401	
Pin	Volt.
B	0
C	130
E	0

Q402	
Pin	Volt.
B	0.3
C	27
E	0

Q501	
Pin	Volt.
G	4.8
S	0.1
D	144

Q502	
Pin	Volt.
B	0.1
C	4.8
E	0

Q503	
Pin	Volt.
B	135
C	0
E	135

Q505	
Pin	Volt.
B	4.9
C	0
E	4.8

Q506	
Pin	Volt.
B	0
C	0
E	0

Q507	
Pin	Volt.
B	6
C	9.5
E	5.5

Q509	
Pin	Volt.
B	5.9
C	7.3
E	0

Q510	
Pin	Volt.
B	135
C	135
E	135

Q511	
Pin	Volt.
B	5
C	135
E	0

Q601	
Pin	Volt.
B	5.5
C	8.8
E	4.9

Q602	
Pin	Volt.
B	5.5
C	7.2
E	4.9

Q603	
Pin	Volt.
B	5.5
C	7.2
E	4.9

Q606	
Pin	Volt.
B	8.5
C	11.3
E	7.9

Q607	
Pin	Volt.
B	5.6
C	5
E	4.9

Q801	
Pin	Volt.
B	3.2
C	100.6
E	2.7

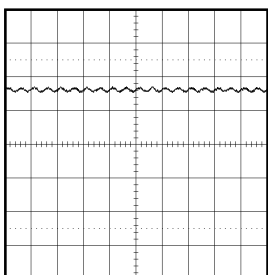
Q802	
Pin	Volt.
B	3.2
C	98.4
E	2.7

Q803	
Pin	Volt.
B	3.2
C	95.4
E	2.7

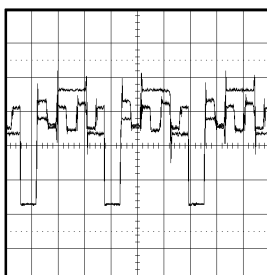
B	.....	BASE	G	.....	GATE
C	.....	COLLECTOR	S	.....	SOURCE
E	.....	EMITTER	D	.....	DRAIN

WAVEFORMS

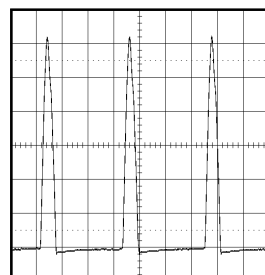
MICON/CHROMA/TUNER



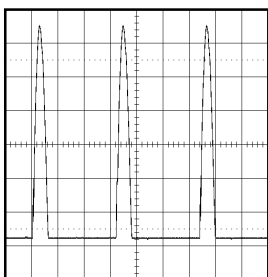
① 0.5V 2ms/div
IC101 PIN 34(AUDIO OUT)



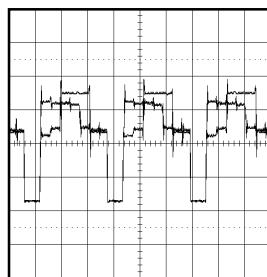
⑥ 1V 20μs/div
IC101 PIN 51(G.OUT)



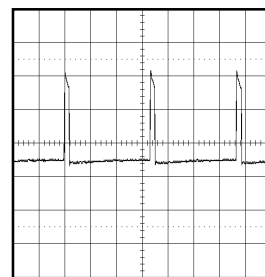
⑪ 200V 20μs/div
Q401 Collector



② 20V 20μs/div
R611

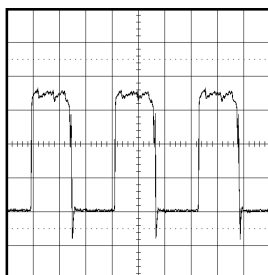


⑦ 1V 20μs/div
IC101 PIN 50(R. OUT)

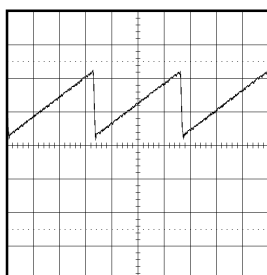


⑫ 10V 5ms/div
D403

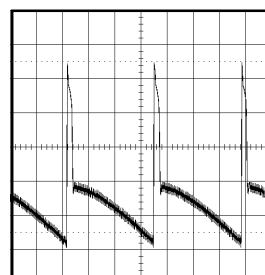
DEFLECTION/CRT



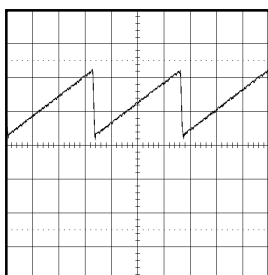
③ 200mV 20μs/div
IC101 PIN 46(H.OUT)



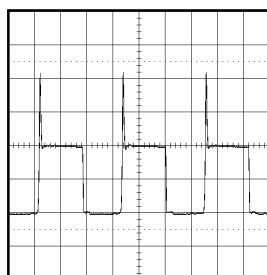
⑧ 0.5V 5ms/div
R423



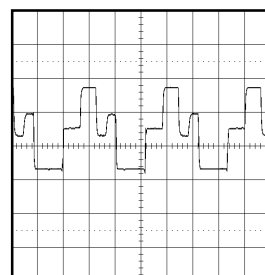
⑬ 10V 5ms/div
CP401 PIN 5



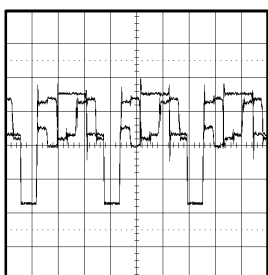
④ 0.5V 5ms/div
IC101 PIN 38(V.OUT)



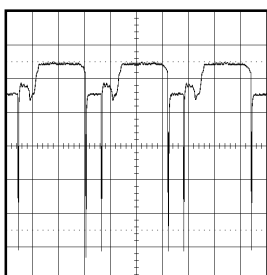
⑨ 20V 20μs/div
T401 PIN 3



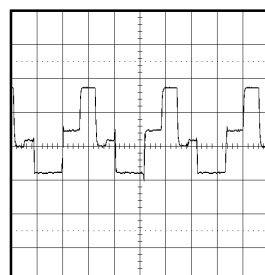
⑭ 50V 20μs/div
R803



⑤ 1V 20μs/div
IC101 PIN 52(B.OUT)



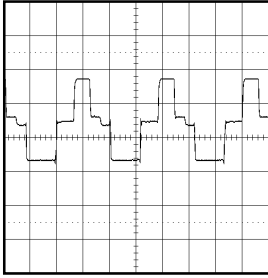
⑩ 2V 20μs/div
T401 PIN 6



⑮ 50V 20μs/div
R805

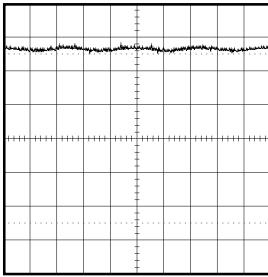
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

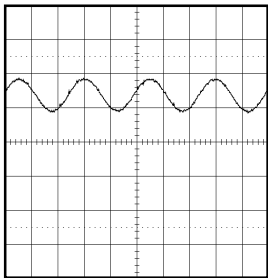


⑩ 50V 20 μ s/div
R807

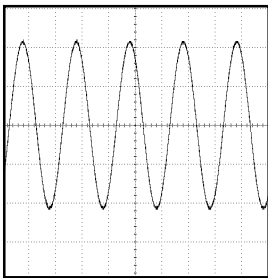
SOUND/AV



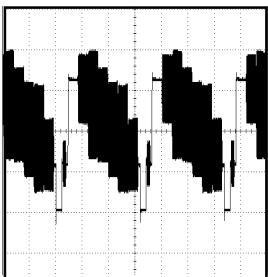
⑪ 0.5V 1ms/div
C1001



⑫ 1V 1ms/div
IC1001 PIN 6



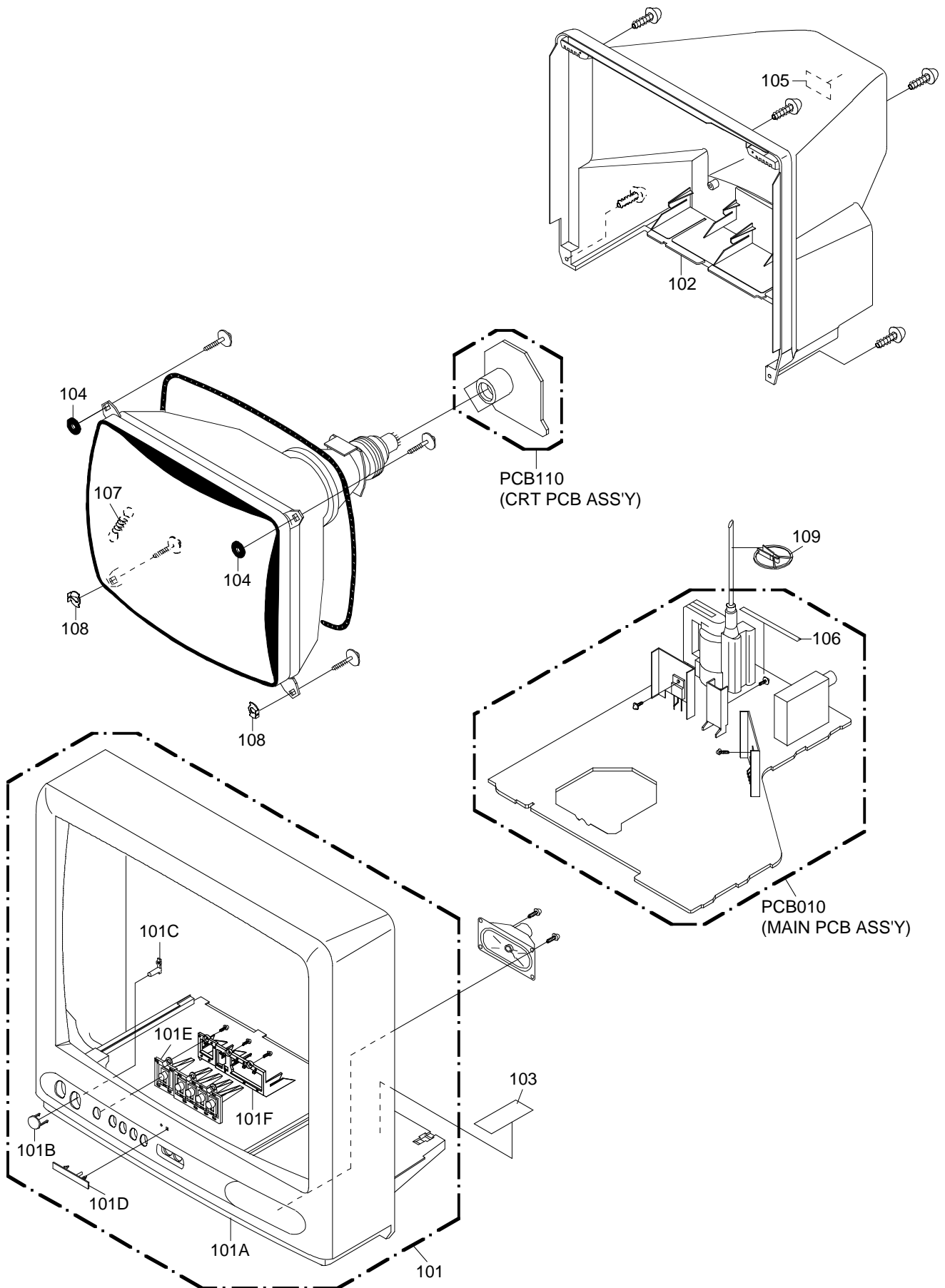
⑬ 200mV 500 μ s/div
R703



⑭ 500mV 20 μ s/div
R704

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

Location No.	Part No.	Description	Reference No.
101	7A701A384A	FRONT CABI ASS'Y	
101A	701WPJD014	CABINET,FRONT	
101B	711WPAA125	PLATE,FRONT	
101C	713WPAA193	GUIDE,REMOCON	
101D	723576A004	BADGE,BRAND	
101E	735WPAA958	BUTTONN,FRAME	
101F	735WPAA959	BUTTON,BASE	
102	702WPAA857	CABINET,BACK	
103	723000C727	SHEET,CAUTION	
104	800WR0A011	SHEET,CRT SUPPORT (D)	
105	726000A091	SHEET,CRT SERVICEMAN	
106	800WQ0A064	FELT SHEET	
107	741WUA0021	SPRING,EARTH	
108	769WSAA011	WASHER CRT T=1	
109	899HV3T000	HOLDER,ANODE WIRE	
---	J3M13301A	INSTRUCTION BOOK	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Reference No.	REF. NO.	PART NO.	DESCRIPTION	Reference No.
RESISTORS				RESISTORS			
R001	R002T2153J	RC	15K OHM 1/2W	R528	R002T4682J	RC	6.8K OHM 1/4W
R002	R002T2153J	RC	15K OHM 1/2W	R530	R002T4274J	RC	270K OHM 1/4W
R003	R803R9101J	RC	100 OHM 1/16W	R533	R803R9105J	RC	1M OHM 1/16W
R004	R803R9101J	RC	100 OHM 1/16W	R534	R803R9103J	RC	10K OHM 1/16W
R101	R803R9561J	RC	560 OHM 1/16W	R535	R803R9103J	RC	10K OHM 1/16W
R102	R803R9102J	RC	1K OHM 1/16W	R537	R002T2223J	RC	22K OHM 1/2W
R103	R803R9102J	RC	1K OHM 1/16W	▲ R538	R002T2155J	RC	1.5M OHM 1/2W
R104	R803R9105J	RC	1M OHM 1/16W	▲ R542	R3K581R68J	R,METAL OXIDE	0.68 OHM 1W
R105	R803R9472J	RC	4.7K OHM 1/16W	R601	R002T4822J	RC	8.2K OHM 1/4W
R106	R803R9472J	RC	4.7K OHM 1/16W	R602	R002T4101J	RC	100 OHM 1/4W
R107	R803R9101J	RC	100 OHM 1/16W	R603	R002T2121J	RC	120 OHM 1/2W
R108	R803R9101J	RC	100 OHM 1/16W	R604	R002T4101J	RC	100 OHM 1/4W
R109	R002T4103J	RC	10K OHM 1/4W	R605	R002T2221J	RC	220 OHM 1/2W
R110	R002T4103J	RC	10K OHM 1/4W	R606	R002T4223J	RC	22K OHM 1/4W
R112	R002T4222J	RC	2.2K OHM 1/4W	R607	R002T4101J	RC	100 OHM 1/4W
R113	R002T4222J	RC	2.2K OHM 1/4W	R608	R002T4102J	RC	1K OHM 1/4W
R115	R803R9223J	RC	22K OHM 1/16W	R609	R803R9124J	RC	120K OHM 1/16W
R116	R803R9222J	RC	2.2K OHM 1/16W	R610	R803R9682J	RC	6.8K OHM 1/16W
R119	R002T4223J	RC	22K OHM 1/4W	R611	R002T4103J	RC	10K OHM 1/4W
R120	R002T4471J	RC	470 OHM 1/4W	R613	R002T4101J	RC	100 OHM 1/4W
R122	R803R9103J	RC	10K OHM 1/16W	R614	R002T4101J	RC	100 OHM 1/4W
R124	R803R9103J	RC	10K OHM 1/16W	R615	R002T4101J	RC	100 OHM 1/4W
R125	R803R9473J	RC	47K OHM 1/16W	R616	R002T4102J	RC	1K OHM 1/4W
R126	R803R9272J	RC	2.7K OHM 1/16W	R617	R002T4473J	RC	47K OHM 1/4W
R127	R803R9102J	RC	1K OHM 1/16W	R618	R803R9223J	RC	22K OHM 1/16W
R128	R803R9561J	RC	560 OHM 1/16W	R620	R002T2222J	RC	2.2K OHM 1/2W
R129	R803R9473J	RC	47K OHM 1/16W	R621	R002T4221J	RC	220 OHM 1/4W
R130	R002T4103J	RC	10K OHM 1/4W	R627	R803R9103J	RC	10K OHM 1/16W
R143	R803R9470J	RC	47 OHM 1/16W	▲ R629	R3K58B220J	R,METAL OXIDE	22 OHM 3W
▲ R401	R4K1T4273F	R,METAL	2 27K OHM 1/4W	R701	R002T4680J	RC	68 OHM 1/4W
R403	R002T4103J	RC	10K OHM 1/4W	R702	R803R9473J	RC	47K OHM 1/16W
▲ R404	R615U2680J	R,FUSE	68 OHM 1/2W	R703	R803R9821J	RC	820 OHM 1/16W
R405	R002T4102J	RC	1K OHM 1/4W	R704	R0L2U2100J	RC	10 OHM 1/2W
▲ R408	R4K1T4103F	R,METAL	2 10K OHM 1/4W	R802	R002T4272J	RC	2.7K OHM 1/4W
▲ R409	R4K1T4273F	R,METAL	2 27K OHM 1/4W	▲ R803	R3K581153J	R,METAL OXIDE	15K OHM 1W
R410	R002T2331J	RC	330 OHM 1/2W	R804	R002T2272J	RC	2.7K OHM 1/2W
R413	R002T2222J	RC	2.2K OHM 1/2W	▲ R805	R3K581153J	R,METAL OXIDE	15K OHM 1W
R415	R002T2182J	RC	1.8K OHM 1/2W	R806	R002T4272J	RC	2.7K OHM 1/4W
R416	R002T2010J	RC	1 OHM 1/2W	▲ R807	R3K581153J	R,METAL OXIDE	15K OHM 1W
R417	R002T4103J	RC	10K OHM 1/4W	R809	R002T4472J	RC	4.7K OHM 1/4W
R418	R002T4223J	RC	22K OHM 1/4W	R811	R002T4472J	RC	4.7K OHM 1/4W
R419	R803R9471J	RC	470 OHM 1/16W	R813	R002T4331J	RC	330 OHM 1/4W
R420	R803R9272J	RC	2.7K OHM 1/16W	R814	R002T4472J	RC	4.7K OHM 1/4W
R421	R002T4224J	RC	220K OHM 1/4W	R815	R002T4331J	RC	330 OHM 1/4W
R422	R002T22R2J	RC	2.2 OHM 1/2W	R816	R002T4331J	RC	330 OHM 1/4W
R423	R002T4101J	RC	100 OHM 1/4W	R1001	R002T4473J	RC	47K OHM 1/4W
R424	R002T4471J	RC	470 OHM 1/4W	R1003	R803R9683J	RC	68K OHM 1/16W
R427	R002T4101J	RC	100 OHM 1/4W	R1004	R803R9104J	RC	100K OHM 1/16W
▲ R429	R63881R7J	R,FUSE	4.7 OHM 1W	R1005	R803R9274J	RC	270K OHM 1/16W
R445	R002T4184J	RC	180K OHM 1/4W	R1007	R002T2470J	RC	47 OHM 1/2W
R446	R002T2471J	RC	470 OHM 1/2W	R1008	R803R9393J	RC	39K OHM 1/16W
▲ R447	R3K58A151J	R,METAL	150 OHM 2W	CAPACITORS			
R448	R002T2561J	RC	560 OHM 1/2W	C001	CS0PF0414Z	CC	0.01 UF 50V F
R449	R002T2561J	RC	560 OHM 1/2W	C002	E02LT0102M	CE	1000 UF 6.3V
▲ R500	R0G3K2275K	RC	2.7M OHM 1/2W	C004	CQGTFO4H4Z	CC	0.022 UF 50V F
▲ R501	R5X2CD5R6J	R,CEMENT	5.6 OHM 5W	C007	CQGTB04H4K	CC	0.022 UF 50V B
R502	R002T4101J	RC	100 OHM 1/4W	C101	CS0PF0414Z	CC	0.01 UF 50V F
R503	R002T4101J	RC	100 OHM 1/4W	C102	CS0PF0414Z	CC	0.01 UF 50V F
R504	R002T4101J	RC	100 OHM 1/4W	C103	E02LU3470M	CE	47 UF 25V
R505	R002T4102J	RC	1K OHM 1/4W	C104	CS0PF0414Z	CC	0.01 UF 50V F
R506	R002T4272J	RC	2.7K OHM 1/4W	C105	CS0PB04Q2K	CC	470 PF 50V B
R507	R002T4270J	RC	27 OHM 1/4W	C106	E50HU5010M	CE	1 UF 50V
▲ R508	R3K581221J	R,METAL OXIDE	220 OHM 1W	C107	CS0PB04H2K	CC	220 PF 50V B
▲ R509	R002T4221J	RC	220 OHM 1/4W	C108	CS0PB0413K	CC	0.001 UF 50V B
▲ R510	R00202335J	RC	3.3M OHM 1/2W	C112	CS0PCH412J	CC	100 PF 50V CH
R512	R002T4681J	RC	680 OHM 1/4W	C113	CS0PB04S2K	CC	560 PF 50V B
R513	R002T4222J	RC	2.2K OHM 1/4W	C118	E50HU0101M	CE	100 UF 6.3V
▲ R514	R63881R22J	R,FUSE	0.22 OHM 1W	C123	E50HU3100M	CE	10 UF 25V
▲ R515	R002T2124J	RC	120K OHM 1/2W	C401	E5EZTD010M	CE	1 UF 250V
R516	R002T4103J	RC	10K OHM 1/4W	▲ C403	E02LT4471M	CE	470 UF 35V
▲ R517	R3K581010J	R,METAL OXIDE	1 OHM 1W	C406	C0JTB05E2K	CC	150 PF 500V B
▲ R518	R4K1T4562F	R,METAL	1 5.6K OHM 1/4W	C410	CQGTCH413J	CC	0.001 UF 50V CH
▲ R519	R002T4122J	RC	1.2K OHM 1/4W	▲ C414	E02LU4101M	CE	100 UF 35V
R520	R002T4123J	RC	12K OHM 1/4W	C417	E02LU3470M	CE	47 UF 25V
R523	R002T4473J	RC	47K OHM 1/4W	▲ C418	E02LT3471M	CE	470 UF 25V
▲ R525	R3K58A1R2J	R,METAL OXIDE	1.2 OHM 2W	C420	C0PLRR7W2K	CC	820 PF 2KV RR
R527	R002T4562J	RC	5.6K OHM 1/4W	C422	P235W1154J	CMP	0.15 UF 100V MKT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
CAPACITORS				DIODES			
C423	CQGTCH4H2J	CC	220 PF 50V CH	△ D501	D2WXN40050	DIODE,SILICON	1N4005-EIC
C427	E02LU5100M	CE	10 UF 50V	△ D502	D2WXN40050	DIODE,SILICON	1N4005-EIC
△ C434	E02LU8220M	CE	22 UF 100V	△ D503	D2WXN40050	DIODE,SILICON	1N4005-EIC
C435	E5EZT80R1M	CE	0.1 UF 100V	△ D504	D2WXN40050	DIODE,SILICON	1N4005-EIC
C437	P4J7F3474J	CMPP	0.47 UF 250V PMS	△ D505	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
C440	P232W1103J	CMP	0.01 UF 100V MMTS	D506	D97U01001B	DIODE,ZENER	MTZJ10B T-77
△ C443	P4N8FJ862H	CMPP	0.0086UF 1.25KV	D508	D17T002440	DIODE,SILICON	1SS244T-77
△ C446	E02LU5220M	CE	22 UF 50V	△ D509	D97U01801B	DIODE,ZENER	MTZJ18B T-77
△ C448	E0ELFD220M	CE	22 UF 250V	△ D510	D2WXRU2AM0	DIODE,SILICON	RU2AM-EIC
C501	CS0PB04W3K	CC	0.0082UF 50V B	D511	D1VT001330	DIODE,SILICON	1SS133T-77
C502	C0JTB0513K	CC	0.001 UF 500V B	△ D512	D1VT001330	DIODE,SILICON	1SS133T-77
△ C503	C0JTB0513K	CC	0.001 UF 500V B	△ D513	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
△ C505	P2122B224M	CMP	0.22 UF 275V ECQUL	D514	D1VT001330	DIODE,SILICON	1SS133T-77
△ C506	CD39E0M13M	CC	0.001 UF 250V	D515	D17T002440	DIODE,SILICON	1SS244T-77
C507	E5EZT8100M	CE	10 UF 100V	△ D516	D2WXN49370	DIODE,SILICON	1N4937
△ C508	CD39E0MQ3M	CC	0.0047UF 250V	D520	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
C509	P1F4T0473J	CP	0.047 UF 50V	D521	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
C510	CQGTFO415Z	CC	0.1 UF 50V F	D522	D1VT001330	DIODE,SILICON	1SS133T-77
C511	E50HU5010M	CE	1 UF 50V	△ D523	DOU002720M	DIODE,VARISTA	DSS-272M-S00B
C513	CQGTCH413J	CC	0.001 UF 50V CH	△ D524	D6E027110A	DIODE,VARISTA	ENE271D-10A
C514	C0PLRR7W2K	CC	820 PF 2KV RR	D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
△ C515	E02L02222M	CE	2200 UF 16V	D601	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
C516	E02LU5010M	CE	1 UF 50V	D602	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
△ C517	C0PLRR7W2K	CC	820 PF 2KV RR	D603	D1VT001330	DIODE,SILICON	1SS133T-77
C518	C0JTB05Q2K	CC	470 PF 500V B	D604	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
△ C519	E02LT2102M	CE	1000 UF 16V	D605	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
△ C521	E5EZFC101M	CE	100 UF 200V	D606	D2WT011E10	DIODE,SILICON	11E1-EIC
△ C526	E02LFC221M	CE	220 UF 200V	D607	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
C601	E50HU5010M	CE	1 UF 50V	D608	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
C602	CQGTFO415Z	CC	0.1 UF 50V F	D609	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
C603	CS0PCH4H1J	CC	22 PF 50V CH	D610	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
C604	CS0PF04H4Z	CC	0.022 UF 50V F	D612	D1VT001330	DIODE,SILICON	1SS133T-77
C605	E50HU5010M	CE	1 UF 50V	D701	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
C606	E02LU1101M	CE	100 UF 10V	D702	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
C609	CS0PF0414Z	CC	0.01 UF 50V F	D703	D97U01201B	DIODE,ZENER	MTZJ12B T-77
C610	E50HU0470M	CE	47 UF 6.3V	D704	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
C612	E50HU5010M	CE	1 UF 50V	D705	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
C614	E50HU5010M	CE	1 UF 50V	ICS			
C615	E50HU5010M	CE	1 UF 50V	IC101	I56F07094B	IC	OEC7094B
C616	E50HU5010M	CE	1 UF 50V	IC199	A3M133V015	INIT DATA	BR24L02F-WE2
C617	E02LU1101M	CE	100 UF 10V	△ IC401	I01TD55220	IC	AN5522
C620	CQGTB0414K	CC	0.01 UF 50V B	△ IC501	0002E00610	PHOTO COUPLER	LTV-817M-VB
C621	E02LU3470M	CE	47 UF 25V	△ IC1001	I01DP75110	IC	
C622	E50HU5010M	CE	1 UF 50V	TRANSISTORS			
C623	E50HU52R2M	CE	2.2 UF 50V	△ Q401	TC1G058850	TRANSISTOR,SILICON	2SC5885
C624	P235WE105J	CMP	1 UF 63V MKT	△ Q402	TC5T01627Y	TRANSISTOR,SILICON	2SC1627_Y(TPE2)
C626	CS0PF0414Z	CC	0.01 UF 50V F	△ Q501	T25F035630	FET	2SK3563(ORION_Q)
C627	CS0PF0414Z	CC	0.01 UF 50V F	△ Q502	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
C628	E50HU5010M	CE	1 UF 50V	Q503	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
C629	CS0PF0414Z	CC	0.01 UF 50V F	Q505	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
C630	E02LU1471M	CE	470 UF 10V	Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
C633	E50HU5100M	CE	10 UF 50V	Q509	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
C634	CQGTB04S3K	CC	0.0056UF 50V B	Q510	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
C808	CQGTCH4L2J	CC	330 PF 50V CH	Q511	TCKT1473A0	TRANSISTOR,SILICON	2SC1473A-TA-(RQ)
C809	CQGTCH4L2J	CC	330 PF 50V CH	Q601	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
C810	CQGTCH4L2J	CC	330 PF 50V CH	Q602	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
C819	C0JBB0713K	CC	0.001 UF 2KV B	Q603	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
C1001	E50HU50R1M	CE	0.1 UF 50 V	Q606	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
C1003	E50HU5010M	CE	1 UF 50V	Q607	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
C1004	CS0PB04K3K	CC	0.0027UF 50V B	△ Q801	TCKT1473A0	TRANSISTOR,SILICON	2SC1473A-TA-(RQ)
C1005	E50HU3100M	CE	10 UF 25 V	△ Q802	TCKT1473A0	TRANSISTOR,SILICON	2SC1473A-TA-(RQ)
C1006	E00NU2470M	CE	47 UF 16 V	△ Q803	TCKT1473A0	TRANSISTOR,SILICON	2SC1473A-TA-(RQ)
C1007	E02LT1102M	CE	1000 UF 10V	COILS & TRANSFORMERS			
DIODES				L001	02167F3R3J	COIL	3.3 UH
D001	D97U03301B	DIODE,ZENER	MTZJ33B T-77	L401	021L75472J	COIL	4.7 MH
D101	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	△ L501	0293000130	COIL,LINE FILTER	ELF15N010AP
D102	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	△ L503	028R140032	COIL,DEGAUSS	8R140032
D403	D2WT011E10	DIODE,SILICON	11E1-EIC	L801	021673221K	COIL	220 UH
D404	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77	T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
△ D405	D2WTAU02A0	DIODE,SILICON	AU02A-EIC	△ T502	0481291084	TRANSFORMER,SWITCHING	81291084
△ D406	D2WT011E10	DIODE,SILICON	11E1-EIC	JACKS			
D408	D2WT011E10	DIODE,SILICON	11E1-EIC	J702	060Q401112	RCA JACK	AV1-09AD-3
D409	D2WT011E10	DIODE,SILICON	11E1-EIC	J703	060Q401111	RCA JACK	AV1-09AD-4
△ D410	D2WTAU02A0	DIODE,SILICON	AU02A-EIC	△ J801	066F120018	SOCKET,CATHODE RAY TUBE	ISMS01S
△ D411	D2WTAU02A0	DIODE,SILICON	AU02A-EIC	△ J1001	060J121014	JACK,RCA,3.5	MSJ-035-12A_PC
△ D412	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77	SWITCHES			
D413	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	SW101	0504101T34	SWITCH,TACT	EVQ21505R

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
SWITCHES			
SW102	0504101T34	SWITCH,TACT	EVQ21505R
SW103	0504101T34	SWITCH,TACT	EVQ21505R
SW104	0504101T34	SWITCH,TACT	EVQ21505R
SW105	0504101T34	SWITCH,TACT	EVQ21505R
P.C.BOARD ASSEMBLIES			
PCB010	A3M133V010	PCB ASSY	TMC573C
PCB110	A3M133V110	PCB ASSY	TCC434C
MISCELLANEOUS			
△ ANT001	125C104001	ANTENNA,ROD	HPAS-2S400
	B501 024HT03553	CORE,BEADS	W5RH3.5X5X1.0
	B504 024HT03553	CORE,BEADS	W5RH3.5X5X1.0
△ CD501	1209414909	CORD,AC BUSH	9414909
△ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
△ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
	CP503 069W01001A	CONNECTOR PCB SIDE	
	CP601 069S260639	CONNECTOR PCB SIDE	A2001WR2-6P
	CP801 069W010340	CONNECTOR PCB SIDE	131001101K1
	CD101A 06CH013202	CORD,CONNECTOR	CH013202
	CD101B 06CH013203	CORD,CONNECTOR	CH013203
△ F501	081PC04005	FUSE	51MS040L
△ FB401	043214050F	TRANSFORMER,FLYBACK	FNI14B002_M
	OS101 0773071005	REMOTE RECEIVER	RPMT7137-WH5
	S101 WBL6026038	FLAT CABLE AWM2468 A	WG26 4C BLACK 260MM
	S102 WCL6834038	FLAT CABLE AWM2468 A	WG26 5C GRAY 340MM
△ SP1001	070N533034	SPEAKER	YDP47-58
△ TH501	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
	TM101 076G0GP010	TRANSMITTER	EUR7713020
△ TU001	0163100017	RF UNIT	ENG36A29GF
△ V801	098Q1404B3	CRT W/DY	A34AGT13X98_J(L)
	X601 100CT3R505	CRYSTAL	HC-49/U

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

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