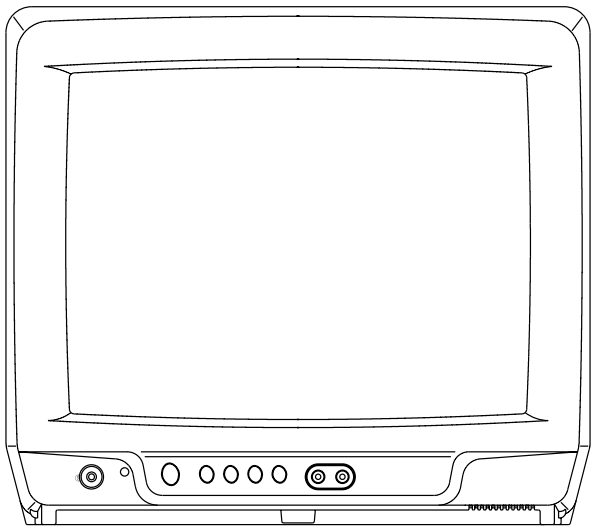
DURABRAND

DBTV1300

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION G

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 **[Note1]** .
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

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

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

IMPORTANT

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

CONTENTS

GENERAL SPECIFICATIONS

G-1.Outline of the Product

13 inch(335.4mmV):Measured diagonally

Color CRT 90 degree deflection

G-2.Broadcasting System

US System M

G-3.Color System ☒NTSC ☐PAL ☐SECAM or Monochrome signal

G-4.NTSC Playback(PAL 60Hz) ☐Yes ☒No

G-5.NTSC 3.58+4.43/PAL60Hz ☐Yes ☒No

G-6.Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

G-7.Tuner and Receiving Channel

Tuner : Contactless Electric Tuner

☐Oscar(W/O HYPER) ☐Oscar(W/ HYPER) ☐France CATV ☒Others

channel coverage

2 ~ 69 , 4A , A-5 ~ A-1 , A ~ I , J ~ W , W+1~ W+84

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-8.Preset Channel

-- channels

G-9.Intermediate Frequency

Picture(fP)	45.75MHz	____ MHz	____ MHz
Sound (fS)	41.25 MHz	____ MHz	____ MHz
fP-fS	4.50 MHz	____ MHz	____ MHz

G-10.Stereo/Dual TV Sound

☐ Yes(☐NICAM ☐GERMAN ☐USA ☐JAPAN) ☒No

G-11.Tuner Sound Muting ☒Yes ☐No

G-12.Power Source 120 V ☐AC 50Hz ☒AC 60Hz

G-13.Power Consumption: 54 W at AC 120 V 60 Hz

-- W at DC --- V

Stand by: 5 W at AC 120 V 60 Hz

Per Year: -- kWh / Year

G-14.Dimensions(Approx.)

362 mm(W) 361 mm(D) 320.5 mm(H)

G-15.Weight(Approx.) Net: 9.5 kg (20.9 lbs)

Gross: 11.0 kg (24.4 lbs)

G-16.Cabinet Material

Cabinet Front:	☒PS	☐94HB	☒DECABROM
	☐ABS	☐94V2	☐NON-DECA
		☒94V0	
Back Panel:	☒PS	☐94HB	☒DECABROM
	☐ABS	☐94V2	☐NON-DECA
		☒94V0	

GENERAL SPECIFICATIONS

G-17.Protector: ☒Power Fuse

G-18.Regulation

Safety

☒UL	☒CSA	☐SAA	☐SI	☐CE	☐SEV
☐BS	☐NF	☐NEMKO	☐FEMKO	☐DEMKO	☐IEC65
☐SEMKO	☐NZ	☐HOMOLO	☐SABS	☐CNS	☐SISIR
☐NOM	☐AS3159	☐DENTORI	☐UNE	☐GOST	☐NONE

Radiation

☒FCC	☒DOC	☐FTZ	☐PTT	☐CE	☐SEV
☐SABA	☐SI	☐NF	☐NZ	☐HOMOLO	☐UNE
☐CNS	☐CISPR13	☐DENTORI	☐AS/NZS	☐NONE	

X-Radiation

☐PTB	☒DHHS	☒HWC	☐DENTORI	☐NONE

G-19.Temperature

Operation 5 ˚C ~ 40 ˚C

Storage -20 ˚C ~ 60 ˚C

G-20.Operating Humidity Less than 80 %RH

G-21.Clock and Timer

Sleep Timer	☒Yes Max 120 Min.(10 Min. Step)	☐No
On/Off Timer	☐Yes _____ Programs	☒No
Wake Up Timer	☐Yes _____ Programs	☒No

G-22.Timer back up Time: More than -- Minutes (at Power Off Mode)

G-23.Terminals

☒VHF/UHF Antenna Input ☐ Din Type ☒ F-Type ☐ France Type

☒Front Video Input (RCA ø8.3)

☒Front Audio Input (RCA ø8.3)

☐Rear Video Input (RCA ø8.3)

☐Rear Audio Input (RCA ø8.3)

☐Rear Video Output (RCA ø8.3)

☐Rear Audio Output (RCA ø8.3)

☐21 Pin ☐S Input(Rear) ☒Ear Phone Jack(ø3.5)

G-24.Indicator

☐Power (____)	☐Stand By (____)	☐On Timer (____)	☒NONE

G-25.Display

On Screen Display

☒Menu	☐Clock Set(☐12H ☐24H)	☐System Selec	☐On/Off Timer
	☐Hotel Lock	☐Area Code	☒CH Tuning
	☐Sound 1/2	☐NICAM Auto Off	☒Picture
	☐Guide CH Set	☐Audio	☒Language
	☐CATV	☐Pin Code Registration	☒V-Chip
☒Control Level	☒Sound	☒Brightness	☒Contrast
	☒Color	☒Tint(NTSC Only)	☒Sharpness
	☐Tuning	☐Bass	☐Treble
	☐Balance	☐Back Light	
☐Stereo,Audio Output,Bilingual		☐Picture Menu	
☐Stereo,Audio Output,SAP		☐Mid Night Theater	
☐Stereo,Audio Output		☐GAME	
☒AV	☒Channel	☐Clock	☐Hotel Lock
☒Sleep Timer	☒Sound Mute	☐Pin Code	

GENERAL SPECIFICATIONS

G-26.OSD Language

☒Eng ☐Ger ☒Fre ☒Spa ☐Ita ☐Por ☐Jpn

OSD Language Setting

☒Eng ☐Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jpn

☐Not Applicable

G-27.Speaker : Position ☐Front ☐Side ☒Bottom

Size 3 inches

Imp 8 ohm x 1 pcs

Power Max 1.0 W

10% 0.8 W (Typical)

G-28.EXT Speaker

☐Yes -- W Imp -- ohm

G-29.Carton

Master Carton: ☐Need ☒No Need

Content: ---- Set

Material: ---- / ---- Corrugated Carton

Dimensions: ----mm(L) ----mm(W) ----mm(D)

Description of Origin ☐Yes ☐No

Gift Box

Material ☐Double/Brown Corrugated Carton (☐with Photo Label)

☒Double/White Corrugated Carton (☐with Photo Label)

☐Double Full Color Carton W/Photo

Dimensions: 408 mm(L) 440 mm(W) 380 mm(D)

Design: As Per Buyer 's

Description of Origin: ☒Yes ☐No

Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces

Height ☐25cm ☐31cm ☐46cm ☒62cm ☐80cm

Container Stuffing: 866 Sets / 40' container

G-30.Accessories

☒Owner's Manual (☒W/Guarantee Card) [English/French]

☐AC Plug Adapter ☐Channel film

☐Battery (UM-4 x 2) ☒Remote Control Unit

☐Safety Tip ☐Toll Free Insert Sheet

☐Guarantee Card ☐Audio-Video Cord (RCA)

☐Registration Card ☐Warning Sheet

☐Quick Set-Up Sheet ☐Schematic Diagram

☐Information Sheet ☐U/V Mixer

☐75 ohm Coaxial Cable (☐Single Shield ☐Double Shield)

☐300 ohm to 75 ohm VHF Antenna Adaptor

☐21pin Cable ☐Car Cord

☒Rod Antenna

☒One Pole ☐Two Pole (☒F-Type ☐Din Type ☐France Type)

☐Loop Antenna (☐F-Type ☐Din Type ☐France Type)

G-31.Other Features

☒Auto Degauss	☐Auto Search	☐Full OSD
☒Auto Shut Off	☐CH Allocation	☐Premiere
☐Canal+	☐SAP	☐Comb Filter
☒CATV(181CH)	☐Channel Lock	☒Auto CH Memory
☐Anti-Theft	☐Just Clock Function	☐Hotel Lock
☐Rental	☐Game Position	☐Fastext
☐Unitext	☐TopText	☒Closed Caption
☐Picture Menu	☐Mid Night Theater	☒V-Chip

GENERAL SPECIFICATIONS

G-32.Switch

Front

☒Power(Tact)	☒Channel Up/Reset	☒Volume Up/Set Up
☐System Select	☒Channel Down/Enter	☒Volume Down/Set Down
☐Main Power SW	☐Sub Power	☒Menu:Vol Up + Vol Down

Rear

☐AC/DC	☐TV/CATV Selector
☐Degauss	☐Main Power SW

G-33.Magnetic Field

☒BV : +0.45G BH : 0.18G	☐BV : +0.35G BH : 0.30G	☐BV : +0.25G BH : 0.30G
☐BV : -0.15G BH : 0.15G	☐BV : -0.25G BH : 0.15G	☐BV : -0.50G BH : 0.30G

G-34.Remote Control Unit: RC-74

Glow in Dark Remocon ☐Yes ☒No

Power Source: D.C 3 V Battery UM - 4 x 2

Total 27 Key

☒ Power	☒Quick View	☒TV/AV
☐ Stand By	☐Status	☐Bar Select
☒ 0	☐Time Select	☐PAL/SECAM
☒ 1	☐Time Set	☒Volume Up
☒ 2	☒Mute	☒Volume Down
☒ 3	☐CH Skip	☐CH Call
☒ 4	☒CH1/CH2	☒CH Down
☒ 5	☐Channel	☒CH Up
☒ 6	☐Text/Mix/TV	☐CH Down/Page Down
☒ 7	☐Display Cancel	☐CH Up/Page Up
☒ 8	☐Initial	☐Page +/-
☒ 9	☐Store	☐Program
☐10	☐Reveal	☐F/T/B
☐11	☒Sleep	☐Hold
☐12	☐Aft/Skip	☐List
☐1	☐Preset	☐Rotate
☐2	☐5.5/6.5MHz	☐Browse
☐0/10	☐Auto Memory	☐Std/Auto
☐Tone 1/2	☐Auto	☐Memory
☐Info	☒Call	☐Band Select
☐Mono/Auto	☒Reset	☐Search
☒TV/Caption/Text	☒Menu	☐Clock/Program
☐Expand	☒Enter	☐Clock/Set
☐Red	☐Add	☐Ch Set
☐Cyan	☐Delete	☒Set +
☐Normal	☐Yellow	☒Set -
☐Color System	☐Random	☐Green
☐Wide Selecy	☐Tuning Up/Time Text	☐Nicam/Mono
☐Auto Wide On/Off	☐Tuning Down/Reset	☐Tone A/B
☐Picture Position	☐Navi	☐FM Transmitter
☐Direct Change/Auto Search		☐Back Light
☐Picture Menu	☐Mid Night Theater	

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.

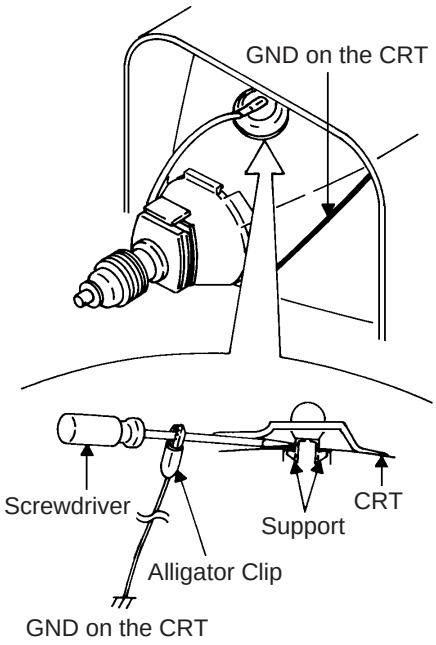


Fig. 1-1

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.)**

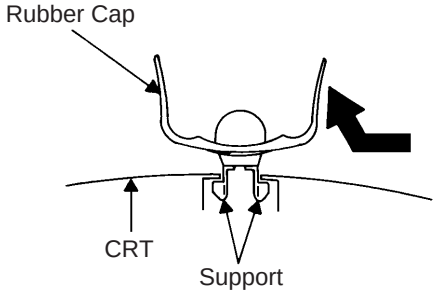


Fig. 1-2

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.)**

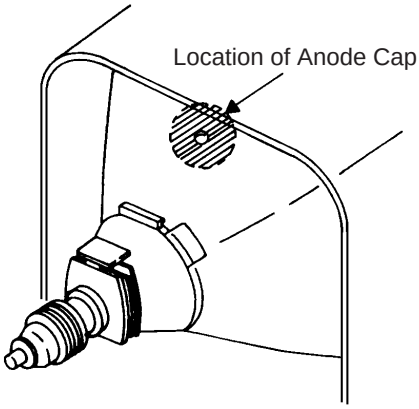


Fig. 1-3

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.)**

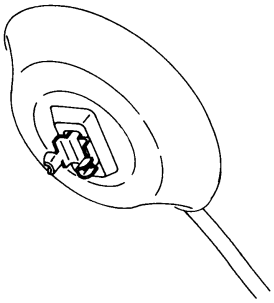


Fig. 1-4

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

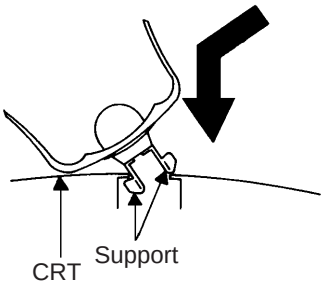


Fig. 1-5

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

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.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF USING HOURS". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF 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 USING HOURS

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

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

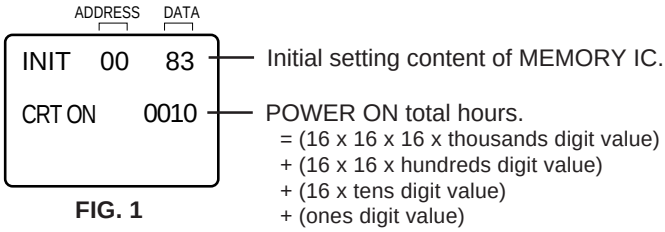


FIG. 1

NOTE FOR THE REPLACING OF 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.

ADDRESS	INI 00	INI 01	INI 02	INI 03	INI 04	INI 05	INI 06	INI 07	INI 08	INI 09	INI 0A
DATA	08	09	A0	01	06	B3	24	19	01	25	44

Table 1

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

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

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

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

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
  Remove all old silicon before applying new silicon.

Prepare the following measurement tools for electrical adjustments.

1. Synchro Scope
2. Digital Voltmeter

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

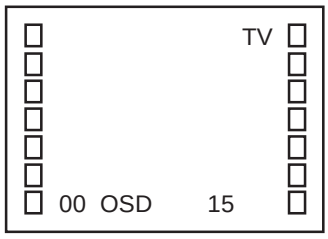


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R BIAS	23	TEST STEREO
11	G BIAS	24	X-RAY TEST
12	B BIAS		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: RF AGC DELAY

1. Place the set with Aging Test for more than 15 minutes.
2. Receive an 80 dB monoscope pattern.
3. Connect the digital voltmeter between the **TP001** and the **GND**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF DELAY".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V ± 0.05V.

2-2: CUT OFF

1. Adjust the unit to the following settings.
   R.DRIVE=10, B.DRIVE=10, R.BIAS=64, G.BIAS=64, B.BIAS=64, BRIGHTNESS=100, CONTRAST=64.
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: SUB TINT/SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP023**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-1**.
5. Connect the synchro scope to **TP022**.
6. Press the CH DOWN button once to set to "COLOR" mode.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 100% of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

ELECTRICAL ADJUSTMENTS

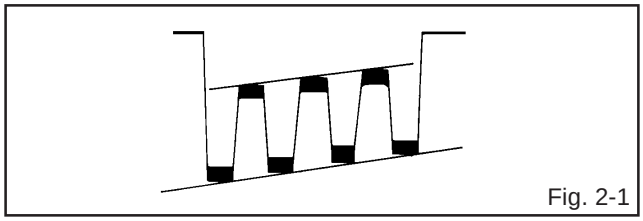


Fig. 2-1

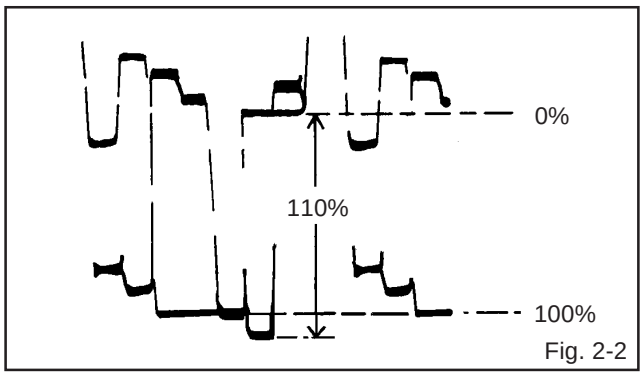


Fig. 2-2

2-6: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
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 **(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.

2-7: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-6

1. Receive the crosshatch signal from the Pattern Generator.
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 **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL SHIFT

NOTE: Adjust after performing adjustments in section 2-7

1. Receive the crosshatch signal from the Pattern Generator.
2. 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 **(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.

2-9: OSD HORIZONTAL

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

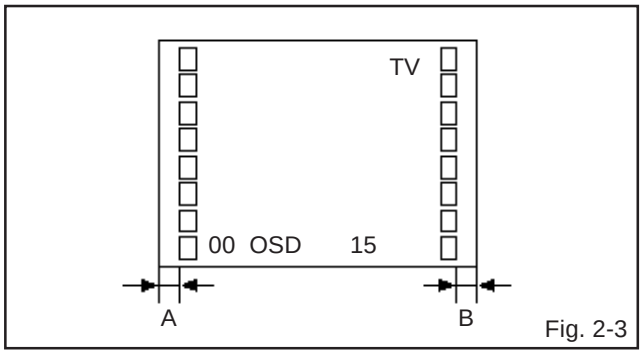


Fig. 2-3

2-10: VIF VCO

1. Place the set with Aging Test for more than 10 minutes.
2. Receive an 80dB monoscope pattern.
3. Connect the digital voltmeter between the **pin 5 of CP601** and the **GND**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.

2-11: CONSTANT VOLTAGE

1. Using the remote control, set the brightness and contrast to normal position.
2. Connect the digital voltmeter to **TP401.**
3. Set condition is AV MODE without signal.
4. Press the VOL. UP/DOWN button on the remote control until the Adjust the **VR501** until the digital voltmeter is 132 ± 1V.

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.

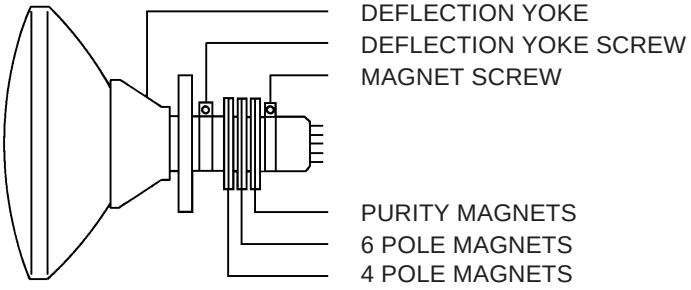


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

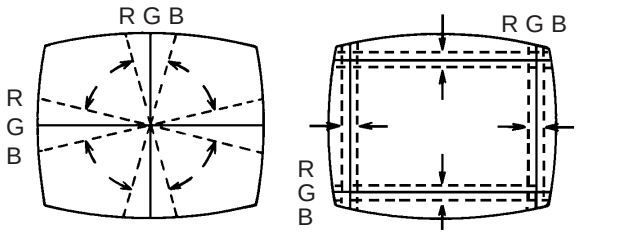
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

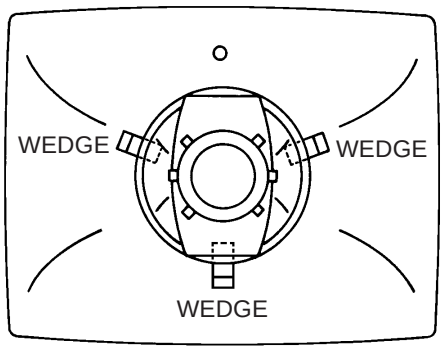
Adjust after performing adjustments in section 3-3.

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

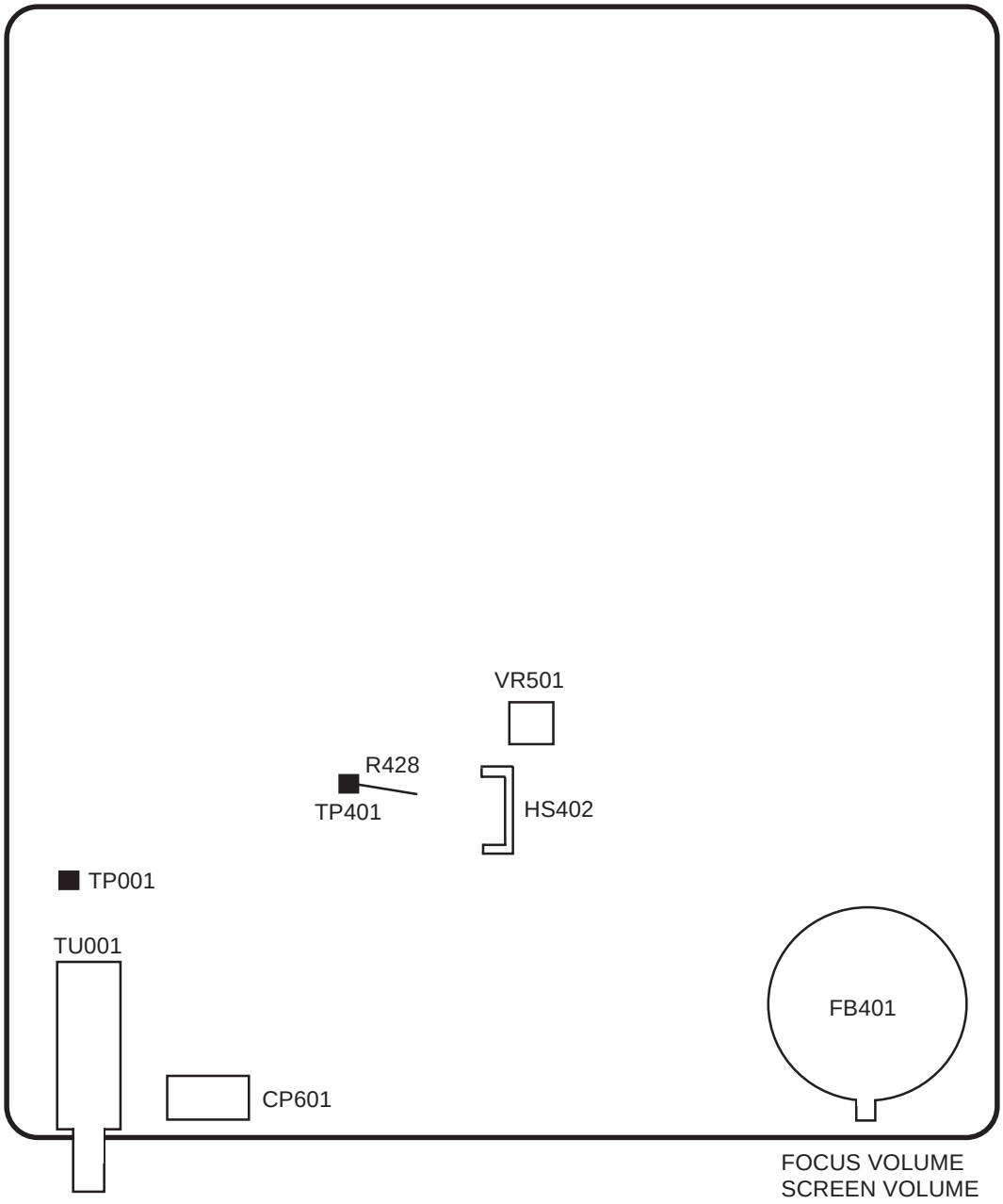
Fig. 3-2-a



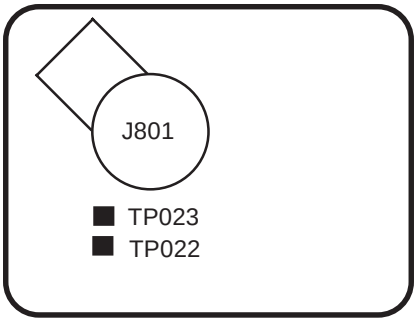
WEDGE POSITION

Fig. 3-2-b

MAJOR COMPONENTS LOCATION GUIDE

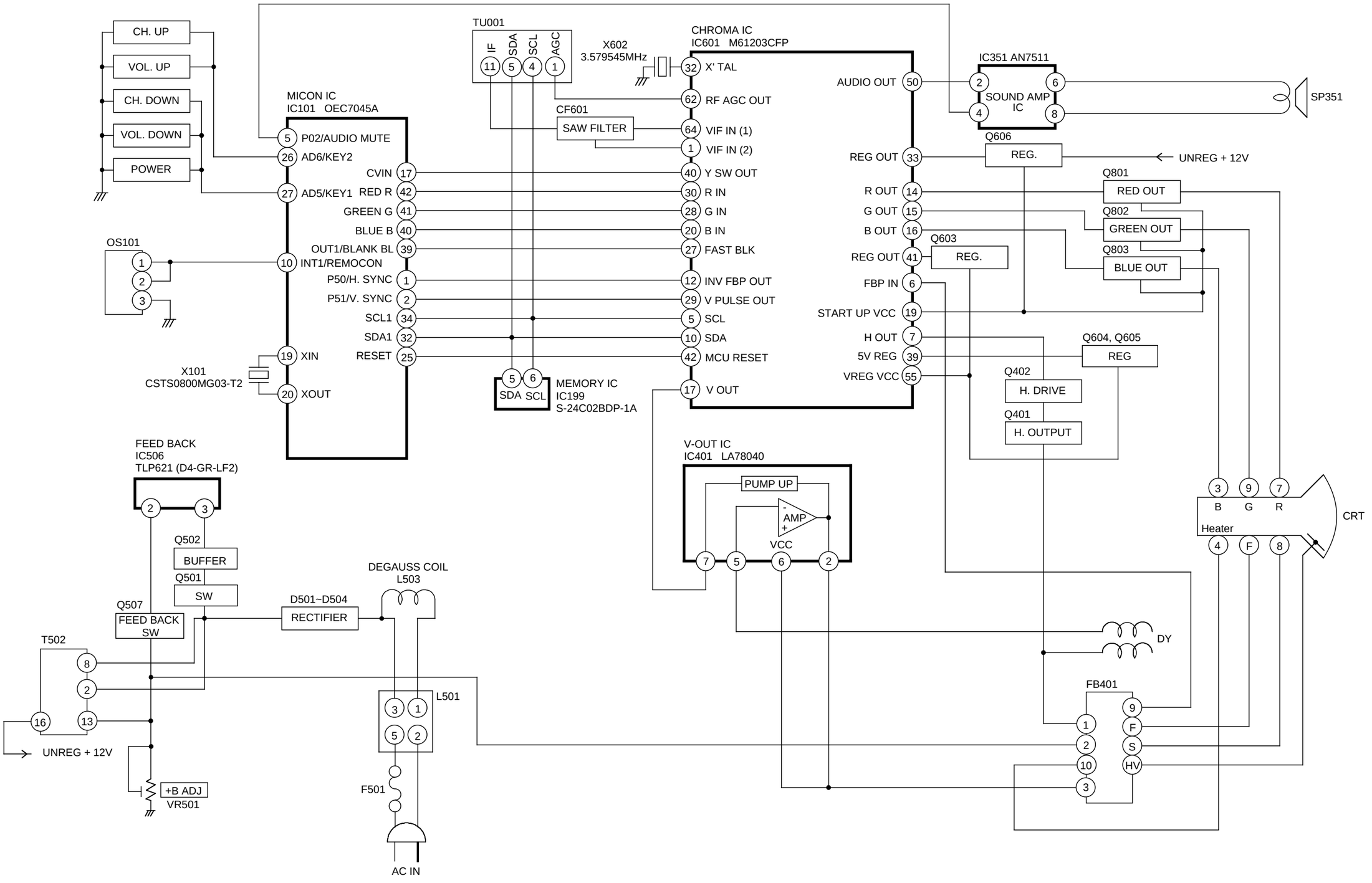


MAIN

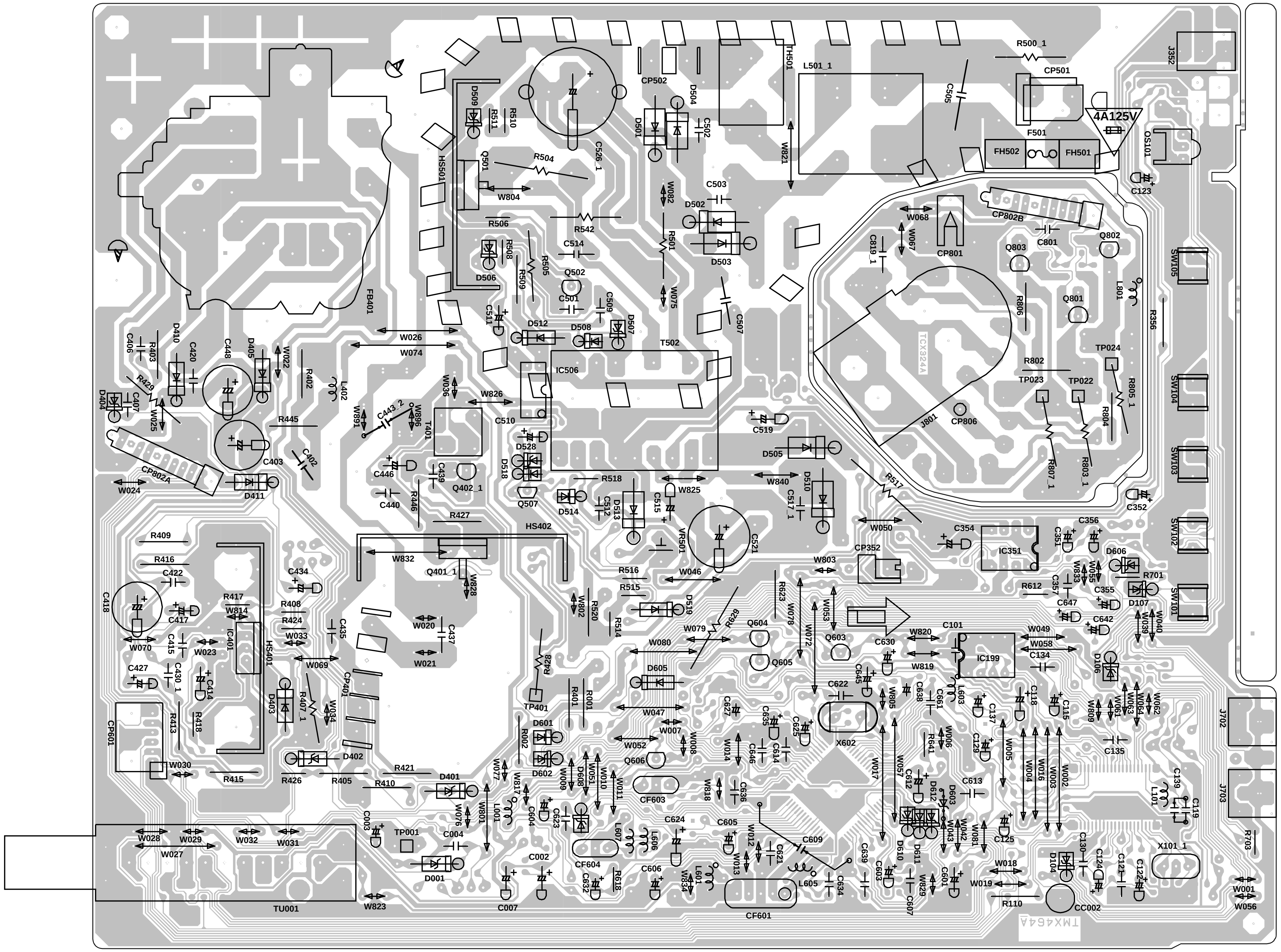


CRT

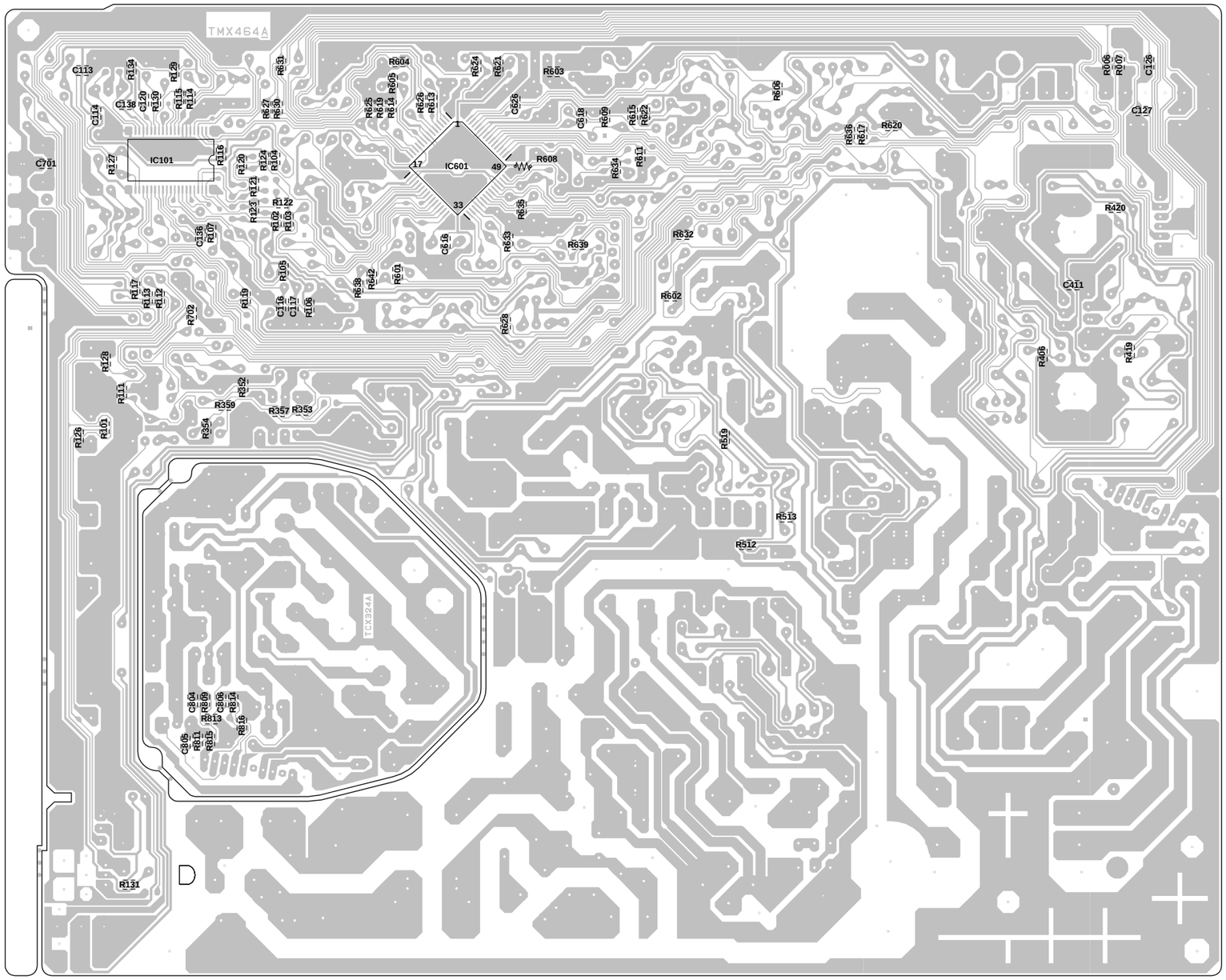
BLOCK DIAGRAM



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



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



MICON/TUNER SCHEMATIC DIAGRAM

(MAIN PCB)

ACCESSORY

ANT001
HPAS-2S780

TM101
R25-1323

TU001 TECC1040PG32D

TP001
JWF-50K-1

C003
50V 2.2 KA

OS101
PIC-28143SY-2

MICON IC
IC101 OEC7045A

FROM/TO CHROMA
AGC
GND
TUNER+5V

L001 10uH 0607

W801
R002 18K 1/2W
R001 18K 1/2W

IF

I2C_OFF
VD
HD

OSD_R
OSD_G
OSD_B
OSD_BLK

TO SOUND/AV
AUDIO_MUTE
POWER

FROM DEFLECTION/CRT
TUNER+B
X-RAY

FROM/TO CHROMA
POWER
SCL
SDA
AFT

RESET

AT+5V
Y_VIDEO
SYNC

MEMORY IC
S-24C02BDP-1A
IC199

POWER SW105 SKHVBED010
VOL DOWN SW104 SKHVBED010
VOL UP SW103 SKHVBED010
CH DOWN SW102 SKHVBED010
CH UP SW101 SKHVBED010

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

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

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

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

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PCB010
TMX464

CHROMA SCHEMATIC DIAGRAM

(MAIN PCB)

FROM POWER

UNREG+12V

FROM SOUND/AV

VIDEO_IN

FROM/TO SOUND/AV

AUDIO_OUT

AUDIO_IN

GND

FROM/TO MICON/TUNER

Y_VIDEO

AT+5V

SYNC

TUNER+5V

RESET

AFT

AGC

IF

FROM/TO DEFLECTION/CRT

V_OUT

ABCL

V_FEEDBACK

GND

H_OUT

H_SYNC

B.OUT

G.OUT

R.OUT

CLAMP

TEST POINT

CP601
173979-6

B.OUT	6
INT.MONI	5
IIC_OFF	4
SDA	3
SCL	2
GND	1

HD

POWER

OSD_B

OSD_BLK

OSD_G

VD

OSD_R

I2C_OFF

SDA

SCL

CHROMA IC
IC601
M61203CFP

46 SW REG CONT
47 LIMITER IN
48 IF AGC
49 QIF OUT

34 EXT C in
33 8.7V REG OUT
32 X'TAL

64 VIF IN (1)
1 VIF IN (2)

17 V OUT
16 B OUT

- 48 AUDIO OUT
- 47 AUDIO BYPASS
- 46 EXT AUDIO IN
- 45 FM DIRECT OUT
- 44 VIF VCO F/B
- 43 VREG Vcc
- 42 VIF APC FILTER
- 41 VIF VIDEO OUT
- 40 VIF GND
- 39 AFT OUT
- 38 QIF IN
- 37 RF AGC OUT
- 36 RF AGC FILTER
- 35 VIF Vcc
- 34 H VCO F/B
- 33 SCL
- 32 FBP IN
- 31 H OUT
- 30 DEF
- 29 SDA
- 28 AFC FILTER
- 27 INV FBP OUT
- 26 POWER ON CONT
- 25 R OUT
- 24 G OUT
- 23 B OUT
- 22 STRAT UP Vcc
- 21 V RAMP FEEDBACK
- 20 V RAMP CAP
- 19 VIDEO CHROMA Vcc
- 18 fsc OUT
- 17 SPOT KILLER
- 16 FAST BLK
- 15 G IN
- 14 V PULSE OUT
- 13 R IN
- 12 ACL/ABCL
- 11 CHROMA APC FILTER
- 10 VIDEO/CHROMA GND
- 9 TV/Y IN
- 8 Y SW OUT
- 7 5v REG
- 6 5.7V REG OUT(FOR CPU)
- 5 MCU RESET
- 4 INTELLIGENT MONI
- 3 Hi Vcc

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

PCB010
TMX464

POWER SCHEMATIC DIAGRAM (MAIN PCB)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 4A 125V (F501) FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 4A 125V (F501).

4A 125V

DEGAUSS COIL
L503
8R140030

CP502
TV-50P-02-A1

R600_1
2.7M 1/2W +-10%

W821

TH501
PTH451A3R0Q11

L501_1
9-000074

NC

R501
2.2 5W

D501 RM11C-EIC
D502 RM11C-EIC
D503 RM11C-EIC
D504 RM11C-EIC

C502 500V 0.001 B
C503 500V 0.001 B

C526_1 200V 220 YK

R510 1.2M 1/4W
R511 1.2M 1/4W

D509 MTZJ18B

4A 125V
F501
4A125V

C505 250V 0.22 ECQUL

AC120V_60Hz
CD501
0R614908

FH501 EYF-52BC
FH502 EYF-52BC

233004-MB000

BLACK
WHITE
BLADE WIDE

CP501
THL-P03P-B1

C507 125V 0.0047 MX

T502
8129018S

1.7
NC
144.0
NC
10.3
6.6
10.3

W804

R504 33 3W

POWER
Q501
2SK2662

144.0 D
G 4.8
0.1 S

R505 220 1W

C509 0.047 M

C514 2KV 680P BP

D508 1SS133
D512 1SS133

C511 50V1YK

D507 MTZJ15B
D506 MTZJ15B

R509 2.2K 1/4W
R508 2.7K 1/4W

BUFFER
Q502
2SC2120Y

R506 680 1/4W

R502 0.68 1W

4.8 0.1 0
HS501
763WSA0015

C501 0.0068 M

FEED BACK
IC506
TLP621(D4-GR-LF2)

11.5 10.5
0.1 9.5

R512 2.2K

D518 1SS133

R520 150K 1/2W

R513 5.6K

FEED BACK
SWITCHING
Q507
2SC1740SP

9.5
6.0
5.5

R514 39K 1/4W
R515 22K 1/4W
R516 560 1/4W

D514 1SS133
R519 330
D519 1SS133

D528 MTZJ5.6B

C510 16V 47 YK

R518 2.2K +-1%

+B ADJ.
VR501 330

10.0
NC
0
132.3
0
0
11.3
NC
NC

W825

D505 21DQ09N
R517 5.6 3W
C519 16V 470 MHE

SOUND+B
SOUND_GND

D510 RU2AM
W840
C517_1 2KV 470P BP
C521 160V 100 MHE

+B

D513 21DQ09N
C512 500V 470P B
C515 16V 470 YK

GND

TO SOUND/AV
TO DEFLECTION/CRT
TO CHROMA
UNREG+12V

PCB010
TMX464

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DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)

FROM CHROMA
CLAMP
G.OUT
R.OUT
B.OUT

V-OUT IC IC401 LA78040
THERMAL PROTECTION
PUMP UP
1 3.5 | 2 25.0 | 3 2.0 | 4 0 | 5 12.0 | 6 25.0 | 7 3.5
C414 100 35V YK

CP802A 51048-1000
CD802 2E0A3001
CP802B 51048-1000
GND CLAMP G.OUT R.OUT B.OUT NC HEATER GND NC 180V

CD801_1
CP801 TBS-X01X-A1
V801 A34JXV70X28N45
CP401 B05B-DVS
TO DY
L801 100uH 0607

RED OUT Q801 2SC1473A
GREEN OUT Q802 2SC1473A
BLUE OUT Q803 2SC1473A
100.6 98.4 95.4
C804 680P W
C805 820P W
C806 820P W
R809 220
R811 220
R814 220
R813 4.7K
R815 4.7K
R816 4.7K

14 W814 18 D403 11E1-EIC 19
C415 500V 22P SL
C411 150P SL
R418 22K +-1%
R420 3.3K
C430_1 100V 0.012 M
C422 100V 0.15 TF
R410 330 1/2W
R417 11K +-1%
R419 1.2K
C417 3.3 50V MHE
C418 1000 25V YK
R416 1 1/2W
R415 1K 1/2W
R413 1.2K 1/2W
C427 10 50V MHE
R407_1 2.2 1W
HS401 763WSA0015

20 TP022 21 TP024 22 TP023
R803_1 15K 1W R802 2.7K 1/4W
R805_1 15K 1W R804 2.7K 1/4W
R807_1 15K 1W R806 2.7K 1/4W

R426 2.7K 1/4W
R406 1K
R405 18K 1/4W +-1%
R408 15K +-1%
R401 100K 1/4W +-1%
D401 MTZJ27B
D402 MTZJ11B
R424 6.8K +-1%
R409 5.6K +-1%
R429 3.3 1W
C434 100V 22 YK
D411 AU02A-EIC

TO MICON/TUNER
X-RAY
TUNER+B

FROM/TO CHROMA
GND
V_FEEDBACK
V_OUT
ABCL
H_OUT
H_SYNC

FROM POWER
GND

C439 500V 22P SL 15
T401 305Y001
H.DRIVE Q402_1 2SC1473A 27.0 0.3 0
R446 4.7K 1/2W
C440 500V 470P B
R428 12K 5W
C446 160V 1 MHE
R427 100 1/4W
W826
W832
16
17
H.OUTPUT Q401_1 2SD2627LS-CBC11 130.0 0
C437 250V 0.47 PMS
W828
W891
C443_2 1.25KV 0.0047 MPP
W896
HS402 763WSA0015
TP401
W802 +B
L402 00 18uH
C402 200V 0.012 PP
R402 6.8 1/2W
R403 22K 1/4W
C406 500V 22P SL
D404 MTZJ6.2B
C407 56P SL

FB401 3214029F
130.0 COL H1
132.5 VIDEO F
132.5 B+ S
GND 0 11
48.0 AFC
7.0 HEA TER ABL 4.3
0 GND
NC E12 GND 0
25.0 E25 E8 NC

FOCUS
SCREEN
CP806
C819_1 2KV 0.001 B
6.4 96.4 0 0 0 101.6 99.6
J801 HPS3200-010501
C801 330P B

D405 AU02A-EIC
C420 500V 0.001 B
D410 AU02A-EIC
R445 220K 1/4W
C403 35V 470 YK
C448 200V 22 MHE
C435 100V 0.1 TF
R421 220K 1/4W

PCB010 TMX464
PCB110 TCX324

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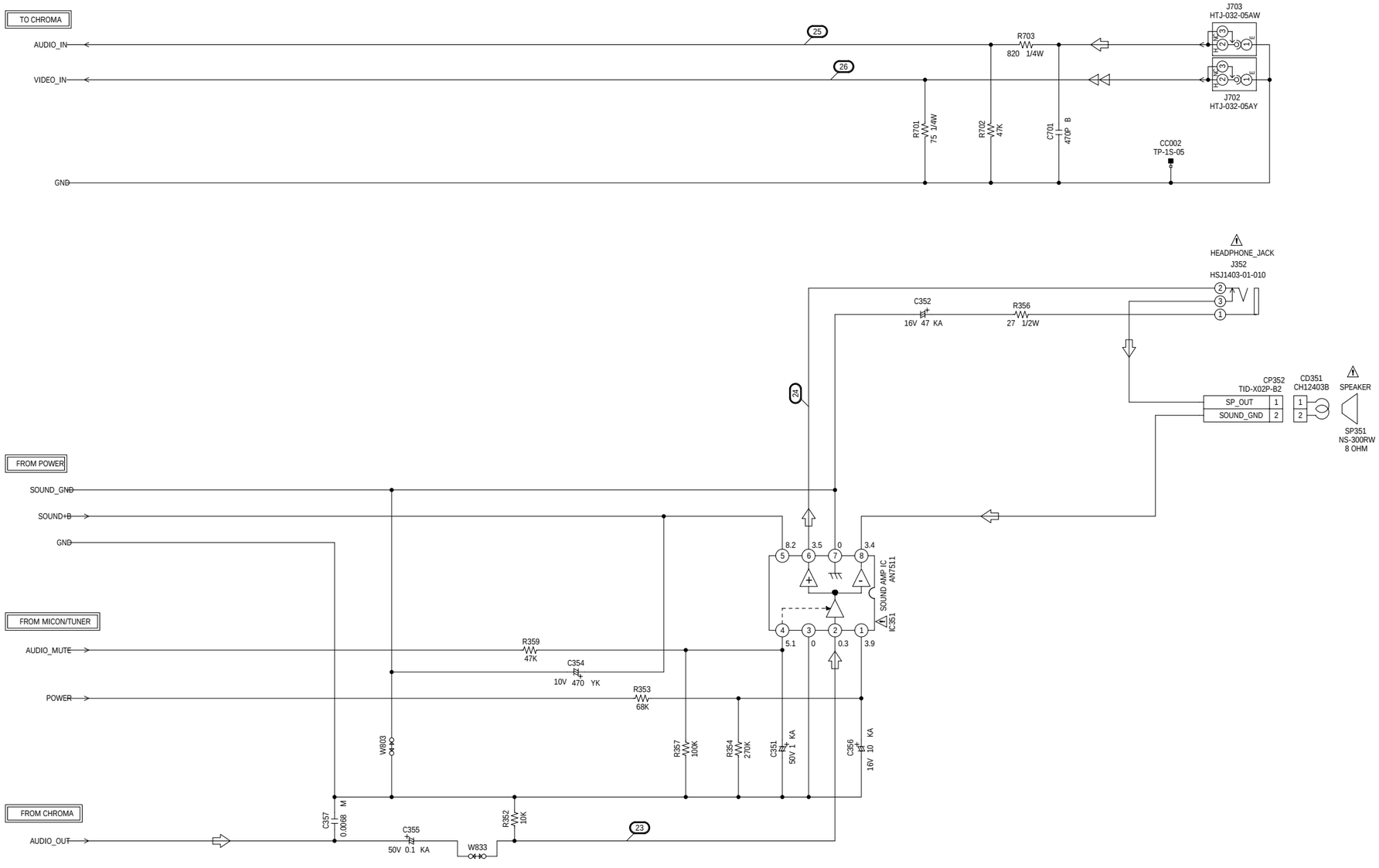
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

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

SOUND/AV SCHEMATIC DIAGRAM

(MAIN PCB)



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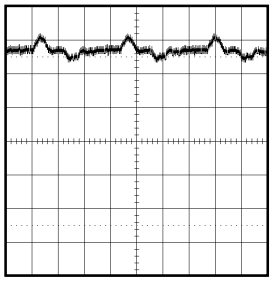
TUNER VIDEO SIGNAL

AUDIO SIGNAL

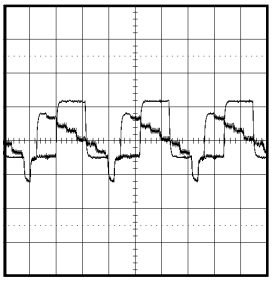
PCB010
TMX464

WAVEFORMS

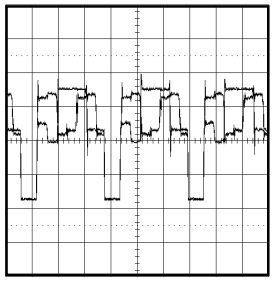
MICON/TUNER



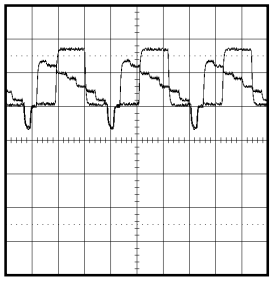
① 200mV 5ms/div



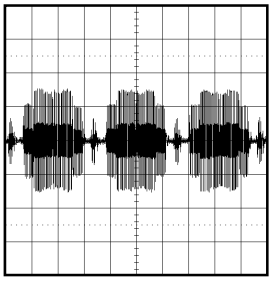
⑥ 0.5V 20µs/div



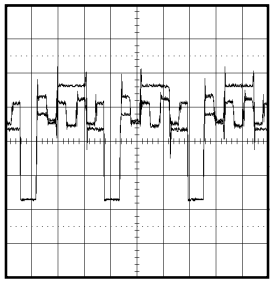
⑪ 1V 20µs/div



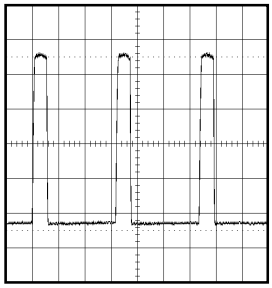
② 0.5V 20µs/div



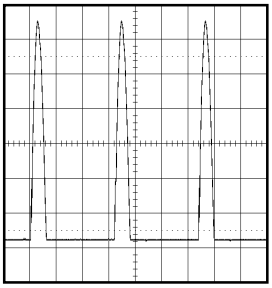
⑦ 200mV 20µs/div



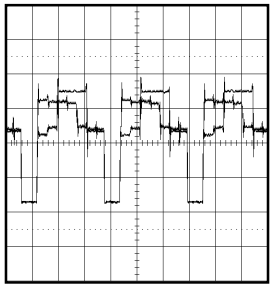
⑫ 1V 20µs/div



③ 200mV 20µs/div

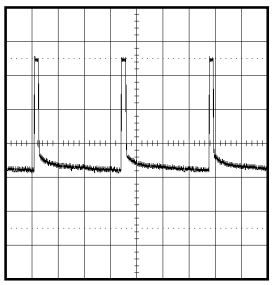


⑧ 20V 20µs/div

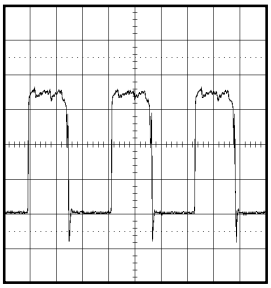


⑬ 1V 20µs/div

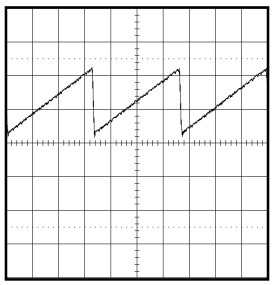
DEFLECTION/CRT



④ 200mV 5ms/div

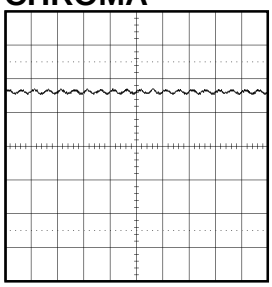


⑨ 200mV 20µs/div

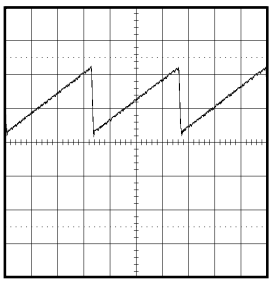


⑭ 0.5V 5ms/div

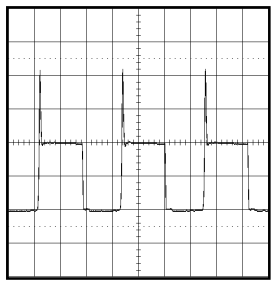
CHROMA



⑤ 0.5V 2ms/div



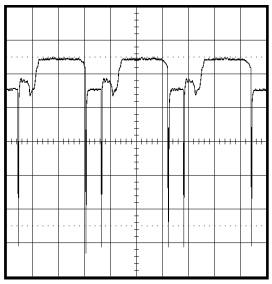
⑩ 0.5V 5ms/div



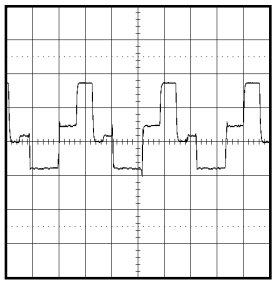
⑮ 20V 20µs/div

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

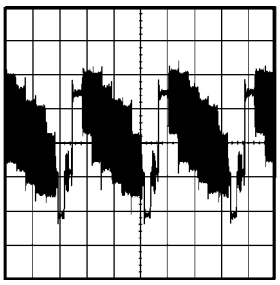
WAVEFORMS



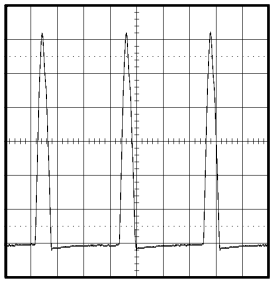
⑯ 2V 20µs/div



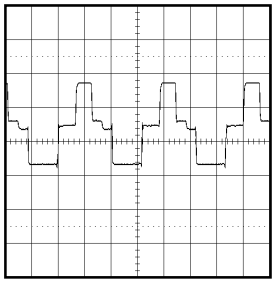
㉑ 50V 20µs/div



㉖ 500mV 20us/div

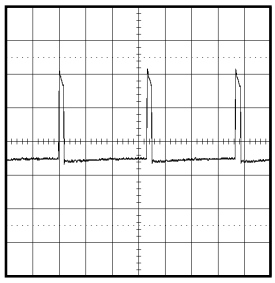


⑰ 200V 20µs/div

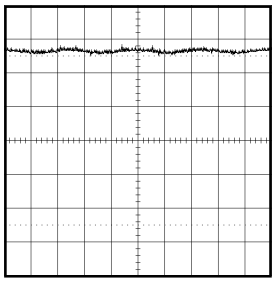


㉒ 50V 20µs/div

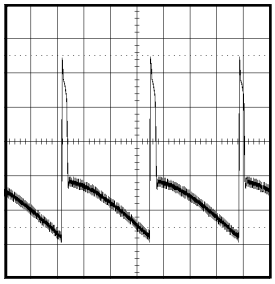
SOUND/AV



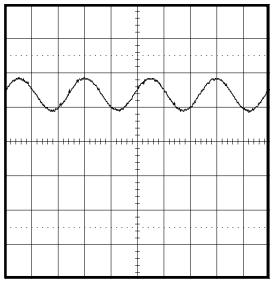
⑱ 10V 5ms/div



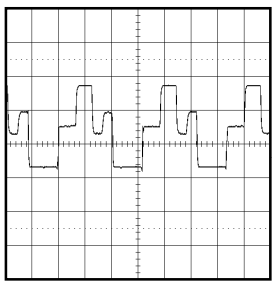
㉓ 0.5V 1ms/div



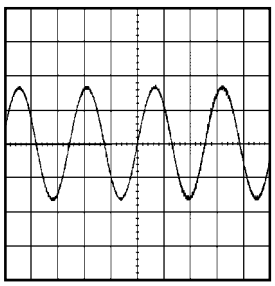
⑲ 10V 5ms/div



㉔ 1V 1ms/div



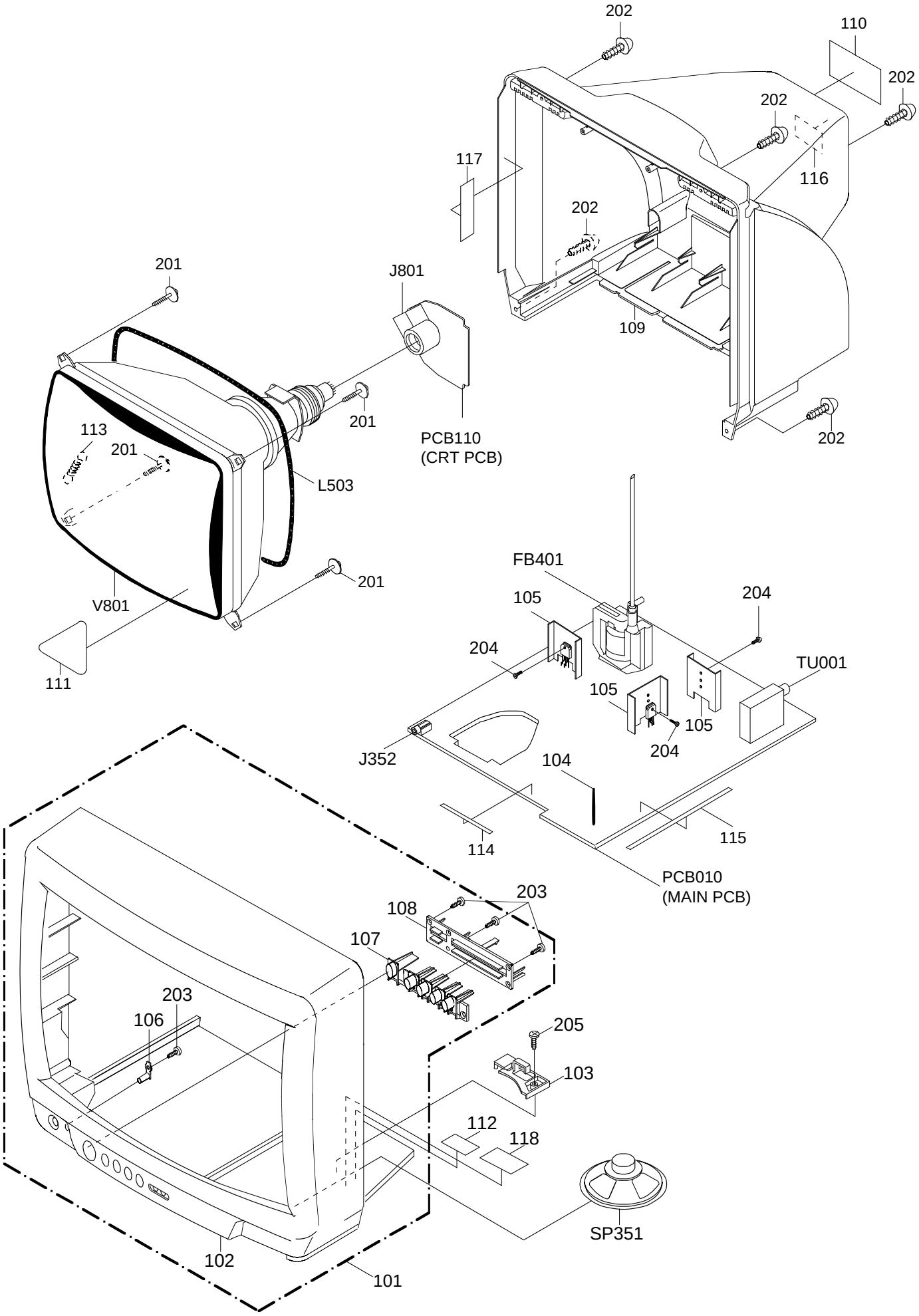
⑳ 50V 20µs/div



㉕ 500mV 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	A3J011C720	CABINET,FRONT ASS'Y		
102	701WPJA917	CABINET,FRONT		
103	735WPA0396	SPEAKER HOLDER		
104	---	COATING CLIP		
105	---	HEAT SINK		
106	713WPA0090	GUIDE,REMOCON		
107	735WPA0381	BUTTON,FRAME		
108	735WPA0382	BUTTON,HOLDER		
109	702WPA0683	CABINET,BACK		
110	7225520002	SHEET,RATING		
111	723000A930	FILM,DECORATION		
112	7230006818	SHEET,CAUTION		
113	741WUA0019	SPRING,EARTH		
114	800WQ00044	FELT SHEET		5x50xT0.5
115	800WQ00045	FELT SHEET		5x150xT0.5
116	7260000325	SHEET,CRT SERVICEMAN		
117	7220001119	SHEET,CSA WARNING		
118	722000A023	SHEET,HWC		
201	8121J50B54	SCREW,TAPPING (B0)	GW20	5x28
202	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16
203	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10
204	8109I30A04	SCREW,TAP TITE (B)	WH7	3x10
205	8110630A24	SCREW,TAP TITE (P)	BRAZIER	3x12
---	JB5K0100	POLY BAG		
---	J3J01101	INSTRUCTION BOOK		
---	791WHA0023	LAMIFILM BAG		
---	792WHA0225	PACKAGE,TOP		
---	792WHA0226	PACKAGE,BOTTOM		
---	793WCDA717	GIFT BOX		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		RESISTORS		
⚠ R401	R4X5T4104F	R, METAL	100K OHM 1/4W	
⚠ R405	R4X5T4183F	R, METAL	18K OHM 1/4W	
⚠ R406	R903N8102J	RC	1K OHM 1/8W	
⚠ R407	R3X1812R2J	R, METAL OXIDE	2.2 OHM 1W	
⚠ R408	R4X5T6153F	R, METAL	15K OHM 1/6W	
⚠ R409	R4X5T6562F	R, METAL	5.6K OHM 1/6W	
⚠ R424	R4X5T6682F	R, METAL	6.8K OHM 1/6W	
⚠ R426	R002T4272J	RC	2.7K OHM 1/4W	
⚠ R428	R5X2CD123J	R, CEMENT	12K OHM 5W	
⚠ R429	R655813R3J	R, FUSE	3.3 OHM 1W	
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W	
⚠ R501	R5X2CD2R2J	R, CEMENT	2.2 OHM 5W	
⚠ R504	R3X28B330J	R, METAL OXIDE	33 OHM 3W	
⚠ R505	R3X181221J	R, METAL OXIDE	220 OHM 1W	
R509	R002T4222J	RC	2.2K OHM 1/4W	
R515	R002T4223J	RC	22K OHM 1/4W	
⚠ R517	R3X28B5R6J	R, METAL OXIDE	5.6 OHM 3W	
⚠ R518	R4X5T6222F	R, METAL	2.2K OHM 1/6W	
⚠ R519	R903N8331J	RC	330 OHM 1/8W	
⚠ R542	R3X181R68J	R, METAL OXIDE	0.68 OHM 1W	
⚠ R629	R3X28B330J	R, METAL OXIDE	33 OHM 3W	
⚠ R641	R4X5T6223F	R, METAL	22K OHM 1/6W	
⚠ R803	R3X181153J	R, METAL OXIDE	15K OHM 1W	
⚠ R805	R3X181153J	R, METAL OXIDE	15K OHM 1W	
⚠ R807	R3X181153J	R, METAL OXIDE	15K OHM 1W	
		CAPACITORS		
C139	CHGTY0214M	CC	0.01 UF 16V Y	
C402	P3N1F2123J	CPP	0.012 UF 200V	
⚠ C403	E02LF4471M	CE	470 UF 35V	
⚠ C414	E02LT4101M	CE	100 UF 35V	
⚠ C418	E02LF3102M	CE	1000 UF 25V	
⚠ C420	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C434	E02LT8220M	CE	22 UF 100V	
C437	P4J7F3474J	CMPP	0.47 UF 250V PMS	
⚠ C443	P4N8FJ472H	CMPP	0.0047UF 1.25KV	
⚠ C446	E5EZTB010M	CE	1 UF 160V	
⚠ C448	E5EZFC220M	CE	22 UF 200V	
⚠ C502	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C503	C0JTB0513K	CC	0.001 UF 500V B	
⚠ C505	P2122B224M	CMP	0.22 UF 250V ECQUL	
⚠ C507	C034F0JQ3M	CC	0.0047UF 125V MX	
⚠ C510	E02LT2470M	CE	47 UF 16V	
⚠ C511	E02LT5010M	CE	1 UF 50V	
C514	C010BP7U2K	CC	680 PF 2KV BP	
⚠ C515	E02LT2471M	CE	470 UF 16V	
C517	C01BBP7Q2K	CC	470 PF 2KV BP	
⚠ C519	E5EZT2471M	CE	470 UF 16V	
⚠ C521	E5EZFB101M	CE	100 UF 160V	
⚠ C526	E02LFC221M	CE	220 UF 200V	
C609	CHG0Y0214M	CC	0.01 UF 16V Y	
C819	C0JBB0713K	CC	0.001 UF 2KV B	
		DIODES		
D001	D97U03001B	DIODE, ZENER	MTZJ30B T-77	
D104	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D94TA6RB12	DIODE, ZENER	HZ6B2L TD	or
	D94TA7RA12	DIODE, ZENER	HZ7A2L TD	or
	D94TA7RB11	DIODE, ZENER	HZ7B1L TD	or
	D94TA7RC12	DIODE, ZENER	HZ7C2L TD	
D106	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D94TA6RB12	DIODE, ZENER	HZ6B2L TD	or
	D94TA7RA12	DIODE, ZENER	HZ7A2L TD	or
	D94TA7RB11	DIODE, ZENER	HZ7B1L TD	or
	D94TA7RC12	DIODE, ZENER	HZ7C2L TD	
D107	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D94TA6RB12	DIODE, ZENER	HZ6B2L TD	or
	D94TA7RA12	DIODE, ZENER	HZ7A2L TD	or
	D94TA7RB11	DIODE, ZENER	HZ7B1L TD	or
	D94TA7RC12	DIODE, ZENER	HZ7C2L TD	
⚠ D401	D97U02701B	DIODE, ZENER	MTZJ27B T-77	
⚠ D402	D97U01101B	DIODE, ZENER	MTZJ11B T-77	
D403	D2WT011E10	DIODE, SILICON	11E1-EIC	
D404	D97U06R21B	DIODE, ZENER	MTZJ6.2B T-77	
⚠ D405	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D410	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D411	D2WTAU02A0	DIODE, SILICON	AU02A-EIC	
⚠ D501	D2WTRM11C0	DOIDE, SILICON	RM11C-EIC	
⚠ D502	D2WTRM11C0	DOIDE, SILICON	RM11C-EIC	

REF. NO	PART NO.	DESCRIPTION		
		DIODES		
⚠ D503	D2WTRM11C0	DOIDE, SILICON	RM11C-EIC	
⚠ D504	D2WTRM11C0	DOIDE, SILICON	RM11C-EIC	
⚠ D505	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1	
D506	D97U01501B	DIODE, ZENER	MTZJ15B T-77	
D507	D97U01501B	DIODE, ZENER	MTZJ15B T-77	
D508	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D509	D97U01801B	DIODE, ZENER	MTZJ18B T-77	
⚠ D510	D2BTRU2AM0	DIODE, SILICON	RU2AM V1	
D512	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D513	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1	
D514	D1VT001330	DIODE, SILICON	1SS133T-77	
D518	D1VT001330	DIODE, SILICON	1SS133T-77	
D519	D1VT001330	DIODE, SILICON	1SS133T-77	
D528	D97U05R61B	DIODE, ZENER	MTZJ5.6B T-77	
D601	D1VT001330	DIODE, SILICON	1SS133T-77	
D602	D97U08R21B	DIODE, ZENER	MTZJ8.2B T-77	
D603	D97U01201B	DIODE, ZENER	MTZJ12B T-77	or
	D94TA11A11	DIODE, ZENER	HZ11A1L TD	or
	D94TA12A11	DIODE, ZENER	HZ12A1L TD	or
	D94TA12B11	DIODE, ZENER	HZ12B1L TD	
D605	D2WT011E10	DIODE, SILICON	11E1-EIC	
D606	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D94TA6RB12	DIODE, ZENER	HZ6B2L TD	or
	D94TA7RA12	DIODE, ZENER	HZ7A2L TD	or
	D94TA7RB11	DIODE, ZENER	HZ7B1L TD	or
	D94TA7RC12	DIODE, ZENER	HZ7C2L TD	
D608	D97U01201B	DIODE, ZENER	MTZJ12B T-77	or
	D94TA11A11	DIODE, ZENER	HZ11A1L TD	or
	D94TA12A11	DIODE, ZENER	HZ12A1L TD	or
	D94TA12B11	DIODE, ZENER	HZ12B1L TD	
D610	D97U01201B	DIODE, ZENER	MTZJ12B T-77	or
	D94TA11A11	DIODE, ZENER	HZ11A1L TD	or
	D94TA12A11	DIODE, ZENER	HZ12A1L TD	or
	D94TA12B11	DIODE, ZENER	HZ12B1L TD	
D611	D97U01201B	DIODE, ZENER	MTZJ12B T-77	or
	D94TA11A11	DIODE, ZENER	HZ11A1L TD	or
	D94TA12A11	DIODE, ZENER	HZ12A1L TD	or
	D94TA12B11	DIODE, ZENER	HZ12B1L TD	
D612	D97U01201B	DIODE, ZENER	MTZJ12B T-77	or
	D94TA11A11	DIODE, ZENER	HZ11A1L TD	or
	D94TA12A11	DIODE, ZENER	HZ12A1L TD	or
	D94TA12B11	DIODE, ZENER	HZ12B1L TD	
		ICS		
IC101	I56F07045A	IC	OEC7045A	
IC199	A3J004C015	IC	S-24C02BDP-1A	
⚠ IC351	I01DP75110	IC	AN7511	
⚠ IC401	I03TD80400	IC	LA78040	
⚠ IC506	0002500560	PHOTO COUPLER	TLP621(D4-GR-LF2	
IC601	I06FC1203C	IC	M61203CFP	
		TRANSISTORS		
⚠ Q401	TD30026270	TRANSISTOR, SILICON	2SD2627LS-CBC11	
⚠ Q402	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)	
⚠ Q501	T25FK26620	TRANSISTOR, FIELD EF	FECT 2SK2662	
⚠ Q502	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q507	TCYT1740S0	TRANSISTOR, SILICON	2SC1740SP(R,S) TP	
Q603	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	
Q604	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	
Q605	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	
Q606	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	
⚠ Q801	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)	
⚠ Q802	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)	
⚠ Q803	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)	
		COILS &TRANSFORMERS		
L001	02167D100K	COIL	10 UH	
L101	021LA63R3K	COIL	3.3 UH	
L402	02186G180M	COIL	18 UH	
⚠ L501	029K000074	COIL, LINE FILTER	9-000074	
⚠ L503	028F140025	COIL, DEGAUSS	8F140025	
L601	0216731R2K	COIL	1.2 UH	
L603	02167D220K	COIL	22 UH	
L605	0216731R0K	COIL	1 UH	
L606	021LA62R2K	COIL	2.2 UH	
L607	021LA6150K	COIL	15 UH	
L801	02167D101K	COIL	100 UH	
T401	03305Y0018	TRANS, HORIZONTAL DRIVE	305Y001	
⚠ T502	048129018S	TRANSFORMER, SWITCHING	8129018S	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		JACKS		
⚠	J352	0602121012	JACK, RCA 3.5	HSJ1403-01-010	
	J702	060G421016	RCA, JACK	HTJ-032-05AY	
	J703	060G421017	RCA, JACK	HTJ-032-05AW	
⚠	J801	066X120014	SOCKET, CRT	HPS3200-010501	
		SWITCHES		
	SW101	0504201T31	SWITCH, TACT	SKHVBED010	or
		0504101T34	SWITCH, TACT	EVQ21505R	
	SW102	0504201T31	SWITCH, TACT	SKHVBED010	or
		0504101T34	SWITCH, TACT	EVQ21505R	
	SW103	0504201T31	SWITCH, TACT	SKHVBED010	or
		0504101T34	SWITCH, TACT	EVQ21505R	
	SW104	0504201T31	SWITCH, TACT	SKHVBED010	or
		0504101T34	SWITCH, TACT	EVQ21505R	
	SW105	0504201T31	SWITCH, TACT	SKHVBED010	or
		0504101T34	SWITCH, TACT	EVQ21505R	
		VARIABLE RESISTOR		
	VR501	V1262L2BT6	VOLUME, SEMI FIXED	RH063LCN2R	
		P.C.BOARD ASSEMBLIES		
	PCB010	A3J011C01A	PCB ASS'Y	TMX464A	
	PCB110	A3J010C11A	PCB ASS'Y	TCX324A	
		MISCELLANEOUS		
⚠	ANT001	125C108030	ANTENNA, ROD	HPAS-2S780	
	CD351	06CH12403B	CORD, CONNECTOR	CH12403B	
⚠	CD501	120R614908	CORD, AC	0R614908	or
		1207614908	CORD, AC	7614908	
	CF601	1022T45R72	FILTER, SAW	SAF45MFY220ZR	
	CF603	1011T4R504	FILTER, CERAMIC	EFCT4R5YS5A	
	CF604	1011T4R517	FILTER, CERAMIC	EFCT4R5MW5	
	CP352	069W120019	CONNECTOR PCB SIDE	TID-X02P-B2	
⚠	CP401	069X450029	CONNECTOR PCB SIDE	B05B-DVS	
⚠	CP501	0697320039	CORD, UX CONNECTOR	THL-P03P-B1	
⚠	CP502	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1	
	CP601	0694260139	CONNECTOR PCB SIDE	173979-6	
	CP801	069W010030	CONNECTOR PCB SIDE	TBS-X01X-A1	
	CP802A	067R010019	WIRE, HOLDER	51048-1000	
	CP802B	067R010019	WIRE, HOLDER	51048-1000	
⚠	F501	081PA04003	FUSE	233004-MB000	
⚠	FB401	043214029F	TRANSFORMER FLYBACK	3214029F	
	FH501	06710T0006	HOLDER, FUSE	EYF-52BC	
	FH502	06710T0006	HOLDER, FUSE	EYF-52BC	
	OS101	077Q014003	REMOTE RECEIVER	PIC-28143SY-2	
⚠	SP351	070W132003	SPEAKER	NS-300RW	or
		070C732001	SPEAKER	C908-8-03A	
⚠	TH501	DF20A3R0Q0	DEGAUSS ELEMENT	PTH451A3R0Q11	
	TM101	076R074250	TRANSMITTER	R25-1323	
⚠	TU001	0145K00054	TUNER, VHF-UHF	TECC1040PG32C	or
		0145W00052	TUNER, VHF-UHF	NJH3022U268	
⚠	V801	098Y140497	COLOR PICTURE TUBE W/DY	A34JXV70X28N45	
	X101	1002T00802	CERAMIC, OSCILLATOR	CSTS0800MG03-T2	
	X602	100CT3R505	CRYSTAL HC-49/C	3.579545MHz	

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.	M3J0-11C
O/R NO.	K073007