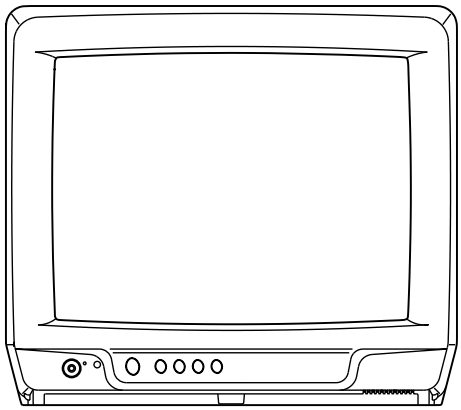
Memorex

MT1136A

SERVICE MANUAL

COLOR TELEVISION RECEIVER



ORIGINAL
MFR'S VERSION A

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. AVOID AN ELECTRIC SHOCK

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

3. USE THE DESIGNATED PARTS

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

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

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

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

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

6. AVOID AN X-RAY

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

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal
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 Contactless Electric tuner ☒1Tuner System ☐2Tuner System

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

Receiving channel

VHF	(LOW)	2 ch~ 6 ch		
	(HIGH)	7 ch~ 13 ch		
	(CATV)	A5 ch~ I ch	J ch~ W+29 ch	GGG ch~ W+84 ch
UHF		14 ch~ 69 ch		

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-8.Preset Channel

-- channels

G-9.Intermediate Frequency

Picture(fP)	45.75 MHz	_____ 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:

65 W at AC 120 V 60 Hz

-- W at DC --- V

Stand by: 6 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	

G-17.Protector: ☒Power Fuse

GENERAL SPECIFICATIONS

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 ºC~ 40 ºC

Storage -20 ºC~ 60 ºC

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	☐ Din Type ☒ F-Type	☐ France Type
☐Video Input(Front)	☐ Phono Jack (RCA ø8.3)	☐ BNC
☐Video Input(Rear)	☐ Phono Jack (RCA ø8.3)	☐ BNC
☐Video Output(Rear)	☐ Phono Jack (RCA ø8.3)	☐ BNC
☐Audio Input(Front)	☐ Phono Jack (RCA ø8.3)	
☐Audio Input(Rear)	☐ Phono Jack (RCA ø8.3)	
☐Audio Output(Rear)	☐ Phono Jack (RCA ø8.3)	
☐21 Pin	☐DC Jack(Center +)	☒Ear Phone Jack(ø3.5)
☐Head Phone Jack(ø3.5)	☐AC Outlet	☐Ext Speaker
☐Diversity	☐S Input(Front)	☐S Input(Rear)

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	☐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	

☐CH/AV	☐Clock	☐Pin Code	☐Hotel Lock
☐Sleep Timer	☒Sound Mute	☒Channel	

G-26.OSD Language

☒Eng ☐Ger ☒Fre ☒Spa ☐Ita ☐Por ☐Jpn

OSD Language Setting

☒Eng ☐Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jpn

☐Not Applicable

GENERAL SPECIFICATIONS

G-27.Speaker

__3__ inches Imp. __8__ ohm x __1__ pcs
Max __1.0__ W (Typical)
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(W) __----__mm(D) __----__mm(H)
Description of Origin ☐Yes ☐No

Gift Box

Material ☒AB Double/Brown Corrugated Carton (☐with Photo Label)
☐AB Double/White Corrugated Carton (☐with Photo Label)
☐AB Double Full Color Carton W/Photo
Dimensions: __408__mm(W) __440__mm(D) __380__mm(H)
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]
☐Channel Film
☐AC Plug Adapter ☒Remote Control Unit
☐Battery (UM-__4 x 2__)
☐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	☐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

G-32.Switch

Front

☐Power(Tact)	☒Channel Up	☒Volume Up
☐System Select	☒Channel Down	☒Volume Down
☐Main Power SW	☒Sub Power	

Rear

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

GENERAL SPECIFICATIONS

G-33.Magnetic Field

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

G-34.Remote Control Unit: RC-74

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

☒ 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.

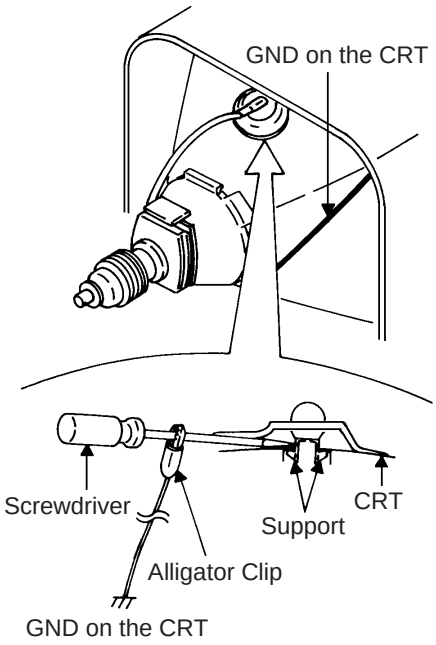


Fig. 1-1

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.)**

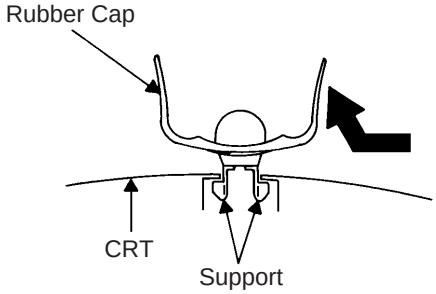


Fig. 1-2

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.)**

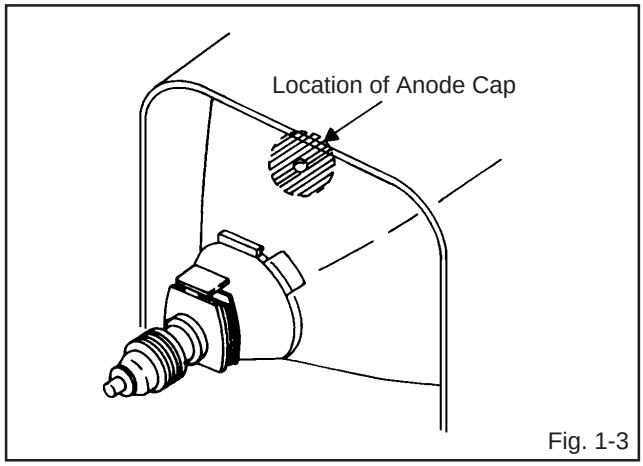


Fig. 1-3

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.)**

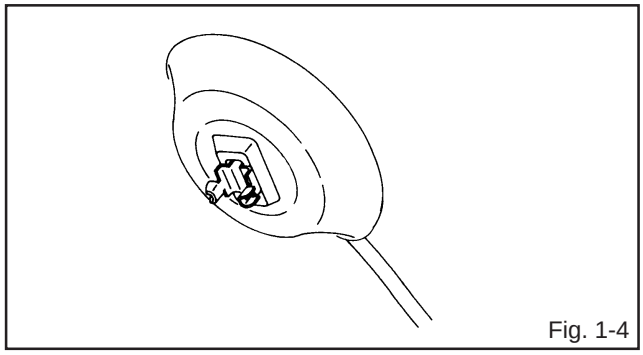


Fig. 1-4

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

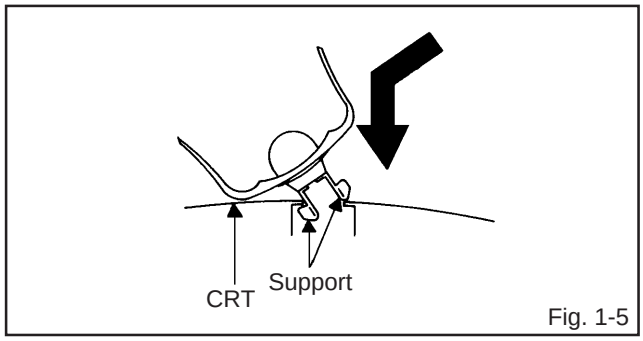


Fig. 1-5

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 2 seconds.

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

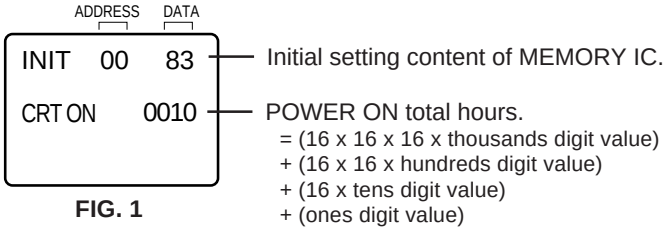


FIG. 1

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.

NOTE: No need the setting for after INI 09.

ADDRESS	INI 00	INI 01	INI 02	INI 03	INI 04	INI 05	INI 06	INI 07	INI 08	IN 09
DATA	88	6C	00	00	00	00	00	98	05	0E

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 2 seconds.
3. ADDRESS and DATA should appear as FIG 1.
4. 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.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using SET + or - until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. 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.

1-1: Prepare the following measurement tools for electrical adjustments.

1. Synchro Scope
2. Digital Voltmeter

2. BASIC ADJUSTMENTS

On-Screen Display Adjustment

In the condition of NO indication on the screen.
Press both VOL. DOWN button on the set and the channel button **(9)** on the remote control more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 2-1**.

NOTE

Use the channel buttons **(1-8)** on the remote control to select the options shown in **Fig. 2-1**.
Press the channel button **(0)** on the remote control to end the adjustments.

1. H/V
2. AKB
3. COLOR TEMP
4. PICTURE
5. OTHERS
6. TEST PATTERN
7.
8. (VOL TEST) 0. END

Fig. 2-1

2-1: RF AGC DELAY

1. Receive an 80dB monoscope pattern.
2. Connect the digital voltmeter between the **pin 2 of CP101** and the **pin 6 (GND) of CP101**.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control. The **Fig. 2-2** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.0 ± 0.05V.

1. RF AGC DELAY
2. VIDEO LEVEL
3. FM LEVEL
4. OSD H
5. CUT OFF
6. X-RAY
7.
8. 0. RETURN

Fig. 2-2

2-2: CUT OFF

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control. The **Fig. 2-2** appears on the display.
3. Press the channel button **(5)** on the remote control.
4. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE:

Adjust after performing adjustments in section 2-2.

1. Receive the color bar pattern.
2. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(2)** on the remote control. The **Fig. 2-3** appears on the display.
3. Adjust the adjustment mode display of **Fig. 2-3** until the white color is looked like a white.

1. AKB AUTO
2. R. BIAS
3. G. BIAS
4. B. BIAS
5. R. DRIVE
6. G. DRIVE
7. B. DRIVE
8. AGC AUTO 0. RETURN

Fig. 2-3

2-4: SUB BRIGHTNESS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control. The **Fig. 2-4** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible.

1. BRIGHT
2. CONTRAST
3. COLOR
4. TINT
5. SHARPNESS
6. OSD CONT
7.
8. 0. RETURN

Fig. 2-4

ELECTRICAL ADJUSTMENTS

2-5: SUB TINT/SUB COLOR

1. Receive the color bar pattern.
2. Connect the synchro scope to **TP023**.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control. The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-5**.
6. Activate the adjustment mode display of **Fig. 2-4** and press the channel button **(3)** on the remote control.
7. Adjust the LEVEL "A" section of Blue to the LEVEL "D" section of White by pressing the VOL. UP/DOWN button on the remote control. **(Refer to Fig. 2-6)**
8. If the LEVEL "A" section through "C" section are not the same compared with "D" section, adjust the LEVEL again.

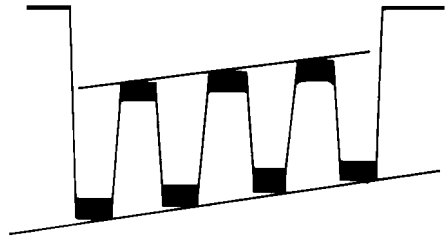


Fig. 2-5

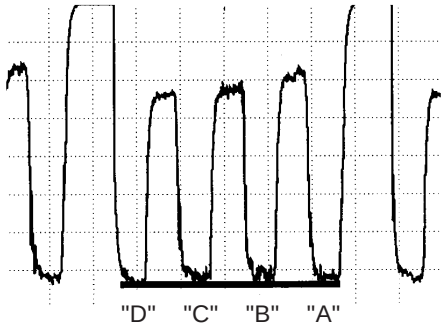


Fig. 2-6

2-6: FOCUS

1. Receive an 70dB monoscope pattern.
2. Adjust the **Focus Volume** until picture is distinct.

2-7: VERTICAL POSITION

1. Receive the color bar pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control. The **Fig. 2-7** appears on the display.
4. Press the channel button **(4)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the horizontal line of the color bar comes to approximate center of the CRT.
   Perform the adjustment of step 5 to step 12.

1. H. PHASE
2. H. BLK
3. V. SIZE
4. V. POSI
5. V. LIN
6. V. SC
7. V. COMP
8. (H FREQ) 0. RETURN

Fig. 2-7

2-8: VERTICAL SIZE

1. Receive the crosshatch pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control. The **Fig. 2-7** appears on the display.
4. Press the channel button **(3)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the center of crosshatch is square.

2-9: VERTICAL LINEA

1. Receive the color bar pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control. The **Fig. 2-7** appears on the display.
4. Press the channel button **(5)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the VERTICAL LINEA is 14 step.

2-10: HORIZONTAL PHASE

1. Receive the color bar pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control. The **Fig. 2-7** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-11: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control. The **Fig. 2-2** appears on the display.
3. Press the channel button **(4)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-8)**

ELECTRICAL ADJUSTMENTS

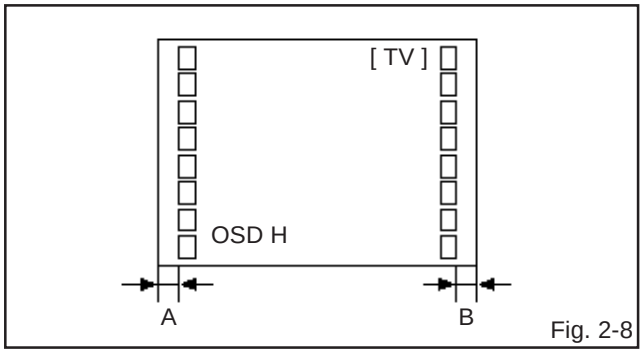


Fig. 2-8

2-12: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the UHF.
3. Disconnect the Antenna while receiving the UHF and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter to **TP201**.
7. Adjust the **L205** until the digital voltmeter is 3.1 ± 0.05V.

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

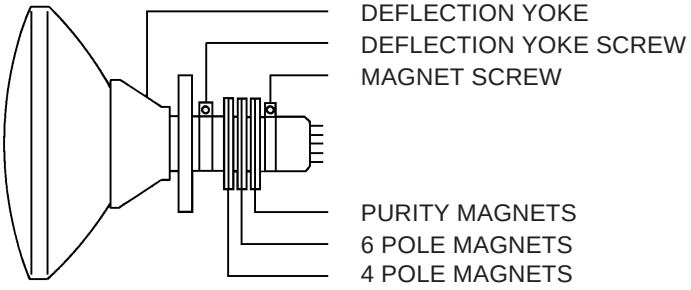


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

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

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

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

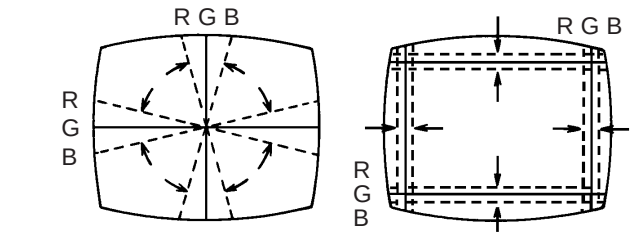


Fig. 3-2-a

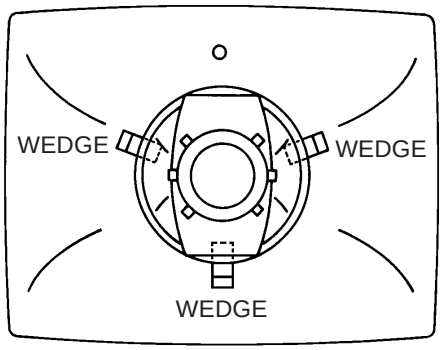
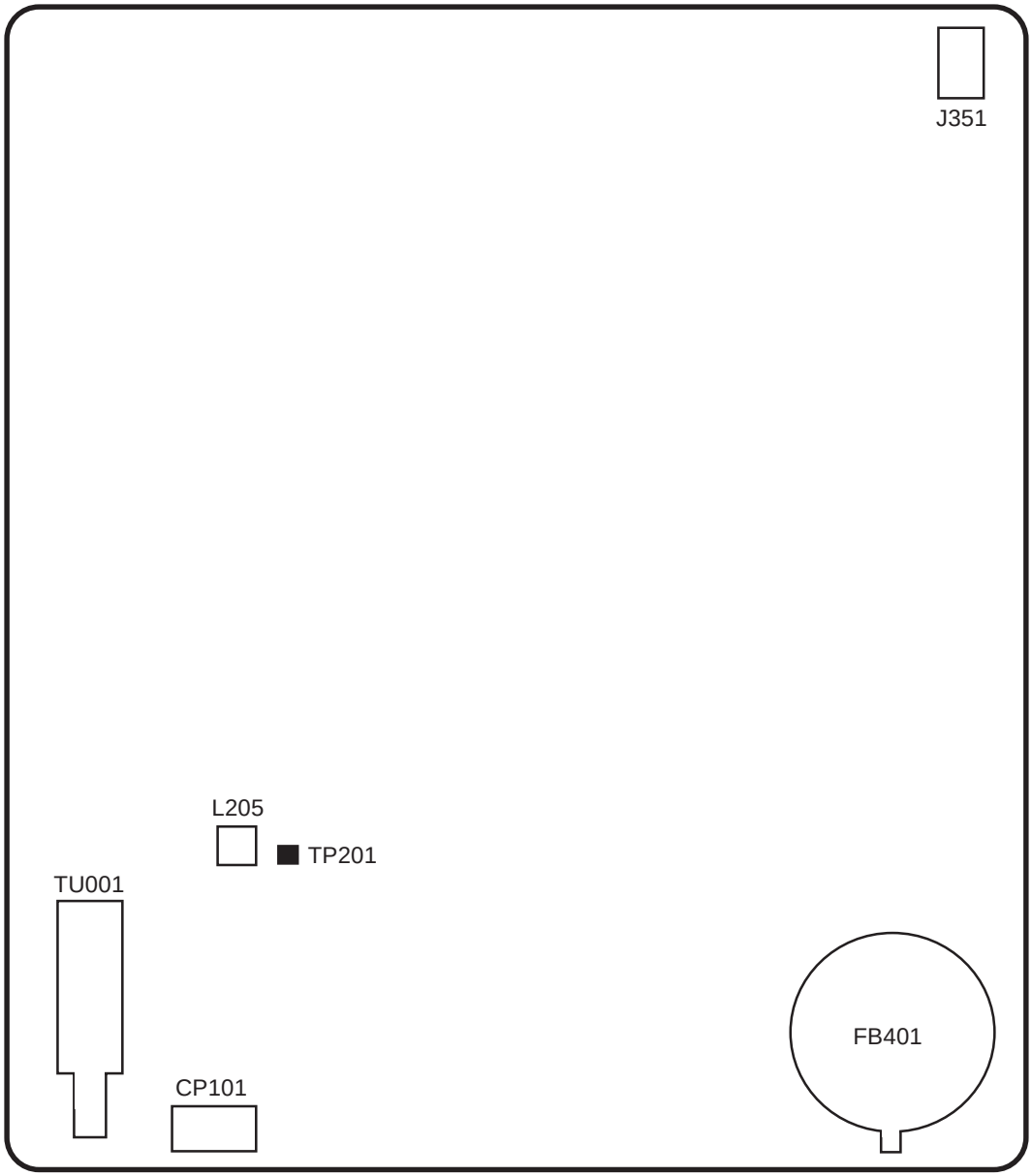
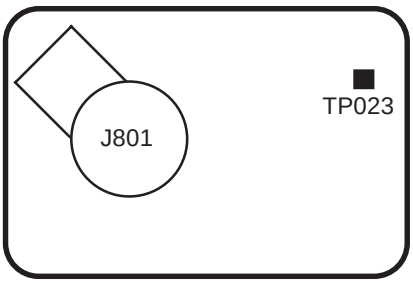


Fig. 3-2-b

MAJOR COMPONENTS LOCATION GUIDE

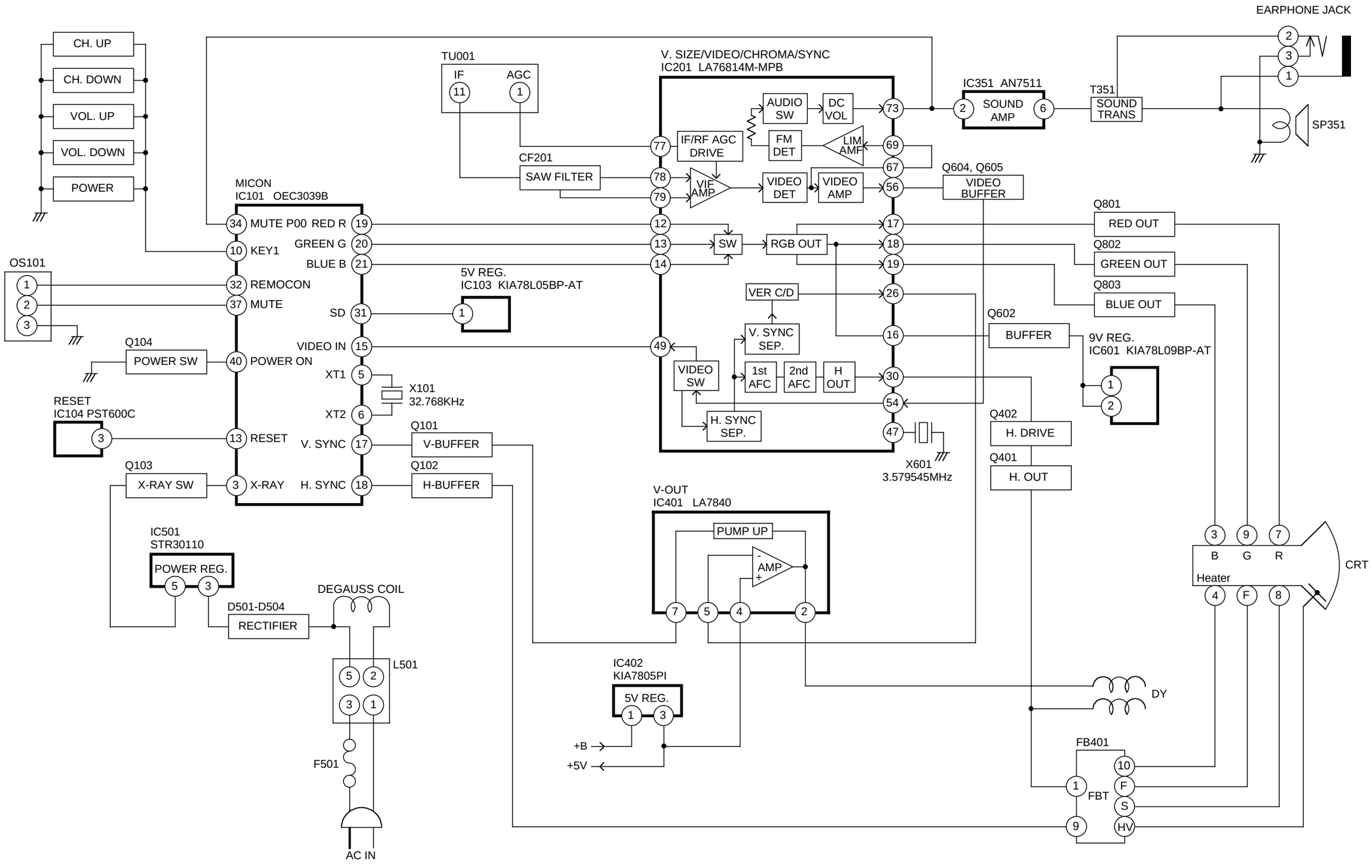


MAIN

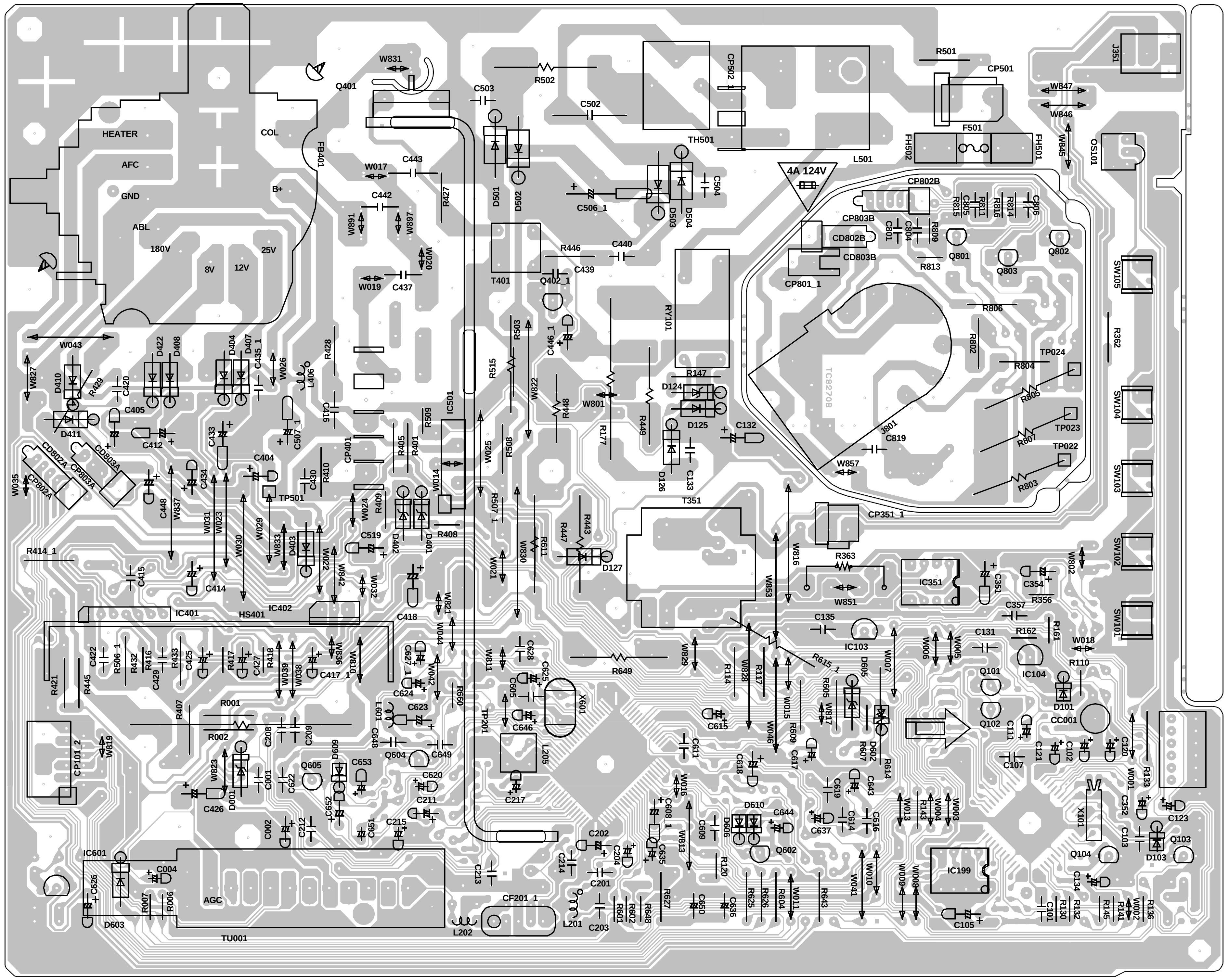


CRT

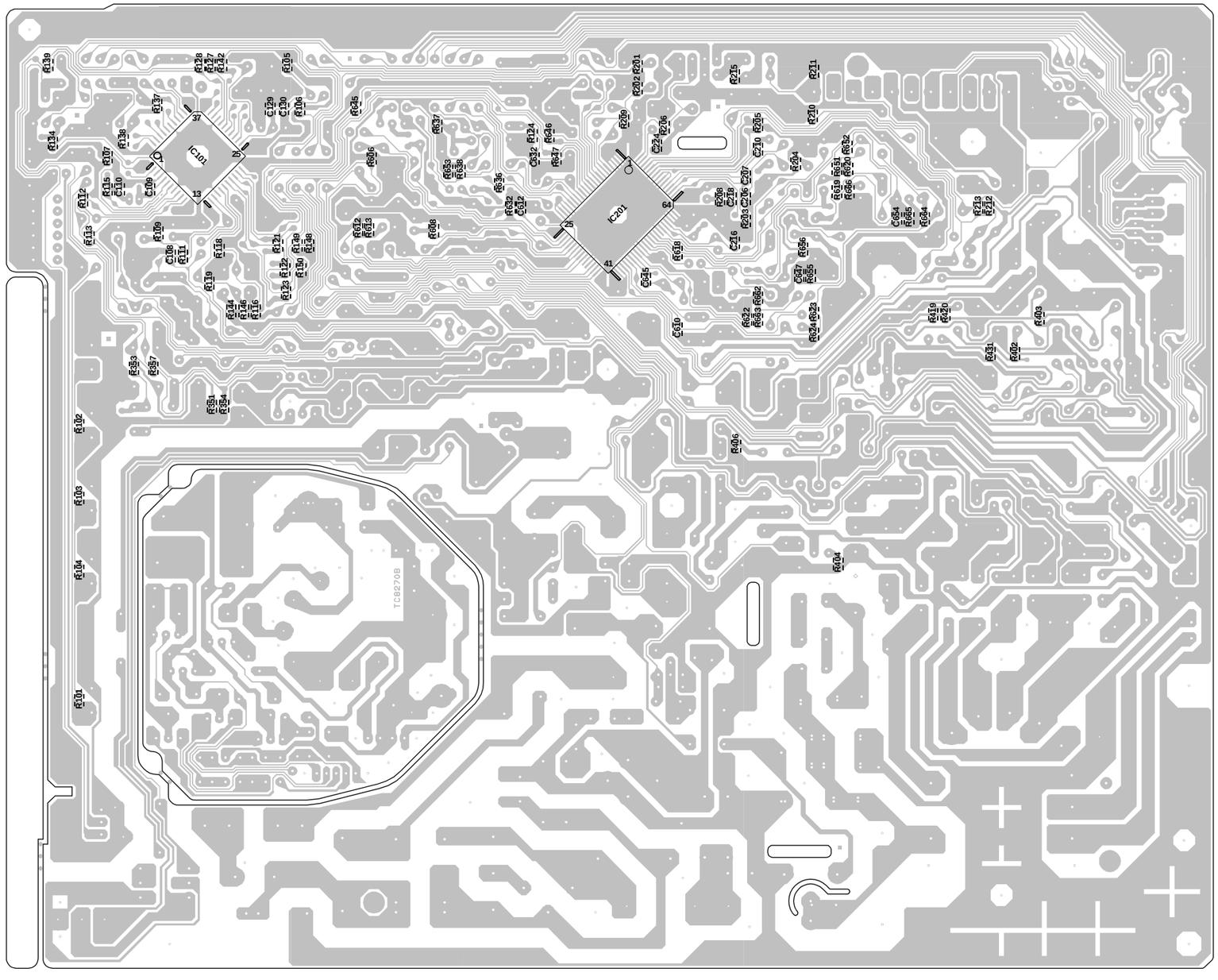
BLOCK DIAGRAM



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



PRINTED CIRCUIT BOARDS
MAIN (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON/TUNER SCHEMATIC DIAGRAM

ACCESSORY
ANT001 HPAS-2S780
TM101 R25-1028
ATC001 NXC0032-010010
TU001 ENV56D67G3
OS101 PIC-28143SY-2
W828 W813 W810 W811 W823
C004 50V2.2 KA
D001 HZ39-3L
C001 0.022 M
R001 68K 1/2W
R002 68K 1/2W
C002 6.3V 100 YK
R133 47 1/4W
C123 16V 10 KA
CC001
CH UP SW101 SKHVBED010
CH DOWN SW102 SKHVBED010
VOL UP SW103 SKHVBED010
VOL DOWN SW104 SKHVBED010
POWER SW105 SKHVBED010
R102 5.6K
R103 1.8K
R104 1K
R101 560
R134 1K
R136 12K
R143 1.5K
X-RAY SW Q103 2SC1815Y
R137 4.7K
R138 68K
POWER SW Q104 2SC2001_L
R006 270
R007 270
5V REG. IC103 KIA78L05BP-AT
C135 0.022 M
C103 0.1 TF
C134 50V 1 KA
R145 10K
R141 1K
R132 10K
R130 10K
R127 47K
MICON IC101 OEC3039B
R107 4.7K
D103 MTZJ5.6B
C105 6.3V 1000 YK
C109 15P CH
C110 18P CH
X101 32.768KHz
R115 390K
P15/PWM3
P16 PAL/NTSC
P17/PWM X-RAY
VSS
XT1
XT2
VDD
NC
P84/AN4 ATF
P85/AN5 KEY1
P86/AN6 KEY2
P87/AN7
AV2 P02
AV1 P01
MUTE P00
P73/INT3/TOIN REMOCON
P72/INT2/TOIN SD
P71/INT1
P70/INT0
P63/SCLK1
P62/SDA1
I2C SCLP61/SCLK0
I2C SDA P60/SDA0
13. RESET RES
14. FILTER FILT
15. VIDEO IN CVIN
17. V.SYNC VS
18. H.SYNC HS
19. RED R
20. GREEN G
21. BLUE B
22. BLANK BL
23. I
37. MUTE
38. B.B.H
39. AKB
40. P06 POWER OUT
41. P07 I2C BUS OFF
43. P10/SDO
44. P11/SI0
45. P12/SCK0
46. P13/PWM1
47. P14/PWM2
R139 10K
R128 10K
R142 10K
C129 120P SL
C130 120P SL
R105 4.7K
R106 4.7K
RESET IC104 PST600C
R112 2.2K
R113 2.2K
R110 10K
R108 10K
D101 1SS133
R161 10K
R162 10K
C120 50V 4.7 KA
C121 50V 0.1 KA
C107 0.033 M
C102 50V 2.2 KA
R111 330
R109 1M
R114 220
C111 50V 1 KA
C108 560P
R120 4.7K
R121 4.7K
R122 4.7K
R123 4.7K
R124 4.7K
V-BUFFER Q101 2SC1815Y
H-BUFFER Q102 2SC1815Y
R146 1K
R117 33K
R116 1K
R119 150K
R148 10K
R149 10K
R150 10K
R147 10K
R144 2.2K
R118 2.7K
C131 0.022 M
C101 0.01 Y
MEMORY M24C01-BN6 IC199
SDA SCL MODE VCC VSS E2 E1 E0
PCB010 TM8411

FROM/TO POWER/SOUND AMP
AT+12V
+B
X-RAY_TEST
POWER
GND
AUDIO_MUTE
FROM DEFLECTION/CRT
+5V
V_SYNC
H_SYNC
FROM/TO CHROMA
AGC
IF
I2C_OFF
I2C_SCL
I2C_SDA
OSD_BLANKING
OSD_BLUE
OSD_GREEN
OSD_RED
VIDEO
AFT_IN

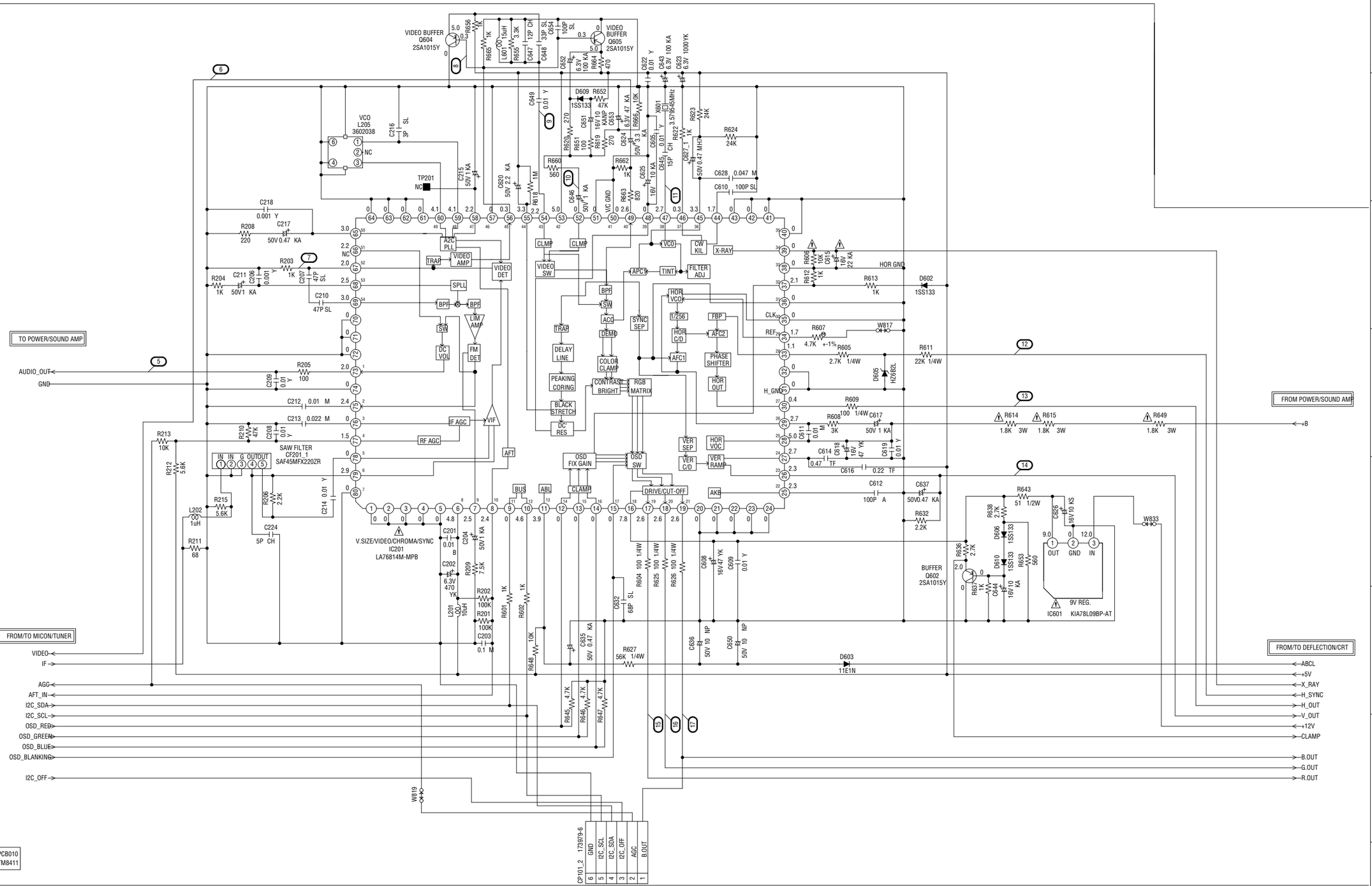
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

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

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

CHROMA SCHEMATIC DIAGRAM



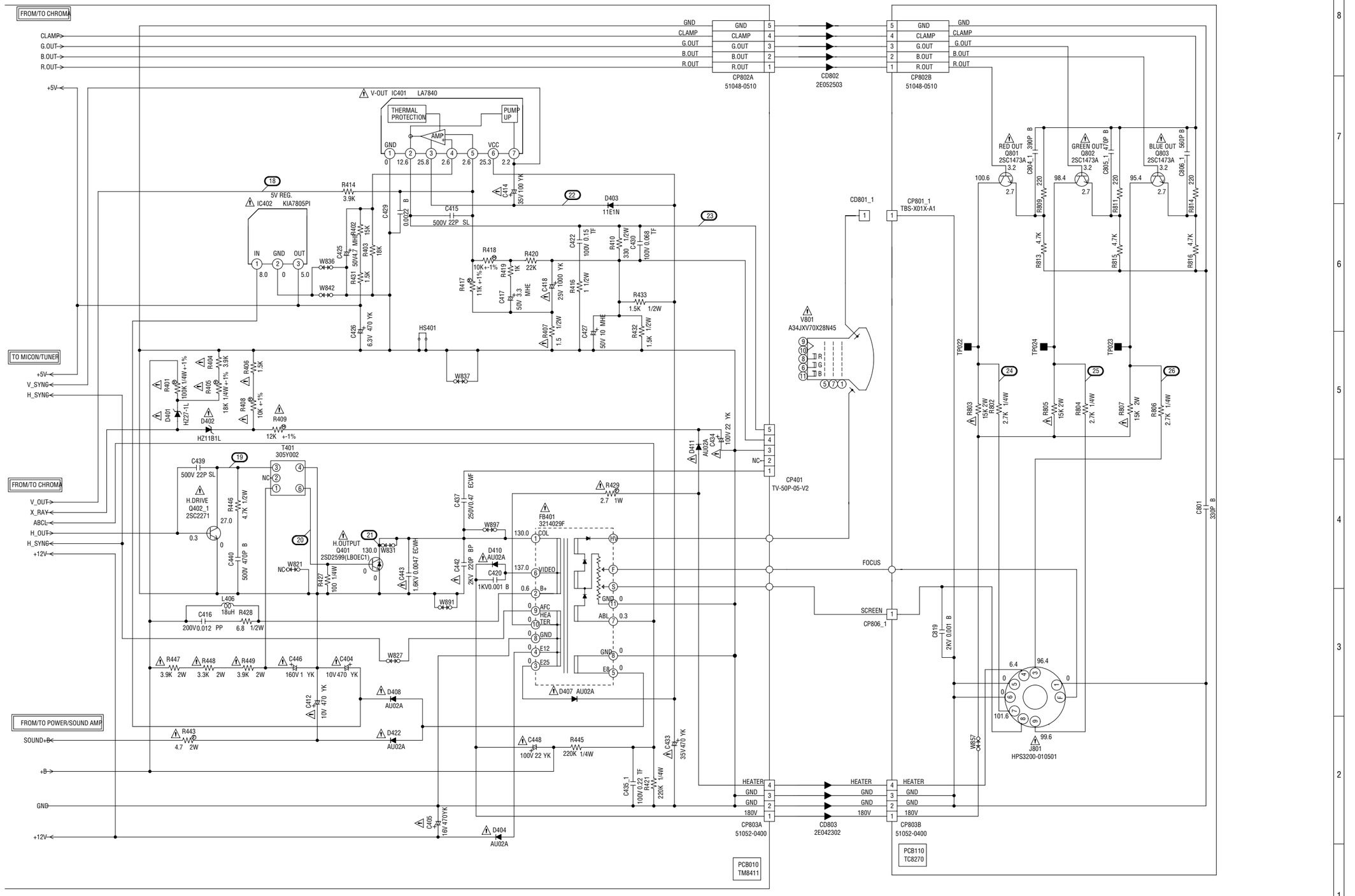
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

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

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

DEFLECTION/CRT SCHEMATIC DIAGRAM



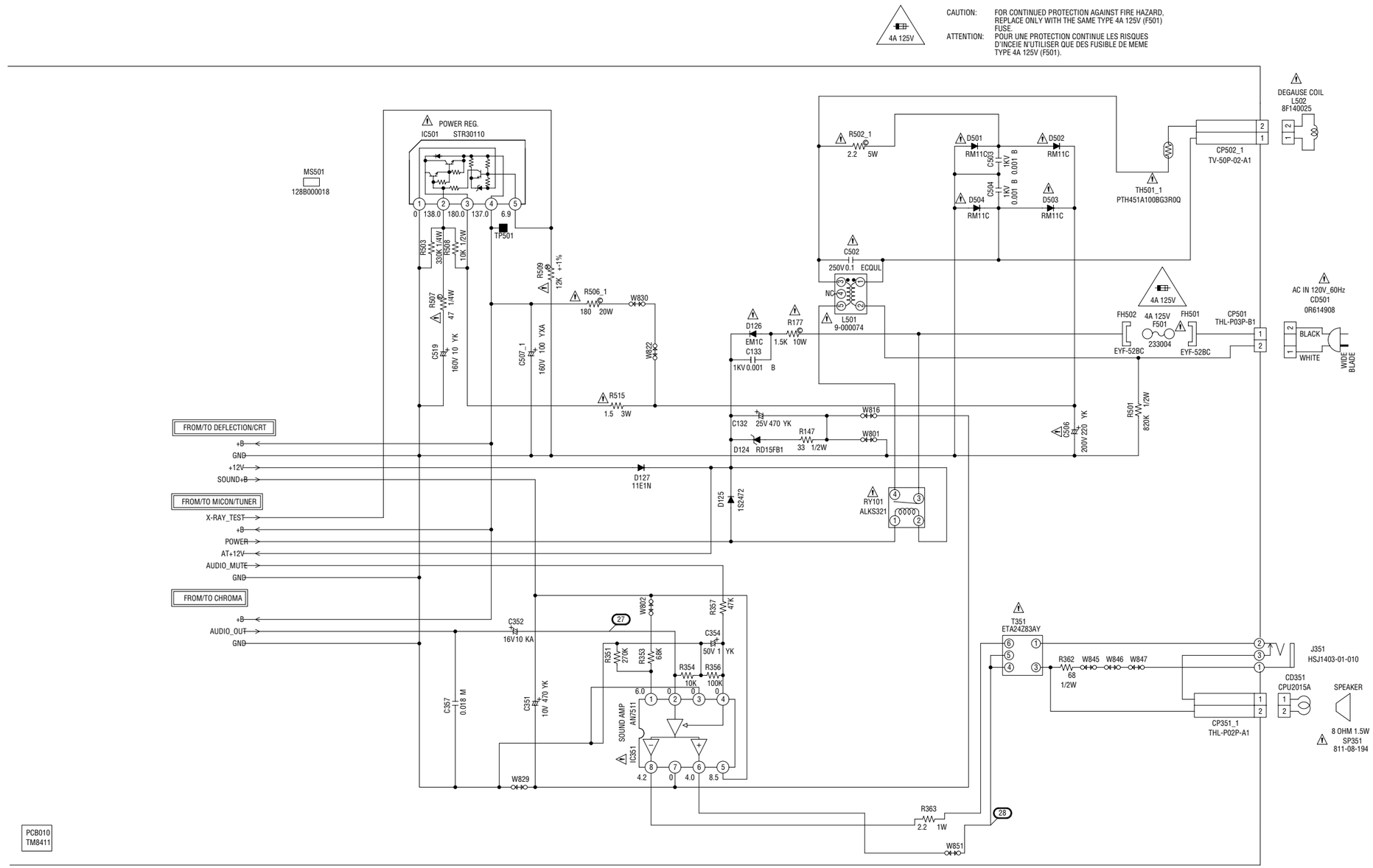
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

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

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

POWER/SOUND AMP SCHEMATIC DIAGRAM



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

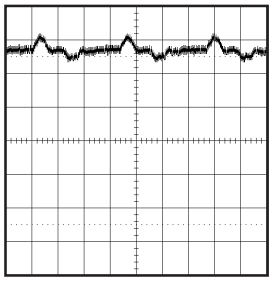
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

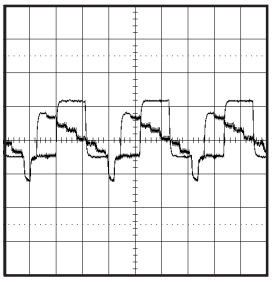
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

WAVEFORMS

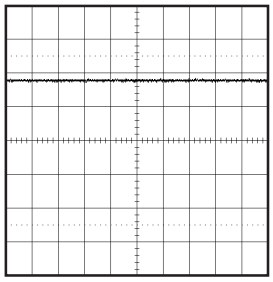
MICON/TUNER



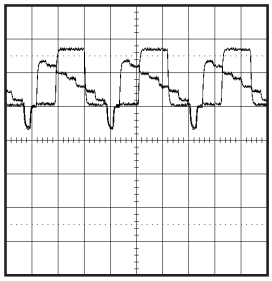
① 200mV. 5ms/div



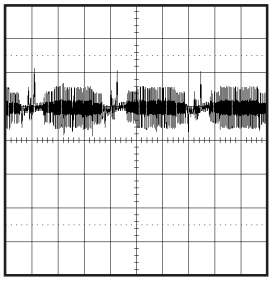
⑥ 0.5V. 20µs/div



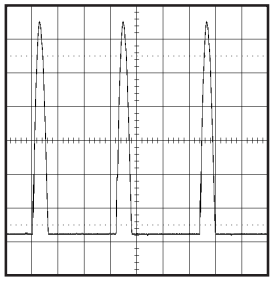
⑪ 1V. 0.5ms/div



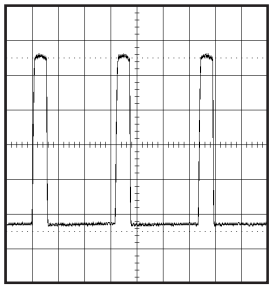
② 0.5V. 20µs/div



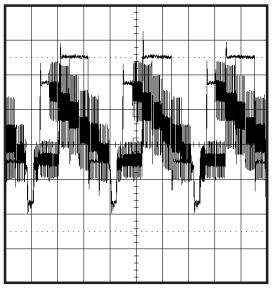
⑦ 0.5V. 20µs/div



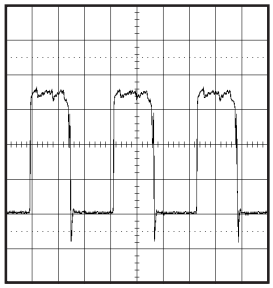
⑫ 20V. 20µs/div



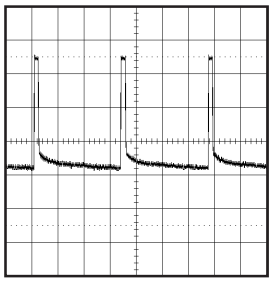
③ 200mV. 20µs/div



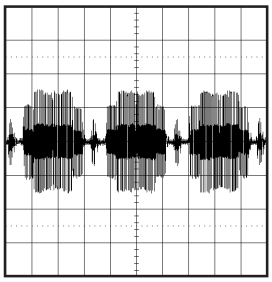
⑧ 0.5V. 20µs/div



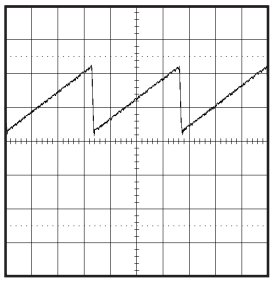
⑬ 200mV. 20µs/div



④ 200mV. 5ms/div

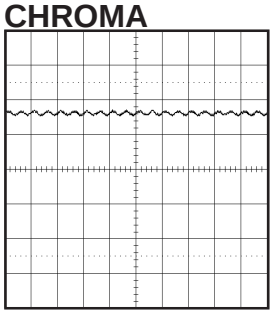


⑨ 200mV. 20µs/div

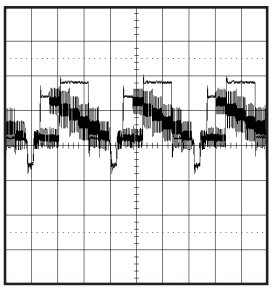


⑭ 0.5V. 5ms/div

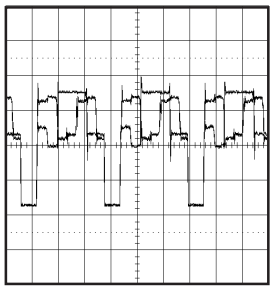
CHROMA



⑤ 0.5V. 2ms/div



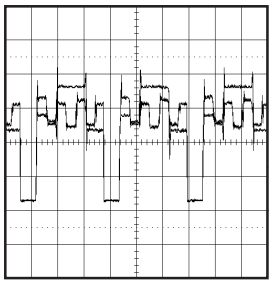
⑩ 0.5V. 20µs/div



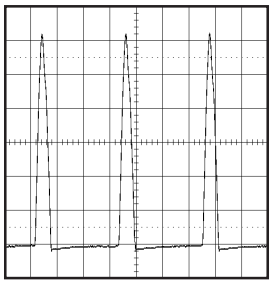
⑮ 1V. 20µs/div

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

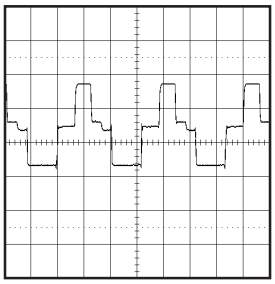
WAVEFORMS



⑯ 1V. 20µs/div

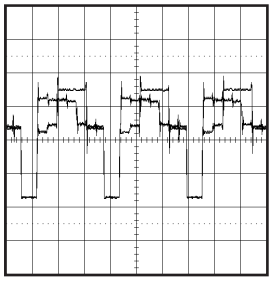


㉑ 200V. 20µs/div

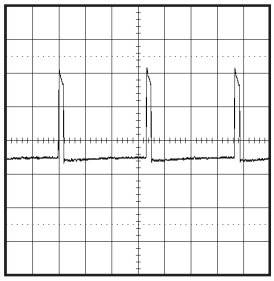


㉖ 50V. 20µs/div

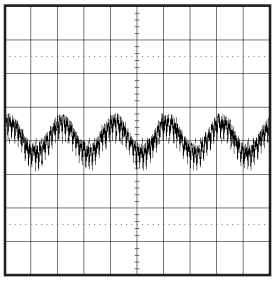
POWER/SOUND AMP



⑰ 1V. 20µs/div

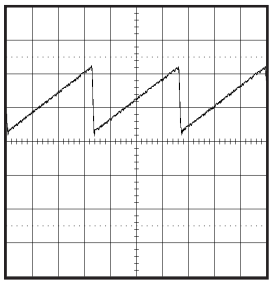


㉒ 10V. 5ms/div

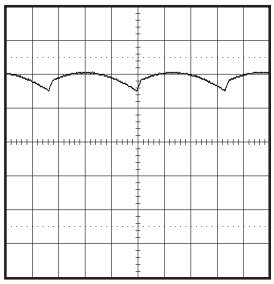


㉗ 50mV. 0.5ms/div

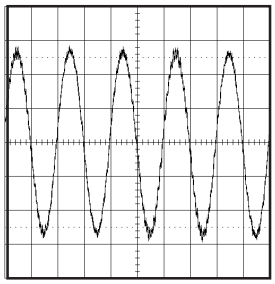
DEFLECTION/CRT



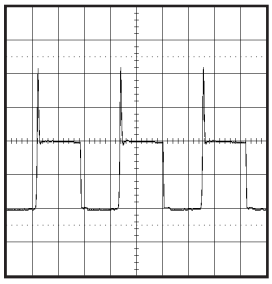
⑱ 0.5V. 5ms/div



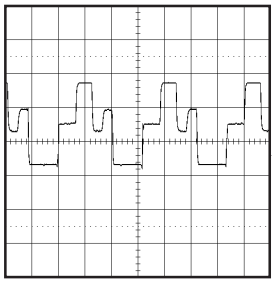
㉓ 5V. 5ms/div



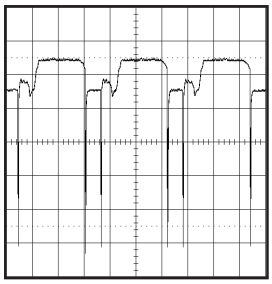
㉘ 200mV. 0.5ms/div



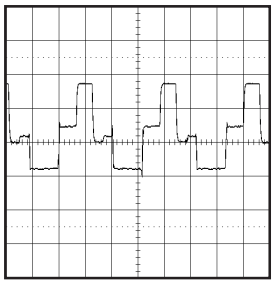
⑲ 20V. 20µs/div



㉔ 50V. 20µs/div



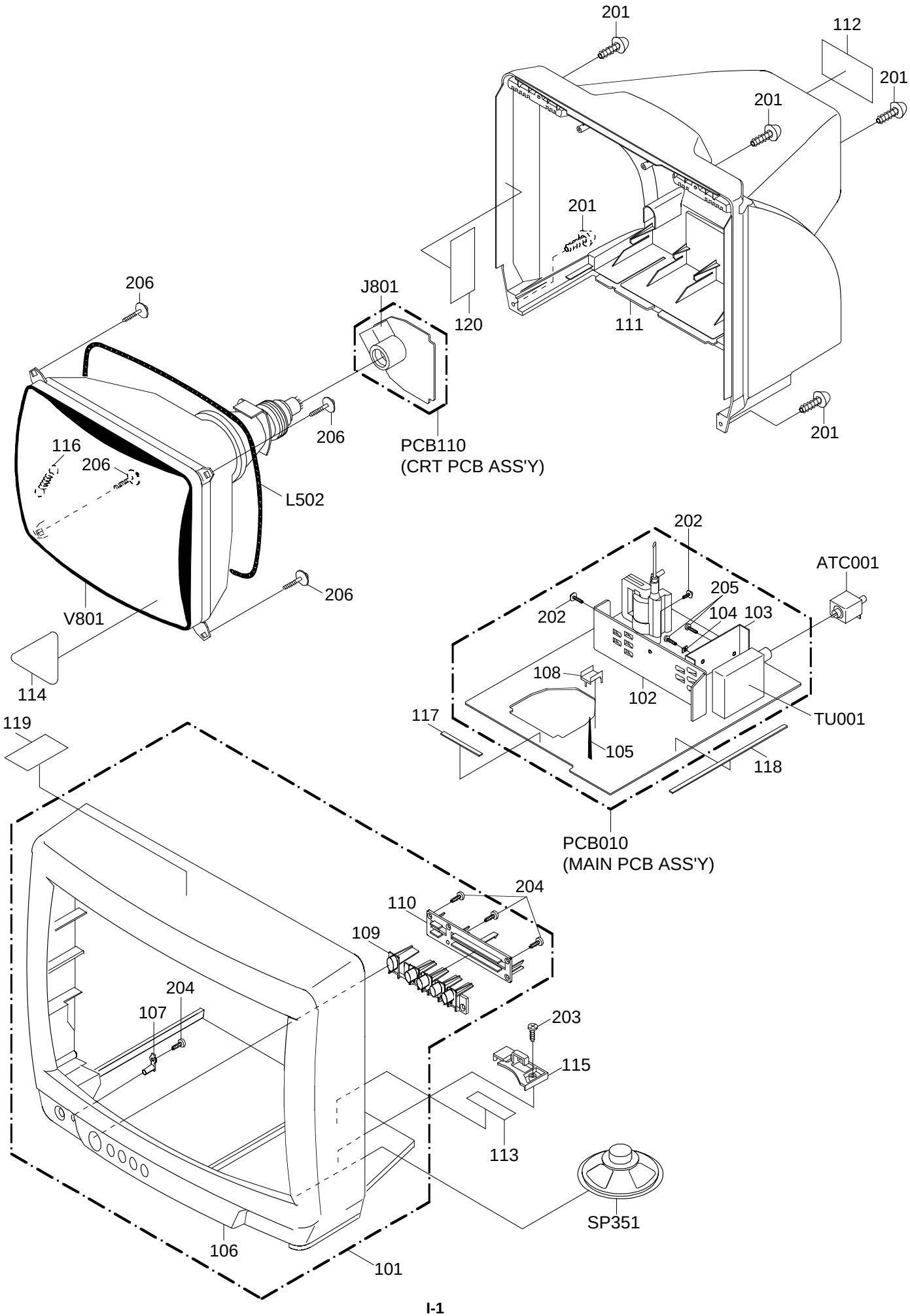
⑳ 2V. 20µs/div



㉕ 50V. 20µs/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	A3H202C720	CABINET,FRONT ASS'Y		
102	---	HEAT SINK		
103	---	HEAT SINK		
104	---	METAL SPACER		
105	---	COATING CLIP		
106	701WPJA543	CABINET,FRONT		
107	713WPA0090	GUIDE,REMOCON		
108	---	HEAT SINK		
109	735WPA0381	BUTTON,FRAME		
110	735WPA0382	BUTTON,HOLDER		
111	702WPA0535	CABINET,BACK		
112	722A08A031	SHEET,RATING		
113	7230006818	SHEET,CAUTION		
114	723000A930	FILM,DECORATION		
115	735WPA0396	SPEAKER,HOLDER		
116	741WUA0019	SPRING,EARTH		
117	800WQ00044	FELT SHEET		5x50xT0.5
118	800WQ00045	FELT SHEET		5x150xT0.5
119	722000A023	SHEET,HWC		
120	7220001059	SHEET,CSA WARNING		
201	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16
202	8117D30A04	SCREW,TAPPING (B0)	WH8 BRAZIER	3x10
203	8110630A24	SCREW,TAP TITE (P)	BRAZIER	3x12
204	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10
205	810A130804	SCREW/WASHER (A)		M3x8
206	8121J50B54	SCREW,TAPPING (B0)	GW20	5x28
---	JB5K0100	POLY BAG		
---	J3H20201	INSTRUCTION BOOK		
---	791WHA0023	LAMIFILM BAG		
---	792WHA0225	PACKAGE,TOP		
---	792WHA0226	PACKAGE,BOTTOM		
---	793WCDA568	GIFT BOX		

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS			
⚠ R177	R5Y2CF152J	R, CEMENT	1.5K OHM 10W
R363	R3X1812R2J	R, METAL OXIDE	2.2 OHM 1W
⚠ R401	R4X5T4104F	R, METAL	100K OHM 1/4W
⚠ R404	R903N8332J	RC	3.3K OHM 1/8W
⚠ R405	R4X5T4183F	R, METAL	18K OHM 1/4W
⚠ R406	R903N8152J	RC	1.5K OHM 1/8W
⚠ R407	R635821R5J	R, FUSE	1.5 OHM 1/2W
⚠ R408	R4X5T6103F	R, METAL	10K OHM 1/6W
⚠ R409	R4X5T6123F	R, METAL	12K OHM 1/6W
R416	R0L2U2010J	RC	1 OHM 1/2W
R417	R425T6113F	R, METAL	11K OHM 1/6W
R418	R425T6103F	R, METAL	10K OHM 1/6W
⚠ R429	R655812R7J	R, FUSE	2.7 OHM 1W
⚠ R443	R6550A4R7J	R, FUSE	4.7 OHM 2W
⚠ R447	R3X18A392J	R, METAL OXIDE	3.9K OHM 2W
⚠ R448	R3X18A332J	R, METAL OXIDE	3.3K OHM 2W
⚠ R449	R3X18A392J	R, METAL OXIDE	3.9K OHM 2W
R501	R21202105K	R, SOLID	1M OHM 1/2W
⚠ R502	R5Y2CE2R2J	R, CEMENT	2.2 OHM 7W
⚠ R506	R5Y2CH181J	R, CEMENT	180 OHM 20W
⚠ R507	R65584470J	R, FUSE	47 OHM 1/4W
⚠ R509	R4X5T6123F	R, METAL	12K OHM 1/6W
⚠ R515	R3X28B1R5J	R, METAL	1.5 OHM 3W
⚠ R606	R903N8103J	RC	10K OHM 1/8W
⚠ R614	R3X28B182J	R, METAL OXIDE	1.8K OHM 3W
⚠ R615	R3X28B182J	R, METAL OXIDE	1.8K OHM 3W
⚠ R649	R3X28B182J	R, METAL OXIDE	1.8K OHM 3W
⚠ R803	R3X18A153J	R, METAL OXIDE	15K OHM 2W
⚠ R805	R3X18A153J	R, METAL OXIDE	15K OHM 2W
⚠ R807	R3X18A153J	R, METAL OXIDE	15K OHM 2W
CAPACITORS			
⚠ C404	E02LT1471M	CE	470 UF 10V
⚠ C405	E02LT2471M	CE	470 UF 16V
⚠ C412	E02LT1471M	CE	470 UF 10V
⚠ C414	E02LT4101M	CE	100 UF 35V
C416	P3N1F2123J	CPP	0.012 UF 200V
⚠ C418	E02LF3102M	CE	1000 UF 25V
⚠ C433	E02LT4471M	CE	470 UF 35V
⚠ C434	E02LT8220M	CE	22 UF 100V
⚠ C437	P411F3474J	CMPP	0.47 UF 250V
⚠ C442	C01BBP7H2K	CC	220 PF 2KV BP
⚠ C443	P414F9472H	CMPP	0.0047 UF 1.6KV
⚠ C446	E02LTB010M	CE	1 UF 160V
⚠ C448	E02LT8220M	CE	22 UF 100V
⚠ C502	P2122B104M	CMP	0.1 UF 250V
⚠ C506	E02LFC221M	CE	220 UF 200V
C507	E02YFB101M	CE	100 UF 160V
⚠ C615	E50HU2220M	CE	22 UF 16V
C650	E0EE05100M	CE	10 UF 50V
DIODES			
D001	D94TA30013	DIODE, ZENER	HZ30-3L TD
D101	D1VT001330	DIODE, SILICON	1SS133T-77
D103	D97U05R61B	DIODE, ZENER	MTZJ5.6B T-77
D124	D9201150B1	DIODE, ZENER	RD15FB1
D125	D1VT024720	DIODE, SILICON	1S2472T-77
⚠ D126	D2BT0EM1C0	DIODE, SILICON	EM1C V1
D127	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
⚠ D401	D94TA27011	DIODE, ZENER	HZ27-1L TD
⚠ D402	D94TA11B11	DIODE, ZENER	HZ11B1L TD
D403	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
⚠ D404	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D407	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D408	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D410	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D411	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D422	D2BTAU02A0	DIODE, SILICON	AU02A V0
⚠ D501	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D502	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D503	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D504	D2BTRM11C0	DIODE, RECTIFIER	RM11C
D602	D1VT001330	DIODE, SILICON	1SS133T-77
D603	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D605	D94TA6RB12	DIODE, ZENER	HZ6B2L TD
D606	D1VT001330	DIODE, SILICON	1SS133T-77
D609	D1VT001330	DIODE, SILICON	1SS133T-77
D610	D1VT001330	DIODE, SILICON	1SS133T-77

REF. NO.	PART NO.	DESCRIPTION	
ICS			
IC101	I53F53039B	IC	OEC3039B
⚠ IC103	I1K998L050	IC	KIA78L05BP-AT
IC104	I9UJ0T600C	IC	PST600C
IC199	A3H201A015	IC	M24C01-BN6
⚠ IC201	I03FE76814	IC	LA76814M-MPB
⚠ IC351	I01DP75110	IC	AN7511
⚠ IC401	I03SD78400	IC	LA7840
⚠ IC402	I1KA978050	IC	KIA7805PI
⚠ IC501	I2B4901100	IC	STR30110
⚠ IC601	I1KJ98L090	IC	KIA78L09BP-AT
TRANSISTORS			
Q101	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)
Q102	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)
Q103	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)
Q104	TCST02001L	TRANSISTOR, SILICON	2SC2001(C)-T_L
⚠ Q401	TDUU025990	TRANSISTOR, SILICON	2SD2599(LBOEC1)
⚠ Q402	TC3T022710	TRANSISTOR, SILICON	2SC2271(D,E)-AE
Q602	TA5T010154	TRANSISTOR, SILICON	2SA1015Y(TPE2)
Q604	TA5T010154	TRANSISTOR, SILICON	2SA1015Y(TPE2)
Q605	TA5T010154	TRANSISTOR, SILICON	2SA1015Y(TPE2)
⚠ Q801	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)
⚠ Q802	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)
⚠ Q803	TCKT1473A0	TRANSISTOR, SILICON	2SC1473A-TA-(RQ)
COILS &TRANSFORMERS			
L201	021LA6100K	COIL	10 UH
L202	0216731R0K	COIL	1 UH
L205	0336020388	COIL, VIDEO IFT	3602038
L406	02186G180M	COIL	18 UH
⚠ L501	029K000074	COIL, LINE FILTER	9-000074
⚠ L502	028F140025	COIL, DEGAUSS	8F140025
L601	021LA6150K	COIL	15 UH
⚠ T351	045126001A	TR, SOUND OUT PUT	ETA24Z83AY
T401	03305Y002S	TRANS, HORIZONTALDRUVE	305Y002
JACKS			
J351	0602121012	JACK, RCA 3.5	HSJ1403-01-010
⚠ J801	066X120014	SOCKET, CRT	HPS3200-010501
SWITCHES			
SW101	0504201T31	SWITCH, TACT	SKHVBED010
SW102	0504201T31	SWITCH, TACT	SKHVBED010
SW103	0504201T31	SWITCH, TACT	SKHVBED010
SW104	0504201T31	SWITCH, TACT	SKHVBED010
SW105	0504201T31	SWITCH, TACT	SKHVBED010
P.C.BOARD ASSEMBLIES			
PCB010	A3H202C01A	PCB ASS'Y	TM8411B
PCB110	A3H202C11A	PCB ASS'Y	TC8270B
MISCELLANEOUS			
ANT001	125C108030	ANTENNA, ROD	HPAS-2S780
⚠ ATC001	0632400008	ANT, UNIT	NXC0032-010010
CD351	06CPU2015A	CORD, CONNECTOR	CPU2015A
⚠ CD501	120R614908	CORD, AC	0R614908
CD802	122E052503	CORD, JUMPER	2E052503
CD803	122E042302	CORD, JUMPER	2E042302
CF201	1022T45R71	FILTER, SAW	SAF45MFX220ZR
CP101	0694260139	CONNECTOR PCB SIDE	173979-6
CP351	0697U20029	CONNECTOR PCB SIDE	THL-P02P-A1
CP401	069X450029	CONNECTOR PCB SIDE	B05B-DVS
CP501	0697320039	CORD, UX CONNECTOR	THL-P03P-B1
CP502	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1
CP801	069W010030	CONNECTOR PCB SIDE	TBS-X01X-A1
CP802A	067R005019	WIRE HOLDER	51048-0510
CP802B	067R005019	WIRE HOLDER	51048-0510
CP803A	067R104019	WIRE HOLDER	51052-0400
CP803B	067R104019	WIRE HOLDER	51052-0400
CUS001	800WF00004	CUSHION-A	
⚠ F501	081PA04003	FUSE	233004-MB000
⚠ FB401	043214029F	TRANSFORMER, FLYBACK	3214029F
FH501	06710T0006	HOLDER, FUSE	EYF-52BC
FH502	06710T0006	HOLDER, FUSE	EYF-52BC
MS501	128B000018	SHEET	23MICA
OS101	077Q014003	REMOTE RECEIVER	PIC-28143SY-2
⚠ RY101	0560V20115	RELAY	ALKS321
⚠ SP351	070C132014	SPEAKER	811-08-194
⚠ TH501	DF20BG3R0Q	DEGAUSS ELEMENT	PTH451A100BG3R0Q
TM101	076R074150	TRANSMITTER	R25-1028
⚠ TU001	0145S00049	TUNER, UHF-VHF	ENV56D67G3
⚠ V801	098Y140497	COLOR PICTURE TUBE W/DY	A34JXV70X28N45
X101	100C32R803	CRYSTAL DSVT-200	32.768KHz
X601	100CT3R505	CRYSTAL HC-49 /C	3.579545MHz

ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

RC	CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M3H2-02C
O/R NO.	K983018