

TEAC[®]

CT-M201

Color Television

SERVICE MANUAL

Thanks for buying a TEAC. Read this manual carefully to get the best performance from this color television.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CONTENTS

Contents and Specifications.....	2
Safety Precautions.....	3
Servicing Precautions.....	4
Controls Location	6
Disassembly Instructions	7
Parts Location Diagram of Main Chassis	8
Adjustment Instructions.....	9
Circuit Description	14
Troubleshooting Guide	19
Block Diagram.....	24
Wiring Diagram	25
Terminal View of Semiconductor	26
Exploded View	27
Printed Circuit Board.....	29
Component Location Guide.....	31
Replacement Parts List.....	33
Circuit Diagram	

SPECIFICATIONS

Power Consumption.....	80W
Receiving TV System.....	CCIR Standard
Tuning.....	Voltage Synthesizer
Audio Output	MAX. 4W
Antenna Input Impedance	75 ohm IEC Type (300 ohm using balun supplied)
Picture Tube	A48KCS12XX 03S7BE
Speaker.....	C112PX-716K14
Dimension	492(W) x 462(D) x 458(H) mm
Weight	18.4 Kg

COLOUR RECEIVING SYSTEM		PAL-B/G
Intermediate Frequency	Picture	38.9 MHz
	Sound	33.4 MHz
	Colour	34.47MHz
Receiving Channel	VHF Low	2-4 CH, S ₁
	VHF High	5-12 CH, S ₂ -S ₂₅
	UHF	21-69 CH
Power Source		240V/50Hz

SAFETY PRECAUTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTIONS", "SAFETY INSTRUCTIONS" AND "PRODUCT SAFETY NOTICE" DESCRIBED BELOW.

X-RAY RADIATION PRECAUTIONS

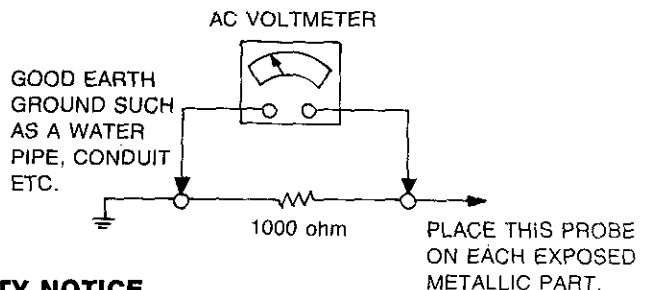
1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 24 ± 1.5 kV at High beam current (maximum brightness) under specified power source. The high voltage must not, under any circumstances, exceed 27.5 kV. Each time a receiver requires servicing, the high voltage should be checked. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some parts in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY INSTRUCTIONS

1. Potentials as high as 25,000—27,000 volts is present when this receiver is operating. Operation of the receiver outside the cabinet or with the back cover removed involves a shock hazard from the receiver.
 - (1) Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high-voltage equipment.
 - (2) Always discharge the picture tube anode to the CHASSIS GROUND to reduce the shock hazard before removing the anode cap.
 - (3) Perfectly discharge the high potential of the picture tube before handling.
(WARNING: Risk of implosion. Handle with care.)
2. If any Fuse in this TV receiver is blown, replace it with the FUSE specified in the chassis parts list only.
3. When replacing parts or circuit boards, wind the lead wires around terminals before soldering.
4. When replacing a high wattage resistor (oxide metal film resistor) in circuit board, keep the resistor 10 mm. away from circuit board.
5. Keep wires away from high voltage or high temperature components.
6. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts

of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts, etc., to be sure the set is safe to operate without danger of electrical shock. Since this TV has AVC (Automatic Voltage Control) circuit, it may be operated nonadjustably within the voltage-area indicated in the label attached at back cover. (Do not use a line isolation transformer during this check.) Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner.

Connect a 1000 ohm resistor between a known good earth ground, (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1000 ohm resistor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 1 volt RMS. This corresponds to 1 mA. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed without being noticed by a visual inspection and the X-RAY RADIATION protection afforded by some of them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified by Δ marks on the schematic diagram and the replacement parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create X-RAY RADIATION.

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication. **NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. *Remember: Safety First.*

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
 - d. Discharging the picture tube anode.
2. Test high voltage *only* by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc.) equipped with a suitable high voltage probe. *Do not test high voltage by "drawing an arc".*
3. Discharge the picture tube anode *only* by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
4. Do *not* spray chemicals on or near this receiver or any of its assemblies.
5. Unless specified otherwise in this service manual, clean electrical contacts *only* by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator: 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength).
CAUTION: *This is a flammable mixture.*
Unless specified otherwise in this service manual, lubrication of contacts is not required.
6. Do *not* defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
7. Do *not* apply AC power to this receiver and/or any of its electrical assemblies unless *all* solid-state device heat sinks are correctly installed.
8. Always connect the test receiver ground lead to the receiver chassis ground *before* connecting the test receiver positive lead
Always remove the test receiver ground lead *last*.
9. Use *with this receiver only* the test fixtures specified in this service manual.
CAUTION: Do *not* connect the test fixture ground strap to any heatsink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a *grounded-tip* soldering iron to solder or unsolder ES devices.
4. Use only an *anti-static* type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do *not* use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do *not* remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a *grounded-tip*, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
 - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F).
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.

- c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

CAUTION: Work quickly to avoid overheating the circuit board printed foil.

- d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Removal/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output Transistor Devices Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor and heat sink from the circuit board.
4. Insert new transistor in circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicularly to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and, if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of circuit board hollow stake.
2. Securely crimp leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board, to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board, causing the foil to separate from, or "lift-off", the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair defective copper pattern at IC connections, use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary.)
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the cut-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area, and clip off any excess jumper wire.

At Other Connections

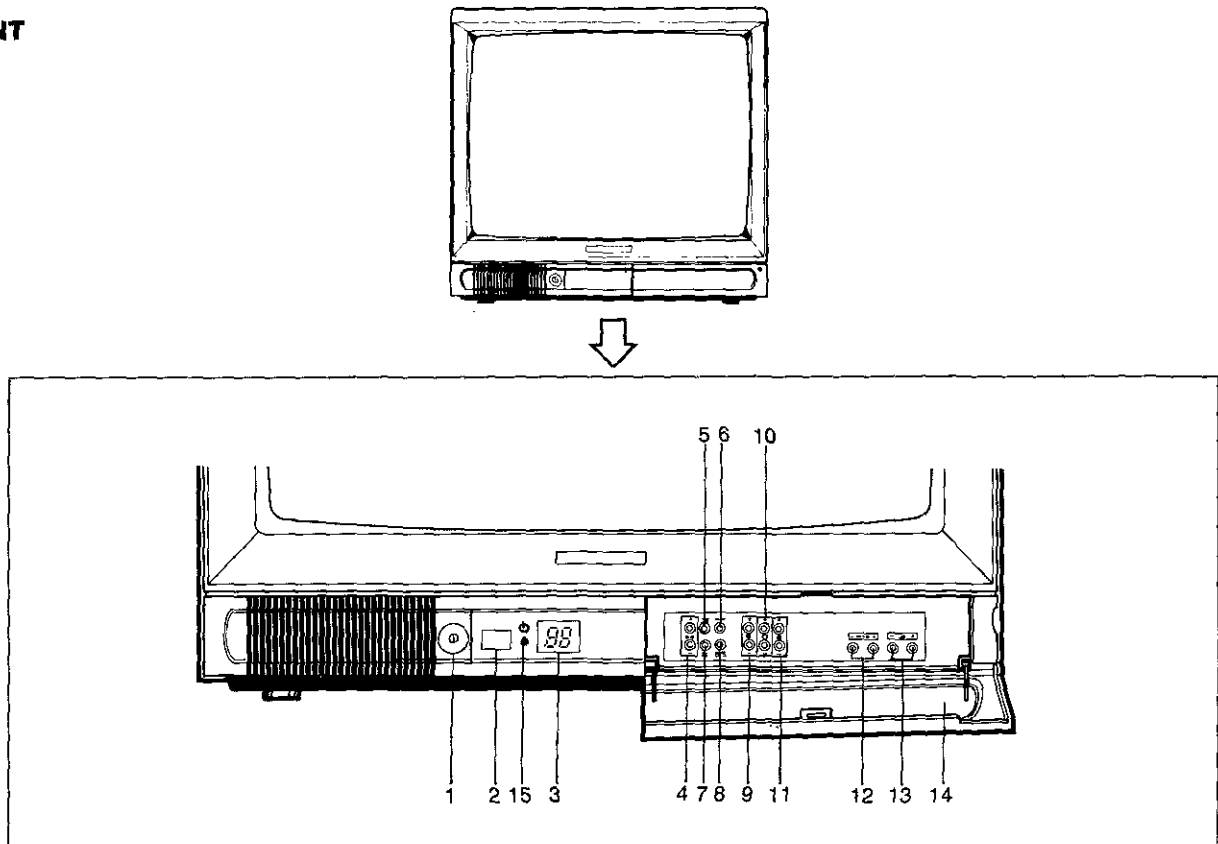
Use the following technique to repair defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

CAUTION: Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

CONTROLS LOCATION

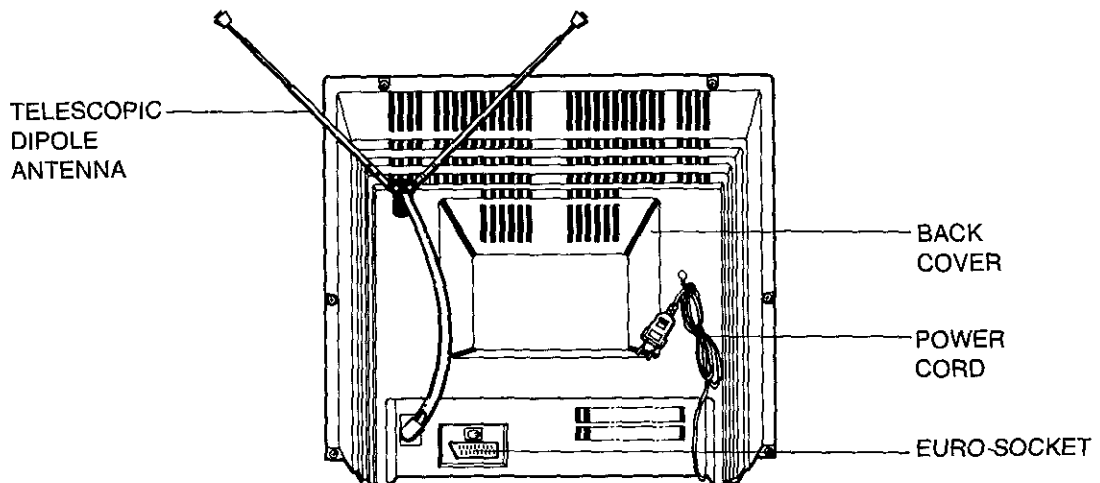
FRONT



- 1. POWER ON/OFF BUTTON
- 2. REMOTE CONTROL SENSOR
- 3. PROGRAM NUMBER INDICATOR
- 4. SEARCH UP/DOWN BUTTONS (MANUAL)
- 5. MUTE BUTTON
- 6. MEMORY BUTTON
- 7. NORMAL BUTTON
- 8. BAND SELECTION (only PAL-B/G, SECAM-D/K)

- 9. CONTRAST UP/DOWN BUTTONS
- 10. BRIGHTNESS UP/DOWN BUTTONS
- 11. COLOUR UP/DOWN BUTTONS
- 12. PROGRAM UP/DOWN BUTTONS
- 13. VOLUME UP/DOWN BUTTONS
- 14. CONTROL DOOR
- 15. STAND-BY LED

BACK



DISASSEMBLY INSTRUCTIONS

BACK CABINET REMOVAL

Remove 6 screws holding on back cabinet and carefully separate the back cabinet from the front cabinet.

MAIN CHASSIS REMOVAL

1. Remove a screw holding the main chassis.
2. Grasp both sides of main chassis, pull it backward.

SPEAKER ASSY REMOVAL

1. Remove PS01 connector between the speaker and the main chassis.
2. Pull out the speaker assy from the front cabinet.

CPT REMOVAL

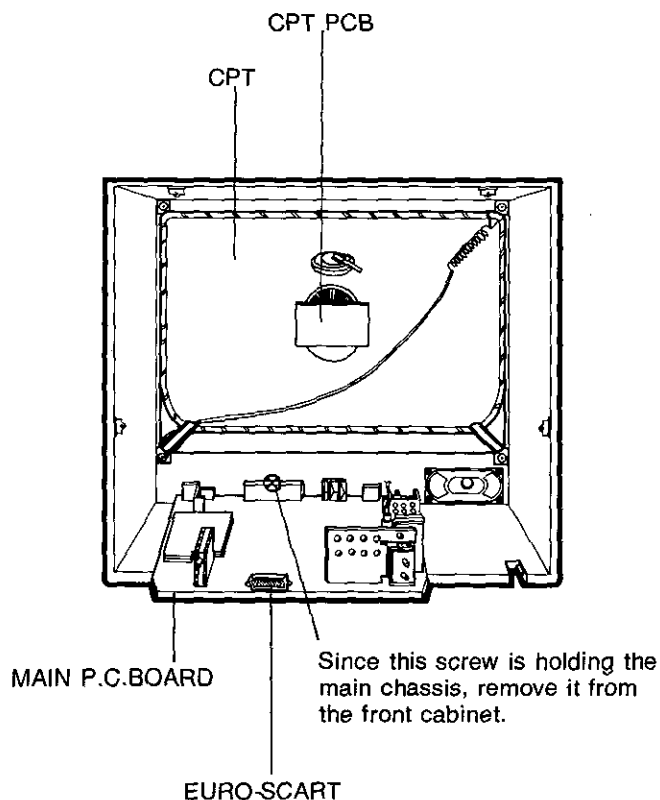
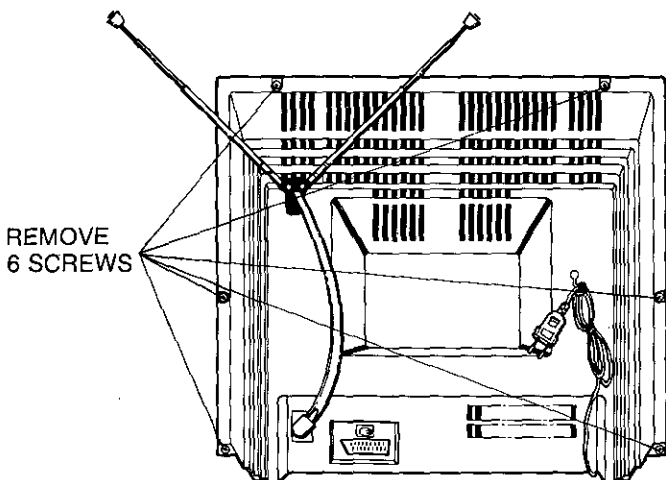
1. Pull out the CPT board from CPT neck.
2. Place the front cabinet on soft material so as not to mar the front surface or damage the control knobs.
3. Remove 4 nuts securing the picture tube mounting brackets to the front cabinet.
4. Carefully separate the CPT from the cabinet front.

PICTURE TUBE HANDLING CAUTION

Due to the high vacuum and large surface area of the picture tube, great care must be exercised when handling the picture tube.

Always lift the picture tube by grasping it firmly around faceplate.

NEVER LIFT TUBE BY ITS NECK. The picture tube must not be scratched or subjected to excessive pressure as the fracture of glass may result in an implosion of considerable violence which can cause personal injury or property damage.



ADJUSTMENT INSTRUCTIONS

1. APPLICATION SPHERE

This instruction applies to all the kinds of the colour television with PC91A chassis.

2. SPECIFICATION

1) Circumference Condition

If there is no particular guidance, adjust PC91A chassis as follows.

- Appropriate Temperature: $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- Relative Humidity: $65\% \pm 5\%$

2) Necessary Instruments

- DC Power Supplier 0-20V/1A: 2EA

- Sweep Generator and Marker Unit of Each System
- Alignment Scope
- DC Voltmeter (High Impedance)
- PM5518 (PHILIPS PATTERN GENERATOR)
- Frequency Counter

3) Signal

- In this case, standard colour signal means GoldStar standard digital signal (PM5544 DIGITAL)

4) Power Source (Receiver Operation)

AC 180V-270V., 60/50Hz.

3. VIF ALIGNMENT PROCEDURE

1) Connecting Block Diagram of Equipment

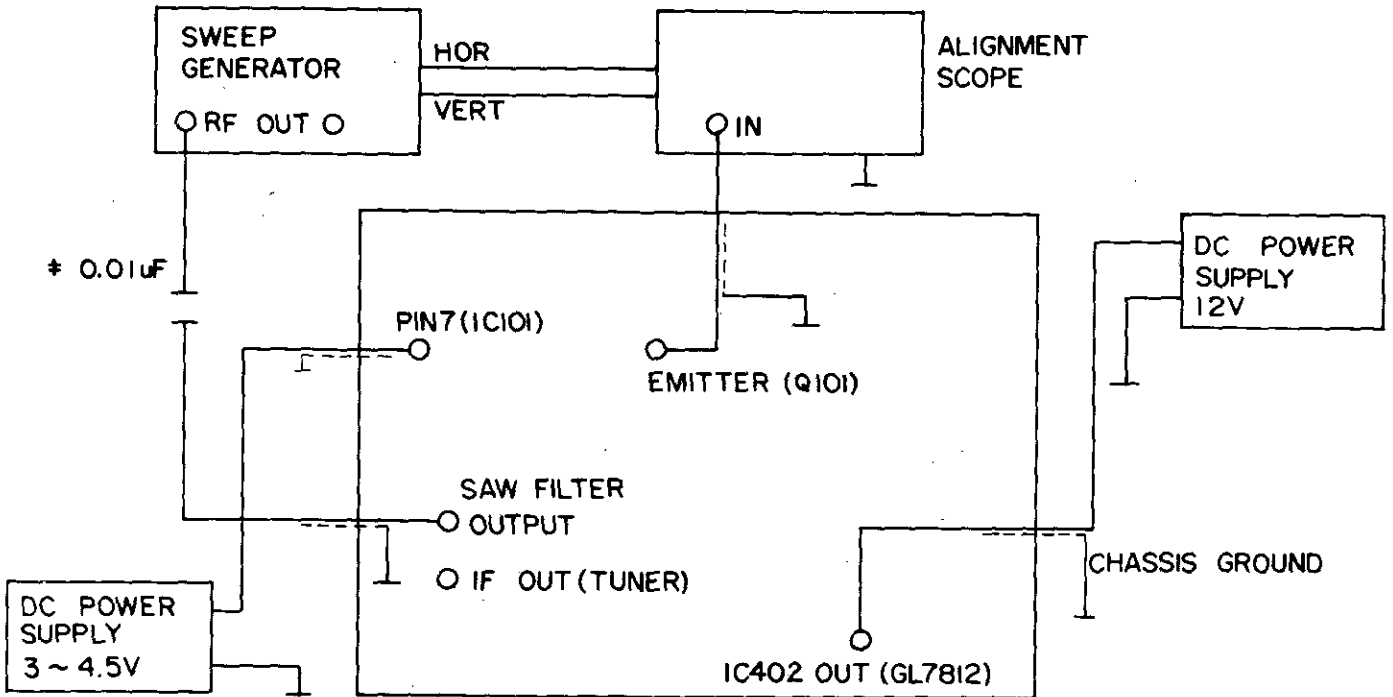


Figure 1

* Connect Ceramic Capacitor (0.01uF) between RF-OUT terminal of the Sweep Generator and Out terminal of Saw Filter as shown in figure 1.

2) VIF Detection Coil Alignment

- Connect the equipment to the main board as shown in figure 1, and then turn the DC power supplier on.

- Adjust L102 ((Detection Special Quality Adjustment Coil) on the main board in order to minimize the Picture Carrier Mark as shown in figure 2 (For Mark Frequency of Each System, refer to the below note (*)).

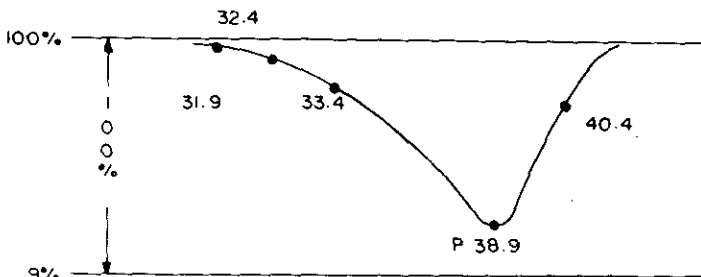


Figure 2

* Each frequency carrier of system

PAL B/G:	38.9 MHz
PAL I:	39.5 MHz
PAL II:	39.5 MHz
PAL/SECAM B/G:	38.9 MHz
PAL B/G + SECAM D/K:	38.0 MHz

4. ASC (40.4 MHz) ALIGNMENT PROCEDURE (L162)

- 1) This alignment is only applicable to the model with ASC TRAP for FTZ.
- 2) Do connecting Block Diagram of Equipments as shown in figure 1, but connect RF-OUT terminal of the sweep Generator to IF-OUTPUT terminal of the TUNER on the Main PCB.
- 3) Turn L162 counterclockwise so that it may appear to maximum, and then adjust it clockwise slowly.
NOTE: You have to use this adjustment after C168 and AFT terminal of the tuner open (SLIT1, SLIT3).
- 4) After setting output of sweep GENERATOR to maximum, apply about 5V to IF AGC voltage of pin7 (IC101) so that waveform may be distinguished L162 in the saturated state.
- 5) Adjust L162 so that 40.4 MHz Point may be minimum.

5. AFT ALIGNMENT PROCEDURE

NOTE) AFT alignment must be acted with C168 and AFT Terminal of TUNER open (SLIT1, SLIT3)

- 1) Connecting Block Diagram of Equipments for AFT is the same procedure as that for VIF, but change Connection Position of Alignment scope from Emitter of Q101 to AFT Terminal of TUNER.
- 2) Set Vertical Gain of the Scope to 1Vp-p/div and set the Sweep Generator Output to a low state possibly.
- 3) Adjust L103 so that AFT adjustment waveform may be as shown in figure 3.
- 4) After finishing adjustment, connect C168 and AFT terminal of the TUNER to SLIT 1 and SLIT 3.

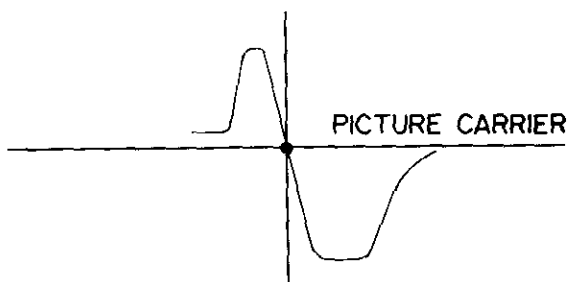


Figure 3 (AFT Alignment Waveform)

6. MAIN B + (112V DC) ALIGNMENT

- 1) Put the set in motion normally.
- 2) Receive the standard colour signal.
- 3) Set the position of the colour, bright, contrast to maximum.
- 4) Adjust the VR801 so that the voltage of TP1(J1) may be 112V.

7. HORIZONTAL SYNCHRONIZATION (HOR. OSC ALIGNMENT)

- 1) Let the FUBK TEST PATTERN send to the TUNER ANTENNA.
- 2) Connect the SYNC. SEPARATION INPUT SIGNAL to the GROUND. (Connect pin 5 of IC401 to GROUND)
- 3) Adjust VR402 so that a screen may be maintained in a horizontal and vertical direction.
- 4) Remove the pin 5 connection of IC401 to GROUND

8. HORIZONTAL CENTER ALIGNMENT (HOR. SHIFT ALIGNMENT)

- 1) Receive the FUBK TEST PATTERN.
- 2) Adjust the VR401 so that the center of a screen may be adjusted.

9. VERTICAL AMPLITUDE AND LINEARITY ALIGNMENT (VERT. HEIGHT AND LINEARITY ALIGNMENT)

- 1) When brightness of a screen is maximum by receiving the FUBK test pattern, adjust VR302 so that the outline signal of upper and lower parts of great circle on screen may coincide with the edge of an effective CPT screen.
- 2) Again, change the signal into DIGITAL PATTERN, and adjust VR301 so that the length of upper and lower of the great circle may be equal.

10. VERTICAL CENTER ALIGNMENT

- 1) Adjust the SW301 (VERT. CENTER SVC. SW) so that the center of the pattern coincide with the center of an effective CPT screen vertically.

11. COLOUR SYNCHRONIZATION ALIGNMENT

- 1) Receive the standard COLOUR BAR signal.
- 2) Set the contrast, brightness and colour VR to maximum.
- 3) Connect the colour saturation terminal (PIN 6 of IC501) to 12V.
- 4) Short the pin 21 (B-Y) and the pin 22 (R-Y) of IC501. (Short between TP7 and TP8.)
- 5) Adjust the TC501 so that the colour bars may not appear.
- 6) After finishing adjustment, remove the connection of item 3) and 4).

12. PAL MATRIX ALIGNMENT

- 1) Set the contrast, brightness and colour VR to maximum
- 2) Receive DEM. PATTERN
- 3) Connect SCOPE to B-OUT (The pin 16 of IC501).
- 4) Adjust VR502 to obtain a minimum fluctuation (A straight line) as shown in figure 4-1.

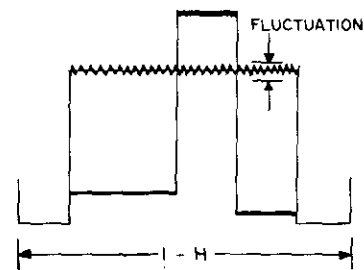


Figure 4-1 VR502 Alignment

- 5) Adjust L502 to obtain a minimum fluctuation as shown in figure 4-2 after changing PATTERN into the COLOUR BAR signal.

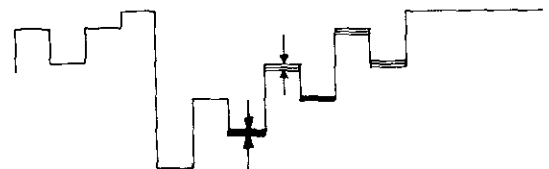


Figure 4-2 L502 Alignment

- 6) Repeat above item 4), 5) again.

13. RF AGC ALIGNMENT

- 1) Receive the standard colour signal ($60\text{dB} \pm 1\text{dB}$).
- 2) Connect DIGITAL MULTIMETER to AGC Terminal of TUNER.
- 3) Refer to a below diagram, and then adjust VR101.

TUNER SYSTEM	B/G-D/K	I	I-I	H
SHARP	$5.5 \pm 0.1\text{dc}$	X	X	
APLS	$4.5 \pm 0.1\text{dc}$	$4.5 \pm 0.1\text{dc}$	$4.0 \pm 0.1\text{dc}$	$6.0 \pm 0.1\text{dc}$

14. SCREEN AND WHITE BALANCE ALIGNMENT

- 1) Set the colour, brightness and contrast control to minimum.
- 2) Set the BIAS ALIGNMENT VR on the CPT board to minimum and the DRIVE ALIGNMENT VR(904-905) to the mechanical center position.
- 3) Receive the standard pattern.
- 4) SHORT between TP2 and TP3 to remove the vertical deflection and adjust SCREEN VR to obtain horizontal line on screen. And then, control BIAS VR so that WHITE BAR appears.
- 5) Adjust the screen so that the value of SCREEN VR may be lower and WHITE BAR almost disappear.
- 6) Remove the short between TP2 and TP3, adjust the drive control VR(VR904, 905) in the high light state to get white balance.
- 7) After adjusting the contrast, brightness control VR, continue to control the low light and high light until white remains.
- 8) Adjust $8000\text{K} \pm 800\text{K}$ ($X = 296 \pm 8$, $Y = 306 \pm 8$) to control colour analyzer.

15. FOCUS ALIGNMENT

- 1) Receive the standard DIGITAL PATTERN, and then set the colour, brightness and control to maximum.
- 2) Adjust slowly the FOCUS control on the FBT so that the HALO phenomenon may not appear around center and letter.

16. SECAM BOARD ALIGNMENT (ONLY SECAM)

- 1) SECAM BELL FILTER ALIGNMENT
 - (1) Receive SECAM COLOUR BAR PATTERN.
 - (2) Connect LOW CAPACITANCE PROBE to pin 3 of IC601.
 - (3) Adjust L601 to maximize and flatten the waveform.
 - (4) In case of not using FET PROBE, perform above adjustment (number 1 to 3) by the GS standard SECAM SIGNAL so that the COLOUR of 3.8 MHz portion may be red and minimize the colour of the COLOUR BAR MAGENTA on the shadow of LEVEL BAR boundary.
- 2) SECAM REFERENCE COIL ALIGNMENT.
 - (1) Connect OSCILLOSCOPE PROBE to pin 9 (J63) of IC601.
 - (2) Adjust L605 to minimize ① portion of waveform A and then change it into DIGITAL PATTERN to adjust the colour by maked eyes.

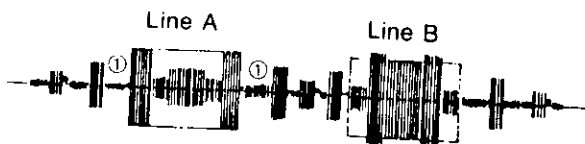


Figure 5

2) SECAM COLOUR SYNC ALIGNMENT (4.43 MHz OSC ALIGNMENT)

- (1) After fishing the PAL DECODER COLOUR SYNC alignment, adjust it.
- (2) Receive the Standard SECAM COLOUR BAR when item 2) and 4) of Colour Synchronization Alignment is acted.
- (3) Adjust TC601 so that the colour bar doesn't flow down.
- (4) Remove the connection item 2) and 4).

3) 1H-DELAY LINE ALIGNMENT

- (1) Send the SECAM COLOUR BAR SIGNAL to the antenna and adjust colour +/- so that colour level may be the mechanical center set.
- (2) Connect oscilloscope probe to pin 6 of the IC501.
- (3) Adjust VR601 to waveform A in figure 6.
- (4) Adjust L603 to minimum fluctuation as shown in figure 6.



Figure 6

17. SOUND CONVERTER (5.5 MHz/6.5 MHz) ALIGNMENT (only SECAM-D/K)

- 1) Open SLIT2.
- 2) Connect Frequency Counter to Cathode of D151. (In this case, be sure to use OSCILLOSCOPE PROBE (10:1) in connection)
- 3) Adjust Coil (L151) so that the Value of Frequency Counter may be $500 \pm 0.1\text{ KHz}$.
- 4) After finishing alignment, short SLIT2.

PURITY AND CONVERGENCE ADJUSTMENT

CAUTION: Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity and convergence. Convergence magnet assembly and rubber wedges need mechanical positioning following the figure 7. Before attempting any convergence adjustments this receiver should be operated for at least fifteen minutes. If adjustment is required the adjustments should be made in the following sequence.

COLOUR PURITY ADJUSTMENT

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Turn the CONTRAST and BRIGHTNESS controls to maximum.
3. Select the purity pattern consisted of green only on the pattern generator.
4. Loosen the clamp screw holding the yoke, and slide the yoke backward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 8) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically.
7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check purity of the red and blue rasters by selecting the purity pattern of pattern generator.
9. Obtain a white raster, referring to "WHITE BALANCE ADJUSTMENT".
10. Proceed with convergence adjustment.

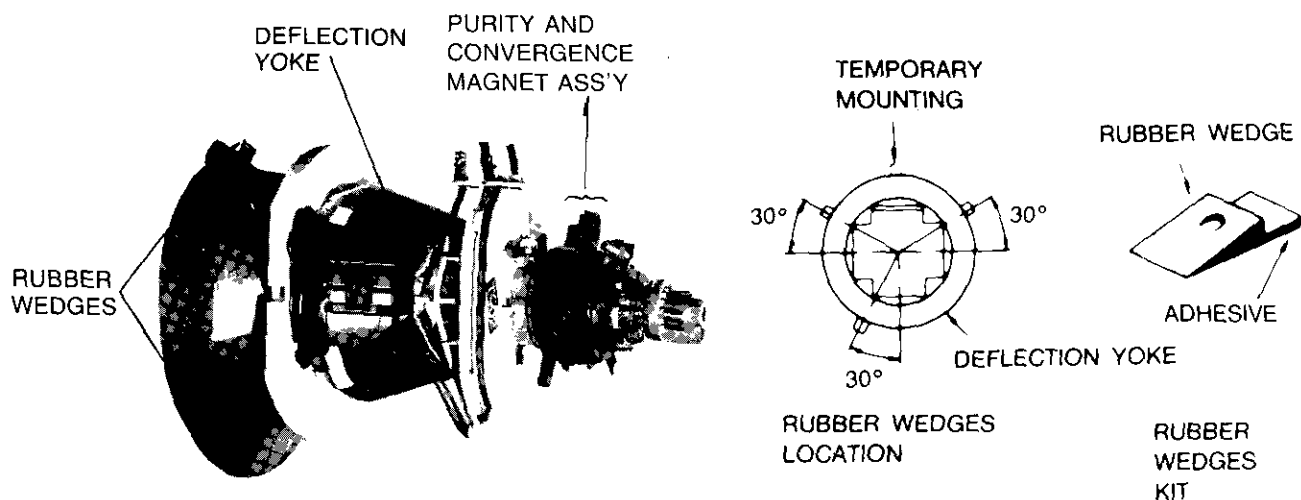


Figure 7

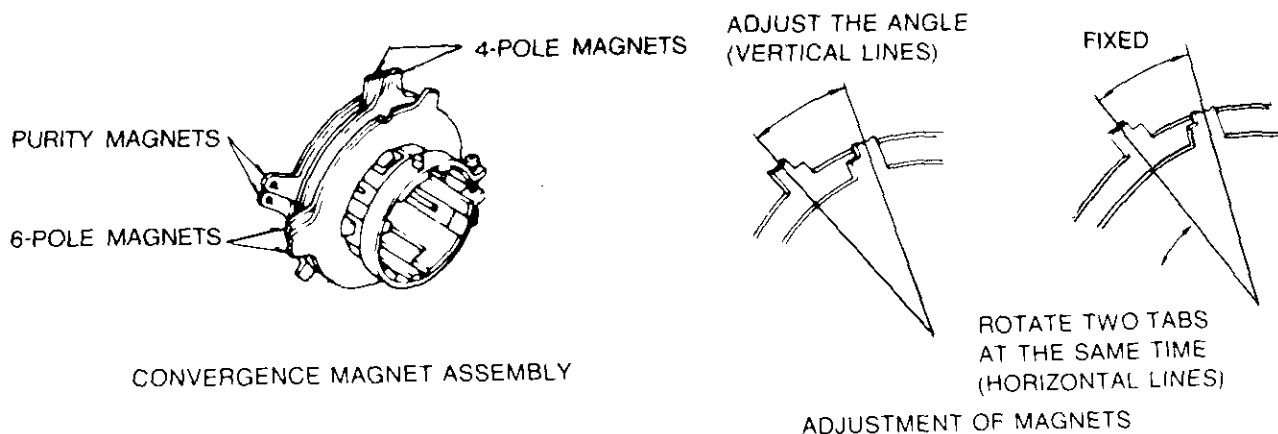


Figure 8

CENTER CONVERGENCE ADJUSTMENT

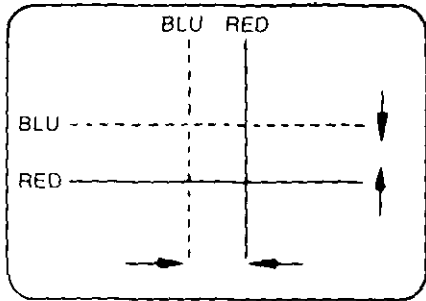
1. Receive crosshatch pattern with a colour bar signal generator.
2. Adjust the BRIGHTNESS and CONTRAST controls for well defined pattern.
3. Adjust two tabs of the 4-pole magnets to change the angle between them (See figure 8) and superimpose the red and blue vertical lines in the center area of the picture screen. (See figure 9.)
4. Turn both tabs at the same time keeping their angles constant to superimpose red and blue horizontal lines at the center of the screen. (See figure 9)
5. Adjust two tabs of 6-pole magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical

lines and rotating both magnets affects the horizontal lines.

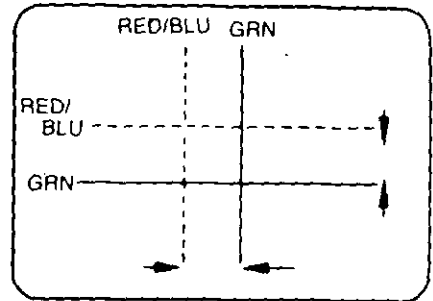
6. Repeat adjustments 1,2,3, keeping in mind red, green and blue movements, because 4-Pole magnets and 6-Pole magnets interact and make dot movement complex.

CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of DY to allow the yoke to tilt.
2. Adjust DY to obtain a better convergence in the circumference by orbital movement of the front of the yoke, then secure the DY in appropriate position by placing the wedges as illustrates in figure 7. Tighten screw holding the DY. Stick 3 adhesive tapes on wedges as shown in figure 7.

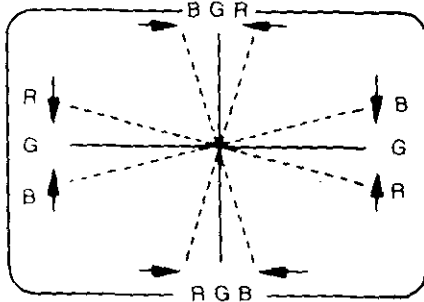


4-Pole Magnets Movement

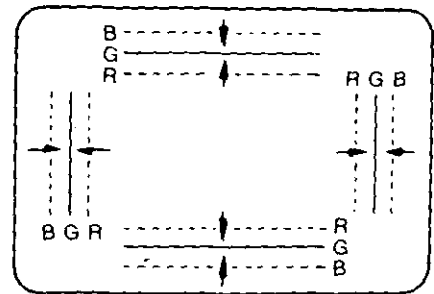


6-Pole Magnets Movement

Center Convergence by Convergence Magnets



Incline the Yoke up (or down)



Incline the Yoke right (or left)

Circumference Convergence by Deflection Yoke

Figure 9 DOT MOVEMENT PATTERN

CIRCUIT DESCRIPTIONS

VIDEO SIGNAL SYSTEM CIRCUIT

Video Signal System contains Tuner, Video IF AMP., Video DET., Video AMP., AGC Circuit and AFT Circuit. In this chassis, all functions except Tuner are performed within IC101 (GL3120A/LA7520).

Video DET, Video IF AMP, Circuit and Video AMP, Circuit

All functions are performed in IC101. The schematic diagram is below.

GL3120A/LA7520 used in this Chassis is a large-scale integrator which contains the VIF stage, SIF stage and Sound stage, and reduces 5.5(PAL 4: 6.0, SECAM D/K: 6.5)MHz Beat.

At the same time, GL3120A/LA7520(IC101) improves the sound quality and the picture quality compared with a conventional chassis as a result of detecting the sound in Quadrature DET. Circuit.

Video/Sound (5.5MHz, D/K: 6.5 MHz, PAL-I: 6.0MHz) DET. Circuit

The IF signal which is fed to IC101 is amplified in the IF AMP circuit, and detected in the SIF DET. circuit, so it creates the 5.5(PAL-I: 6.0, SECAM D/K: 6.5) MHz SIF signal.

Also, after the amplified signal passes the Buffer Circuit, and creates the Video signal, detected in the DET. circuit.

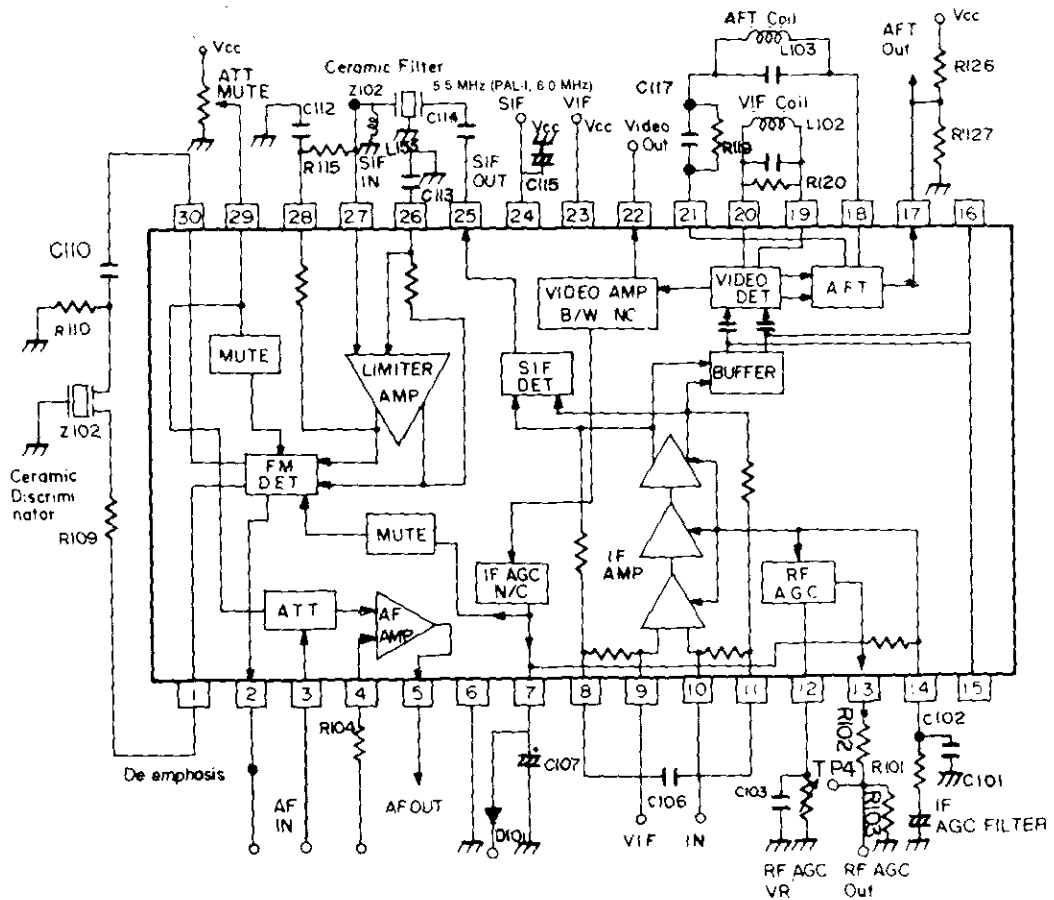
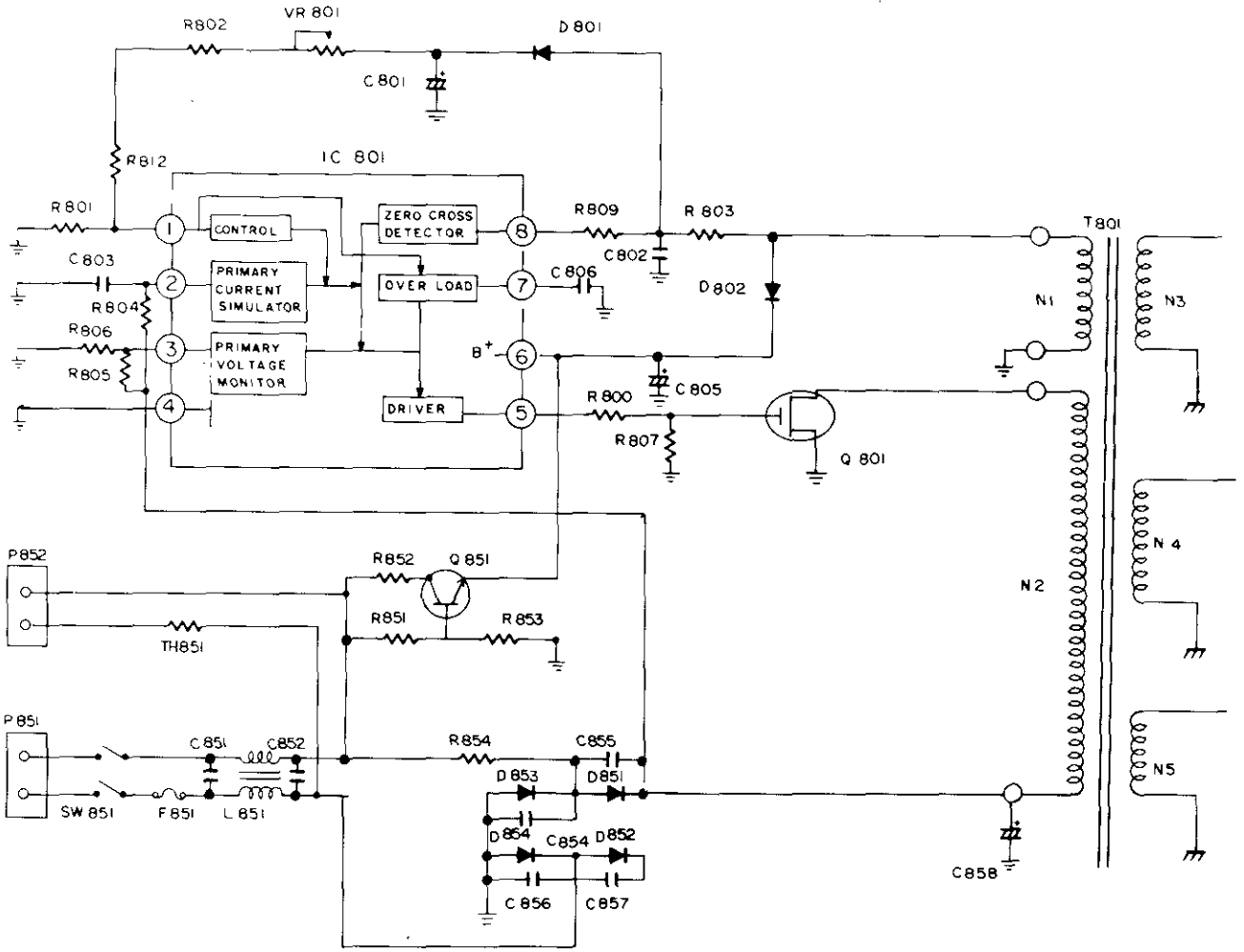


Figure 10 Schematic Diagram of IC101 (GL3120A/LA7520)

Pin Function Chart of IC101 (GL3120A/LA7520)

Pin No.	Description
1, 30	FM detector, pin 1 and 30, uses the quadrature detection circuit. After the signal, with its amplitude limited by the limit Amp, is output from pin 1 and 90° shifted by the phase shifter, it is input at pin 30.
2	Quadrature detected signal is output at pin 2 through emitter follower.
3	DC VR input terminal pin 3 attenuates the audio signal.
4	The sound Amp. NFB (Negative Feed-back) terminal.
5	The sound output terminal.
6	The ground terminal, and is connected to the ground of the SAW filter.
7, 14	IF AGC Filter terminals (PIN 7), RF AGC Filter terminal (PIN 14). Pin 7 is also used as the video and audio mute terminal.
8, 11	By-pass AC signal contained in VIF Amp signal.
9, 10	VIF input terminals.
12	The RF AGC VR (Variable Resistor) terminal. VR101 is connected as the RF AGC VR.
13	The output of RF AGC. When the RF AGC voltage is below 9 V, R102 and R103 divide the Resistance and C104 is necessary to stop the oscillator.
15, 16	
17	The AFT DC voltage from pin 17 is varied by R126 and R127.
18, 21	AFT circuit is the quadrature detection circuit and is connected between the pin 18 and pin 21.
19, 20	The carrier element is taken out from the LC tank circuit through pins 19 and 20.
22	The video output terminal.
23, 24	These are the supply voltage input terminals. Pin 23 = VIF block Pin 24 = SIF block
25	The SIF primary detection output terminal.
26, 27, 28	Pins 26 and 28 are by-pass ground terminals. Pin 27 is the unbalanced input terminal.
29	The mute & sound volume control terminal.

POWER SUPPLY



Start Up

If you turn the switch on, the voltage generated by R851 and R853 inputs the BASE of the Q851 for a half period of the upper side frequency wave which corresponds with 50Hz. If that happens, about 8 volts is generated in the emitter of Q851. After all, this voltage input the pin 6 of the IC801 to turn it on. And then, the DC 12—18 volts rectified by the D802 and C805 input the pin 6 continuously. At last the IC801 operates normally.

Normal Operation

The square wave output power which make the Q801 on and off flows out of the pin 5. Also, the sources generated by the load variation are detected from the wire wound (N1). The detected variation sources which is commuted with the D801 and the C801 input the voltage to the pin 1. The pin 1, 2 and the pin 3 have the function assisting the control operation. And adjusting VR801 makes the secondary output voltage controlled.

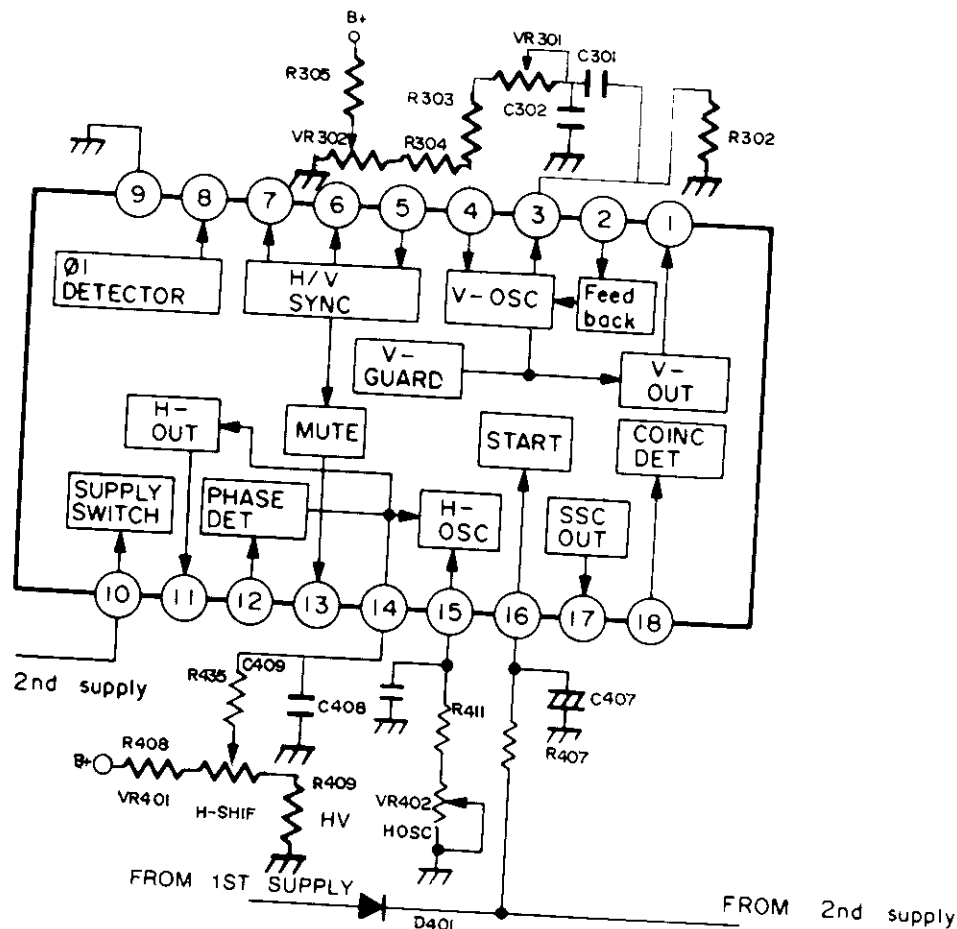
Over Load Operation

The maximum COLLECTOR current is decided by the pin 1 and the pin 6 of the IC801. If the secondary load is too exceeded, the decrease of voltage generated from N1 makes voltage of the pin 6 and the pin 1 of IC801 decrease and output pulse width of pin 5 extremely.

High Voltage Protection

This is decided by voltage of the pin 1 and the pin 6. If the secondary voltage increase above the fixed voltage, the voltage of N1 increase. When this voltage is above 15V, the motion of pin 5 output will stop.

H/V DEFLECTION



Start Up

If you turn the switch on, the output power of the 17 volts in the part of electric power source flow into the pin 16 of the IC401 through the D807. Therefore, the IC401 begins oscillating and its output-power flows from the pin 11. In the result, the horizontal output-power of TR. Q401 is driven, and the second voltages from the FBT to the D403 and D404 are commutated. The 12 volts through the constant voltages, are input to the pin 10 of the IC401 and perform the IC401 in normal motion. On the other hand, when the 2nd supply are input to the pin 16 of the IC401. By cutting off an end of the D807, separate the part of electric power from the first voltage.

Vertical Section

The pin 3 and the pin 4 perform their duties of oscillating SAW-TOOTH WAVE. That is to say, the pin 4 makes the NFB (negative feed back) information which the pin 2 generates though the vertical output-power circuit overlap C301 and C302 of the pin 3 and corrects a verticality. The pin 1 is a vertical output-power terminal. The sources of the vertical saw-tooth-wave is finished to the vertical output circuit through this terminal.

Horizontal OSC and Phase Shift

The Oscillation signal, which is generated by C408, R411 and VR402 connecting to the pin 15, makes the horizontal syn-

chronizing signal which is detected by the pin 6, pin 7 and pin 8 among the image signals from the pin 5 compared with a part of vertical output-power signal from the pin 12. And than the last signal output-power generated. In that case, the phase is shifted by C408 and VR401 connecting to the pin 14.

A/V MODE

If you make the pin 18 low through R414, the movement of 2 DETECTOR flows FAST mode so that it is LOCKING and VCR mode.

Therefore, when Audio/Video is selected by R414, D402 and the HIGH LEVEL is applied to the pin 8 connecting to Peri Plug, VCR mode is selected.

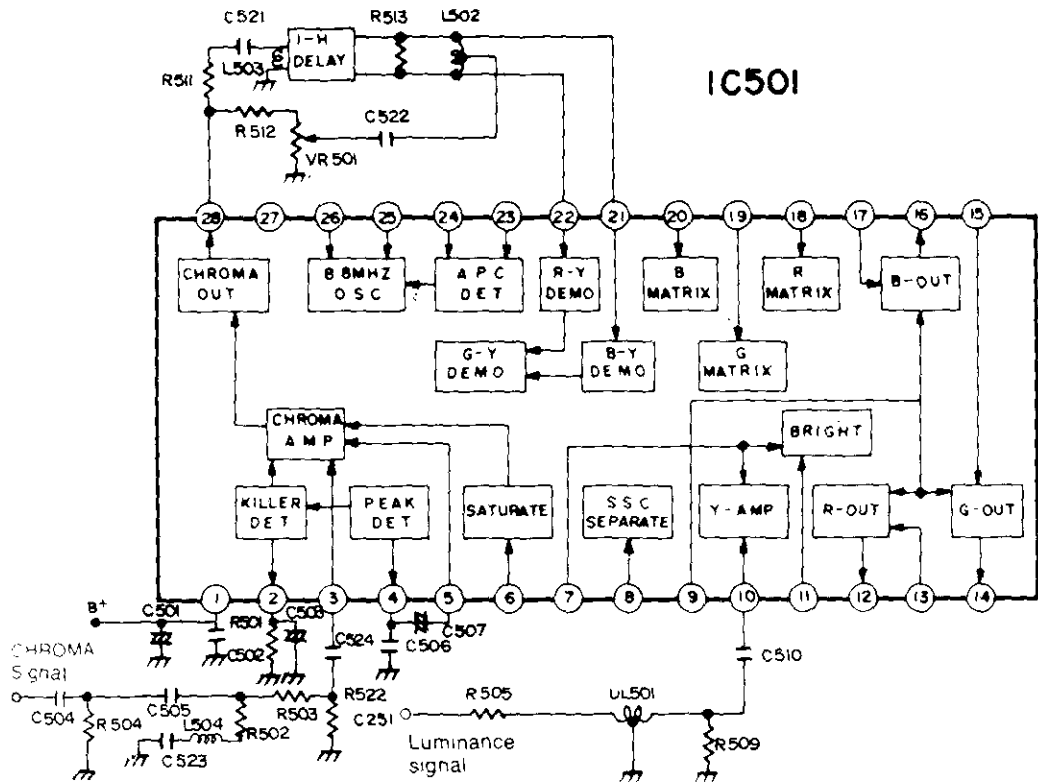
Sand Castle

The Output of three level sand castle from the pin 17 of IC401 flows into the pin 8 of IC501 (PAL Chroma IC), and pin 4, 19 of IC601 (SECAM chroma IC).

Synchronization Separation and Slice Level

R405 and R406 connecting to the pin 5 determine the value of direct voltage and fix slice level and select the horizontal synchronization signal among the image signals or negative going synchronization pulse inputting the pin 5.

CHROMA & LUMINANCE



Chroma Path

First, the CHROMA signal flows from B.P.F. Circuit into the pin 3 to be amplified, and then it flows into the second amplifier to do about 4 Vp-p. The amplifier signal which is in output from the pin 28 is divided into two groups. One flows from R511, C521 into 1H-Delay Line, the other from R512, VR501 and C522 into mid-tap of L502.

At L502, two kinds of signal, which flows from 1-H delay and not, is vectored and adjusted, so that R-Y (u) signal is divided into B-Y (u) and B-Y (V).

Each of the signals is demodulated inside the pins 21, 22. G-Y is generated by R-Y and B-Y.

In course of demodulation, colour system is a Carrier Wave Suppression, therefore the pins 25, 26 oscillate to 8.86 MHz to reconstitute a carrier wave.

The DC voltage which the Colour Burst of the pins 23, 24 generates flow into oscillator for 8.86 MHz and adjust the oscillating frequency and the false image so that they may coincide with original signal.

After the 8.86 MHz which is generated in this way decrease by half, R-Y and B-Y flow into G-Y demodulator in order to generate a complete demodulation. On the other hand, the pin 2 discharges its duty of controlling the first amplifier of an outcome so that colour killer does not generate colour noise during receiving black and white signal or in electric field less than 35 dBm.

That is to say, the pin 4 detects the colour Burst and makes it generate DC voltage, which is supplied and controlled on the pin 2, and kills the DC voltage of the pin 2 less than 3 V. The pin 6 is a saturation control circuit.

Luminance Path

As much as chroma path needs to perform chroma signal, DL501 delays Luminance signal about 380 ns., and then this flows into the pin 10 through C510 and control contrast, brightness with the pin 7 and the pin 11 to be supplied for each of R, G, B matrix circuit.

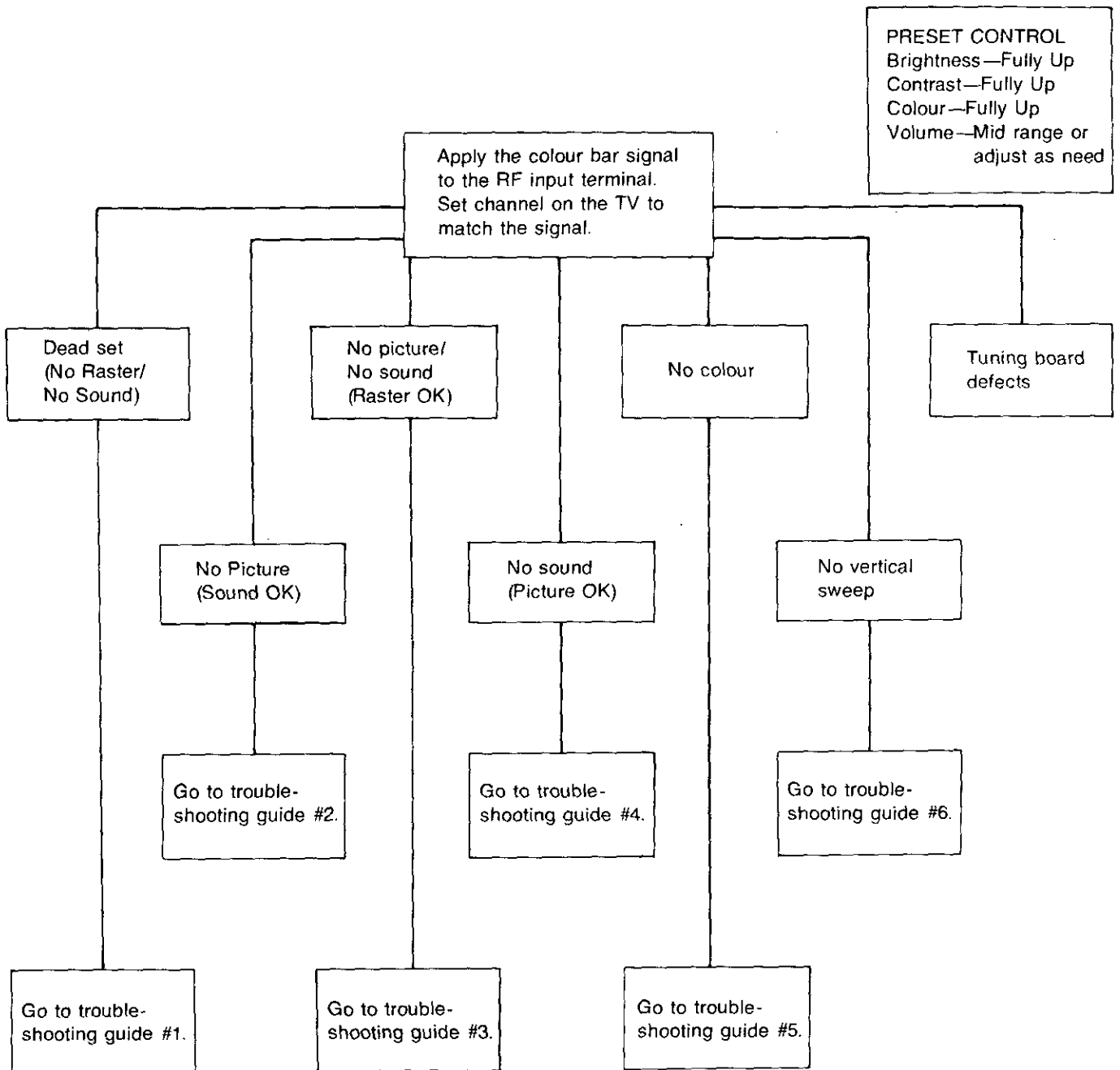
luminance signal supplied on the pin 10 is commonly only 0.5 Vp-p.

R.G.B. Data Input

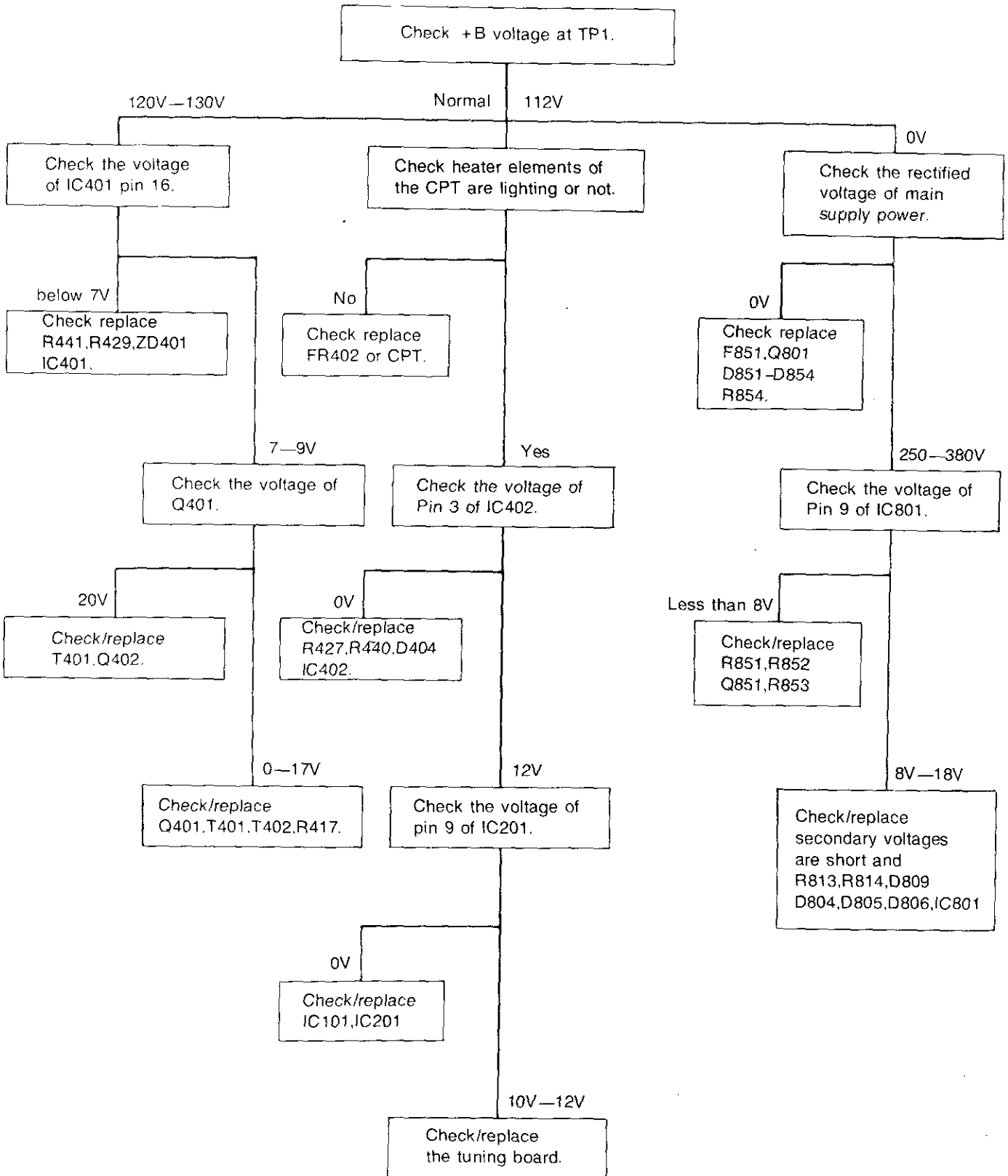
When the DC voltage of the pin 9 remains 1-3 V, IC501 is converted into it in data input and when each of R.G.B. signals flows into the pins 13, 15, 17, each signal is in output at the pins 12, 14, 16.

In case that DC voltage of the pin 9 remains less than 0.4 V, normal state remains.

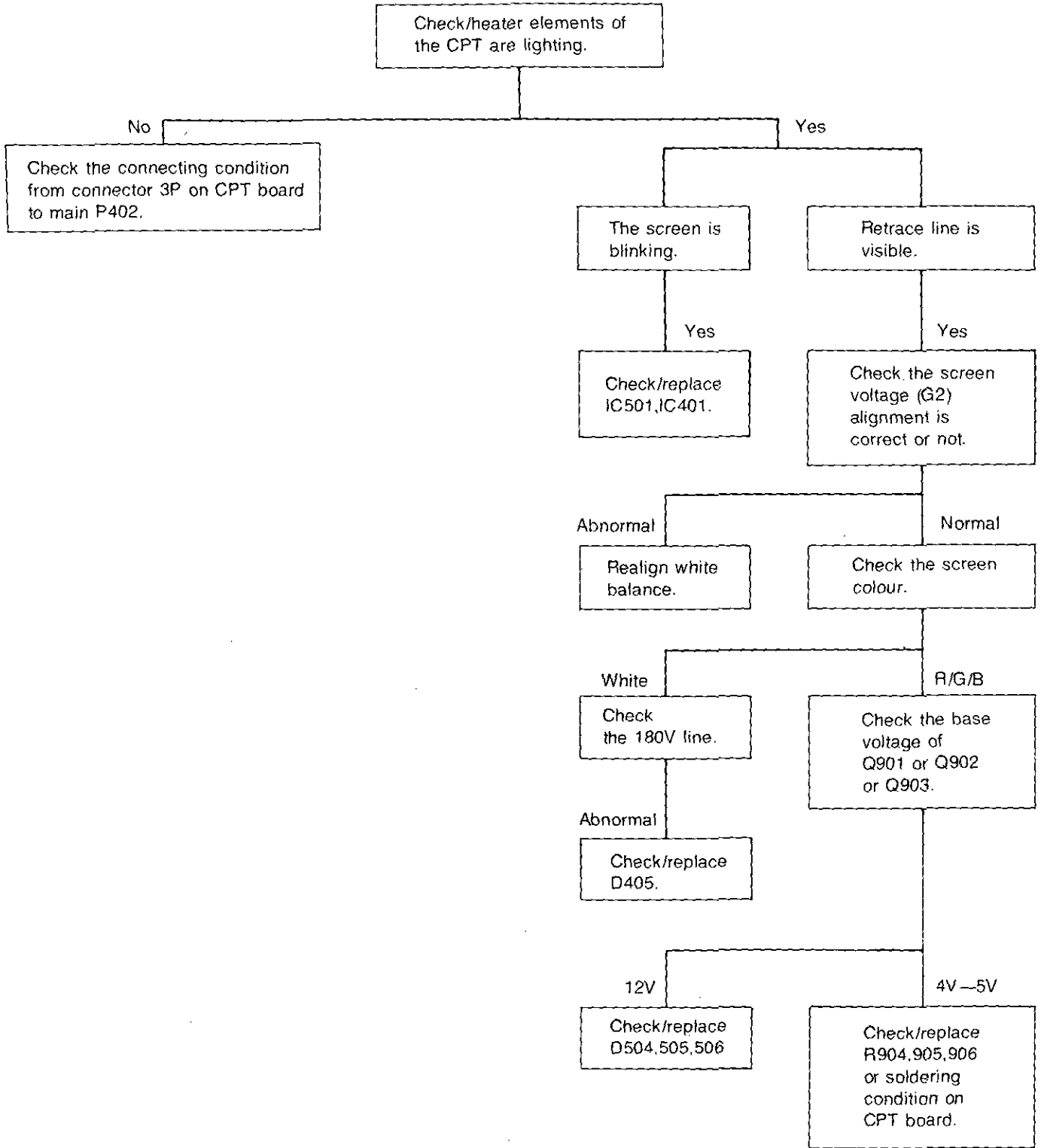
TROUBLESHOOTING GUIDE



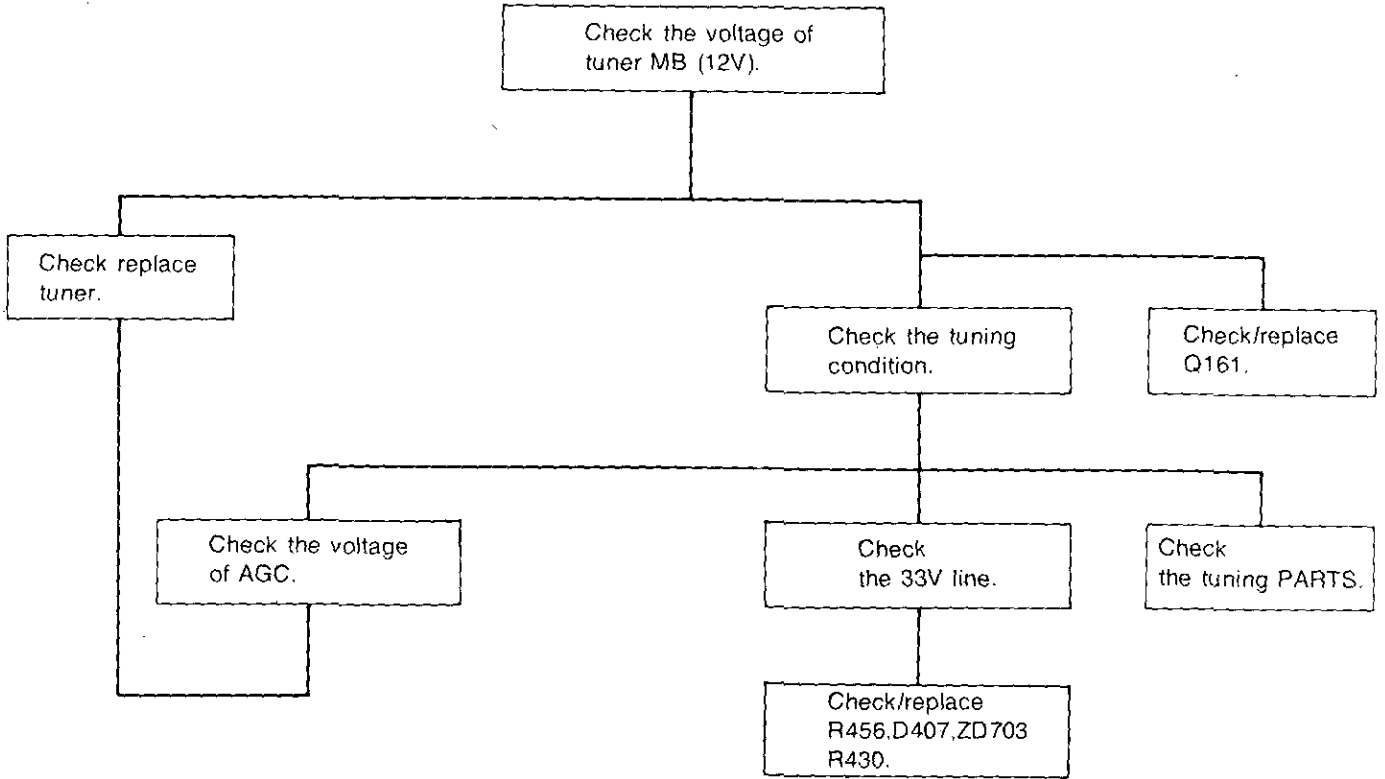
**1. DEAD SET
(NO RASTER/NO SOUND)**



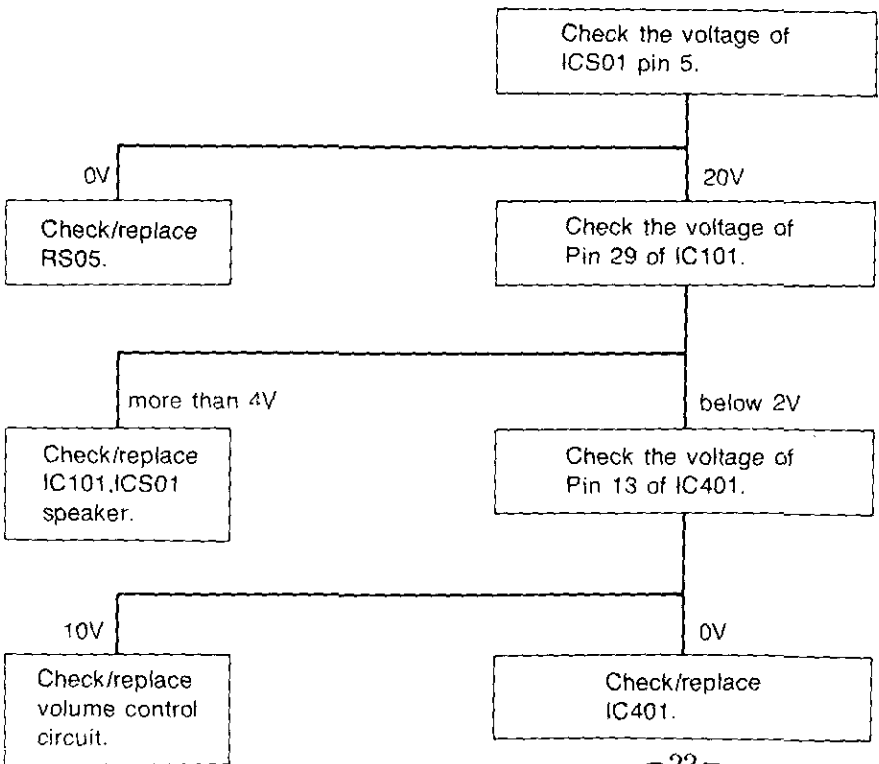
**2. NO PICTURE
(SOUND OK)**



**3. NO PICTURE/NO SOUND
(RASTER OK WHITE NOISE ONLY)**

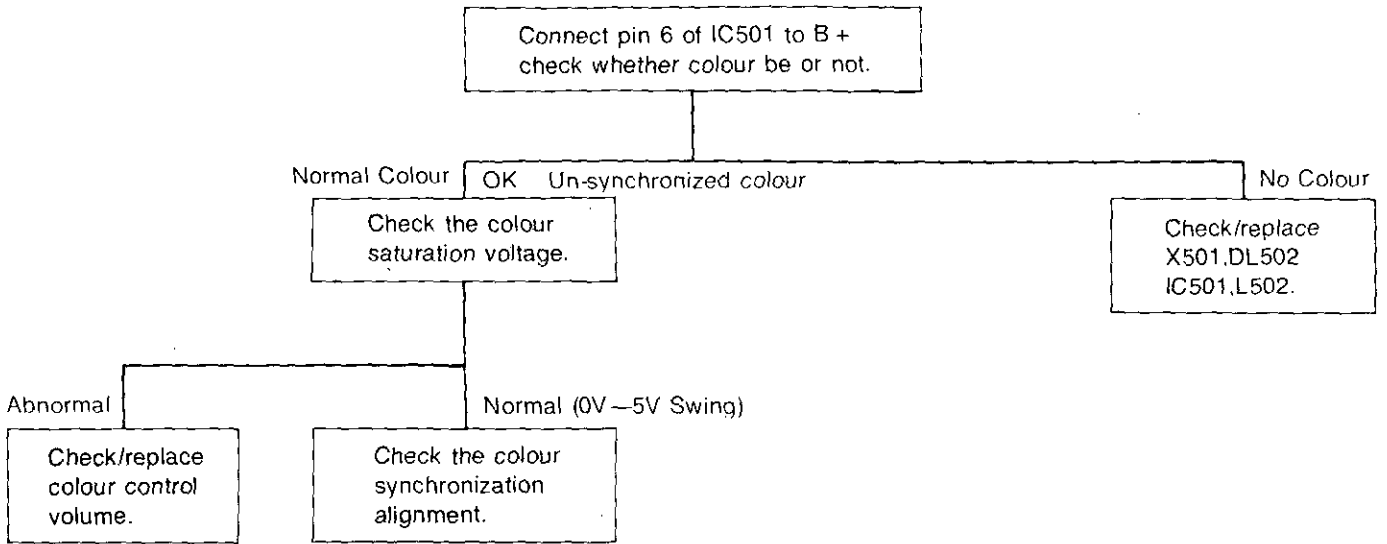


**4. NO SOUND
(PICTURE OK)**



Note:
Sound is muted whenever the screen is noise condition. that is, broadcasting signal is not found.

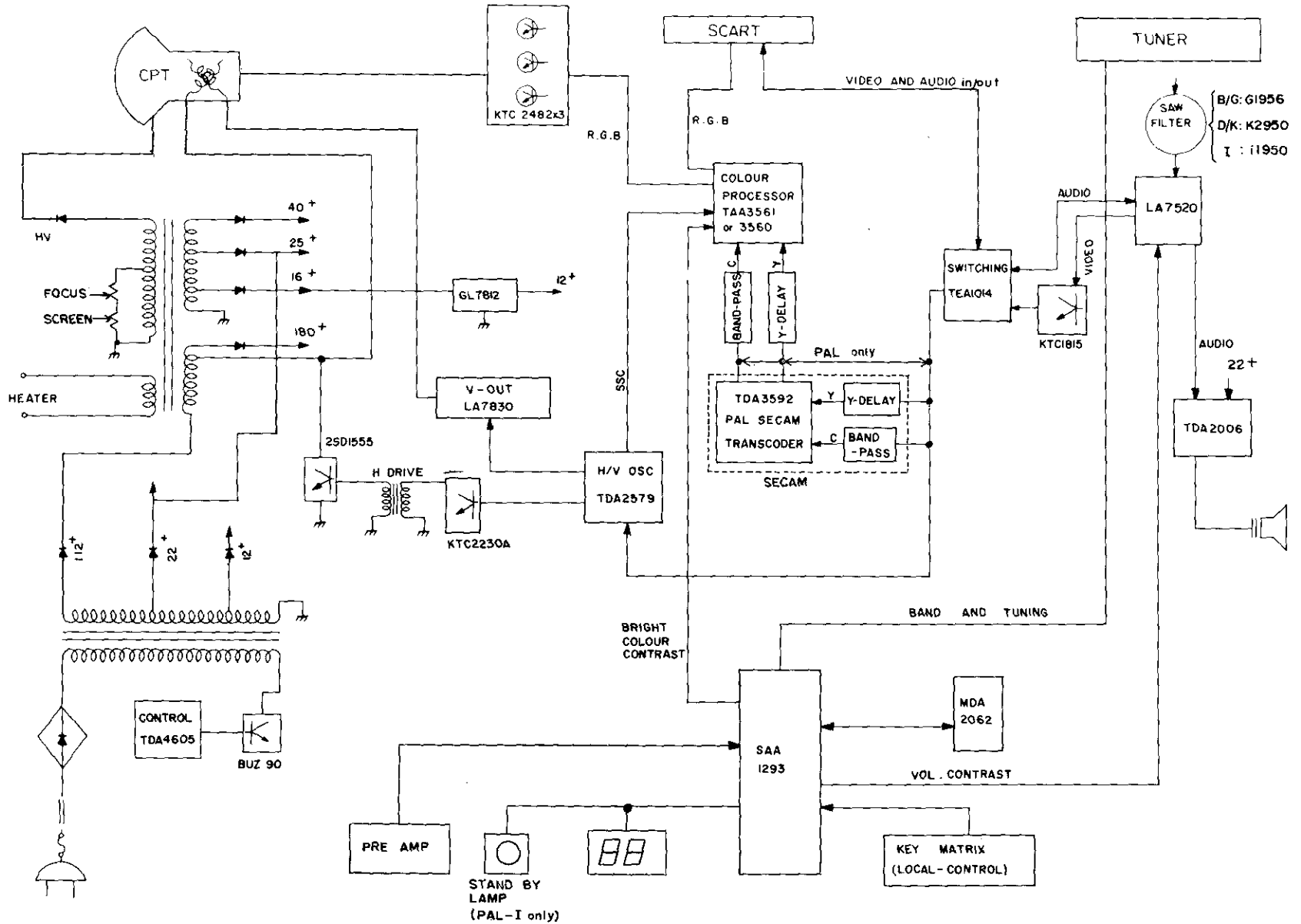
5. NO COLOUR



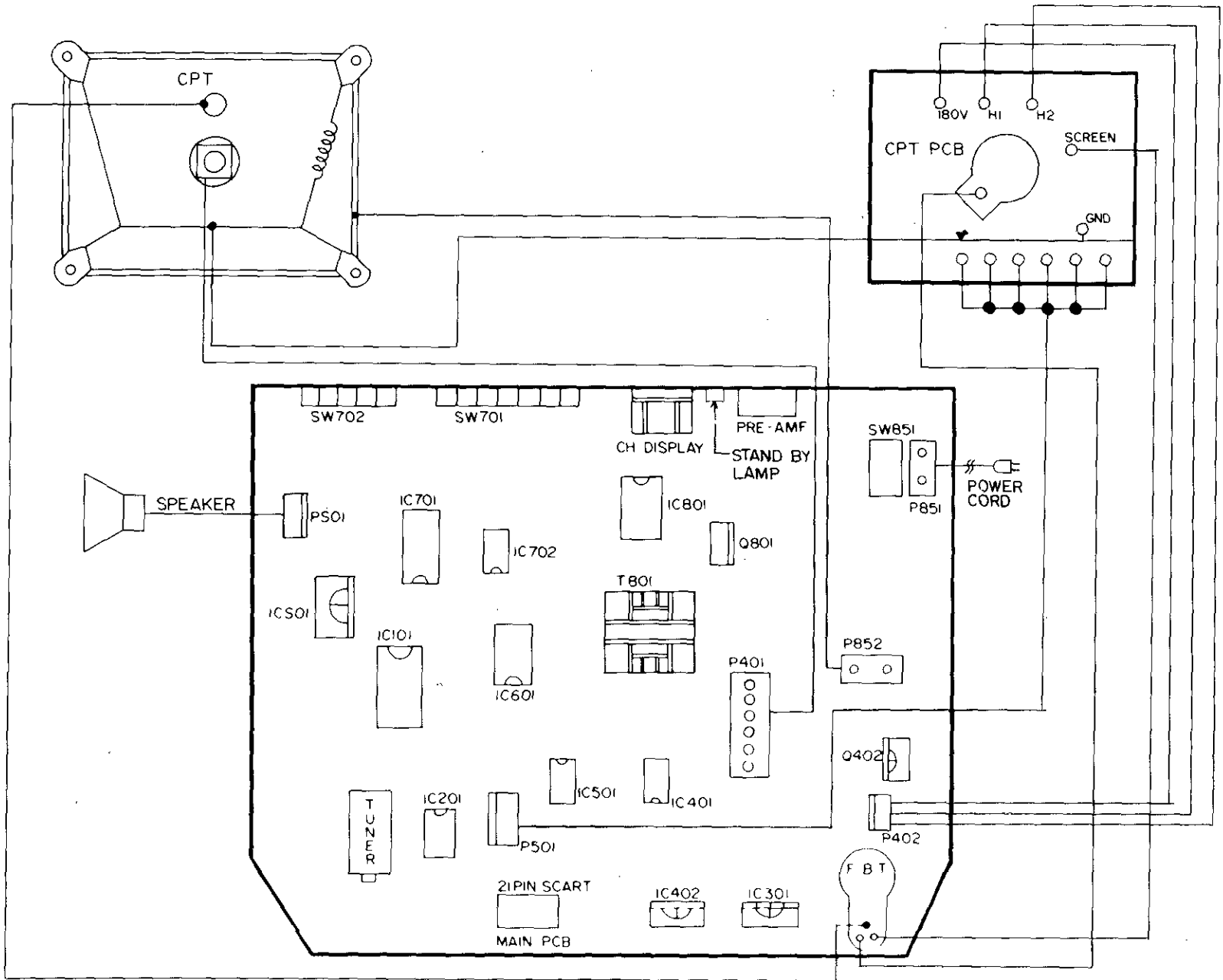
6. NO VERTICAL SWEEP

Check/replace the vertical output of IC301. and vertical osc of IC401.

BLOCK DIAGRAM


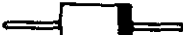




WIRING DIAGRAM

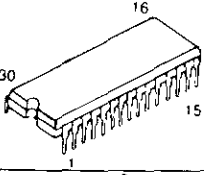
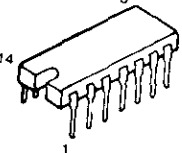

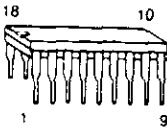
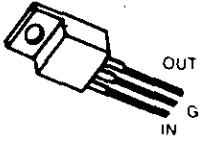
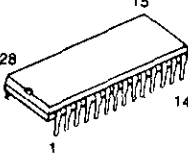
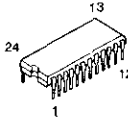

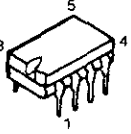
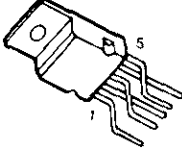


TERMINAL VIEW OF SEMICONDUCTOR


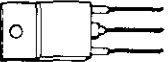

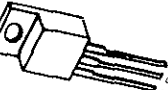
DIODE

FIGURE	DESCRIPTION	REFERENCE NO.
	1N4148TA	D101-D104 D201-D203,D204 D402,D406,D601 D703-D708,D801 D802,D901-D903
	1K34A TP-A	D701,D702,DS01
	1N4005 GP	D851,D852,D853 D854
	1N4003TA	D301,D401,D807
	TVR-06J	D403,D404,D405 D407,D803,D805 D806
	RGB15J	D804
	KA33V	ZD703
	ZENER Z9.1BMTA	ZD701
	ZENER Z20BMTA	ZD702
	ZENER Z5.6BMTA	ZD704,ZD705
	EQA02-17VB	ZD401

IC

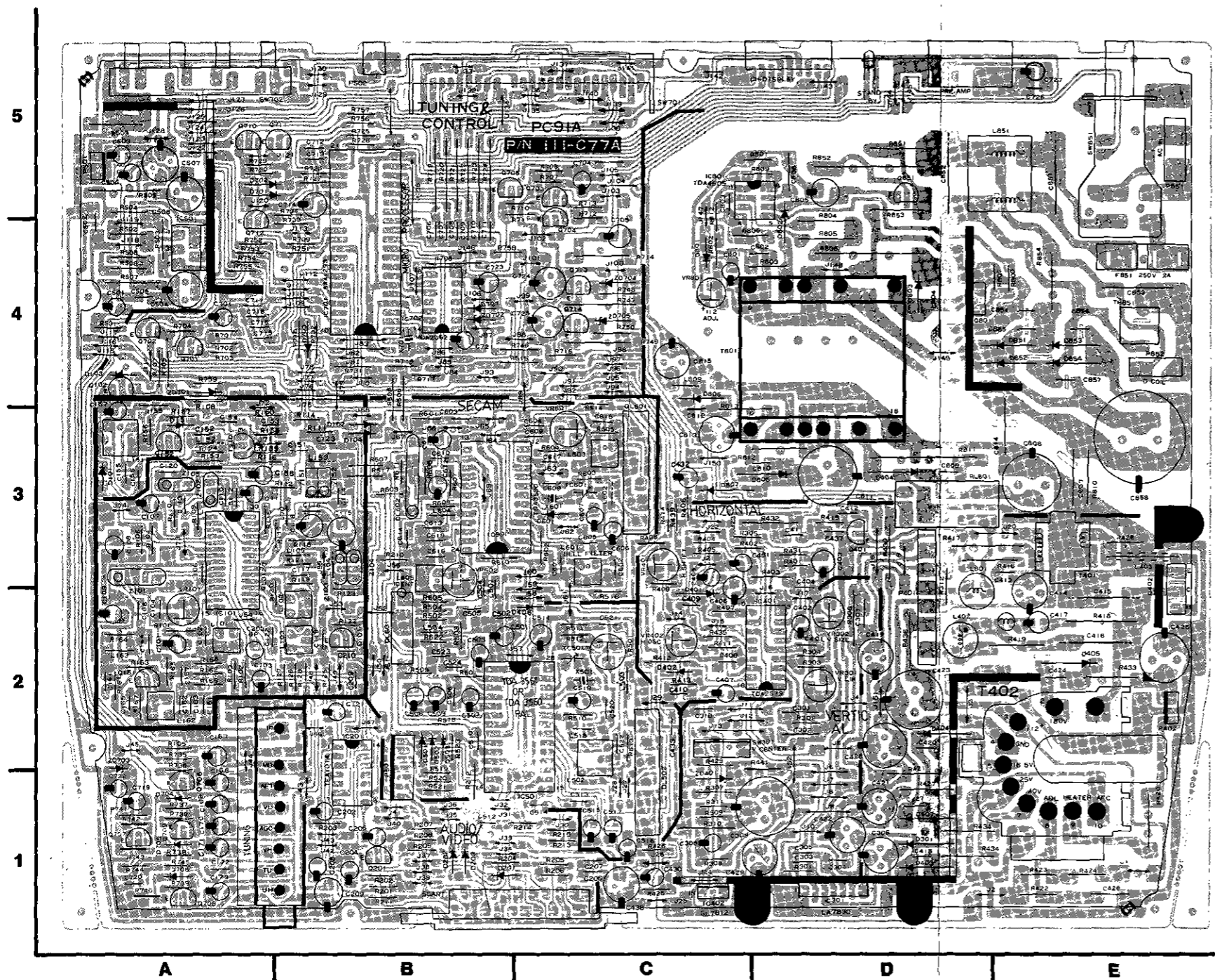
FIGURE	DESCRIPTION	REFERENCE NO.
	LA7520 or GL3120	IC101
	TEA1014 MDA2062	IC201 IC702
	LA7830	IC301
	TDA2579	IC401
	GL7812	IC402
	TDA3561A	IC501
	TDA3592A	IC601
	SAA1293	IC701
	TDA4605	IC801
	TDA2006	ICS01

TRANSISTOR

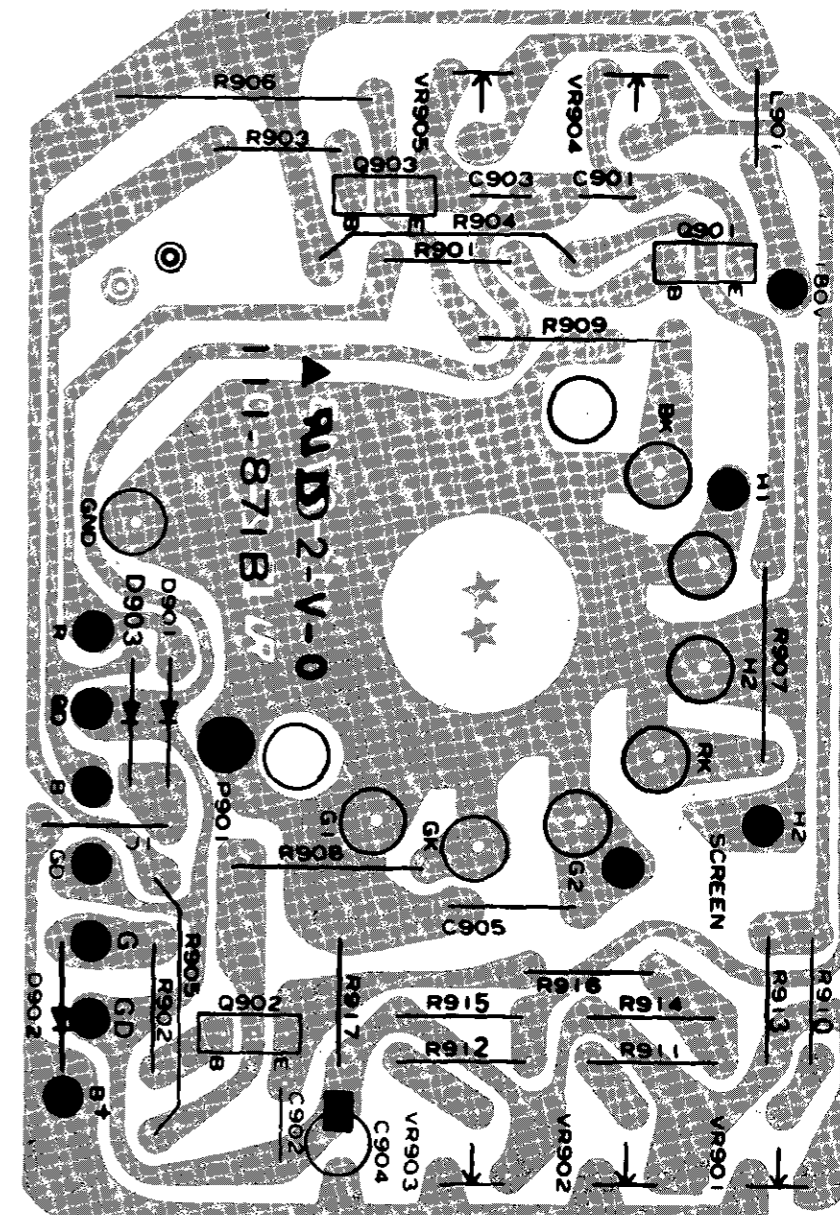
	KTC1815-GR	Q705
	KTC2120-O	Q713
	KTC1815-O	Q101,Q102,Q201 Q151,Q152,Q701 Q707
	KTC388A	Q161
	KTA1015-O/Y	Q704,Q706 Q708-Q712
	2SD1555	Q402
	KTC2230A(Y)	Q401
	KTC2236A-O	Q714
	KTC2482	Q851,Q901-Q903
	KTC1959-Y	Q703
	SIP MOS BUZ-90	Q801

PRINTED CIRCUIT BOARD

MAIN P.C. Board (Component Side)

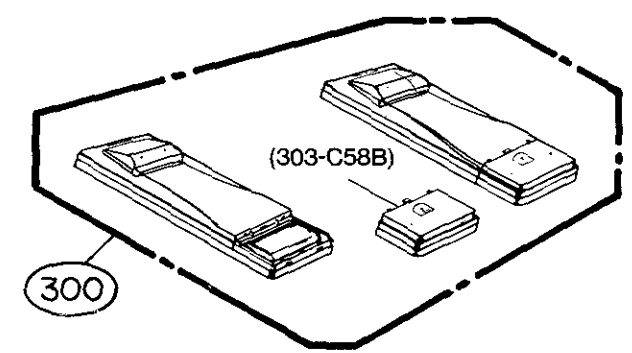
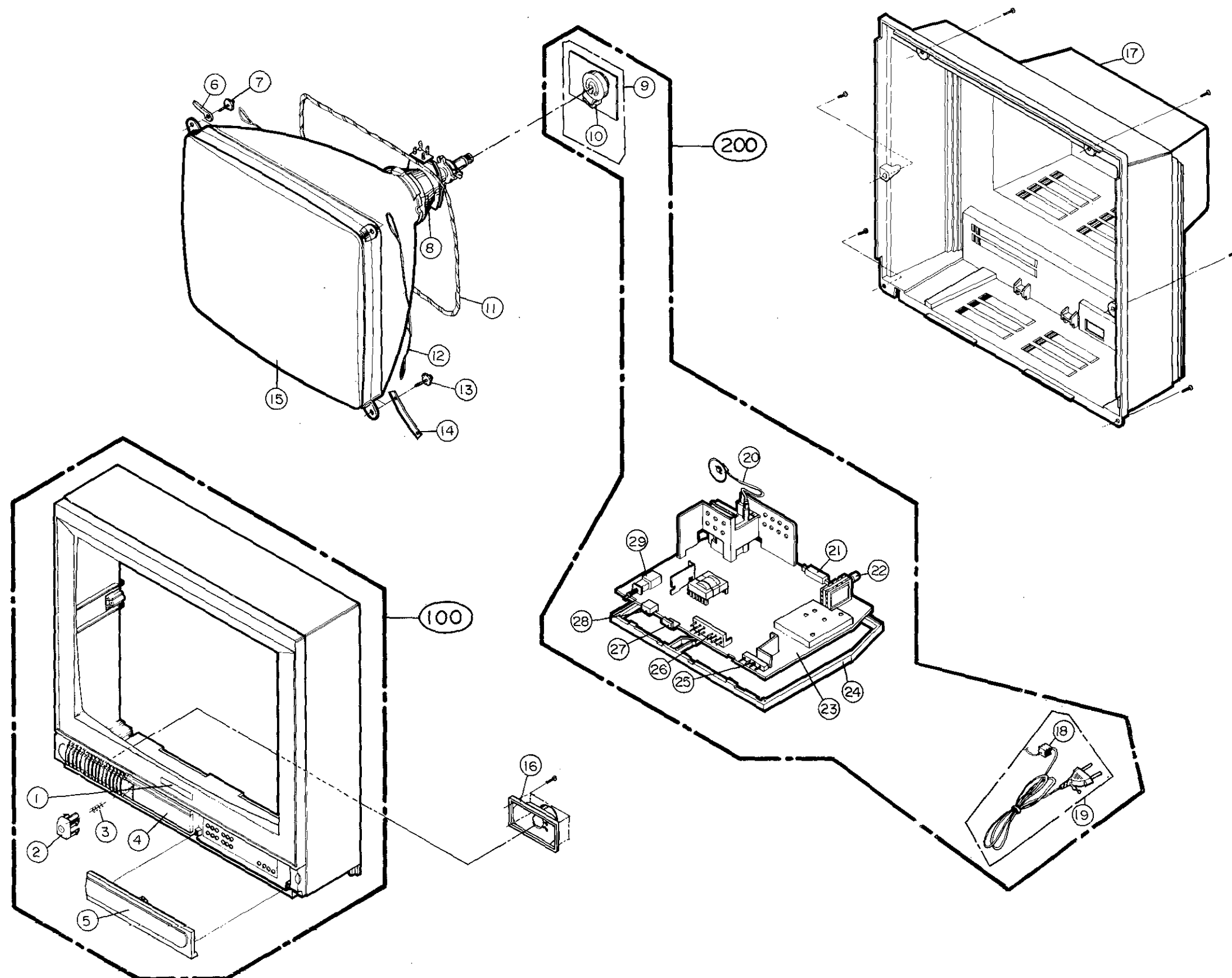


CPT P.C. Board (Component Side)



EXPLODED VIEW

If you want to order the PCB assembly of the main board, please do not forget to order a FBT together.



NOTICE:
 In this exploded view, some figures may differ from your actual TV a little. But each parts on the exploded view and the replacement parts list has the correct part number. Therefore, when ordering the service parts, put this service manual number, page and your requesting parts number on your document correctly, please. Then, we'll send the parts to you faster.

SP: Serviceable Parts
 NSP: Not Serviceable Parts

NO.	DESCRIPTION	PART NO.	REMARKS
1	MARK, BRAND	410-560R	SP
2	BUTTON, POWER	441-158B	SP
3	SPRING, BUTTON	320-062G	SP
4	WINDOW, LED DISPLAY	316-256E	SP
5	DOOR, FRONT CONTROL	315-433H	SP
6	HOLDER, D-COIL	341-721A	NSP
7	SCREW, HEXAGON HEAD(TOP)	332-235A	SP
△ 8	DEFLECTION YOKE	153-051C	SP
9	PRINTED CIRCUIT BOARD ASSEMBLY, CPT	110-N03F	SP
10	SOCKET, CPT	381-094C	SP
△ 11	COIL, DEGAUSSING	150-276M	SP
12	LEAD SET, EARTH	170-799C	SP
13	SCREW, HEXAGON HEAD(BOTT)	332-235C	SP
14	HOLDER, LEAD WIRE	NOT IN USE	NSP
△ 15	COLOUR PICTURE TUBE(WITH DY)	2055-V0081H	SP
16	SPEAKER	120-480A	SP
17	COVER, BACK	303-F14A	SP
18	HOLDER, POWER CORD	341-242F	SP
19	CORD, ASSY POWER	174-222A	SP
△ 20	FLY BACK TRANSFORMER	154-177B	SP
21	21 PIN PERI- SOCKET	381-090A	SP
22	TUNER	113-105K	SP
23	PRINTED CIRCUIT BOARD ASSEMBLY, MAIN	110-N581G	SP
24	FRAME, MAIN CHASSIS ASSEMBLY	312-258A	SP
25	SWITCH, 4 KEYS	140-219A	SP
26	SWITCH, 12 KEYS	140-227A	SP
27	LED DISPLAY ASSEMBLY	262-006A	SP
28	PRE-AMP	106-042A	SP
29	SWITCH, MAIN POWER	140-278C	SP

SUB ASSY

100	CABINET ASSEMBLY	300-A09L	SP
200	CHASSIS ASSEMBLY, PC91A MAIN	309-844L	SP
300	REMOTE CONTROL ASSEMBLY	105-057L	SP

COMPONENT LOCATION GUIDE

(Refer to page 29)

R101 2A	R207 1B	R428 3E	R704 4A	R751 4A	C103 2A	C208 1B	C501 2B	C708 4B	CS05 4A	D402 2C	Q707 1A
R102 2A	R208 1B	R429 1C	R705 4A	R752 4A	C104 2A	C209 1B	C502 2B	C709 4B	CS06 5A	D403 1D	Q708 1A
R103 2A	R209 1B	R430 3D	R706 4B	R753 4A	C106 2A	C210 2B	C503 2B	C710 4B	CS07 5A	D404 2D	Q709 1A
R104 3A	R210 3B	R431 3D	R707 5C	R754 4A	C107 3A	C301 2D	C504 2B	C711 4B	CS08 5A	D405 2E	Q710 5A
R105 1A	R211 1B	R432 3D	R708 5C	R755 4A	C108 3A	C302 2D	C505 2B	C712 5B	TS501 2C	D406 2B	Q711 5A
R106 3A	R212 1B	R433 2E	R709 4A	R756 4B	C109 2A	C303 1D	C506 2B	C713 5B	TS601 3C	D407 1D	Q712 4A
R107 4A	R213 1C	R434 1D	R710 5B	R757 5B	C110 3A	C304 1D	C507 2B	C714 5B	L101 2A	D501 1B	Q713 4C
R108 3A	R214 1B	R435 2C	R711 5B	R758 5B	C111 3A	C305 1D	C508 2B	C715 4A	L102 2A	D502 1B	Q714 4C
R109 3A	R215 1C	R436 2D	R712 5C	R759 4A	C112 3A	C306 1D	C509 2B	C716 4A	L103 2A	D503 1B	Q801 4D
R110 3A	R301 1D	R439 3C	R713 5C	R800 4E	C113 3A	C307 2D	C510 1B	C717 4A	L104 2B	D701 5A	Q851 5D
R111 3B	R302 2D	R441 1D	R714 4C	R801 5C	C114 3B	C308 1C	C511 2C	C718 4A	L105 3A	D702 5A	IC101 2A
R112 3A	R303 2D	R501 2B	R715 4B	R802 4C	C115 3B	C309 1C	C512 1B	C719 1A	L151 3A	D703 4A	IC201 1B
R114 3A	R304 2D	R502 2B	R716 4C	R803 4D	C116 3B	C310 2C	C513 1C	C720 1A	L152 3A	D704 1A	IC301 1D
R115 3A	R305 3C	R503 2B	R717 4B	R804 5D	C117 2A	C401 2D	C514 1C	C721 4B	L153 3B	D705 1A	IC401 2D
R116 3A	R306 2D	R504 2B	R718 4A	R805 4D	C118 3A	C402 2D	C515 1C	C722 1A	L161 2A	D706 1A	IC402 1C
R117 3A	R307 1C	R505 2B	R719 5B	R806 4C	C119 2B	C403 3D	C516 1C	C723 4B	L162 2A	D707 4B	IC501 1B
R118 3A	R308 1C	R506 3B	R720 5B	R807 4E	C120 3A	C404 2D	C517 1C	C724 4B	L163 2A	D801 4C	IC601 3B
R119 2A	R309 1C	R507 3B	R721 5B	R808 4D	C121 2B	C405 2C	C518 2C	C725 4B	L402 2D	D802 4D	IC701 4B
R120 2A	R310 1C	R508 3B	R722 5B	R809 5C	C122 2A	C406 2C	C519 2C	C726 5E	L403 3E	D803 4D	IC702 4B
R121 3A	R311 1C	R509 2B	R723 5B	R810 3E	C123 3B	C407 2C	C520 2C	C727 5E	L501 2B	D804 3D	IC801 5C
R122 2B	R312 2D	R510 2C	R724 5B	R811 3D	C151 3A	C408 2C	C521 2C	C801 4C	L502 1C	D805 3C	ICS01 4A
R123 2B	R401 3D	R511 2C	R725 5B	R812 3C	C152 3A	C409 2C	C522 1C	C802 4C	L503 2C	D806 4C	SW301 1C
R125 2B	R402 3C	R513 1C	R726 5B	R813 3C	C153 3A	C410 2C	C523 2B	C803 5C	L504 2B	D807 3C	SW701 5C
R126 2A	R403 2D	R514 3C	R727 5B	R851 5D	C154 3A	C411 3D	C524 2B	C804 4D	L601 3C	D851 4E	SW702 5A
R127 2A	R404 3C	R515 4B	R728 5B	R852 5D	C155 3A	C412 3D	C601 3C	C805 5D	L602 3C	D852 4E	SW851 5E
R128 2A	R405 3C	R516 2C	R729 5A	R853 5D	C156 3A	C413 2E	C602 3C	C806 5D	L603 3C	D853 4E	X501 2C
R153 3A	R406 3C	R517 3B	R730 5A	R854 4E	C157 3A	C414 2E	C603 3B	C807 3E	L604 3B	D854 4E	X601 3C
R154 3A	R407 2C	R518 2B	R731 4B	RS01 4A	C158 3A	C415 2E	C604 3C	C808 3E	L605 2B	ZD401 1C	X701 4B
R155 3A	R408 3C	R519 1B	R732 4B	RS02 4A	C161 2A	C416 2E	C605 3C	C809 3D	L801 2D	ZD701 4A	TH851 4E
R156 3A	R409 2C	R520 1B	R733 5A	RS03 4A	C162 2A	C417 3E	C606 3C	C810 3C	L851 5E	ZD702 4B	Z101 2A
R157 3A	R411 2C	R521 1B	R734 5A	RS04 5A	C163 2A	C418 1D	C607 3C	C811 3D	L809 4C	ZD703 1A	Z102 3A
R158 3A	R412 2C	R522 2B	R735 1A	RS05 5A	C164 2A	C420 1D	C608 3C	C812 3C	DL501 2B	ZD705 4C	Z103 2B
R159 3A	R413 2C	R523 1B	R736 1A	RS06 4A	C165 2A	C421 1D	C609 3C	C813 3C	DL502 1C	Q101 2B	Z104 2B
R160 3A	R414 3C	R601 3B	R737 1A	RS07 4A	C166 2A	C422 1D	C610 3B	C814 3E	DL601 3C	Q102 4A	Z105 3A
R161 2A	R415 3D	R602 3C	R738 1A	RS08 4A	C167 1A	C423 2D	C611 3B	C815 4C	T401 3E	Q151 3A	Z151 3B
R163 2A	R416 3E	R603 3C	R739 1A	RS09 5A	C168 1A	C424 2E	C612 3B	C851 5E	T402 1E	Q152 3A	Z152 3B
R164 2A	R417 3D	R604 3C	R740 1A	VR101 2A	C169 1A	C425 2E	C613 3B	C852 5D	T801 4D	Q151 3A	P401 2D
R165 2A	R418 2E	R605 3C	R741 1A	VR301 2A	C170 1A	C426 1E	C614 3B	C853 4E	D101 3A	Q161 2A	P402 2E
R166 2A	R419 2E	R606 3B	R742 1A	VR302 2D	C171 1A	C427 1D	C615 3B	C854 4E	D102 3B	Q201 1B	P501 1B
R167 2A	R420 1E	R607 3B	R743 1A	VR401 3C	C172 1A	C428 1D	C616 3B	C855 4E	D103 4A	Q401 3D	P851 5E
R169 2A	R421 1D	R608 3B	R744 1A	VR402 2C	C173 1A	C429 1C	C617 3C	C856 4E	D104 3B	Q402 2E	P852 4E
R201 1B	R422 1E	R609 3B	R745 1A	VR501 2C	C202 1B	C430 1C	C618 3C	C857 4E	D151 3A	Q701 4A	PS01 5A
R202 1B	R423 1E	R610 3B	R746 4B	VR601 3C	C203 2A	C431 3C	C701 4A	C858 3E	D201 1B	Q702 4A	PS02 5B
R203 1B	R424 1E	R611 3B	R747 4C	VR602 2B	C204 1B	C432 3C	C704 5C	CS01 4A	D202 1B	Q703 5C	RL801 3D
R204 1B	R425 1C	R701 4A	R748 4C	VR801 4C	C205 1B	C433 2D	C705 4C	CS02 4A	D203 1B	Q704 5C	SCART 1B
R205 1C	R426 1C	R702 4A	R749 4C	C101 2A	C206 1C	C437 3D	C706 4B	CS03 5A	D301 1D	Q705 5B	SOCKET 1B
R206 1C	R427 1D	R703 4A	R750 4C	C102 2A	C207 1C	C438 1C	C707 4B	CS04 4A	D401 2C	Q706 1A	F851 4F

DIVI : GV MODEL : CBT-9825 HPTRT BUYER NAME : TEAC-ATL RUN-DATE : 92.11.24

Table with columns: S, AL, LOCA, NO, PART NO(ESS), DESCRIPTION, SPECIFICATION, REMARKS. Contains 48 rows of resistor and carbon film part data.

DIVI : GV MODEL : CBT-9825 HPTRT BUYER NAME : TEAC-ATL RUN-DATE : 92.11.24

Table with columns: S, AL, LOCA, NO, PART NO(ESS), DESCRIPTION, SPECIFICATION, REMARKS. Contains 48 rows of resistor and carbon film part data.

DIVI : GV MODEL : CBT-9825 HPTRT BUYER NAME : TEAC-ATL RUN-DATE : 92.11.24

Table with columns: S, AL, LOCA, NO, PART NO(ESS), DESCRIPTION, SPECIFICATION, REMARKS. Contains 48 rows of resistor, carbon film, and metal film oxide part data.

DIVI : GV MODEL : CBT-9825 HPTRT BUYER NAME : TEAC-ATL RUN-DATE : 92.11.24

Table with columns: S, AL, LOCA, NO, PART NO(ESS), DESCRIPTION, SPECIFICATION, REMARKS. Contains 48 rows of resistor, carbon film, and metal film oxide part data.

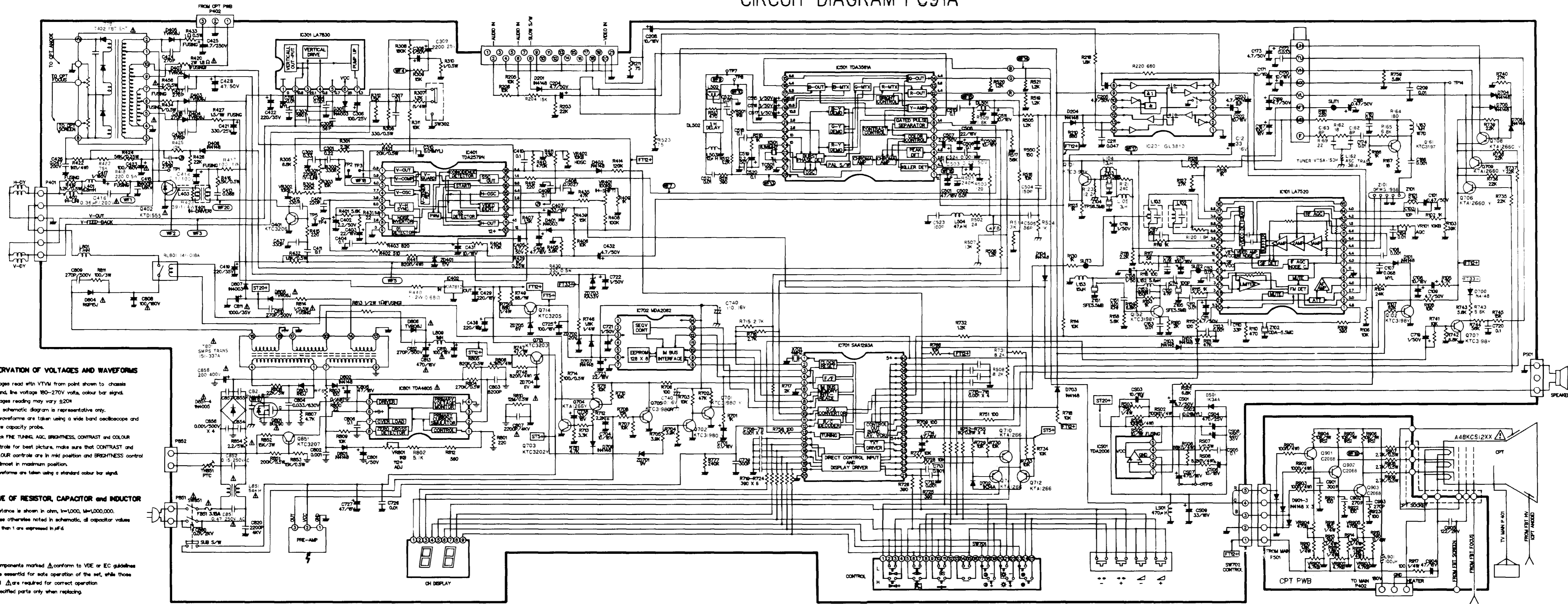
DIV : GV MODEL : CBT-9825 HPRT BUYER NAME : TEAC-ATL

RUN-DATE : 92.11.24

Q	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
			SW701	140-277A	SWITCH	12KEY (HOP/IRIKU)
			SW702	140-219A	SWITCH	TACT S/W UNIT 4P
			SW851	140-278C	SWITCH	MAIN.MESC(TV-5)
			TC501	181-169A	CAPACITOR	CAPACITOR TRIMMER 4.5P-20P
			TH851	163-012A	THERMISTOR	PTC.PTH451A10ZBG180M290
			T401	151-387A	TRANSFORMER	H.DRIVE
			T402	154-177B	FBT	FOC(2)*177B-19SP3
			T801	151-337A	TRANSFORMER	SMS TRANS(CTDA 4605)
			VR101	0RV1103D330	VARIABLE RESISTOR,CARBON FILM	10K 6 ST P3 L2.5 5
			VR301	180-451M	RESISTOR	EVN-DJAA03 B224 HORIZONTAL<TA
			VR302	180-451M	RESISTOR	EVN-DJAA03 B103 HORIZONTAL<TA
			VR401	180-451L	RESISTOR	EVN-DJAA03 B104 HORIZONTAL<TA
			VR402	0RV1103D330	VARIABLE RESISTOR,CARBON FILM	10K 6 ST P3 L2.5 5
			VR501	180-451D	RESISTOR	EVN-DJAA03 B102 HORIZONTAL<TA
			VR801	180-451D	RESISTOR	EVN-DJAA03 B102 HORIZONTAL<TA
			VR901	0RV1472D330	VARIABLE RESISTOR,CARBON FILM	4.7K 6 ST P3 L2.5 5
			VR902	0RV1472D330	VARIABLE RESISTOR,CARBON FILM	4.7K 6 ST P3 L2.5 5
			VR903	0RV1472D330	VARIABLE RESISTOR,CARBON FILM	4.7K 6 ST P3 L2.5 5
			VR904	0RV1471D330	VARIABLE RESISTOR,CARBON FILM	470 6 ST P3 L2.5 5
			VR905	0RV14710330	VARIABLE RESISTOR,CARBON FILM	470 6 ST P3 L2.5 5
			X501	156-007A	OSCILLATOR	X-TAL 8.86 MHZ
			X701	156-005B	OSCILLATOR	4MHZ
			ZD401	0DZ021709AA	DIODE ZENER	E9A02-17BV
			ZD701	0DZ910009BA	DIODE ZENER	HTZ9.18.TP(52MM).ROHM
			ZD702	0DZ200009AB	DIODE ZENER	HTZ208.TP(52MM).ROHM
			ZD703	0INE574000A	IC. NEC	IPC574J 33V ZENER IC
			ZD704	0DZ560009AA	DIODE ZENER	HT75.68.TP(52MM).ROHM
			ZD705	0DZ560009AA	DIODE ZENER	HT75.68.TP(52MM).ROHM
			Z101	166-191A	FILTER	SAW OFWB1956(PAL B/G)
			Z102	166-126F	FILTER	CD4 5.SMC24B-TF21 (TA)
			Z103	166-031L	FILTER	TPS 5.5MB-TF21(TA)
			Z104	166-031N	FILTER	TPS 6.5MB-TF21(TA)
			Z105	166-002H	FILTER	SFES.5MB-TF21 (TA)
			Z151	166-002H	FILTER	SFES.5MB-TF21 (TA)

*** END OF DATA ***

CIRCUIT DIAGRAM PC91A



OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with VTVM from point shown to chassis ground, line voltage 180-270V volts, colour bar signal.
2. Voltages reading may vary $\pm 20\%$.
3. This schematic diagram is representative only.
4. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
5. Check FINE TUNING, AGC, BRIGHTNESS, CONTRAST and COLOUR controls for best picture, make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position.
6. Waveforms are taken using a standard colour bar signal.

VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000.
2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in pF.

The components marked Δ conform to VDE or EC guidelines and are essential for safe operation of the set, while those marked ∇ are required for correct operation. Use specified parts only when replacing.

NOTICE
Since this is basic circuit diagram, the value of components and some partial connection are subject to be changed for improvement.

WF1 100Vp-p	WF11
WF2 12Vp-p	WF12
WF3 50Vp-pV	WF13 2.5Vp-p
WF4 1Vp-pV	WF14 7Vp-p
WF5 13Vp-p	WF15 500mVp-p
WF6 400Vp-p	WF16 350mVp-p
WF7 9Vp-p	WF17 1.7Vp-p
WF8 550mVp-p	WF18 4Vp-pV
WF9 350mVp-p	WF19 95Vp-p
WF10 350mVp-p	WF20 100Vp-p