

# SERVICE MANUAL

INTEGRATED COLOR TV/VIDEO  
CASSETTE RECORDER

BASIC TAPE MECHANISM : OVD-5

## SPECIFICATIONS

### GENERAL

POWER REQUIREMENTS ..... 230V AC, 50Hz  
 POWER CONSUMPTION ..... 79W  
 WEIGHT ..... 12.5 kg (27.5 lbs.)  
 DIMENSIONS ..... 365(W) x 372(D) x 382(H) mm  
 (14 3/8 x 14 3/4 x 15 1/8 in.)

### TV SECTION

PICTURE TUBE DEFLECTION ..... 14 in. (34cm "V"), 90 degree  
 TUNER SYSTEM ..... Voltage synthesized tuner  
 CHANNEL COVERAGE ..... UHF: 21 to 69  
 TV SYSTEM ..... I  
 HORIZONTAL RESOLUTION ..... 240 lines

### VCR SECTION

OPERATING TEMPERATURE ..... 5°C to 40°C  
 VIDEO RECORDING SYSTEM ..... Rotary 2 head helical  
 scanning system  
 VIDEO SIGNAL SYSTEM ..... PAL colour system, 625 lines,  
 50 fields  
 AUDIO TRACK ..... 1 track (Mono)

VIDEO HEAD ..... Azimuth 2 head  
 USABLE CASSETTES ..... VHS video cassette  
 TAPE SPEED ..... PAL  
 SP: 23.39mm/sec  
 LP: 11.69mm/sec  
 NTSC (Playback SP only)  
 33.35mm/sec  
 RECORDING TIME ..... PAL  
 SP: 4 hours 20 minutes with  
 E-260 tape  
 LP: 8 hours 40 minutes with  
 E-260 tape  
 NTSC (Playback SP only)  
 3 hours with T-180 tape  
 VIDEO INPUT ..... 1.0Vp-p, 75 ohm, unbalanced  
 VIDEO OUTPUT ..... 1.0Vp-p, 75 ohm, unbalanced  
 VIDEO S/N ..... 53dB (nominal)  
 AUDIO INPUT ..... -8dBs, 50K ohm  
 AUDIO OUTPUT ..... -6dBs, less than 1K ohm

● Design and specifications are subject to change without notice.

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# 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 external 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

## VCR TEST TAPE INTERCHANGEABILITY TABLE

There are two types of the new alignment tape CH-1B (for NTSC) and CH-2 (for PAL). On each tape four signals (1) - (4) are recorded for the times and in the order shown below.

(1) : 8min. ---> (2) : 2min. ---> (3) : 5min. ---> (4) : 5min.

The TTV-MP1 (for M-PAL), TTV-MS1 (for MESECAM) and TTV-S1 (for SECAM) alignment tapes have the same contents as the previous tapes.

Method	Now in use TYPE		New TYPE		Application
	Model	Contents*1	Model	Contents*1	
NTSC	TTV-N1	NTSC, Color, 1kHz, SP	CH-1B(2)	NTSC, Stairsteps, 1kHz, SP	PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-N1E	NTSC, Color, 1kHz, EP	CH-1B(4) *2	NTSC, Color, 1kHz, EP	Switching position ADJ.
	TTV-N2	NTSC, Stairsteps, 7kHz, SP	CH-1B(1)	NTSC, Stairsteps, 7kHz, SP	Head ACE Azimuth ADJ.
	TTV-N12 (SCV-1998)	NTSC, Color, 1kHz, SP	CH-1B(4)	NTSC, Color, 1kHz, EP	FM envelope ADJ. X-Value ADJ.
	TTV-N7A	NTSC, Stairsteps, 1kHz, SP, HiFi 400Hz	CH-1B(3)	NTSC, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
PAL	TTV-P1	PAL, Color, 1kHz, SP	CH-2(2) *3	PAL, Stairsteps, 1kHz, SP	Switching position ADJ. PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-P1L	PAL, Color, 1kHz, LP	CH-2(4)	PAL, Color, 1kHz, LP	Switching position. (LP Model) FM Envelope ADJ. (LP Model) X-Value ADJ. (LP Model)
	TTV-P2	PAL, Stairsteps, 6kHz, SP	CH-2(1)	PAL, Stairsteps, 6kHz, SP	Head ACE Azimuth ADJ. FM Envelope ADJ. (SP Model) X-Value ADJ. (SP Model)
	TTV-P7	PAL, Stairsteps, 1kHz, SP, HiFi, 1kHz	CH-2(3)	PAL, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
	TTV-P16	PAL, Color, 400Hz, SP, HiFi 1kHz	No Changed.		FM Filter ADJ.

\*1. Described in the order of color format. Video signal. Linear audio. Tape speed and Hi-Fi audio.

\*2. Use CH-1B (1) - (3) with models used exclusively in the SP mode.

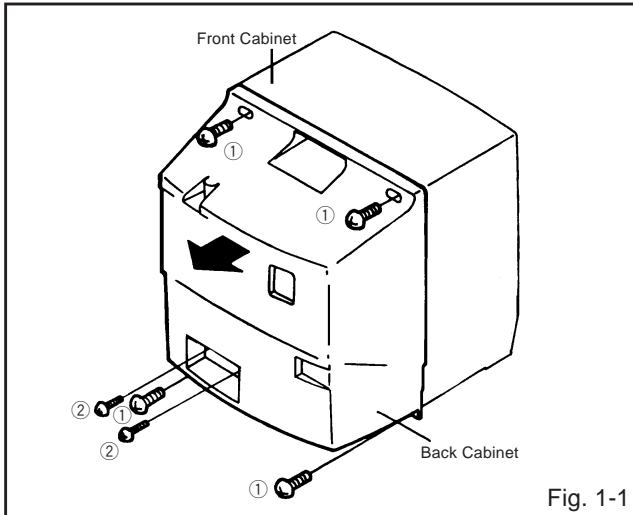
\*3. Use CH-2 (3) and (4) when it is necessary to observe the chroma signal.

# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

### 1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the 2 screws ②.
3. Remove the Back Cabinet in the direction of arrow.

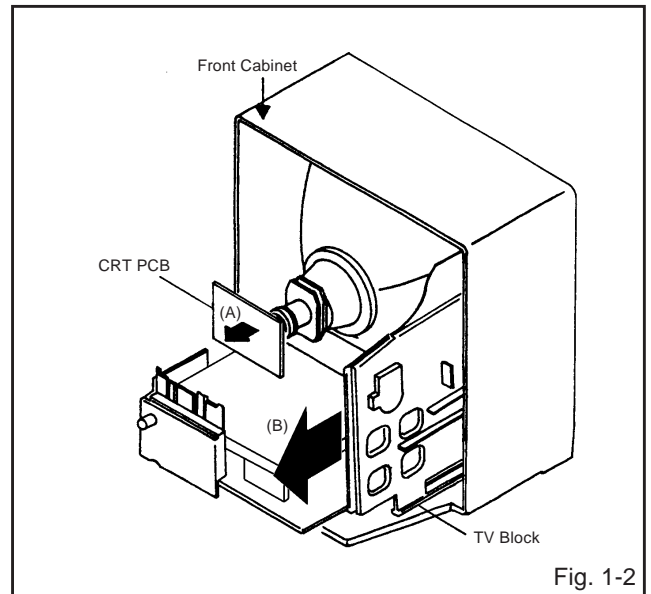


**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

### 1-2: TV BLOCK (Refer to Fig. 1-2)

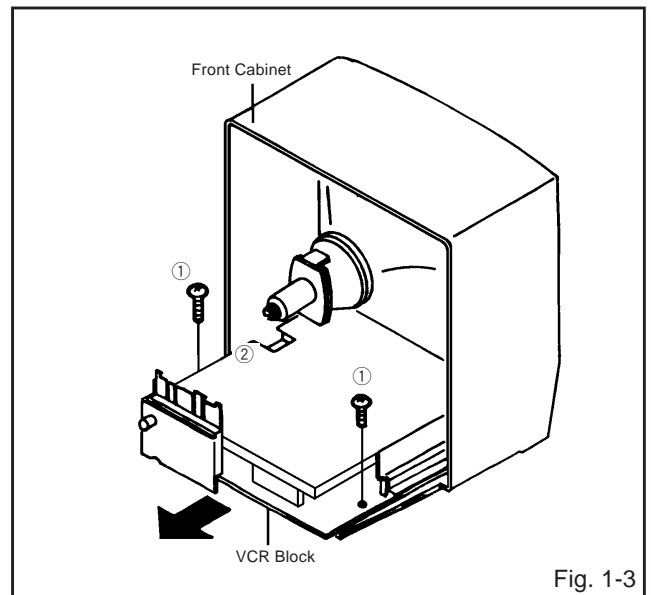
1. Remove the CRT PCB in the direction of arrow (A), then unplug the following connector: (CP801 and CP850).
2. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
3. Disconnect the following connectors: (CP820, CP810, CP005, CP502 and CP503).
4. Slide out the TV Block in the direction of arrow (B).

The speaker cannot be removed before removing the Earphone PCB.



### 1-3: VCR BLOCK (Refer to Fig. 1-3)

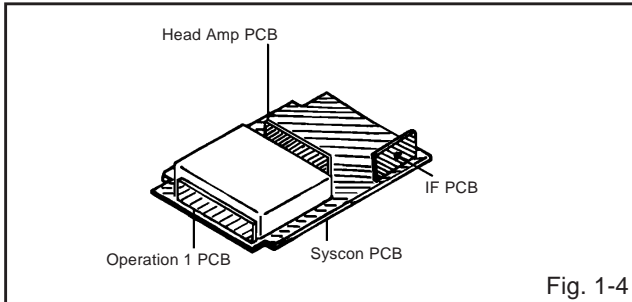
1. Remove the 2 screws ①.
2. Unlock the support ②.
3. Remove the VCR Block in the direction of arrow.



# DISASSEMBLY INSTRUCTIONS

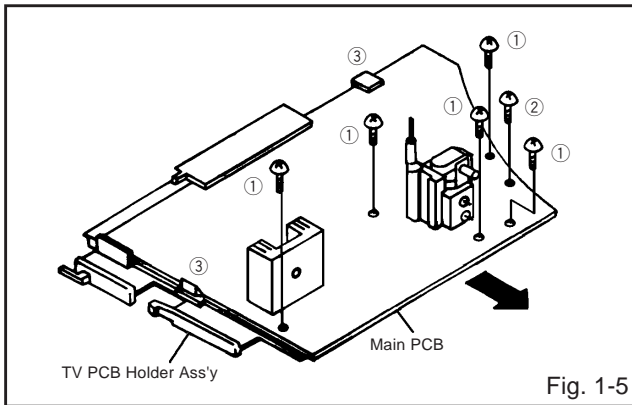
## 1-4: LOCATION OF PRINTED CIRCUIT BOARDS (Refer to Fig. 1-4)

**CAUTION: BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**



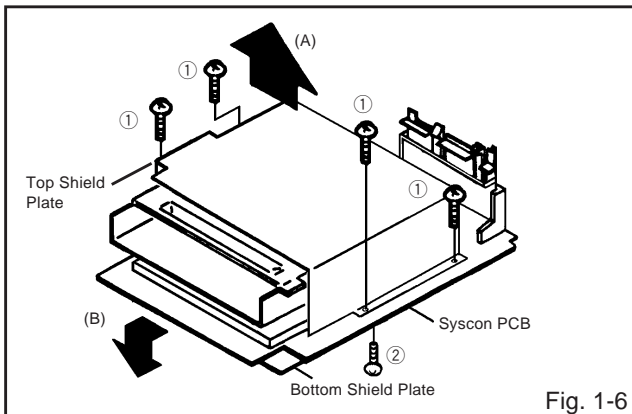
## 1-5: MAIN PCB (Refer to Fig. 1-5)

1. Remove the 5 screws ①.
2. Remove the screw ②.
3. Unlock the 2 supports ③ and remove the Main PCB in the direction of the arrow.



## 1-6: TOP SHIELD PLATE AND BOTTOM SHIELD PLATE (Refer to Fig. 1-6)

1. Remove the 4 screws ①.
2. Remove the Top Shield Plate in the direction of arrow (A).
3. Remove the screw ②.
4. Remove the Bottom Shield Plate in the direction of arrow (B).

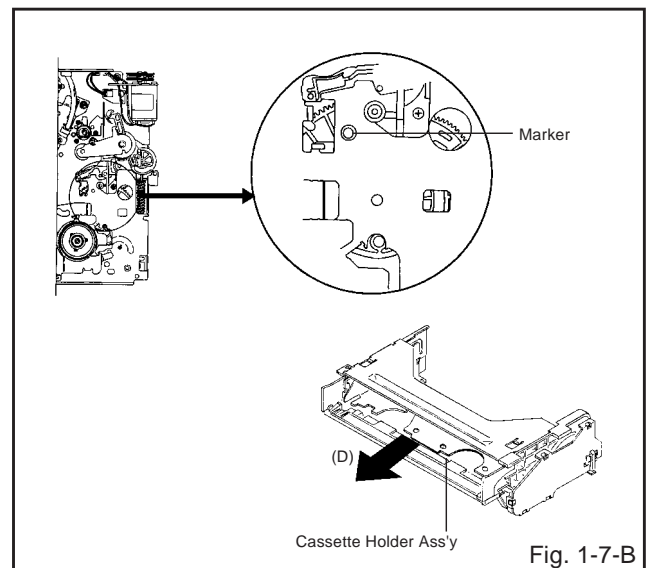
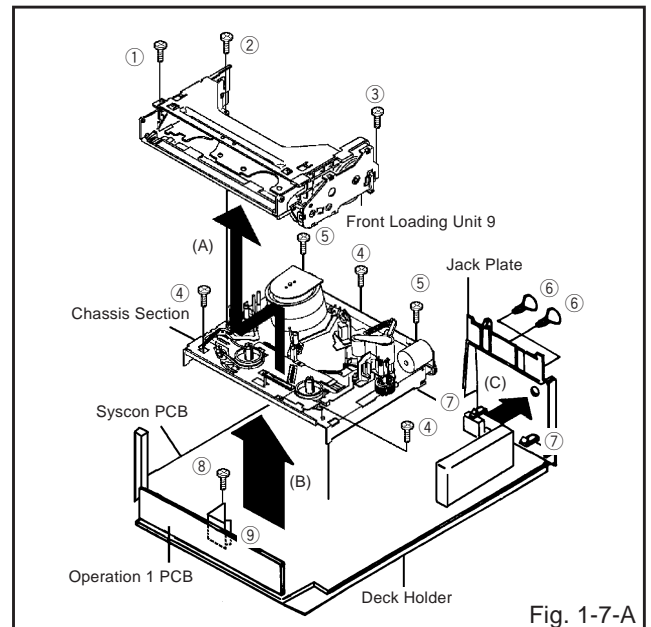


## 1-7: FRONT LOADING UNIT 9, CHASSIS SECTION, JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7-A)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the screw ③.
4. Remove the Front Loading Unit 9 in the direction of arrow (A).
5. Remove the 3 screws ④.
6. Remove the 2 screws ⑤.
7. Remove the Chassis Section in the direction of arrow (B).
8. Remove the 2 screws ⑥.
9. Unlock the 2 supports ⑦ and remove the Jack Plate in the direction of arrow (C).
10. Remove the screw ⑧.
11. Unlock the support ⑨ and remove the Syscon PCB.

### NOTE

When installing the Front Loading Unit 9, align the timing marks and pull the Cassette Holder Ass'y in the direction of arrow (D). (Refer to Fig. 1-7-B)



# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL OF DECK PARTS

### 2-1: LINK GEAR (R) / CAM GEAR (Refer to Fig. 2-1)

1. Unlock the support ①.
2. Remove the BOT Sensor Cover and BOT Reflector.
3. Unlock the 3 supports ②.
4. Remove the Side Bracket R2 and Spring Earth.
5. Remove the Flap Lever, Link Gear (R) , Cam Gear Ass'y and BOT Lever.

#### NOTES

1. When installing the BOT Lever, insert the BOSS into the hole of Link Gear (R).
2. When installing the Link Ass'y 2 and Link Gear (R), align the timing Marks.

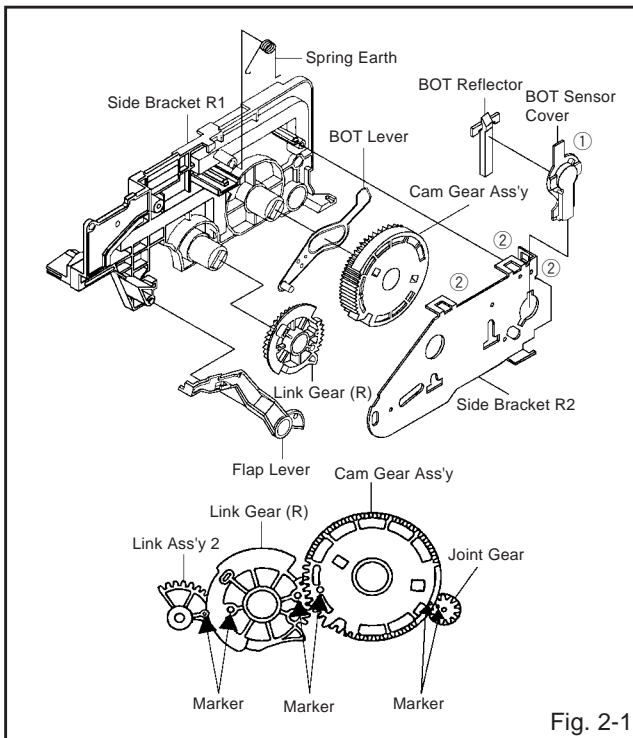


Fig. 2-1

### 2-2: TOP BRACKET / TAPE PIECE GUIDE (Refer to Fig. 2-2)

1. Unlock the 2 supports ①.
2. Remove the Tape Piece Guide.
3. Unlock the 4 supports ②.
4. Remove the Top Bracket.
5. Remove the Side Bracket R1 and Side Bracket L.
6. Unlock the support ③.
7. Remove the Joint Gear.
8. Remove the Bracket R Spring.

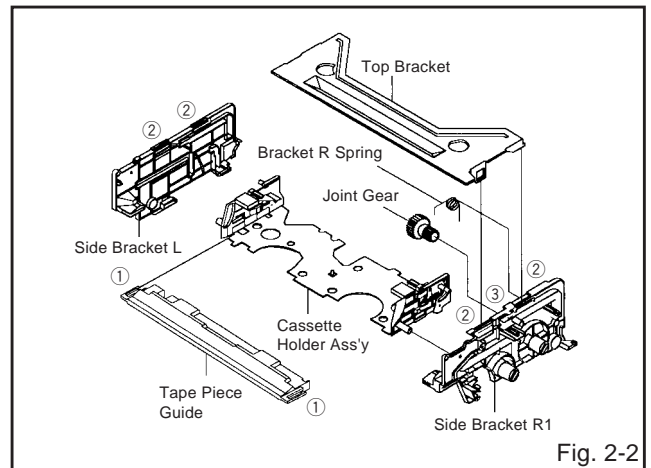


Fig. 2-2

### 2-3: LINK ASS'Y 2 (Refer to Fig. 2-3)

1. After removing in the direction (A) of Link Ass'y 2, remove the Link Ass'y 2 in the direction (B).

#### NOTE

Install the (B) first, then install the (A).

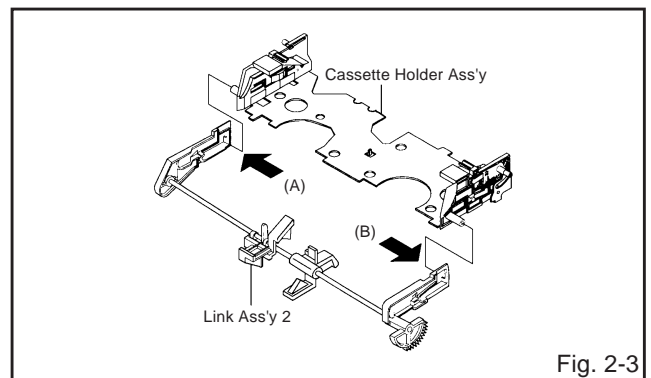


Fig. 2-3

### 2-4: CASSETTE SIDE R (Refer to Fig. 2-4)

1. Unlock the 2 supports ①.
2. Remove the Cassette Side R.
3. Remove the Pack Spring.
4. Remove the Locker Spring.
5. Unlock support ②.
6. Remove the Locker R.

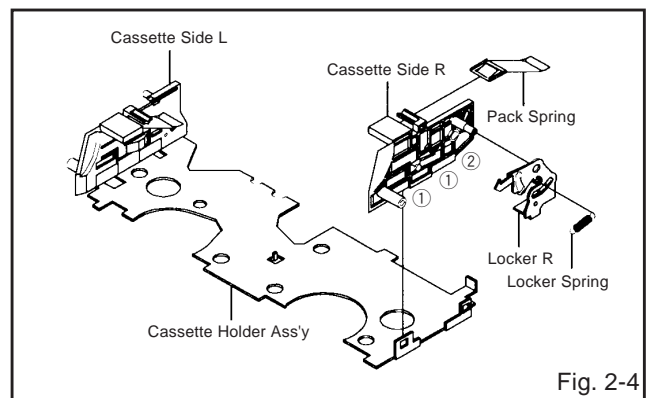


Fig. 2-4

# DISASSEMBLY INSTRUCTIONS

## 2-5: CASSETTE SIDE L (Refer to Fig. 2-5)

1. Unlock the 2 supports ①.
2. Remove the Cassette Side L.
3. Remove the Pack Spring.
4. Remove the Locker Spring.
5. Unlock the support ②.
6. Remove the Locker L.

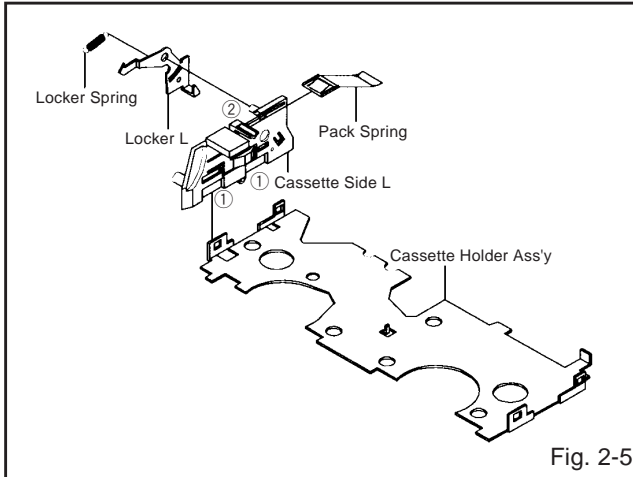


Fig. 2-5

## 2-6: BRAKE BRACKET (Refer to Fig. 2-6)

1. Remove the Main Brake Spring, S-S Brake Spring, Joint Arm Spring and T-S Brake Spring.
2. Remove the 2 screws ①.
3. Remove the screw ②.
4. Remove the Brake Bracket.
5. Remove the Sub Brake S, Sub Brake T, Main Brake S Ass'y and Main Brake T Ass'y.
6. Remove the Joint Arm.
7. Remove the Reflector LED 2.

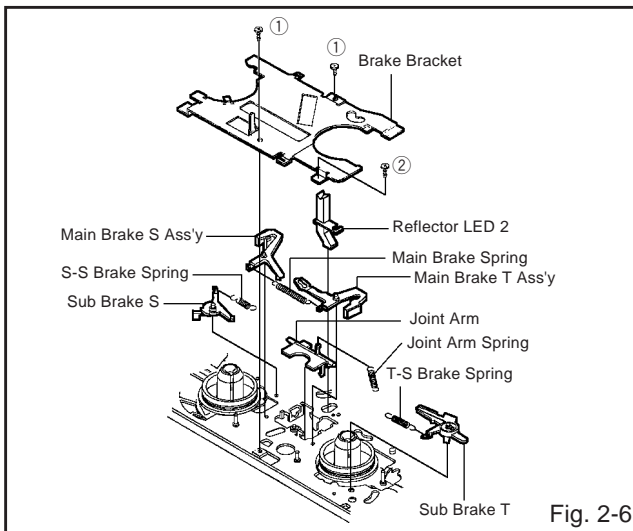


Fig. 2-6

## 2-7: TENSION BAND (Refer to Fig. 2-7)

1. Remove the Tension Arm Spring 1.
2. Remove the Tension Arm Spring 2.
3. Remove the Tension Adjust.
4. Remove the Tension Arm Ass'y.
5. Remove the Tension Band Ass'y.
6. Remove the Tension Lever 2 Ass'y.

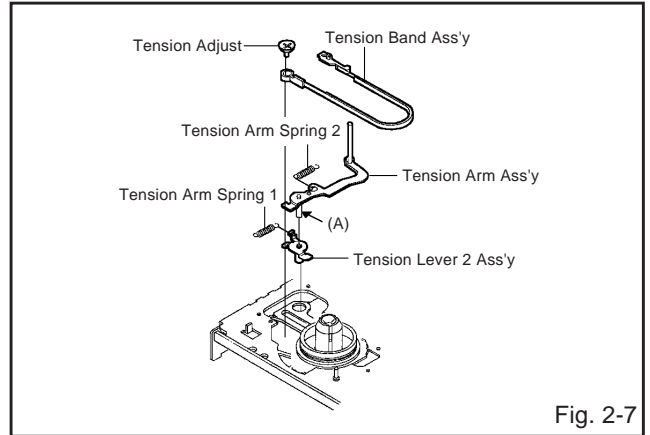


Fig. 2-7

### NOTES

1. Install the Tension Band Ass'y without twisting it.
2. Oil the area marked with A in Fig. 2-7.

## 2-8: REEL DISK (Refer to Fig. 2-8)

1. Remove the Reel Disk S and Reel Disk T.
2. Remove the 2 polyslider washers.

### NOTES

1. Installation of Reel Disk after performing step 1, 2 and 3 in section 2-7 of DISASSEMBLY INSTRUCTIONS.
2. The Height Adjustment washers are sometimes attached to the back of the Reel Disk.
3. Clean the Reel Disk Shaft and put in height adjusting washers.
4. Be careful not to damage the Tension Band Ass'y at the time of removal and installation.
5. Be careful not to scratch the Reel Disk Shaft with the polyslider washer or the tool at the time of removal and installation.
6. After oiling the Reel Disk Shaft, install the new Reel Disk S and Reel Disk T again.
7. After installation, adjust the height of the Reel Disk. **(Refer to item 1-1 of MECHANICAL ADJUSTMENTS)**
8. After installation, adjust and confirm the tension post position. **(Refer to item 1-2 of MECHANICAL ADJUSTMENTS)**



## DISASSEMBLY INSTRUCTIONS

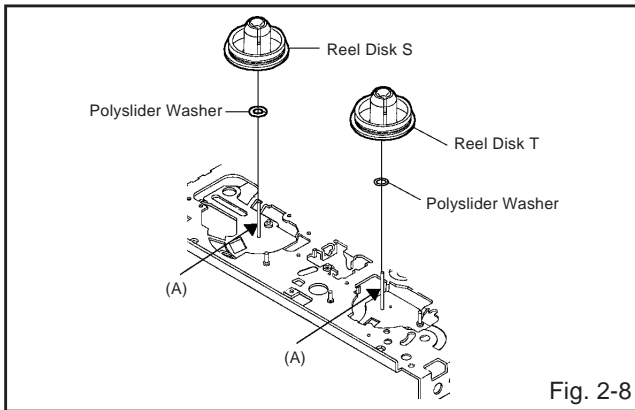


Fig. 2-8

### 2-9: PINCH ROLLER / CASSETTE OPENER (Refer to Fig. 2-9)

1. Unlock the support ①.
2. Remove the Pinch Roller.
3. Remove the screw ②.
4. Unlock the 2 supports ③.
5. Remove the Cassette Opener.
6. Remove the Spring P5 and Arm P5 Ass'y.
7. Remove the Cam Gear, Polyslider Washer ④, Spring Cam Pinch and Cam Pinch Roller.
8. Remove the Polyslider Washer ⑤ and Cam P5.

#### NOTES

1. Do not touch the Pinch Roller. (Use gloves.)
2. When installing the Cam P5, Cam Pinch Roller and Cam Gear, align the timing marks.

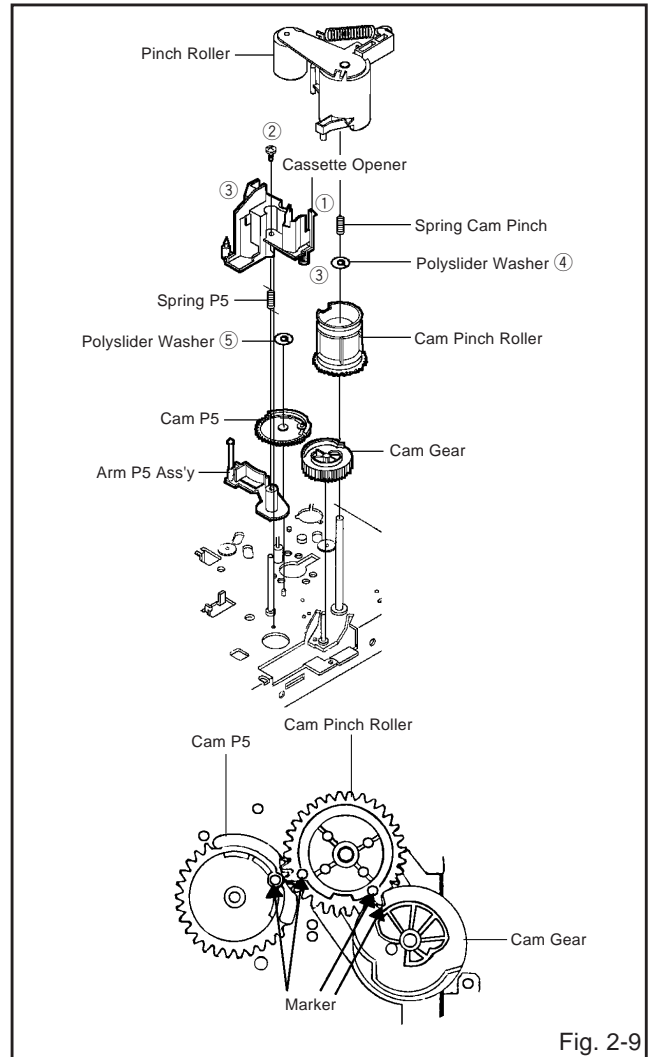


Fig. 2-9

### 2-10: AUDIO CONTROL HEAD (Refer to Fig. 2-10)

1. Disconnect the following connector: (CP4106) on the Head Amp PCB.
2. Remove the 3 screws ①.
3. Remove the 3 Audio Control Head Springs.
4. Remove the Audio Control Head.

#### NOTES

1. Do not touch the head by any means when replacing the Audio Control Head. (Use gloves.)
2. After replacement, confirm the following adjustments.
  - a. MECHANICAL ADJUSTMENTS: ITEM 2-2
  - b. MECHANICAL ADJUSTMENTS: ITEM 2-3

# DISASSEMBLY INSTRUCTIONS

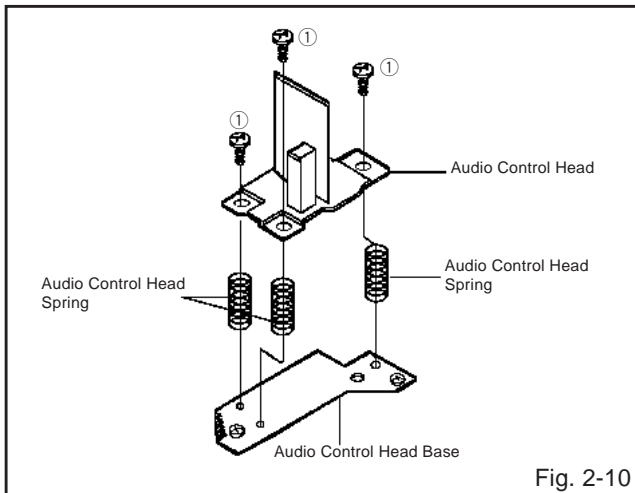


Fig. 2-10

## 2-11: CYLINDER UNIT (Refer to Fig. 2-11)

1. Disconnect the following connectors: (CP4101 and CP4102) on the Head Amp PCB.
2. Remove the Joint Screw, then remove the Azimuth Spring.
3. Remove the 2 screws (1), then remove the Polyslider Washer and Cylinder Unit from the Main Chassis.

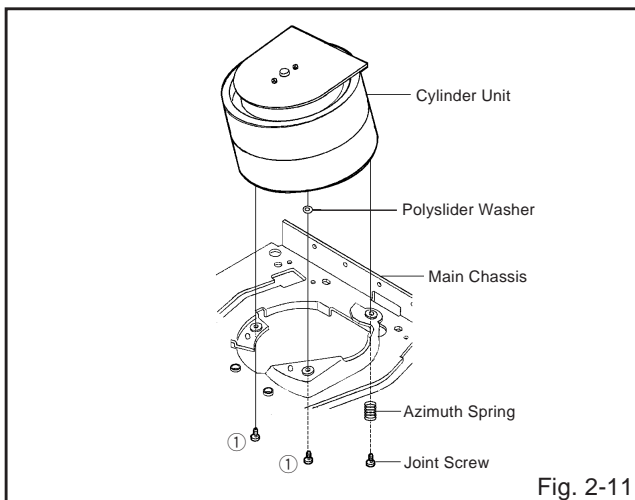


Fig. 2-11

## 2-12: PLATE BOTTOM (Refer to Fig. 2-12)

1. Remove the Capstan Belt.
2. Remove the 2 screws (1).
3. Remove the 3 screws (2).
4. Remove the Mode Switch.
5. Remove the Tension Lever Spring.
6. Remove the Plate Bottom.

### NOTE

When installing the Mode Switch, align the timing position.

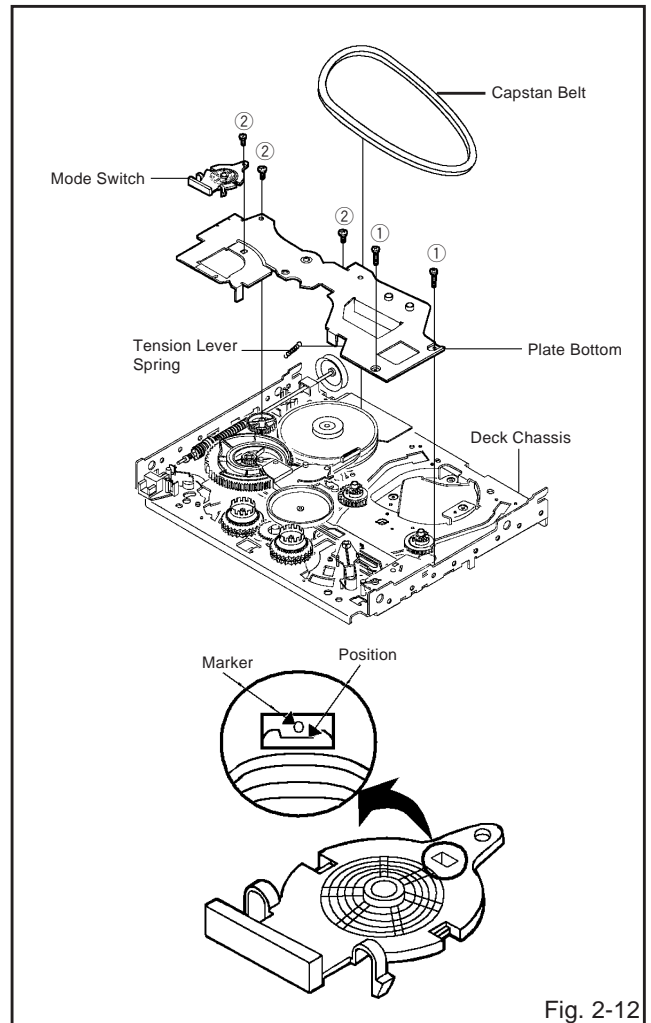


Fig. 2-12

## 2-13: CENTER PULLEY (Refer to Fig. 2-13)

1. Remove the Polyslider Washer (1).
2. Remove the Center Pulley.
3. Remove the Polyslider Washer (2).
4. Remove the Center Pulley Spring.
5. Remove the Idler Arm Ass'y.
6. Remove the 2 Polyslider Washers (3).
7. Remove the Clutch Gear T Ass'y and Clutch Gear S Ass'y.

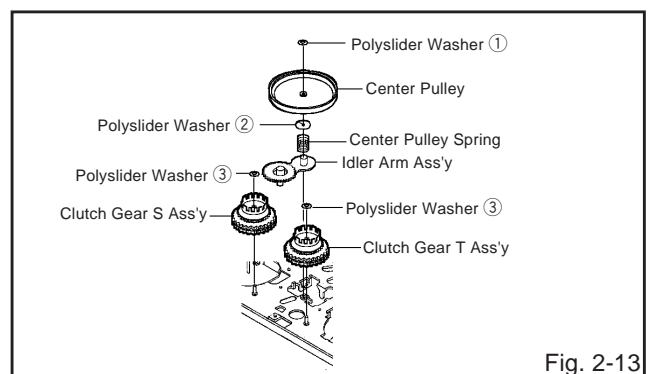


Fig. 2-13

# DISASSEMBLY INSTRUCTIONS

## 2-14: MAIN CAM (Refer to Fig. 2-14)

1. Remove the Loading Lever.
2. Remove the Main Brake Lever.
3. Remove the Capstan Brake Spring.
4. Remove the Capstan Brake Ass'y.
5. Remove the Main Rod Spring.
6. Remove the Tension Holder.
7. Remove the Tension Lever.
8. Remove the Main Cam.
9. Remove the Middle Gear.
10. Remove the Main Rod Ass'y.

### NOTES

1. When installing the Main Rod Ass'y, install side (B) first, then install side (A).
2. When installing the Loading Lever, align the timing marks.

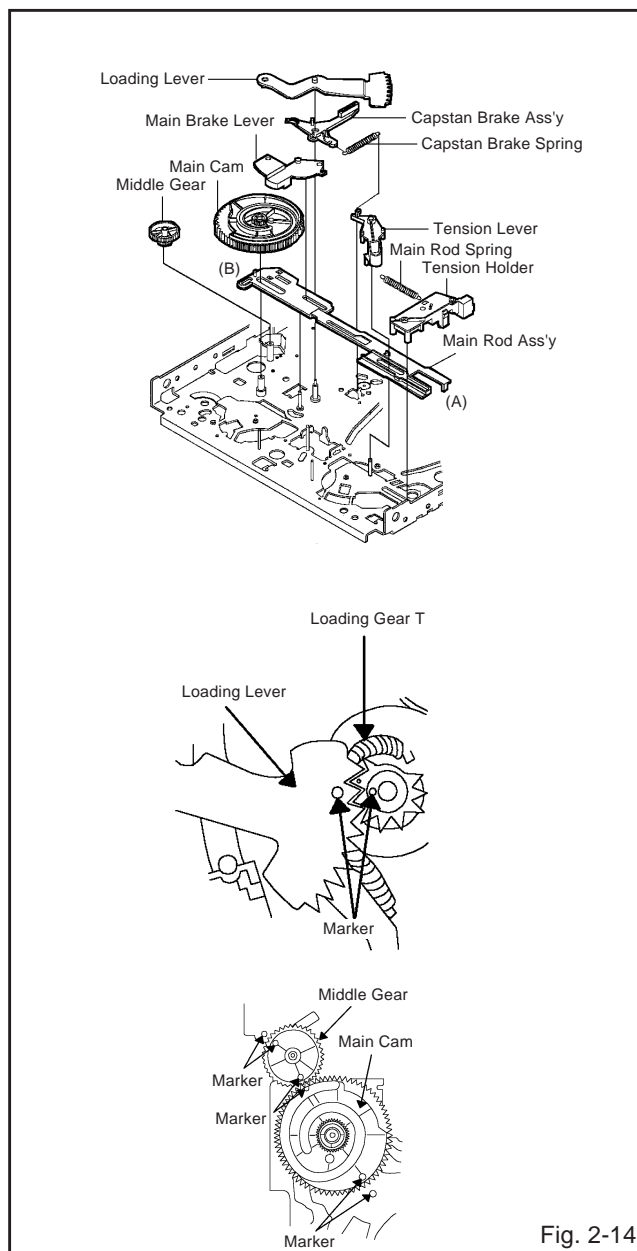


Fig. 2-14

## 2-15: CAPSTAN DD UNIT (Refer to Fig. 2-15)

1. Disconnect the following connector: (CP4105) on the Head Amp PCB.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

### NOTE

Use the specified screw to hold the Capstan DD Unit.

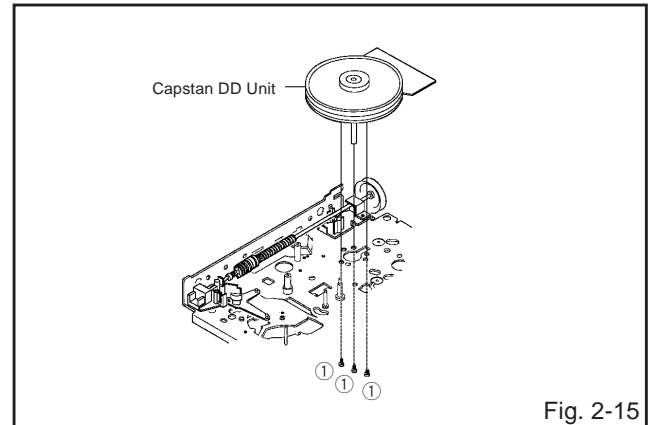


Fig. 2-15

## 2-16: INCLINED T ASS'Y / INCLINED S ASS'Y (Refer to Fig. 2-16)

1. Remove the 4 screws ①.
2. Remove the Catcher S and Catcher T.
3. Remove the 2 screws ②.
4. Remove the 2 Slider Loadings.
5. Remove the Inclined T Ass'y and Inclined S Ass'y.
6. Remove the Loading Gear T Ass'y.
7. Remove the Loading Gear S Ass'y.

### NOTE

When installing the Inclined T Ass'y and Inclined S Ass'y, align the timing marks.

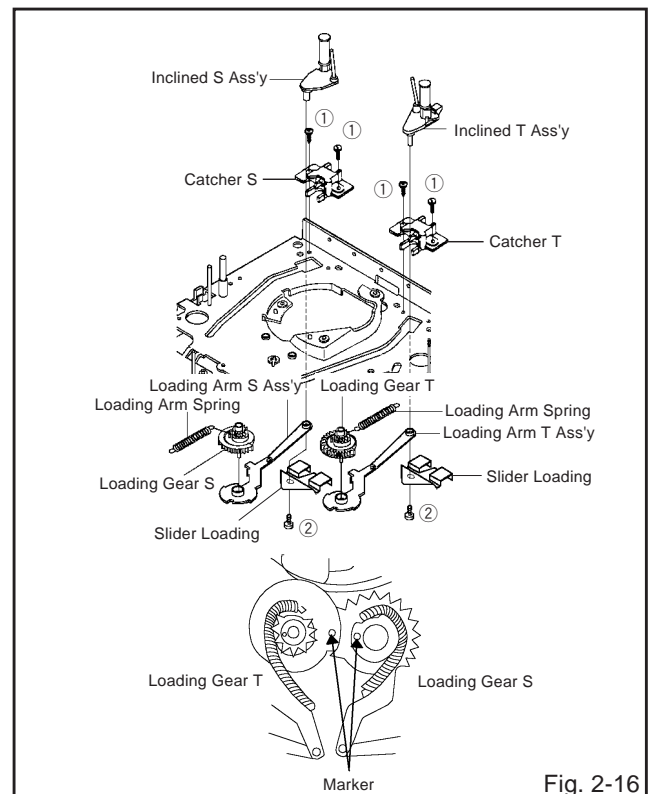


Fig. 2-16

# DISASSEMBLY INSTRUCTIONS

## 3. 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. 3-1.)**

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.

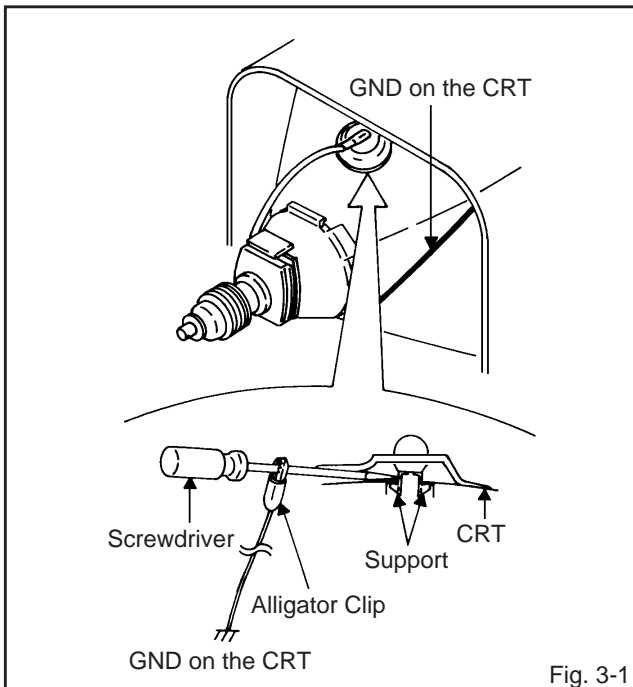


Fig. 3-1

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. 3-2.)**

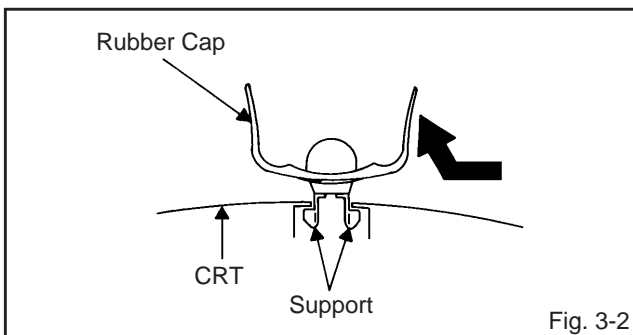


Fig. 3-2

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. 3-3.)**

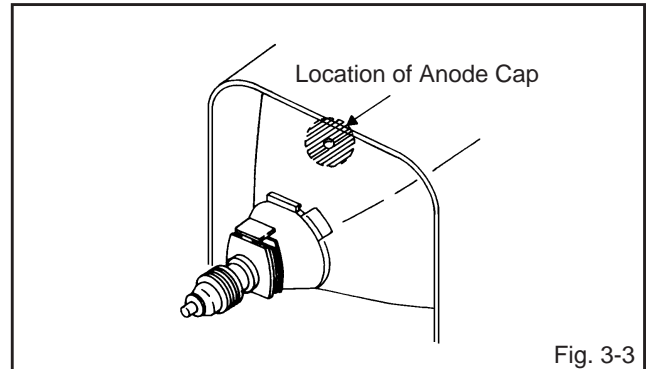


Fig. 3-3

### 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. 3-4.)**

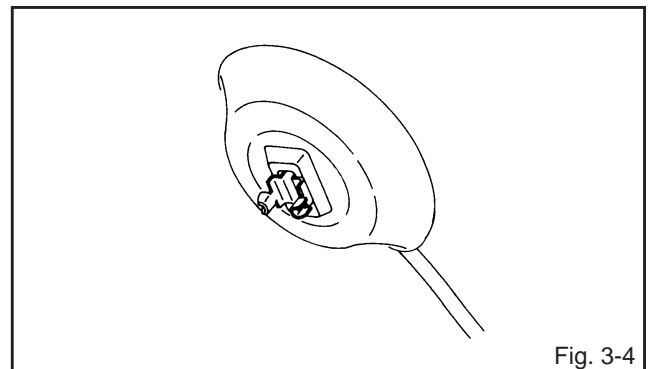


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

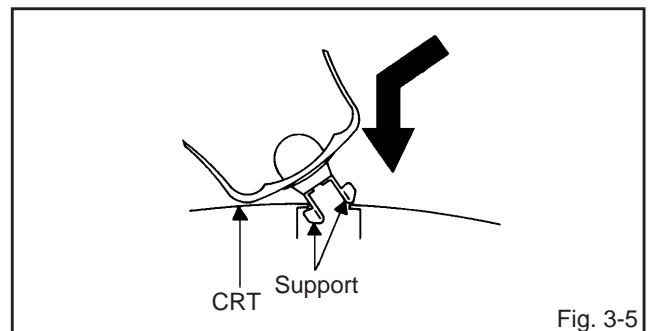


Fig. 3-5

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

## KEY TO ABBREVIATIONS

<b>A</b>	<b>A/C</b>	: Audio/Control	<b>H.SW</b>	: Head Switch	
	<b>ACC</b>	: Automatic Color Control	<b>Hz</b>	: Hertz	
	<b>AE</b>	: Audio Erase	<b>I</b>	<b>IC</b>	: Integrated Circuit
	<b>AFC</b>	: Automatic Frequency Control		<b>IF</b>	: Intermediate Frequency
	<b>AFT</b>	: Automatic Fine Tuning		<b>IND</b>	: Indicator
	<b>AFT DET</b>	: Automatic Fine Tuning Detect		<b>INV</b>	: Inverter
	<b>AGC</b>	: Automatic Gain Control	<b>K</b>	<b>KIL</b>	: Killer
	<b>AMP</b>	: Amplifier	<b>L</b>	<b>L</b>	: Left
	<b>ANT</b>	: Antenna		<b>LED</b>	: Light Emitting Diode
	<b>A.PB</b>	: Audio Playback		<b>LIMIT AMP</b>	: Limiter Amplifier
	<b>APC</b>	: Automatic Phase Control		<b>LM, LDM</b>	: Loading Motor
	<b>ASS'Y</b>	: Assembly		<b>LP</b>	: Long Play
	<b>AT</b>	: All Time		<b>L.P.F</b>	: Low Pass Filter
	<b>AUTO</b>	: Automatic		<b>LUMI.</b>	: Luminance
	<b>A/V</b>	: Audio/Video	<b>M</b>	<b>M</b>	: Motor
<b>B</b>	<b>BGP</b>	: Burst Gate Pulse		<b>MAX</b>	: Maximum
	<b>BOT</b>	: Beginning of Tape		<b>MINI</b>	: Minimum
	<b>BPF</b>	: Bandpass Filter		<b>MIX</b>	: Mixer, mixing
	<b>BRAKE SOL</b>	: Brake Solenoid		<b>MM</b>	: Monostable Multivibrator
	<b>BUFF</b>	: Buffer		<b>MOD</b>	: Modulator, Modulation
	<b>B/W</b>	: Black and White		<b>MPX</b>	: Multiplexer, Multiplex
<b>C</b>	<b>C</b>	: Capacitance, Collector		<b>MS SW</b>	: Mech State Switch
	<b>CASE</b>	: Cassette	<b>N</b>	<b>NC</b>	: Non Connection
	<b>CAP</b>	: Capstan		<b>NR</b>	: Noise Reduction
	<b>CARR</b>	: Carrier	<b>O</b>	<b>OSC</b>	: Oscillator
	<b>CH</b>	: Channel		<b>OPE</b>	: Operation
	<b>CLK</b>	: Clock	<b>P</b>	<b>PB</b>	: Playback
	<b>CLOCK (SY-SE)</b>	: Clock (Syscon to Servo)		<b>PB CTL</b>	: Playback Control
	<b>COMB</b>	: Combination, Comb Filter		<b>PB-C</b>	: Playback-Chrominance
	<b>CONV</b>	: Converter		<b>PB-Y</b>	: Playback-Luminance
	<b>CPM</b>	: Capstan Motor		<b>PCB</b>	: Printed Circuit Board
	<b>CTL</b>	: Control		<b>P. CON</b>	: Power Control
	<b>CYL</b>	: Cylinder		<b>PD</b>	: Phase Detector
	<b>CYL-M</b>	: Cylinder-Motor		<b>PG</b>	: Pulse Generator
	<b>CYL SENS</b>	: Cylinder-Sensor		<b>P-P</b>	: Peak-to Peak
<b>D</b>	<b>DATA (SY-CE)</b>	: Data (Syscon to Servo)	<b>R</b>	<b>R</b>	: Right
	<b>dB</b>	: Decibel		<b>REC</b>	: Recording
	<b>DC</b>	: Direct Current		<b>REC-C</b>	: Recording-Chrominance
	<b>DD Unit</b>	: Direct Drive Motor Unit		<b>REC-Y</b>	: Recording-Luminance
	<b>DEMODO</b>	: Demodulator		<b>REEL BRK</b>	: Reel Brake
	<b>DET</b>	: Detector		<b>REEL S</b>	: Reel Sensor
	<b>DEV</b>	: Deviation		<b>REF</b>	: Reference
<b>E</b>	<b>E</b>	: Emitter		<b>REG</b>	: Regulated, Regulator
	<b>EF</b>	: Emitter Follower		<b>REW</b>	: Rewind
	<b>EMPH</b>	: Emphasis		<b>REV, RVS</b>	: Reverse
	<b>ENC</b>	: Encoder		<b>RF</b>	: Radio Frequency
	<b>ENV</b>	: Envelope		<b>RMC</b>	: Remote Control
	<b>EOT</b>	: End of Tape		<b>RY</b>	: Relay
	<b>EQ</b>	: Equalizer	<b>S</b>	<b>S. CLK</b>	: Serial Clock
	<b>EXT</b>	: External		<b>S. COM</b>	: Sensor Common
<b>F</b>	<b>F</b>	: Fuse		<b>S. DATA</b>	: Serial Data
	<b>FBC</b>	: Feed Back Clamp		<b>SEG</b>	: Segment
	<b>FE</b>	: Full Erase		<b>SEL</b>	: Select, Selector
	<b>FF</b>	: Fast Forward, Flipflop		<b>SENS</b>	: Sensor
	<b>FG</b>	: Frequency Generator		<b>SER</b>	: Search Mode
	<b>FL SW</b>	: Front Loading Switch		<b>SI</b>	: Serial Input
	<b>FM</b>	: Frequency Modulation		<b>SIF</b>	: Sound Intermediate Frequency
	<b>FSC</b>	: Frequency Sub Carrier		<b>SO</b>	: Serial Output
	<b>FWD</b>	: Forward		<b>SOL</b>	: Solenoid
<b>G</b>	<b>GEN</b>	: Generator		<b>SP</b>	: Standard Play
	<b>GND</b>	: Ground		<b>STB</b>	: Serial Strobe
<b>H</b>	<b>H.P.F</b>	: High Pass Filter		<b>SW</b>	: Switch

## KEY TO ABBREVIATIONS

<b>S</b>	<b>SYNC</b>	:	Synchronization
	<b>SYNC SEP</b>	:	Sync Separator, Separation
<b>T</b>	<b>TR</b>	:	Transistor
	<b>TRAC</b>	:	Tracking
	<b>TRICK PB</b>	:	Trick Playback
	<b>TP</b>	:	Test Point
<b>U</b>	<b>UNREG</b>	:	Unregulated
<b>V</b>	<b>V</b>	:	Volt
	<b>VCO</b>	:	Voltage Controlled Oscillator
	<b>VIF</b>	:	Video Intermediate Frequency
	<b>VP</b>	:	Vertical Pulse, Voltage Display
	<b>V.PB</b>	:	Video Playback
	<b>VR</b>	:	Variable Resistor
	<b>V.REC</b>	:	Video Recording
	<b>VSF</b>	:	Visual Search Fast Forward
	<b>VSR</b>	:	Visual Search Rewind
	<b>VSS</b>	:	Voltage Super Source
	<b>V-SYNC</b>	:	Vertical-Synchronization
	<b>VT</b>	:	Voltage Tuning
<b>X</b>	<b>X'TAL</b>	:	Crystal
<b>Y</b>	<b>Y/C</b>	:	Luminance/Chrominance

## PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head	■	■	■	■	■	
Loading Motor Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Reel Belt			■	■	●	
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head.

● : Replace    ■ : Clean

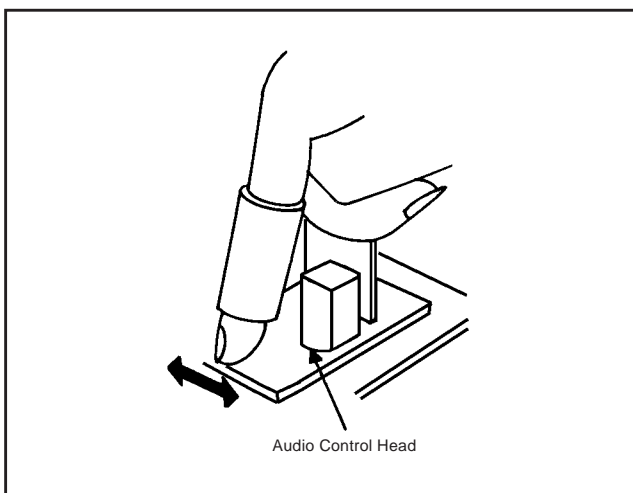
### CLEANING

#### NOTE

- After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

#### 1. AUDIO CONTROL HEAD

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below)**



#### 2. TAPE RUNNING SYSTEM

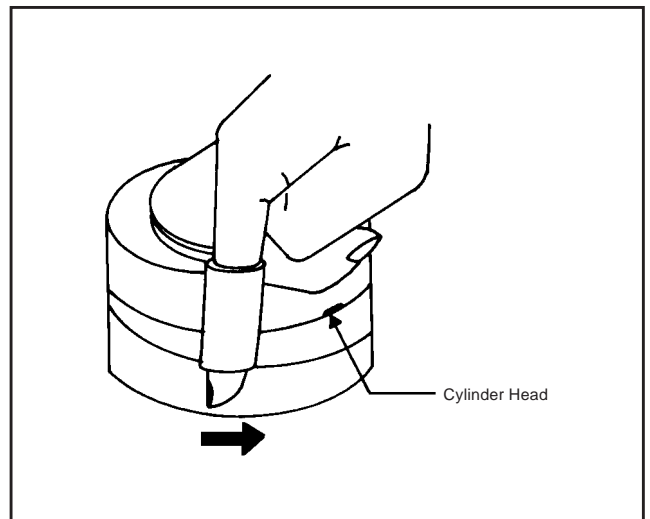
- When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

#### 3. CYLINDER

- Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below)**

#### NOTE

Do not exert force against the cylinder head. Do not move the chamois up or down since this can damage the head. Always use a piece of chamois for cleaning.



## 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

- Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.
- No need the setting for after INI 6.

ADDRESS	INI 01	INI 02	INI 03	INI 04	INI 05	INI 06
DATA	CB	91	09	80	88	AD

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. ADDRESS and DATA should appear as FIG 1.

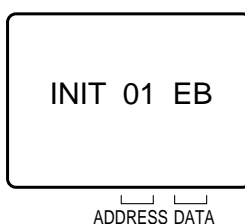


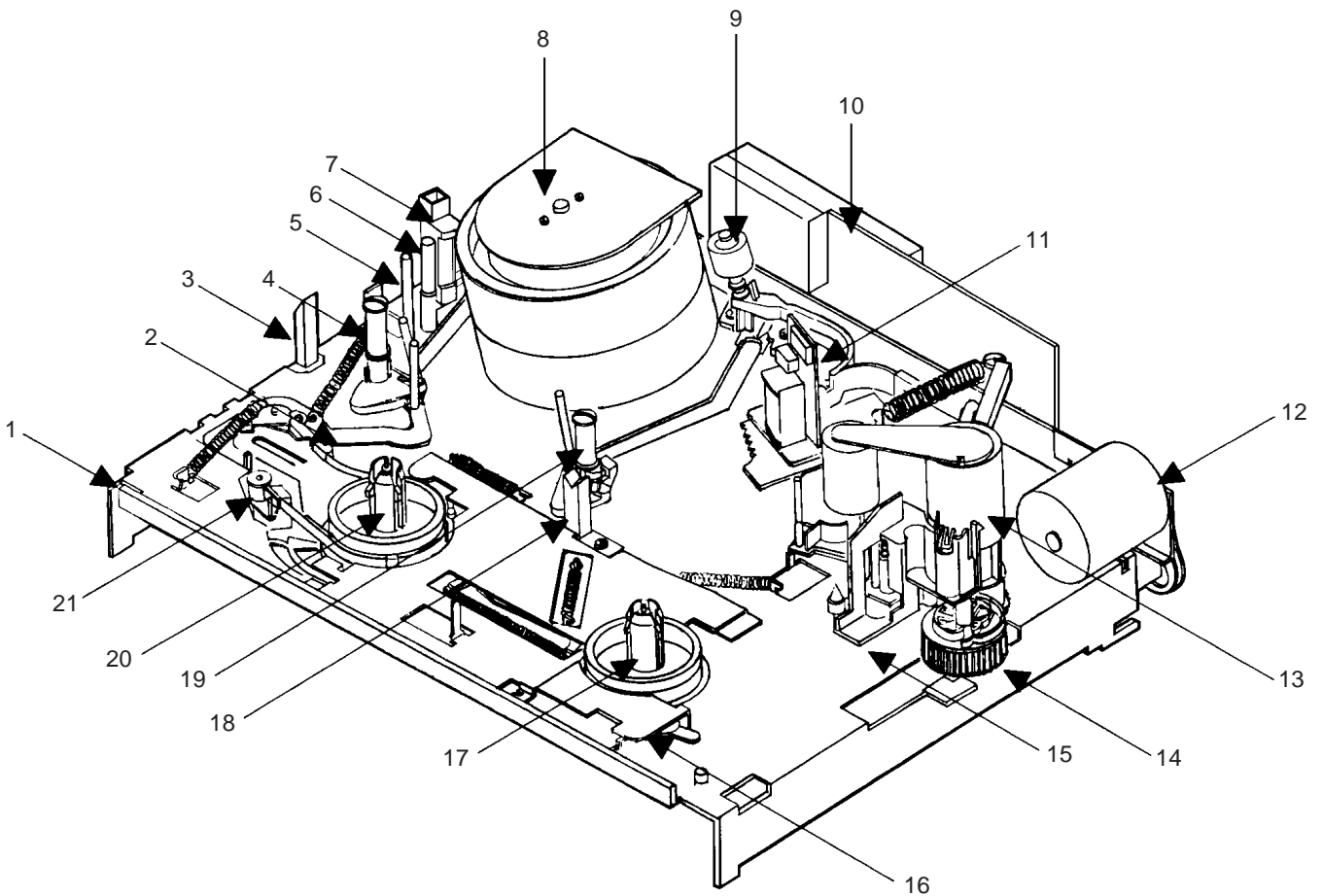
Fig. 1

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.



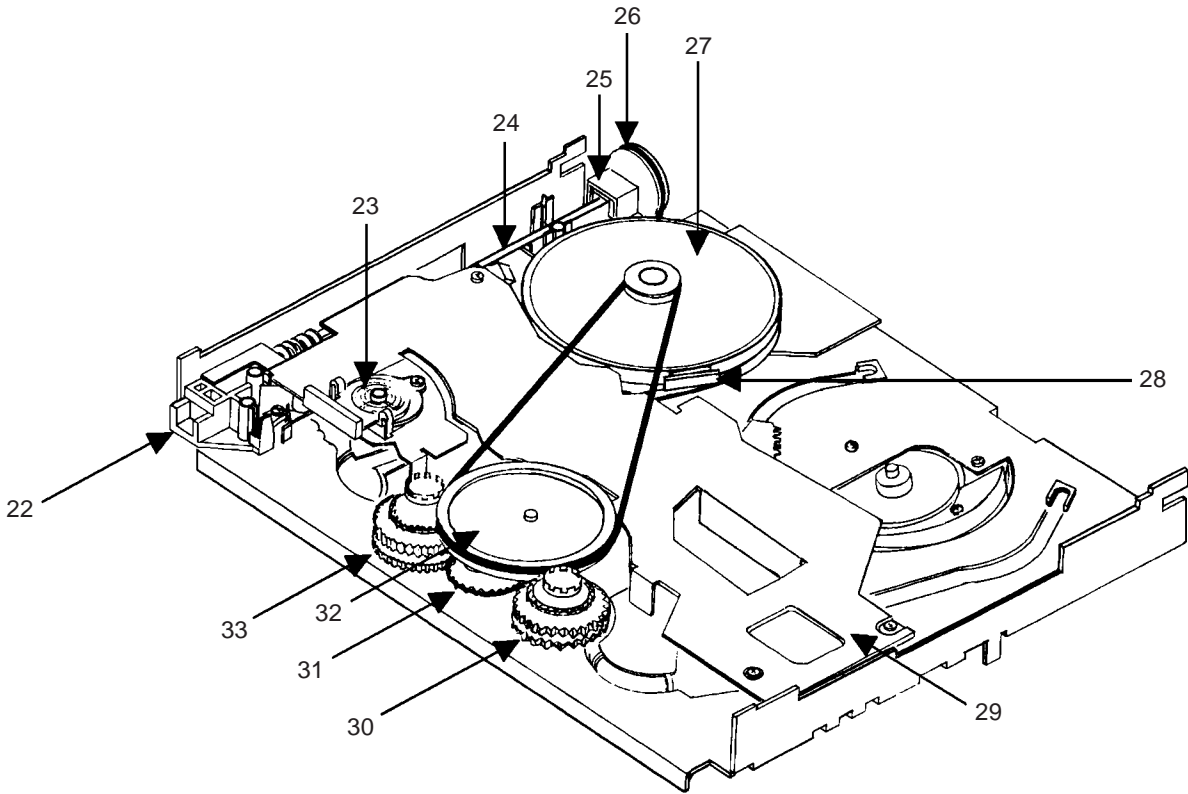
# DECK PARTS LOCATIONS

(TOP VIEW)



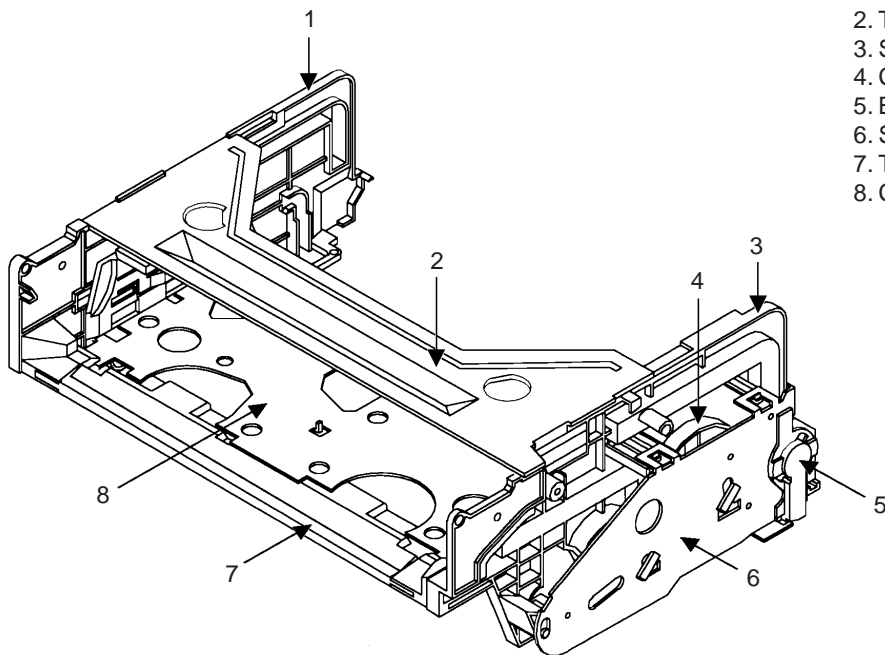
- |                         |                          |
|-------------------------|--------------------------|
| 1. Main Chassis         | 12. Loading Motor        |
| 2. Tension Arm Ass'y    | 13. Pinch Roller Block   |
| 3. EOT Reflector        | 14. Cam Gear             |
| 4. Guide Roller S Ass'y | 15. Cassette Opener      |
| 5. P0 Post              | 16. Brake Bracket        |
| 6. P1 Post              | 17. Reel T               |
| 7. FE Head              | 18. LED Reflector        |
| 8. Cylinder Unit        | 19. Guide Roller T Ass'y |
| 9. Auto Head Cleaning   | 20. Reel S               |
| 10. Head Amp PCB        | 21. Tension Band Ass'y   |
| 11. Audio/Control Head  |                          |

## DECK PARTS LOCATIONS (BOTTOM VIEW)



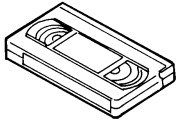
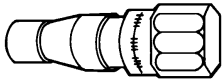
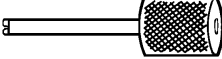
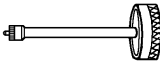
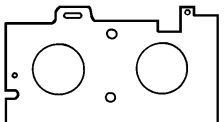
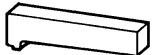
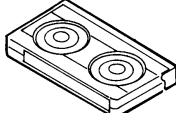
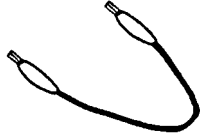
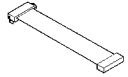
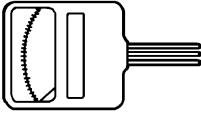
- |                          |                         |
|--------------------------|-------------------------|
| 22. Worm Bracket F Ass'y | 28. Capstan Brake Ass'y |
| 23. Mode Switch          | 29. Bottom Plate        |
| 24. Worm Ass'y           | 30. Clutch Gear S Ass'y |
| 25. Worm Bracket R Ass'y | 31. Idler Arm Ass'y     |
| 26. Loading Motor Belt   | 32. Center Pulley       |
| 27. Capstan DD Unit      | 33. Clutch Gear T Ass'y |

## (FRONT LOADING UNIT 9)



1. Side Bracket L
2. Top Bracket Ass'y
3. Side Bracket R Ass'y
4. Cam Gear Ass'y
5. Bot Sensor Cover
6. Side Bracket R2
7. Tape Piece Guide
8. Cassette Holder Ass'y

## SERVICING FIXTURES AND TOOLS

<p>VHS Alignment Tape JG001C (TTV-P2 or CH-2) JG001D (TTV-P1 or CH-2)</p> 	<p>JG002B Adapter JG002F Dial Torque Gauge (60~600gf•cm) JG002G(100~1200gf•cm)</p> 	<p>JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small)</p> 	<p>JG153 X Value Adjustment Screwdriver</p> 
<p>JG022 Master Plane</p> 	<p>JG024 Reel Disk Height Adjustment Jig</p> 	<p>JG100A Torque Tape (VHT-063)</p> 	<p>JG154 Cable Part No. SJ-G15-400-000</p> 
<p>JG162A Cable (8 Pins) Part No. SJ-G16-2A0-000 JG162H Cable (15 Pins) Part No. SJ-G16-2H0-000 JG162Y Cable (5 Pins) Part No. SJ-G16-2Y0-000</p> 	<p>Tentelometer</p> 		

Part No.	Remarks
JG001C	Stair Steps, 6KHz
JG001D	Color Bar, 1KHz
JG002F	Playback Take Up Torque
JG002G	Fast Forward Torque, Rewind Torque, Brake Torque (Take up Reel/Supply Reel)
JG005	Guide Roller Adjustment
JG153	X-Value Adjustment
JG022/JG024	Reel Disk Height Adjustment
JG100A	Playback Back Tension Torque
JG154	Used to connect the test point of SERVICE and GROUND
JG162A/JG162H	Used to connect the SYSCON PCB and MAIN PCB
JG162Y	Used to connect the SYSCON PCB and CRT PCB

## PREPARATION FOR SERVICING

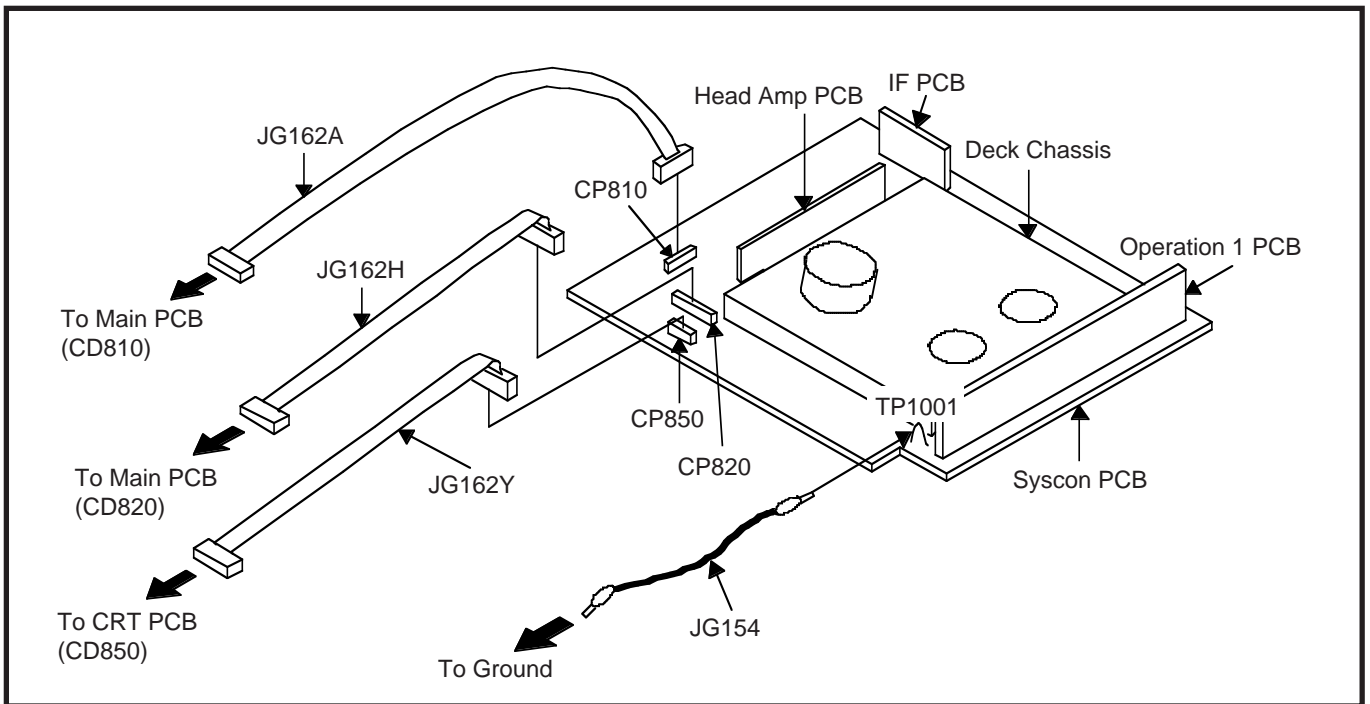
### How to use the Servicing Fixture

1. Unplug the connector CP301, CP353, CP810, CP820, CP850 and CP005, then remove the VCR Block from the set.
2. Connect as shown in the below figure using the Service Fixture.
  - Connect the Syscon PCB to the Main PCB with the cable JG162A and JG162H.
  - Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
3. Short circuit between **TP1001** and **Ground** with the cable JG154.

#### (Refer to MAJOR COMPONENTS LOCATION GUIDE)

The EOT, BOT and Reel Sensor do not work at this moment.

4. At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.



# MECHANICAL ADJUSTMENTS

## 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTED items before starting work.

- Place an object which weighs between 350g and 500g on the Cassette Tape to keep it steady when you want to make the tape run without the Front Loading Unit 9. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Front Loading Unit 9, short circuit between **TP1001** and **Ground**. In this condition the BOT/EOT/Reel Sensor will not function.

### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024**) on mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that the reel disk is lower than "A" of the reel disk height adjustment jig (**JG024**) on the master plane and higher than "B" as shown in **Fig. 1-1-B**. If it is not, adjust to less than  $7.5\text{mm} \pm 0.2\text{mm}$  with the height adjustment washer.
4. Perform the same adjustment for other reel.

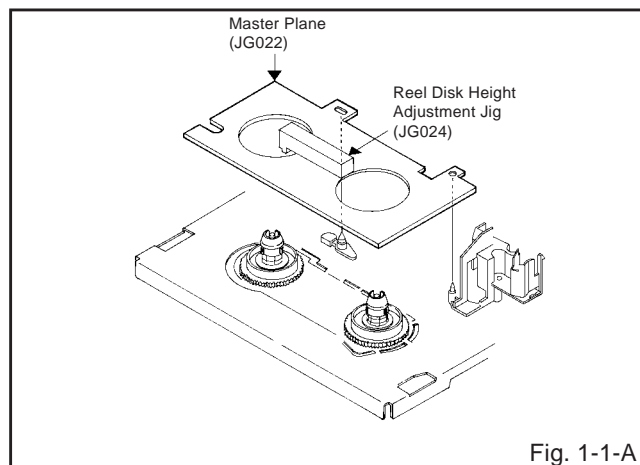


Fig. 1-1-A

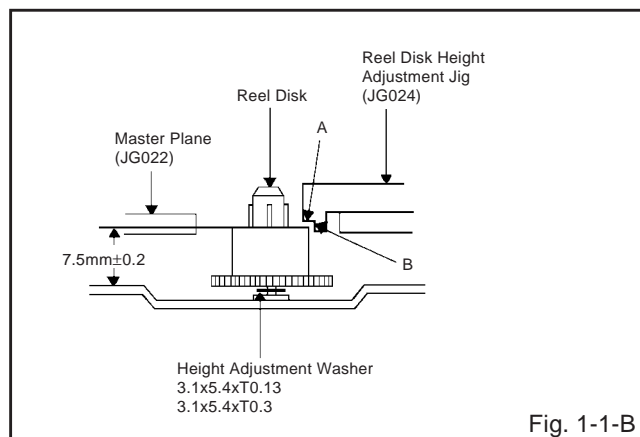


Fig. 1-1-B

### 1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Turn on the power and set to the PLAY mode adjust the Tension so that the Tension Post is at the position of  $0.3\text{mm} \sim 0.5\text{mm}$  from the Rib. (**Refer to Fig. 1-2**)
2. Confirm that the video tape is not curling at the flange of P1 post or is not running on flanges.

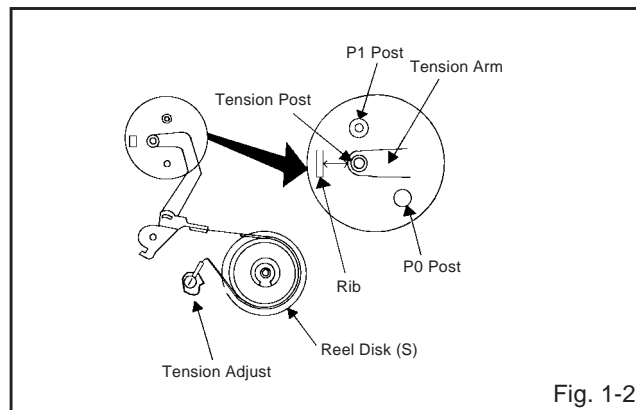


Fig. 1-2

### 1-3: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK

1. Load a video tape recorded in standard speed mode. Set the unit to the PLAY mode.
  2. Install the tentelometer as shown in **Fig. 1-3**. Confirm the value is within  $20 \sim 27\text{gf}$  at this time.
- IN CASE OF USING A CASSETTE TYPE TORQUE TAPE.
1. After adjustment, confirm and adjust the tension post position (**Refer to item 1-2**) for the tension arm, install the cassette type torque tape (**JG100A**) and set to the PLAY mode.
  2. Confirm that the left hand side tension value of the torque tape is  $25 \sim 38\text{gf} \cdot \text{cm}$  for the standard mode tape.

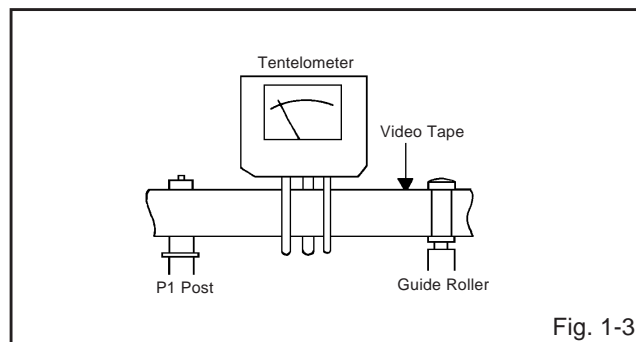


Fig. 1-3

# MECHANICAL ADJUSTMENTS

## 1-4: CONFIRMATION OF FAST FORWARD TORQUE

1. Set torque gauge (**JG002G**) on take-up reel disk, and place unit in FAST FORWARD mode. (Refer to Fig. 1-4)
2. Confirm that torque is more than 400gf•cm.

### NOTE

After setting the torque gauge on the reel disk, hold the gauge in place.  
Push the FAST FORWARD button and the reel disk will begin to turn.

## 1-5: CONFIRMATION OF REWIND TORQUE

1. Operate within 4 or 5 seconds after the reel disk begins to turn.
2. Set torque gauge (**JG002G**) on supply reel disk, and place the unit in REWIND mode. (Refer to Fig 1-4).
3. Confirm that torque is more than 400gf•cm.

### NOTE

After setting the torque gauge on the reel disk, hold the gauge in place.  
Push the REWIND button and the reel disk will begin to turn.

## 1-6: CONFIRMATION OF REEL BRAKE TORQUE

(Take-Up Reel Brake) (Refer to Fig. 1-4)

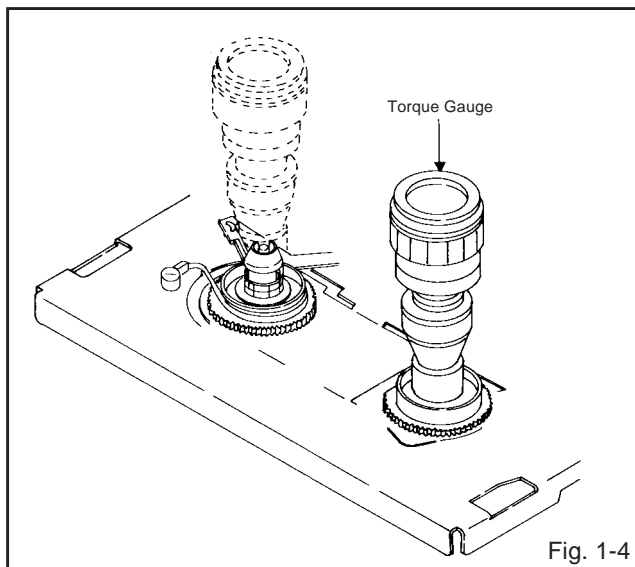
1. Set to STOP mode.
2. Set the torque gauge (**JG002G**) to the take-up reel and turn it counterclockwise.
3. Confirm that it is more than 200gf•cm at that time.

(Supply Reel Brake) (Refer to Fig. 1-4)

1. Set to STOP mode.
2. Set the torque gauge (**JG002G**) to the supply reel and turn it clockwise.
3. Confirm that it is more than 200gf•cm at that time.

### NOTE

Separate the idler from the reel and confirm the brake torque.



### NOTE

If the torque value checked is out of tolerance, replace the appropriate parts as follows.

Check Items	Replace Parts
1-4	Idler Ass'y or Clutch ASS'Y
1-5	Idler Ass'y or Clutch ASS'Y
1-6	Main Brake T Ass'y or Main Brake S Ass'y

## 2. TAPE RUNNING CONFIRMATION AND ADJUSTMENT

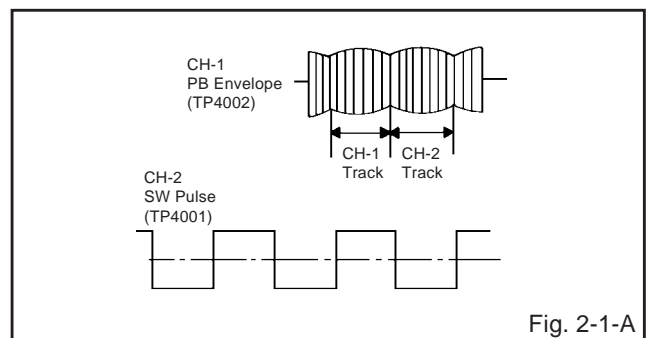
Tape running is adjusted precisely at the factory. Normally, it is not necessary to make adjustments. It is necessary to confirm and make adjustments when the parts of the tape running mechanism are replaced because of extensive usage or failure.

### 2-1: GUIDE ROLLER

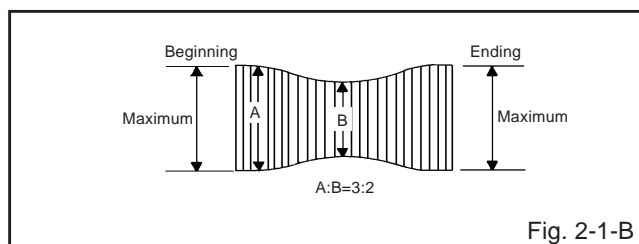
1. Connect CH-1 on the oscilloscope to **TP4002 (PB Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
2. Set the tracking to manual center position in the following way. Press and hold the tracking auto button more than 2 seconds to set the tracking to center position.
3. Trigger with SW pulse and observe the envelope. (Refer to Fig. 2-1-A)
4. Adjust the guide roller height while observing the envelope, and make the envelope flat. Adjust the envelope so that the flatness will not be affected even when the tracking control button is pressed. (Use the adjustment screwdriver **JG005**).
5. Press and hold the tracking control button and (at the point that the envelope waveform starts to reduce) adjust the envelope so that the A : B ratio is better than 3 : 2. (Refer to Fig. 2-1-B)
6. Adjust the PG shifter (**ELECTRICAL ADJUSTMENTS : ITEM 3-1**) in the PLAY mode.

### NOTE

After adjustment, confirm and adjust A/C head tilt. (Refer to item 2-2)



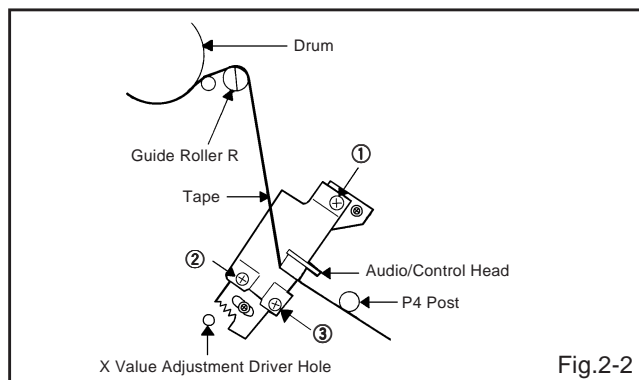
## MECHANICAL ADJUSTMENTS



### 2-2: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

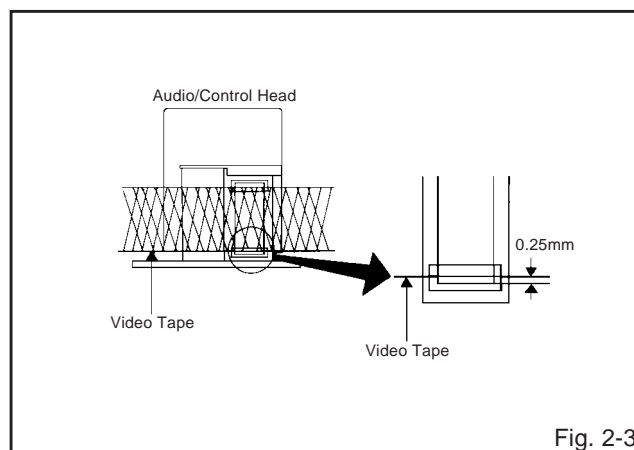
When the tape is running abnormally, perform the following adjustments.

1. Insert a new tape and play it back.
2. Confirm that there is no crease on the tape between the P4 post and guide roller (R) and the tape is running smoothly. (It is absolutely impossible to get satisfactory sound if the tape is distorted between the A/C head and P4 post.)
3. If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. (Refer to Fig. 2-2)



### 2-3: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

1. Playback a VHS alignment tape (JG001C) and observe the waveform at the audio output terminal.
2. Turn the screw ② slowly to change the azimuth of the A/C head. Adjust the height so that the audio output becomes maximum. (Refer to Fig. 2-2)
3. Adjust the screw ③, (Refer to Fig. 2-2) until the height of the A/C head reaches the position against the tape as shown in Fig. 2-3.
4. When the control head height is not correct. (When you must turn the screw more than 45 degrees), Turn all of the screws ①, ② and ③ to the same degrees. Then confirm the angle of the audio/control head and adjust again.

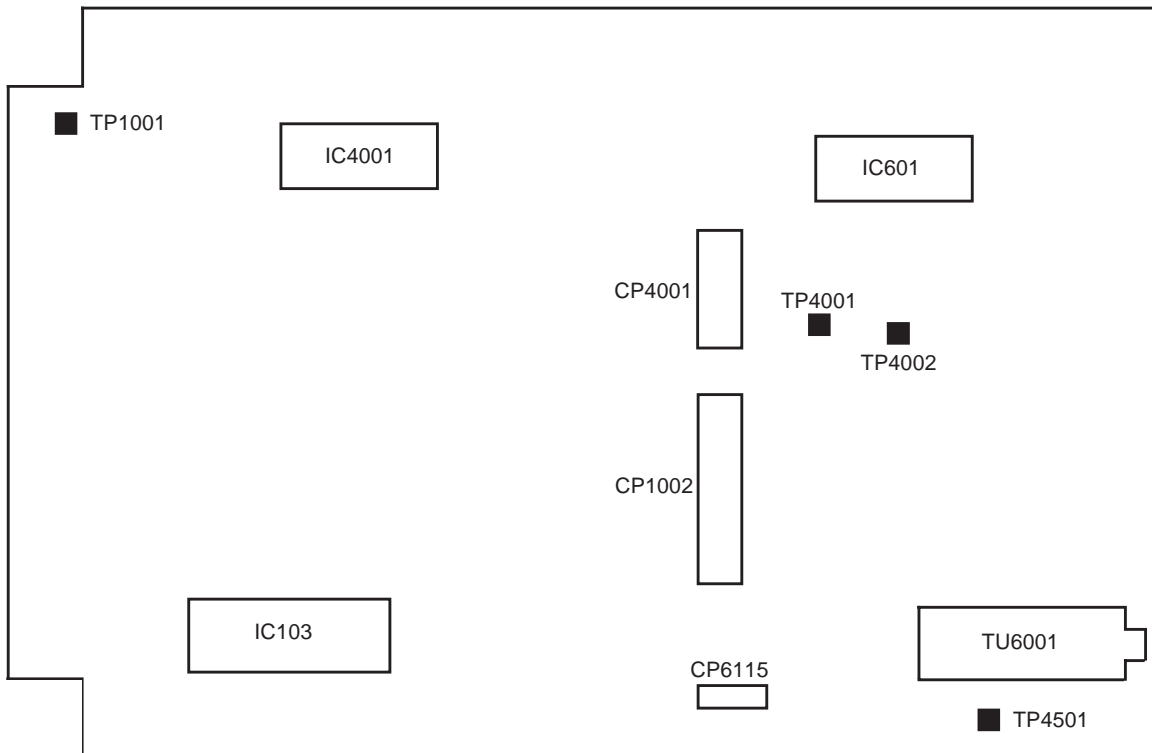


### 2-4: TAPE RUNNING ADJUSTMENT

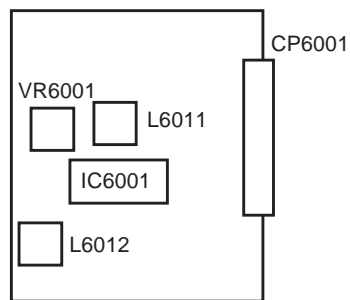
1. Adjust the height of reel disk. (Refer to item 1-1)
2. Confirm and adjust tension post position. (Refer to item 1-2)
3. Adjust the guide roller. (Refer to item 2-1)
4. Adjust the A/C head tilt. (Refer to item 2-2)
5. Adjust the A/C head height and azimuth. (Refer to item 2-3)
6. Connect CH-1 on the oscilloscope to TP4001 and CH-2 to TP4002. Playback the VHS alignment tape (JG001C). Set the tracking to manual center. Adjust X with the screw driver for X (JG153) as the Fig. 2-1-A and Fig. 2-1-B. (Refer to No. 2 of the item 2-1).

# MAJOR COMPONENTS LOCATION GUIDE

## (VCR SECTION)



## SYSCON



## IF



# ELECTRICAL ADJUSTMENTS

## (VCR SECTION)

### 3. ADJUSTMENT PROCEDURE

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

#### CAUTION

When replacing IC's or transistors, use a silicon grease. (To prevent the damage to IC's and transistors.)

#### 3-1: PG SHIFTER (HEAD SWITCHING) ADJUSTMENT

##### CONDITIONS

MODE-PLAYBACK

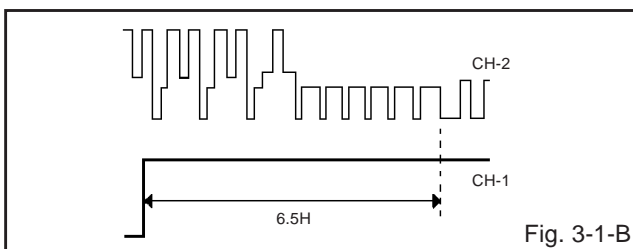
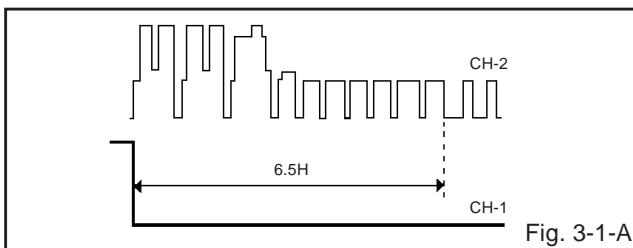
Input Signal-Alignment Tape (**JG001D**) or Similar

##### INSTRUCTIONS

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C101** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **TP4501**.
3. Playback the alignment tape. (**JG001D**)
4. Press and hold the Tracking Auto button more than 2 seconds to set the tracking to center position.
5. Press the VOL. DOWN button on the set and the channel button (**3**) on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

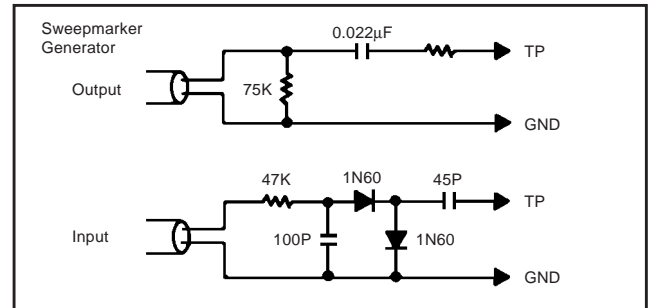
6. Press the VOL. DOWN button on the set and the channel button (**3**) on the remote control simultaneously until the indicator REC disappears.
7. When the REC indicator is blinking, press both VOL. DOWN key on the set and the channel button (**4**) on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of the Head Switching Pulse becomes  $6.5 \pm 0.5H$ .
8. Press the Tracking Auto button.



#### 3-2: VCO COIL

##### NOTE

For adjusting of VCO, connect input and output terminals of sweepmarker generator to the circuit as shown below, then adjust it.

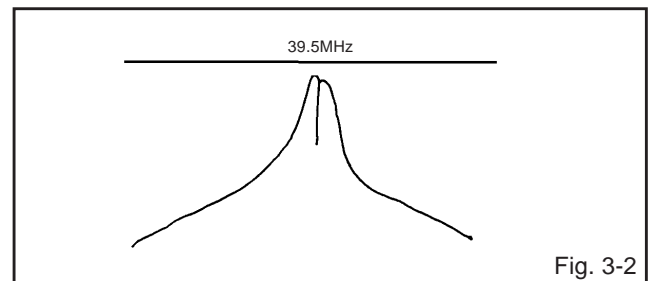


##### CONDITION

MODE-STOP

##### INSTRUCTIONS

1. Connect the output of sweepmarker generator to **pin 5 of IC6001**.
2. Connect the input of sweepmarker generator to **pin 17 of IC6001**.
3. Connect a 10K ohm variable resistor to IF AGC terminal (**pin 4 of IC6001**), 9V line and ground, then adjust to make the waveform of the oscilloscope readable.
4. Adjust the **L6011** until the waveform marker (39.5MHz) becomes as shown in **Fig. 3-2**.



#### 3-3: AFT COIL

##### CONDITION

MODE-STOP

##### INSTRUCTIONS

1. Connect the output of sweepmarker generator to **pin 5 of IC6001**.
2. Connect the input of sweepmarker generator to **pin 3 of CP6115**.
3. Adjust **L6012** until the waveform marker (39.5MHz) becomes as shown in **Fig. 3-3**.
4. Disconnect the sweepmarker generator and the oscilloscope.
5. Connect the generator (39.5MHz) to the **pin 4 of CP6115** through 2.2k ohm and connect the DC voltmeter to **pin 3 of CP6115**.
6. Adjust the **L6012** until the DC voltmeter is  $3.8 \pm 0.1V$ .

## ELECTRICAL ADJUSTMENTS

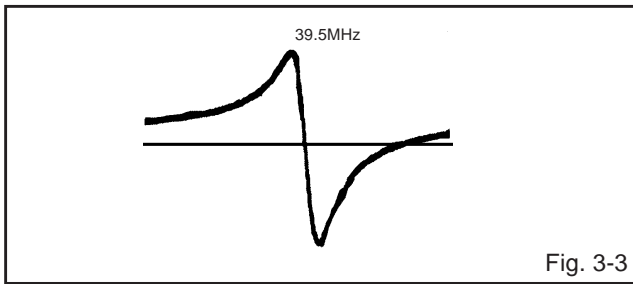


Fig. 3-3

### 3-4: COLOR LEVEL

#### CONDITIONS

MODE-STOP

#### INSTRUCTIONS

1. Connect the oscilloscope to **TP4501**.
2. When the Y-LEVEL is 100%, adjust the **VR6001** until the MAGENTA Section LEVEL becomes  $45 \pm 5\%$ .  
(Refer to Fig. 3-4)

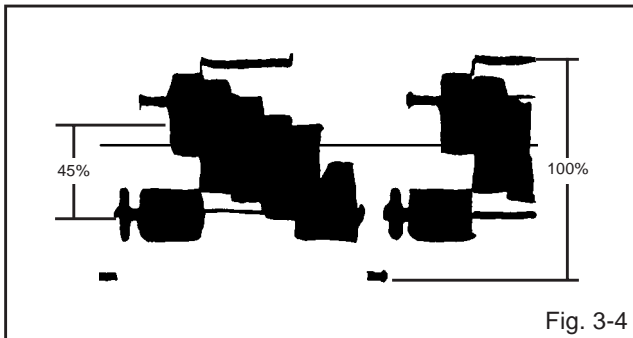
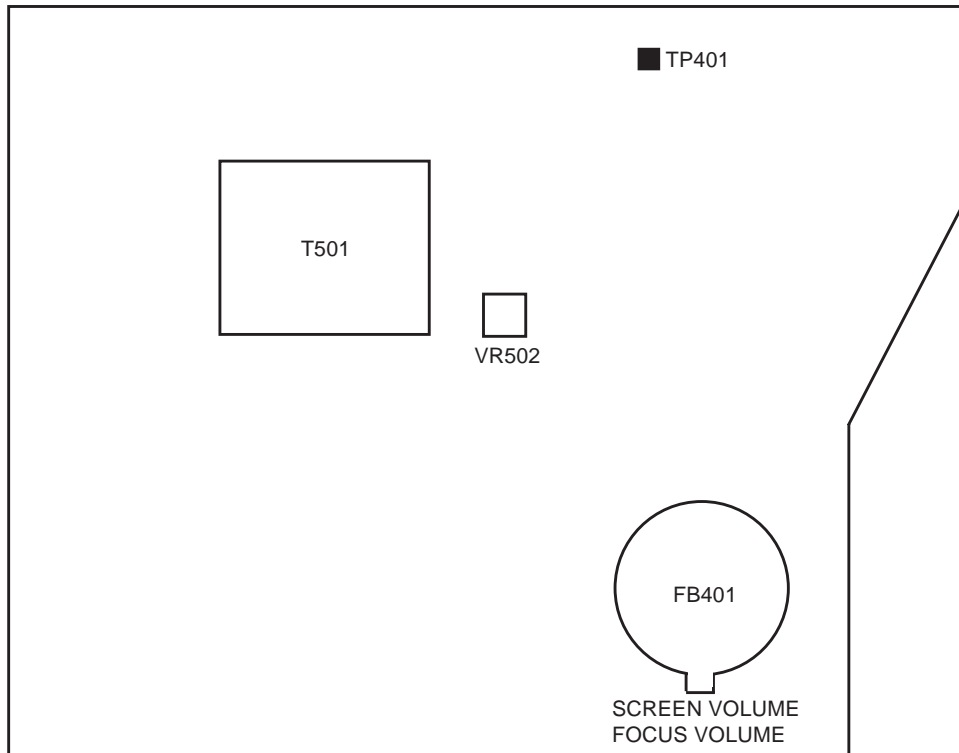


Fig. 3-4

# MAJOR COMPONENTS LOCATION GUIDE

(TV SECTION)



MAIN



CRT

# ELECTRICAL ADJUSTMENTS

## (TV SECTION)

### 4. BASIC ADJUSTMENTS

#### On-Screen Display Adjustment

Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C101** and **GND** at the Power Off.) Then, set the volume level to minimum. Press the VOL. DOWN button on the set and the Channel button (**9**) on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 4-1**, **Fig. 4-2**, **Fig. 4-3**, **Fig. 4-4**, **Fig. 4-5** and **Fig. 4-6**.

#### NOTE

Use the Channel buttons (**1-7**) on the remote control to select the options shown in **Fig. 4-1**, **Fig. 4-2**, **Fig. 4-3**, **Fig. 4-4**, **Fig. 4-5** and **Fig. 4-6**.

Press the Channel button (**8**) to end the adjustments.

ADJUSTMENT MODE1

1. H PHASE
2. V DC
3. V SIZE
4. AGC
5. CUT OFF
6. OSD H

7. NEXT      8. END

"The adjustment item 4 is not used for this model."

Fig. 4-1

ADJUSTMENT MODE2

- 1.
2. RED BIAS
3. GREEN BIAS
4. BLUE BIAS
5. GREEN DRIVE
6. BLUE DRIVE

7. NEXT      8. END

Fig. 4-2

ADJUSTMENT MODE3

1. BRIGHT
2. CONTRAST
3. COLOR
4. TINT
5. SHARPNESS
6. E-RGB CONT

7. NEXT      8. END

"The adjustment items 5 and 6 are not used for this model."

Fig. 4-3

ADJUSTMENT MODE4

1. R-Y B OFFSET
2. B-Y B OFFSET
- 3.
- 4.
- 5.
- 6.

7. NEXT      8. END

Fig. 4-4

ADJUSTMENT MODE5

1. WIDE V SART
2. WIDE V STOP
3. WIDE P SART
4. WIDE P STOP
5. V S-COR
6. V LINEA

7. NEXT      8. END

"The adjustment items 1, 2, 3, 4 and 5 are not used for this model."

Fig. 4-5

ADJUSTMENT MODE6

1. H PHASE 60
2. WIDE V STOP 60
3. V LINEA 60
- 4.
- 5.
- 6.

7. NEXT      8. END

"The adjustment item 2 is not used for this model."

Fig. 4-6

#### 4-1: CUT OFF

1. Activate the adjustment mode display of **Fig. 4-1** and press the channel button (**5**) on the remote control.
2. Adjust the **Screen Volume** until picture is distinct.

#### 4-2: WHITE BALANCE

1. Receive the color bar pattern.
2. Adjust the adjustment mode display of **Fig. 4-2** until the white color is looked like a white.

#### 4-3: FOCUS

1. Receive the broadcasting signal.
2. Adjust the **Focus Volume** until picture is distinct.

# ELECTRICAL ADJUSTMENTS

## 4-4: HORIZONTAL PHASE (TV)

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

## 4-5: VERTICAL POSITION (TV)

1. Receive the color bar pattern (RF Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-1** and press the channel button **(2)** on the remote control.
4. 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.

## 4-6: VERTICAL SIZE (TV)

1. Receive the monochrome pattern (RF Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-1** and press the channel button **(3)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the horizontal overscan is equal to the vertical overscan.

## 4-7: VERTICAL LINEA (TV)

1. Receive the monochrome pattern (RF Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-5** and press the channel button **(6)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

## 4-8: HORIZONTAL PHASE 60 (AV)

1. Receive the monochrome pattern (Audio Video Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-6** and press the channel button **(1)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

## 4-9: VERTICAL LINEA 60 (AV)

1. Receive the monochrome pattern (Audio Video Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-6** and press the channel button **(3)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

## 4-10: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 4-1** and press the channel button **(6)** on the remote control.
3. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.  
**(Refer to Fig. 4-7)**

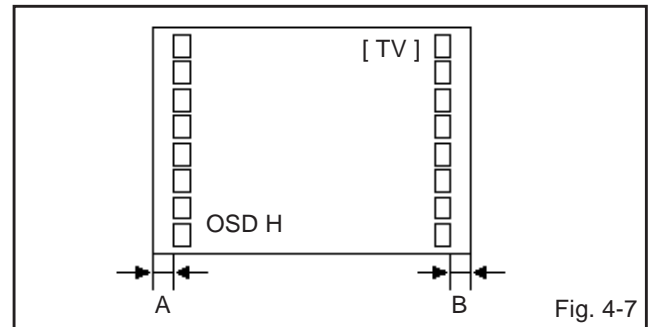


Fig. 4-7

## 4-11: SUB CONTRAST (TV)

1. Receive the monochrome pattern (RF Input).
2. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(2)** on the remote control.
3. Press the VOL. UP/DOWN button on the remote control until the CONTRAST level is set to the "10".

## 4-12: SUB CONTRAST (AV)

1. Receive the monochrome pattern (Audio Video Input).
2. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(2)** on the remote control.
3. Press the VOL. UP/DOWN button on the remote control until the CONTRAST level is set to the "10".

## 4-13: SUB BRIGHTNESS (TV)

1. Receive the monochrome pattern (RF Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(1)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the white 25% is slightly brilliant.

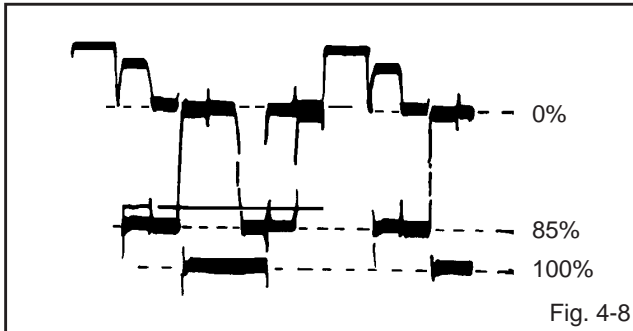
## 4-14: SUB BRIGHTNESS (AV)

1. Receive the monochrome pattern (Audio Video Input).
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(1)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the white 25% is slightly brilliant.

## ELECTRICAL ADJUSTMENTS

### 4-15: SUB COLOR (TV)

1. Receive the color bar pattern (RF Input).
2. Connect the oscilloscope to **TP801**.
3. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(3)** on the remote control.
4. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
5. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 85% of the white level. (Refer to **Fig. 4-8**)

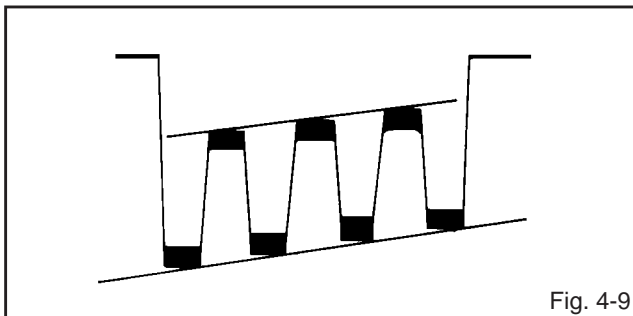


### 4-16: SUB COLOR (AV)

1. Receive the color bar pattern (Audio Video Input).
2. Connect the oscilloscope to **TP801**.
3. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(3)** on the remote control.
4. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
5. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 85% of the white level. (Refer to **Fig. 4-8**)

### 4-17: SUB TINT (AV)

1. Receive the NTSC rainbow pattern (Audio Video Input).
2. Connect the oscilloscope to **TP803**.
3. Activate the adjustment mode display of **Fig. 4-3** and press the channel button **(4)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 4-9**.



### 4-18: CONSTANT VOLTAGE

1. Set to the AV mode. (No input for AV)
2. Connect the DC voltmeter to **TP401**.
3. Adjust the **VR502** until the DC voltmeter is  $103 \pm 0.5V$ .

# ELECTRICAL ADJUSTMENTS

## 5. 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.

### 5-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 5-1)**  
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.

### 5-2: PURITY

#### NOTE

Adjust after performing adjustments in section 5-1.

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.

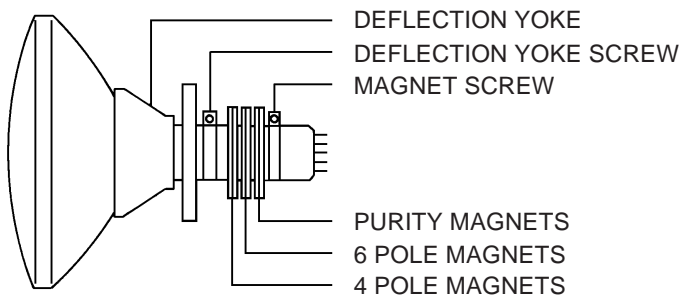


Fig. 5-1

### 5-3: STATIC CONVERGENCE

#### NOTE

Adjust after performing adjustments in section 5-2.

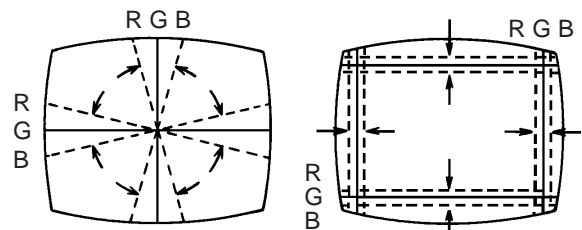
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 5-4: DYNAMIC CONVERGENCE

#### NOTE

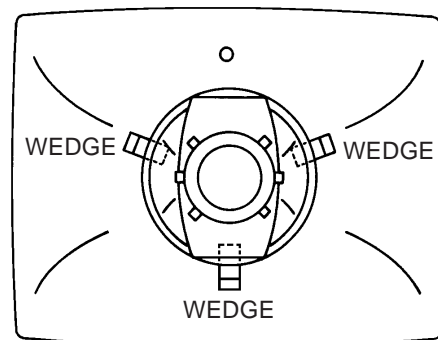
Adjust after performing adjustments in section 5-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 5-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 5-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 5-2-a

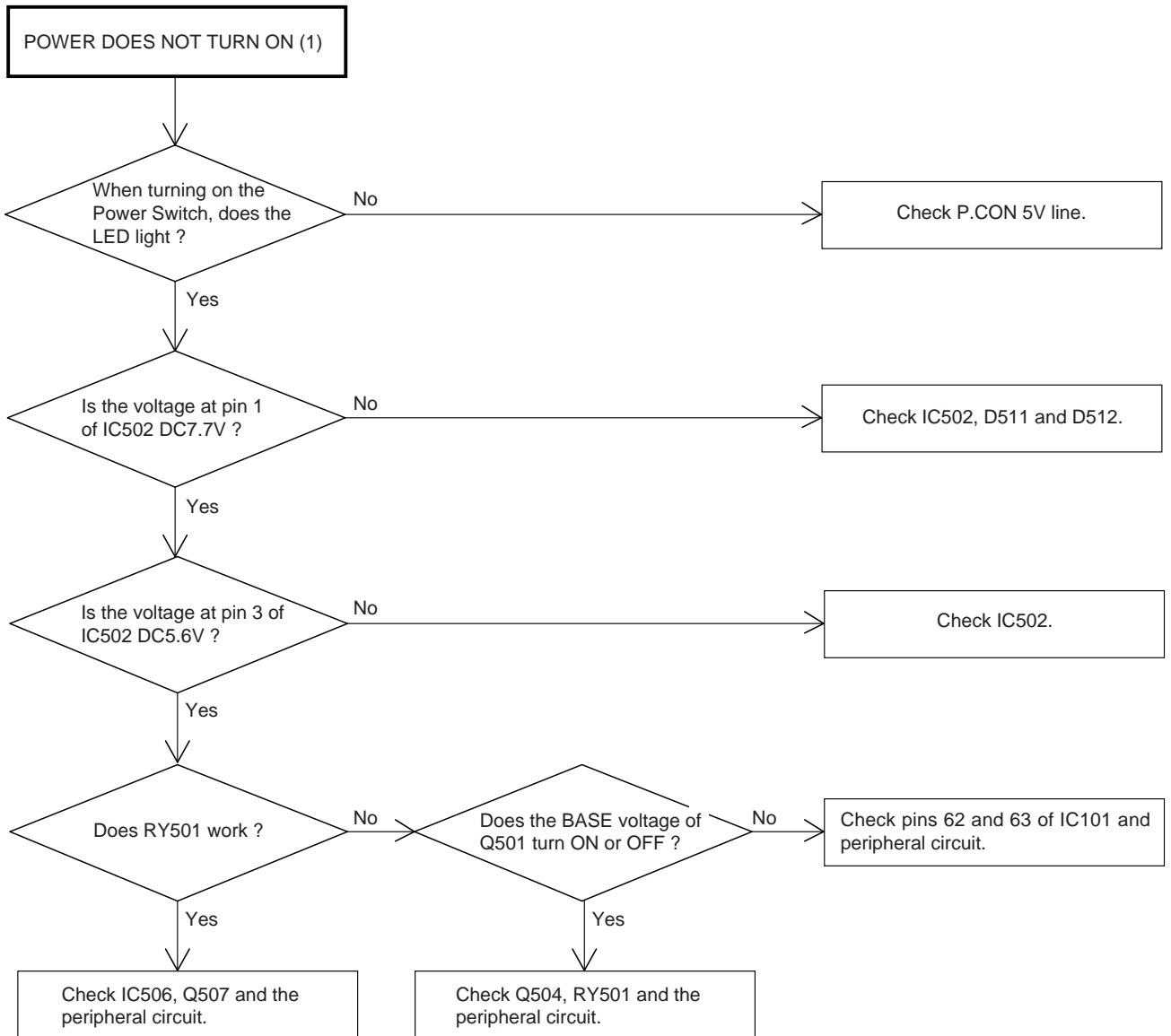


WEDGE POSITION

Fig. 5-2-b

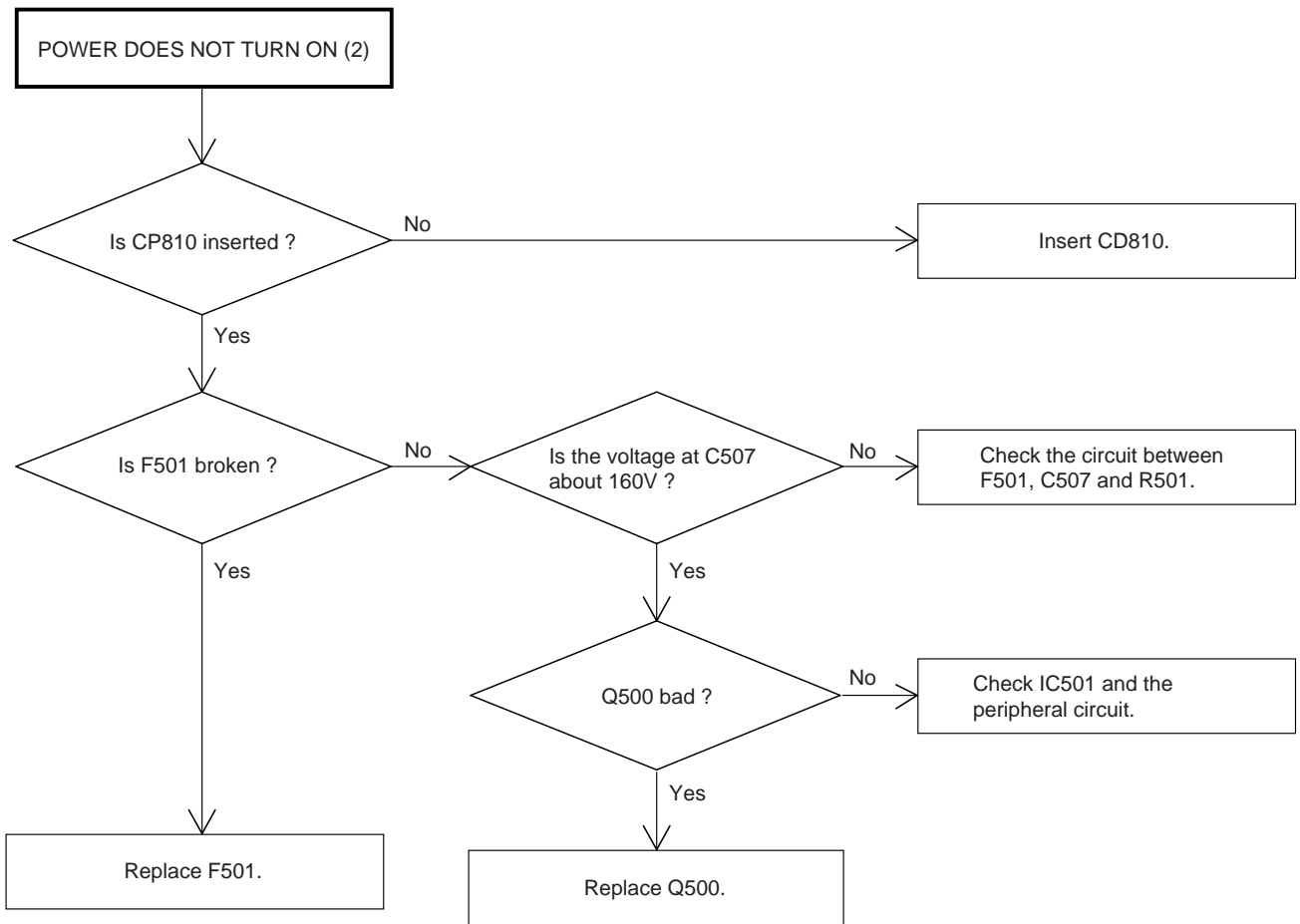
# TROUBLESHOOTING GUIDE

## (TV SECTION)

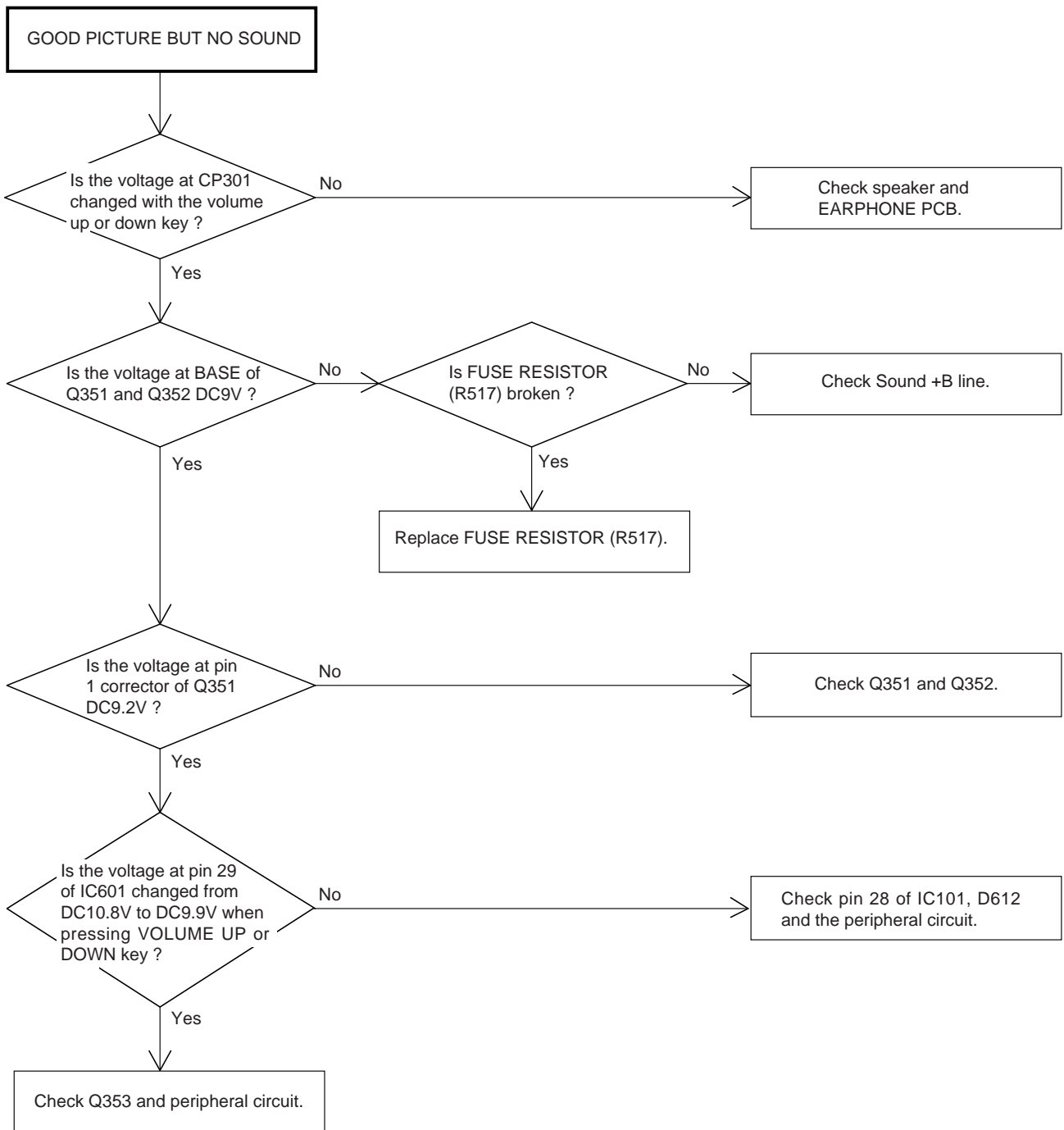




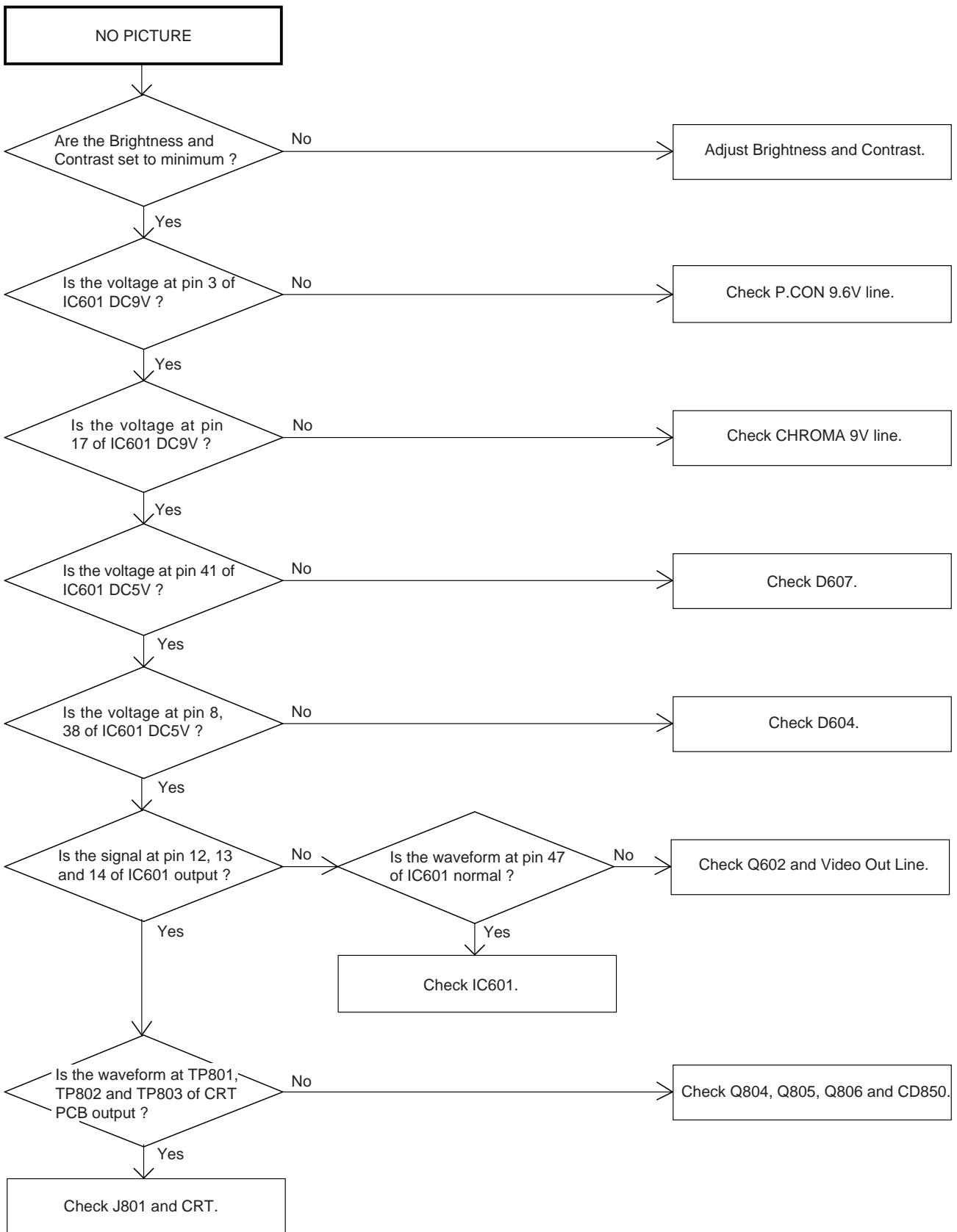
# TROUBLESHOOTING GUIDE



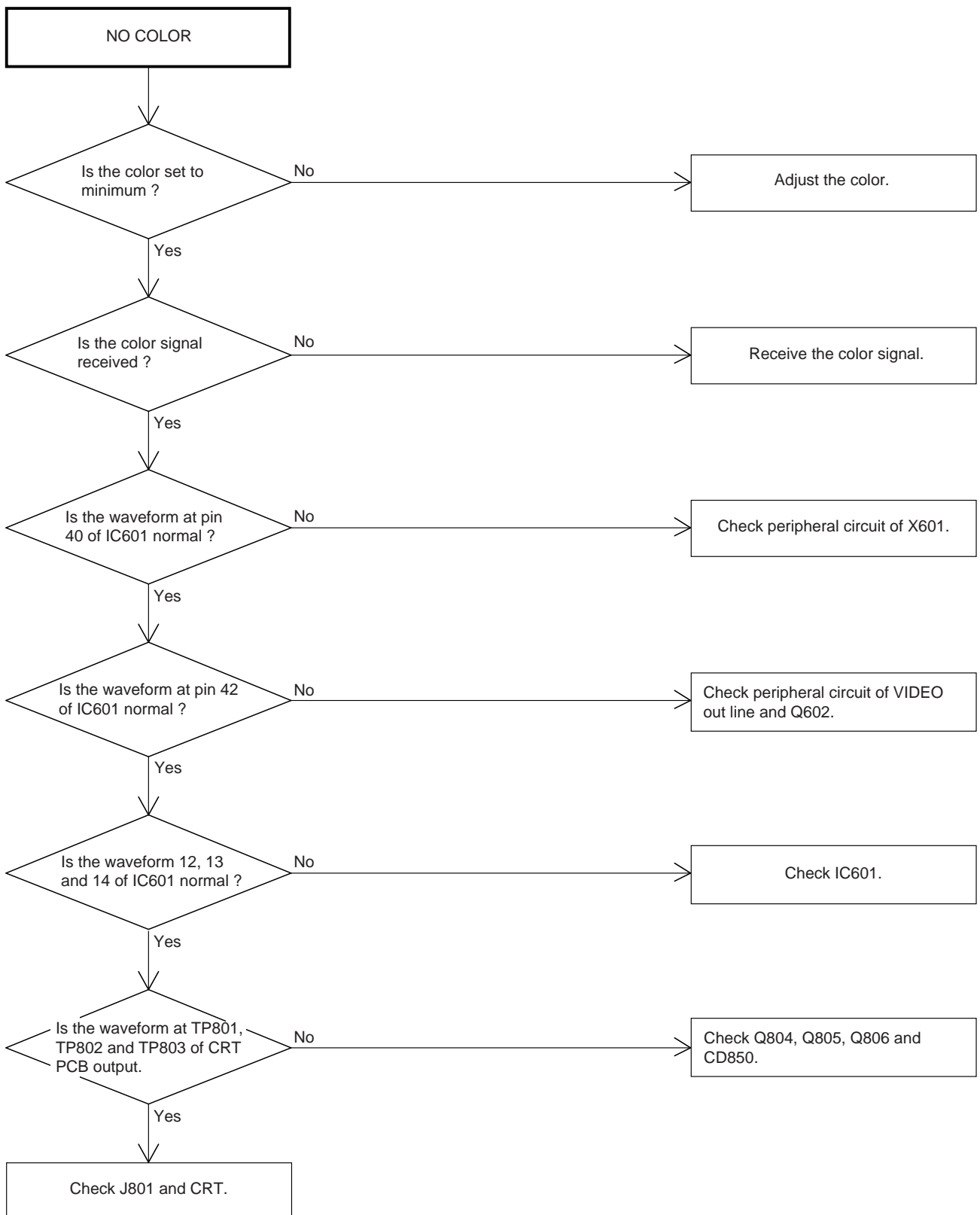
# TROUBLESHOOTING GUIDE



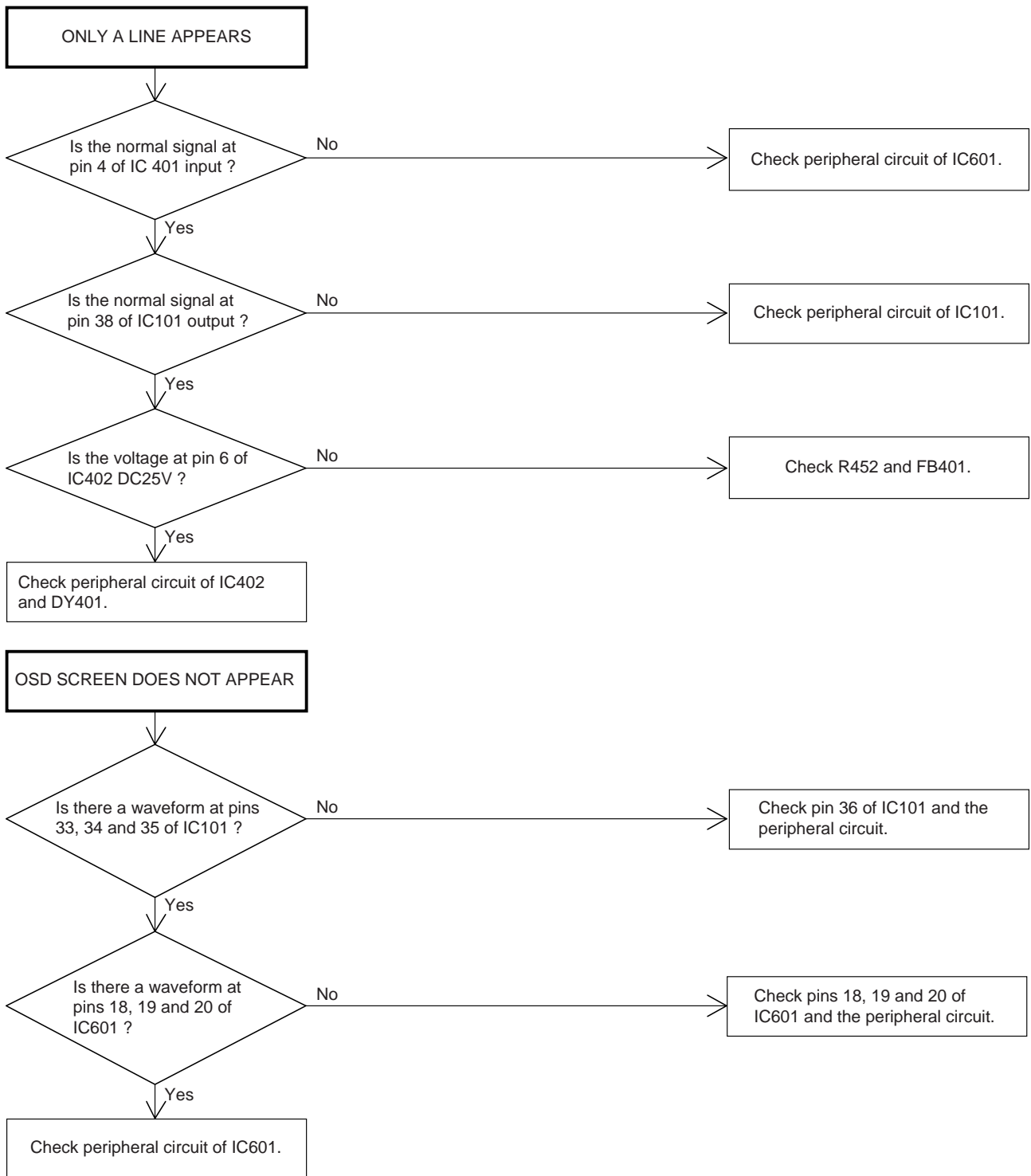
# TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE

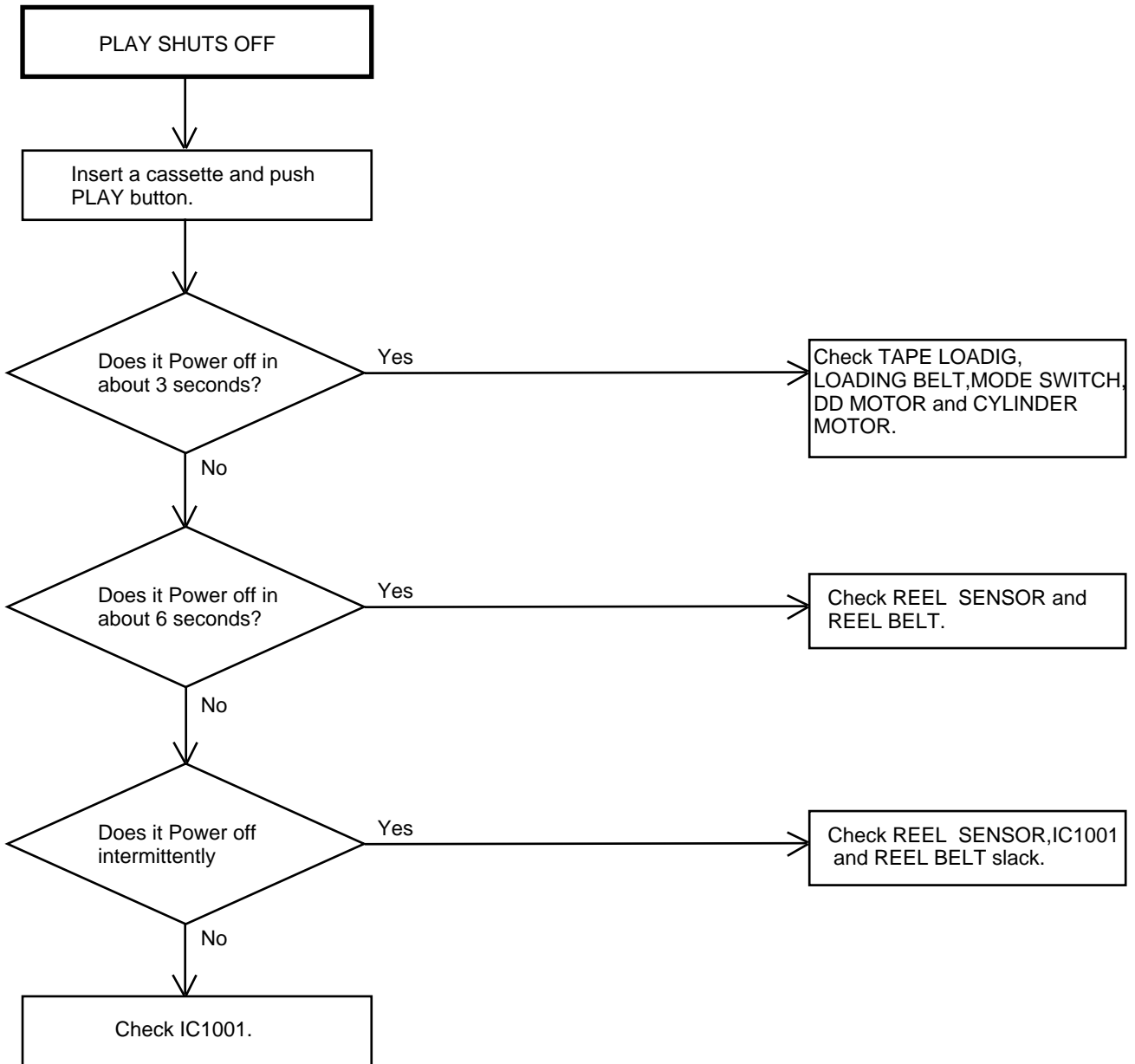


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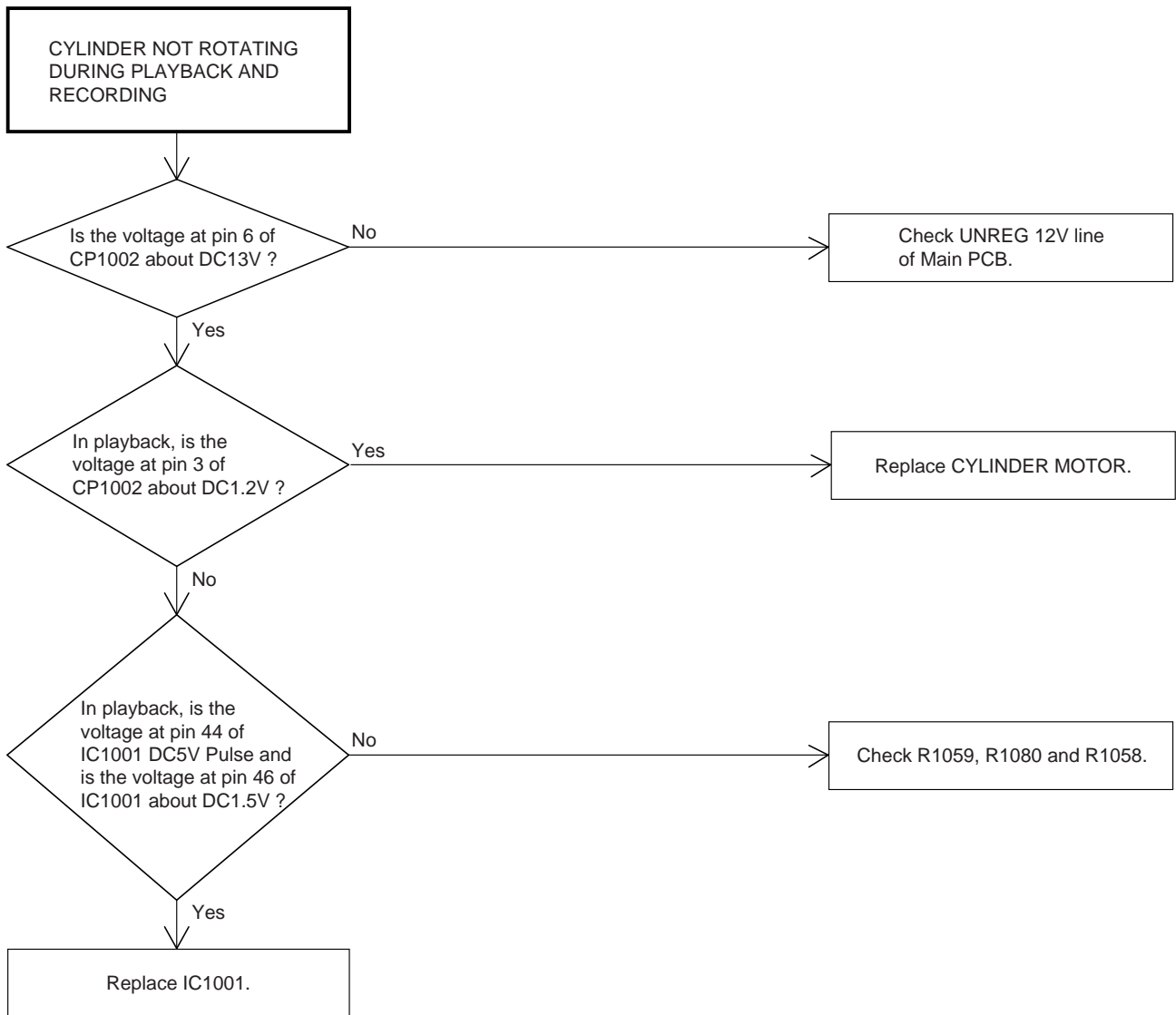


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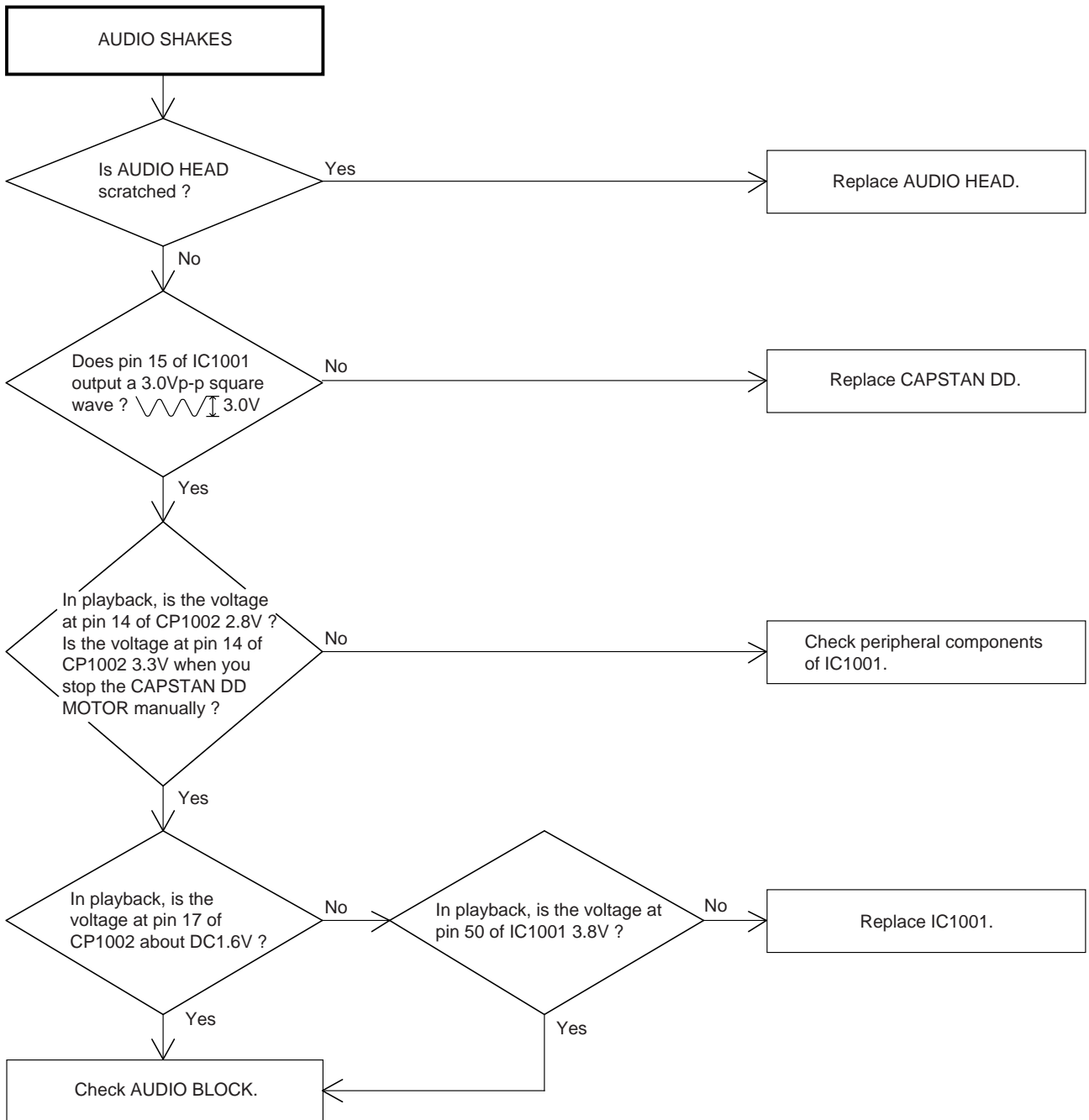
## (VCR SECTION)



# TROUBLESHOOTING GUIDE

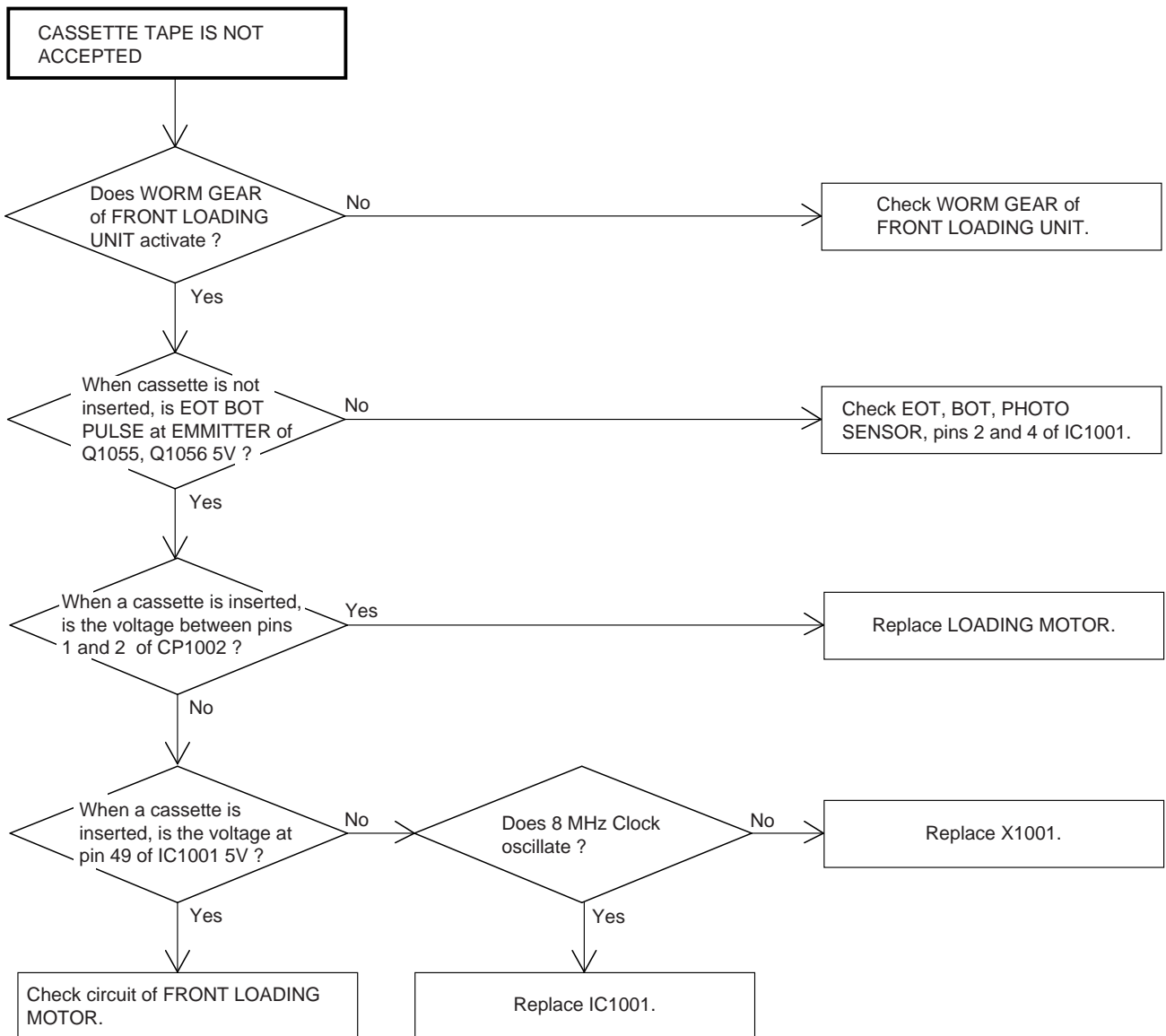


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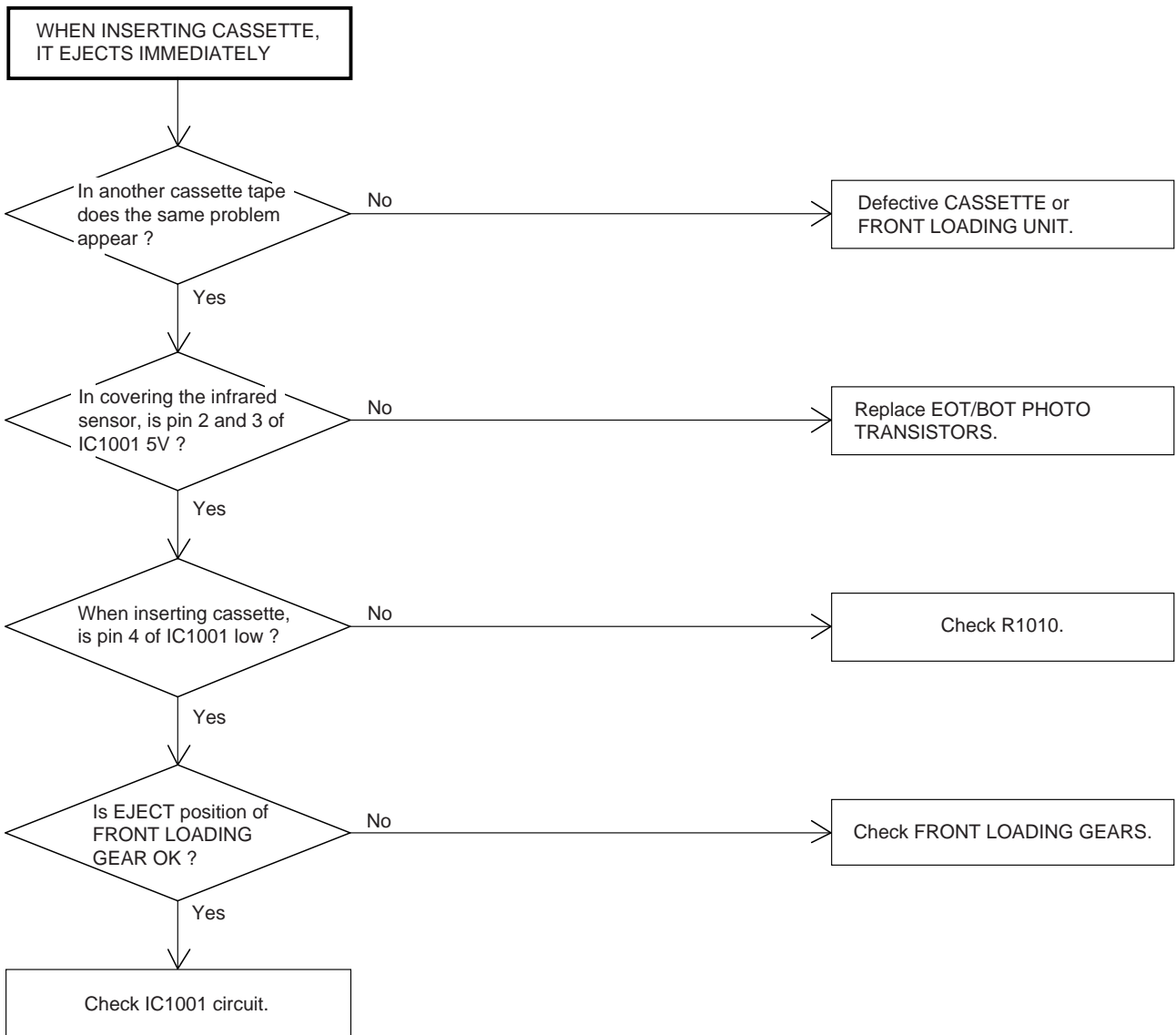




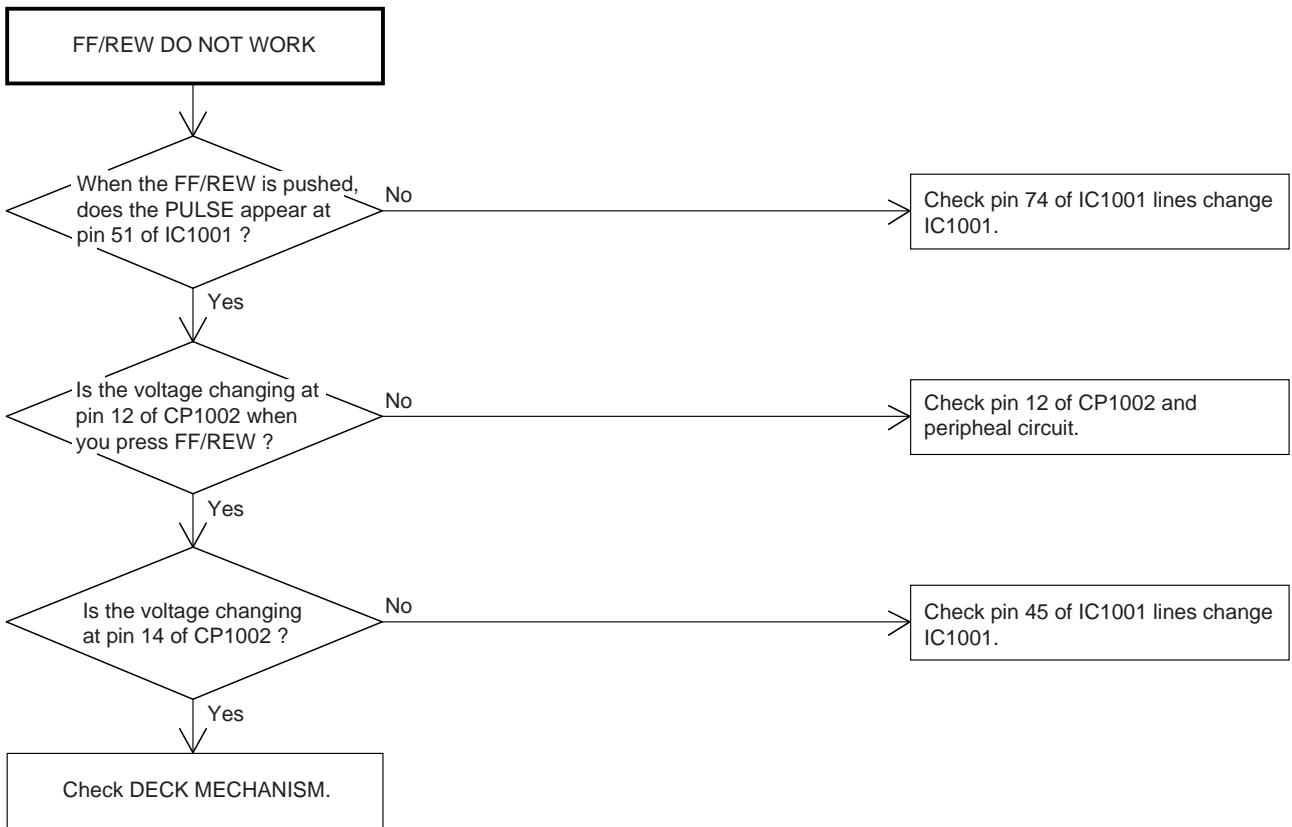
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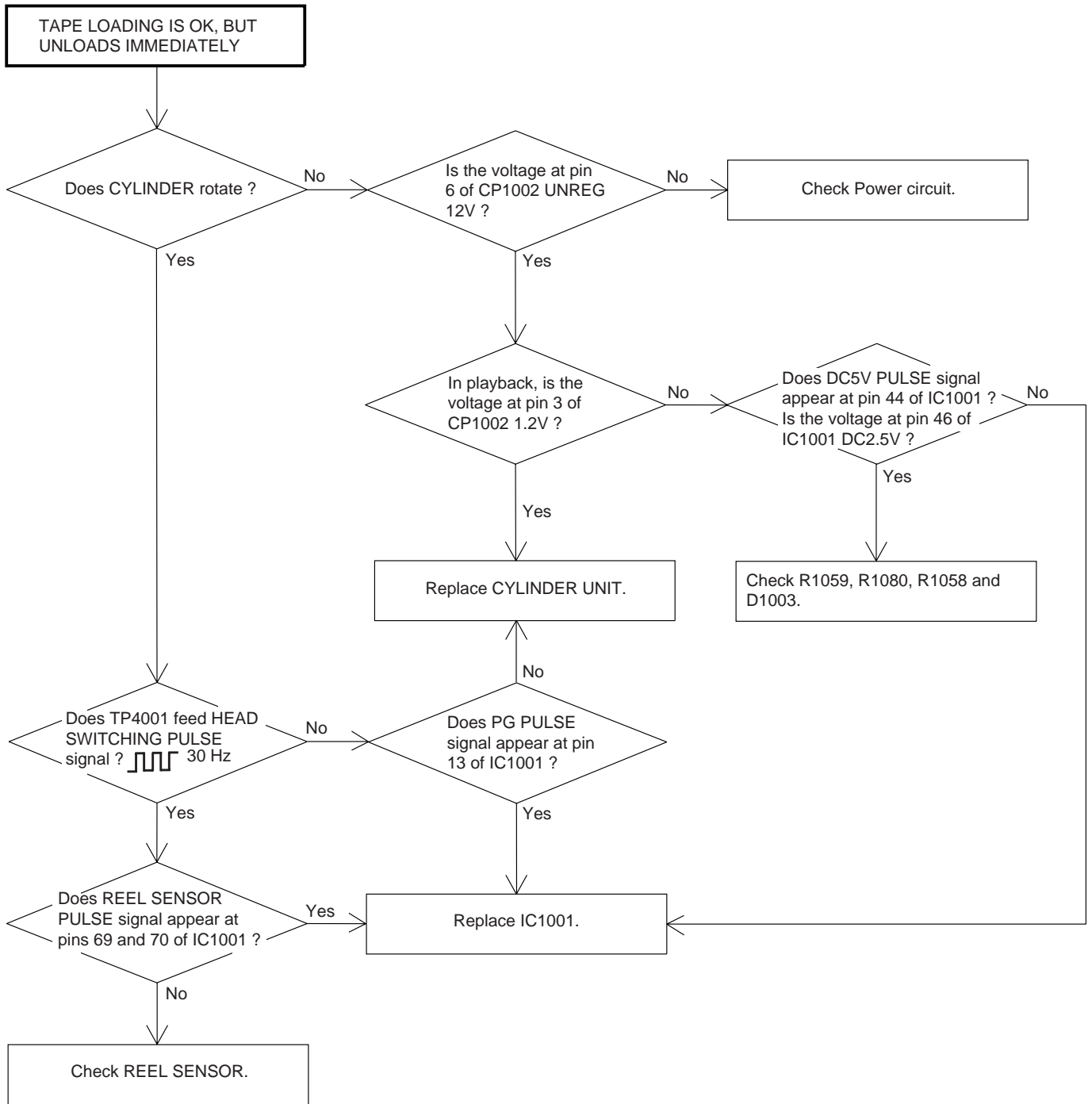
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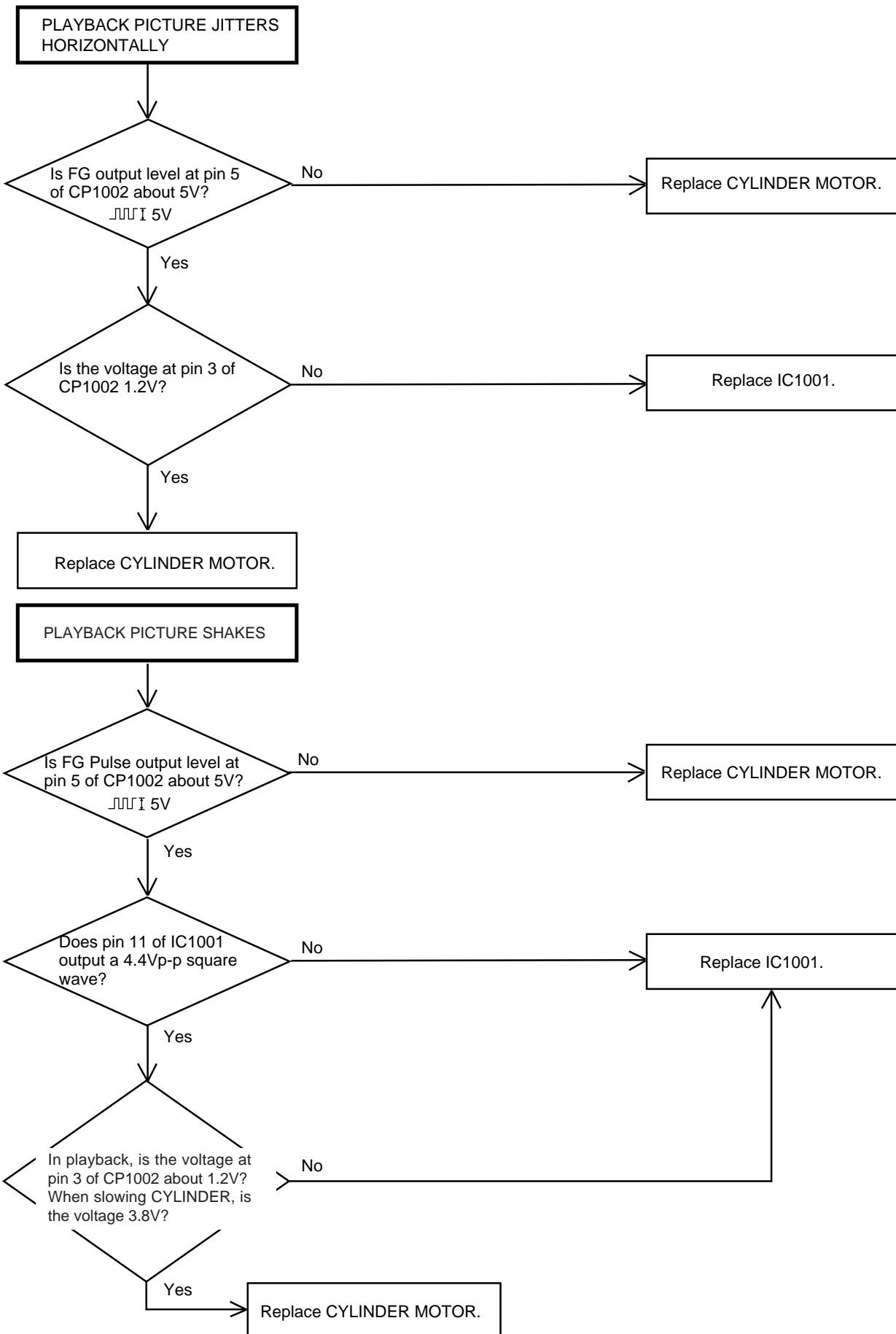
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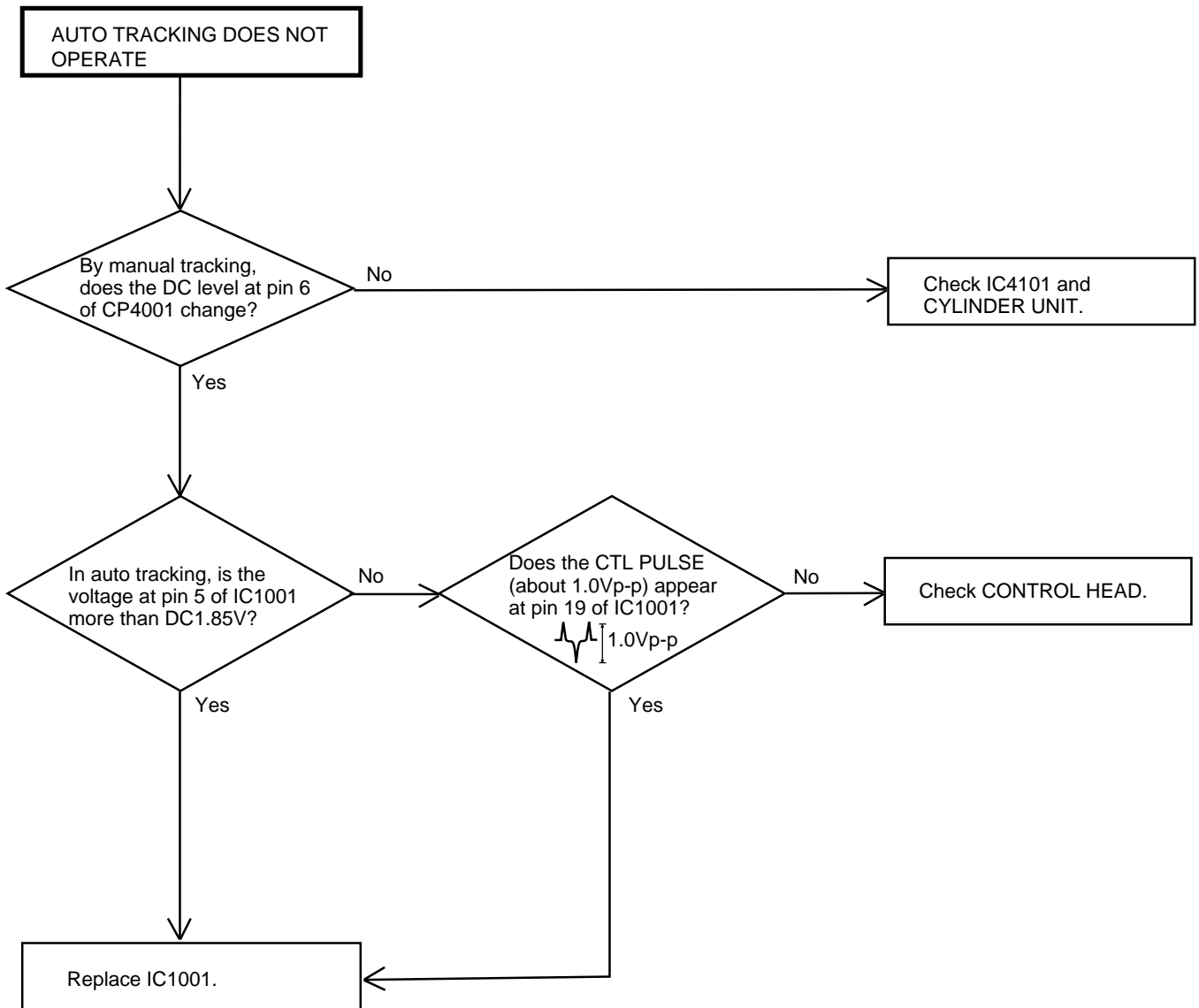
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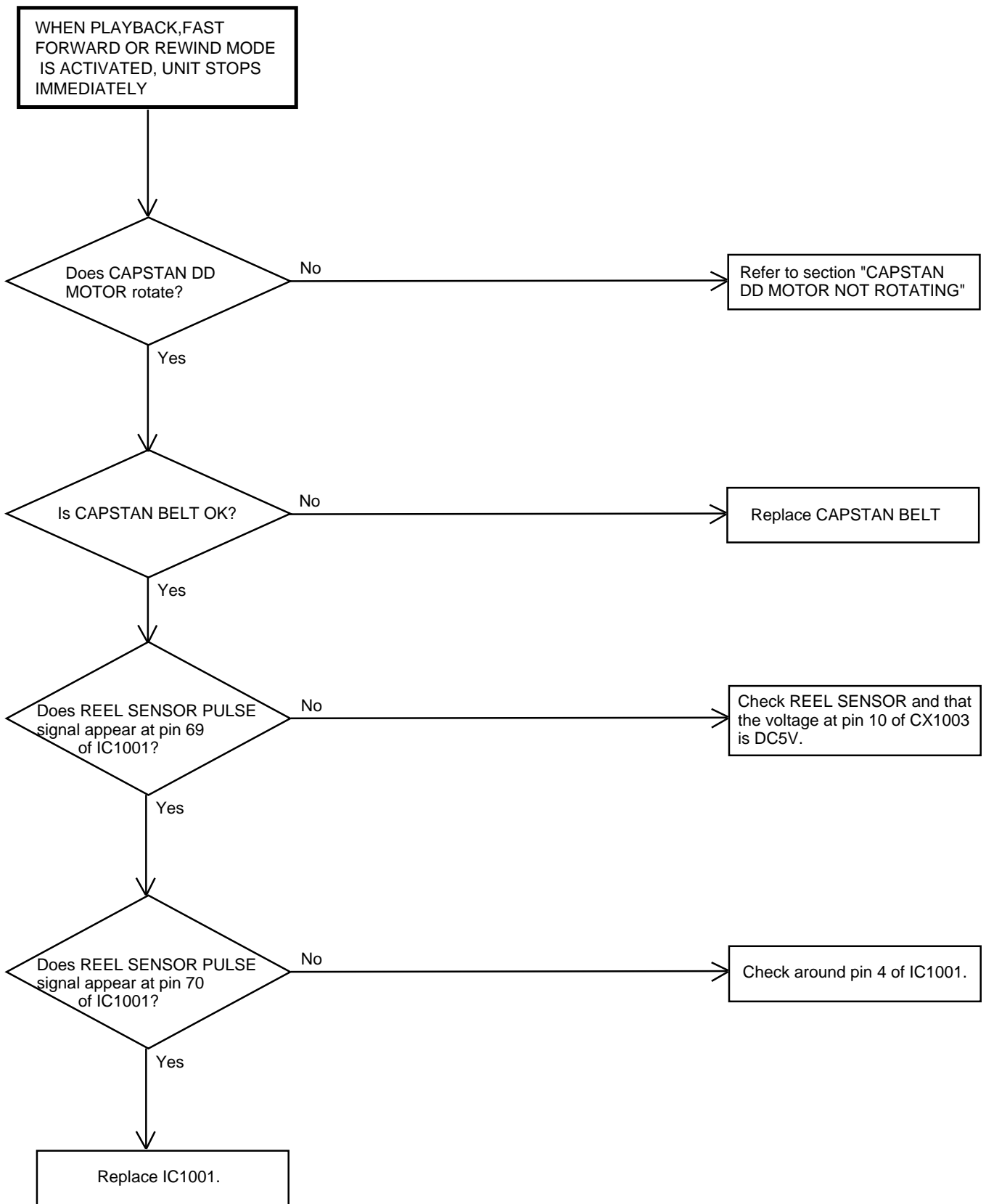
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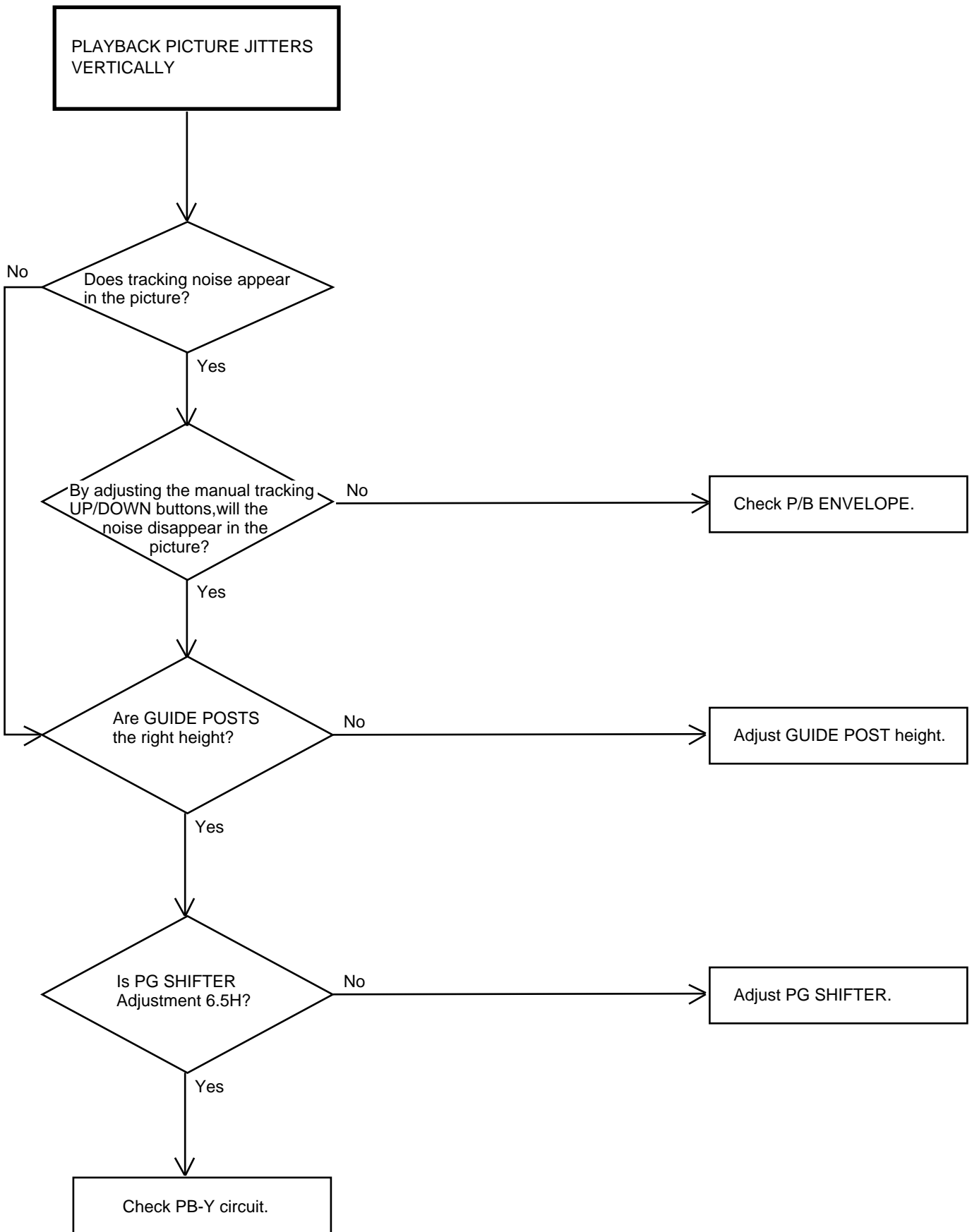
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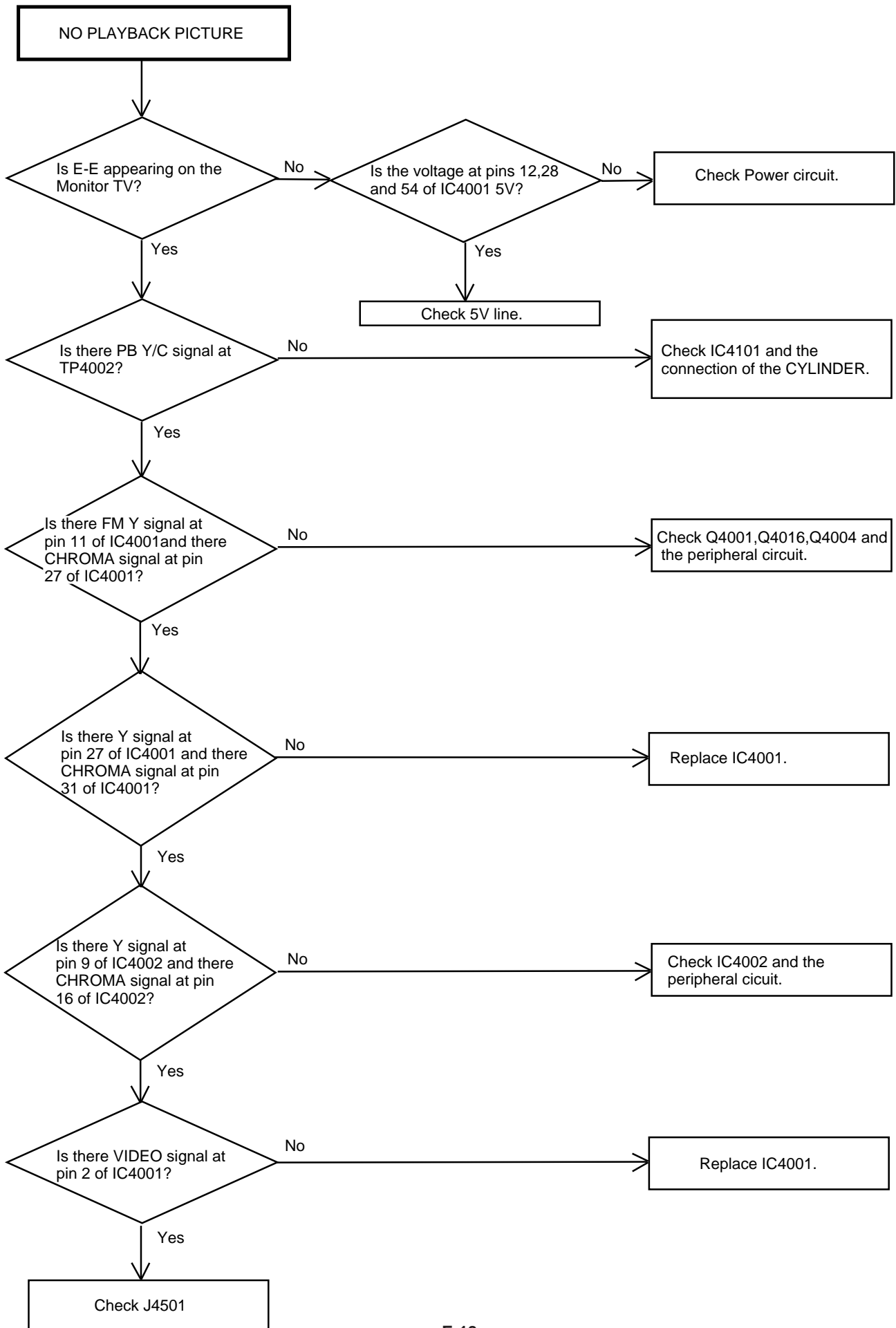


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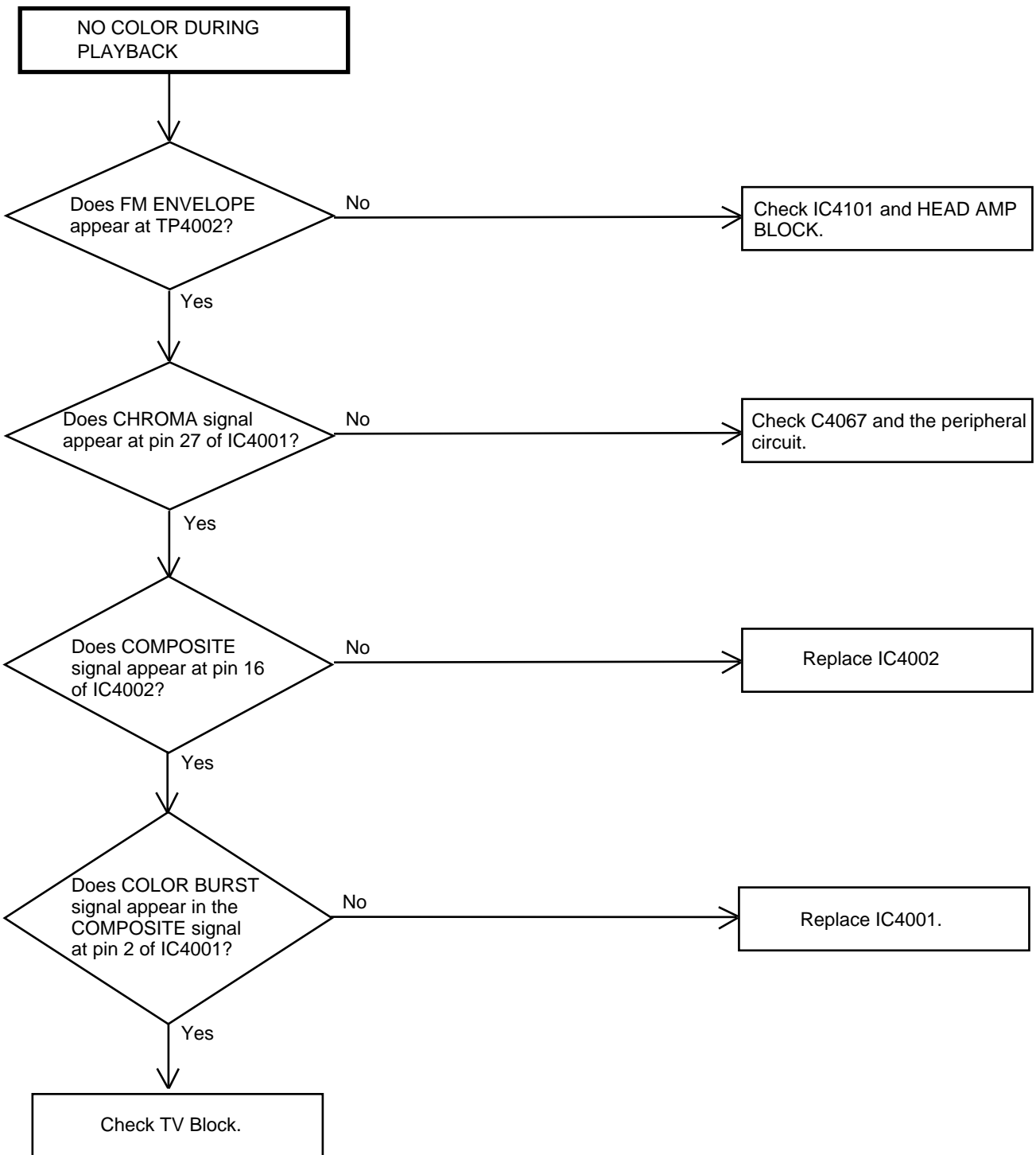




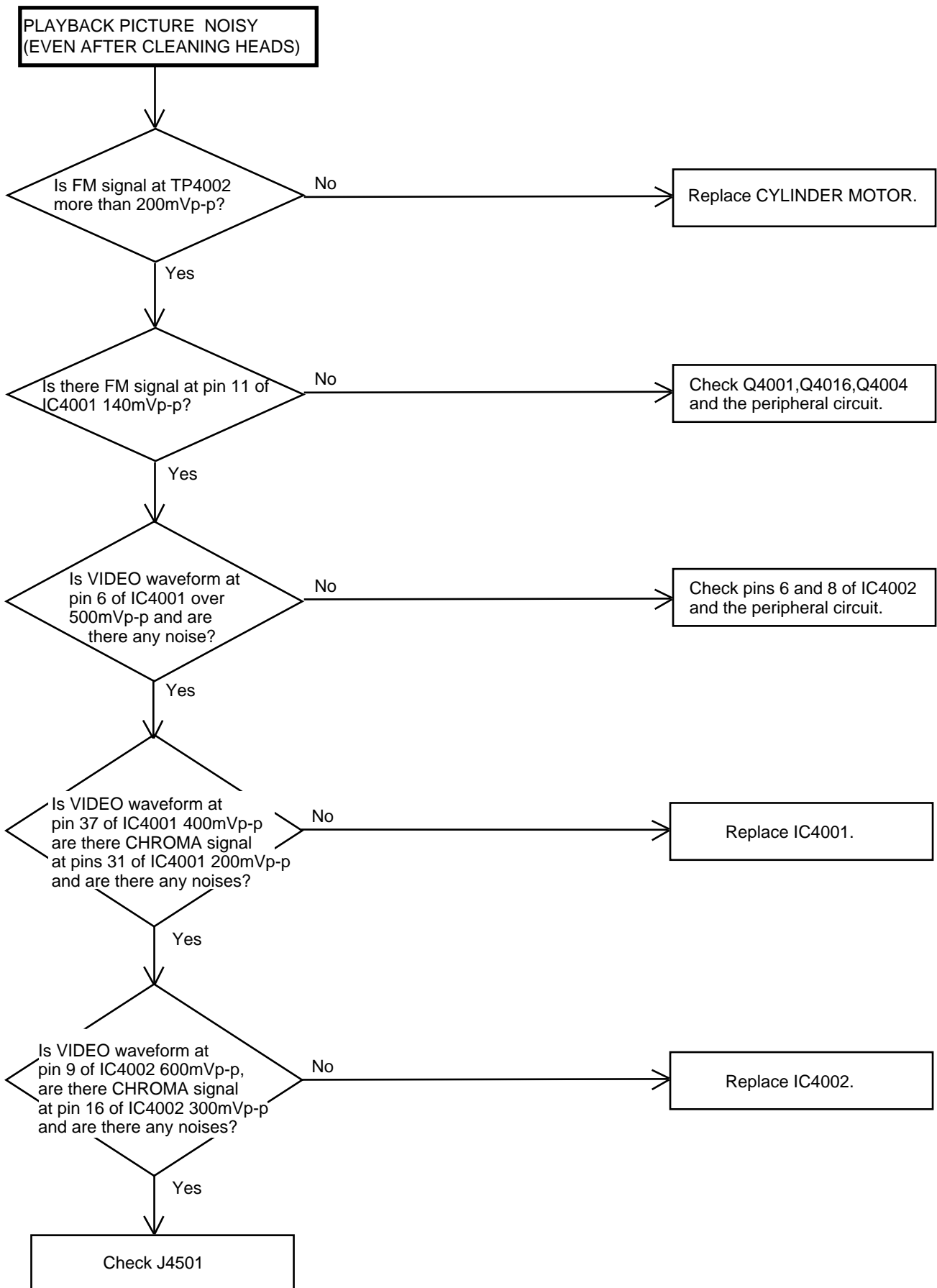
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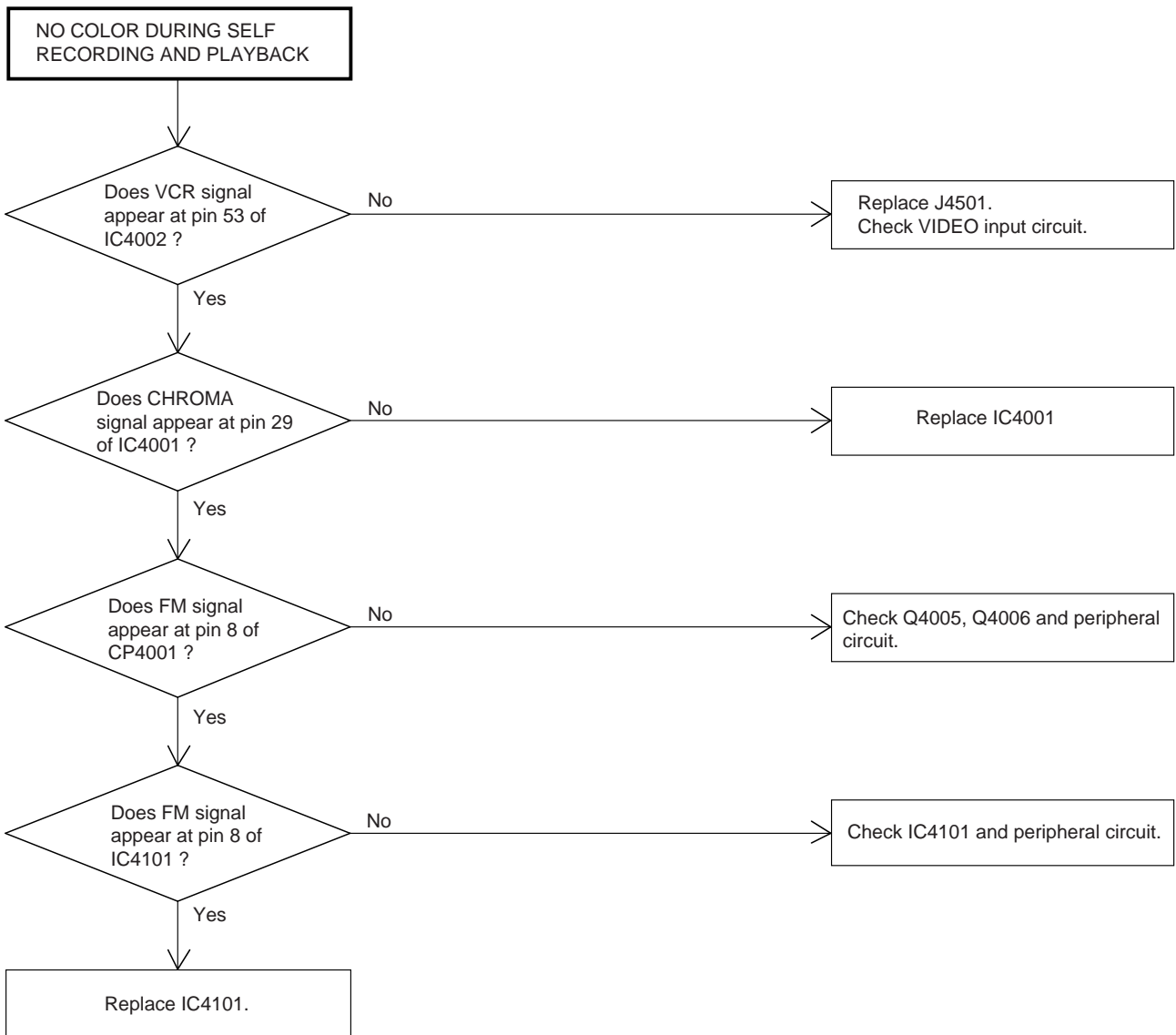
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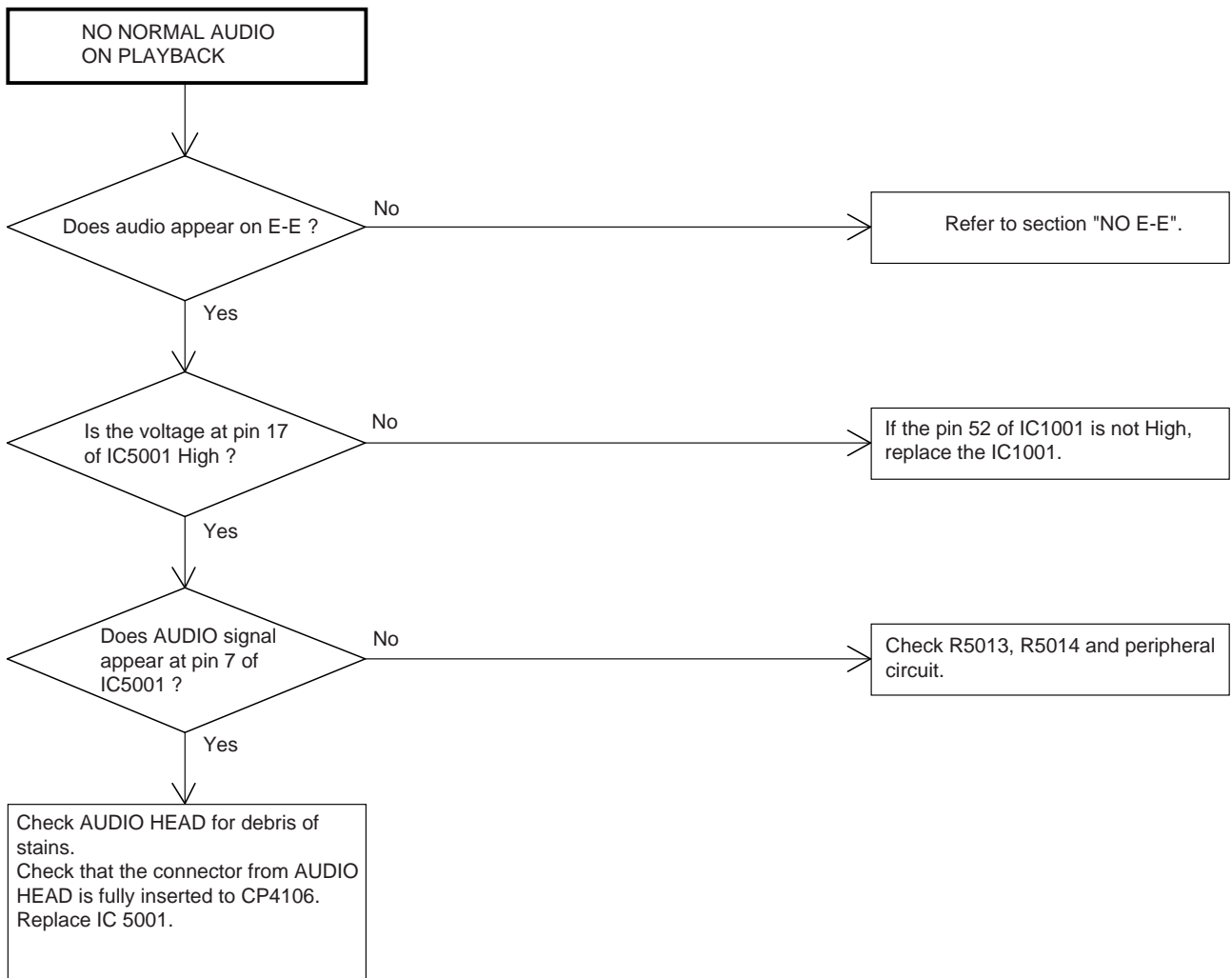
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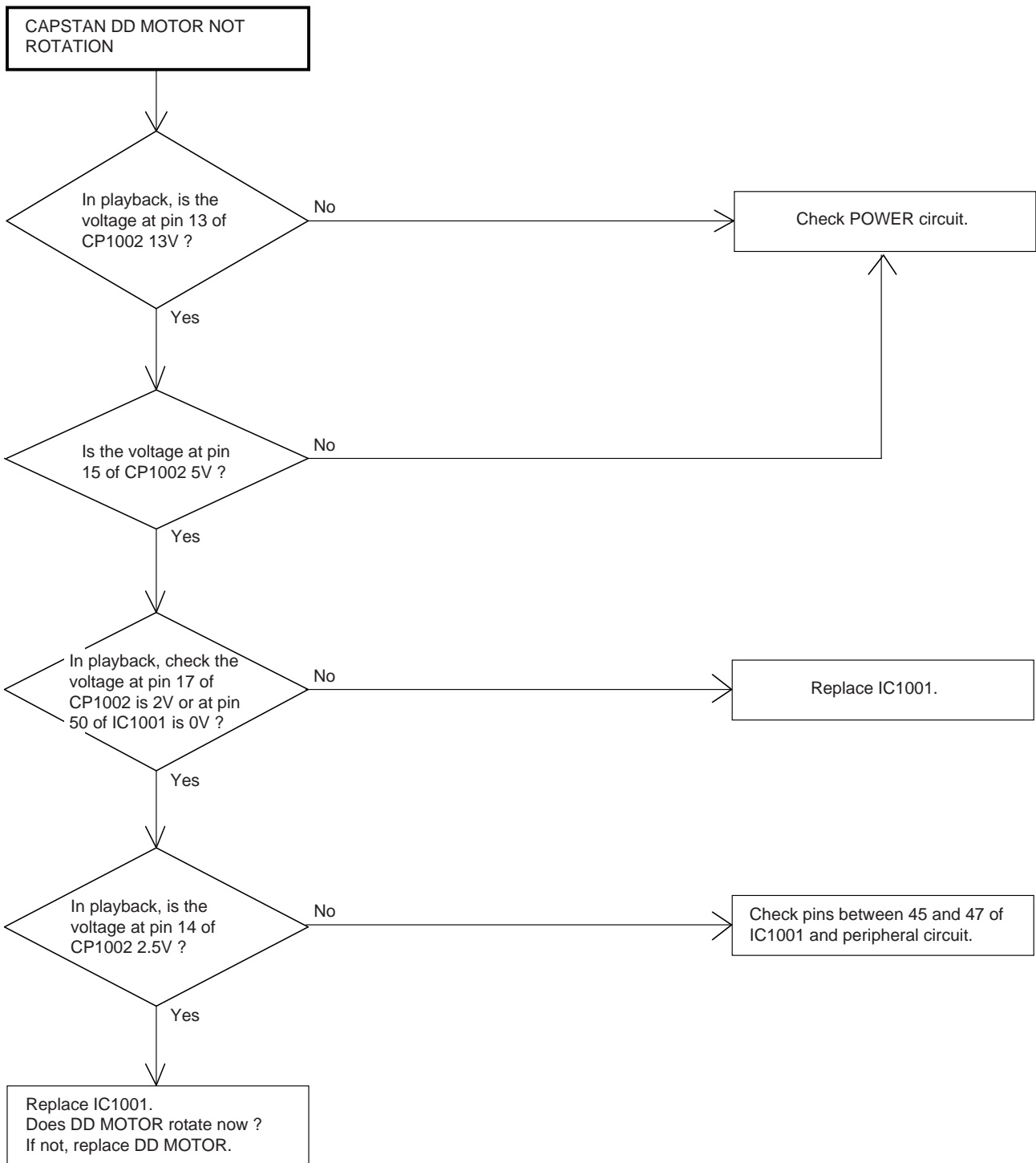
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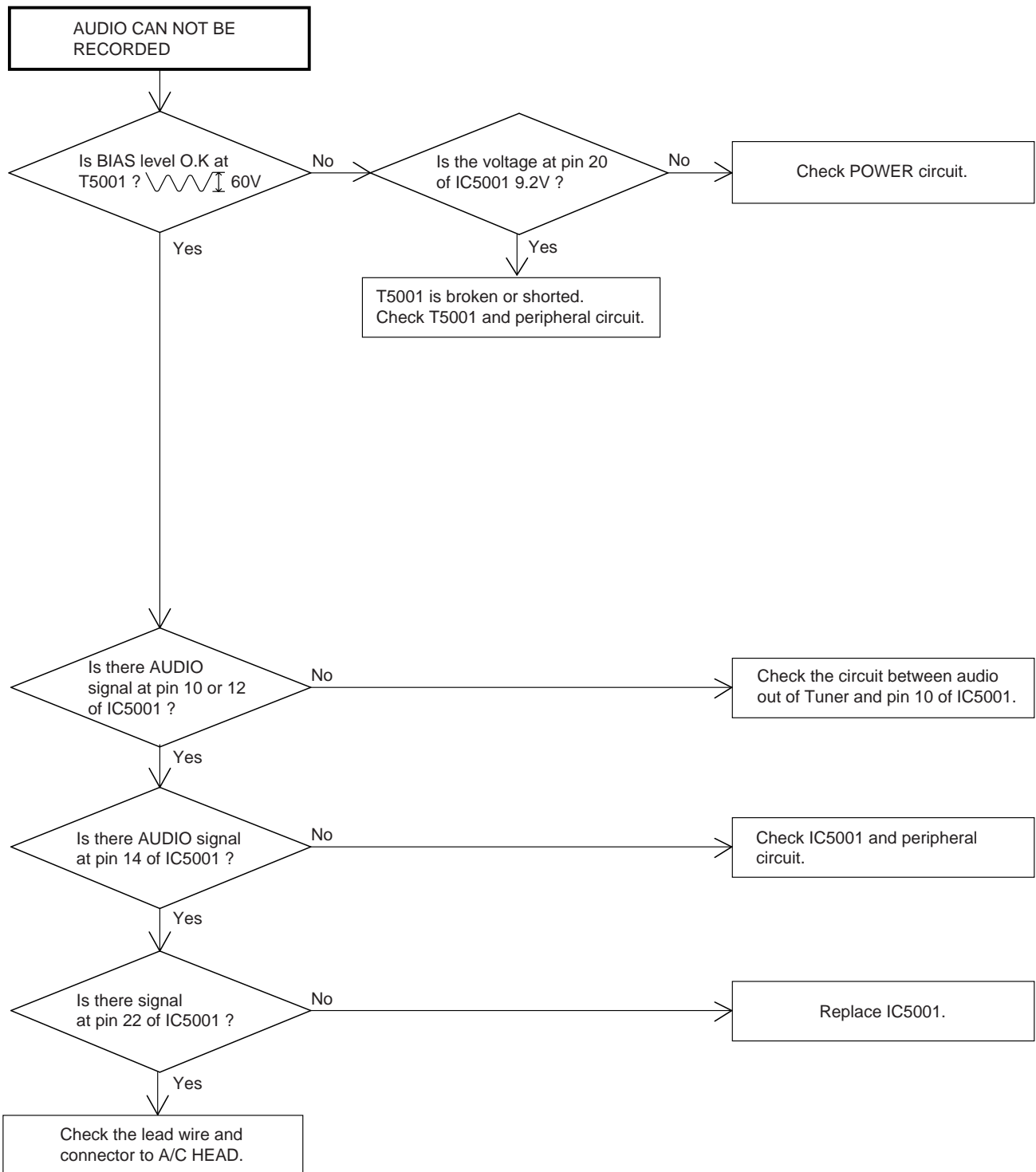
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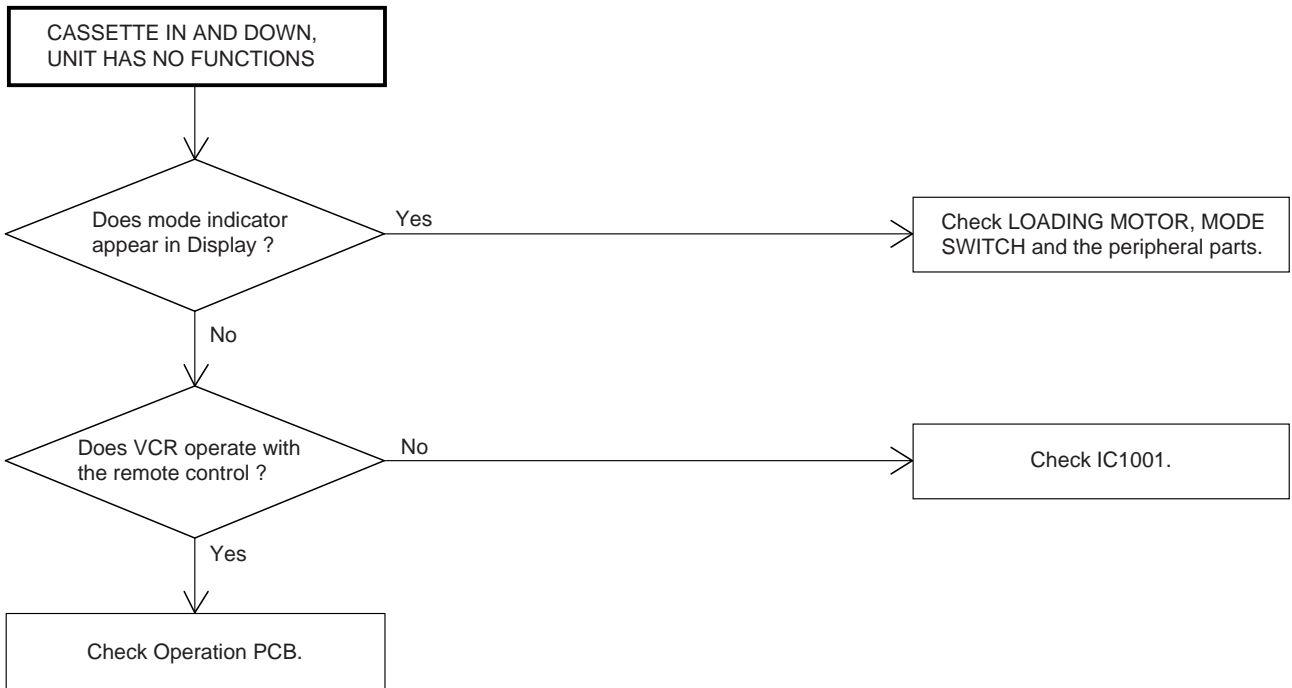
# TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE

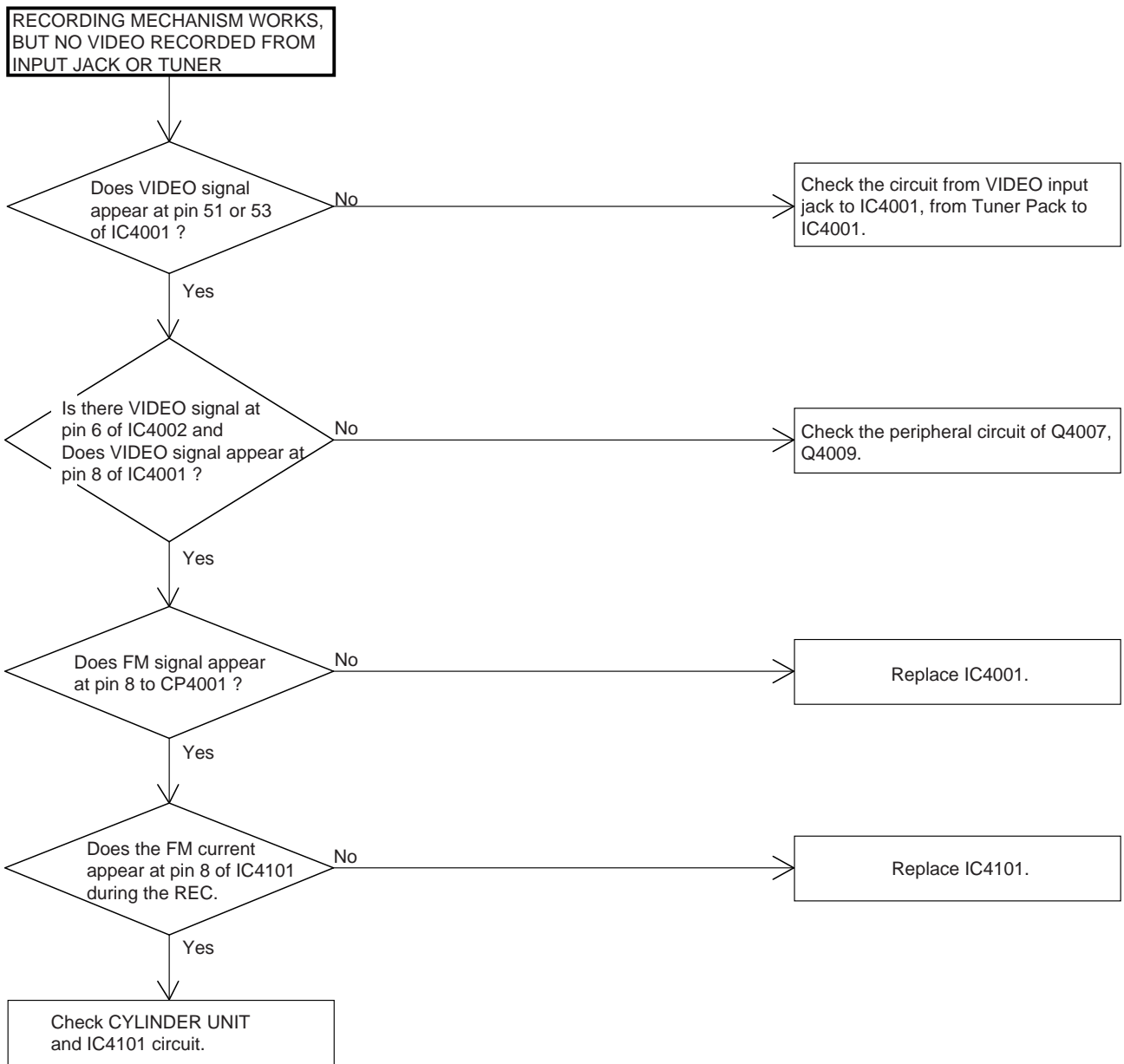


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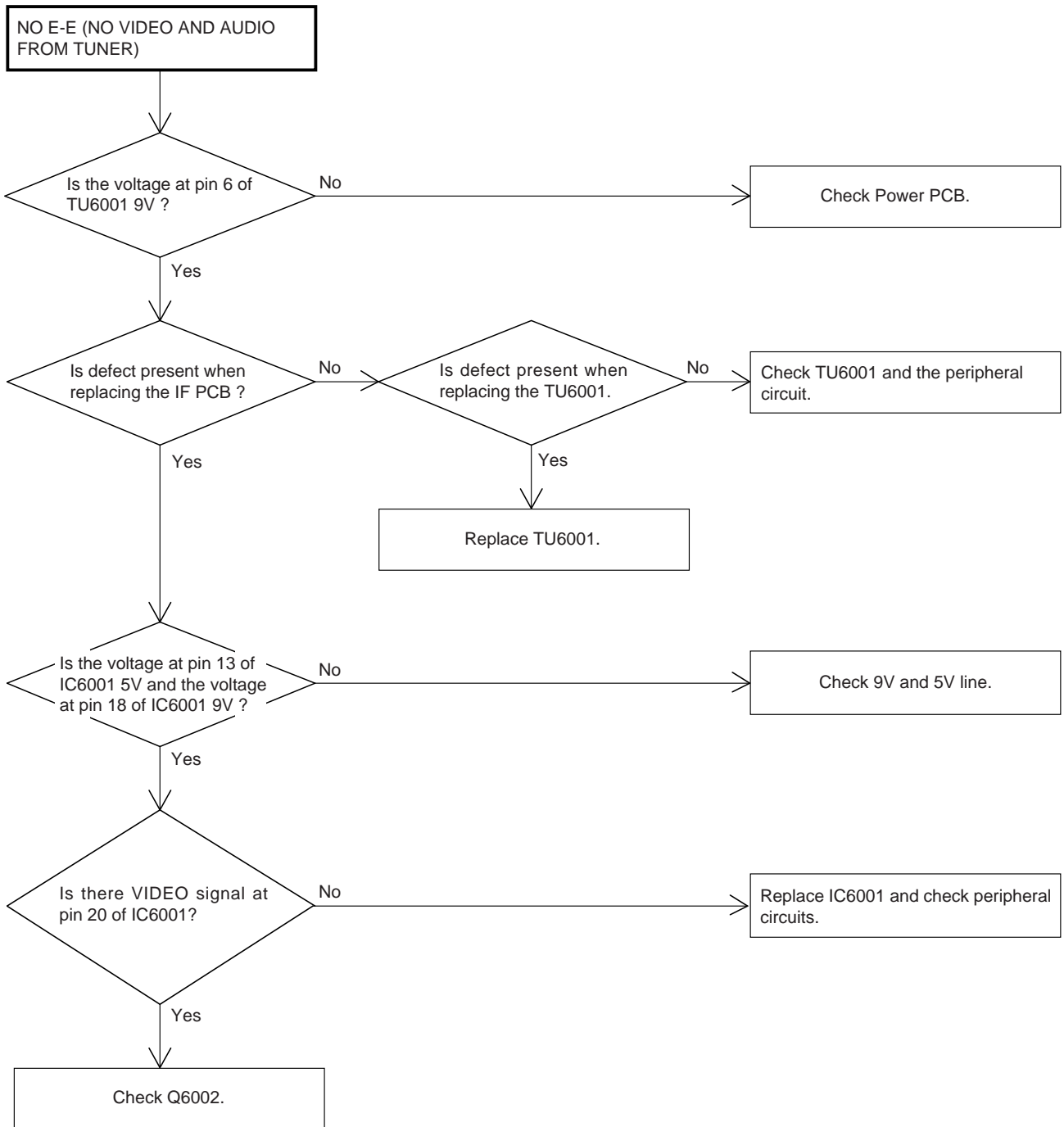




# TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE



## IC DESCRIPTIONS

OEC6044D

Pin No.	Pin Name	I/O	Description
1	VSS	—	Ground.
2	PAL/SEC	O	PAL/SECAM Selection.
3	HALF TONE	O	HALF TONE terminal for T'TEXT.
4	—	—	Not used.
5	I2C OFF	I	I2C BUS OFF input for the adjustment.
6	H. SW	I	H. SW input.
7	—	—	Not used.
8	DEGAUSS	O	DEGAUSS output.
9	TEXT RESET	O	T'TEXT IC RESET output.
10	—	—	Not used.
11	TV MUTE	O	MUTE output.
12	VT	O	PWM output for tuning.
13	VOLUME	O	PWM output for volume.
14	P. B. LED	O	OTPB (One-Touch Playback button) call LED output.
15	—	—	Not used.
16	—	—	Not used.
17	TRICK PB	I	Mode selector for special playback.
18	AGC	—	AGC PWM output.
19	V. POSI/V. SIZE	O	V. POSI/V. SIZE PWM output.
20	AV2	O	External select output 2.
21	AV1	O	External select output 1.
22	AGC DET	I	AGC voltage input for AUTO SETUP.
23	COL SYS IN	I	COLOR SYSTEM input from Y/C, SECAM CHROMA IC.
24	DV-SYNC	O	DV-SYNC output for Y/C IC.
25	AFT	I	AFT S. CURVE input.
26	KEY A	I	KEY A input.
27	KEY B	I	KEY B input.
28	VL	O	Band output.
29	VH	O	Band output.
30	FORTHED VH	O	Forced VH.
31	—	—	Not used.
32	VSS	—	Ground.
33	RED	O	Color signal red output.
34	GREEN	O	Color signal green output.
35	BLUE	O	Color signal blue output.
36	Y	O	Y-signal output.
37	HD	I	H. pulse input.
38	VD	I	V. pulse input.
39	SCL	O	I2C bus interface.
40	SDA	I/O	I2C bus interface.
41	B.B HI	O	B.B HI output.
42	OSC1	I	Terminal to connect the OSD circuit.
43	OSC2	O	Terminal to connect the OSD circuit.
44	TEST	O	Ground.
45	XIN	I	Terminal to connect the oscillator (8.000MHz).
46	XOUT	O	Terminal to connect the oscillator (8.000MHz).
47	RESET	I	Reset signal input.
48	POWER FAIL	I	Input for the detection of power interruption.
49	XTIN	I	Terminal to connect the oscillator (32KHz).
50	XTOUT	O	Terminal to connect the oscillator (32KHz).

## IC DESCRIPTIONS

OEC6044D

Pin No.	Pin Name	I/O	Description
51	REMOCON	I	Remocon pulse input.
52	SD	I	SD signal input.
53	TU MUTE	O	Tuner mute output.
54	VCR MUTE	O	VCR mute output.
55	SST	I	Serial data input.
56	STS	O	Serial data output.
57	SCLK	O	Serial clock output.
58	STRB	O	Strob output.
59	SIF	O	SIF selection.
60	AUDIO A	O	Switching output of HI-FI/STEREO. (Open)
61	AUDIO B	O	Switching output of HI-FI/STEREO. (Open)
62	TV POWER	O	TV power output.
63	VCR POWER	O	VCR power output.
64	VDD	—	+5V.

## IC DESCRIPTIONS

OEC9032B

Pin No.	Pin Name	I/O	Description
1	VSAD	—	Ground.
2	BOT	I	Tape start sensor input signal.
3	CASS DOWN/SERVICE	I	Input of CASS DOWN, TAB switch and setting of service mode.
4	EOT	I	Tape end sensor input signal.
5	VIDEO ENV DET	I	Input terminal of video RF envelope.
6	HI-FI ENV DET	I	Input terminal of HI-FI RF envelope.
7	DEW	I	Dew sensor input.
8	SLOW TRACK OFFSET	I	Slow tracking offset adjustment.
9	CYL/CAP MOTOR SELECT	I	CYL/CAP motor select input.
10	VDAD	—	5V.
11	DFG OUT	O	Output terminal of DFG AMP.
12	DFG IN	I	Input terminal of DFG AMP.
13	DPG IN	I	Input terminal of DPG comparator.
14	CFG IN	I	Input terminal of CFG AMP.
15	CFG OUT	O	Output terminal of CFG AMP.
16	VSSA	—	Ground.
17	VREF	—	Power on reset signal.
18	CTL AMP -	I	Input terminal of CTL AMP.
19	CTL AMP +	O	Output terminal of CTL AMP.
20	CTL -	I	Input terminal of CTL AMP negative.
21	CTL +	I/O	Input terminal of CTL AMP positive.
22	VDDA	—	5V.
23	RESET B	—	Power reset.
24	TEST	I	Ground.
25	SYSTEM 1	O	Open.
26	V-PB H	O	Open.
27	HI-FI L	I	Input selection of audio type.
28	AUTO DET IN	I	Ground.
29	BILINGUAL L	I	Input selection of audio type.
30	STEREO L	I	Input selection of audio type.
31	2HEAD/4HEAD	I	Input terminal for heads selecting 2 head/4 head.
32	SEARCH SPEED SW	I	Input terminal for the speed selection of CUE/REV.
33	TRICK PB-L	O	During special playback, this pin will output HIGH.
34	LP-H	O	Output HIGH at tape speed LP.
35	SP-H	O	Output HIGH at tape speed SP.
36	REC-H	O	After the tape loading, when the REC key is activated, HIGH will be output.
37	V. REC ST H	O	When the recording current flows through the head during the recording, this pin will output HIGH.
38	VIDEO H. SW	O	Output terminal of VIDEO HEAD SW.
39	AUDIO H. SW	O	Open.
40	H. AMP SW	O	Open.
41	COLOR ROTARY	O	Open.
42	DUMMY-V	O	Imitation vertical signal output.
43	VDD	—	5V.
44	PWM0	O	PWM output for error signal of drum motor.
45	PWM1	O	PWM output for error signal of capstan motor.
46	DRM ON	I/O	Control the drum motor rotation direction.
47	CAP ON	I/O	Control the capstan motor rotation direction.
48	LDM REV.	O	Control the loading motor rotation direction.
49	LDM FWD.	O	Control the loading motor rotation direction.
50	CAP LIMIT	I/O	3 State C-MOS output.

## IC DESCRIPTIONS

OEC9032B

Pin No.	Pin Name	I/O	Description
51	CAP F/R	O	Output the LOW signal while the capstan motor is rotation in the direction of PB.
52	VV-H	O	Control output to select the output of PLAYBACK picture or EE picture.
53	EXT IN-L	I	Input of external input signal.
54	EXT H	O	Control the external input signal.
55	MS SW3	I	Mecha state switch terminal.
56	MS SW2	I	Mecha state switch terminal.
57	MS SW1	I	Mecha state switch terminal.
58	MS SW0	I	Mecha state switch terminal.
59	TAPE IN LED	O	Lights when a tape is inserted.
60	REC LED	O	Lights at REC mode.
61	T-REC LED	O	Lights at T-REC mode.
62	CLOCK 0	—	Terminal to connect the oscillator.
63	CLOCK 1	—	Terminal to connect the oscillator.
64	VSS	—	Ground.
65	ATR LED	O	Lights at ATR mode.
66	PLAY LED	I	Lights at PLAY mode.
67	REPEAT LED	O	Lights at REPEAT mode.
68	SYSTEM 2	O	Open.
69	REEL S	I	Input terminal of reel sensor.
70	REEL T	O	Input terminal of reel sensor.
71	SENS LED	O	Tape end sensor LED.
72	CE	I	Timer output signal.
73	COUNTP IN	I	1 second pulse input for tape counter.
74	S. DATA IN	I	Serial data input signal.
75	S. DATA OUT	O	Serial data output signal.
76	S. CLK	I	Serial clock input signal.
77	COMP	O	Open.
78	SYNC IN	I	Vertical synchronization signal input.
79	COUNTP OUT	O	1 second pulse input for tape counter.
80	CTL OUT	O	Open.

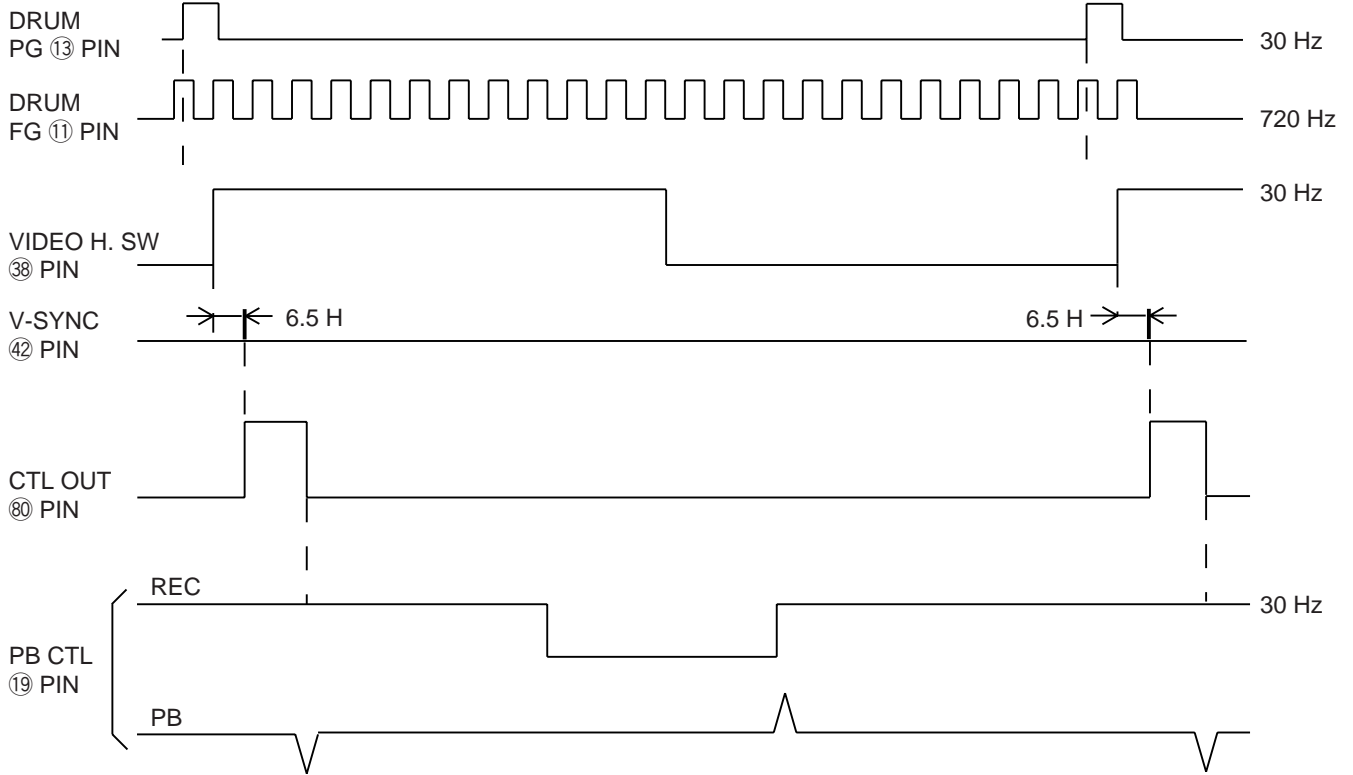
## IC DESCRIPTIONS

TB1229CN

Pin No.	Pin Name	I/O	Description
1	AV VIDEO IN	I	Input for the External Composite Video signals.
2	V-AGC	—	Control to keep the V-Ramp output constant.
3	H VCC	—	VCC for the DEF Block (Deflection Family).
4	H. OUT	O	Horizontal Output Terminal.
5	CURV CORR	—	Corrects the screen deflection for the high voltage change.
6	FBP IN	I	FBP Input for the Horizontal AFC2 Detection/the Horizontal Blanking Pulse.
7	COINC DET	—	Connects the filter to detect the Horizontal Synchronous signal or Vertical Synchronous signal.
8	VDD	—	VDD Terminal for the Logic Block.
9	SCL	—	SCL Terminal for I2C BUS.
10	SDA	—	SDA Terminal for I2C BUS.
11	D GND	—	GND Terminal for the Logic Block.
12	B OUT	O	Blue output Terminal.
13	G OUT	O	Green output Terminal.
14	R OUT	O	Red output Terminal.
15	T GND	—	GND Terminal for the TEXT Block.
16	ABCL	—	External Uni Color, Brightness Control Terminal.
17	RGB ACC	—	VCC Terminal for the TEXT Block.
18	D-R IN	I	Digital Red Input Terminal.
19	D-G IN	I	Digital Green Input Terminal.
20	D-B IN	I	Digital Blue Input Terminal.
21	D-YS	—	Selector Switch for the Halftone/Internal RGB signal/Digital RGB.
22	A-YS	—	Selector Switch for the Internal RGB signal/analogue RGB.
23	A-R IN	I	Analogue Red Input Terminal.
24	A-G IN	I	Analogue Green Input Terminal.
25	A-B IN	I	Analogue Blue Input Terminal.
26	COLOR LIMITER	—	Connects the filter for to detect the Color Limit.
27	TV AUDIO IN	I	Monaural Audio Signal Input Terminal.
28	AV AUDIO IN	I	Monaural Audio Signal Input Terminal.
29	AUDIO OUT	O	Output the Audio Signal through the Attenuator.
30	APC FILTER	—	Connects the APC filter for the Chromatic Demodulation.
31	Y2 IN	I	Input the Y signal that is separated.
32	FSC GND	—	GND Terminal for the VCXO Block.
33	B-Y IN	I	Input Terminal for the B-Y signal.
34	R-Y IN	I	Input Terminal for the R-Y signal.
35	R-Y OUT	O	Output the demodulated R-Y signal.
36	B-Y OUT	O	Output the demodulated B-Y signal.
37	Y OUT	O	Output the Y signal that is separated.
38	FSC VDD	—	VDD Terminal for the VCXO Block.
39	BLACK FIL	—	Connect the filter to control the Black Stretch Gain of the Black Stretch Circuit.
40	X. TAL	—	Connect the 16.2MHz X'tal for the sub-carrier appearance.
41	Y/C VCC	—	VCC Terminal for the Y/C Signal Separation Block.
42	C IN	I	Chromatic Input Terminal.
43	Y/C GND	—	GND Terminal for the Y/C Signal Separation Block.
44	APL	—	Connects the filter to correct the DC Restore percentage.
45	Y1 IN	I	Y Signal Input Terminal.
46	S-DEMO ADJ	—	Ground.
47	TV VIDEO IN	I	Input for the TV Composite Video signals.
48	AFC1 FILTER	—	Connects the filter for the Horizontal AFC1 detection.
49	SYNC OUT	O	Output the Synchronous Signal that is separated at the Synchronous Separation Circuit.
50	V-SEPA	—	Connect the filter for the Vertical Synchronous Separation.
51	SYNC IN	I	Input for the Synchronous Separation Circuit.
52	V-RAMP	—	Connect the filter for the V-Ramp Wave Form making.
53	V OUT	O	Output Terminal for the Vertical Ramp Signal.
54	V NF	I	NF Input Terminal for the Vertical.
55	DEF GND	—	GND Terminal for the DEF Block (Deflection Family).
56	VIDEO OUT	O	Output Terminal for the External, TV Video Input that is selected at the Bus.

# SERVO TIMING CHART

IC1001 (OEC9032B)



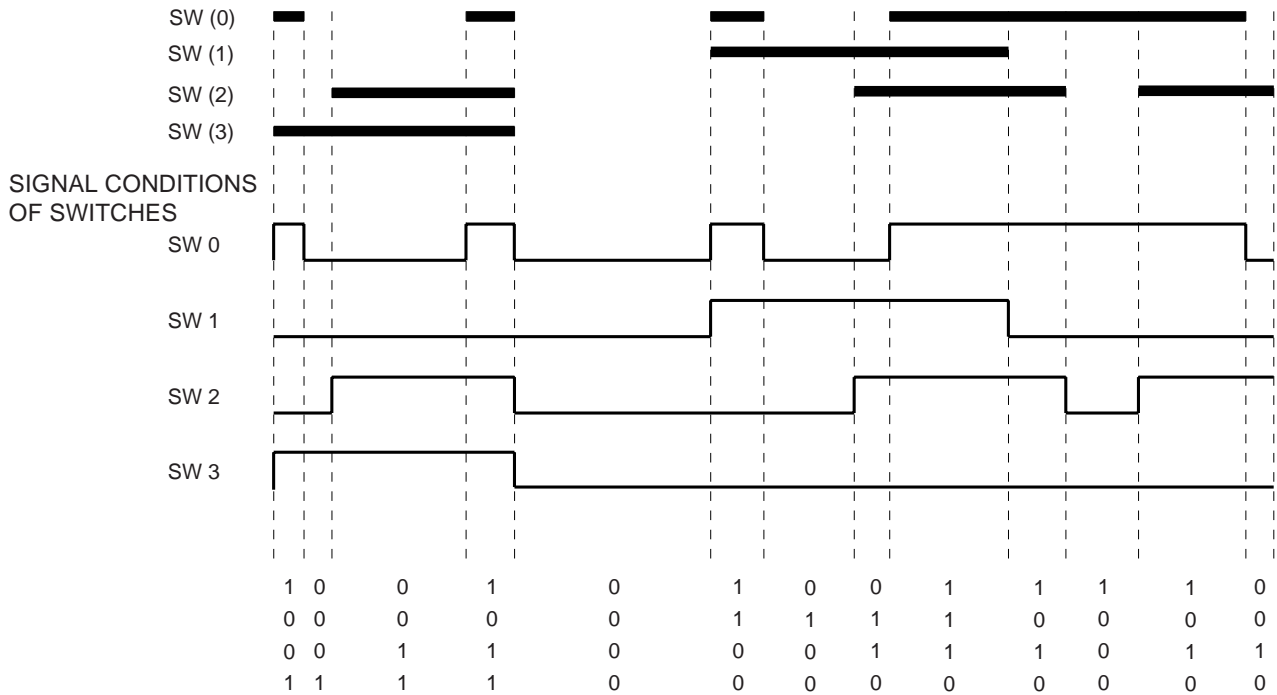
• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED



# SYSTEM SWITCH MODE

SWITCH COMPOSITION

SWITCH PATTERN



MODE SWITCH				DECK MODE
SW 3	SW 2	SW 1	SW 0	
1	0	0	1	EJECT
1	0	0	0	CASSETTE UP
1	1	0	0	CASSETTE DOWN
1	1	0	1	IDLE
0	0	0	0	*1
0	0	1	1	UL START
0	0	1	0	VSR
0	1	1	0	RVS STILL
0	1	1	1	FWD STILL
0	1	0	1	PLAY/REC/STOP 1
0	0	0	1	STOP 2
0	1	0	1	FF / REW
0	1	0	0	

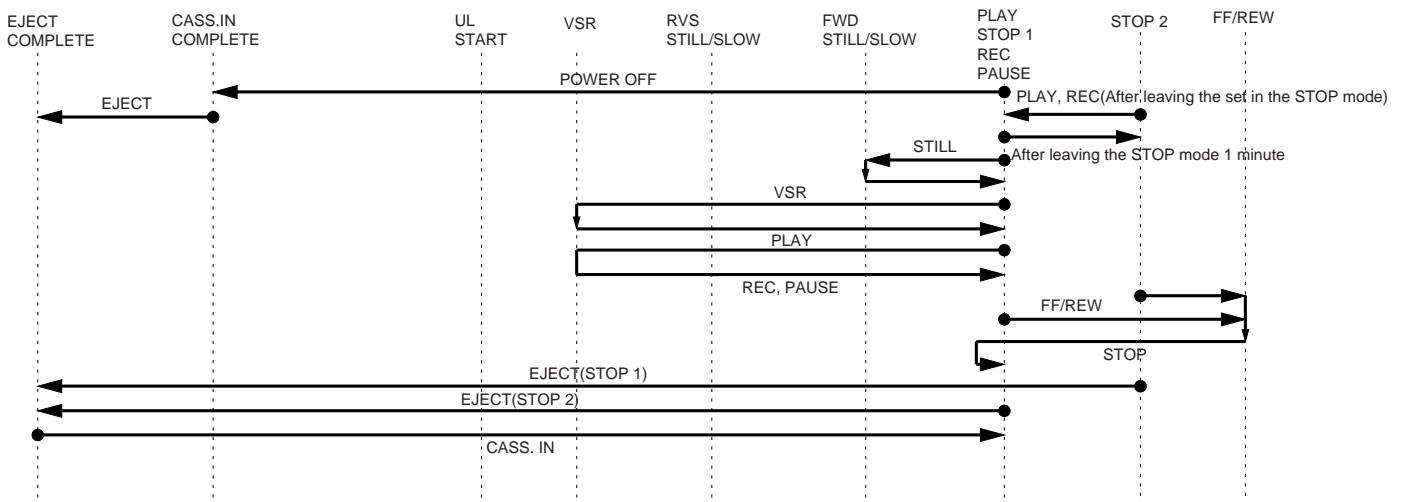
MODE SWITCH				DECK MODE
SW 3	SW 2	SW 1	SW 0	
0	5	5	0	EJECT
5	5	5	0	STOP(Right after)
5	0	5	0	STOP(After 1 minute)
5	5	5	0	PLAY
5	5	5	0	REC (After selecting the Cassette)
5	0	5	5	FF (After selecting the Cassette)
5	0	5	5	REW
5	5	5	0	VSR
5	5	0	5	VSR
5	0	0	0	STILL(PLAY)
5	5	5	0	PAUSE(REC)
0	0	5	0	POWER OFF (TAPE IN)
0	0	5	0	POWER ON (TAPE IN)

OUTPUT LIST OF MECHANICAL SWITCHES

\*1: IT IS ONLY PASSING POINT, THERE IS NO DECK MODE.

VOLTAGE (V)

## MODE SEPARATION

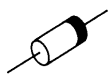


# SEMICONDUCTOR BASE CONNECTIONS

## DIODE



1SS133T-77  
1SS290T-77  
MTZJ13B T-77  
MTZJ5.1C T-77  
MTZJ6.8C T-77  
MTZJ8.2B T-77  
UZ-12BCB-TA  
UZ-27BCB-TA  
UZ-5.1BCB-TA  
UZ-5.6BCA-TA  
UZ-5.6BCB-TA  
UZ-9.1BCB-TA



11E1N-TA1B2  
11E1TA1B2  
11E2TA1B2  
11EQS04TA1B2  
11ES1TA1



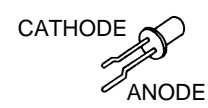
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15DF6-FC  
1R5NU41  
21DQ09N-TA2B1  
RM11C



LFB-01L

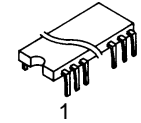


SLR-938C-4-AB

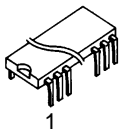


EM-553-F9T  
EQ-552F9T

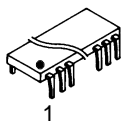
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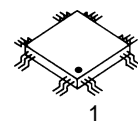
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OEC6044D  
**56PIN**  
TB1229CN  
**54PIN**  
TA1232AN  
**16PIN**  
TL8850AP



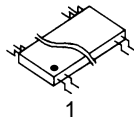
**20PIN**  
M52313SP



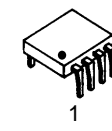
**24PIN**  
LA7289



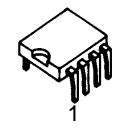
**80PIN**  
OEC9032B



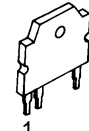
**24PIN**  
LA7411M-TP-T



**8PIN**  
LA6358T

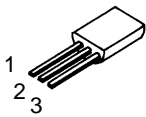


**8PIN**  
M24C04-BN6  
TDA4605-3

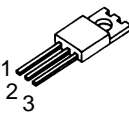


**7PIN**  
TA8403K

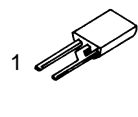
## TRANSISTOR



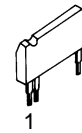
**3PIN**  
PST600H



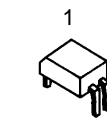
**3PIN**  
NJM7805FD  
NJM7809FA



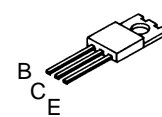
**2PIN**  
UPC574J-T



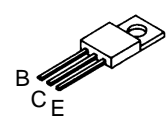
**10PIN**  
OEC9029A



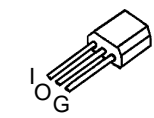
**4PIN**  
TLP621(GR)



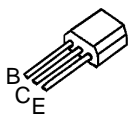
2SC4160-ORI



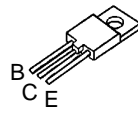
2SD2396(J,K)



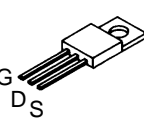
DTC114ESTP



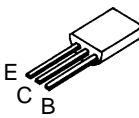
DTA114TSTP  
DTC114TSTP



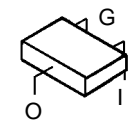
2SD2089



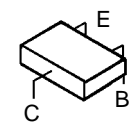
2SK2397-01MR



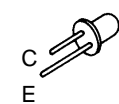
2SA1015Y(TPE2)  
2SA1371(D,E)-AE  
2SA1624-AA  
2SA950Y(TPE2)  
2SB698-AA  
2SB926(S,T)-AA  
2SC1317(Q,R,S)-T  
2SC1815Y(TPE2)  
2SC2001(C)-T\_L  
2SC2120Y(TPE2)  
2SC2271(D,E)-AE  
2SC2872S  
2SC2909(S,T)-AA  
2SC3000-AA  
2SC3468(D,E)-AE



DTC114TKT147  
DTC143EKAT146  
DTA124EKAT146  
DTC114EKAT146  
DTC124EKAT146  
DTC143TKT147  
DTC144EKAT146



2SA1037AKT146R,S  
2SA1037KT147(R,S)  
2SC2412KT146 R,S  
2SC2412KT147(R,S)  
DTC114TKAT146

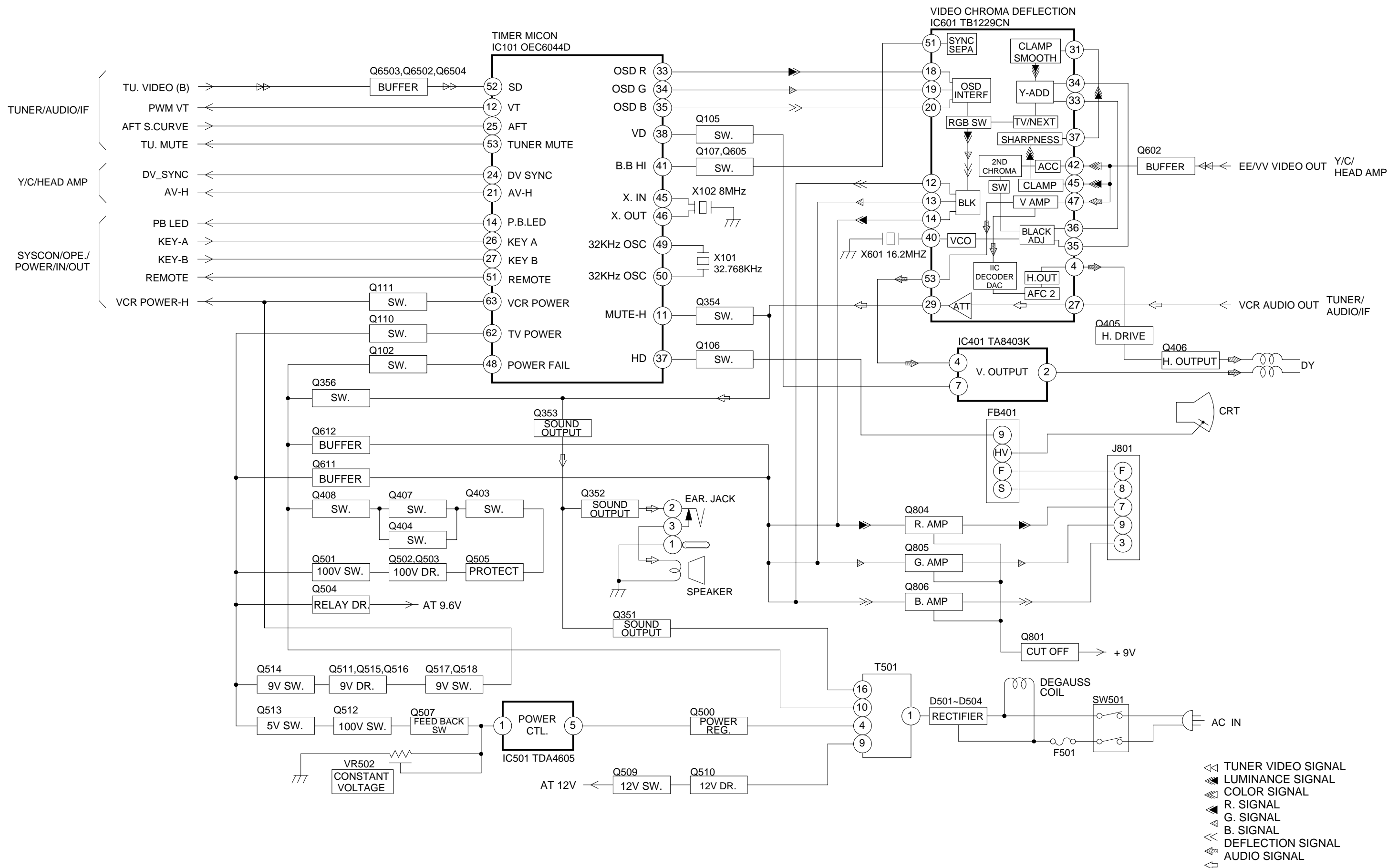


RPT-38PB113

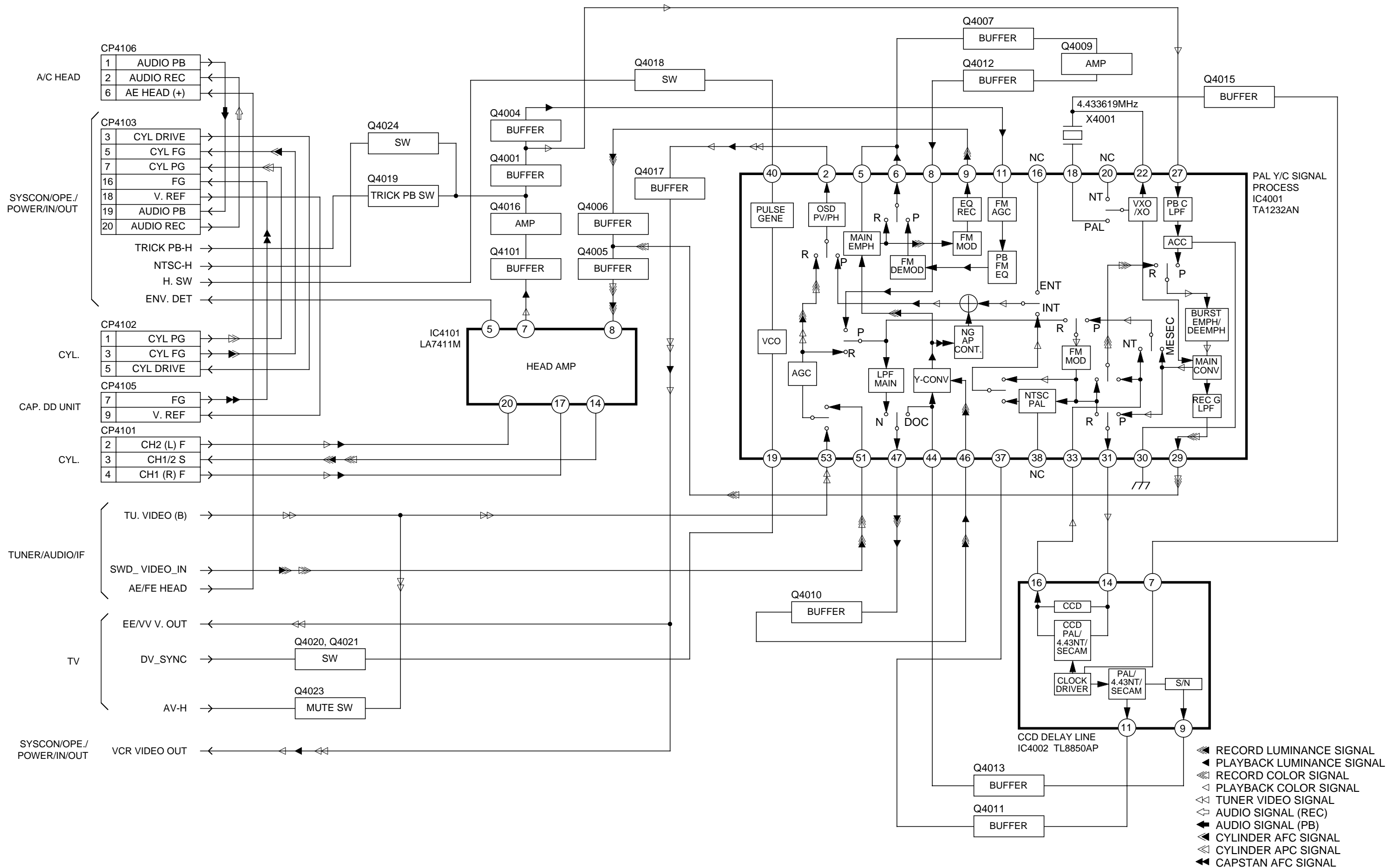


GP1S94

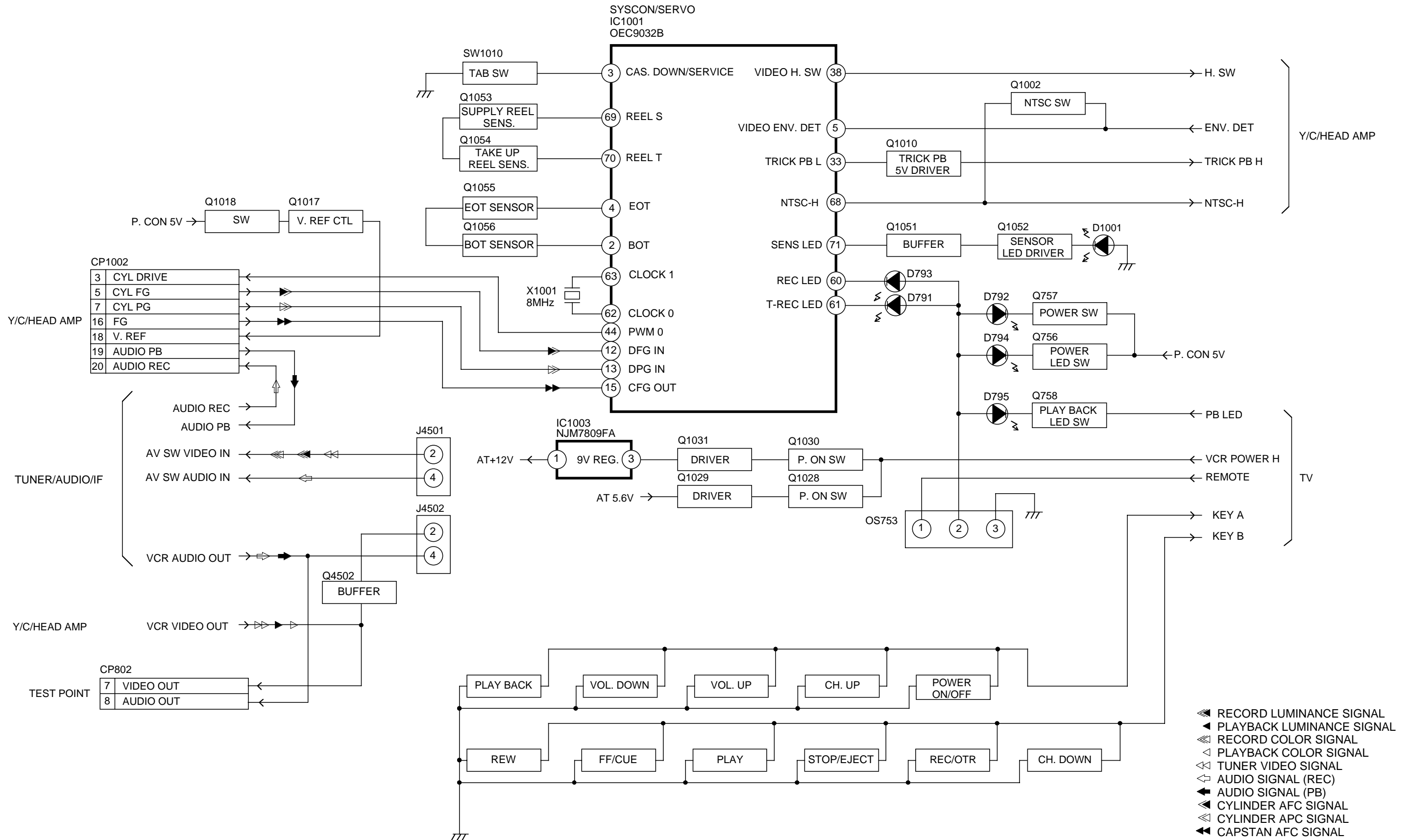
# TV BLOCK DIAGRAM



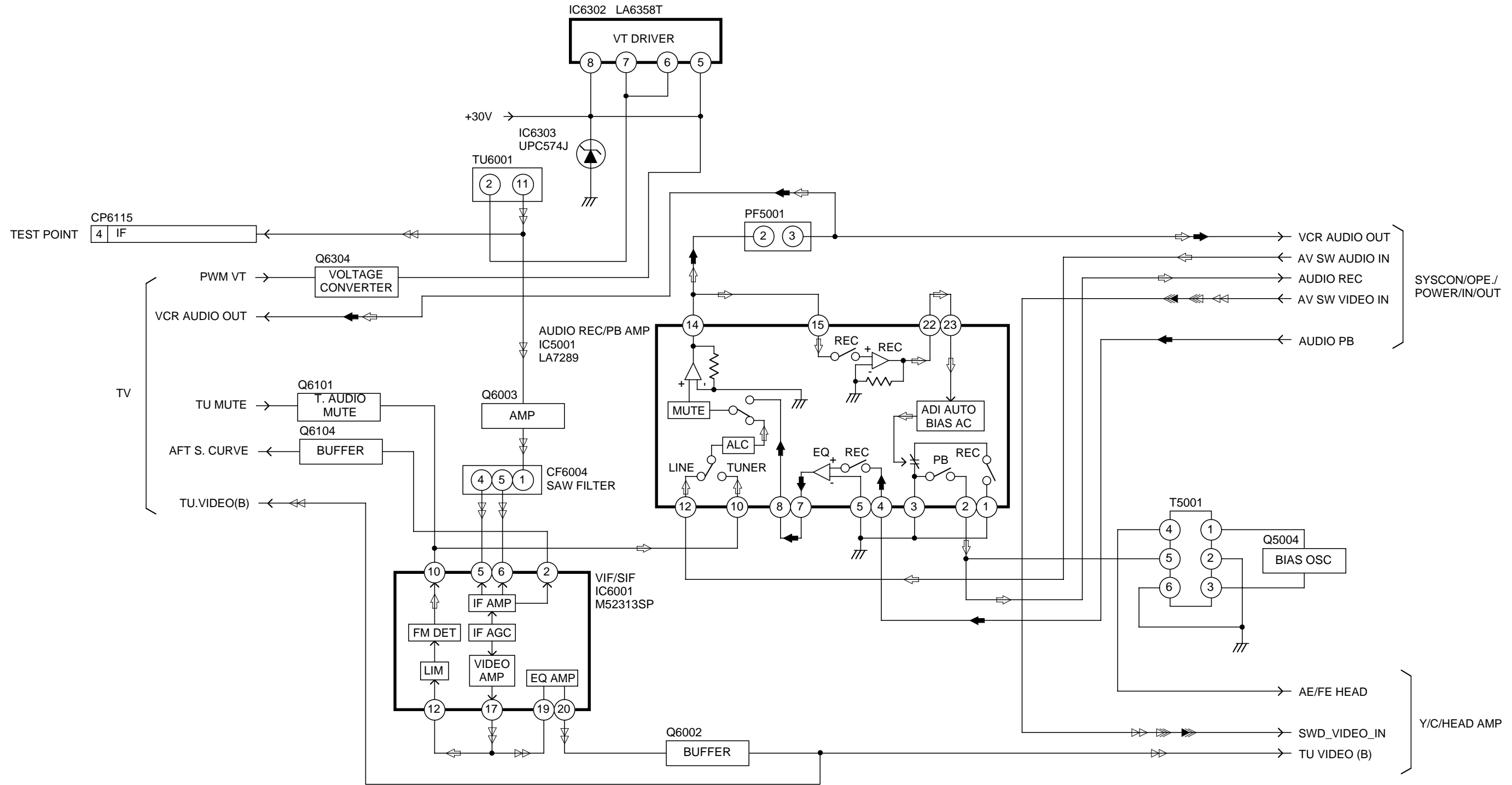
# Y/C/HEAD AMP BLOCK DIAGRAM



# SYSTEM CONTROL/OPERATION/POWER/IN/OUT BLOCK DIAGRAM



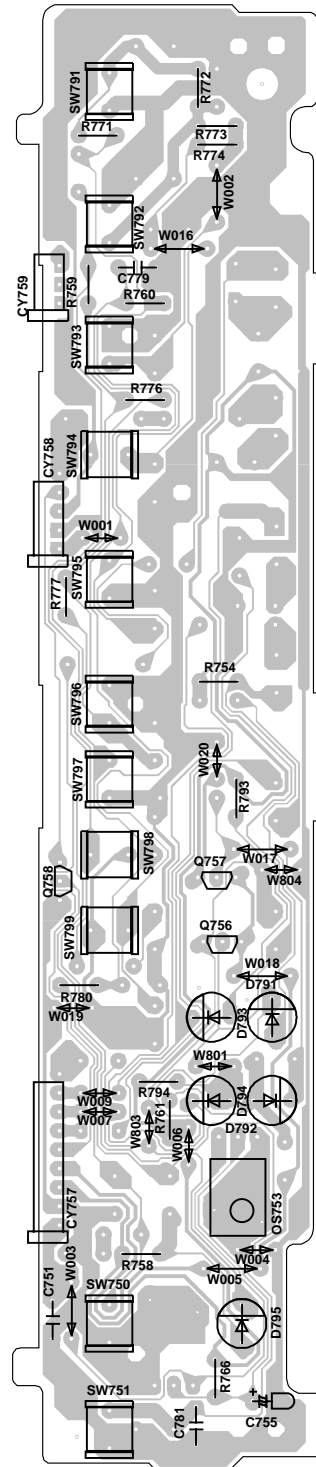
# TUNER/AUDIO/IF BLOCK DIAGRAM



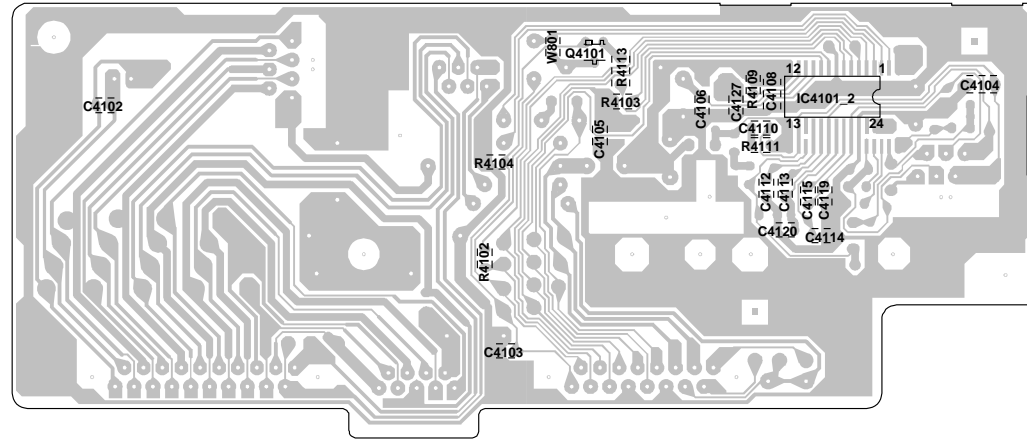
- ◀ RECORD LUMINANCE SIGNAL
- ▶ PLAYBACK LUMINANCE SIGNAL
- ◀ RECORD COLOR SIGNAL
- ▶ PLAYBACK COLOR SIGNAL
- ◀ TUNER VIDEO SIGNAL
- ▶ AUDIO SIGNAL (REC)
- ▶ AUDIO SIGNAL (PB)

PRINTED CIRCUIT BOARDS

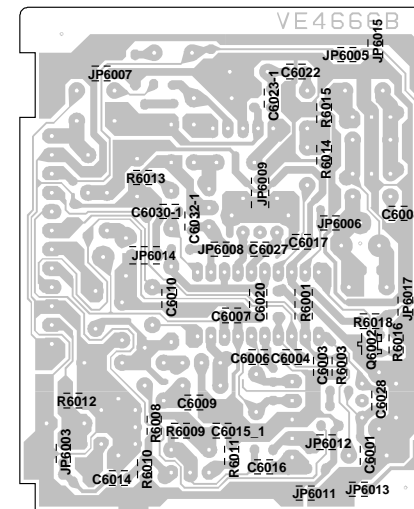
OPERATION 1



HEAD AMP

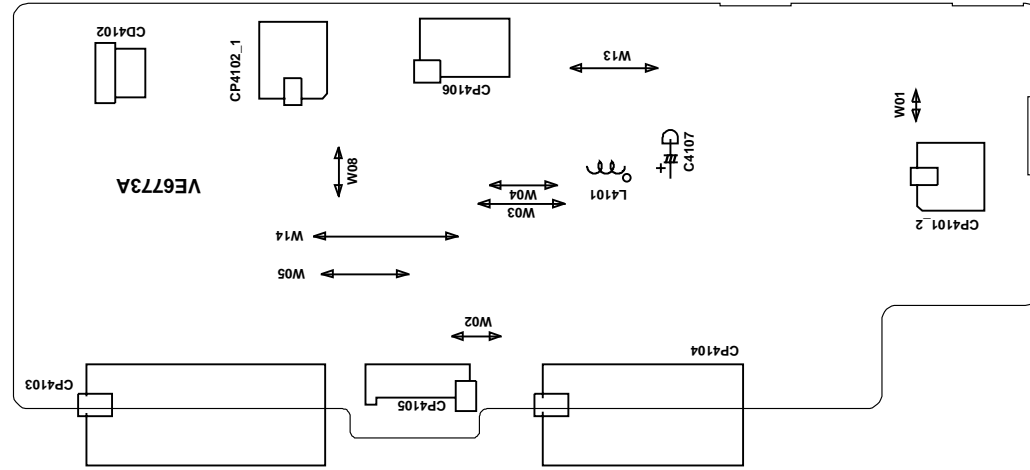


IF

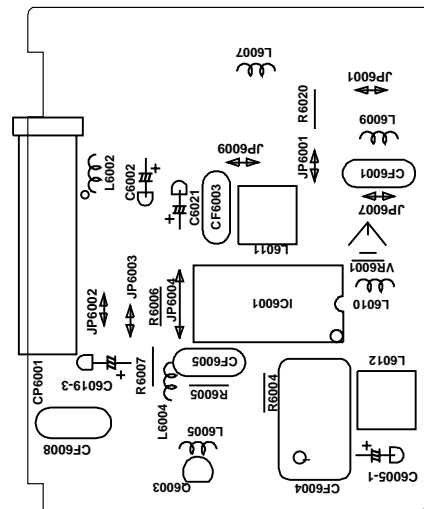


# PRINTED CIRCUIT BOARDS

## HEAD AMP



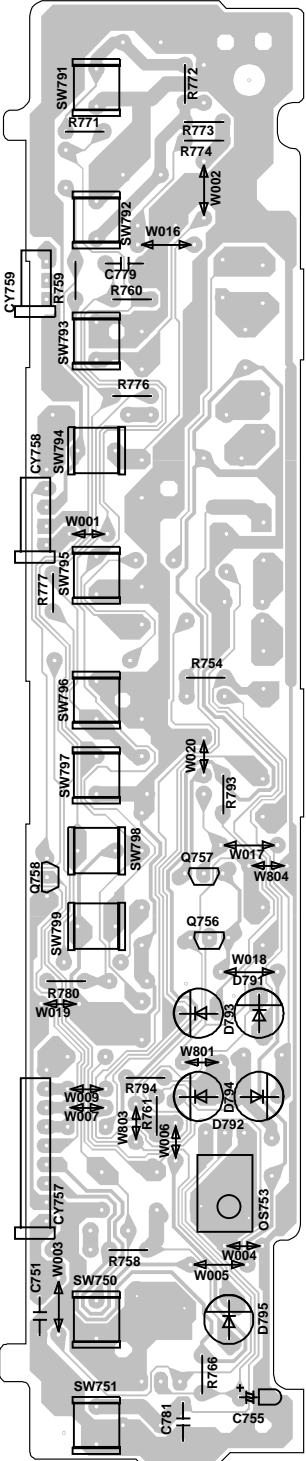
## IF



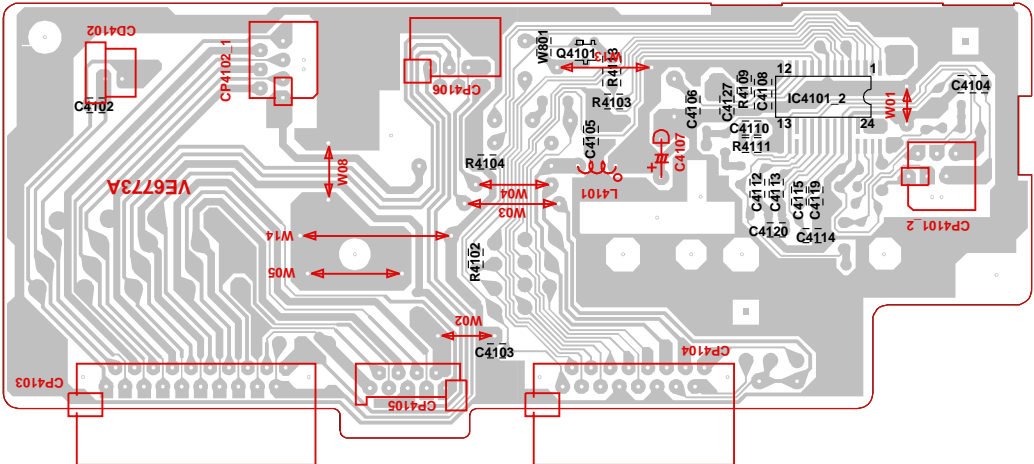


PRINTED CIRCUIT BOARDS

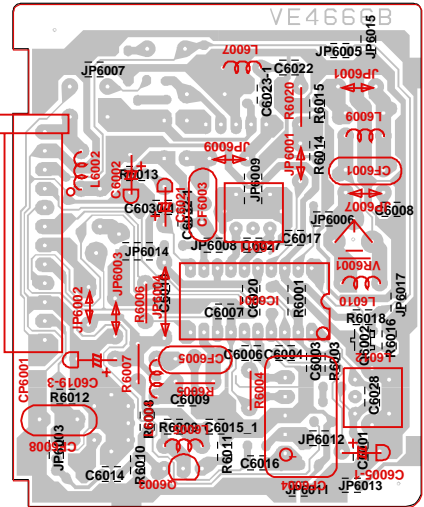
OPERATION 1



HEAD AMP

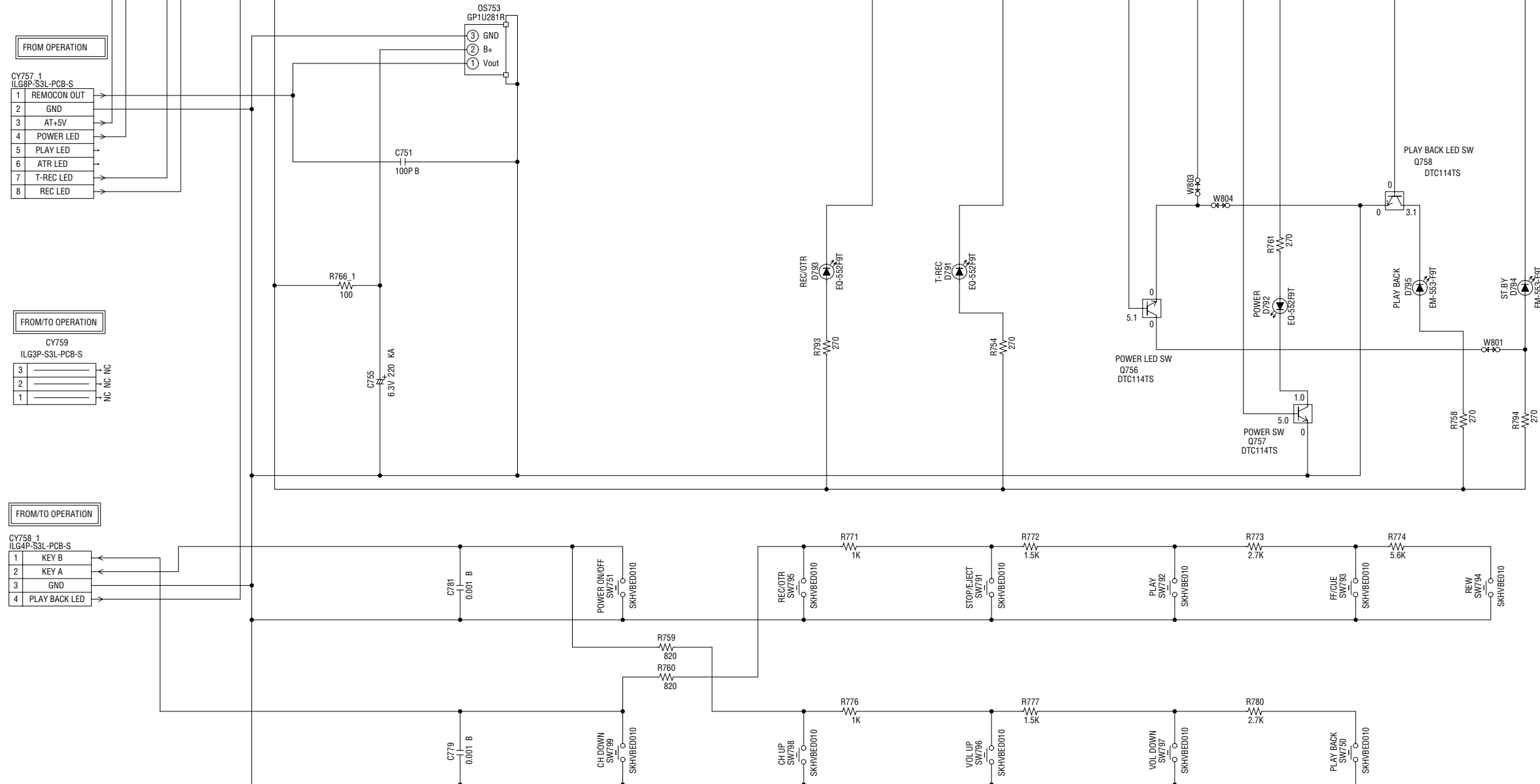


IF



# OPERATION 1 SCHEMATIC DIAGRAM

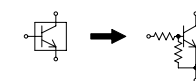
(OPERATION 1 PCB)



PCB030  
TE6895

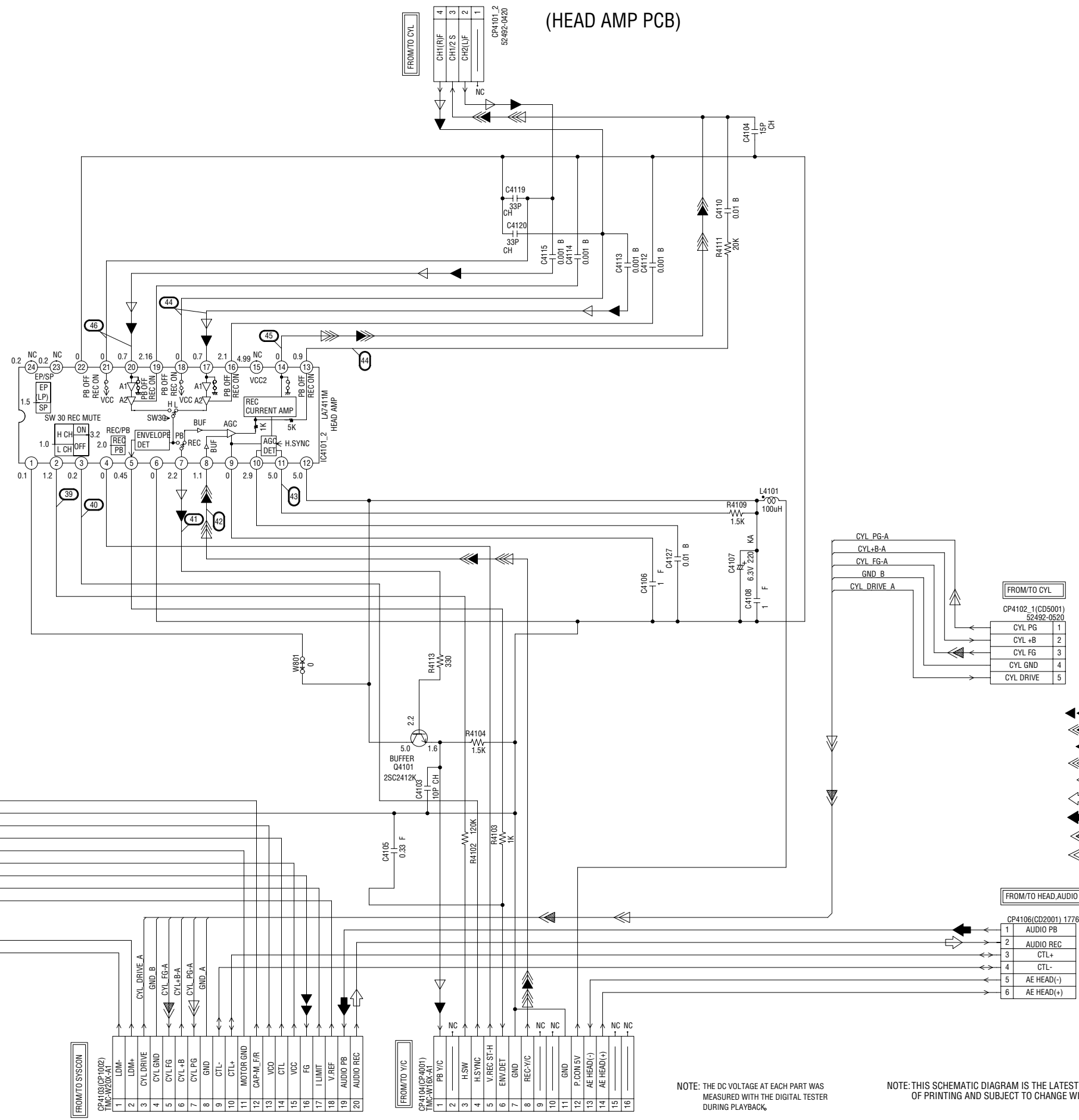
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR



# HEAD AMP SCHEMATIC DIAGRAM

(HEAD AMP PCB)



- ◀ CAPSTAN AFC SIGNAL
- ◀ RECORD LUMINANCE SIGNAL
- ◀ PLAYBACK LUMINANCE SIGNAL
- ◀ RECORD COLOR SIGNAL
- ◀ PLAYBACK COLOR SIGNAL
- ◀ AUDIO SIGNAL (REC)
- ◀ AUDIO SIGNAL (PB)
- ◀ CYLINDER AFC SIGNAL
- ◀ CYLINDER APC SIGNAL

FROM/TO CAPSTAN DD UNIT

CP4105 (TKC-F08X-L1)	
1	CAP/M/F/R
2	GND
3	VCO
4	CTL
5	MOTOR GND
6	VCC
7	FG
8	I LIMIT
9	V.REF

TO LOADING MOTOR

CD4102 (8283_0212_00_000)	
1	LDM+
2	LDM-

FROM/TO SYSTEM

CP4106 (CP4001) TMC-W15K-A1	
1	LDM+
2	LDM-
3	CYL DRIVE
4	CYL DRIVE GND_B
5	CYL FG-A
6	CYL+B
7	CYL PG-A
8	GND_A
9	CTL-
10	CTL+
11	MOTOR GND
12	CAP_M_F/R
13	VCO
14	CTL
15	VCC
16	FG
17	I LIMIT
18	V.REF
19	AUDIO PB
20	AUDIO REC

FROM/TO CYC

CP4102 (CD5001) 52492-0520	
1	PB V/C
2	H.S.W
3	H.S.YC
4	V REC ST-H
5	ENV DET
6	GND
7	REC-Y/C
8	NC
9	NC
10	GND
11	P.CON SV
12	AE HEAD(-)
13	AE HEAD(+)
14	NC
15	NC
16	NC

FROM/TO HEAD AUDIO CONTROL

CP4106 (CD2001) 177640-6	
1	AUDIO PB
2	AUDIO REC
3	CTL+
4	CTL-
5	AE HEAD(-)
6	AE HEAD(+)

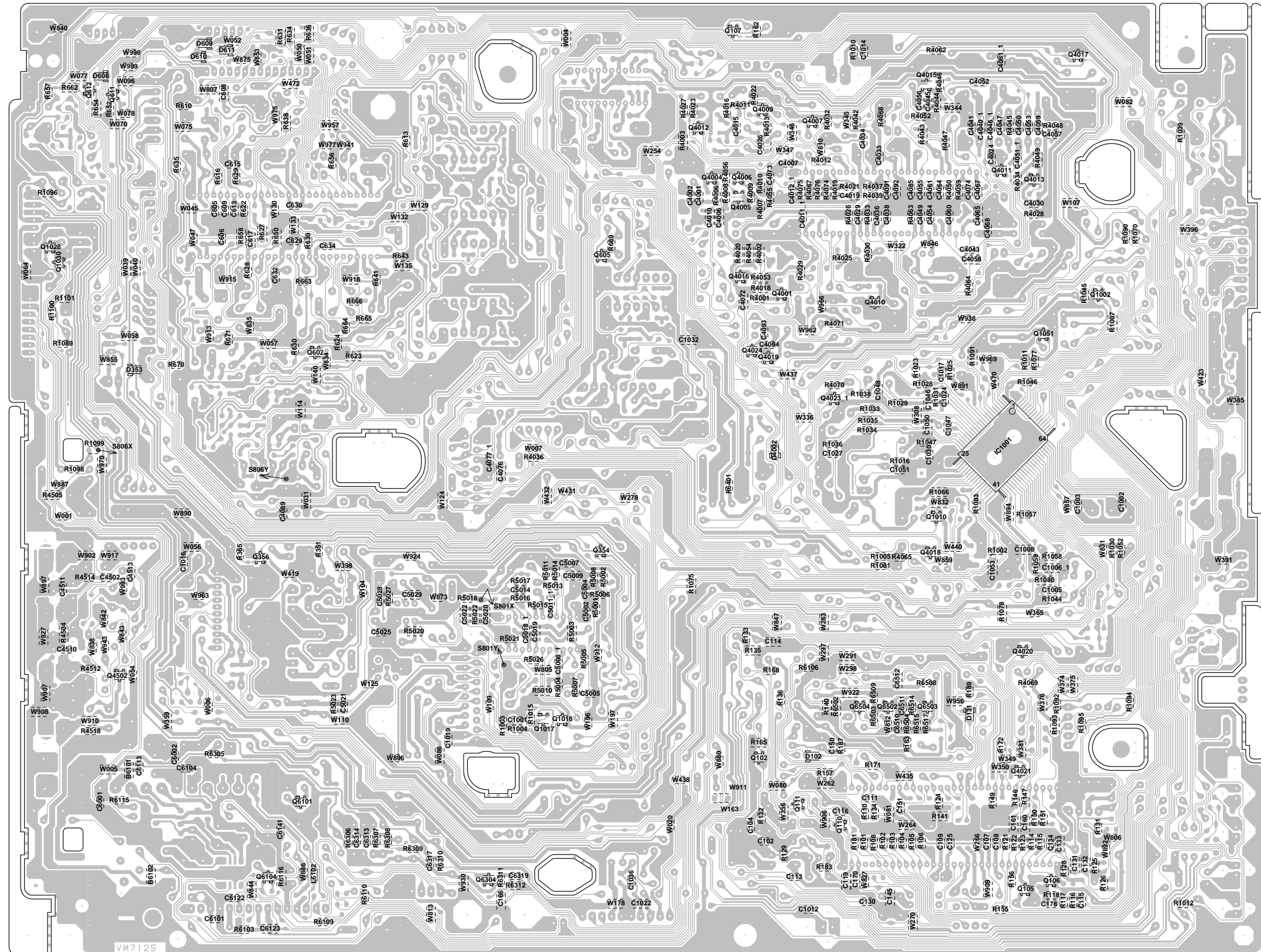
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

PCB330 V6773



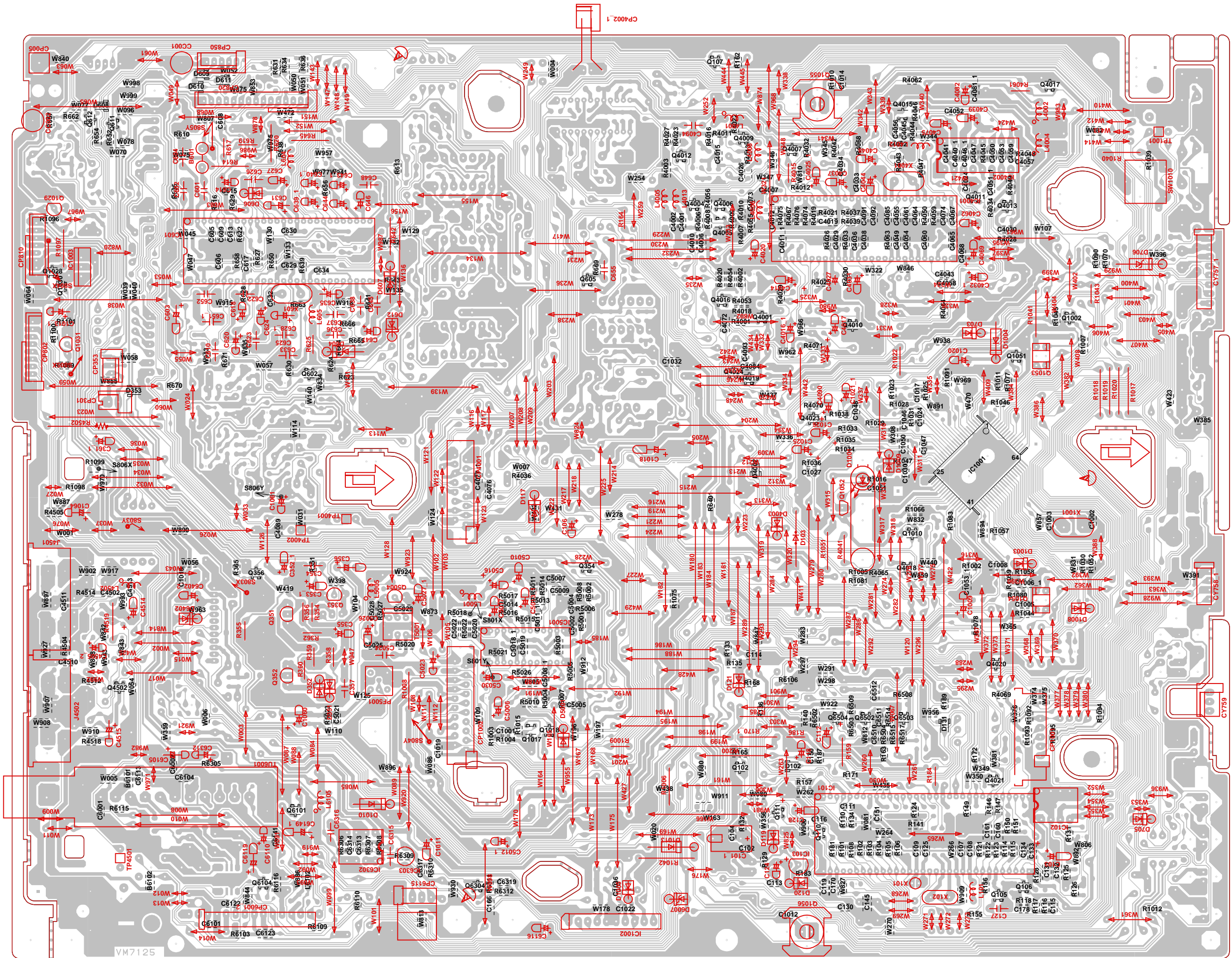
PRINTED CIRCUIT BOARDS  
SYSCON



VM7125



# PRINTED CIRCUIT BOARDS SYSCON

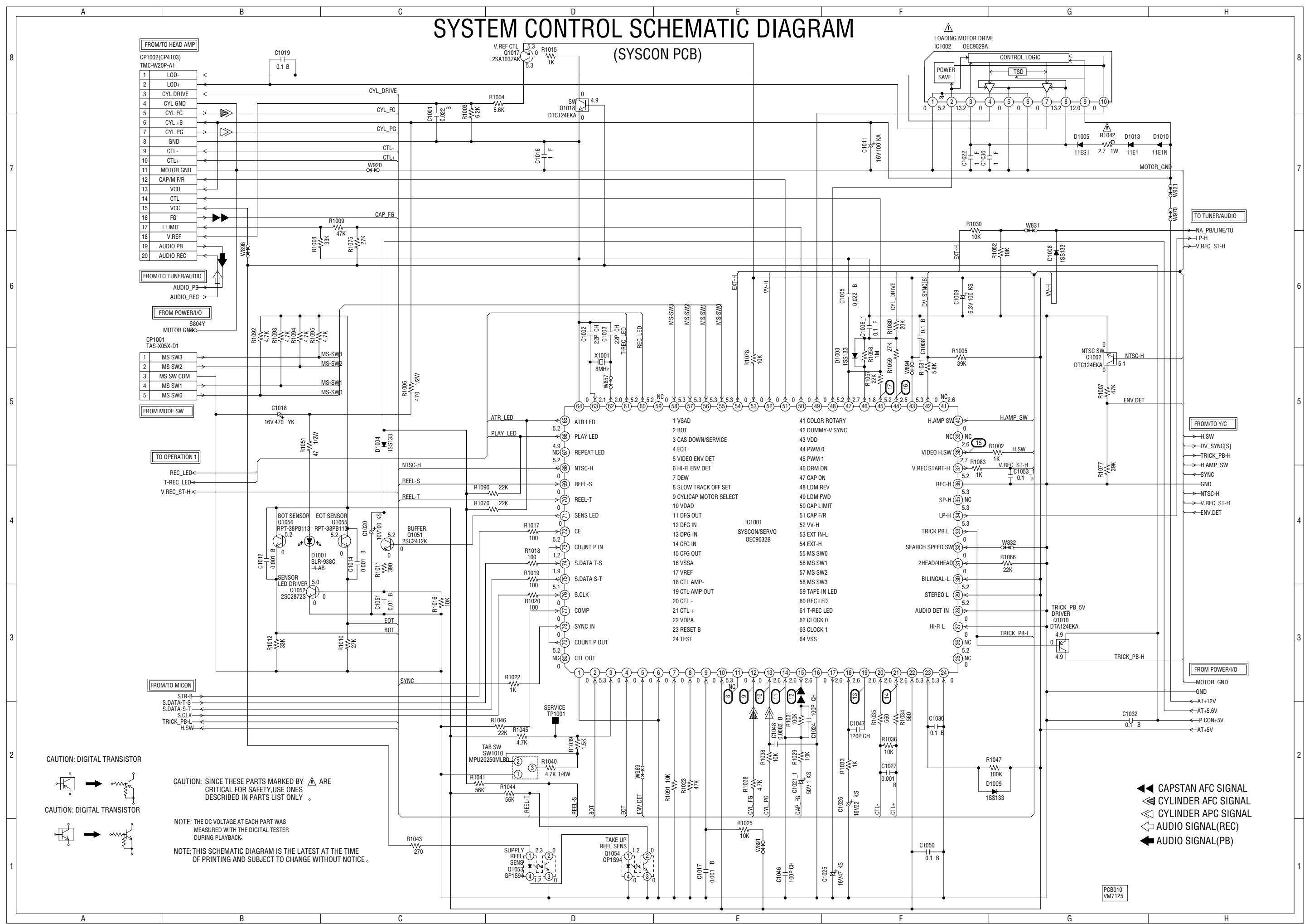






# SYSTEM CONTROL SCHEMATIC DIAGRAM

(SYSCON PCB)



CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



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

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

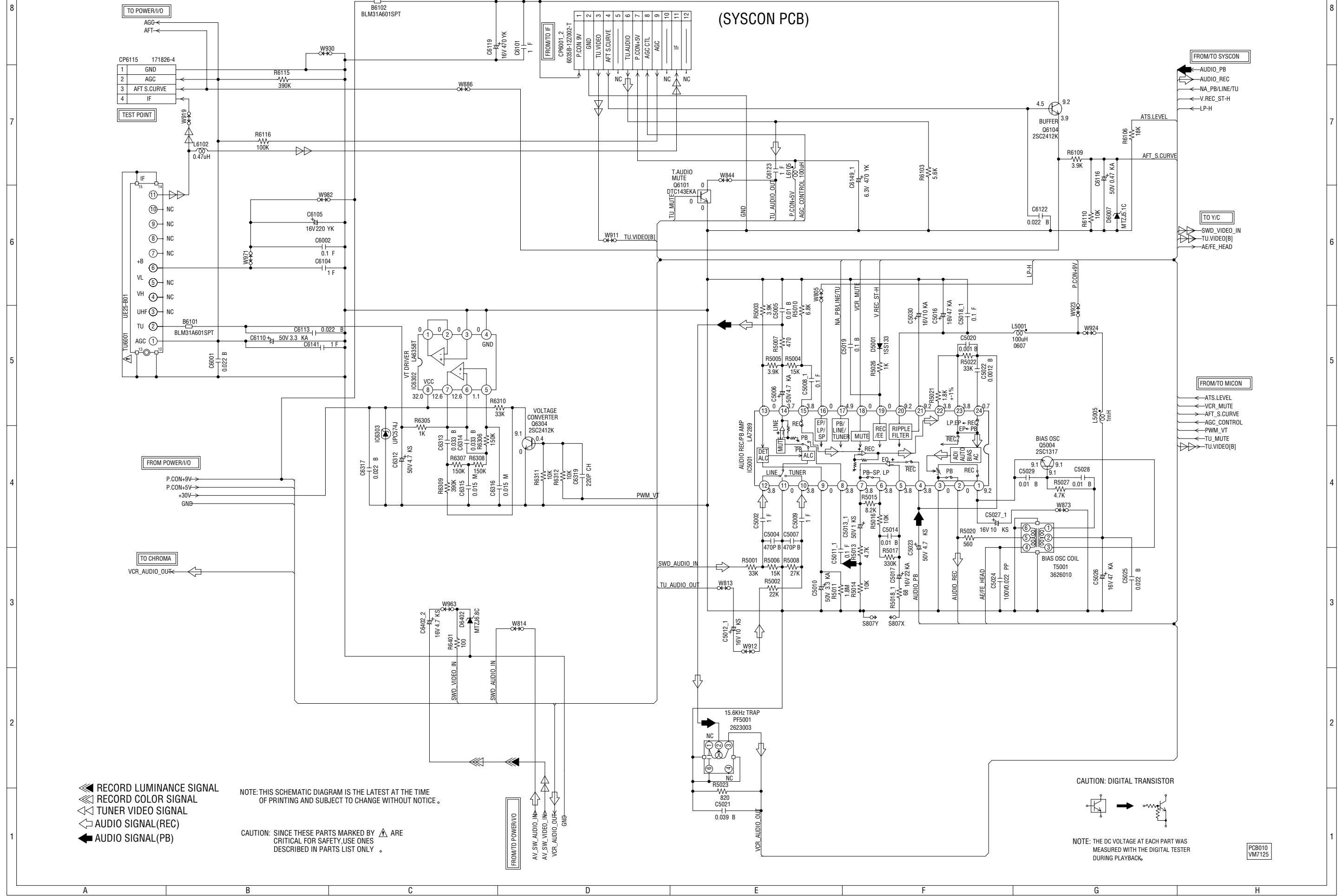
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

- ◀ CAPSTAN AFC SIGNAL
- ◀ CYLINDER AFC SIGNAL
- ◀ CYLINDER APC SIGNAL
- ◀ AUDIO SIGNAL(REC)
- ◀ AUDIO SIGNAL(PB)

PCB010  
VM7125

# TUNER/AUDIO SCHEMATIC DIAGRAM

(SYSCON PCB)



- ▶ RECORD LUMINANCE SIGNAL
- ▶ RECORD COLOR SIGNAL
- ▶ TUNER VIDEO SIGNAL
- ▶ AUDIO SIGNAL (REC)
- ▶ AUDIO SIGNAL (PB)

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

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

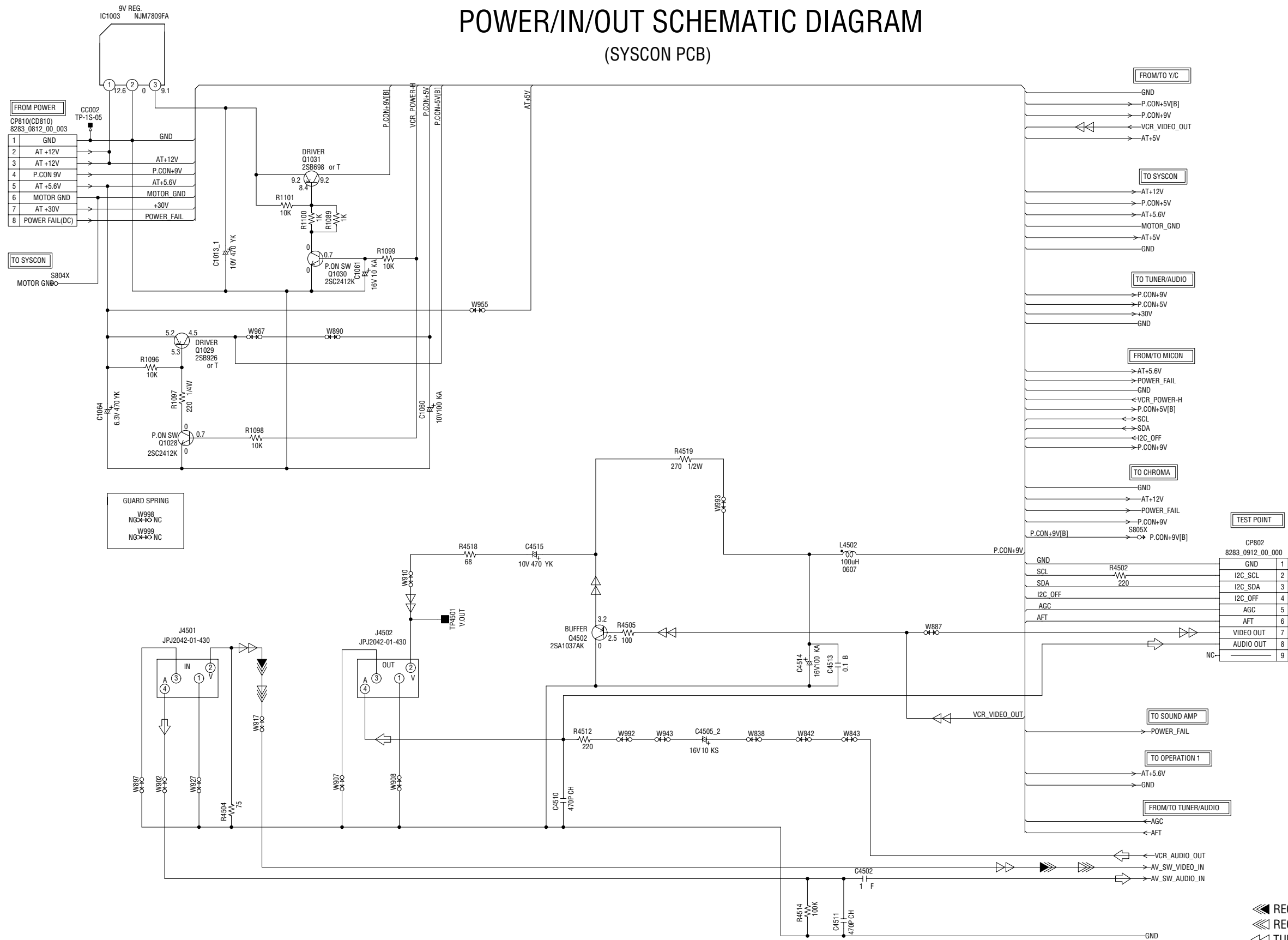
CAUTION: DIGITAL TRANSISTOR



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010 VM7125

# POWER/IN/OUT SCHEMATIC DIAGRAM (SYSCON PCB)

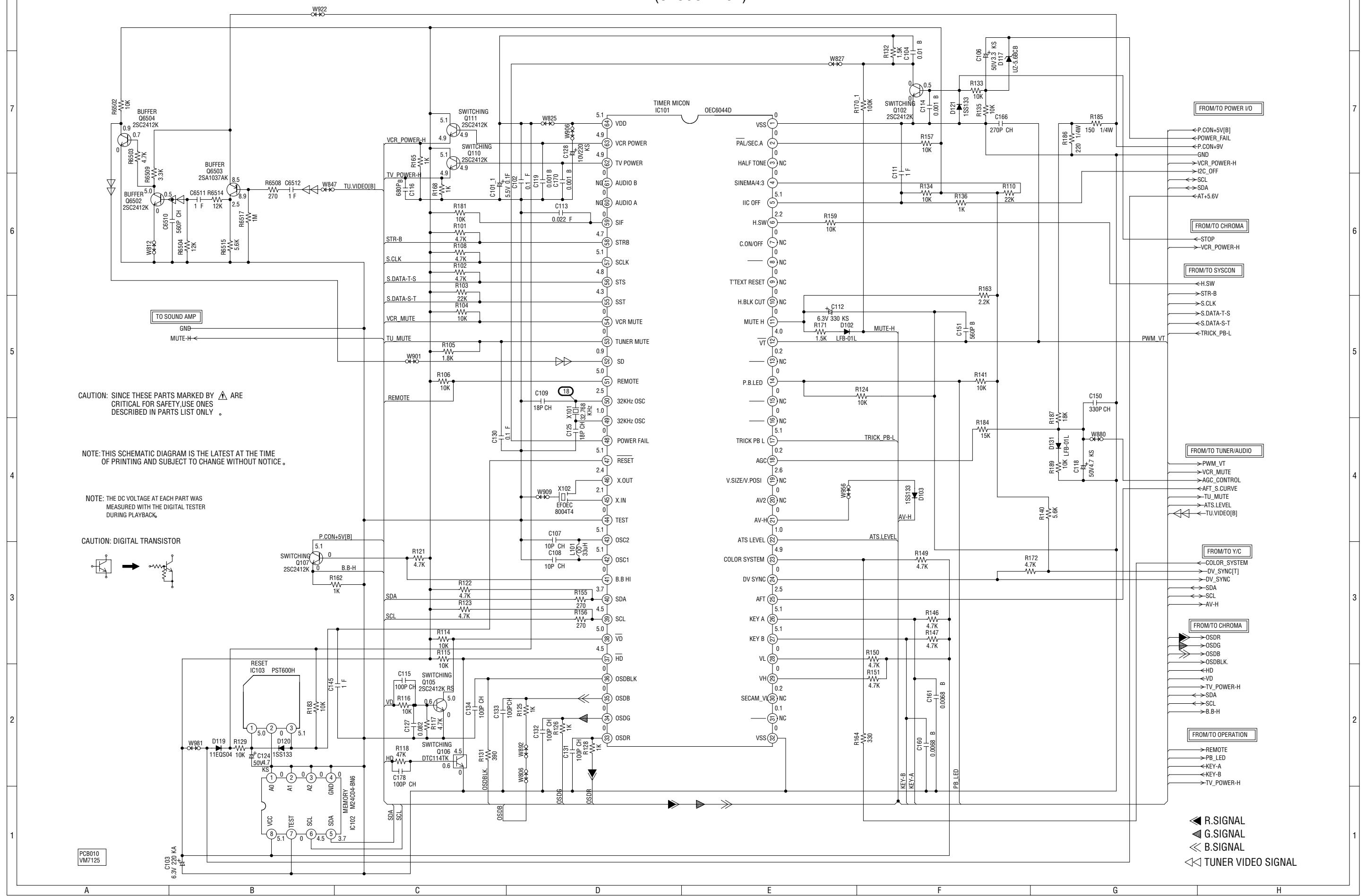


CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

# MICON SCHEMATIC DIAGRAM (SYSCON PCB)

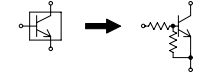


CAUTION: SINCE THESE PARTS MARKED BY  $\triangle$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

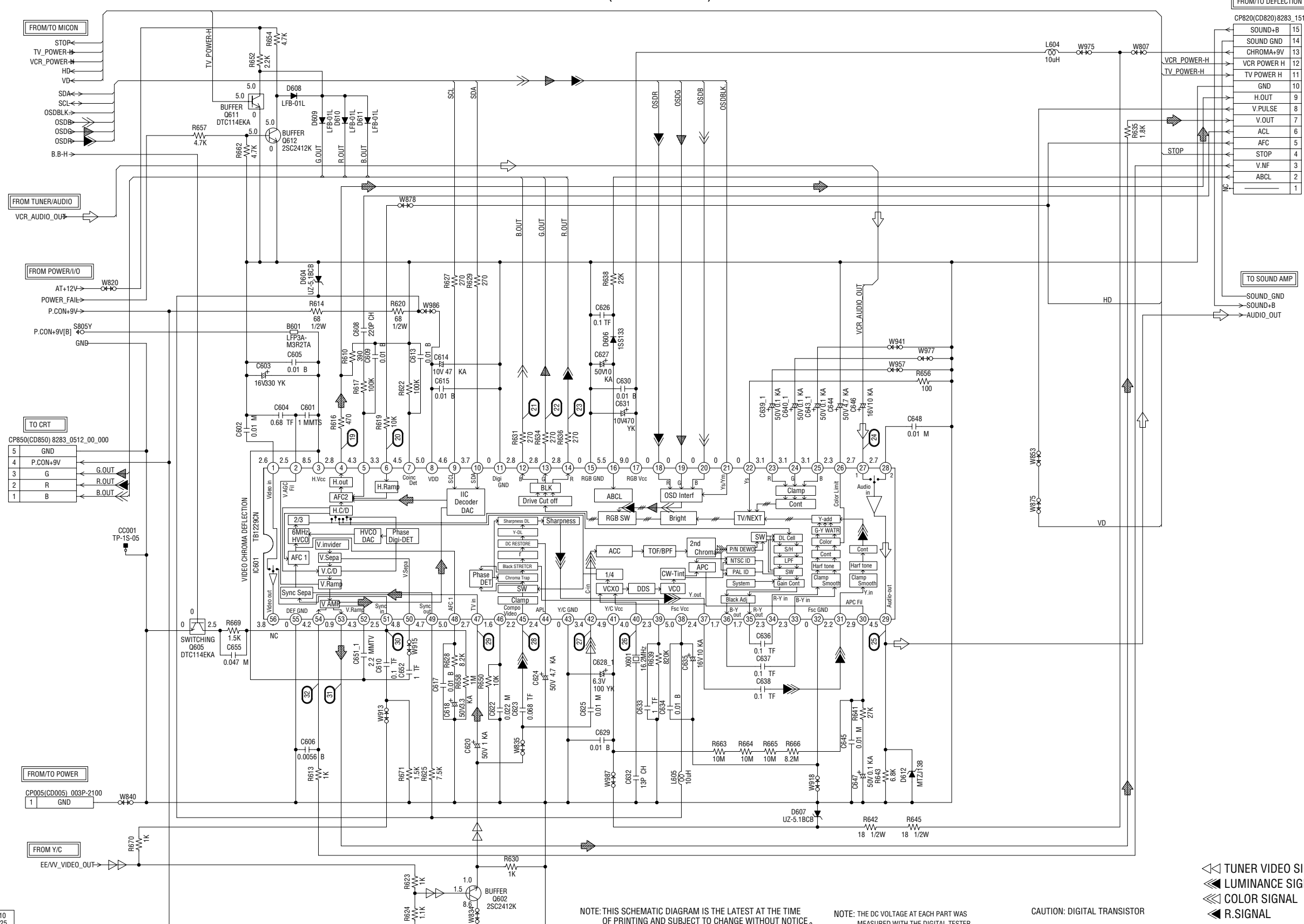
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



PCB010  
VM7125

# CHROMA SCHEMATIC DIAGRAM (SYSCON PCB)



FROM/TO DEFLECTION	
CP820(CD820)8283_1512_00_000	
SOUND+B	15
SOUND GND	14
CHROMA+9V	13
VCR POWER H	12
TV POWER H	11
GND	10
H.OUT	9
V.PULSE	8
V.OUT	7
ACL	6
AFC	5
STOP	4
V.NF	3
ABCL	2
NC	1

TO SOUND AMP	
SOUND_GND	
SOUND+B	
AUDIO_OUT	

TO CRT	
CP850(CD850) 8283_0512_00_000	
5 GND	
4 P.CON+9V	
3 G	G.OUT
2 R	R.OUT
1 B	B.OUT

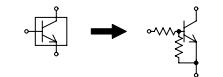
FROM/TO POWER	
CP005(CD005) 003P-2100	
1 GND	

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

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

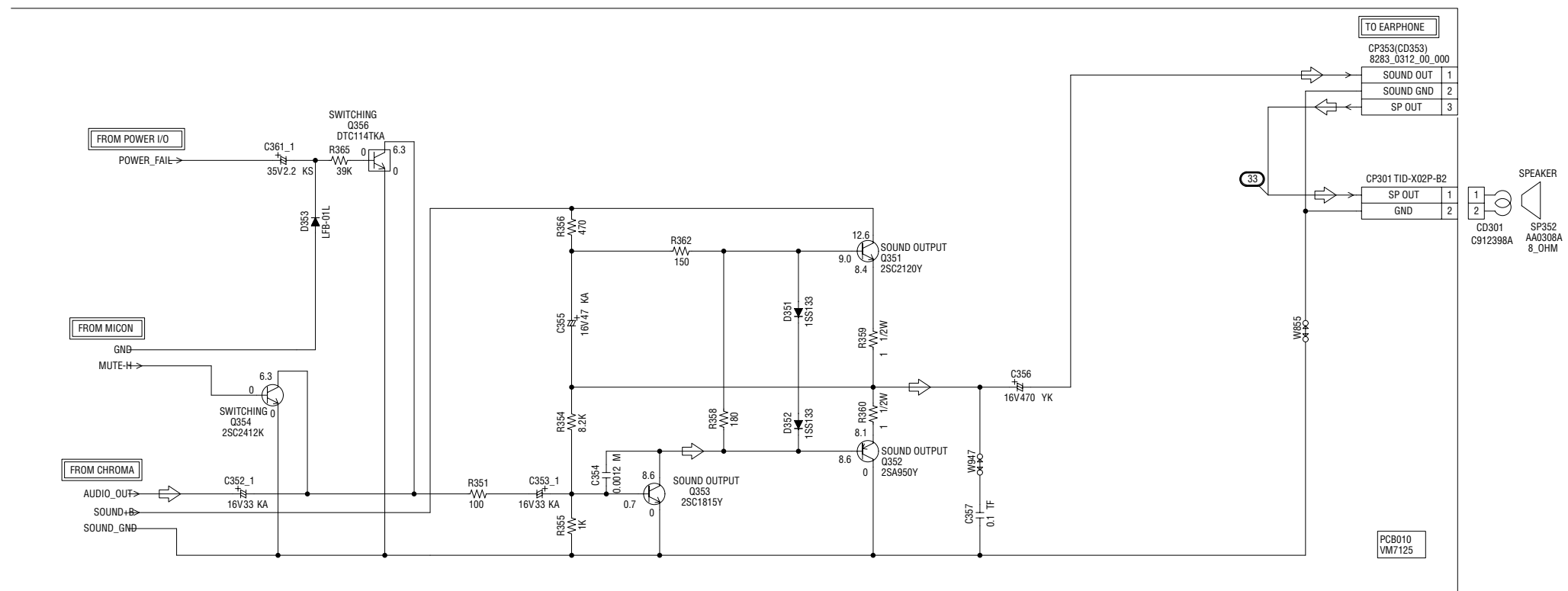
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



# SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)

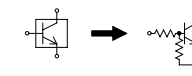


CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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 DURING PLAYBACK.

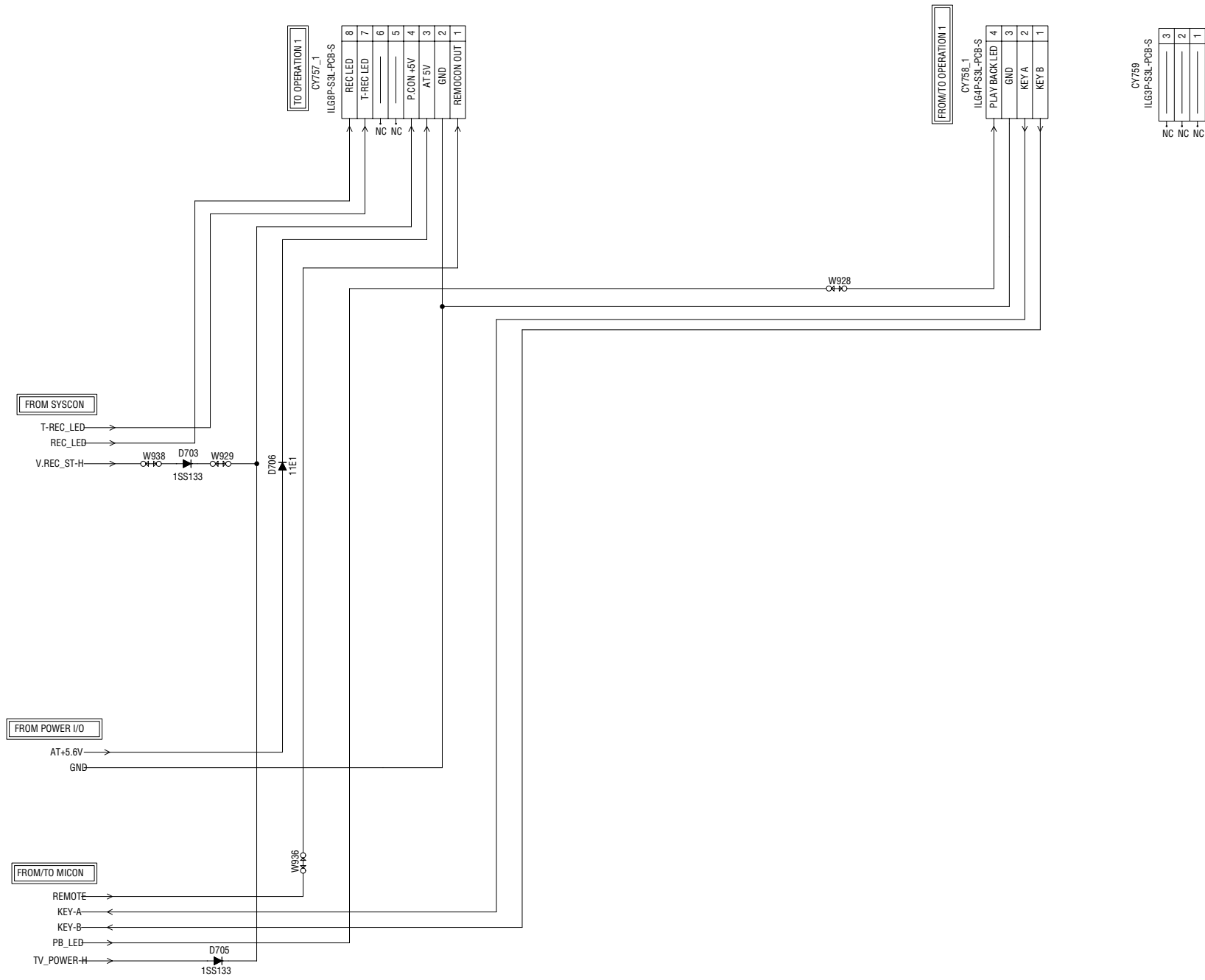
CAUTION: DIGITAL TRANSISTOR



AUDIO SIGNAL

# OPERATION SCHEMATIC DIAGRAM

(SYSCON PCB)

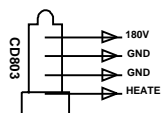
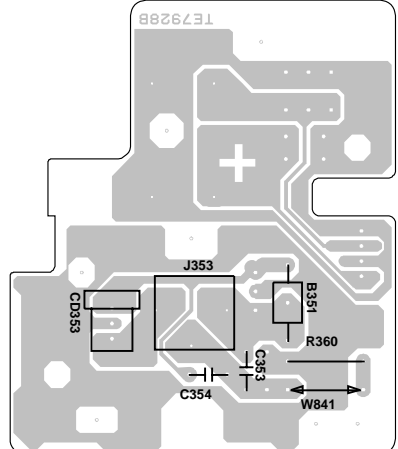
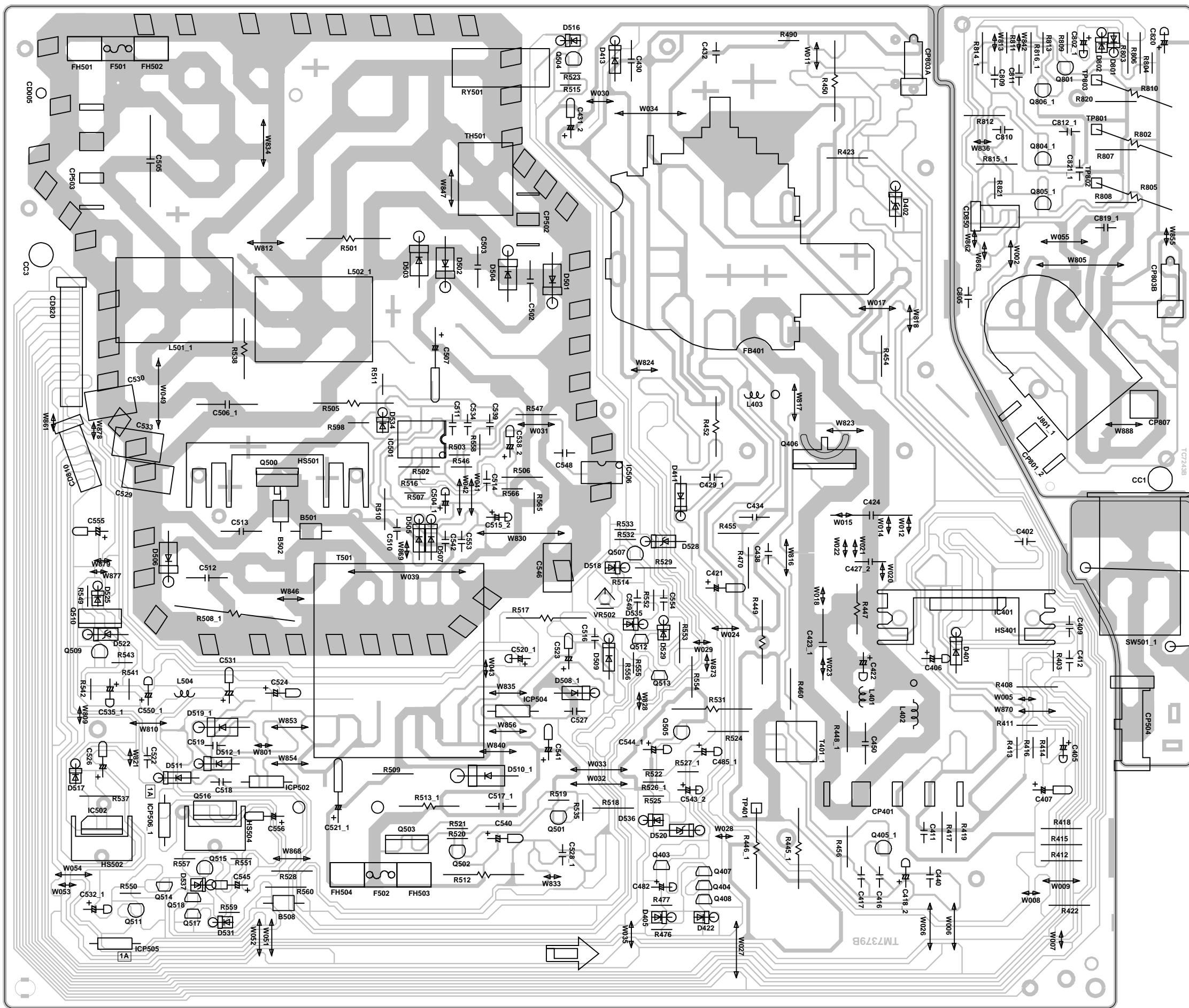


PCB010  
VM7125

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

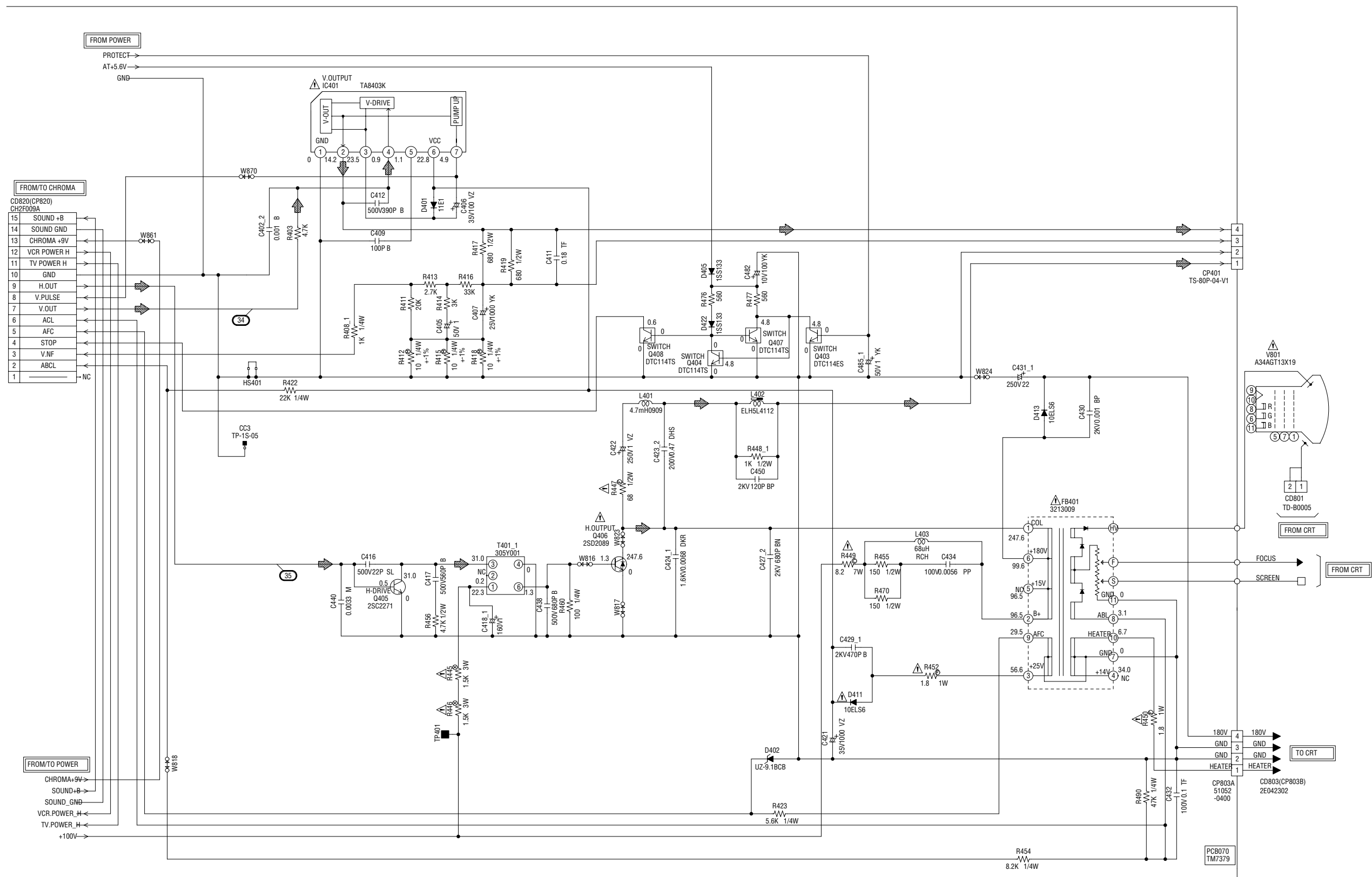
# PRINTED CIRCUIT BOARDS MAIN/CRT/POWER SW

# EARPHONE





# DEFLECTION SCHEMATIC DIAGRAM (MAIN PCB)



**FROM/TO CHROMA**

15	SOUND +B
14	SOUND GND
13	CHROMA +9V
12	VCR POWER H
11	TV POWER H
10	GND
9	H.OUT
8	V.PULSE
7	V.OUT
6	ACL
5	AFC
4	STOP
3	V.NF
2	ABCL
1	NC

**FROM/TO POWER**

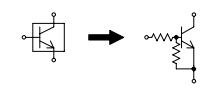
CHROMA+9V
SOUND+B
SOUND_GND
VCR_POWER_H
TV_POWER_H
+100V

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

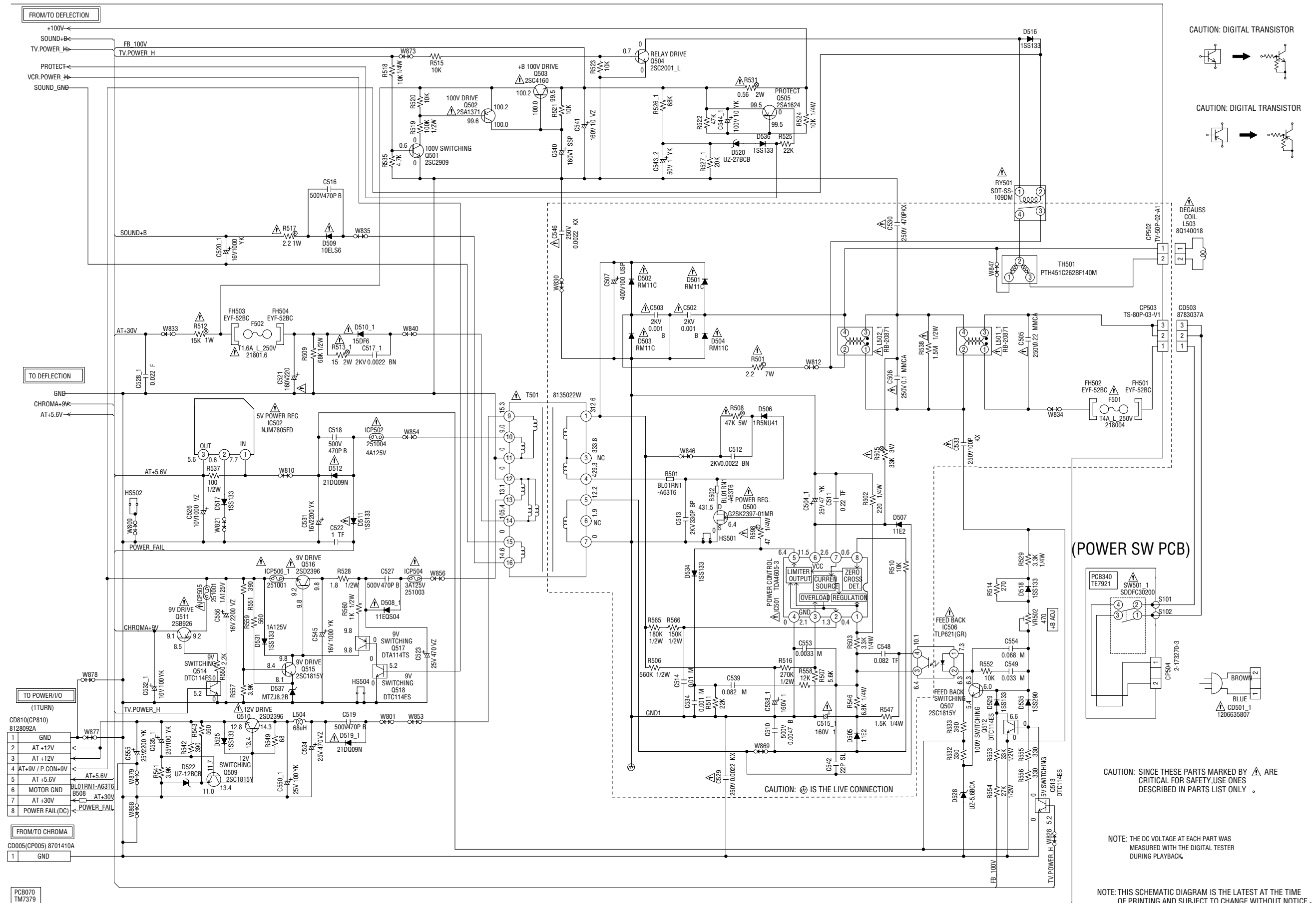
CAUTION: SINCE THESE PARTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY USE ONES DESCRIBED IN PARTS LIST ONLY.

CAUTION: DIGITAL TRANSISTOR

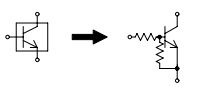


$\Rightarrow$  DEFLECTION SIGNAL

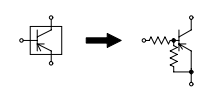
# POWER SCHEMATIC DIAGRAM (MAIN PCB)



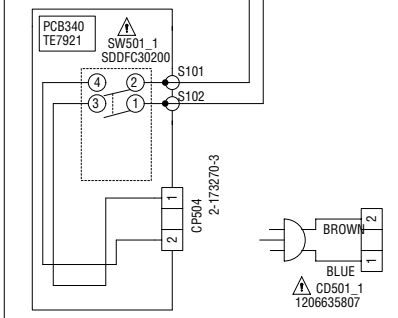
CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



(POWER SW PCB)

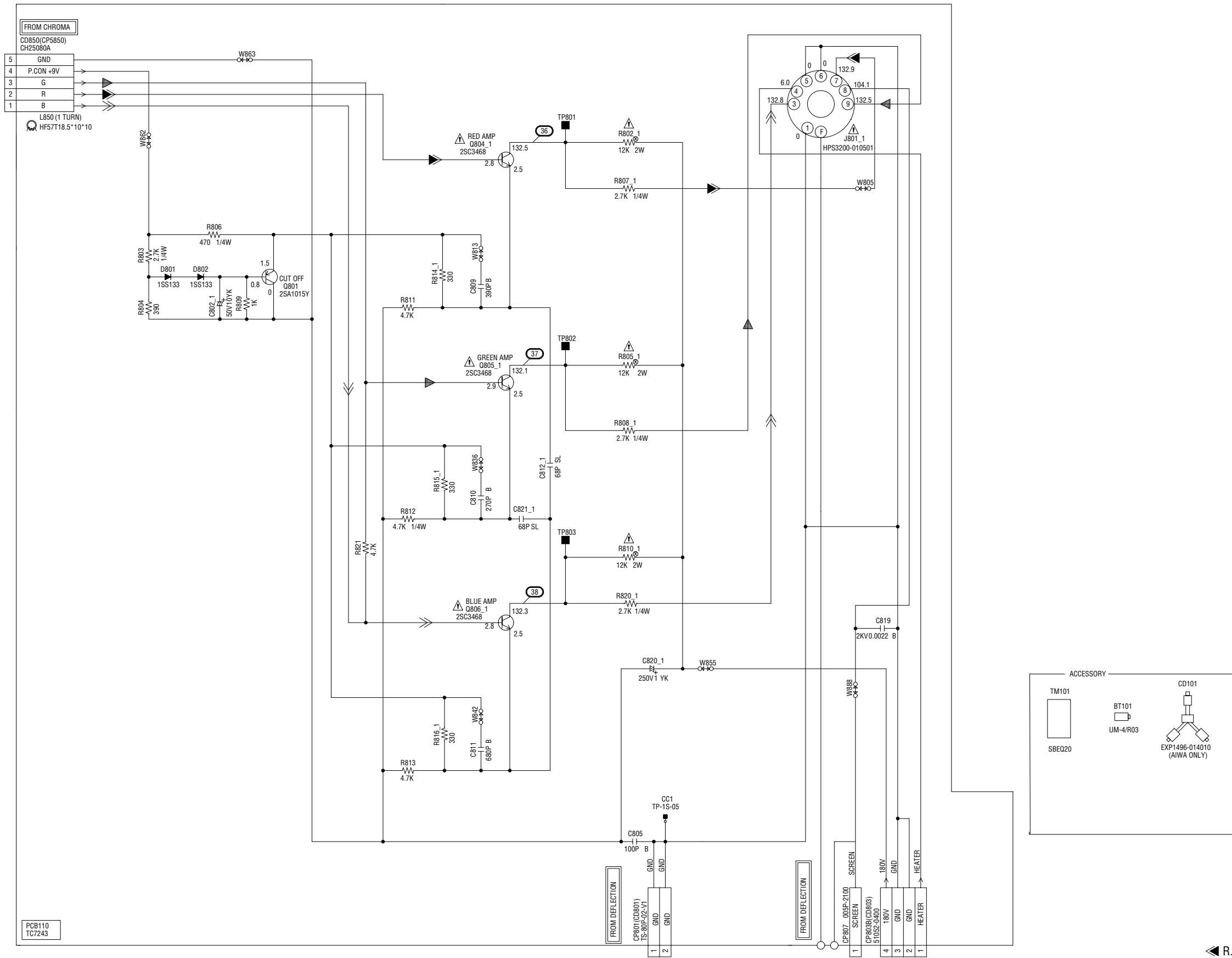


CAUTION: SINCE THESE PARTS MARKED WITH A TRIANGLE ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

# CRT SCHEMATIC DIAGRAM (CRT PCB)



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

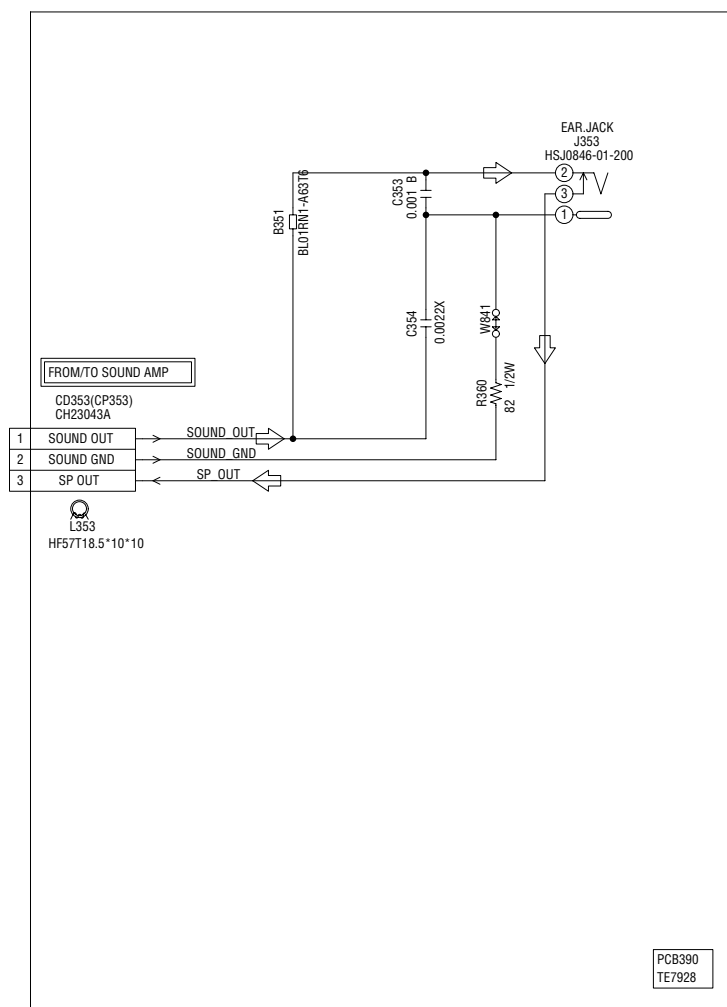
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

R.SIGNAL  
 G.SIGNAL  
 B.SIGNAL

# EARPHONE SCHEMATIC DIAGRAM

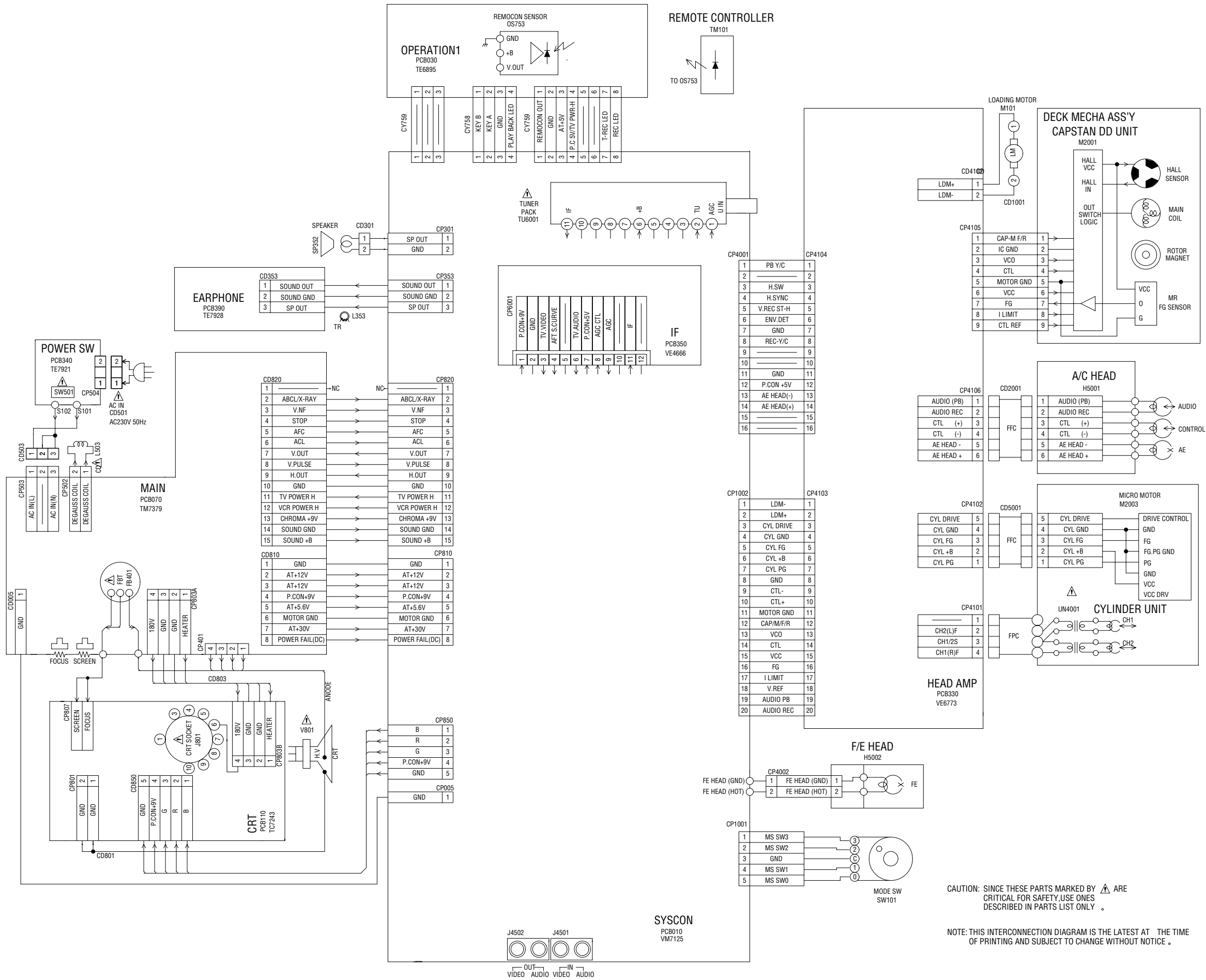
(EARPHONE PCB)



← AUDIO SIGNAL

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

# INTERCONNECTION DIAGRAM

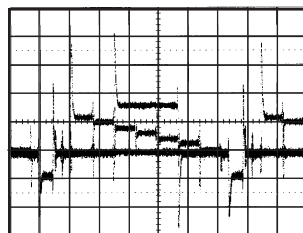


CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

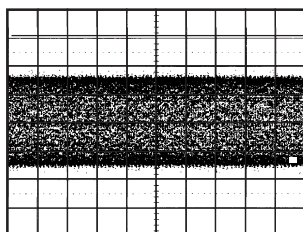
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

# WAVEFORMS

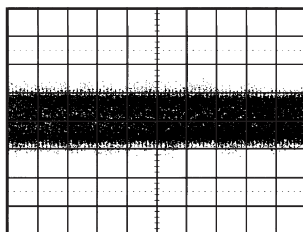
## Y/C



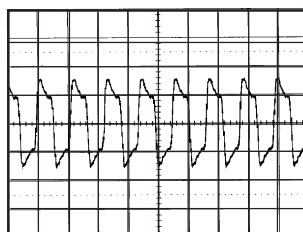
① REC  
200mV. 10 $\mu$ s/div



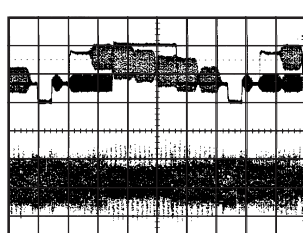
② REC  
200mV. 0.5ms/div



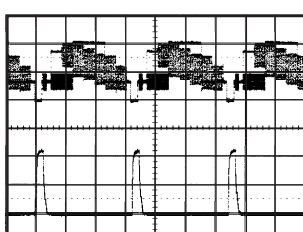
③ PB  
200mV. 0.5ms/div



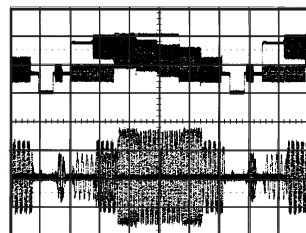
④ REC  
200mV. 0.2 $\mu$ s/div



⑤ PB  
50mV 10 $\mu$ s/div

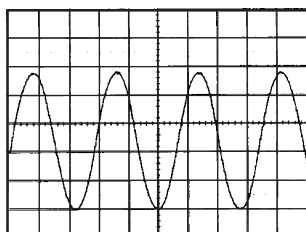


⑥ REC  
100mV. 20 $\mu$ s/div

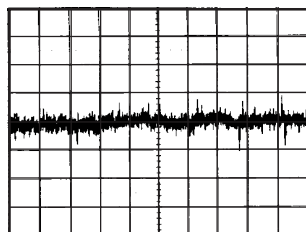


⑦ REC  
2V. 10 $\mu$ s/div

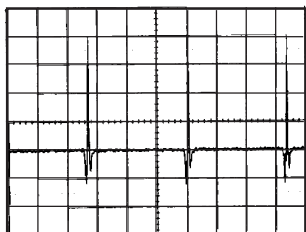
## SYSCON



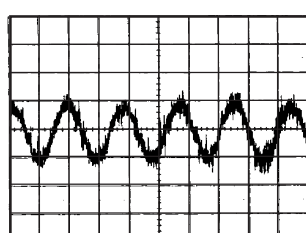
⑧ REC/PB  
0.5V. 0.5ms/div



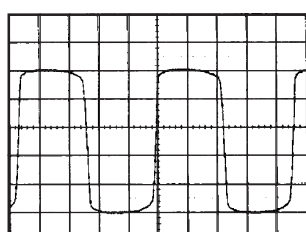
⑨ REC/PB  
20mV. 0.5ms/div



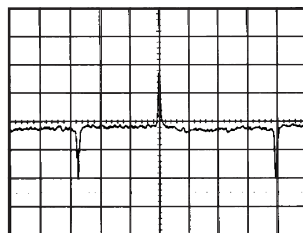
⑩ REC/PB  
200mV. 10ms/div



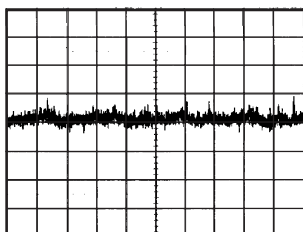
⑪ REC/PB  
20mV. 0.5ms/div



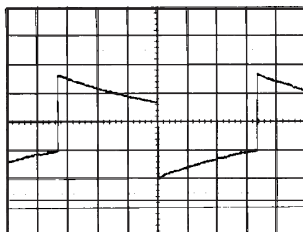
⑫ REC/PB  
0.5V 0.2ms/div



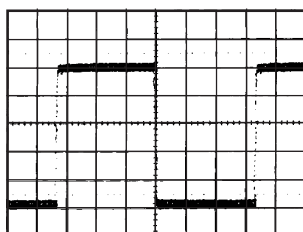
⑬ REC/PB  
0.5V 5ms/div



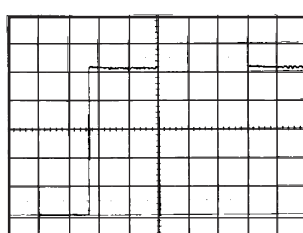
⑭ REC/PB  
20mV 5ms/div



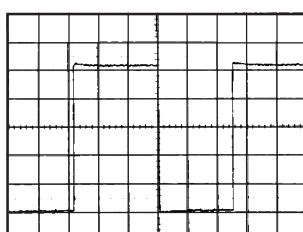
⑭ REC/PB  
2V 5ms/div



⑮ REC/PB  
0.5V 5ms/div

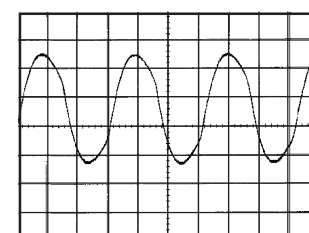


⑯ REC/PB  
1V 2 $\mu$ s/div

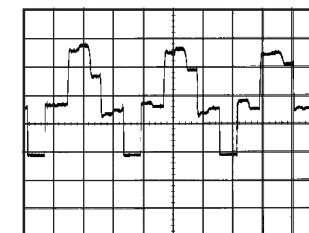


⑰ REC/PB  
1V 2 $\mu$ s/div

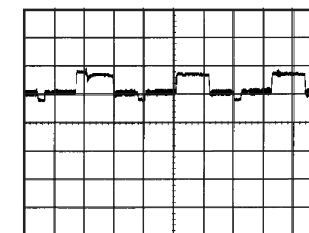
## MICON



⑱ 1V 10 $\mu$ s/div

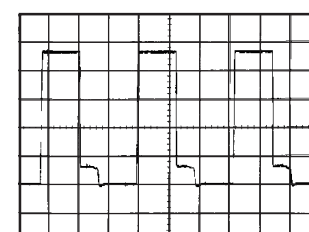


⑳ 1V 20 $\mu$ s/div color

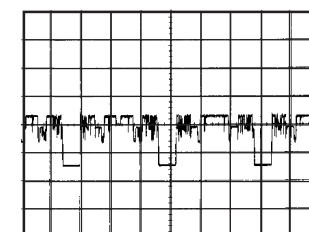


㉑ 1V 20 $\mu$ s/div

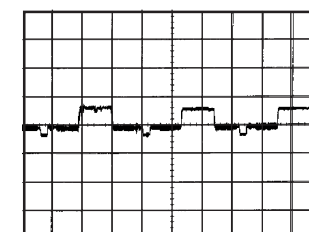
## CHROMA



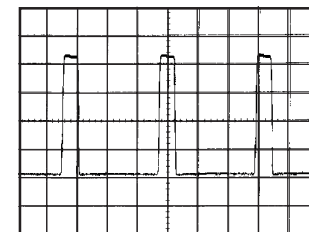
⑲ 1V 20 $\mu$ s/div



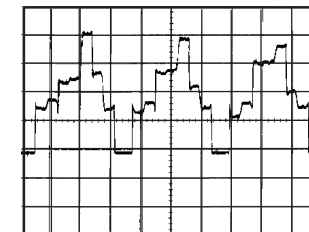
㉒ 2V 20 $\mu$ s/div



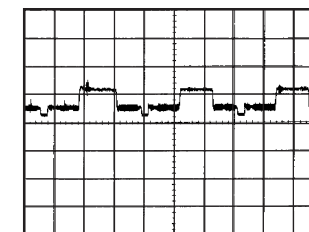
㉓ 1V 20 $\mu$ s/div



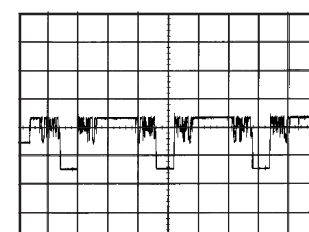
㉔ 2V 20 $\mu$ s/div



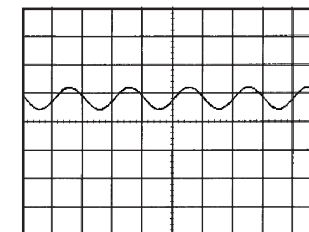
㉒ 1V 20 $\mu$ s/div color



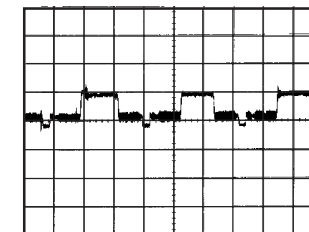
㉕ 1V 20 $\mu$ s/div



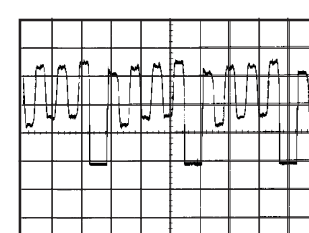
㉖ 2V 20 $\mu$ s/div



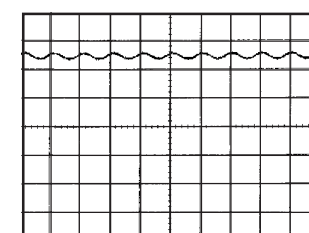
㉗ 1V 500 $\mu$ s/div



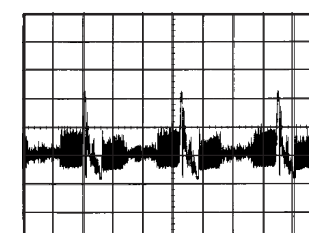
㉘ 1V 20 $\mu$ s/div



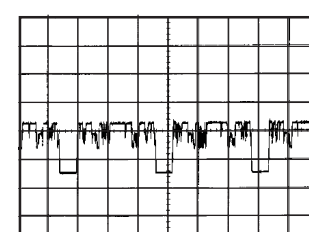
㉖ 1V 20 $\mu$ s/div color



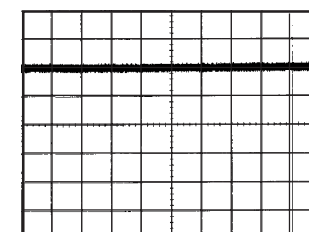
㉙ 1V 1ms/div



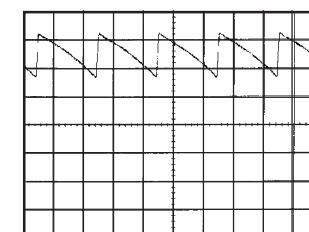
㉚ 1V 20 $\mu$ s/div



㉗ 2V 20 $\mu$ s/div



㉛ 1V 5 $\mu$ s/div

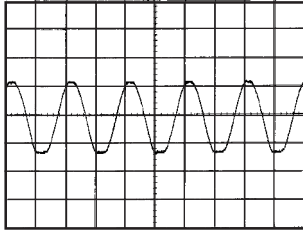


㉜ 1V 10ms/div

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

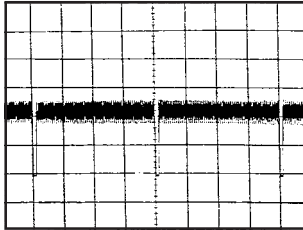
# WAVEFORMS

## SOUND AMP

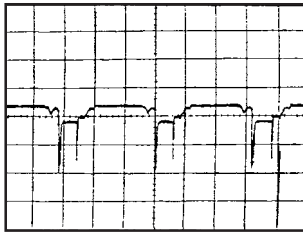


③③ 5V. 500 $\mu$ s/div

## DEFLECTION

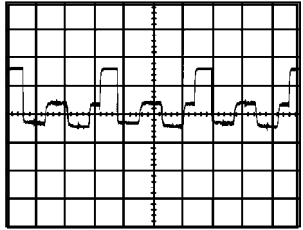


③④ 2V. 5ms/div

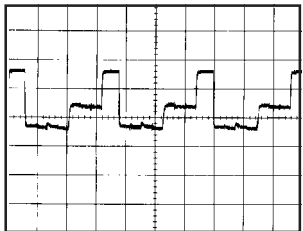


③⑤ 5V. 20 $\mu$ s/div

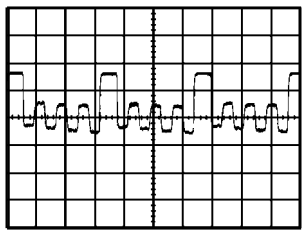
## CRT



③⑥ 50V. 20 $\mu$ s/div

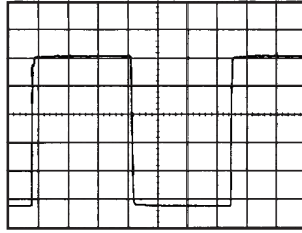


③⑦ 50V. 20 $\mu$ s/div

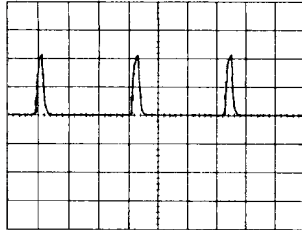


③⑧ 50V. 20 $\mu$ s/div

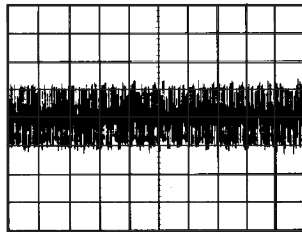
## HEAD AMP



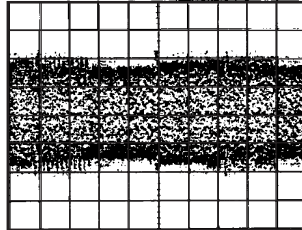
③⑨ REC/PB  
500mV. 5ms/div



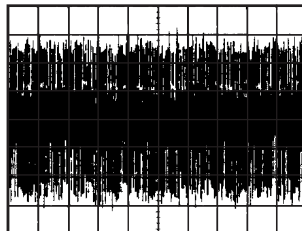
④⑩ REC/PB  
1V. 20 $\mu$ s/div



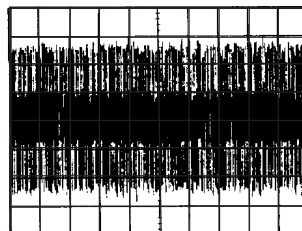
④① PB  
500V. 0.1s/div



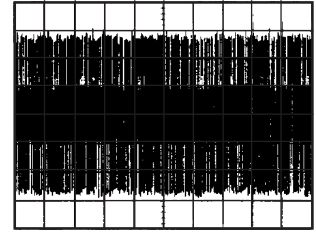
④② REC  
50mV. 10 $\mu$ s/div



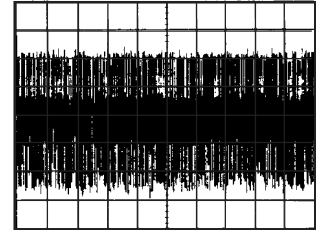
④③ REC/PB  
10mV. 1s/div



④④ PB  
50mV 50ms/div



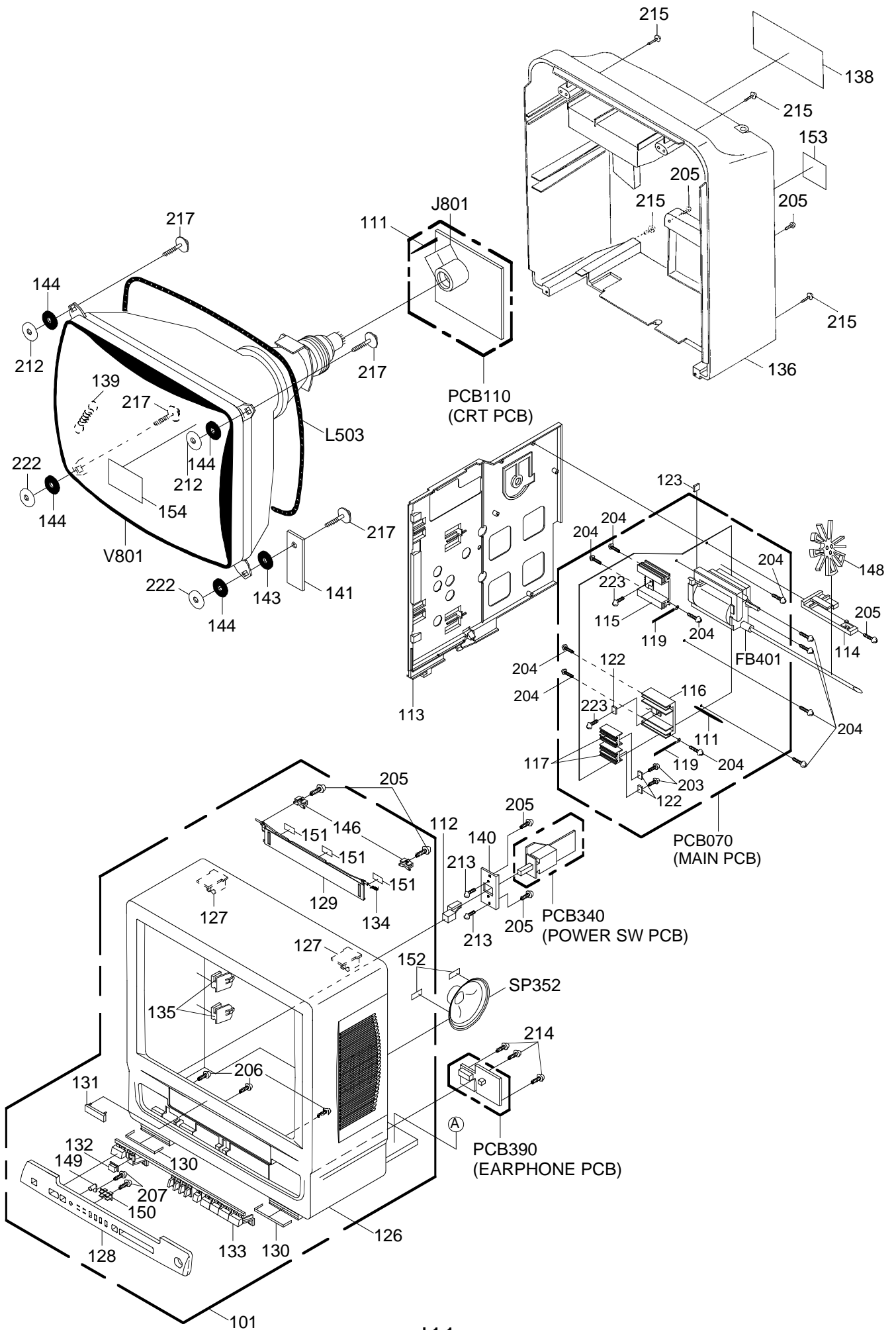
④⑤ REC  
500mV. 50ms/div



④⑥ PB  
50mV. 0.1s/div

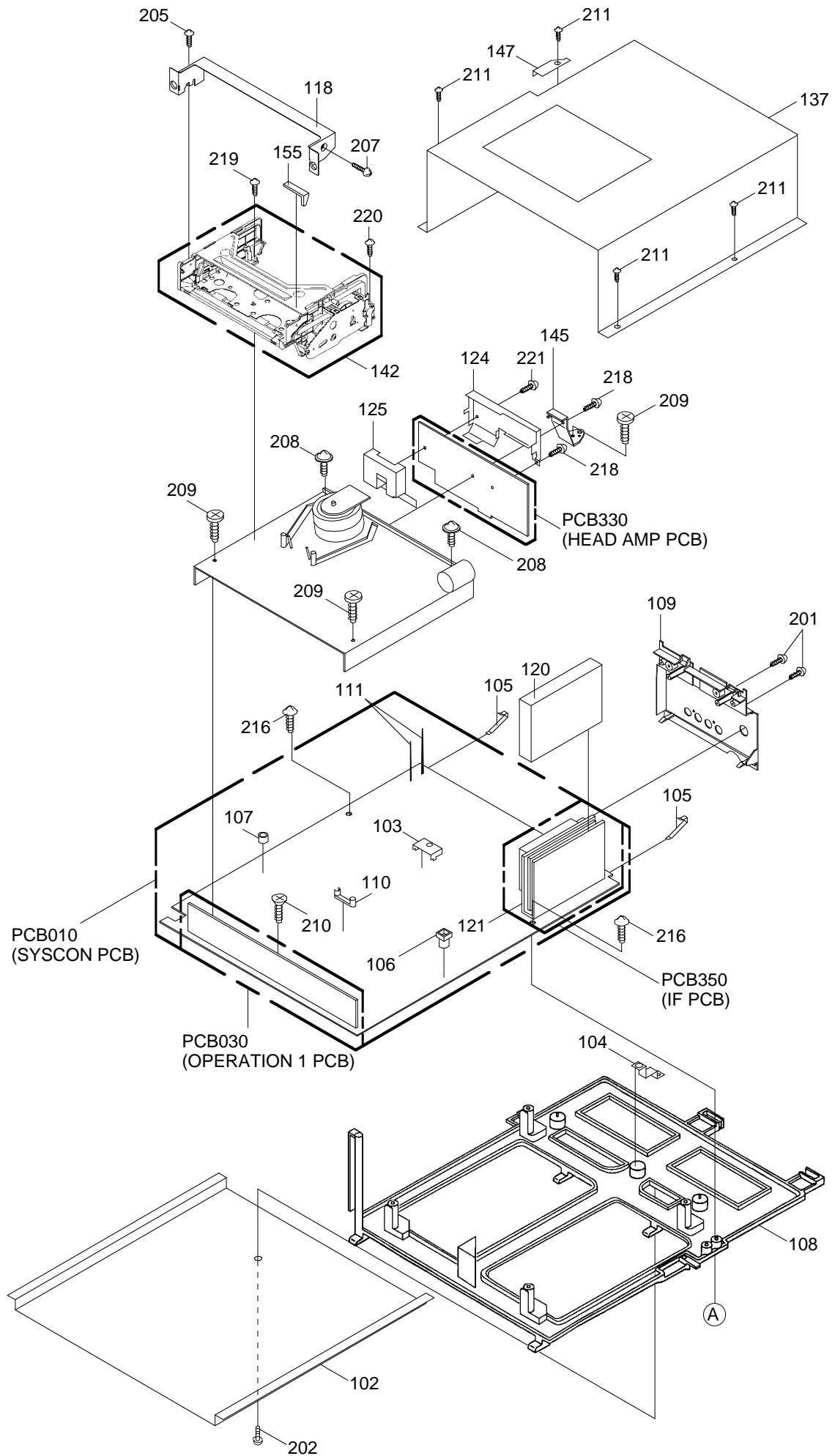
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# MECHANICAL EXPLODED VIEW





# MECHANICAL EXPLODED VIEW



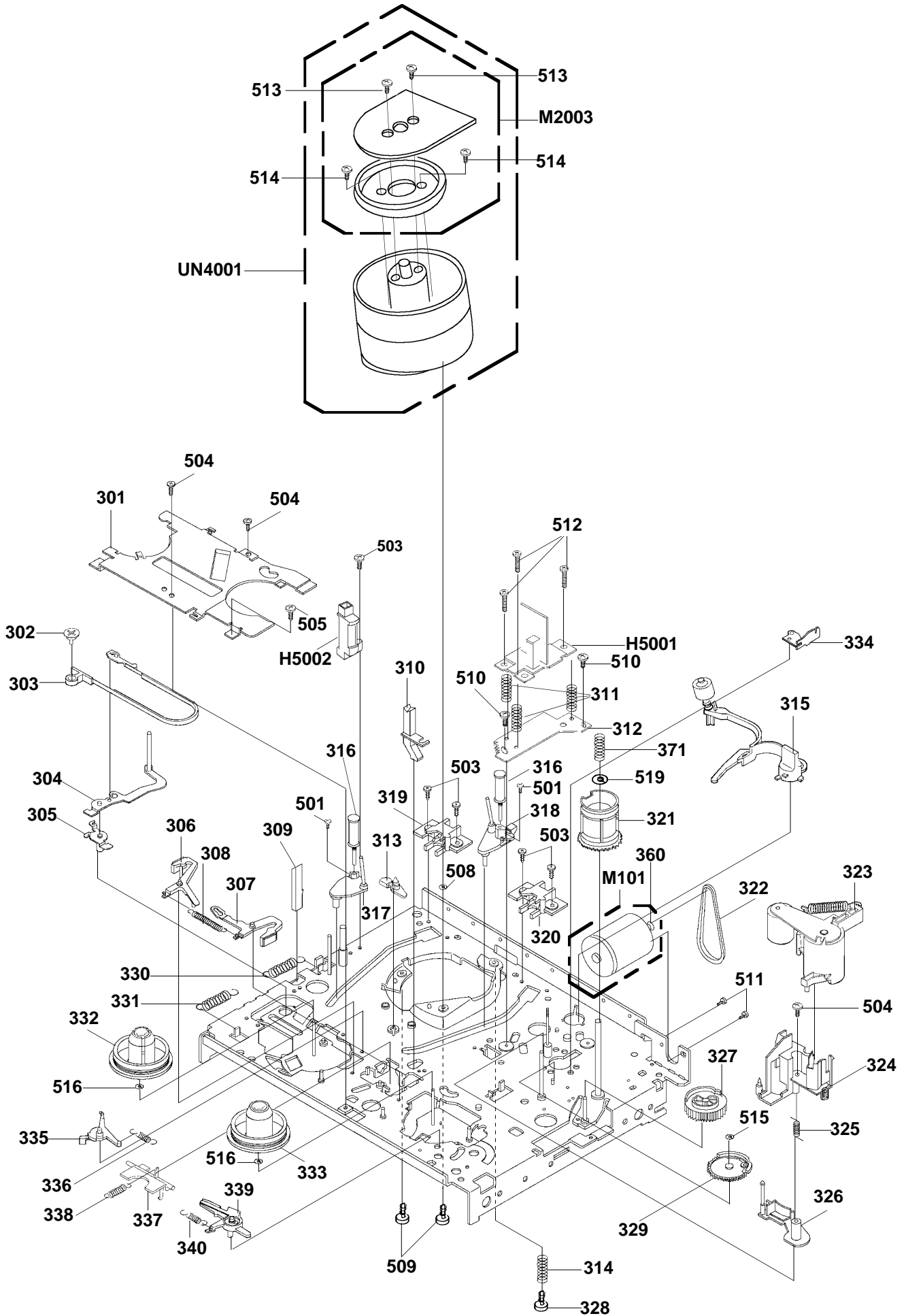
## MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REF. NO.	PART NO.	DESCRIPTION	Q'TY
101	S5-191-1M7-200	CABINET,FRONT ASS'Y	1	140	S5-2WS-AA0-150	PLATE,POWER SW	1
102	----	PLATE,SHIELD BOTTOM	1	141	S6-1WS-A00-420	ANGLE,CRT	1
103	----	PLATE,EARTH SYSCON	1	142	S5-OA9-002-010	FRONT LOADING UNIT 9	1
104	----	PLATE,BOTTOM-EARTH	1	143	----	SHEET,CRT SUPPORT	1
105	S5-3WU-A00-390	SPR,EARTH M-PCB	2	144	----	SHEET,CRT SUPPORT(A)	4
106	S5-4WP-AA0-040	COVER,LED(R)	1	145	----	ANGLE,DECK BACK	1
107	S5-4WP-AA0-030	COVER,LED(L)	1	146	----	HOLDER,FLAP	2
108	S6-1WP-A01-430	HOLDER DECK #2	1	147	----	PLATE,COVER SHIELD	1
109	S7-1WP-AA0-320	PLATE,JACK	1	148	----	HOLER,ANODE WIRE	1
				149	S1-3WP-A00-670	GUIDE,REMOCON	1
110	S5-OP7-000-310	HOLDER,LED	1				
111	----	COATING CLIP	4	150	S1-3WP-A00-660	GLASS,LED	1
112	S3-5WP-BA0-360	BUTTON,POWER	1	151	----	CUSHION 10*15*T1	3
113	S6-1WP-AA0-130	HOLDER,TV PCB	1	152	----	SHEET	2
114	S6-1WP-A01-400	HOLER,CRT WIRE	1	153	----	LABEL,ANTI-THEFT	1
115	----	HEAT SINK	1	154	----	LABEL,POP	1
116	----	HEAT SINK	1	155	----	SPACER,ANGLE	1
117	----	HEAT SINK	2				
118	----	ANGLE, TOP	1	201	S1-102-30A-020	VT2+3-10	2
119	----	CORD CLIP UL CO.	2	202	87-741-094-410	SCREW,TAP 3-6 BIND	1
				203	S1-0A1-308-040	WASHER(A)M3-8	2
120	----	IF SHIELD CASE	1	204	87-753-095-410	SCREW,TT(B)BRAZIER 3-8	11
121	----	IF SHIELD BOTTOM	1	205	S1-106-30A-240	SCREW,TAP(P)3-12	3
122	----	METAL SPACER	3	206	S1-106-308-040	TAP(P)3-8	8
123	----	SPACER,FBT	1	207	S1-106-306-040	UIT+3-6	3
124	----	SHIELD,COVER HEAD AMP	1	208	S1-17D-30A-040	TAP(B0)3-10	2
125	----	SHIELD,CASE HEAD AMP	1	209	S1-171-40A-240	TAP(B0)V+4-12	3
126	----	CABINET,FRONT	1				
127	----	CABI,HOLDER	2	210	87-343-172-010	SCREW,VT2+4-12	1
128	S1-1WP-JA0-070	PLATE,FRONT	1	211	S9-000-01D-TP0	VT2+3-6	4
129	S1-2WP-JA3-560	FLAP	1	212	S6-9WS-A00-040	WASHER,9.1-22-T3	2
				213	S1-0A1-305-040	SCREW/WASHER(A) M3-5	2
130	S2-300-0A0-650	SHEET,LEG	2	214	S1-106-30A-040	UIT+3-10	3
131	S2-344-900-070	BADGE,BRAND	1	215	S1-175-40A-640	TAP(B0)4-16	4
132	S3-5WP-D04-960	BUTTON,OTPB	1	216	S1-175-40B-040	SCREW,TAP(B0)TRUSS 4-20	2
133	S3-5WP-JA0-620	BUTTON,FRAME	1	217	S1-11J-50D-040	SCREW TAP(A)5-40	4
134	S4-3WK-A00-320	SPR,FLAP	1	218	S1-072-308-040	UT2+3-8	2
135	----	HOLDER,PCB	2	219	87-743-073-010	VT2+2.6-6	1
136	S0-2UP-AA0-070	CABI,BACK	1				
137	----	PLATE,SHIELD TOP	1	220	87-751-074-410	VT2+2.6-8	1
138	----	SHEET,RATING	1	221	S1-0A1-306-040	SCREW,WASHER(A)M3-6	1
139	S4-1WU-AA0-010	SPRING,EARTH	1	222	S6-9WS-A00-020	WASHER 9.1*22-T1	2
				223	S1-0A1-30A-040	SCREW,WASHER(A) M3x10	2

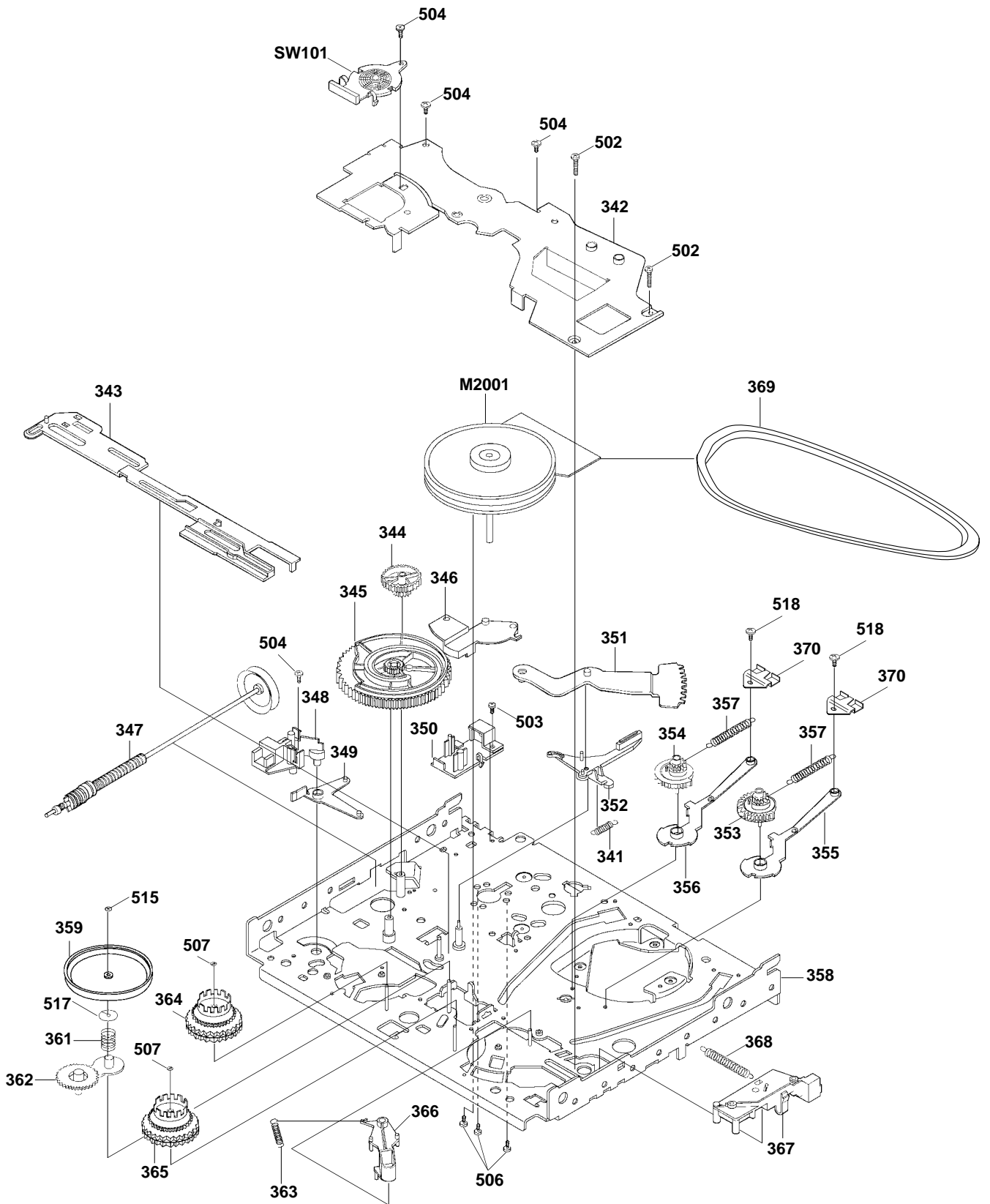
## ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S6-82B-A40-030	RCA PIN CORD	1
2	S7-660-941-800	TRANSMITTER RC,SBEQ20	1
3	S5-191-101-000	INSTRUCTION BOOK	1

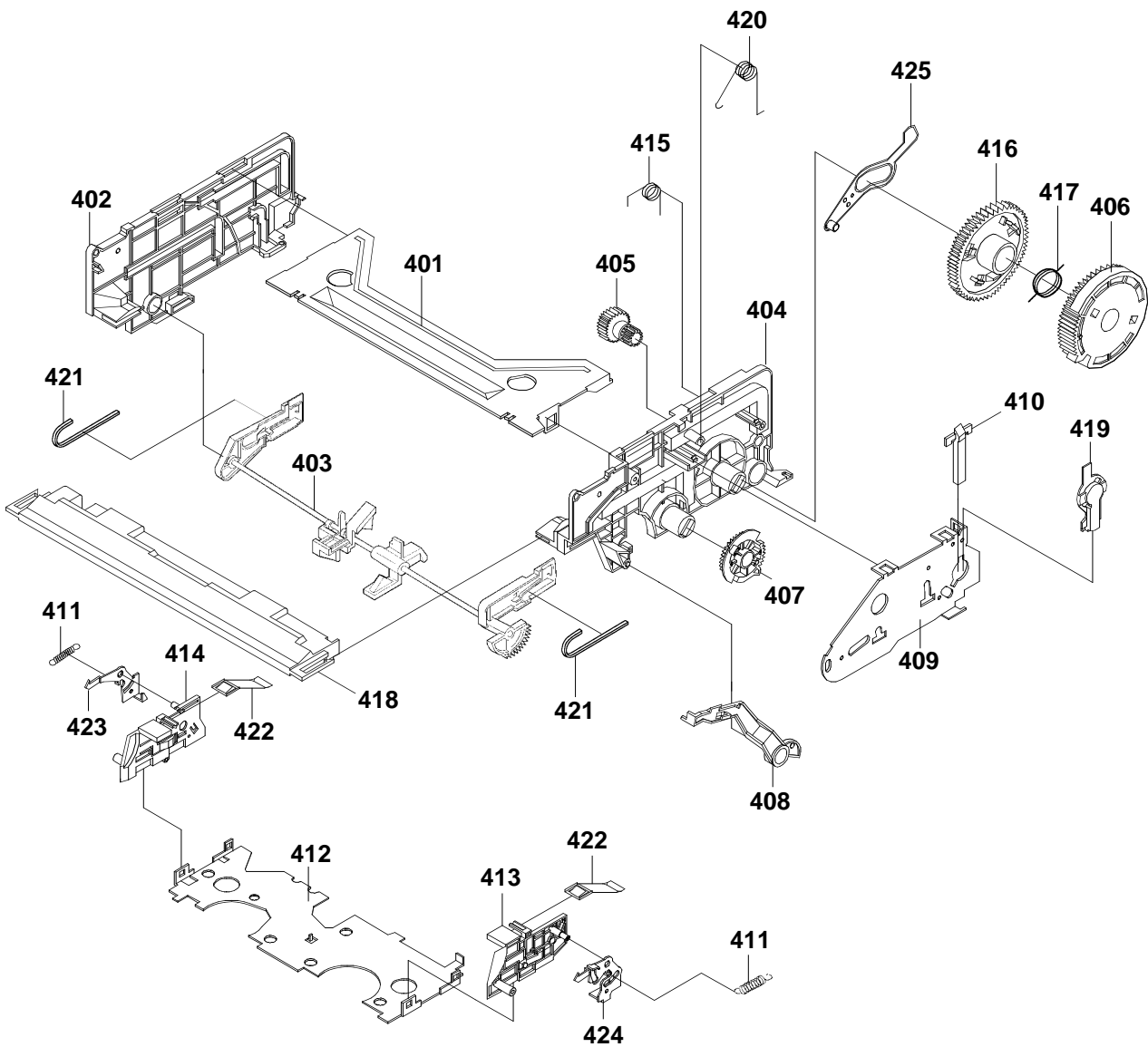
# CHASSIS EXPLODED VIEW (TOP VIEW)



# CHASSIS EXPLODED VIEW (BOTTOM VIEW)



# FRONT LOADING UNIT 9 EXPLODED VIEW



# CHASSIS/FRONT LOADING UNIT 9 REPLACEMENT PARTS LIST

REF. NO	PARTS NO.	DESCRIPTION	Q'TY	REF. NO	PARTS NO.	DESCRIPTION	Q'TY
# 301	S5-OP6-004-710	BRACKET,BRAKE	1	401	S5-OP9-006-690	BRACKET,TOP	1
302	S5-OP4-003-580	ADJUST,TENSION	1	402	-----	BRACKET,SIDE L	1
303	S5-OA4-001-220	TENSION BAND ASS'Y	1	403	S5-OA9-001-710	LINK ASSY 2	1
304	S5-OA4-001-240	TENSION ARM ASS'Y	1	404	S5-OP9-006-150	BRKET,SIDE R	1
305	S5-OA4-001-230	TENSION LEVER 2 ASS'Y	1	405	S5-OP9-006-010	GEAR,JOINT	1
306	S5-OA6-001-550	MAIN BRAKE S ASS'Y	1	406	S5-OP9-006-020	GEAR,CAM	1
# 307	S5-OA6-001-560	MAIN BRAKE T ASS'Y	1	407	S5-OP9-006-090	GEAR,LINK R	1
# 308	S5-OP8-002-520	SPR,MAIN BRAKE	1	408	S5-OP9-006-720	LEVER,FLAP 2	1
309	S5-OP9-005-640	REFLECTOR,EOT	1	409	S5-OP9-006-160	BRKET,SIDE R2	1
310	-----	REFLECTOR,LED 2	1	410	-----	REFLECTOR,BOT	1
311	S5-OP8-003-150	SPRING,AC HEAD 2	3	411	S5-OP8-002-960	SPR,LOCKER	2
312	S5-OP5-000-600	BASE,AC HEAD	1	412	S5-OP9-006-110	CASS,HOLDER	1
313	S5-OP0-003-940	POST,CASS GUIDE L	1	413	S5-OP9-006-130	CASS,SIDE R	1
314	S5-OP8-002-450	SPRING,AZIMUTH 2	1	414	S5-OP9-006-680	CASS,SIDE L	1
# 315	S5-OA5-000-130	AHC ASS'Y	1	415	S5-OP8-002-980	SPR,BRACKET R	1
316	S5-OA4-001-020	G-ROLLER ASS'Y	2	416	S5-OP9-006-080	GEAR,CLUTCH	1
317	S5-OA4-001-790	BASE,S INCLINED 2 ASS'Y	1	417	S5-OP8-002-970	SPR,CLUTCH	1
318	S5-OA4-001-800	BASE,T INCLINED 2 ASS'Y	1	418	S5-OP9-006-190	TAPE GUIDE PIECE	1
319	S5-OP4-003-300	CATCHER S	1	419	S5-OP9-006-200	COVER,SENSOR BOT	1
320	S5-OP4-003-320	CATCHER T	1	420	S5-OP8-002-900	SPR,EARTH	1
# 321	S5-OP4-004-300	CAM,PINCH ROLLER (PB)	1	421	S5-OP8-002-940	SPR,LINK	2
322	S5-OP6-004-870	BELT,LOADING	1	422	S5-OP8-002-990	SPR,PACK	2
# 323	S5-OA4-001-570	PINCH ROLLER (PB) BLOCK	1	423	S5-OP9-006-050	LOCKER,L	1
324	S5-OP9-005-410	CASS,OPENER	1	424	S5-OP9-006-060	LOCKER,R	1
325	S5-OP8-002-640	SPR,P5	1	425	S5-OP9-006-100	LEVER,BOT	1
# 326	S5-OA4-001-680	P5 ARM ASS'Y(PB)	1	501	87-357-529-310	SCREW TAP(P)BIND 1.7-4.0	2
327	S5-OP4-003-420	CAM,GEAR	1	502	S1-092-26A-640	VT2+2.6-16	2
328	S1-462-30A-11	VT2+3-11	1	503	S1-072-268-040	VT2+2.6-8	6
# 329	S5-OP4-004-500	CAM,P5	1	504	87-743-073-010	VT2+2.6-6	7
330	S5-OP4-003-560	SPR,TENSION ARM 2	1	505	S1-071-236-040	SCREW,TAP 2.3-6 PAN	1
# 331	S5-OP4-003-570	SPR,TENSION ARM 1	1	506	87-264-074-410	SCREW,TAP(B)PAN 2.6-8	3
332	S5-OP2-002-160	REEL S	1	507	S2-P16-600-5N0	POLY,W(CUT)1.6-6-0.5	2
333	S5-OP2-002-170	REEL T	1	508	S2-Q31-54B-3N0	PW,3.1-5.4-T0.13	1
# 334	S5-OP4-004-460	CATCHER,P5 (VP)	1	509	S1-0A1-306-040	SCREW,WASHER(A)M3-6	2
335	S5-OP6-004-650	SUB BRAKE S	1	510	S1-0B1-266-040	UFT2+M2.6-6	2
336	S5-OP8-002-530	SPR,S-S BRAKE	1	511	87-258-091-010	U+M3-3	2
337	S5-OP2-002-470	ARM,JOINT	1	512	87-253-075-010	U+M2.6-10	3
338	S5-OP8-002-620	SPR,JOINT ARM	1	513	S1-0A1-235-040	SEMS A M2.3-5	2
339	S5-OA6-001-570	SUB BRAKE T ASS'Y	1	514	87-261-093-410	SCREW,M3-5	2
340	S5-OP8-002-540	SPR,T-S BRAKE	1	515	S2-P26-600-5N0	POLY,W(CUT)2.6-6-0.5	2
341	S5-OP8-002-550	SPR,CAP BRAKE	1	516	S2-Q26-471-3N0	POLY,W 2.6-4.7-0.13	2
342	-----	PLATE,BOTTOM	1	517	S2-P26-A00-5N0	POLY,W(CUT)2.6-10-0.5	1
# 343	S5-OA6-001-760	ROD,MAIN ASS'Y	1	518	87-491-178-050	SCREW,TAP(P) 1.7-8	2
344	S5-OP4-003-410	GEAR,MIDDLE	1	519	S2-Q40-70C-5N0	PW,4.1-7-0.25	1
# 345	S5-OP6-005-350	CAM,MAIN	1				
# 346	S5-OP6-004-680	LEVER,MAIN BRAKE	1	CD1001	S6-872-205-8A0	CORD CONN 8722058A	1
# 347	S5-OA6-001-590	WORM ASS'Y	1	CD2001	-----	JUMPER 2W06080	1
348	S5-OP6-004-830	BRACKET,WORM F	1	CD5001	-----	CORD,JUMPER 2L05150	1
349	S5-OP6-004-740	LEVER,RATCHET	1				
350	S5-OP6-004-840	BRACKET,WORM R	1	H5001	S5-23D-910-320	HEAD(AUDIO CONTROL)HVMXA103	1
351	S5-OP3-001-510	LEVER,LOADING	1	H5002	S5-43D-020-100	HEAD,FULL ERASE HVFHF00	1
352	-----	CAPSTAN BRAKE ASS'Y (M.J)	1	M101	S5-96P-480-010	MOTOR,LOAD(1)	1
353	S5-OP3-001-520	GEAR,LOADING S	1	M2001	S5-94J-980-040	CAPSTAN DD UNIT SP39BD	1
354	S5-OP3-001-530	GEAR,LOADING T	1	M2003	S5-89V-110-040	MICRO MOTOR EP14BA	1
355	S5-OA3-000-530	LOADING ARM S ASS'Y	1				
356	S5-OA3-000-540	LOADING ARM T ASS'Y	1	# SW101	S5-202-440-060	MODE SWITCH	1
357	S5-OP8-002-630	SPR,LOADING GEAR	2				
# 358	-----	MAIN CHASS ASS'Y	1	△ UN4001	S4-B41-1B5-000	CYLINDER UNIT ASS'Y A4B411B5	1
359	S5-OP2-002-130	CENTER,PULLEY	1				
360	S5-OP6-004-860	PULLEY,LDM 5	1				
361	S5-OP8-002-610	SPR,C-PULLEY	1				
# 362	S5-OA2-000-650	ARM,IDLER,ASS'Y	1				
363	S5-OP8-002-700	SPR,LEVER TENSION	1				
# 364	S5-OA2-000-640	CLUTCH GEAR T ASS'Y	1				
# 365	S5-OA2-000-630	CLUTCH GEAR S ASS'Y	1				
366	S5-OP4-003-600	LEVER,TENSION	1				
# 367	S5-OP4-003-590	HOLDER,TENSION	1				
368	S5-OP8-002-560	SPR,MAIN ROD	1				
369	S5-OP2-002-150	BELT,CAPSTAN	1				
370	S5-OP3-001-690	SLIDER,LOADING 2	2				
371	S5-OP8-003-100	SPRING,CAM PINCH	1				

**Note:** Some parts labeled # are not compatible, but they are very similar before servicing, be sure to check the parts in the INFORMATION FOR USING THE DECK PARTS (OVD-5): 09-986-269-200 for the repair. Because if you use wrong parts, the deck or tape will be damaged.

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
		<b>SYSCON PCB ASS'Y</b>			<b>*** CAPACITORS ***</b>
		<b>*** RESISTOR ***</b>			
△ R1042	87-029-165-060	RES,FUSE 2.7-1W	C5023	87-010-404-080	CAP,E 4.7-50V
		<b>*** CAPACITORS ***</b>	C5026	87-010-380-080	CAP,E 47-16V
C101	S0-001-937-600	CAP,E 0.1F-5.5V	C5027	87-010-378-080	CAP,E 10-16V
C103	87-016-088-040	CAP,E 220-6.3V	C5030	87-015-075-040	CAP,E 10-16V
C106	87-010-403-080	CAP,E 3.3-50V	C6105	87-010-548-010	CAP,E 220-16V
C112	87-010-370-080	CAP,E 330-6.3V	C6110	87-010-403-080	CAP,E 3.3-50V
C118	87-010-404-080	CAP,E 4.7-50V	C6116	87-010-400-080	CAP,E 0.47-50V
C124	87-010-404-080	CAP,E 4.7-50V	C6119	87-010-235-080	CAP,E 470-16V
C128	87-010-248-010	CAP,E 220-10V	C6149	87-010-371-080	CAP,E 470-6.3V
C352	87-015-683-080	CAP,E 33-16V	C6312	87-010-404-080	CAP,E 4.7-50V
C353	87-015-683-080	CAP,E 33-16V	C6402	87-015-419-080	CAP,E 4.7-16V
C355	87-010-380-080	CAP,E 47-16V			<b>*** DIODES ***</b>
C356	87-010-235-080	CAP,E 470-16V	D102	SD-3RL-FB0-1L0	DIODE,LFB-01L
C361	87-010-417-080	CAP,E 2.2-35V	D103	87-020-465-010	DIODE,1SS133T
C603	87-010-685-080	CAP,E 330-16V	D117	87-017-931-080	ZENER,UZ-5.6BCB-TA
C614	87-015-680-010	CAP,E 47-10V	D119	S2-8TE-QS0-400	DIODE,11EQS04TA1
C618	87-010-403-080	CAP,E 3.3-50V	D120	87-020-465-010	DIODE,1SS133T
C620	87-010-071-080	CAP,E 1-50V	D121	87-020-465-010	DIODE,1SS133T
C624	87-010-404-080	CAP,E 4.7-50V	D131	SD-3RL-FB0-1L0	DIODE,LFB-01L
C627	87-010-560-080	CAP,E 10-50V	D351	87-020-465-010	DIODE,1SS133T
C628	87-015-677-080	CAP,E 100-6.3V	D352	87-020-465-010	DIODE,1SS133T
C631	87-010-221-080	CAP,E 470-10V	D353	SD-3RL-FB0-1L0	DIODE,LFB-01L
C635	87-010-378-080	CAP,E 10-16V	D604	87-A40-186-080	ZENER,UZ-5.1-BCB-TA
C639	87-010-067-010	CAP,E 0.1-50V	D606	87-020-465-010	DIODE,1SS133T
C640	87-010-067-010	CAP,E 0.1-50V	D607	87-A40-186-080	ZENER,UZ-5.1-BCB-TA
C643	87-010-067-010	CAP,E 0.1-50V	D608	SD-3RL-FB0-1L0	DIODE,LFB-01L
C644	87-010-404-080	CAP,E 4.7-50V	D609	SD-3RL-FB0-1L0	DIODE,LFB-01L
C646	87-015-075-040	CAP,E 10-16V	D610	SD-3RL-FB0-1L0	DIODE,LFB-01L
C647	87-010-067-010	CAP,E 0.1-50V	D611	SD-3RL-FB0-1L0	DIODE,LFB-01L
C1009	87-015-677-080	CAP,E 100-6.3V	D612	S9-7U0-130-1B0	ZENER,MTZJ13B
C1011	87-010-112-080	CAP,E 100-16V	D703	87-020-465-010	DIODE,1SS133T
C1013	87-010-221-080	CAP,E 470-10V	D705	87-020-465-010	DIODE,1SS133T
C1018	87-010-235-080	CAP,E 470-16V	D706	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
C1020	87-010-263-080	CAP,E 100-10V	D1001	S0-013-000-300	PHOTO,DIODE SLR-938C
C1021	87-010-401-080	CAP,E 1-50V	D1003	87-020-465-010	DIODE,1SS133T
C1025	87-010-380-080	CAP,E 47-16V	D1004	87-020-465-010	DIODE,1SS133T
C1026	87-010-379-080	CAP,E 22-16V	D1005	S2-8T0-11E-S10	DIODE,11ES1TA1
C1060	87-010-263-080	CAP,E 100-10V	D1008	87-020-465-010	DIODE,1SS133T
C1061	87-015-075-040	CAP,E 10-16V	D1009	87-020-465-010	DIODE,1SS133T
C1064	87-010-371-080	CAP,E 470-6.3V	D1010	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
C4014	87-015-677-080	CAP,E 100-6.3V	D1013	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
C4016	87-015-419-080	CAP,E 4.7-16V	D4002	SD-3RL-FB0-1L0	DIODE,LFB-01L
C4017	87-010-404-080	CAP,E 4.7-50V	D4003	87-020-465-010	DIODE,1SS133T
C4020	87-010-067-010	CAP,E 0.1-50V	D5001	87-020-465-010	DIODE,1SS133T
C4025	87-010-378-080	CAP,E 10-16V	D6007	87-070-136-010	ZENER,MTZJ5.1C T
C4027	87-010-378-080	CAP,E 10-16V	D6402	S9-7U0-6R8-1C0	ZENER,MTZJ6.8C(D)
C4031	87-010-401-080	CAP,E 1-50V			<b>*** ICS ***</b>
C4032	87-010-378-080	CAP,E 10-16V	IC101	S5-5D0-604-4D0	IC,OEC6044D
C4037	87-015-677-080	CAP,E 100-6.3V	IC102	S5-3D0-04B-N60	IC,M24C04-BN6
C4039	87-010-549-010	CAP,E 47-6.3V	IC103	S9-UJ0-T60-0H0	IC,PST600H
C4044	87-010-401-080	CAP,E 1-50V	IC601	S0-5DE-122-9C0	IC,TB1229CN
C4048	87-010-499-080	CAP,E 22-6.3V	IC1001	S5-7F5-903-2B0	IC,OEC9032B
C4062	87-010-400-080	CAP,E 0.47-50V	△ IC1002	S0-7S0-902-9A0	IC,OEC9029A
C4069	87-010-549-010	CAP,E 47-6.3V	IC1003	S0-Q09-780-900	IC,NJM7809FA
C4075	87-015-677-080	CAP,E 100-6.3V	IC4001	S0-5D3-232-AN0	IC,TA1232AN
C4082	87-015-975-080	CAP,E 220-6.3V	IC4002	S0-5D0-885-0A0	IC,TL8850AP
C4090	87-010-374-080	CAP,E 47-10V	IC5001	S0-3D7-728-900	IC,LA7289
C4505	87-010-378-080	CAP,E 10-16V	IC6302	S0-3D0-635-8T0	IC,LA6358T
C4514	87-010-112-080	CAP,E 100-16V	IC6303	87-027-327-010	IC,UPC574J-T
C4515	87-010-221-080	CAP,E 470-10V			<b>*** TRANSISTORS ***</b>
C5006	87-010-404-080	CAP,E 4.7-50V			
C5010	87-010-403-080	CAP,E 3.3-50V			
C5012	87-010-378-080	CAP,E 10-16V	Q102	89-324-122-080	TR,2SC2412KT
C5013	87-010-401-080	CAP,E 1-50V	Q105	89-324-122-080	TR,2SC2412KT
C5016	87-010-380-080	CAP,E 47-16V	Q106	SN-7TJ-050-010	TR,DTC114TK
C5017	87-016-053-080	CAP,E 22-16V	Q107	89-324-122-080	TR,2SC2412KT

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
*** TRANSISTORS ***			*** COILS ***		
Q110	89-324-122-080	TR,2SC2412KT	L4502	S2-167-D10-1K0	COIL,100UH
Q111	89-324-122-080	TR,2SC2412KT	L5001	S2-167-D10-1K0	COIL,100UH
Q351	89-321-204-080	TR,2SC2120Y	L5005	87-003-112-010	COIL,1MH
Q352	89-109-504-080	TR,2SA950Y(TPE2)	L6102	S2-16S-1R4-7M0	COIL,0.47UH
Q353	89-318-154-080	TR,2SC1815Y	L6105	87-003-152-010	COIL,100UH
Q354	89-324-122-080	TR,2SC2412KT			
Q356	87-026-239-080	TR,DTC114TKAT	PF5001	S3-262-300-380	COIL,TRAP 2623003
Q602	89-324-122-080	TR,2SC2412KT			
Q605	87-026-235-010	TR,DTC114EKAT	T5001	S3-362-601-0R0	COIL,BIAS OSC 3626010
Q611	87-026-235-010	TR,DTC114EKAT			
Q612	89-324-122-080	TR,2SC2412KT			*** JACKS ***
Q1002	87-026-236-080	TR,DTC124EKAT			
Q1010	87-026-228-080	TR,DTA124EKAT	J4501	S6-320-000-650	JACK,PLATE JPJ2042-01-430
Q1017	89-110-372-080	TR,2SA1037AKT	J4502	S6-320-000-650	JACK,PLATE JPJ2042-01-430
Q1018	87-026-236-080	TR,DTC124EKAT			
Q1028	89-324-122-080	TR,2SC2412KT			*** SWITCH ***
Q1029	SB-WT0-092-600	TR,2SB926(S,T)			
Q1030	89-324-122-080	TR,2SC2412KT	SW1010	S5-01A-020-020	SW,PUSH MPU20250MLB0
Q1031	SB-3T0-069-800	TR,2SB698(E,F)(T)			
Q1051	89-324-122-080	TR,2SC2412KT			*** CONNECTORS ***
Q1052	SC-YT2-872-S00	TR,2SC2872S			
Q1053	S0-02G-004-900	PHOTO,COUPLER GP1S94	CP301	S6-9W1-200-190	CONN,PCB SIDE TID-X02P-B2
Q1054	S0-02G-004-900	PHOTO,COUPLER GP1S94	CP802	S6-9E2-901-290	CONN,PCB SIDE 8283_0912_00_000
Q1055	S0-007-003-200	PHOTO,TR RPT-38PB113	CP820	S6-9E2-F01-290	CONN,PCB SIDE 8283_1512_00_000
Q1056	S0-007-003-200	PHOTO,TR RPT-38PB113	CP850	S6-9E2-501-290	CONN,PCB SIDE 8283_0512_00_000
Q4001	89-324-122-080	TR,2SC2412KT			
Q4004	89-324-122-080	TR,2SC2412KT			*** CRYSTAL & CERAMIC OSCILLATORS ***
Q4005	89-110-372-080	TR,2SA1037AKT			
Q4006	89-324-122-080	TR,2SC2412KT	X101	S0-0D3-2R8-010	X'TAL,32.768KHz
Q4007	89-324-122-080	TR,2SC2412KT	X102	S0-01T-8R0-040	CER,OSC EFOEC8004T4
Q4009	89-324-122-080	TR,2SC2412KT	X601	S0-0WA-016-010	X'TAL,16.2MHZ
Q4010	89-110-372-080	TR,2SA1037AKT	X1001	S0-0CA-8R0-050	X'TAL,8.0MHZ
Q4011	89-110-372-080	TR,2SA1037AKT	X4001	S0-0CA-4R4-040	X'TAL,4.4336MHZ
Q4012	89-110-372-080	TR,2SA1037AKT			
Q4013	89-324-122-080	TR,2SC2412KT			*** TUNER ***
Q4015	89-324-122-080	TR,2SC2412KT			
Q4016	89-324-122-080	TR,2SC2412KT	△ TU6001	S1-447-070-200	TUNER UHF UE25-B01
Q4017	89-110-372-080	TR,2SA1037AKT			
Q4018	87-026-236-080	TR,DTC124EKA			<b>OPERATION PCB ASS'Y</b>
Q4019	SN-7TM-050-010	TR,DTC143TKT			
Q4020	87-026-411-080	TR,DTC144EKAT146			*** CAPACITOR ***
Q4021	87-026-411-080	TR,DTC144EKAT146			
Q4023	SN-7TM-050-010	TR,DTC143TKT	C755	87-016-088-040	CAP,E 220-6.3V
Q4024	87-026-236-080	TR,DTC124EKAT			
Q4502	89-110-372-080	TR,2SA1037AKT			*** DIODES ***
Q5004	89-313-172-010	TR,2SC1317			
Q6101	87-026-287-080	TR,DTC143EKAT146	D791	S0-21M-2Q1-000	LED,EQ-552F9T
Q6104	89-324-122-080	TR,2SC2412KT	D792	S0-21M-2Q1-000	LED,EQ-552F9T
Q6304	89-324-122-080	TR,2SC2412KT	D793	S0-21M-2Q1-000	LED,EQ-552F9T
Q6502	89-324-122-080	TR,2SC2412KT	D794	S0-21M-5Q1-300	LED,EM-553-F9T
Q6503	89-110-372-080	TR,2SA1037AKT	D795	S0-21M-5Q1-300	LED,EM-553-F9T
Q6504	89-324-122-080	TR,2SC2412KT			*** TRANSISTORS ***
		*** COILS ***			
B601	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA	Q756	87-026-464-080	TR,DTC114TS
B6101	S2-4AC-140-150	CORE,BEADS(0) BLM31A601SPT	Q757	87-026-464-080	TR,DTC114TS
B6102	S2-4AC-140-150	CORE,BEADS(0) BLM31A601SPT	Q758	87-026-464-080	TR,DTC114TS
					*** SWITCHES ***
L101	87-003-148-010	COIL,33UH			
L604	87-003-102-010	COIL,10UH	SW750	S5-042-01T-310	SW,TACT SKHVBED010
L605	87-003-102-010	COIL,10UH	SW751	S5-042-01T-310	SW,TACT SKHVBED010
L4001	S2-167-D33-0K0	COIL,33UH	SW791	S5-042-01T-310	SW,TACT SKHVBED010
L4002	S2-1B7-310-2K0	COIL,1MH	SW792	S5-042-01T-310	SW,TACT SKHVBED010
L4004	87-003-112-010	COIL,1MH	SW793	S5-042-01T-310	SW,TACT SKHVBED010
L4005	87-003-288-010	COIL,180UH	SW794	S5-042-01T-310	SW,TACT SKHVBED010
L4006	87-003-149-080	COIL,47UH	SW795	S5-042-01T-310	SW,TACT SKHVBED010
L4008	87-003-286-010	COIL,56UH	SW796	S5-042-01T-310	SW,TACT SKHVBED010
L4012	87-003-285-010	COIL,39UH	SW797	S5-042-01T-310	SW,TACT SKHVBED010
L4013	87-003-147-010	COIL,22UH	SW798	S5-042-01T-310	SW,TACT SKHVBED010
			SW799	S5-042-01T-310	SW,TACT SKHVBED010



# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
		*** CONNECTOR ***			*** CAPACITORS ***
CY759	S6-9H1-302-090	CONN,PCB SIDE ILG3P-S3L-PCB-S	C543	87-015-695-080	CAP,E 1-50V
		*** OTHER ***	C544	87-016-644-010	CAP,E 10-100V
OS753	S7-790-140-010	IC,GP1U281 REMOTE RECEIVER	C545	87-010-271-080	CAP,E 1000-16V
		<b>MAIN PCB ASS'Y</b>	C550	87-010-135-010	CAP,E 100-25V
		*** RESISTORS ***	C555	87-010-052-010	CAP,E 2200-25V
			C556	87-010-618-010	CAP,E 2200-16V VZ
					*** DIODES ***
R412	S4-25T-410-0F0	RES,M/F 10-1/4W	D401	S2-8T0-11E-100	DIODE,11E1TA1
R415	S4-25T-410-0F0	RES,M/F 10-1/4W	D402	87-A40-241-080	ZENER,UZ-9.1BCB-TA
R418	S4-25T-410-0F0	RES,M/F 10-1/4W	D405	87-020-465-010	DIODE,1SS133T
△ R445	87-022-304-010	RES,M/O 1.5K-3W	△ D411	S2-8T1-0EL-S60	DIODE,10ELS6TA1
△ R446	87-022-304-010	RES,M/O 1.5K-3W	D413	S2-8T1-0EL-S60	DIODE,10ELS6TA1
△ R447	S6-158-268-0J0	RES,FUSE 68-1/2W	D422	87-020-465-010	DIODE,1SS133T
△ R449	S5-K2C-E8R-2K0	RES,CEM 8.2-7W	△ D501	S2-BTR-M11-C00	DIODE,RM11C
△ R450	87-A00-140-060	RES,FUSE 1.8-1W	△ D502	S2-BTR-M11-C00	DIODE,RM11C
△ R452	S6-358-11R-8J0	RES,FUSE 1.8-1W	△ D503	S2-BTR-M11-C00	DIODE,RM11C
△ R501	S5-K2C-E2R-2J0	RES,CEM 2.2-7W	△ D504	S2-BTR-M11-C00	DIODE,RM11C
△ R505	S3-X28-B33-3J0	RES,M/O 33K-3W	D505	S2-8T0-11E-200	DIODE,11E2TA1
△ R508	S3-328-D47-3J0	RES,M/O 47K-5W	△ D506	S2-5T1-R5N-U00	DIODE,1R5NU41
△ R512	87-025-577-060	RES,M/O 15K-1W	D507	S2-8T0-11E-200	DIODE,11E2TA1
△ R513	S3-U28-A15-0J0	RES,M/O 15-2W	△ D508	S2-8TE-QS0-400	DIODE,11EQS04TA1
△ R517	87-029-160-060	RES,FUSE 2.2-1W	△ D509	S2-8T1-0EL-S60	DIODE,10ELS6TA1
△ R531	S3-U18-AR5-6J0	RES,M/O 0.56-2W	△ D510	S2-8I1-5DF-600	DIODE,15DF6-FC
△ R598	87-029-374-010	RES,FUSE 47-1/4W	△ D511	87-020-465-010	DIODE,1SS133T
		*** CAPACITORS ***	△ D512	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
C405	87-010-071-080	CAP,E 1-50V	D516	87-020-465-010	DIODE,1SS133T
C406	87-010-393-010	CAP,E 100-35V	D517	87-020-465-010	DIODE,1SS133T
C407	87-010-388-090	CAP,E 1000-25V	D518	87-020-465-010	DIODE,1SS133T
C412	S0-JTB-05N-2K0	CAP,CER 390PF-500V B	△ D519	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
C417	S0-JTB-05S-2K0	CAP,CER 560PF-500V	D520	S9-JT0-270-1B0	ZENER,UZ-27BCB-TA
C418	S0-E7T-B01-0M0	CAP,E 1-160V	D522	87-070-035-080	ZENER,UZ-12BCB-TA
C421	87-010-397-010	CAP,E 1000-35V	D525	87-020-465-010	DIODE,1SS133T
C422	87-016-322-010	CAP,E 1-250V	D528	87-017-712-080	ZENER,UZ-5.6BCB-TA
C424	S4-N2A-968-2H0	CAP,MPP 0.0068-1600V	D529	87-020-465-010	DIODE,1SS133T
C429	87-012-386-080	CAP,CER 470PF-2KV	D531	87-020-465-010	DIODE,1SS133T
C430	S0-34B-N71-3K0	CAP,CER 0.001 2KV BP	D534	87-020-465-010	DIODE,1SS133T
C431	87-016-600-010	CAP,E 22-250V	D535	S1-VT0-029-000	DIODE,1SS290T-77
C432	S6-11T-110-4J0	CMPL 0.1-100V T	D536	87-020-465-010	DIODE,1SS133T
C438	87-010-977-010	CAP,CER 680PF-500V	D537	87-070-335-080	ZENER,MTZJ8.2B
C450	S0-1BB-P7B-2K0	CAP,CER 120PF-2KV B	△ IC506	S0-025-004-500	PHOTO,COUPLER TLP621(GR)
C482	87-010-263-010	CAP,E 100-10V	TH501	S8-R0F-140-M00	DEGAUSS PTH451C262BF140M
C485	87-015-695-080	CAP,E 1-50V			*** ICS ***
△ C502	S1-3DB-071-3K0	CAP,C 0.001-2KV B	△ IC401	S0-5SD-840-300	IC,TA8403K
△ C503	S1-3DB-071-3K0	CAP,C 0.001-2KV B	△ IC501	S0-ED0-460-500	IC,TDA4605-3
C504	87-016-130-010	CAP,E 47-25V	△ IC502	S0-Q09-780-500	IC,NJM7805FD
C507	S1-9A0-C01-040	CAP,E 100-400V			*** TRANSISTORS ***
C512	S0-34B-N7H-3K0	CAP,CER 0.0022-2KV			
△ C515	S0-E7T-B01-0M0	CAP,E 1-160V	Q403	SN-YTB-030-010	TR,DTC114ES
C516	87-012-376-010	CAP,CER 470PF-500V	Q404	87-026-464-080	TR,DTC114TS
C517	S0-34B-N7H-3K0	CAP,CER 0.0022-2KV	Q405	SC-3T0-227-100	TR,2SC2271(D,E)-AE
C518	87-012-376-010	CAP,CER 470PF-500V	△ Q406	SD-UQ0-208-900	TR,2SD2089
C519	87-012-376-010	CAP,CER 470PF-500V	Q407	87-026-464-080	TR,DTC114TS
C520	87-010-271-080	CAP,E 1000-16V	Q408	87-026-464-080	TR,DTC114TS
C521	SB-JG2-21M-110	CAP,E 220-160V	△ Q500	S4-1FK-239-700	FET,2SK2397-01M
C523	87-070-387-040	CAP,E 470-25V	Q501	SC-3T0-290-900	TR,2SC2909
C524	87-070-387-040	CAP,E 470-25V	△ Q502	SA-3T1-371-A00	TR,2SA1371
C526	84-XMC-634-010	CAP,E 1000-10V	△ Q503	SC-300-416-000	TR,2SC4160
C527	87-012-376-010	CAP,CER 470PF-500V	Q504	89-320-011-210	TR,2SC2001(C)-T
△ C530	SB-3LB-0MQ-2K0	CAP,CER 470PF 250V	Q505	SA-3T0-162-400	TR,2SA1624(D,E)-AA
C531	S0-ELF-222-2M0	CAP,E 2200-16V	Q507	89-318-154-080	TR,2SC1815Y
C532	87-010-112-080	CAP,E 100-16V	Q509	89-318-154-080	TR,2SC1815Y
△ C533	SB-393-0M1-2K0	CAP,CER 100P-250V	△ Q510	SD-70D-239-600	TR,2SD2396(J,K)
C535	87-010-135-010	CAP,E 100-25V	△ Q511	SB-WT0-092-600	TR,2SB926(S,T)
C538	S0-E7T-B01-0M0	CAP,E 1-160V	Q512	SN-YTB-030-010	TR,DTC114E
C540	S0-E7T-B01-0M0	CAP,E 1-160V			
C541	87-010-964-010	CAP,E 10-160V			

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
*** TRANSISTORS ***			*** DIODES ***		
Q513	SN-YTB-030-010	TR,DTC114E	D801	87-020-465-010	DIODE,1SS133T
Q514	SN-YTB-030-010	TR,DTC114E	D802	87-020-465-010	DIODE,1SS133T
Q515	89-318-154-080	TR,2SC1815Y			
△ Q516	SD-70D-239-600	TR,2SD2396(J,K)	*** TRANSISTORS ***		
Q517	87-026-572-080	TR,DTA114TSTP			
Q518	SN-YTB-030-010	TR,DTC114E	Q801	89-110-154-080	TR,2SA1015Y(TPE2)
*** COILS ***			△ Q804	SC-3T0-346-800	TR,2SC3468
			△ Q805	SC-3T0-346-800	TR,2SC3468
			△ Q806	SC-3T0-346-800	TR,2SC3468
B501	S2-4AT-036-550	CORE BEADS BL01RN1-A63T6			
B502	S2-4AT-036-550	CORE BEADS BL01RN1-A63T6	*** COIL ***		
B508	S2-4AT-036-550	CORE BEADS BL01RN1-A63T6			
L401	87-003-143-010	COIL,4.7MH	L850	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
L402	S2-210-000-130	COIL,LINERITY ELH5L4112	*** CRT SOCKET ***		
L403	87-003-150-010	COIL,68UH			
△ L501	S2-9K0-000-010	COIL,LINE FILTER RB-20871	△ J801	S6-6X1-200-140	SOCKET,CRT HPS3200-010501
△ L502	S2-9K0-000-010	COIL,LINE FILTER RB-20871	*** OTHER ***		
L504	87-003-150-010	COIL,68UH			
*** TRANSFORMERS ***			CD850	S6-CH2-508-0A0	CORD,CONN CH25080A
△ FB401	S4-321-300-9F0	FLYBACK TRANS 3213009	<b>HEAD AMP PCB ASS'Y</b>		
T401	S3-305-Y00-180	TRANS,HORI DRIVE 305Y001	*** CAPACITOR ***		
△ T501	S4-813-502-2W0	TRANS,SWITCHING 8135022W			
*** VARIABLE RESISTOR ***			C4107	87-016-088-040	CAP,E 220-6.3V
VR502	S1-263-Q2B-TC0	VOL,RH063MCS2R07A	*** IC ***		
*** CONNECTORS ***			IC4101	S0-3FG-741-1M0	IC,LA7411M
CD005	S6-870-141-0A0	CORD,CONN 8701410A	*** TRANSISTOR ***		
CD810	S6-812-809-2A0	CORD,CONN 8128092A	Q4101	89-324-122-010	TR,2SC2412
CD820	S6-CH2-F00-9A0	CORD,CONN CH2F009A	*** COIL ***		
*** FUSES ***			L4101	S2-166-310-1K0	COIL,100UH
△ F501	S8-0PT-040-020	FUSE,4A-250V T	<b>POWER SW PCB ASS'Y</b>		
△ F502	S8-0PT-1R6-020	FUSE,21801.6			
FH501	S6-710-T00-060	HOLDER,FUSE EYF-52B	*** SWITCH ***		
FH502	S6-710-T00-060	HOLDER,FUSE EYF-52B			
FH503	S6-710-T00-060	HOLDER,FUSE EYF-52B			
FH504	S6-710-T00-060	HOLDER,FUSE EYF-52B	△ SW501	S5-302-050-010	SW,PLUS SDDFC30200
*** RELAY ***			*** CONNECTORS ***		
△ RY501	S5-60Q-101-140	RELAY SDT-SS-109DM	CD503	S6-878-303-7A0	CORD,CONN 8783037A
*** OTHERS ***			CP504	S6-944-301-000	CORD,CONN 2-173270-3
△ ICP502	S8-3PC-040-020	MICRO FUSE 251004	<b>IF PCB ASS'Y</b>		
△ ICP504	S8-3PC-030-020	MICRO FUSE 251003	*** CAPACITORS ***		
△ ICP505	S8-3PC-010-020	MICRO FUSE 251001			
△ ICP506	S8-3PC-010-020	MICRO FUSE 251001	C6002	87-010-112-080	CAP,E 100-16V
<b>CRT PCB ASS'Y</b>			C6005	87-010-825-010	CAP,E 0.22-50V
*** RESISTORS ***			C6019	87-010-079-080	CAP,E 100-6.3V
△ R802	SF-G01-23J-H10	RES,M/O 12K-2W	C6021	87-010-071-080	CAP,E 1-50V
△ R805	SF-G01-23J-H10	RES,M/O 12K-2W	*** IC ***		
△ R810	SF-G01-23J-H10	RES,M/O 12K-2W	IC6001	S0-6DA-523-130	IC,M52313SP
*** CAPACITORS ***			*** TRANSISTORS ***		
C802	87-010-560-080	CAP,E 10-50V	Q6002	89-110-372-010	TR,2SA1037
C819	S1-3VB-07H-3K0	CAP,CER 2200PF-2KV	Q6003	SC-3T0-300-000	TR,2SC3000
C820	87-016-322-080	CAP,E 1-250V			

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
*** COILS ***		
L6002	87-003-152-010	COIL,100UH
L6004	87-003-282-010	COIL,12UH
L6005	S2-1LA-61R-2K0	COIL,1.2UH
L6007	87-003-144-010	COIL,6.8UH
L6009	87-003-102-010	COIL,10UH
L6010	87-003-148-010	COIL,33UH
L6011	S3-360-K00-6R0	COIL,V IFT 360K006
L6012	S3-360-K00-5R0	COIL,V IFT 360K005
*** VARIABLE RESISTOR ***		
VR6001	S1-263-H4B-TC0	SFR,RH063MCJ4R07A
*** FILTERS ***		
CF6001	S0-12T-6R0-030	CER,FIL TPS6.0M
CF6003	S0-12T-6R0-020	CER,FIL SFE6.0M
CF6004	S0-2E2-39R-5A0	FILTER,SAW J1953M
CF6005	S0-12T-6R0-050	CER,FIL CDSH6.0ME44K
CF6008	S0-12T-041-010	FILTER,CERA MKT41.5MA110P
<b>EARPHONE PCB ASS'Y</b>		
*** COILS ***		
B351	S2-4AT-036-550	CORE BEADS BL01RN1-A63T6
L353	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
*** JACK ***		
J353	S6-021-010-180	JACK,EAR PHONE HSJ0846-01-200
*** CONNECTOR ***		
CD353	S6-CH2-304-3A0	CORD,CONN CH23043A
<b>OTHERS</b>		
△ L503	S2-8Q1-400-180	COIL,DEGAUSS 8Q140018
△ CD501	S2-066-358-070	CORD,AC 1206635807
CD301	S6-C91-239-8A0	CORD,CONN C912398A
SP352	S7-0J1-320-110	SPEAKER,AA0308A
△ V801	S9-8P1-404-800	CRT,A34AGT13-19



サービス技術ニュース	
番号	連絡内容
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G- -	
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**アイワ株式会社** 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)  
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