

# SERVICE MANUAL

INTEGRATED COLOR TV/STEREO  
VIDEO CASSETTE RECORDER

BASIC TAPE MECHANISM : OVD-6S

## SPECIFICATIONS

POWER REQUIREMENTS .....	230V AC, 50Hz	TAPE SPEED .....	PAL
POWER CONSUMPTION .....	82W		SP: 23.39 mm/sec.
	Standby 6W		LP: 11.69 mm/sec.
WEIGHT .....	Approx.26.5 kg (58.4 lbs.)		NTSC (playback SP only)
DIMENSIONS .....	574 mm (W) x 489 mm (D) x		33.35 mm/sec.
	502 mm (H)	RECORDING/PLAYBACK TIME .....	PAL
	(22 5/8 x 19 3/8 x 19 7/8 in.)		SP: 5 hours max. with E-300 tape
PICTURE TUBE .....	21 in. (50.8 cm "V"), 90 degree		LP: 10 hours max. with E-300 tape
	deflection		NTSC (playback SP only)
TUNER SYSTEM .....	Frequency synthesized tuners		3 hours 30 minutes max. with T-210
CHANNEL COVERAGE .....	UHF: 21 to 69		tape
TV SYSTEM .....	I	VIDEO INPUT .....	1.0Vp-p, 75 ohm, unbalanced
HORIZONTAL RESOLUTION .....	240 lines	VIDEO OUTPUT .....	1.0Vp-p, 75 ohm, unbalanced
OPERATING TEMPERATURE .....	5°C to 40°C	VIDEO S/N .....	53dB (nominal)
VIDEO RECORDING SYSTEM .....	Rotary 2 head helical scanning system	AUDIO INPUT .....	SCART: -3.8 dBs, 50K ohm
VIDEO SIGNAL SYSTEM .....	PAL colour signal, 625 lines, 50 fields		RCA: -3.8 dBs, 50K ohm
VIDEO HEAD .....	Double azimuth 6 heads	AUDIO OUTPUT .....	SCART: -3.8 dBs less than 1K ohm
USABLE CASSETTES .....	VHS video cassettes	AUDIO TRACK .....	3 tracks (Hi-Fi sound 2 tracks, Normal sound 1 track)

● Design and specifications are subject to change without notice.

# TABLE OF CONTENTS

SPECIFICATIONS .....	COVER
TABLE OF CONTENTS .....	A1-1
SERVICING NOTICES ON CHECKING .....	A2-1
DISASSEMBLY INSTRUCTIONS	
REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS .....	B1-1, B1-2
REMOVAL OF DECK PARTS .....	B2-1~B2-5
REMOVAL OF ANODE CAP .....	B3-1
KEY TO ABBREVIATIONS .....	C1-1, C1-2
SERVICE MODE LIST .....	C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS .....	C3-1, C3-2
NOTE FOR THE REPLACING OF MEMORY IC .....	C4-1
SERVICING FIXTURES AND TOOLS .....	C5-1
PREPARATION FOR SERVICING .....	C5-2, C5-3
VCR TEST TAPE INTERCHANGEABILITY TABLE .....	C6-1
MECHANICAL ADJUSTMENTS	
CONFIRMATION AND ADJUSTMENT .....	D1-1, D1-2
CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM .....	D1-2, D1-3
MECHANISM ADJUSTMENT PARTS LOCATION GUIDE .....	D1-4
ELECTRICAL ADJUSTMENTS	
ADJUSTMENT PROCEDURE .....	D2-1
BASIC ADJUSTMENTS .....	D2-1~D2-5
ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE .....	D2-6, D2-7
PURITY AND CONVERGENCE ADJUSTMENTS .....	D2-8
TROUBLESHOOTING GUIDES .....	E-1~E-27
IC DESCRIPTIONS .....	F1-1~F1-3
SERVO TIMING CHART .....	F2-1
SYSTEM SWITCH MODE .....	F2-2
SEMICONDUCTOR BASE CONNECTIONS .....	G-1
BLOCK DIAGRAMS	
TV .....	H-1
Y/C/AUDIO/HEAD AMP .....	H-2
MICON/OPERATION .....	H-3
IF/21PIN/IN/OUT/POWER .....	H-4
T'TEXT .....	H-5
TUNER/HIFI/STEREO .....	H-6
PRINTED CIRCUIT BOARDS (OPERATION/TV POWER/DECK) .....	I-1
OPERATION SCHEMATIC DIAGRAM .....	I-2
CHOKE COIL SCHEMATIC DIAGRAM .....	I-3
DECK SCHEMATIC DIAGRAM .....	I-4
PRINTED CIRCUIT BOARDS (IF/STEREO) .....	I-5~I-7
IF DIAGRAM .....	I-8
STEREO DIAGRAM .....	I-9
PRINTED CIRCUIT BOARDS (SYSCON/SUB POWER) .....	I-10~I-12
Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM .....	I-13
MICON SCHEMATIC DIAGRAM .....	I-14
POWER SCHEMATIC DIAGRAM .....	I-15
21PIN IN/OUT SCHEMATIC DIAGRAM .....	I-16
CHROMA/IF SCHEMATIC DIAGRAM .....	I-17
SOUND AMP SCHEMATIC DIAGRAM .....	I-18
T'TEXT SCHEMATIC DIAGRAM .....	I-19
TUNER/Hi-Fi SCHEMATIC DIAGRAM .....	I-20
REGULATOR SCHEMATIC DIAGRAM .....	I-21
PRINTED CIRCUIT BOARDS (MAIN/CRT/POWER SW) .....	I-22
TV POWER SCHEMATIC DIAGRAM .....	I-23
DEFLECTION SCHEMATIC DIAGRAM .....	I-24
CRT SCHEMATIC DIAGRAM .....	I-25
INTERCONNECTION DIAGRAM .....	I-26
WAVEFORMS .....	J-1~J-4
MECHANICAL EXPLODED VIEW .....	K1-1, K1-2
MECHANICAL REPLACEMENT PARTS LIST .....	K1-3
ACCESSORY REPLACEMENT PARTS LIST .....	K1-3
CHASSIS EXPLODED VIEW (TOP VIEW) .....	K2-1
CHASSIS EXPLODED VIEW (BOTTOM VIEW) .....	K2-2
CHASSIS REPLACEMENT PARTS LIST .....	K2-3
ELECTRICAL REPLACEMENT PARTS LIST .....	K3-1~K3-6

# 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  $\triangle$  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]**

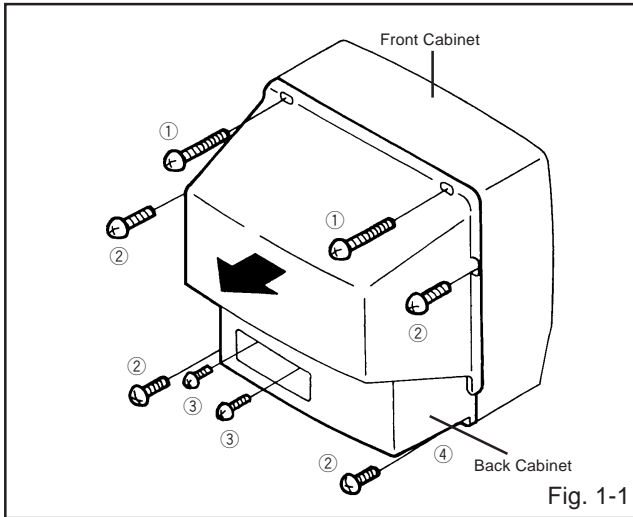
External exposure metal: Antenna terminal  
Earphone jack

# DISASSEMBLY INSTRUCTIONS

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

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

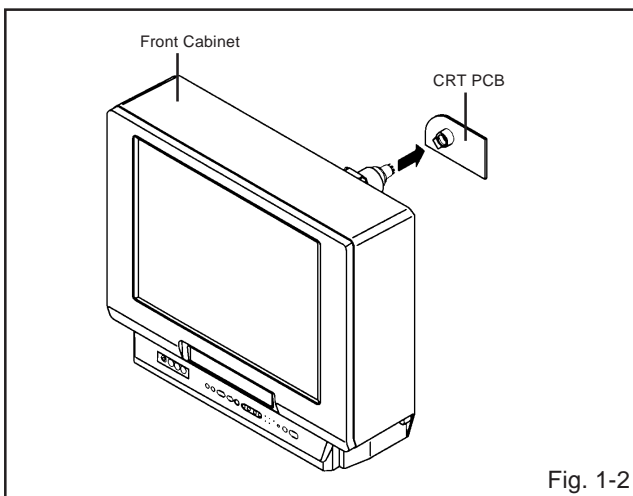
1. Remove the 2 screws ①.
2. Remove the 4 screws ②.
3. Remove the 2 screws ③ which are used for holding the Back Cabinet.
4. Remove the AC cord from the AC cord hook ④.
5. Remove the Back Cabinet in the direction of arrow.



### 1-2: CRT PCB (Refer to Fig. 1-2)

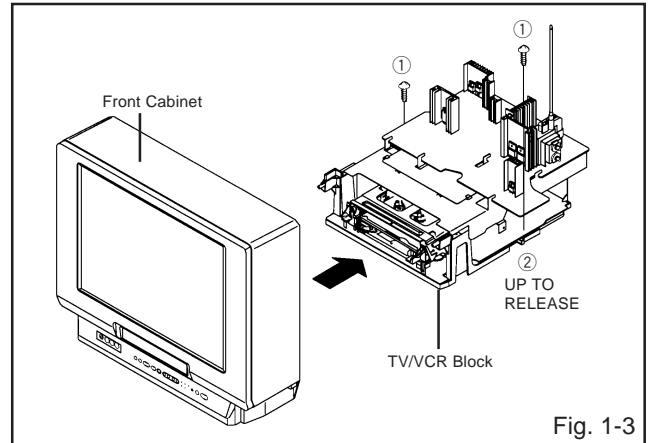
**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

1. Remove the Anode Cap.  
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:  
(CP802 and CP805).
3. Remove the CRT PCB in the direction of arrow.



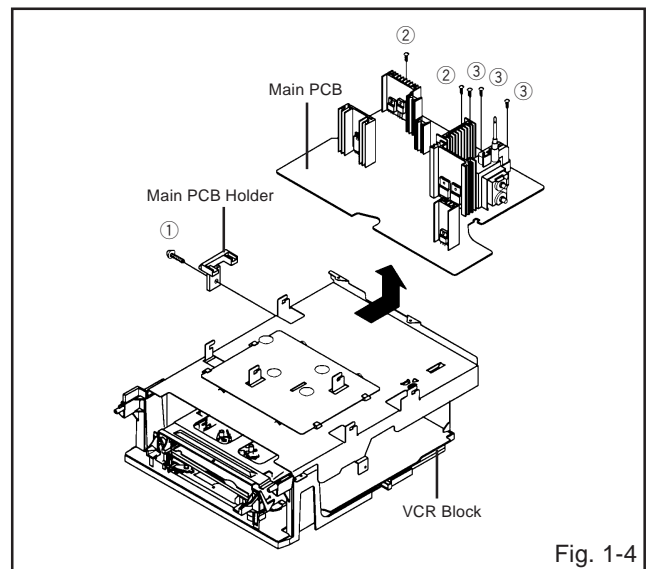
### 1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:  
(CP353, CP502, CP503, CP504, CP755 and CP4202).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.



### 1-4: MAIN PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 2 screws ②.
4. Remove the 3 screws ③.
5. Disconnect the following connectors:  
(CP402, CP810 and CP820).
6. Remove the Main PCB in the direction of arrow.



## DISASSEMBLY INSTRUCTIONS

### 1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

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

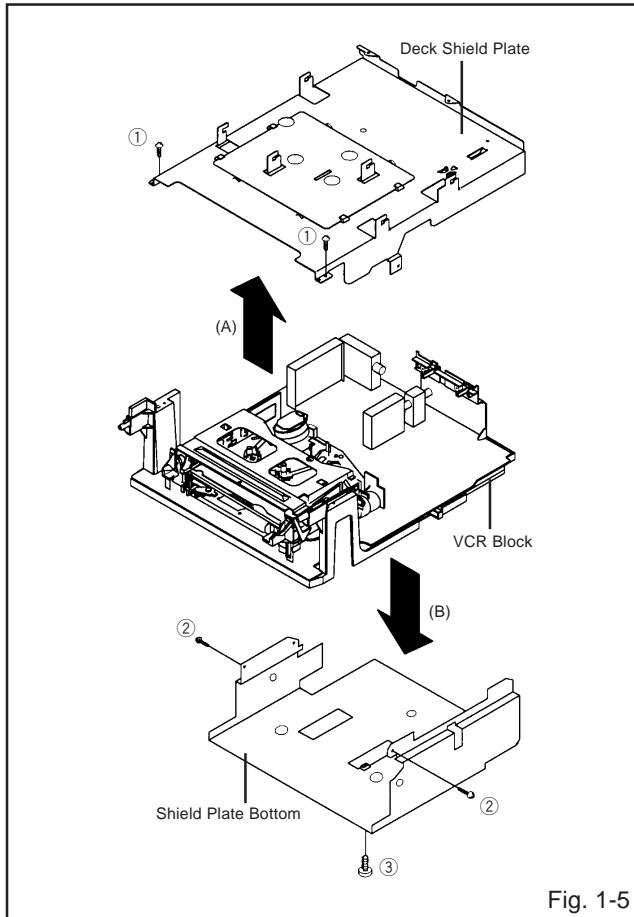


Fig. 1-5

### 1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the 3 screws ①.
2. Disconnect the following connectors:  
(CP1004, CP1005, CP1006, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis in the direction of arrow.

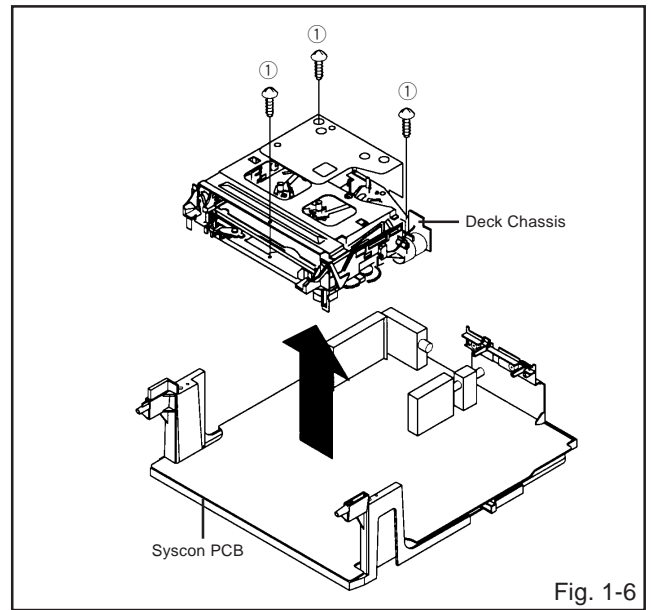


Fig. 1-6

### 1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the Syscon PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Unlock the 2 supports ③.
5. Remove the Jack Plate in the direction of arrow (B).

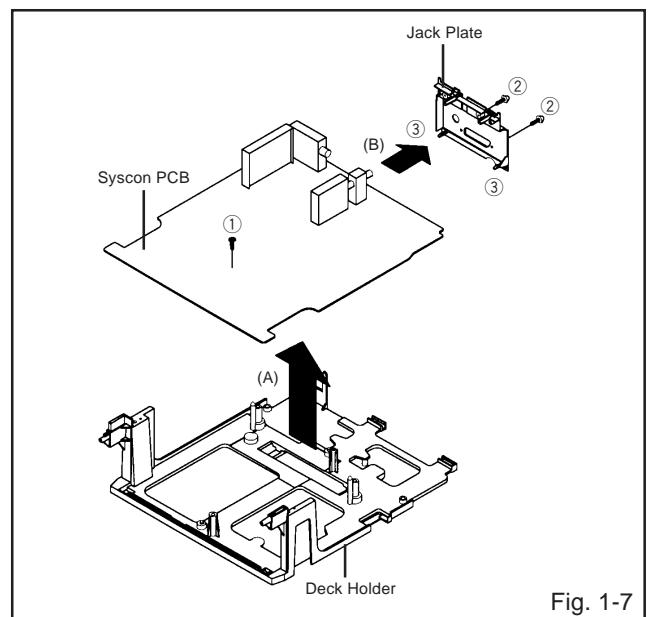


Fig. 1-7

# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL OF DECK PARTS

### 2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

#### NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).

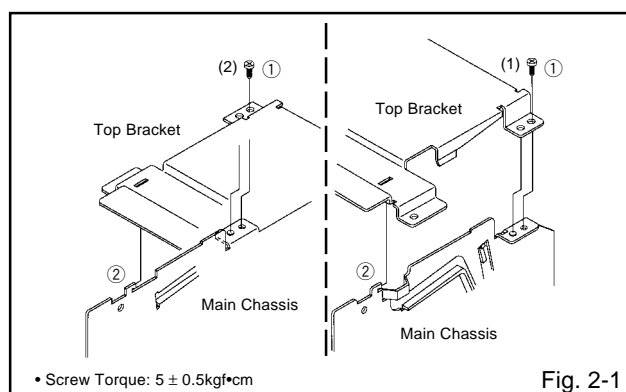


Fig. 2-1

### 2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

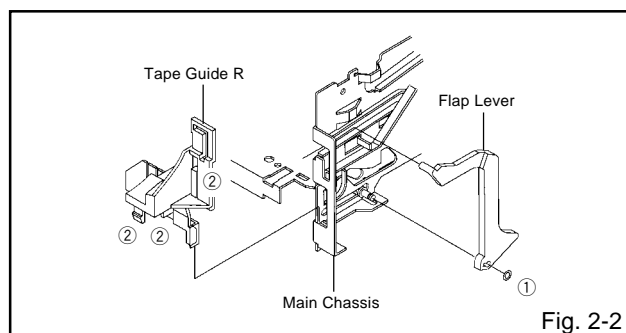


Fig. 2-2

### 2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

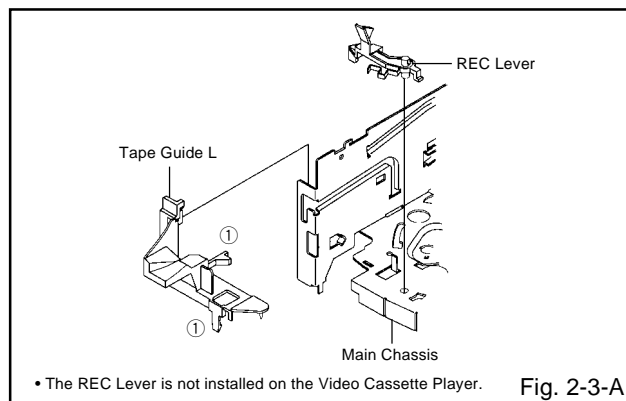


Fig. 2-3-A

#### NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. (Refer to Fig. 2-3-B)

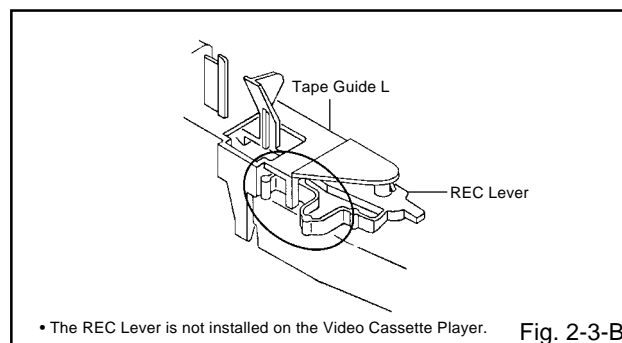


Fig. 2-3-B

### 2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

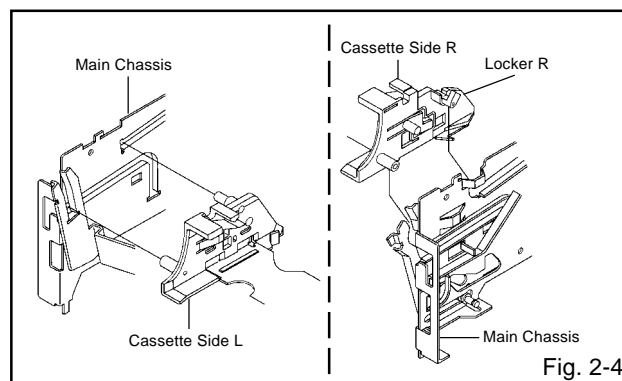


Fig. 2-4

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

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

#### NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

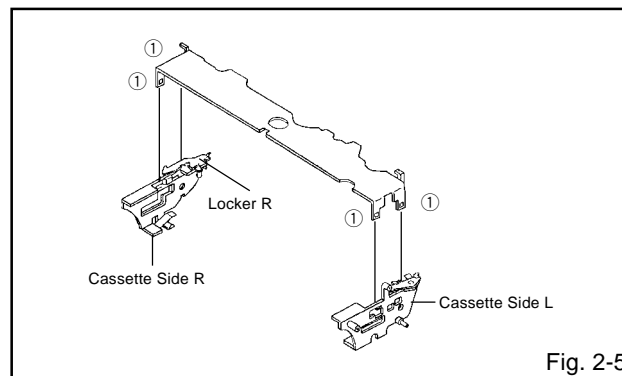


Fig. 2-5

# DISASSEMBLY INSTRUCTIONS

## 2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

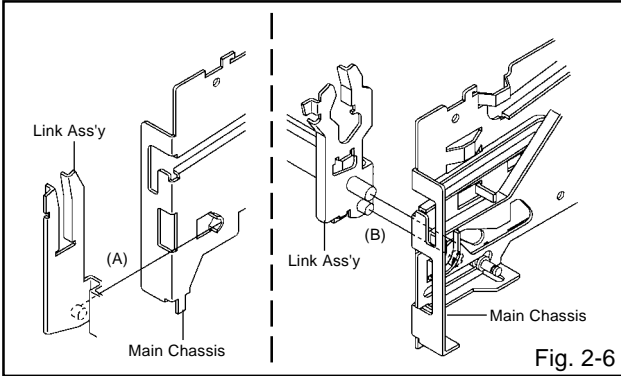


Fig. 2-6

## 2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).

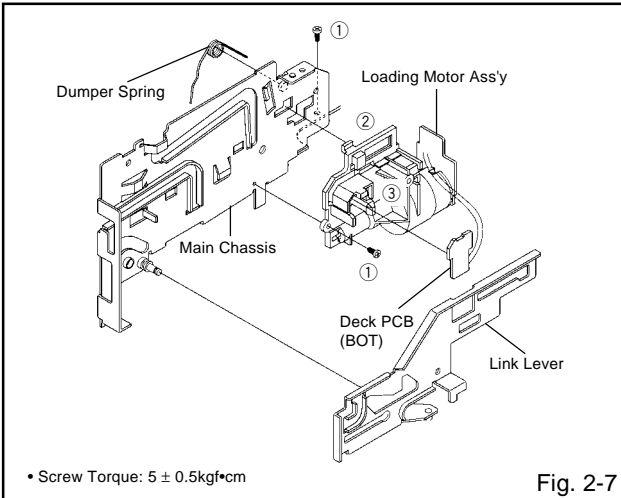


Fig. 2-7

## 2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

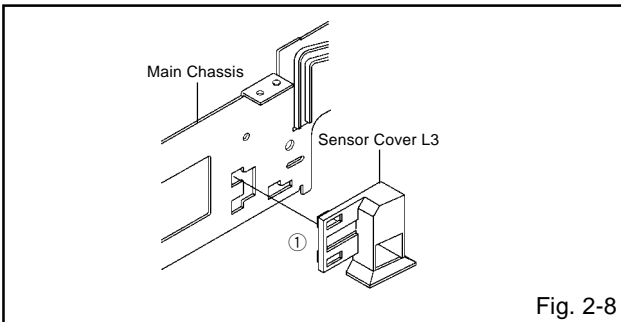


Fig. 2-8

## 2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

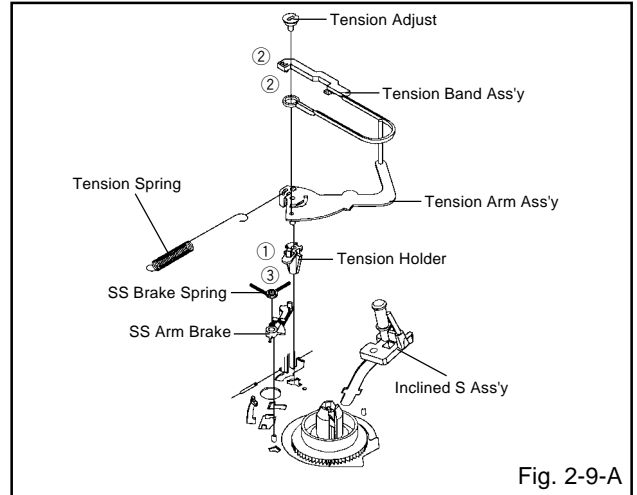


Fig. 2-9-A

### NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. (Refer to Fig. 2-9-B)

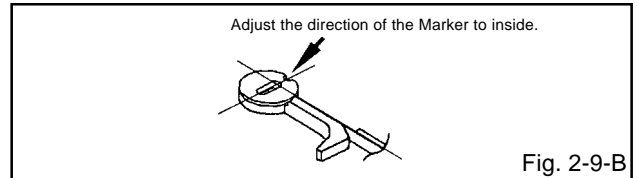


Fig. 2-9-B

## 2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

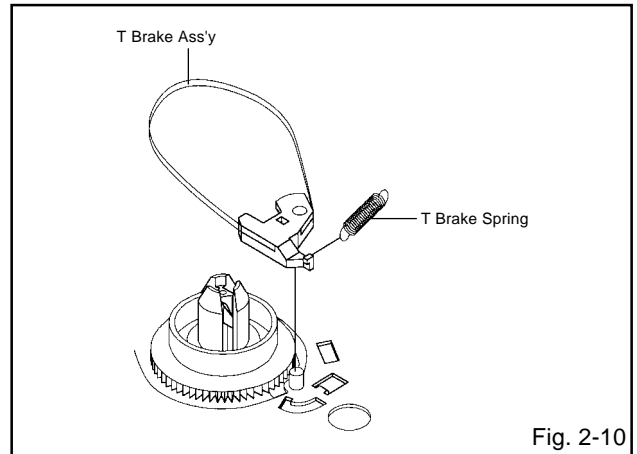


Fig. 2-10

# DISASSEMBLY INSTRUCTIONS

## 2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

### NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-11) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

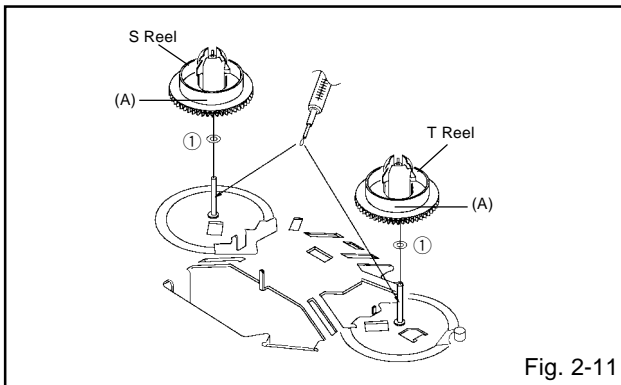
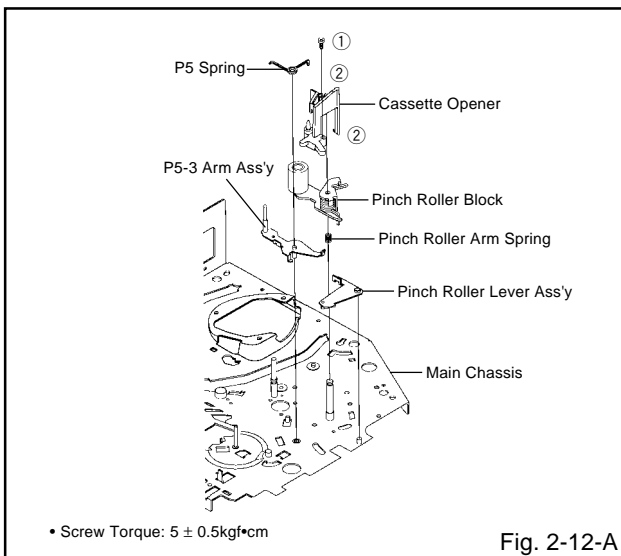


Fig. 2-11

## 2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.



• Screw Torque:  $5 \pm 0.5\text{kgf}\cdot\text{cm}$

Fig. 2-12-A

### NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. (Refer to Fig. 2-12-B)

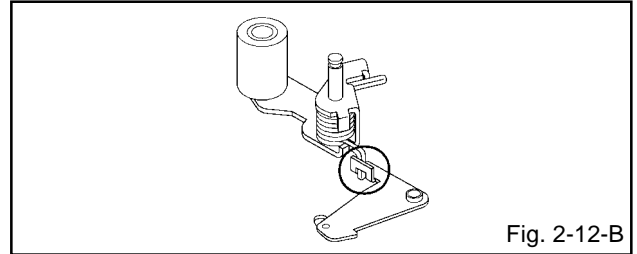


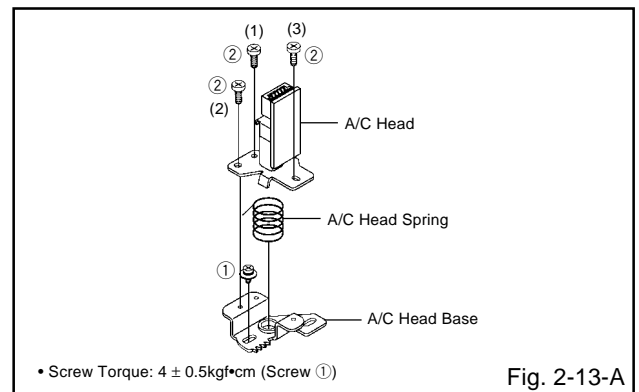
Fig. 2-12-B

## 2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

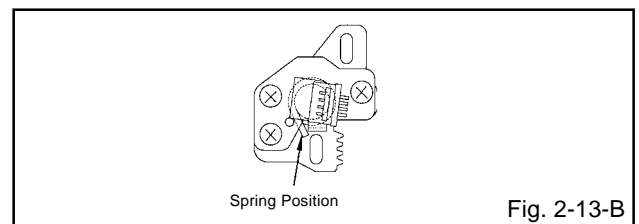
### NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. (Refer to Fig. 2-13-B)
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque:  $4 \pm 0.5\text{kgf}\cdot\text{cm}$  (Screw ①)

Fig. 2-13-A

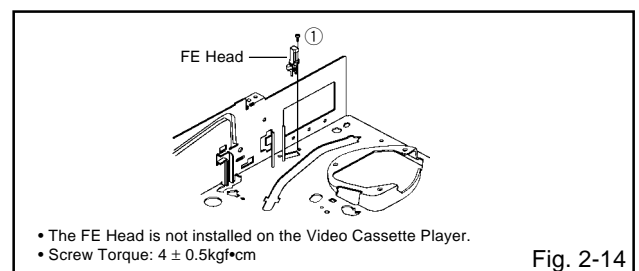


Spring Position

Fig. 2-13-B

## 2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.  
• Screw Torque:  $4 \pm 0.5\text{kgf}\cdot\text{cm}$

Fig. 2-14



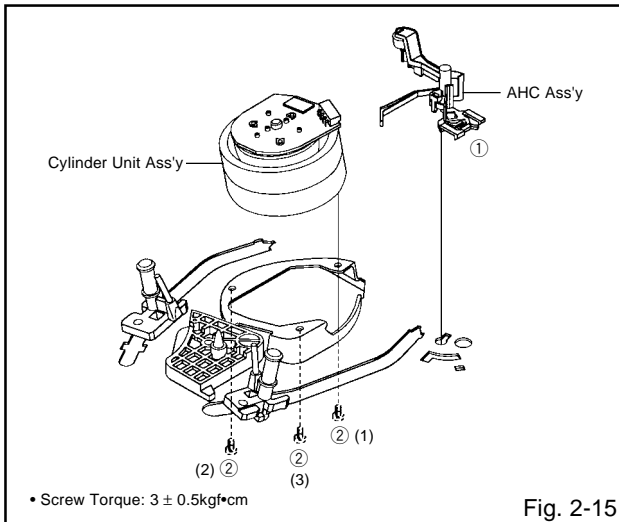
# DISASSEMBLY INSTRUCTIONS

## 2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

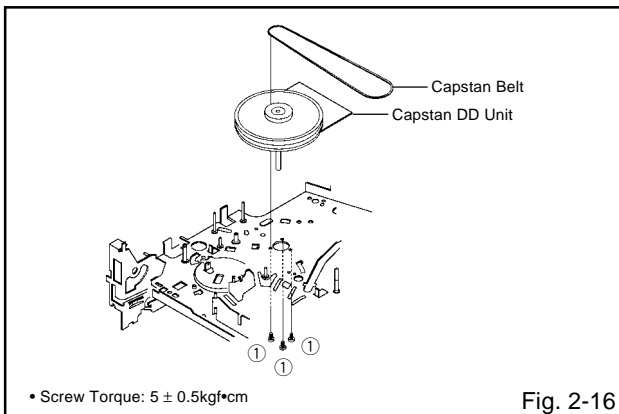
### NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



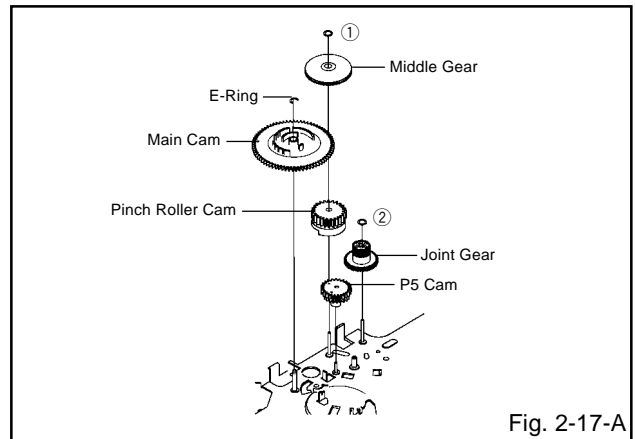
## 2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



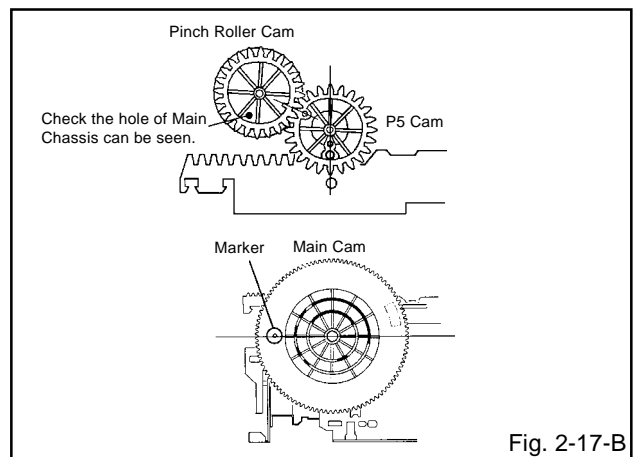
## 2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.



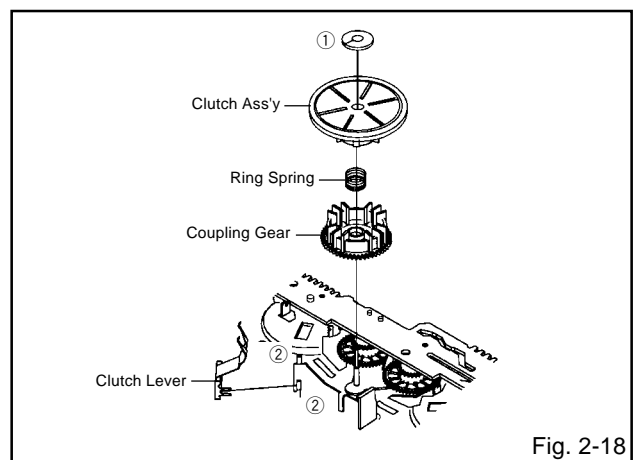
### NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. (Refer to Fig. 2-17-B)



## 2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.



## DISASSEMBLY INSTRUCTIONS

### 2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflector.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

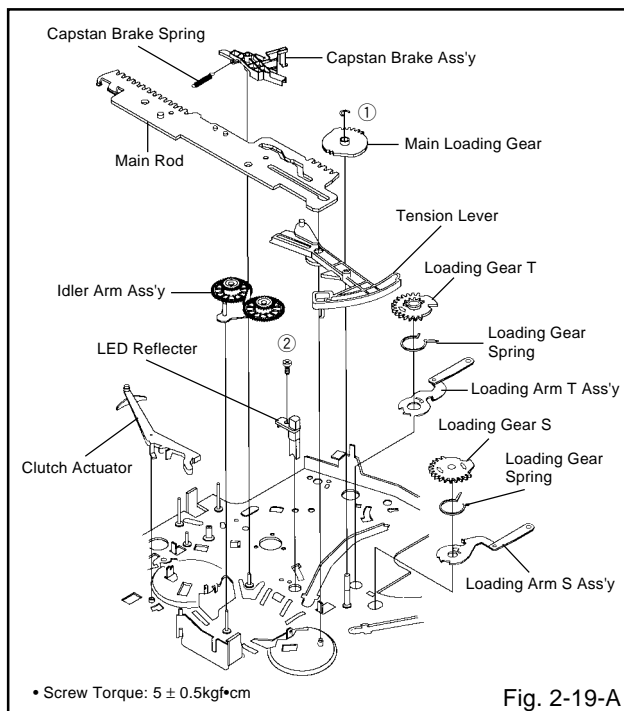


Fig. 2-19-A

### NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. (Refer to Fig. 2-19-B)

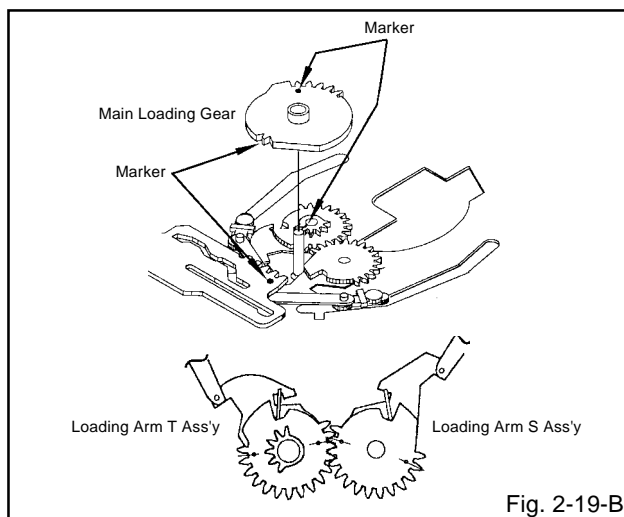


Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. (Refer to Fig. 2-19-C)

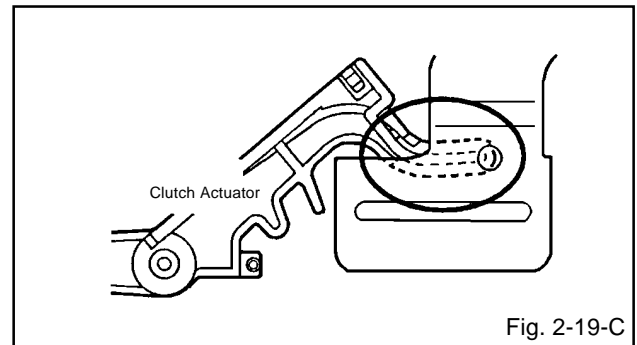


Fig. 2-19-C

### 2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

### NOTE

Do not touch the roller of Guide Roller.

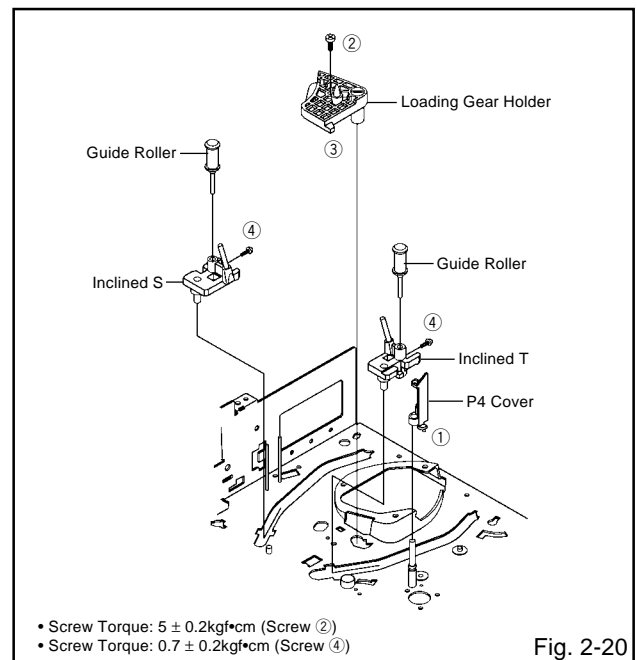


Fig. 2-20

# 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.

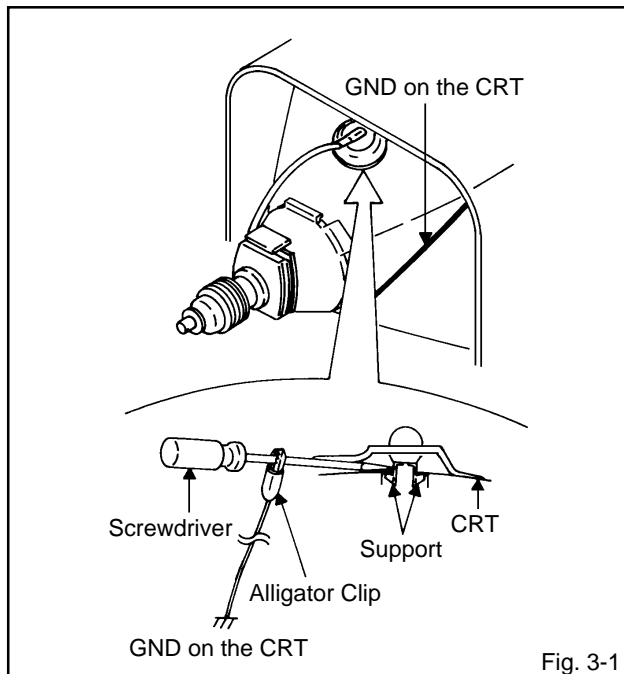


Fig. 3-1

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.)**

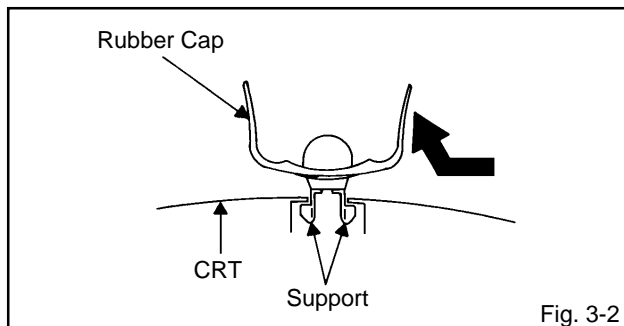


Fig. 3-2

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.)**

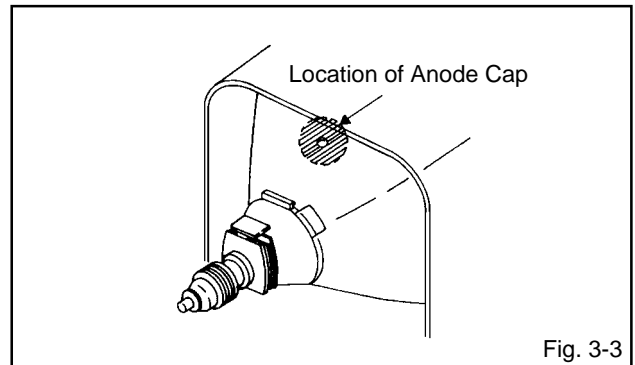


Fig. 3-3

### 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.)**

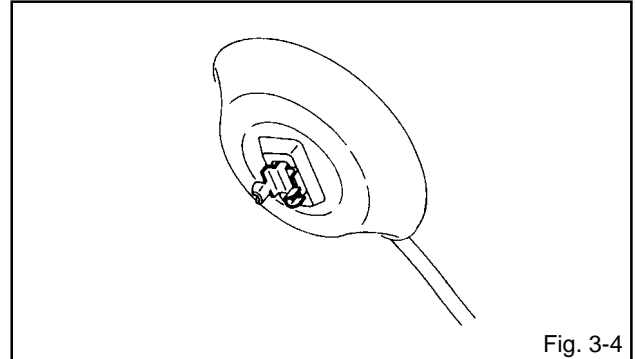


Fig. 3-4

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

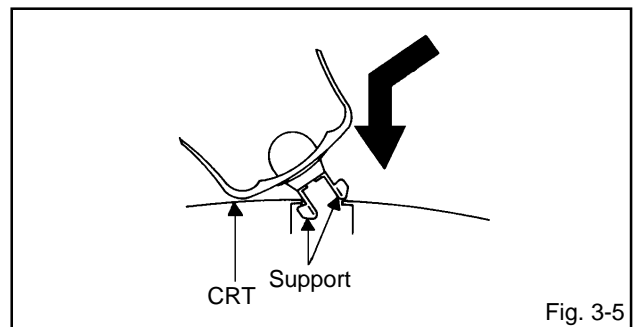


Fig. 3-5

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>	: Mecha 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

## SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, Unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key for more than 2 seconds.

The both pressing of set key and remote control key 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.

Set Key	Remocon Key	Operations
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more tan 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS).  Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

## 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 (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
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

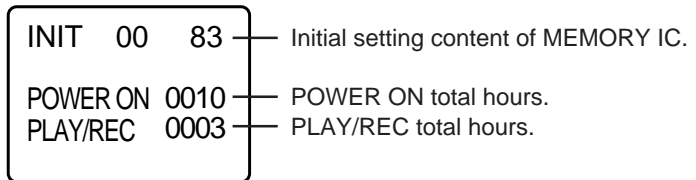
- : Clean
- : Replace

### CONFIRMATION OF USING HOURS

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

**NOTE: The confirmation of using hours 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.**

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

# PREVENTIVE CHECKS AND SERVICE INTERVALS

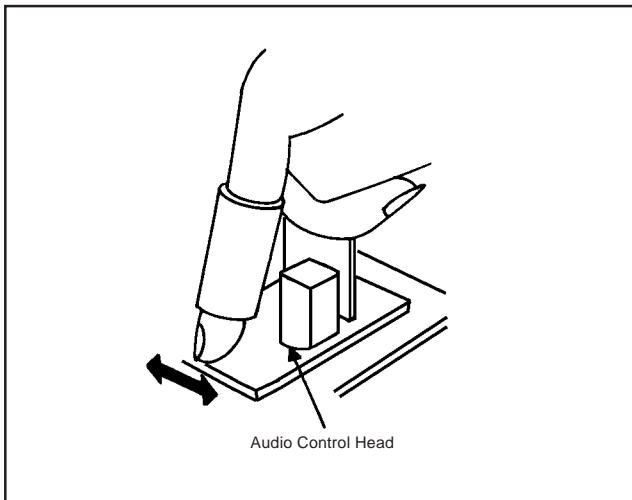
## CLEANING

### 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

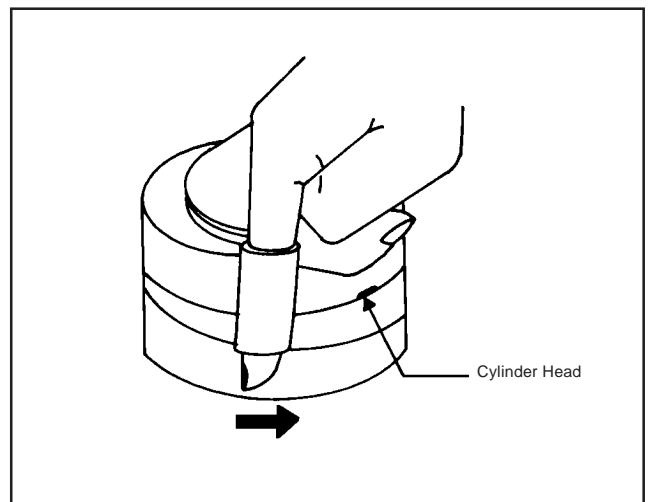
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

### 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 upward or downward on the head. Use the chamois one by one.





## NOTE FOR THE REPLACING OF MEMORY IC

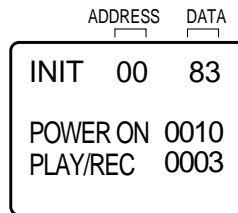
If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**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.**

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	5C	1E	07	81	EA	80	15	07	C4	81	1A	F1	67	6F	18	41
10	A6	05	63	65	66	41	1E	3B	2A	17	1D	1B	3A	0F	4B	20
20	77	63	64	65	64	0A	40	F5	76	A0	59	5F	05	F0	00	F0
30	5F	05	F0	05	F3	EF	90	6C	38	21	15	28	A0	C4	20	08
40	BF	10	1B	B5	C3	43	7D	8B	8B	0C	3A	60	47	03	06	15
50	20	22	24	26	28	2A	2C	2E	30	32	34	36	38	3A	3C	3E
60	40	42	44	46	49	4C	4F	52	55	58	5B	5E	61	64	67	6A
70	6D	70	73	76	79	7C	7F	82	85	88	8B	8E	91	94	97	9A
80	9D	A0	A5	AA	AF	B4	B9	BE	C3	C8	CD	D2	D9	E1	F0	FF

**Table 1**

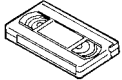
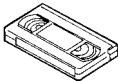
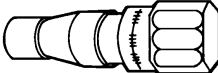
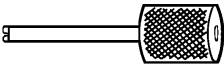
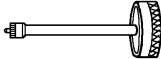
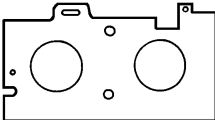
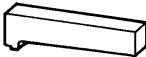
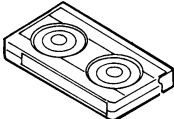
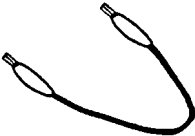
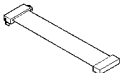
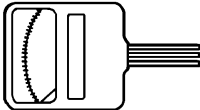
1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.



**Fig. 1**

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

## SERVICING FIXTURES AND TOOLS

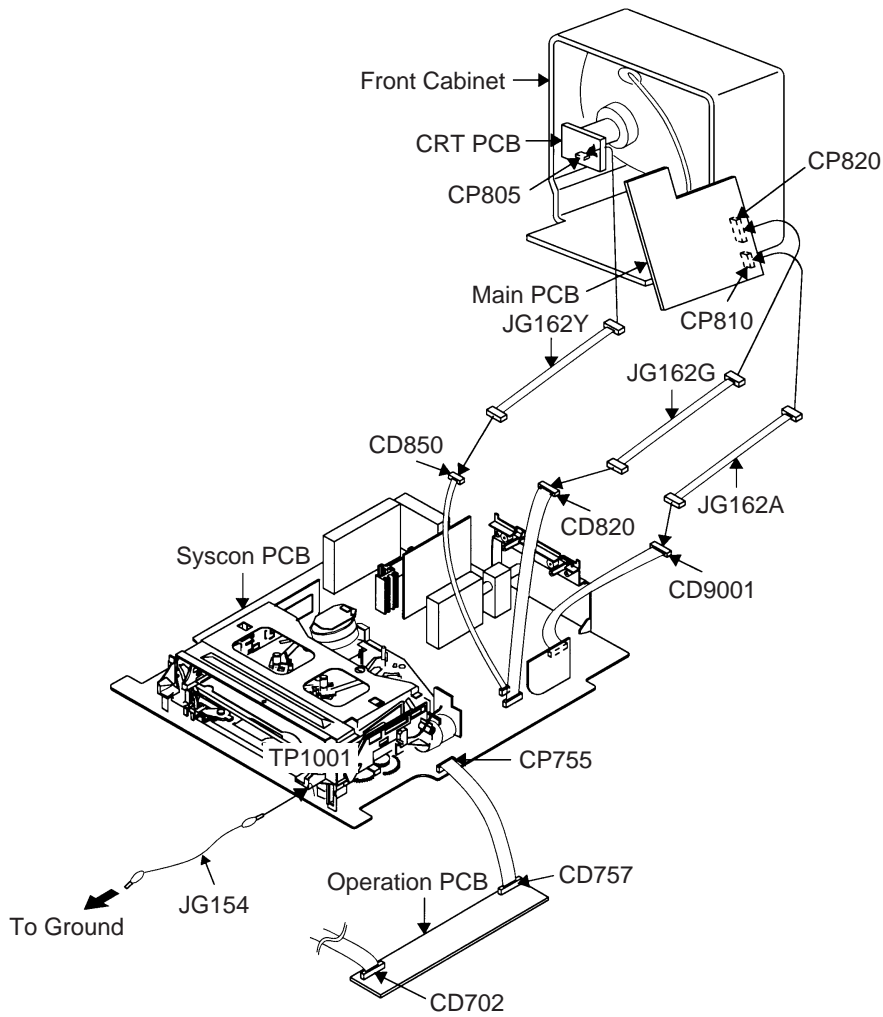
<p><b>(For 2 head 1 speed model, 4 head model)</b>  VHS Alignment Tape  JG001E (TTV-P2)  JG001F (TTV-P1L)  JG001U (VP<sub>1</sub> S-X6<sup>3</sup>)</p> 	<p><b>(For 2 head 2 speed model)</b>  VHS Alignment Tape  JG001C (TTV-P2)  JG001D (TTV-P1L)  JG001V (VP<sub>2</sub> S-X6<sup>3</sup>)</p> 	<p>JG002B Adapter  JG002E Dial Torque Gauge  (10~90gf•cm)  JG002F (60~600gf•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>JG024A Reel Disk Height Adjustment Jig</p> 	<p>JG100A Torque Tape (VHT-063)</p> 
<p>JG154 Cable  Parts No. SJ-G15-400-000</p> 	<p>JG162A Cable (8 Pins)  Parts No. SJ-G16-2A0-000  JG162G Cable (14 Pins)  Parts No. SJ-G16-2G0-000  JG162Y Cable (5 Pins)  Parts No. SJ-G16-2Y0-000</p> 	<p>Tentelometer</p> 	

Part No.	Remarks
JG001E	Stair Steps, 7KHz <b>(For 2 head 1 speed model, 4 head model)</b>
JG001F	Color Bar, 1KHz <b>(For 2 head 1 speed model, 4 head model)</b>
JG001U	X Value Adjustment <b>(For 2 head 1 speed model, 4 head model)</b>
JG001C	Stair Steps, 7KHz <b>(For 2 head 2 speed model)</b>
JG001D	Color Bar, 1KHz <b>(For 2 head 2 speed model)</b>
JG001V	X Value Adjustment <b>(For 2 head 2 speed model)</b>
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG005	Guide Roller Adjustment
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
JG154	Used to connect the test point of SERVICE and GROUND
JG162A	Used to connect the Sub Power PCB and Main PCB
JG162G	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

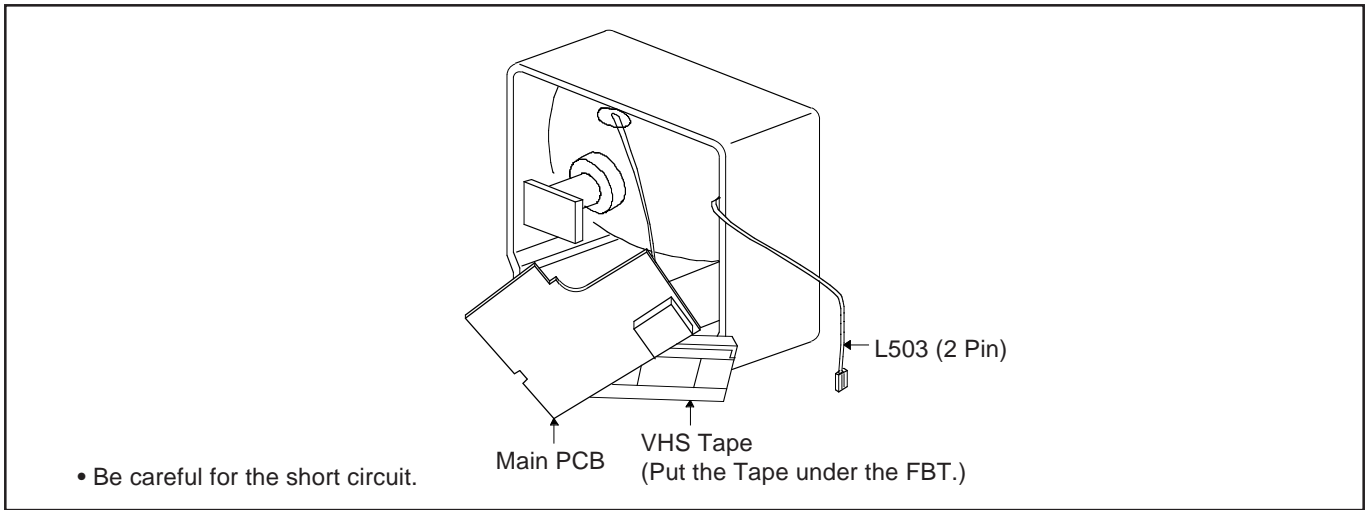
1. Unplug the connector CP353, CP755 and CP4202 then remove the TV/VCR Block from the set.
2. Unplug the connector CP810, CP820 and CP805, then remove the Main PCB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
  - Connect the Sub Power PCB and Main PCB with the cable JG162A.
  - Connect the Syscon PCB to the Main PCB with the cable JG162G.
  - Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
4. Remove the Operation PCB from the set, then connect it with the Syscon PCB.  
If necessary, connect CD702. (Front A/V Jack Input Terminal)
5. 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.
6. At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.



## PREPARATION FOR SERVICING

### Servicing Position for Main PCB (In case of needing to check on Main PCB)

- It's possible to get the Servicing Position without the extension Jig if you arrange the unit as shown below.  
(But L503 connection can not be done, Degauss circuit will not operate.)



## 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.

# MECHANICAL ADJUSTMENTS

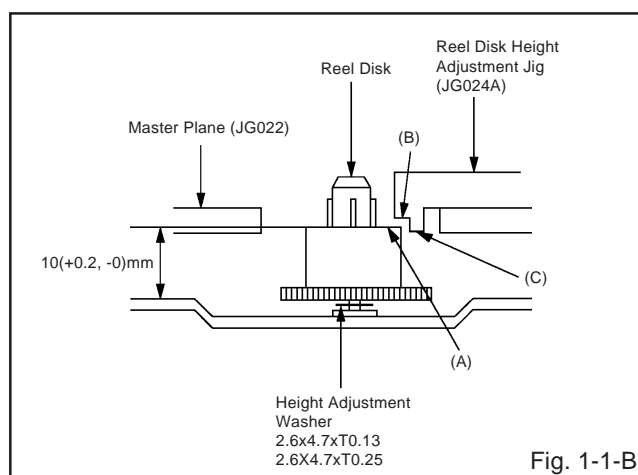
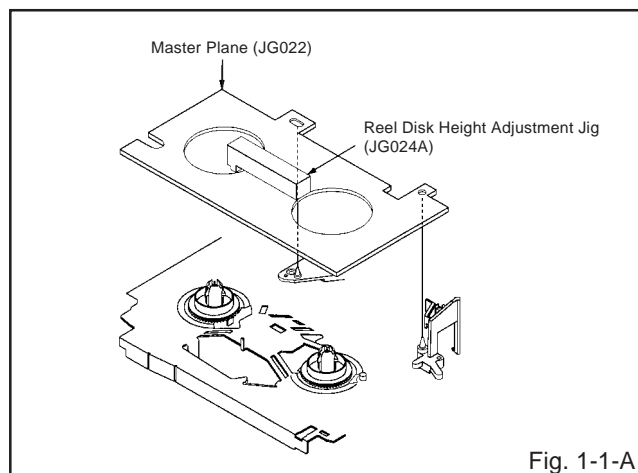
## 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

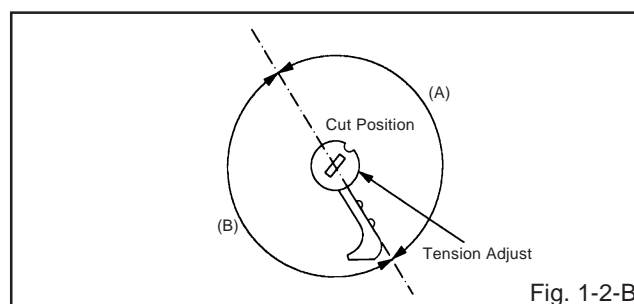
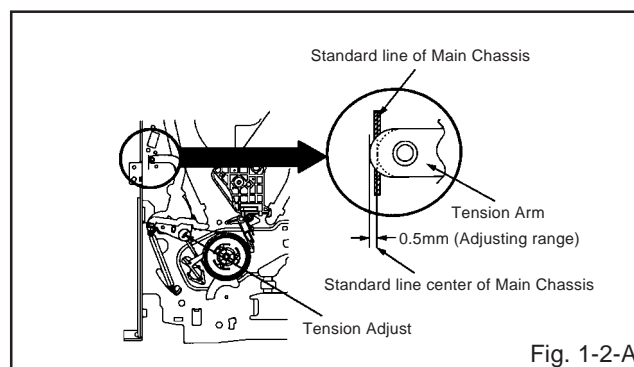
### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig (**JG024A**), and is higher than "C". If it is not enough height, adjust to  $10(+0.2, -0)$  mm with the height adjustment washer.
4. Adjust the other reel in the same way.



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

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis. After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

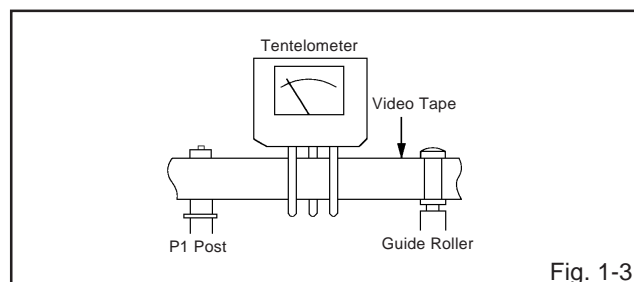


### 1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates  $20 \pm 2$ gf in the beginning of playback.

#### • USING A CASSETTE TYPE TORQUE TAPE (**JG100A**)

1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (**JG100A**) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates  $60 \sim 110$ gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates  $25 \sim 40$ gf•cm during playback in SP mode.



## MECHANICAL ADJUSTMENTS

### 1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Rewind mode. (Refer to Fig.1-4)
3. Then, confirm that it indicates 120~180gf•cm.

#### NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

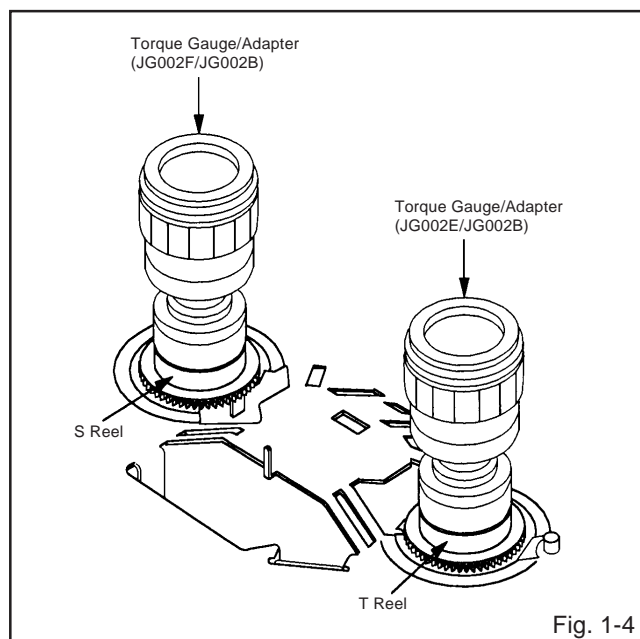
### 1-5: CONFIRMATION OF REEL BRAKE TORQUE

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

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Turn the Torque Gauge (JG002F) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

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

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (JG002E) and Adapter (JG002B) on the T reel. Turn the Torque Gauge (JG002E) counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.



#### NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

## 2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

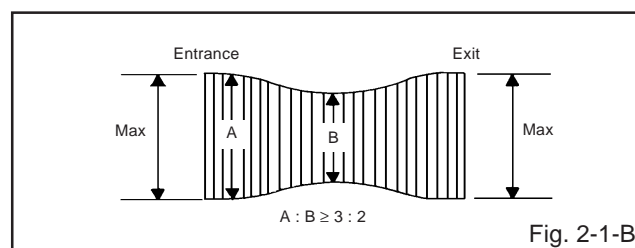
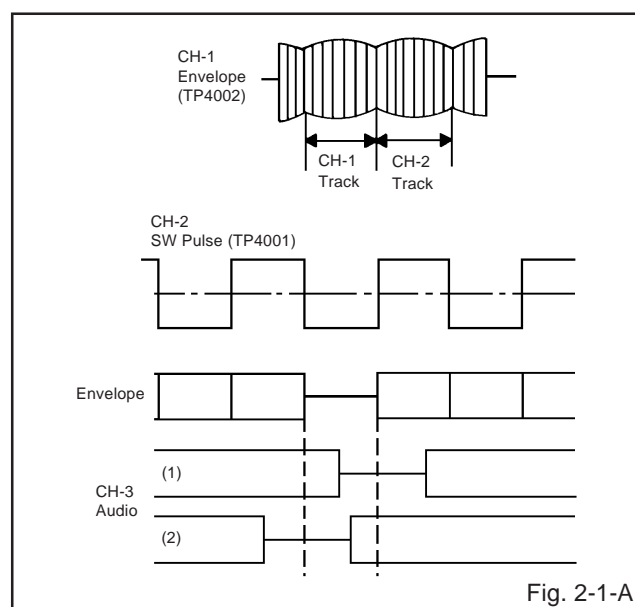
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

### 2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP4002 (Envelope) and CH-2 to TP4001 (SW Pulse).
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

#### NOTE

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

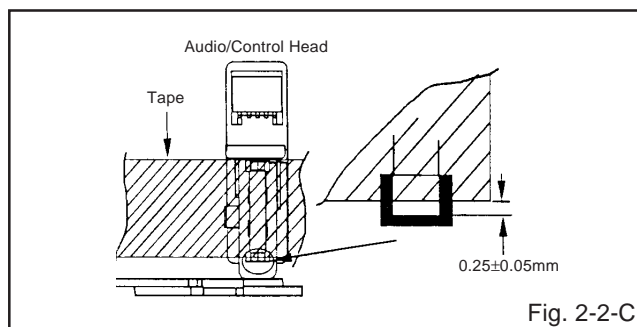
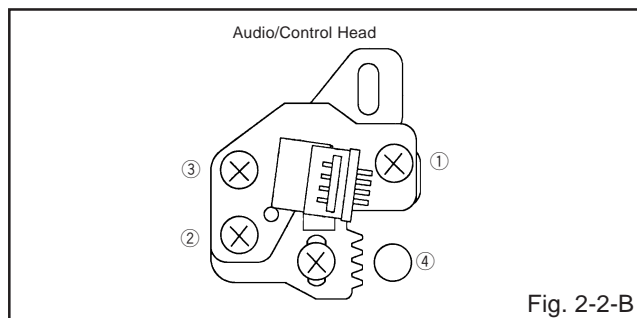
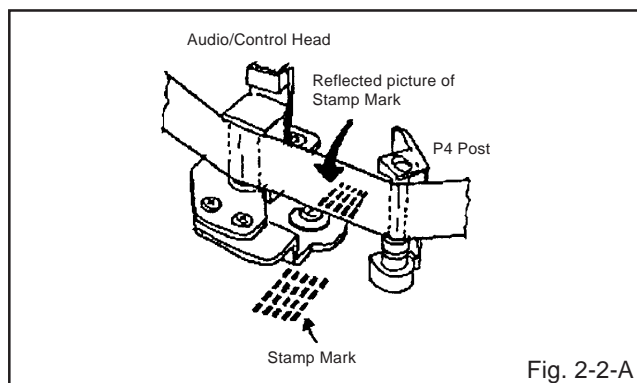


## MECHANICAL ADJUSTMENTS

### 2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (**JG001C** or **JG001E**).  
(Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
  - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
  - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
  - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.



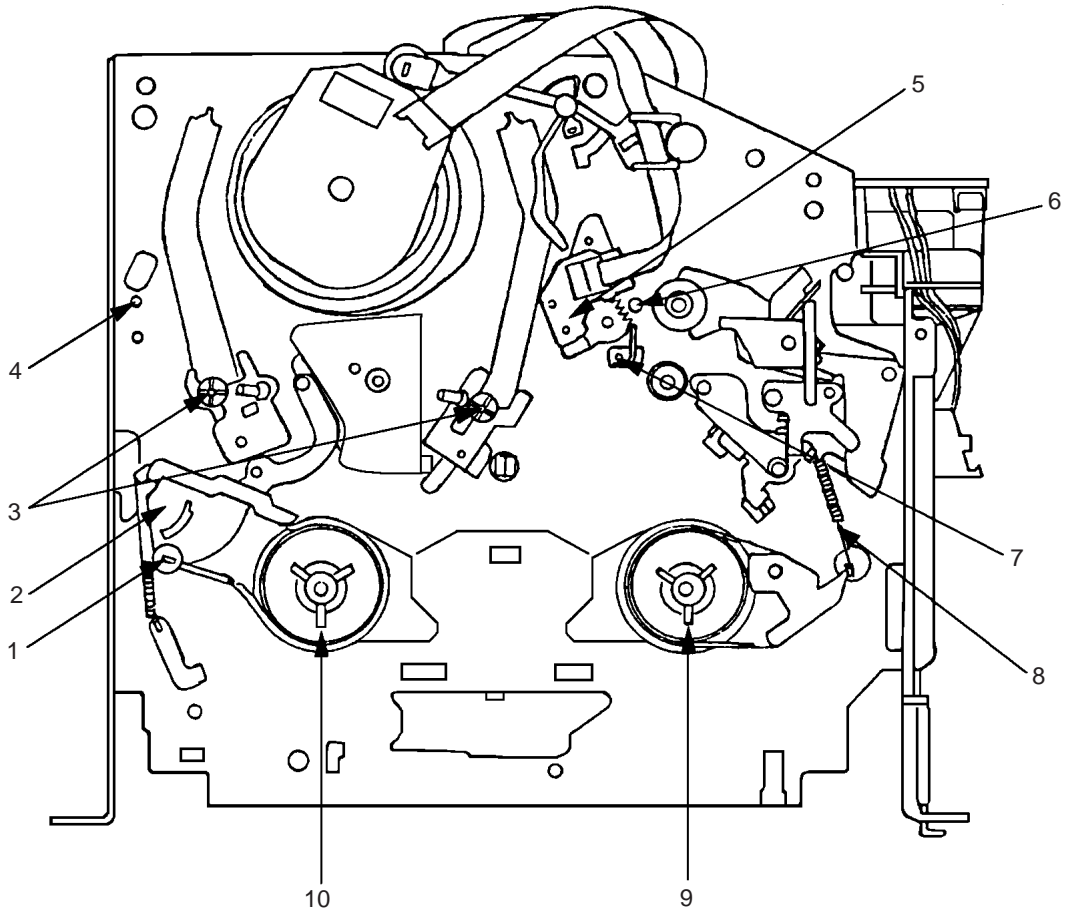
### 2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk.  
(Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post.  
(Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head.  
(Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (**JG001U** or **JG001V**).  
(Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.



# MECHANICAL ADJUSTMENTS

## 3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- |                       |                                   |
|-----------------------|-----------------------------------|
| 1. Tension Adjust     | 6. X value adjustment driver hole |
| 2. Tension Arm        | 7. P4 Post                        |
| 3. Guide Roller       | 8. T Brake Spring                 |
| 4. P1 Post            | 9. T Reel                         |
| 5. Audio/Control Head | 10. S Reel                        |

# ELECTRICAL ADJUSTMENTS

## 1. 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 only specified silicon grease (**G746**).  
(To prevent the damage to IC's and transistors.)

### On-Screen Display Adjustment

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 **C1003** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button (**9**) on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

### NOTE

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

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

"The adjustment item 3 is not used for this model."

Fig. 1-1

## 2. BASIC ADJUSTMENTS (VCR SECTION)

### 2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **TP4501**.
2. Playback the alignment tape. (**JG001D**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. 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:)

5. Press the VOL. DOWN button on the set and the channel button (**3**) on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button 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 Head Switching Pulse becomes  $6.5 \pm 0.5H$ .  
(Refer to **Fig. 2-1-A, B**)
7. Stop the alignment tape.

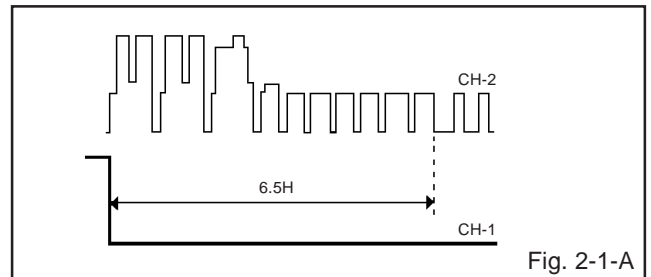


Fig. 2-1-A

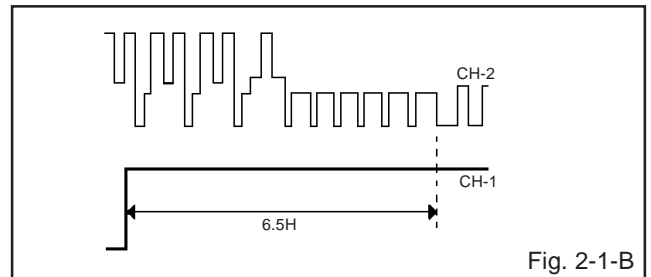


Fig. 2-1-B

### 2-2: VCO

#### (REC TUNER)

1. Place the set with Aging Test for more than 10 minutes.
2. Connect the oscillator (39.5MHz) to **TP1002**.
3. Connect the digital voltmeter between the **pin 8 of CP603** and the **pin 1 (GND) of CP603**.
4. Adjust the **L6006** until the digital voltmeter is  $2.4 \pm 0.1V$ .

#### (MONITOR TUNER)

1. Connect the oscillator (39.5MHz) to **TUNER IF PIN**.
2. Connect the digital voltmeter between the **pin 47 of IC601** and the **GND**.
3. Adjust the **L608** until the digital voltmeter is  $3.8 \pm 0.1V$ .

### 2-3: RF AGC DELAY

#### (MONITOR TUNER)

1. Receive the UHF (80dB).
2. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**5**) on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button (**1**) on the remote control to select "RF AGC DELAY".
5. Press the PLAY or STOP button on the remote control until the digital voltmeter is  $1.7 \pm 0.1V$ .

#### (REC TUNER)

1. Receive the UHF (80dB).
2. Connect the digital voltmeter between the **pin 7 of CP603** and the **pin 1 (GND) of CP603**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**5**) on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button (**7**) on the remote control to select "REC AGC DELAY".
5. Press the PLAY or STOP button on the remote control until the digital voltmeter is  $1.7 \pm 0.1V$ .

# ELECTRICAL ADJUSTMENTS

1. RF AGC DELAY
2. VIDEO LEVEL
3. FM LEVEL
4. OSD H
5. CUT OFF
6. (VOL TEST)
7. REC AGC DELAY
8. 0. RETURN

"The adjustment items 6 and 8 is not used for this model."

Fig. 2-2

## 2-4: 21 PIN AUDIO OUT

1. Receive the color bar pattern.
2. Connect the AC voltmeter to **pin3 of J4501**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(3)** on the remote control to select "FM LEVEL".
5. Press the PLAY or STOP button on the remote control until the AC voltmeter is  $550 \pm 2.5\text{dbm}$ .

## 2-5: 21 PIN VIDEO OUT

1. Receive the color bar pattern.
2. Connect the synchro scope to **TP4501**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(2)** on the remote control to select "VIDEO LEVEL".
5. Press the PLAY or STOP button on the remote control until the synchro scope is  $1.0 \pm 0.15\text{V}$ .

## (TV SECTION)

### 2-6: CONSTANT VOLTAGE

1. Using the remote control, set the brightness and contrast to normal position.
2. Connect the digital voltmeter to **TP401**.
3. Set condition is AV MODE without signal.
4. Adjust the **VR502** until the digital voltmeter is  $110 \pm 0.5\text{V}$ .

### 2-7: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
5. Press the channel button **(5)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

### 2-8: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(2)** on the remote control to select "AKB". The **Fig. 2-3** appears on the display.
5. Press the channel button **(2)** on the remote control to select the "R.BIAS".
6. Using the PLAY or STOP button on the remote control, adjust the R.BIAS.
7. Press the CH. UP/DOWN button on the remote control to select the "G.BIAS", "B.BIAS", "R.DRIVE", "G.DRIVE" or "B.DRIVE".
8. Using the PLAY or STOP button on the remote control, adjust the G.BIAS, B.BIAS, R.DRIVE or B.DRIVE.
9. Perform the above adjustments 7 and 8 until the white color is looked like a white.

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

"The adjustment items 1 and 8 is not used for this model."

Fig. 2-3

### 2-9: FOCUS

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

### 2-10: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(1)** on the remote control to select "H.PHASE".
5. Press the PLAY or STOP button on the remote control until the right and left screen size of the vertical line becomes the same.

1. H.PHASE
2. H.BLK
3. V.SIZE 50/60
4. V.POSI 50/60
5. V.LIN 50/60
6. V.SC 50/60
7. V.COMP
8. (H. FREQ) 0. RETURN

"The adjustment item 8 is not used for this model."

Fig. 2-4

# ELECTRICAL ADJUSTMENTS

## 2-11: HORIZONTAL SIZE

**NOTE:** Adjust after performing adjustments in section 2-10.

Measurement Equipment Maker: SHIBASOKU Co. Limited  
Measurement Equipment Model No.: DIGITAL TEST PATTERN  
GENERATOR 588

1. Receive the monoscope pattern.
2. Adjust the **VR401** until the SHIFT quantity of the OVER SCAN on right and left becomes  $8 \pm 2\%$ .

(Simple Adjustments)

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(6)** on the remote control to select "TEST PATTERN". The **Fig. 2-5** appears on the display.
2. Press the channel button **(6)** on the remote control to select "CROSS (60)".
3. Adjust the **VR401** until the right vertical line of the pattern becomes fit to the right end.

1. EXTERNAL
2. BLACK
3. WHITE (100)
4. WHITE (60)
5. CROSS (100)
6. CROSS (60)
- 7.
8. 0. RETURN

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

Fig. 2-5

## 2-12: VERTICAL LINEARITY

**NOTE:** Adjust after performing adjustments in section 2-11.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(5)** on the remote control to select "V. LIN 50/60".
5. Check if the step No. of VERTICAL POSITION is "31".
6. Adjust the **VR404** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.
7. Receive the cross hatch signal of NTSC. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
10. Press the channel button **(5)** on the remote control to select "V. LIN 50/60".
11. Press the PLAY or STOP button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

## 2-13: VERTICAL POSITION

**NOTE:** Adjust after performing adjustments in section 2-12.

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control to select "V. POSI 50/60".
5. Check if the step No. of VERTICAL POSITION is "63".
6. Adjust the **VR403** until the horizontal line becomes fit to the notch of the shadow mask.
7. Receive the center cross signal of NTSC. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

## 2-14: VERTICAL SIZE

**NOTE:** Adjust after performing adjustments in section 2-13.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(3)** on the remote control to select "V. SIZE 50/60".
5. Press the PLAY or STOP button on the remote control until the rectangle on the center of the screen becomes square.
6. Receive a broadcast and check if the picture is normal.
7. Receive the cross hatch signal of NTSC. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

## 2-15: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
3. Press the channel button **(4)** on the remote control to select "OSD H".
4. Press the PLAY or STOP button on the remote control until the difference of A and B becomes minimum.  
**(Refer to Fig. 2-6)**

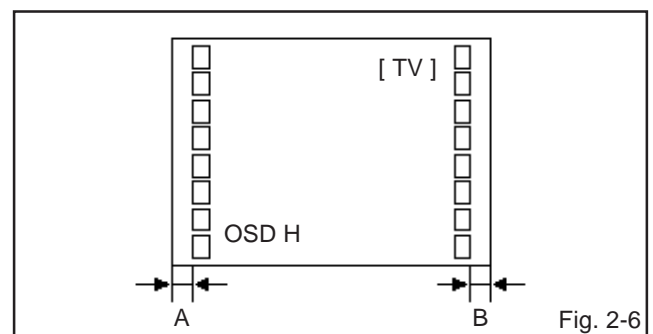


Fig. 2-6



# ELECTRICAL ADJUSTMENTS

## 2-21: V. S-CORRECTION (V. SC)

1. Receive the color bar pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
3. Press the channel button **(6)** on the remote control to select "V. SC 50/60".
4. Check if the step No. of V. SC is "0".
5. Receive the color bar pattern of NTSC. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

## 2-22: PIN CUSHION (PCC)

1. Receive the color bar pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR402** until the right and left vertical line becomes straight.

## 2-23: H. BLK

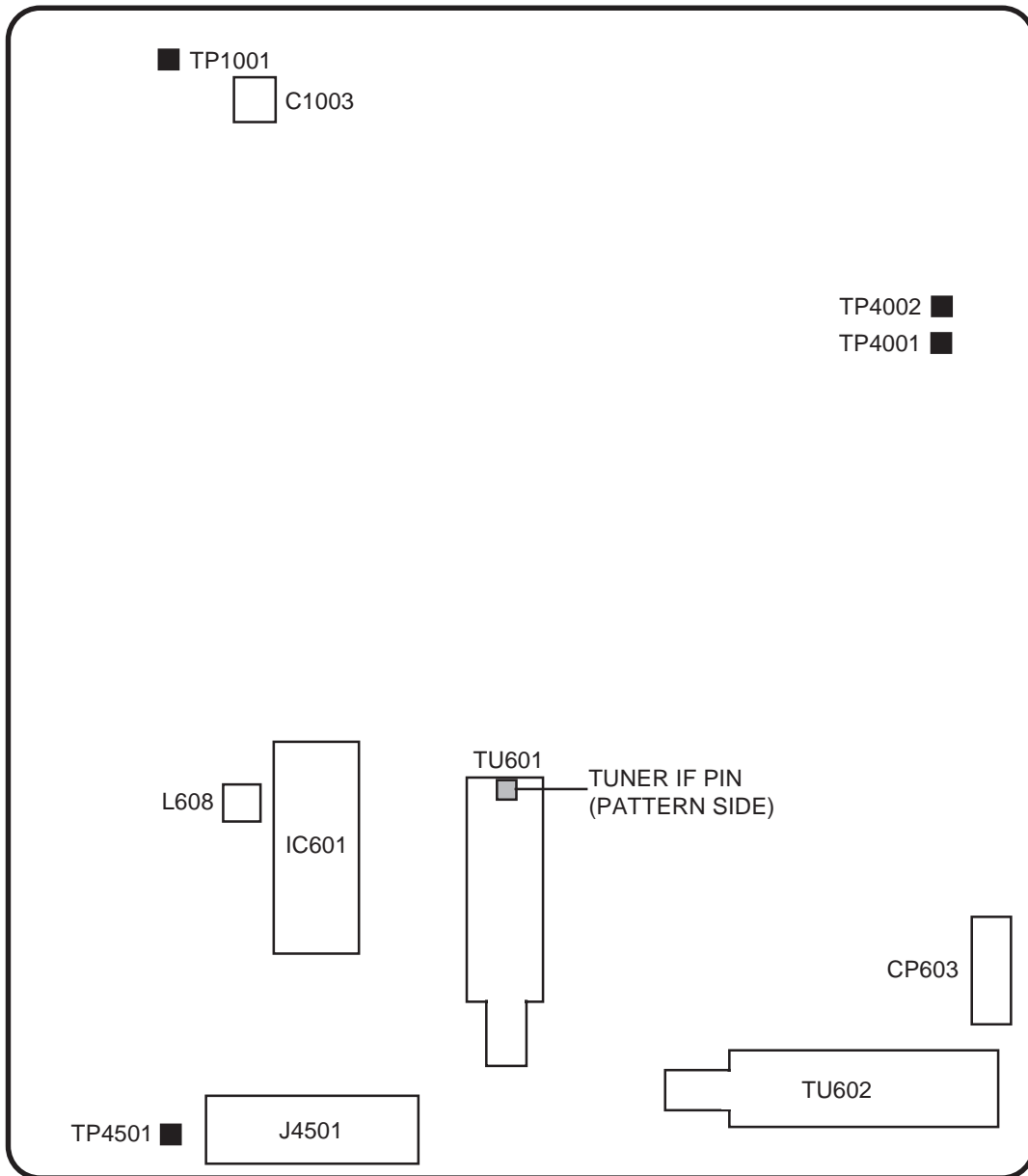
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
2. Press the channel button **(2)** on the remote control to select "H.BLK".
3. Switch the R/L by using the ENTER button on the remote control and check if the H. BLK step No. becomes "R2, L4".

## 2-24: V. COMP

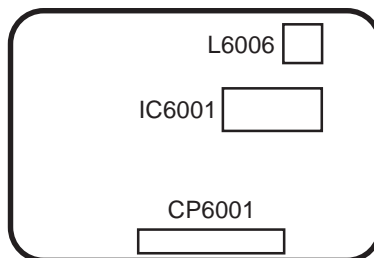
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
2. Press the channel button **(7)** on the remote control to select "V.COMP".
3. Check if the step No. of V. COMP is "7".

# ELECTRICAL ADJUSTMENTS

## 3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



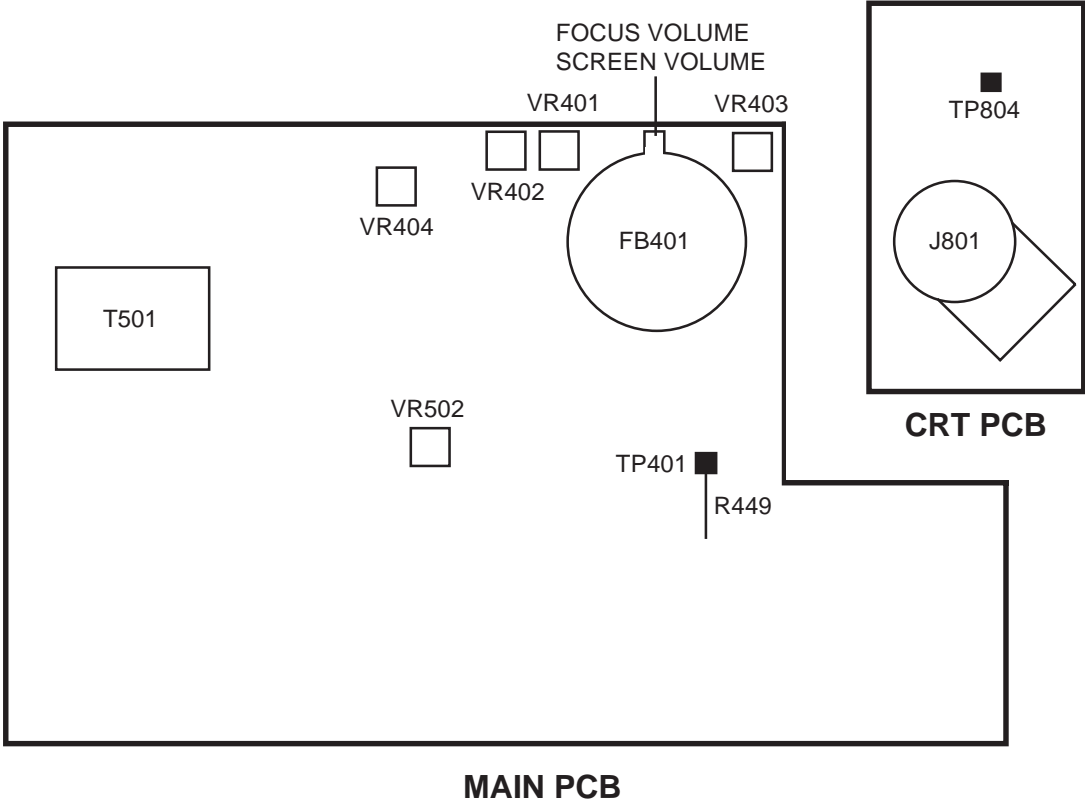
**SYSCON PCB**



**IF PCB**

# ELECTRICAL ADJUSTMENTS

(TV SECTION)





# ELECTRICAL ADJUSTMENTS

## 4. 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.

### 4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**  
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.

### 4-2: PURITY

### NOTE

Adjust after performing adjustments in section 4-1.

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

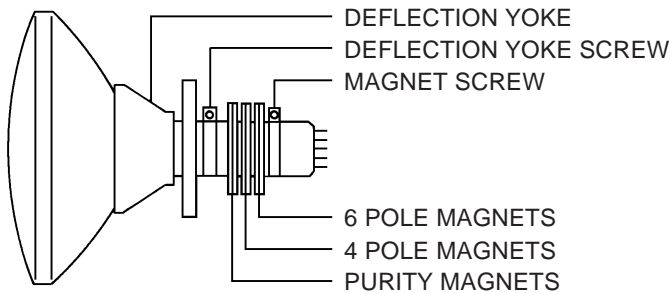


Fig. 4-1

### 4-3: STATIC CONVERGENCE

### NOTE

Adjust after performing adjustments in section 4-2.

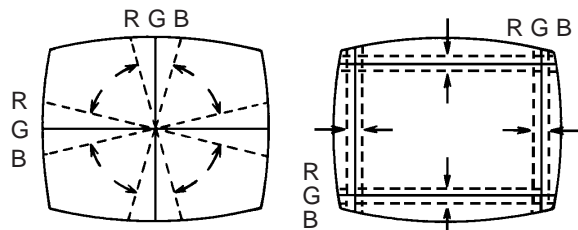
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 4-4: DYNAMIC CONVERGENCE

### NOTE

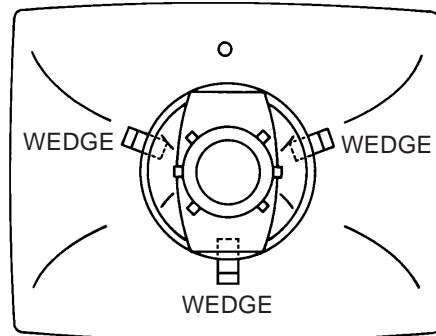
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT    RIGHT/LEFT SLANT

Fig. 4-2-a

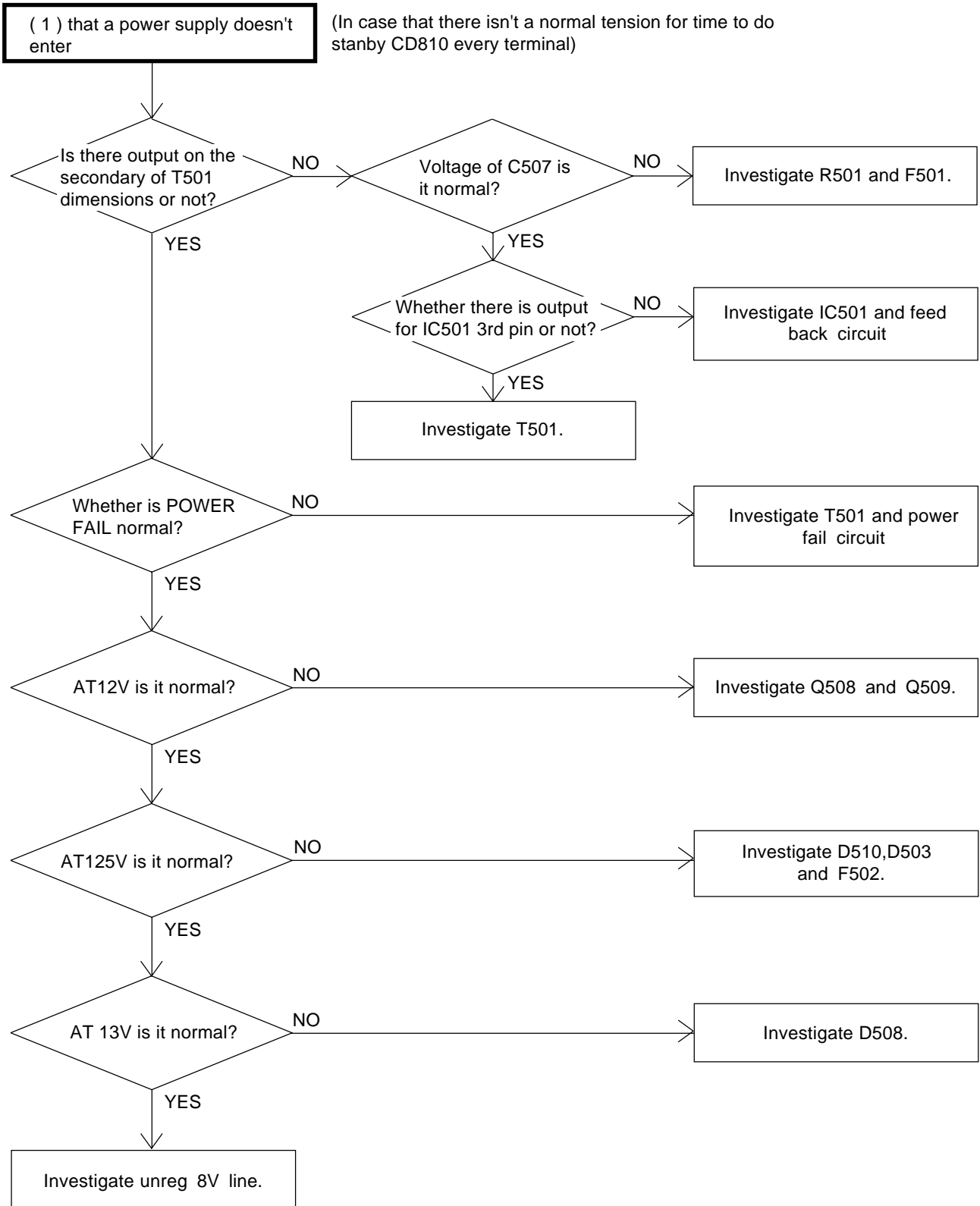


WEDGE POSITION

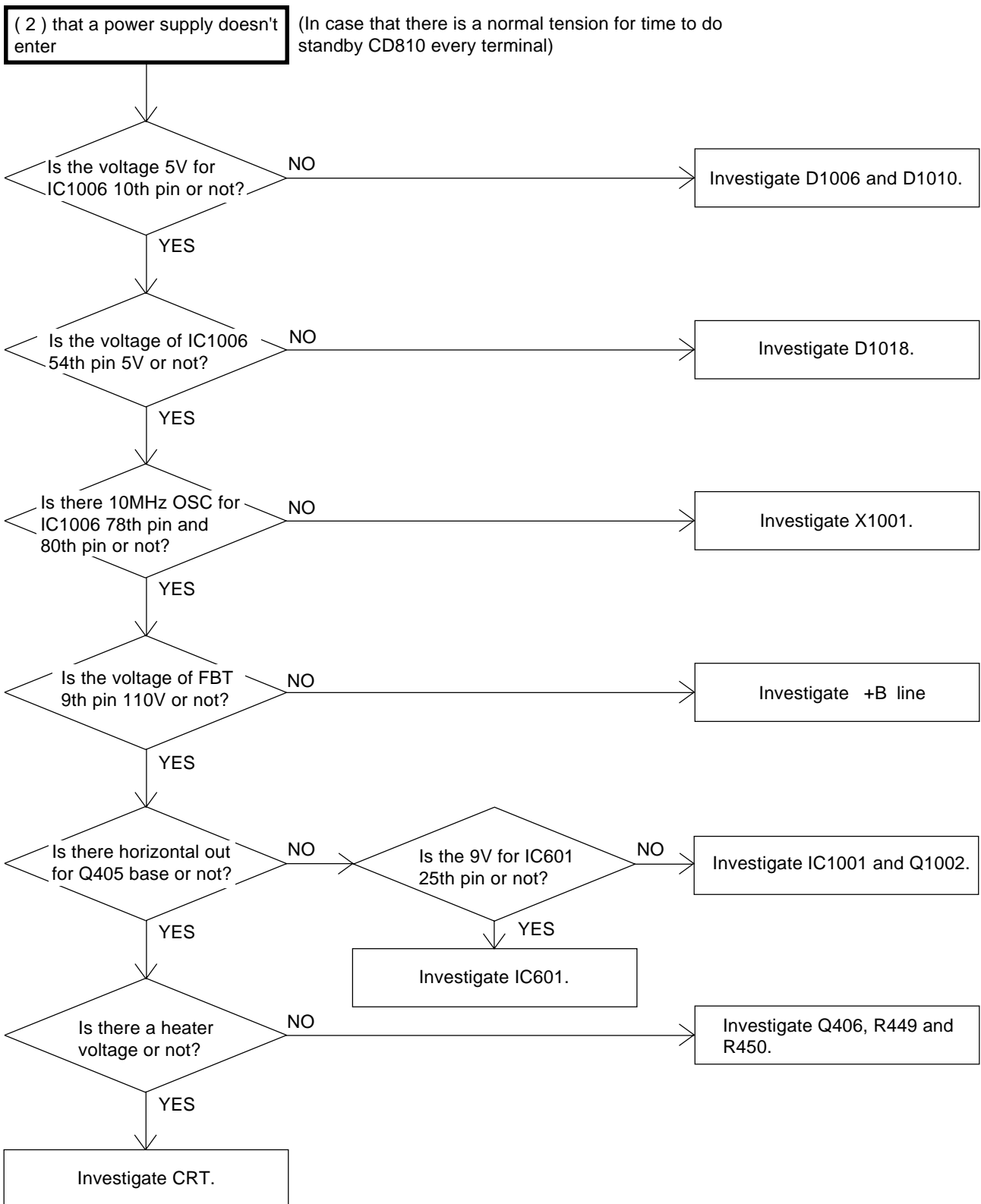
Fig. 4-2-b

# TROUBLESHOOTING GUIDE

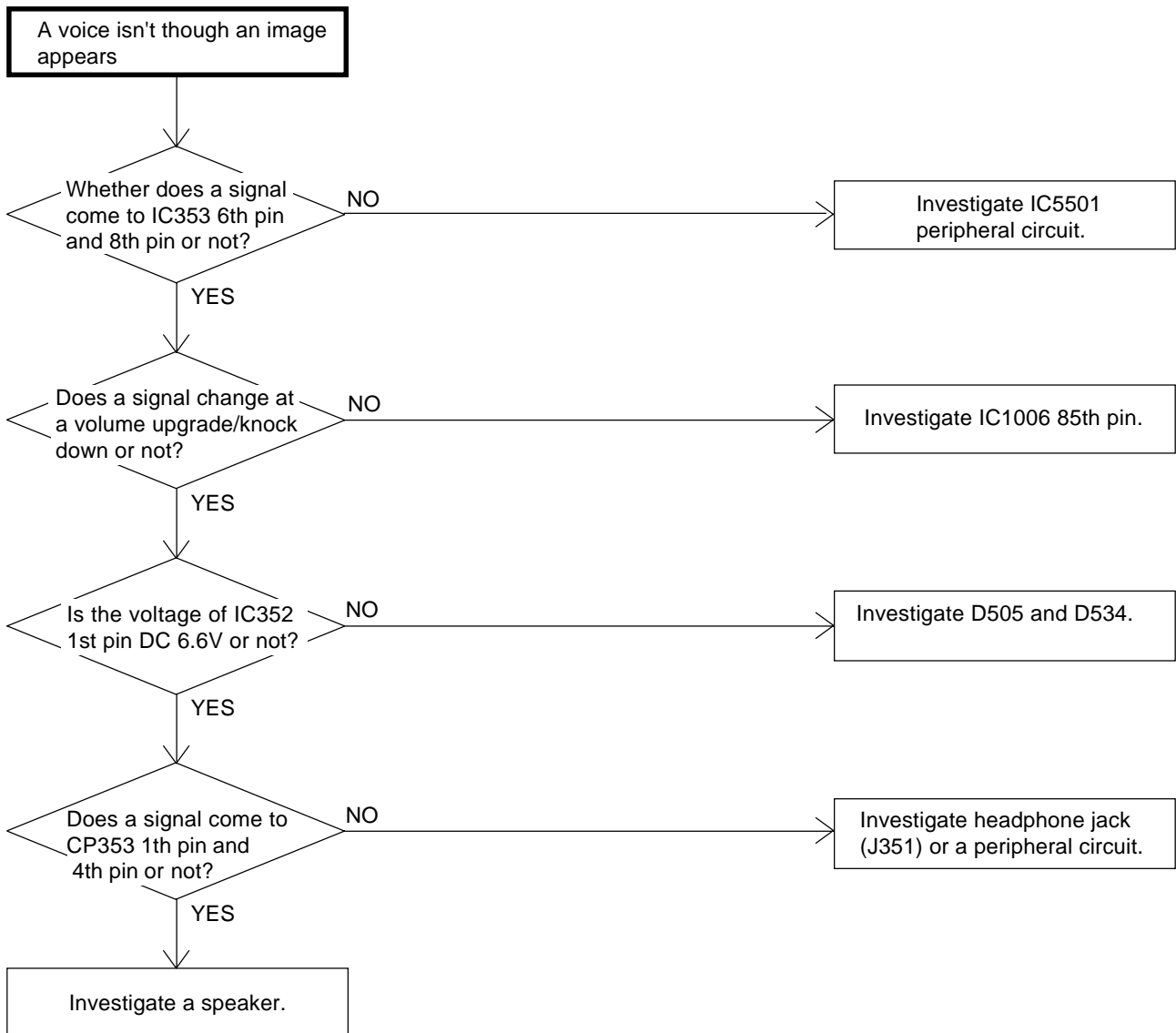
## (TV SECTION)



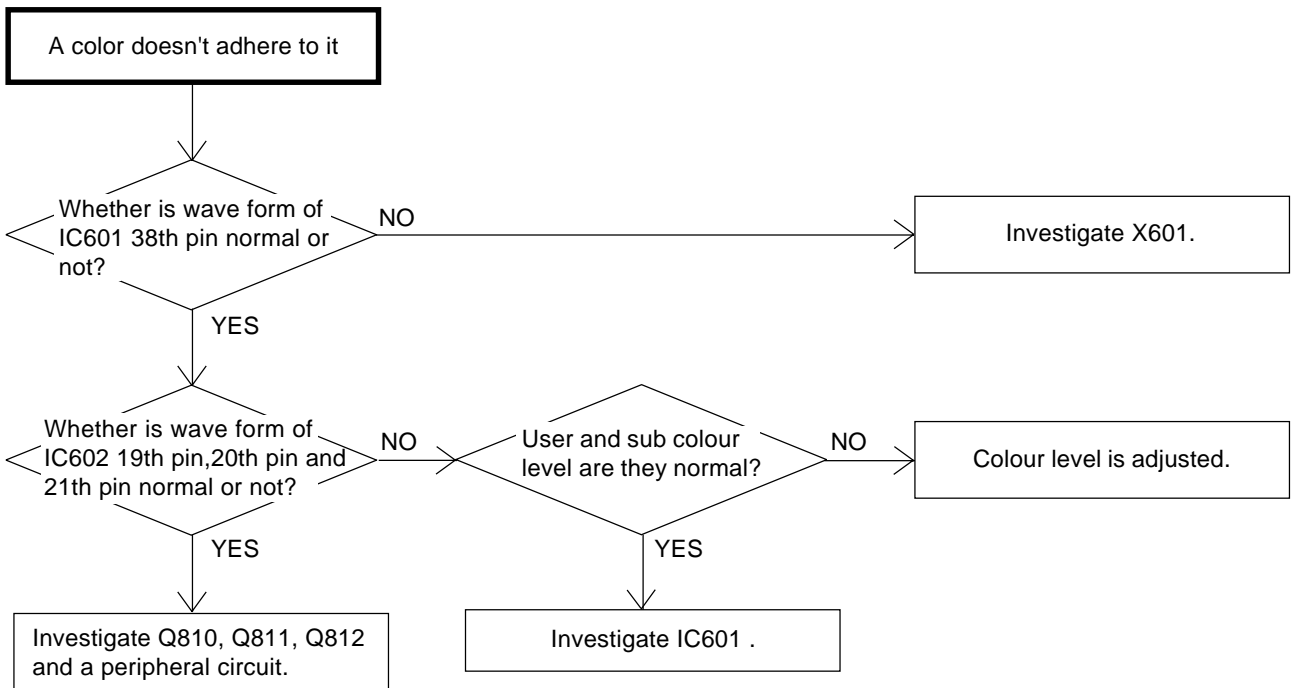
## TROUBLESHOOTING GUIDE



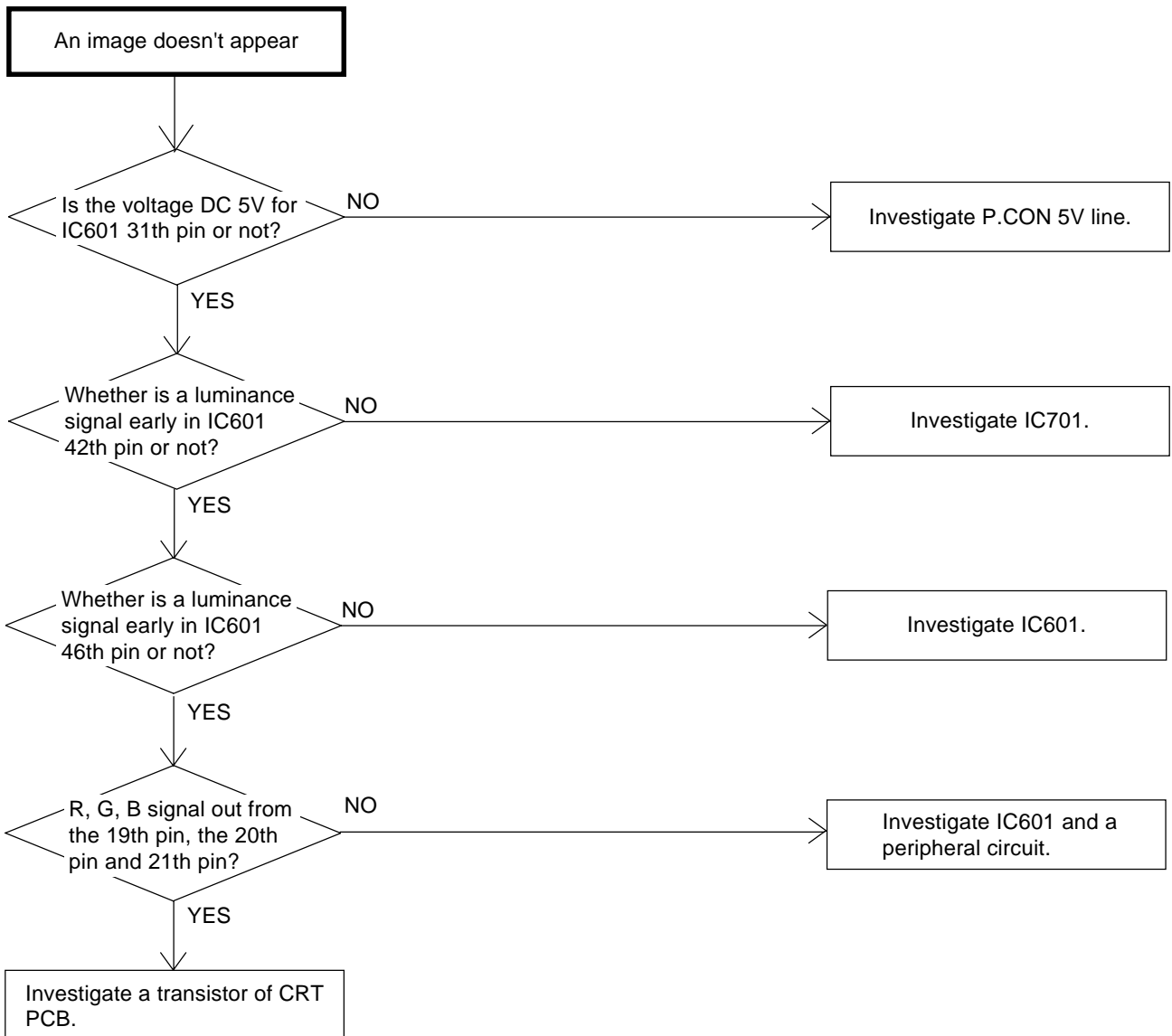
## TROUBLESHOOTING GUIDE



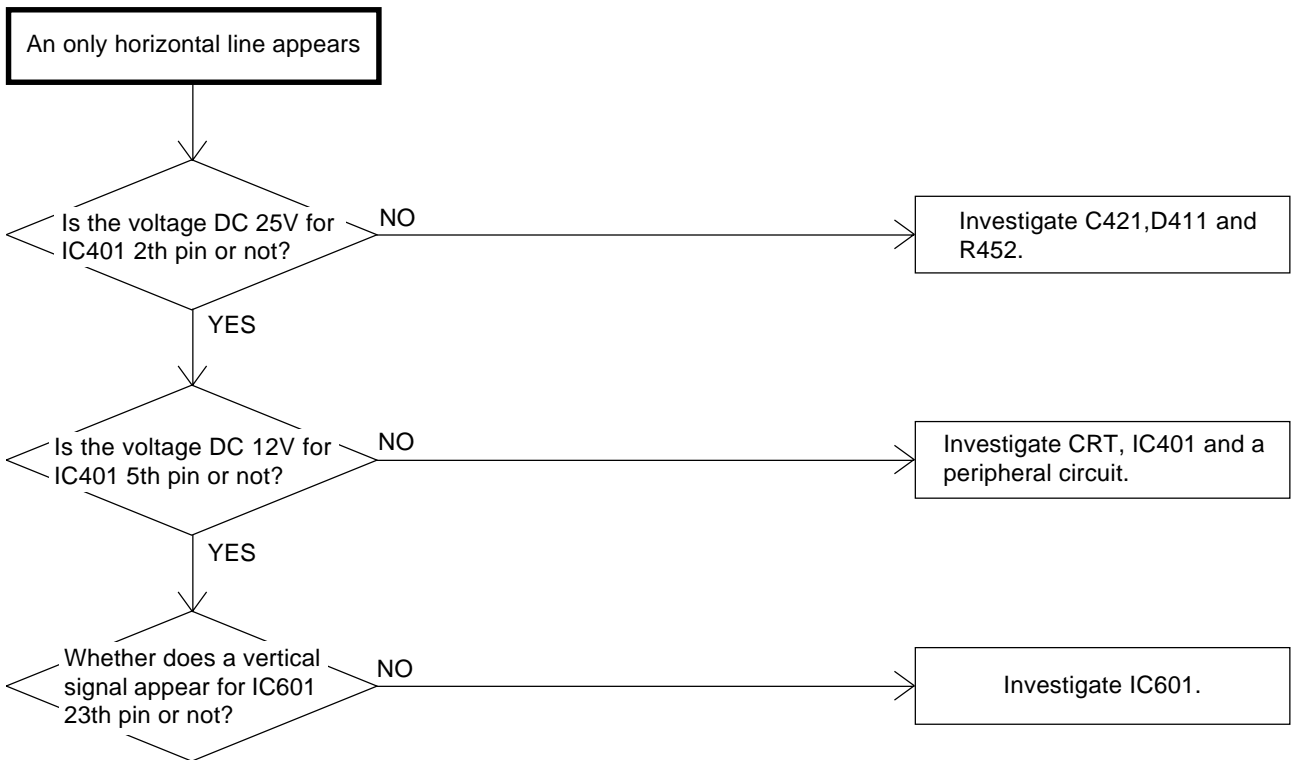
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

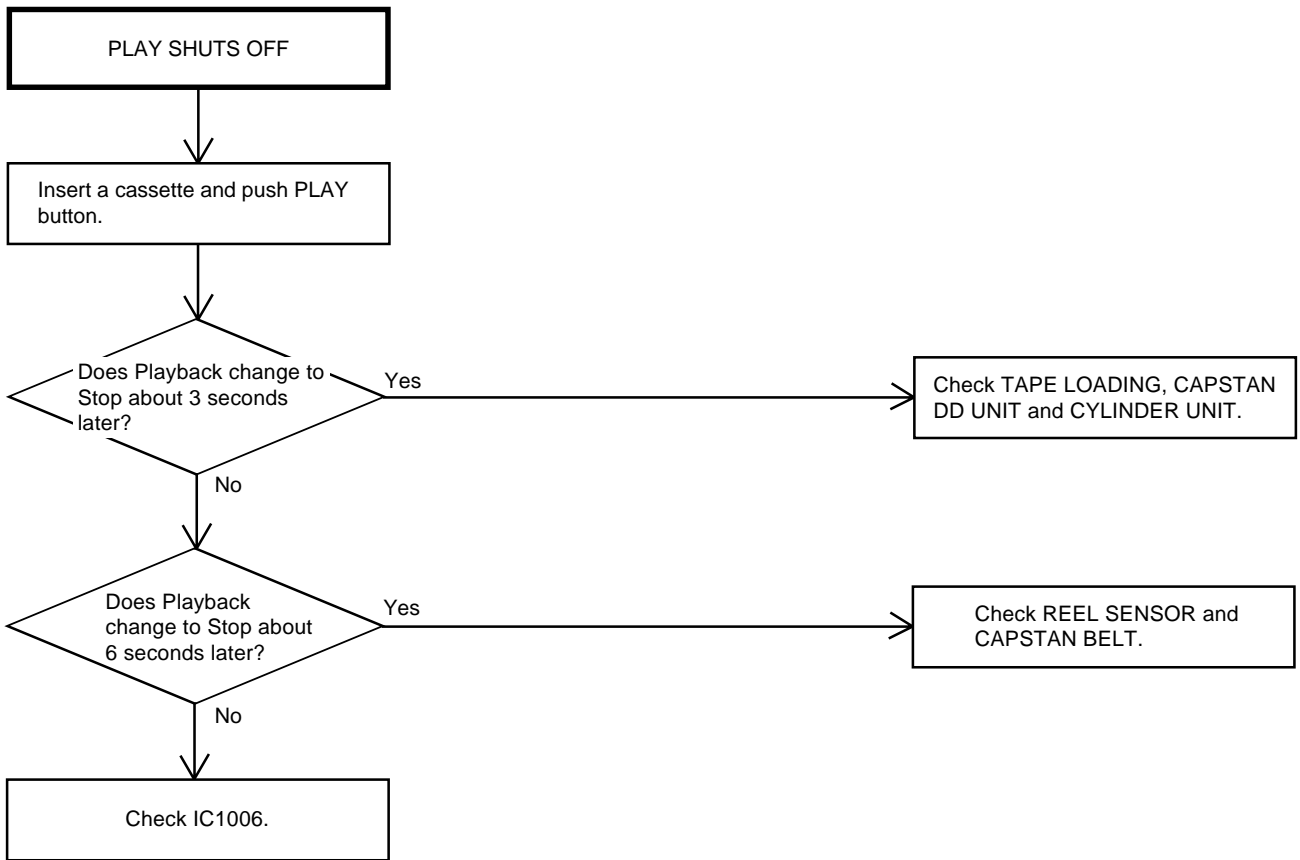


## TROUBLESHOOTING GUIDE



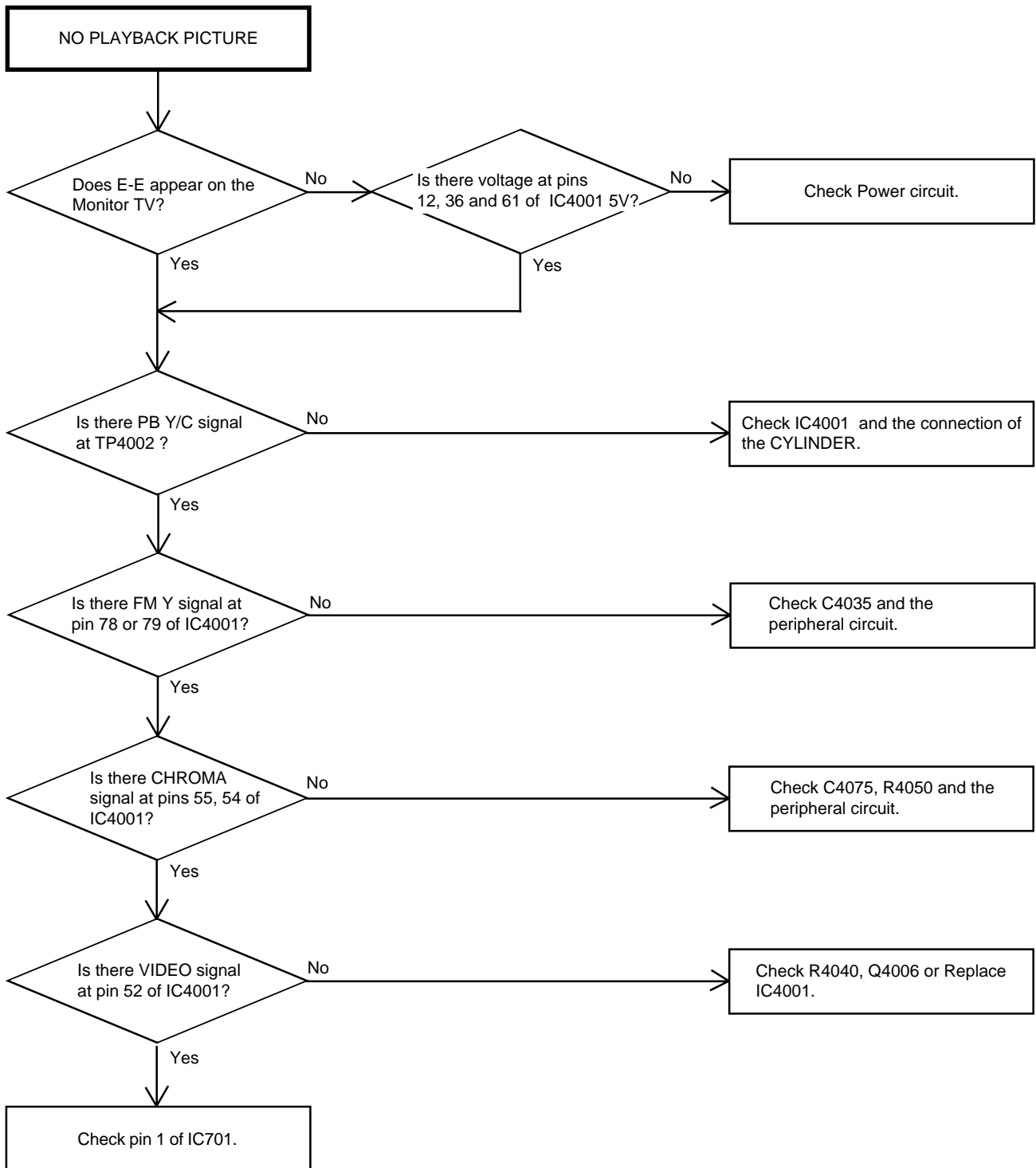
# TROUBLESHOOTING GUIDE

## (VCR SECTION)

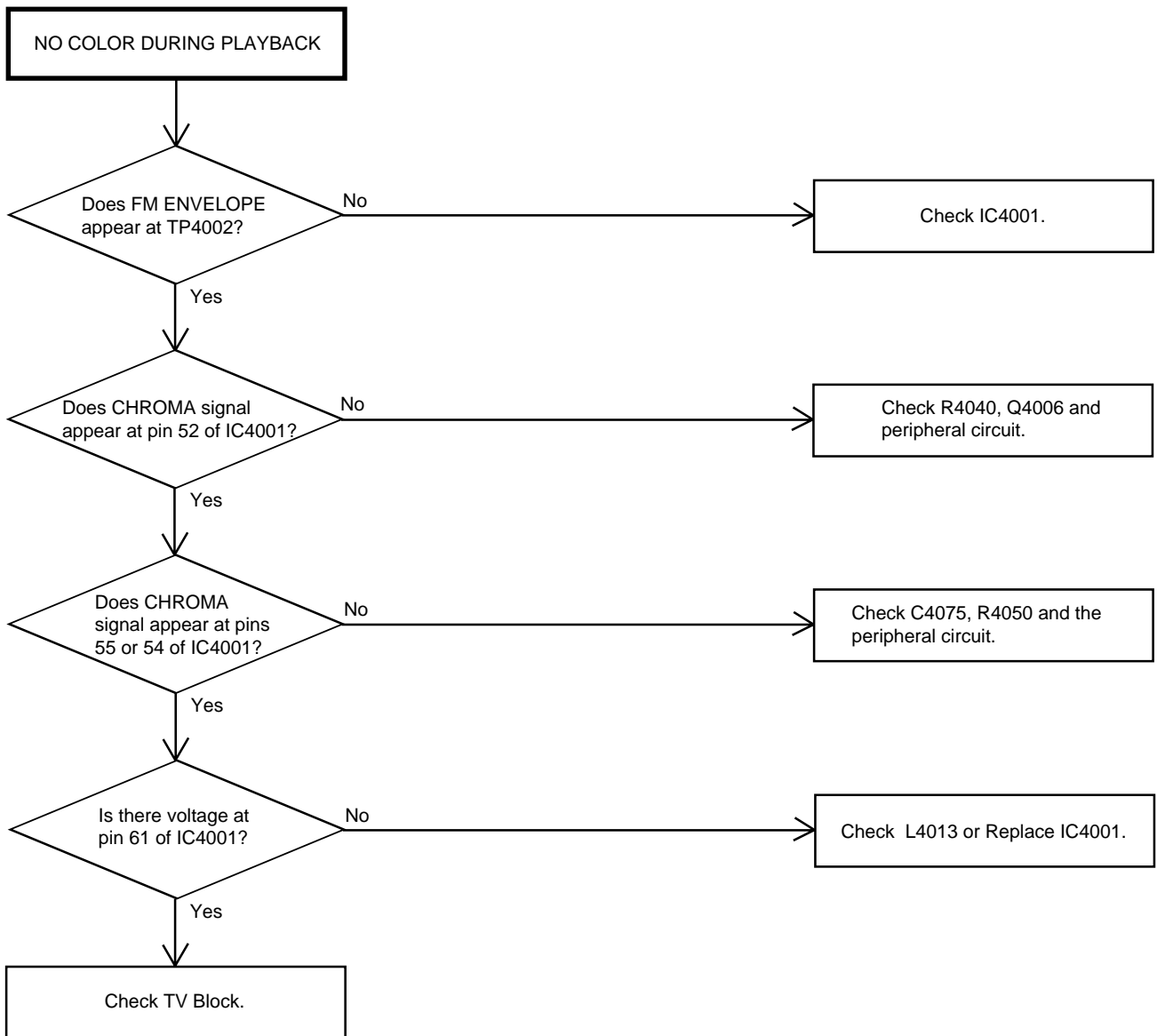




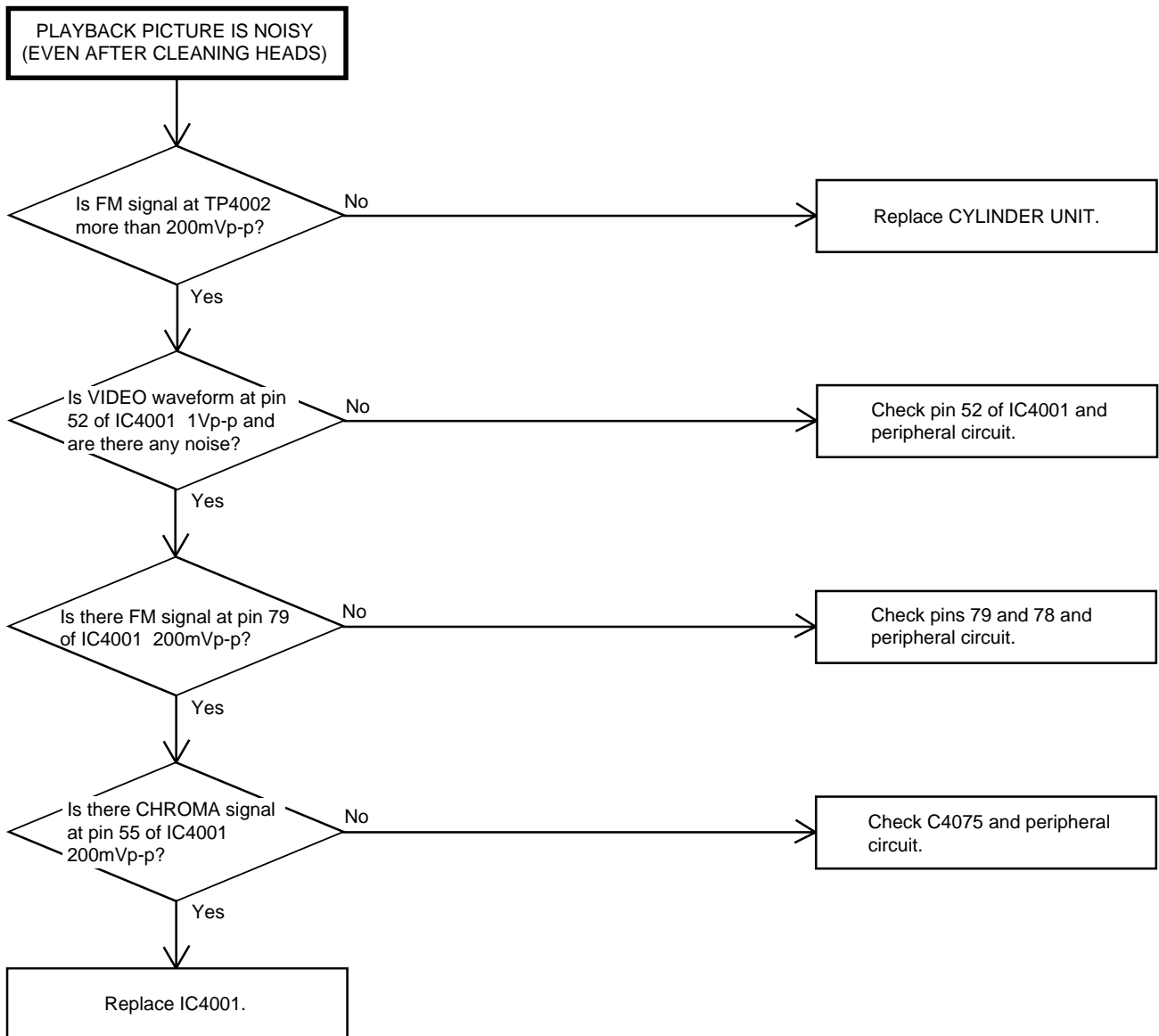
# TROUBLESHOOTING GUIDE



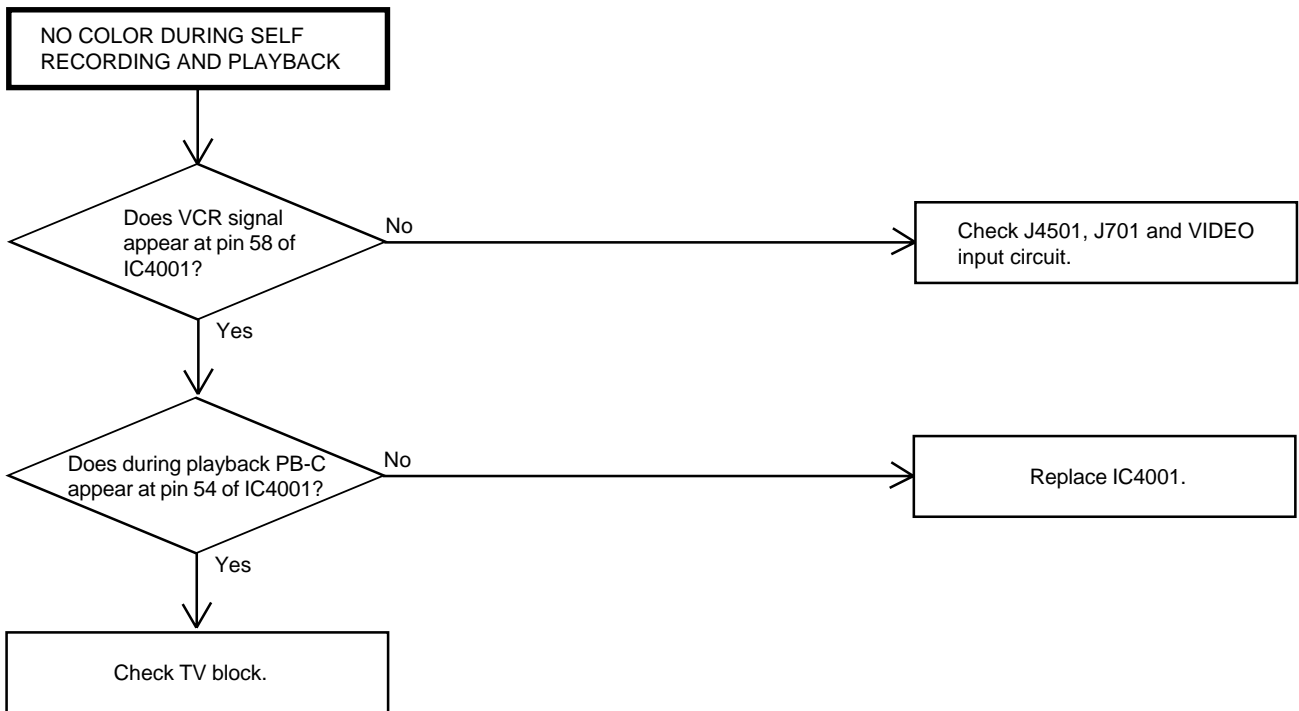
# TROUBLESHOOTING GUIDE



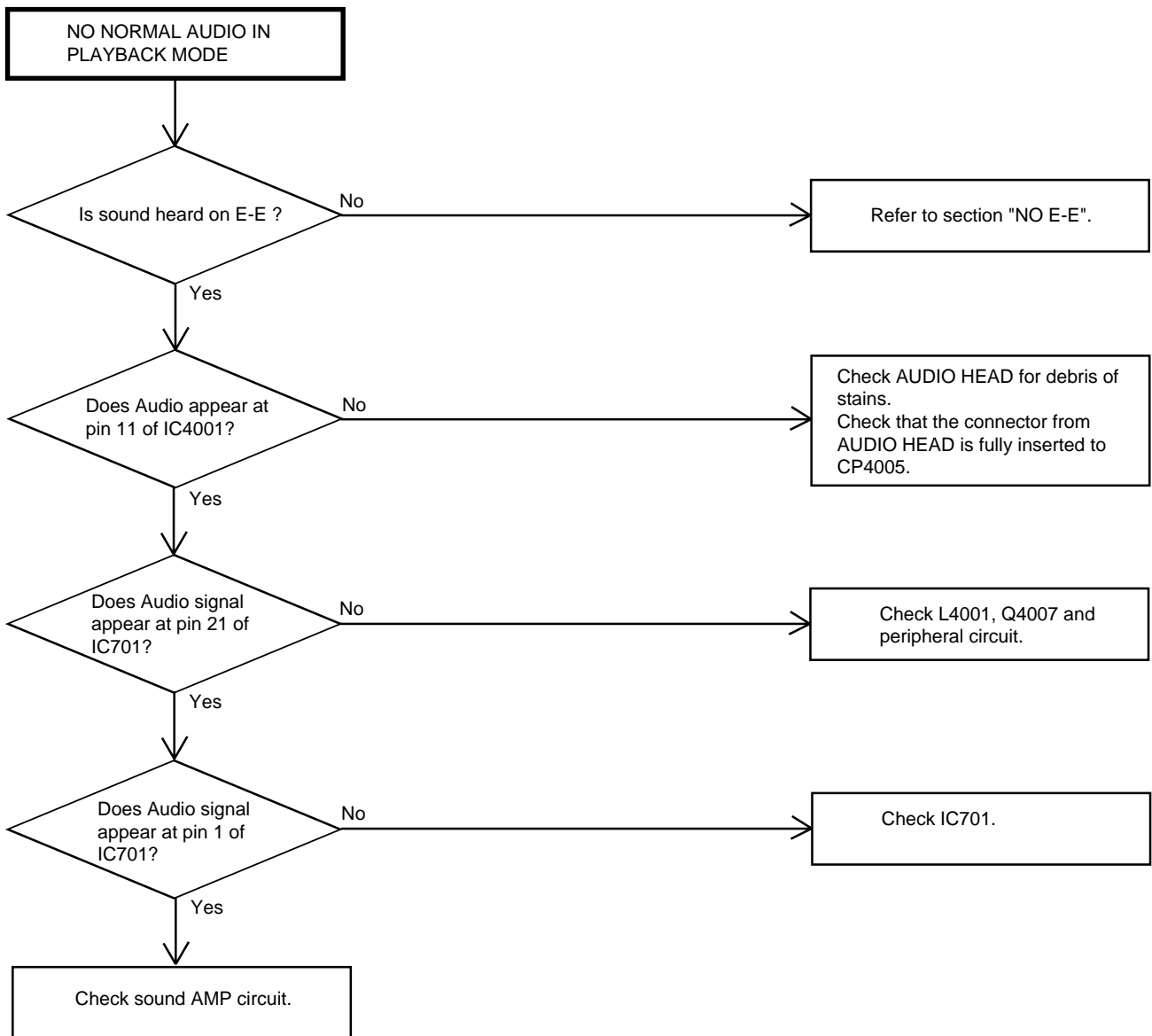
## TROUBLESHOOTING GUIDE



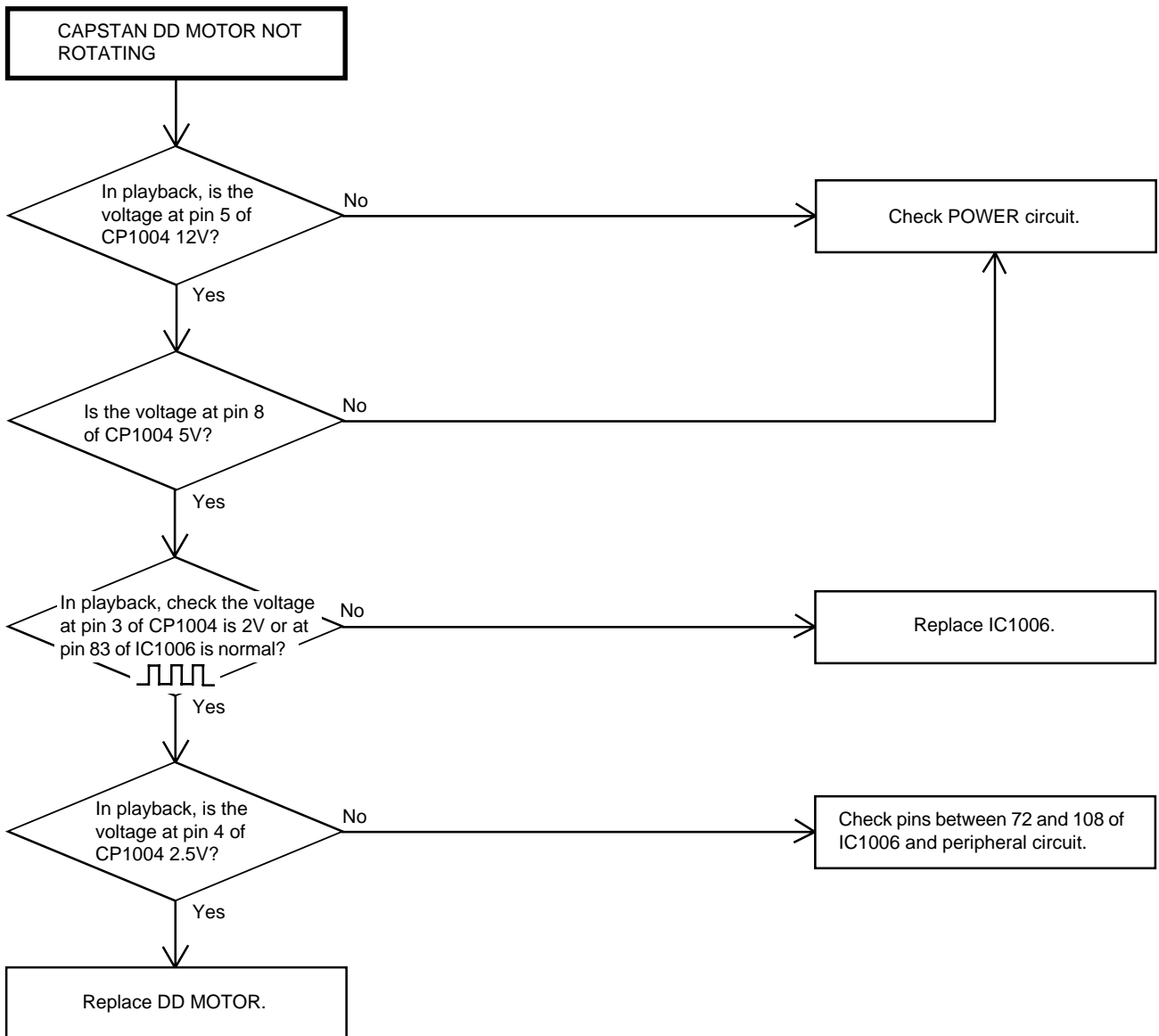
## TROUBLESHOOTING GUIDE



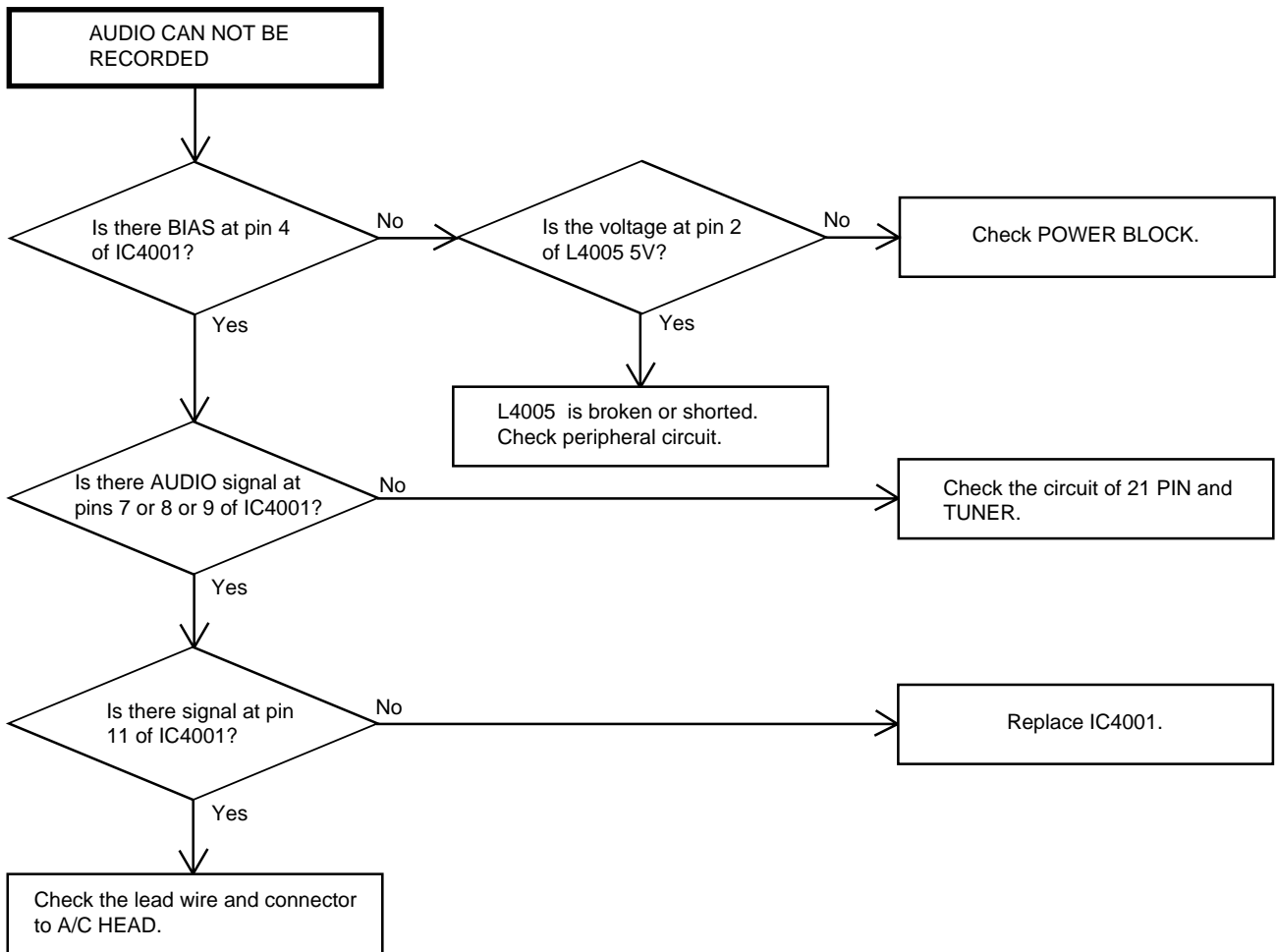
## TROUBLESHOOTING GUIDE



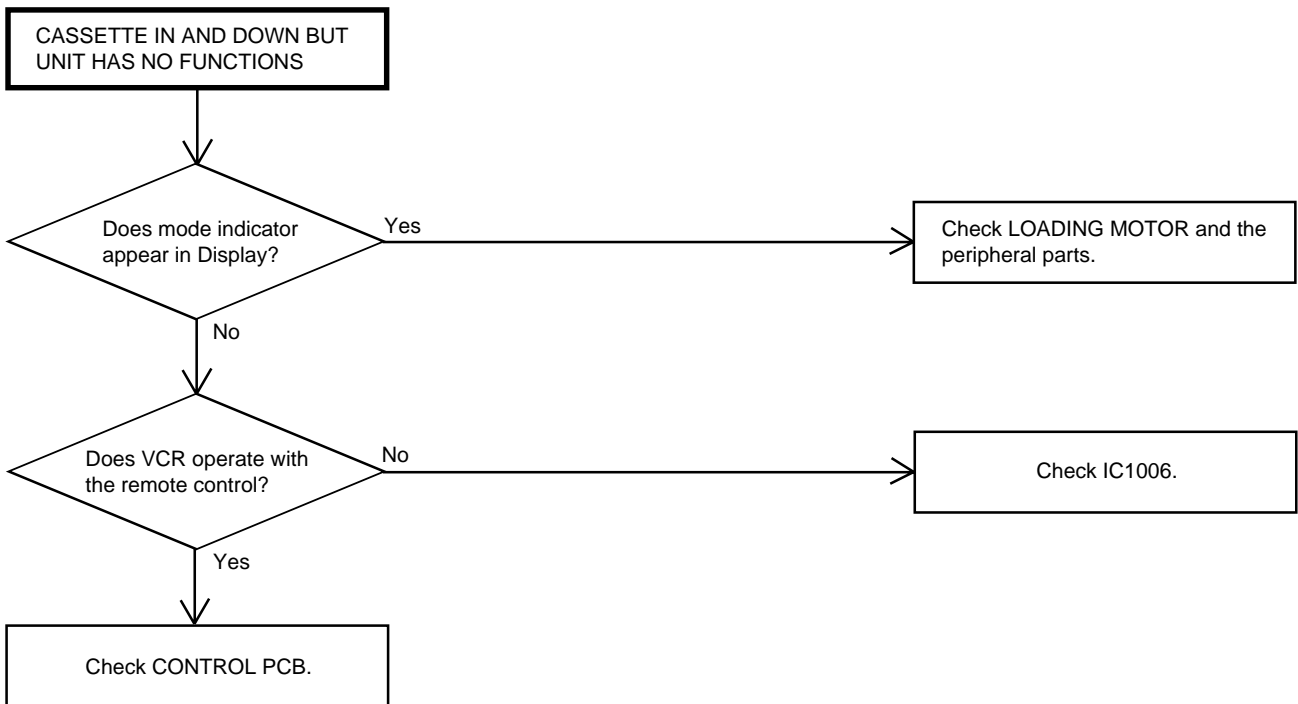
# TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

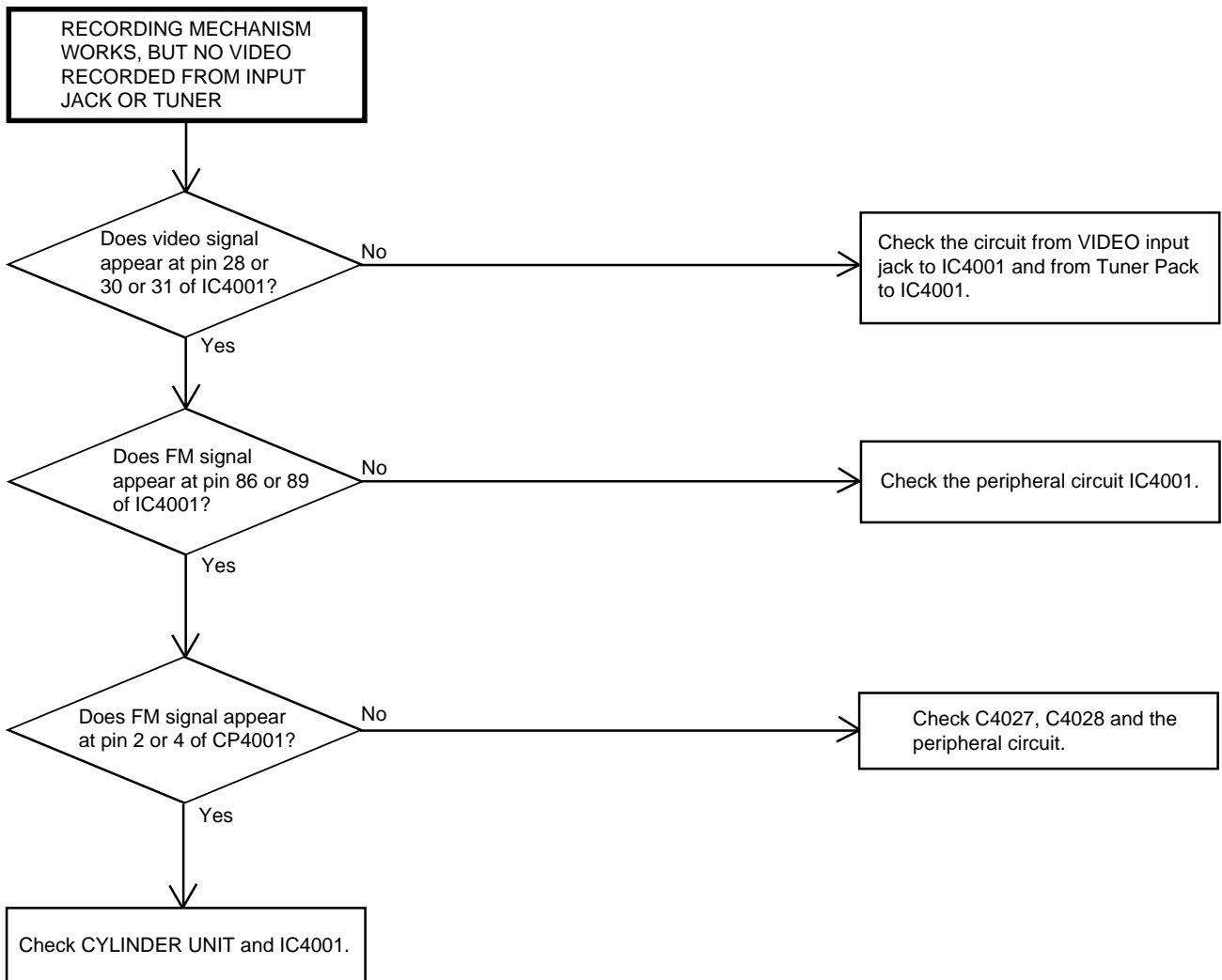


## TROUBLESHOOTING GUIDE

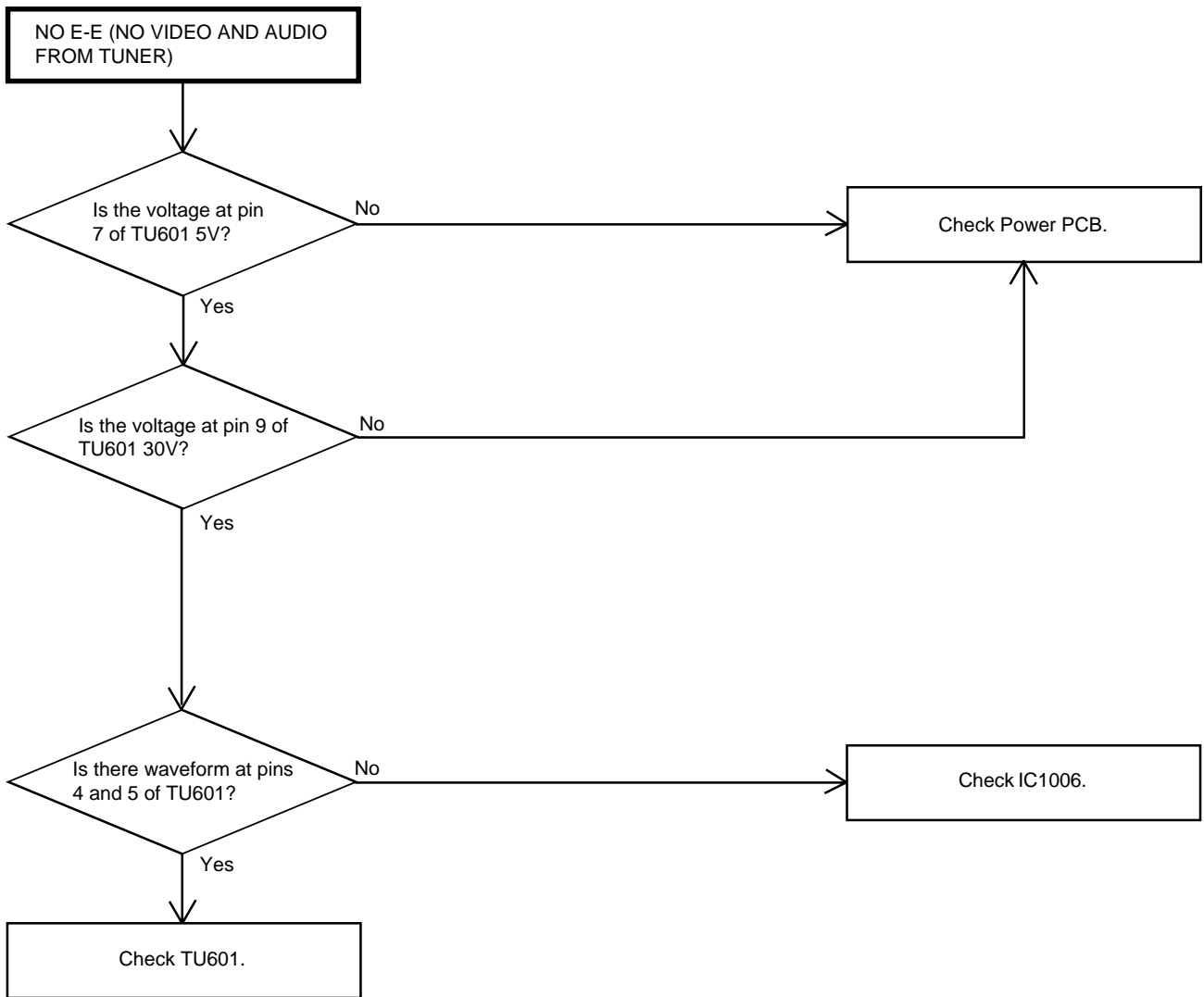




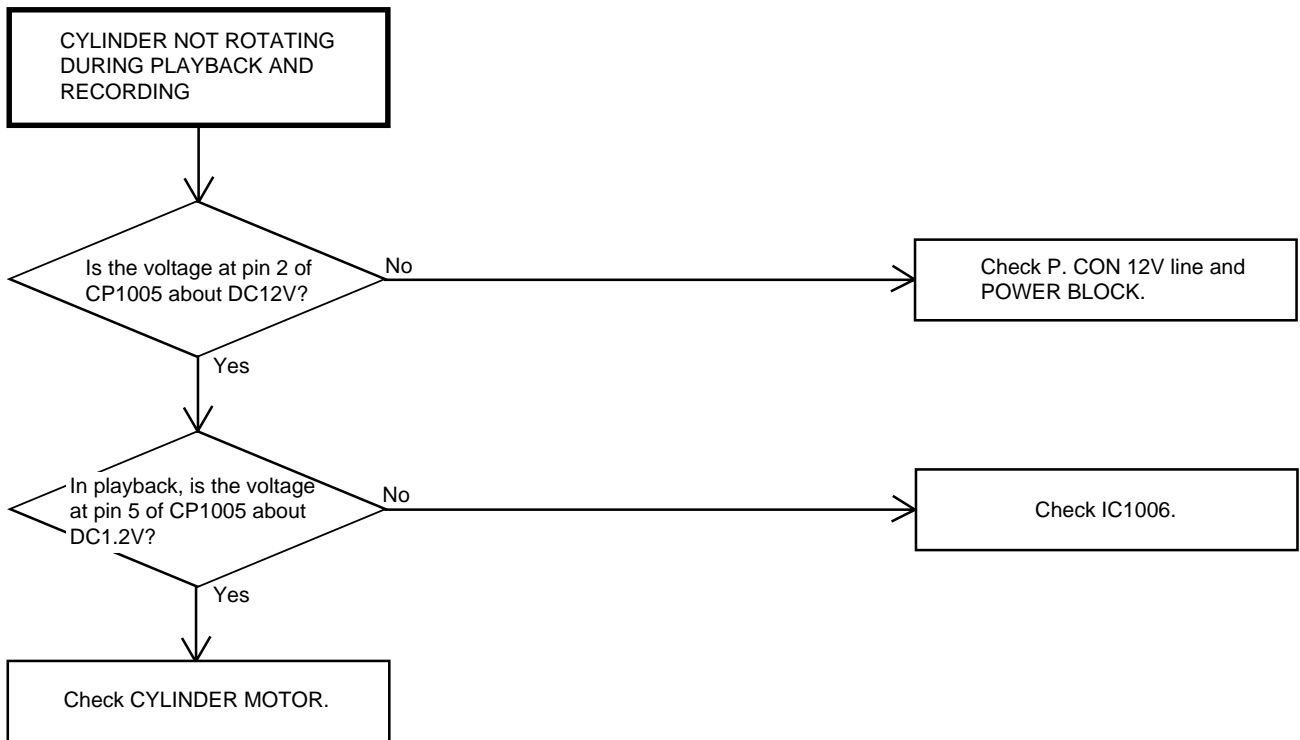
## TROUBLESHOOTING GUIDE



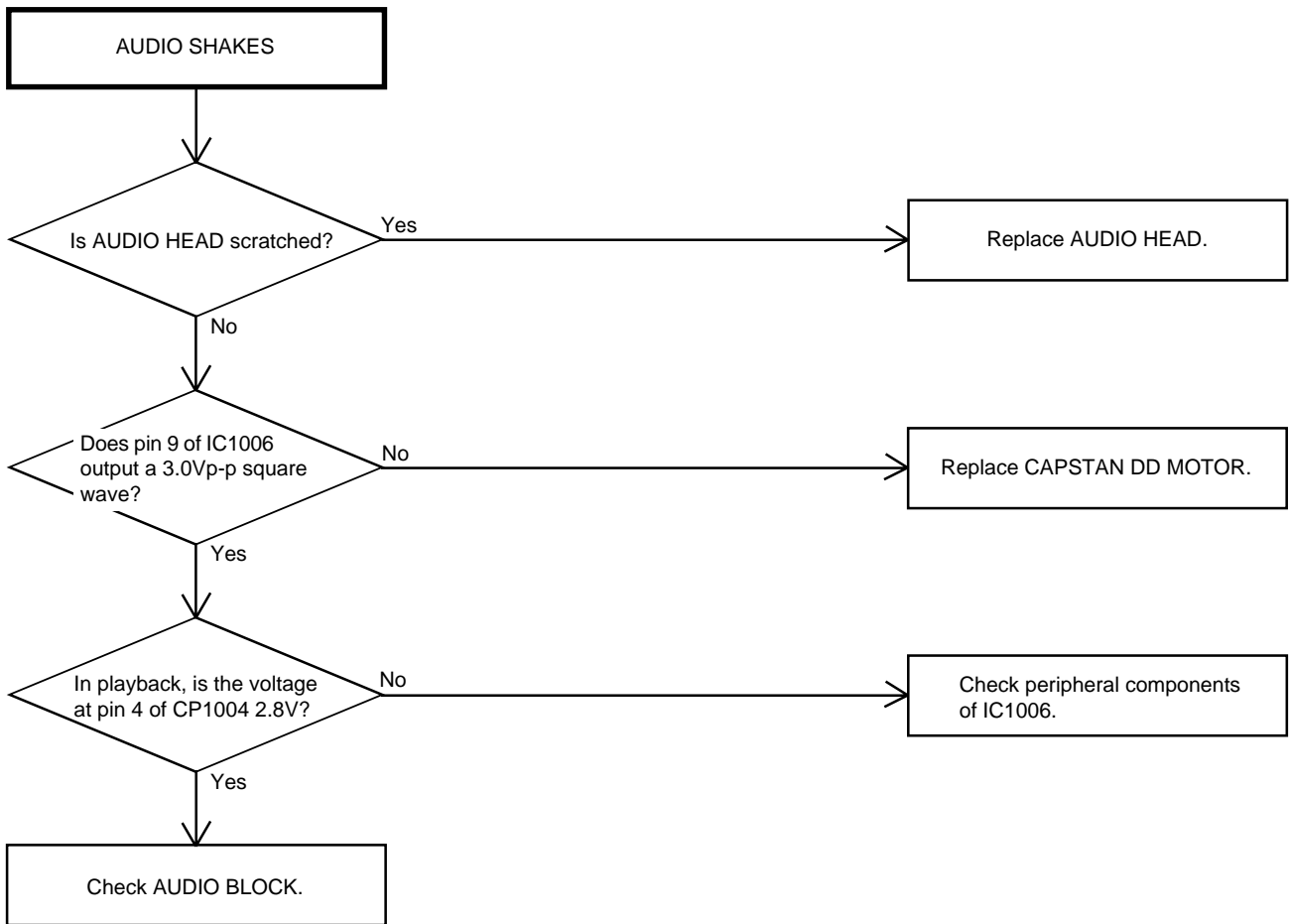
# TROUBLESHOOTING GUIDE



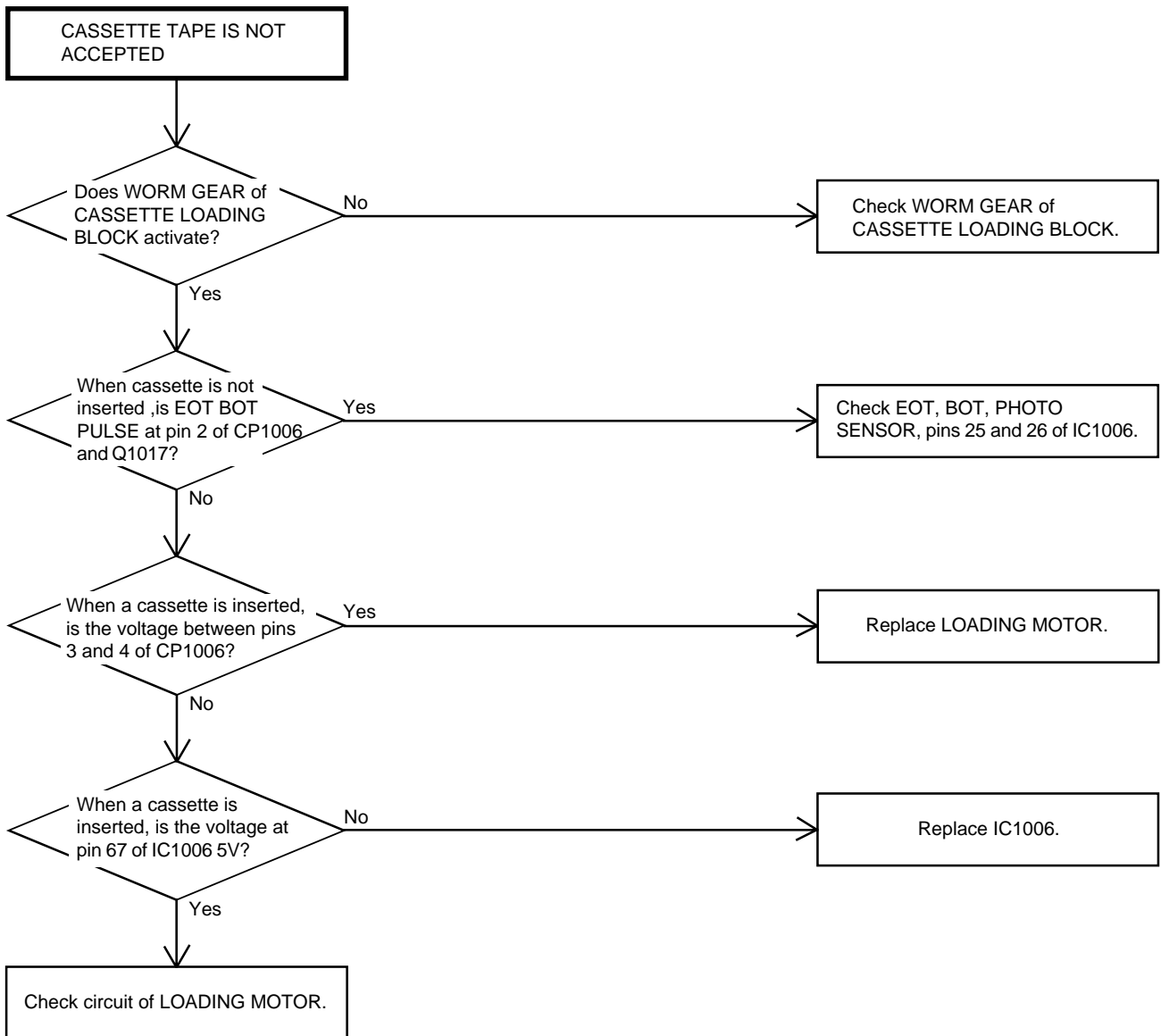
## TROUBLESHOOTING GUIDE



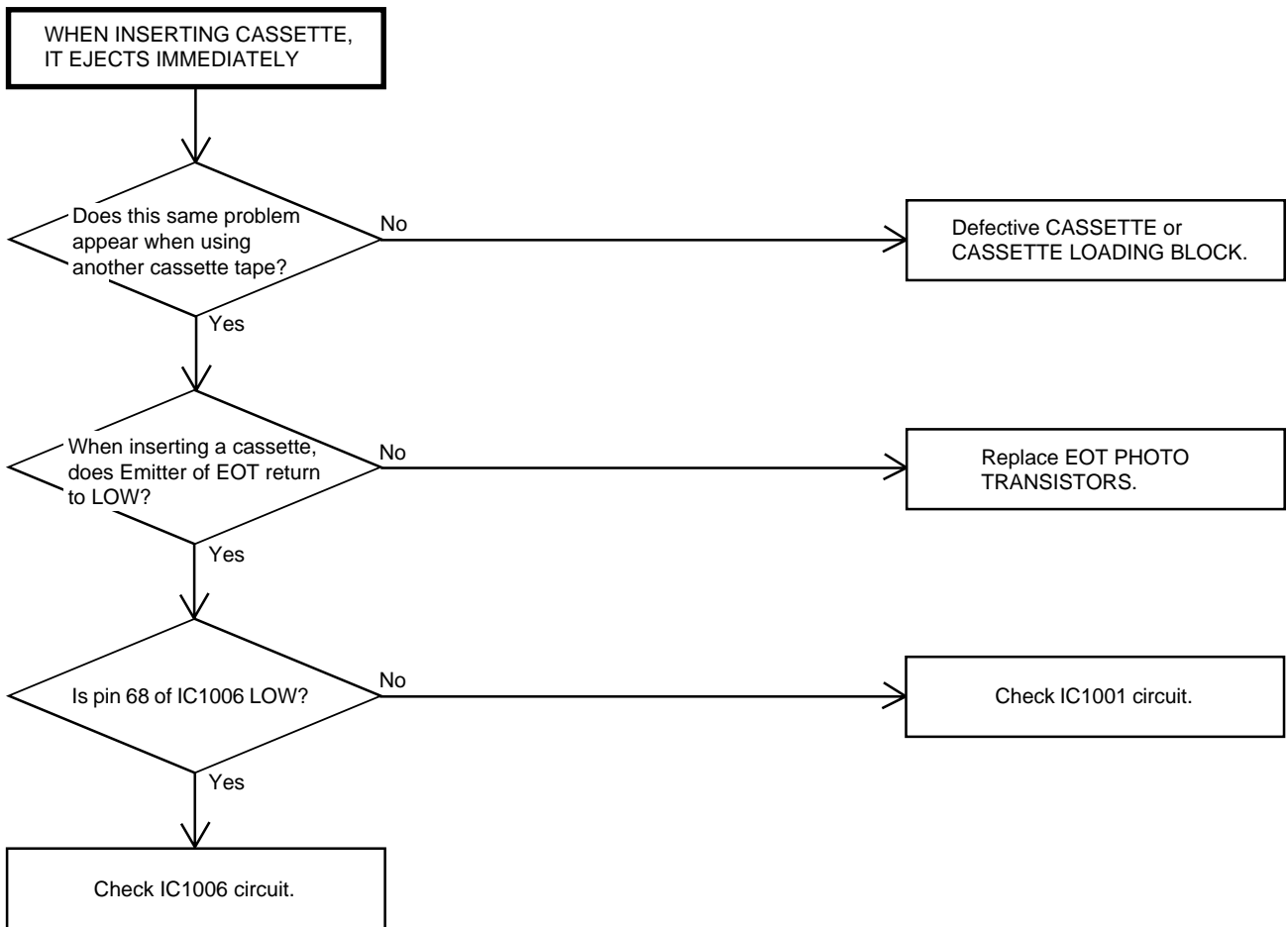
## TROUBLESHOOTING GUIDE



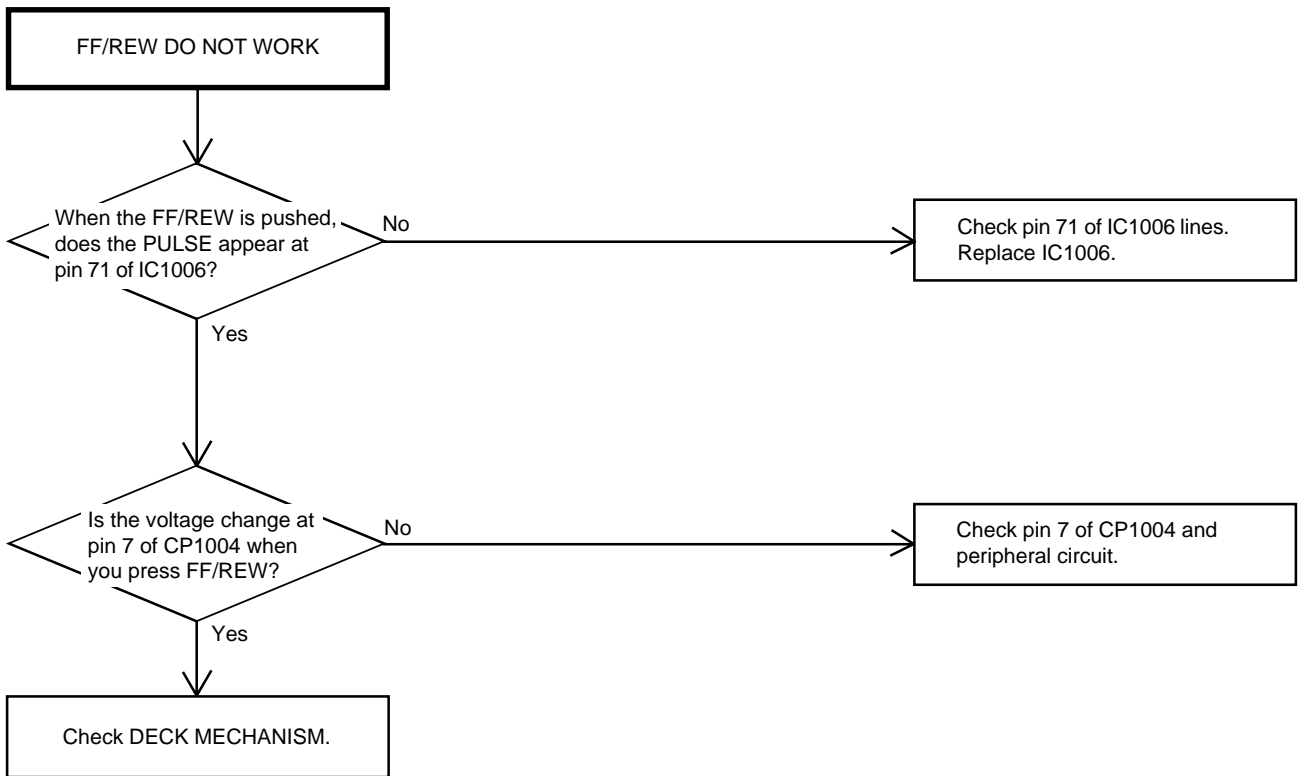
## TROUBLESHOOTING GUIDE



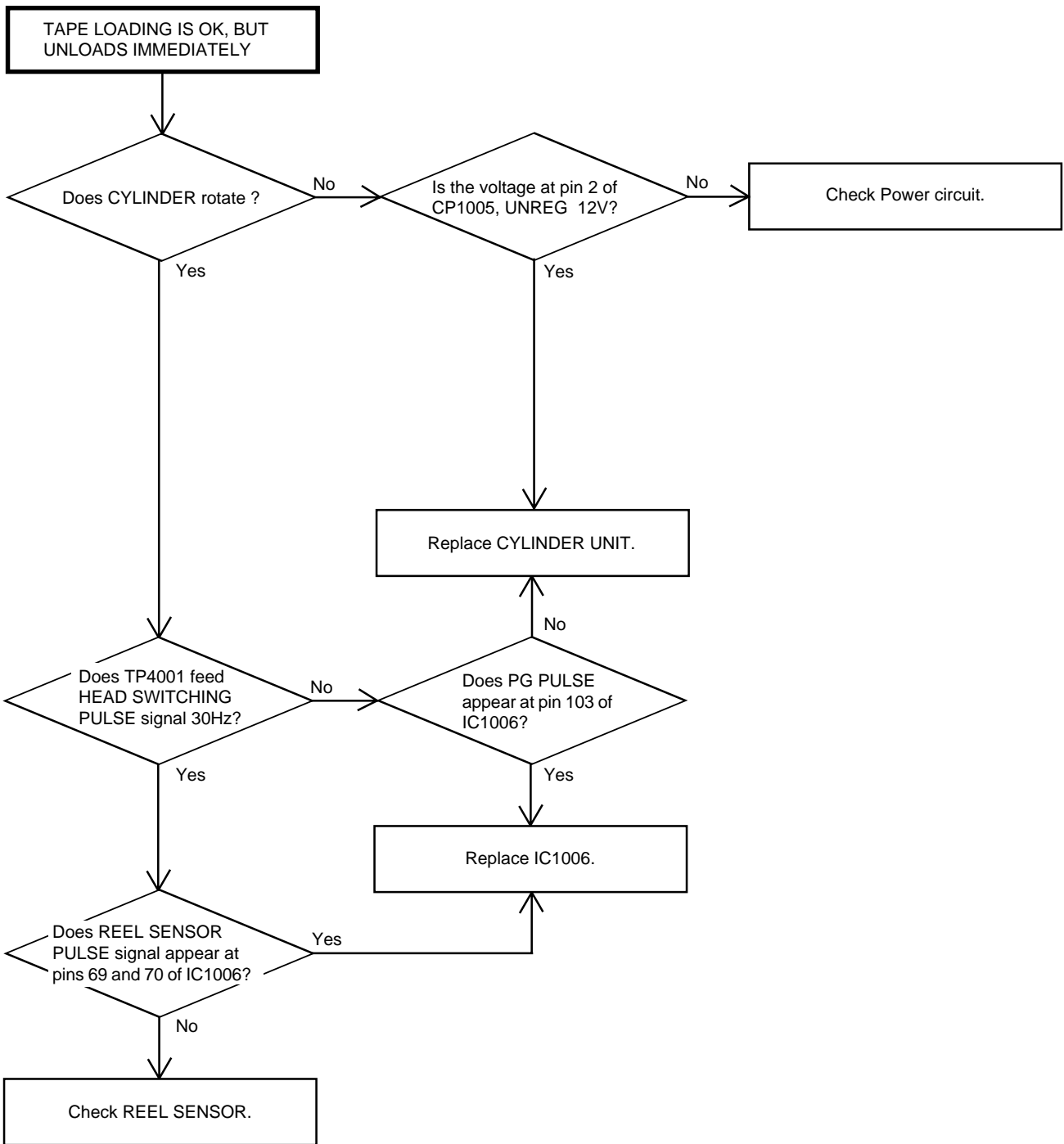
## TROUBLESHOOTING GUIDE



## TROUBLESHOOTING GUIDE

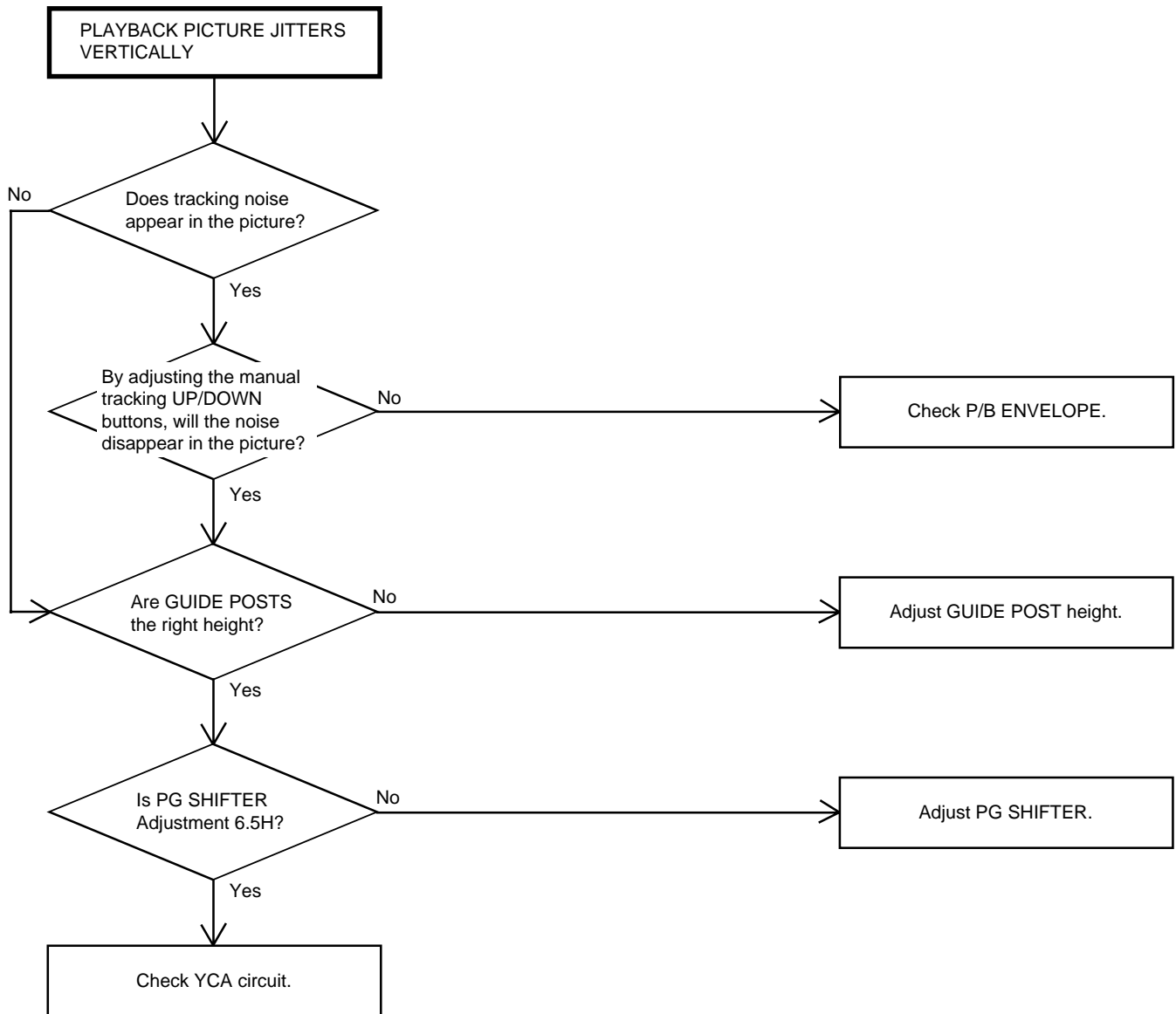


# TROUBLESHOOTING GUIDE

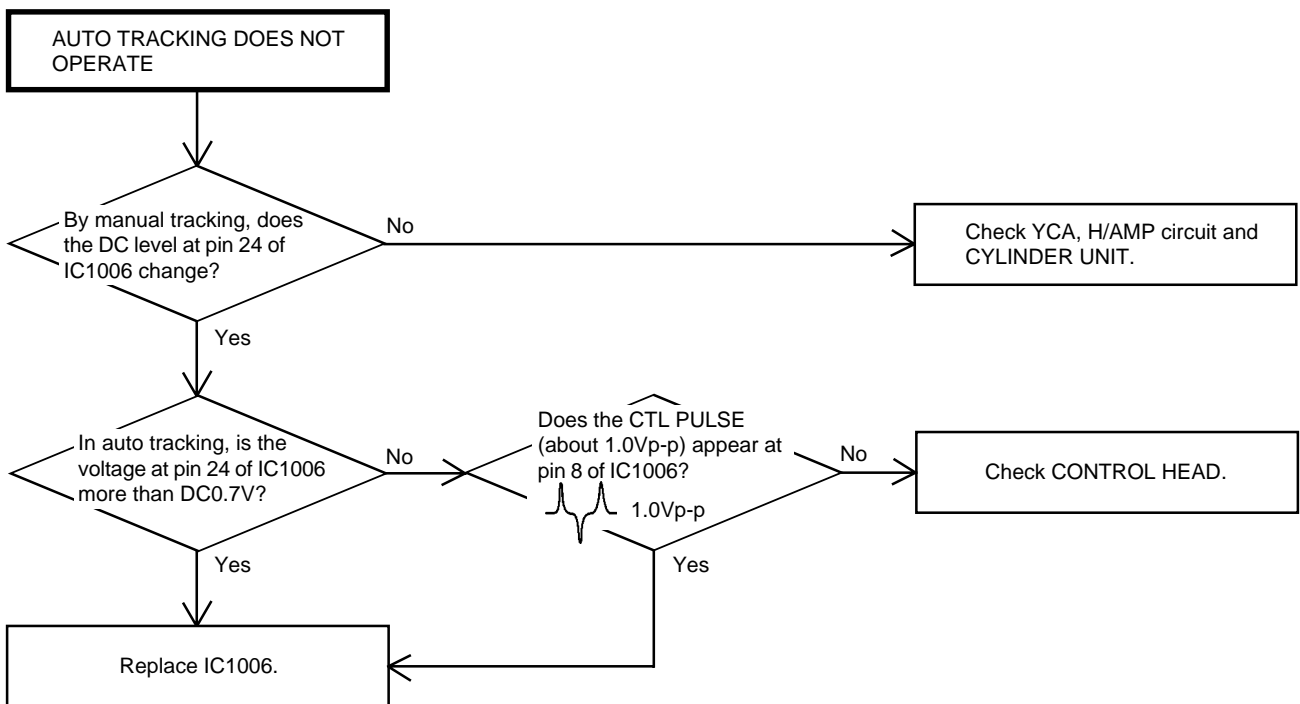
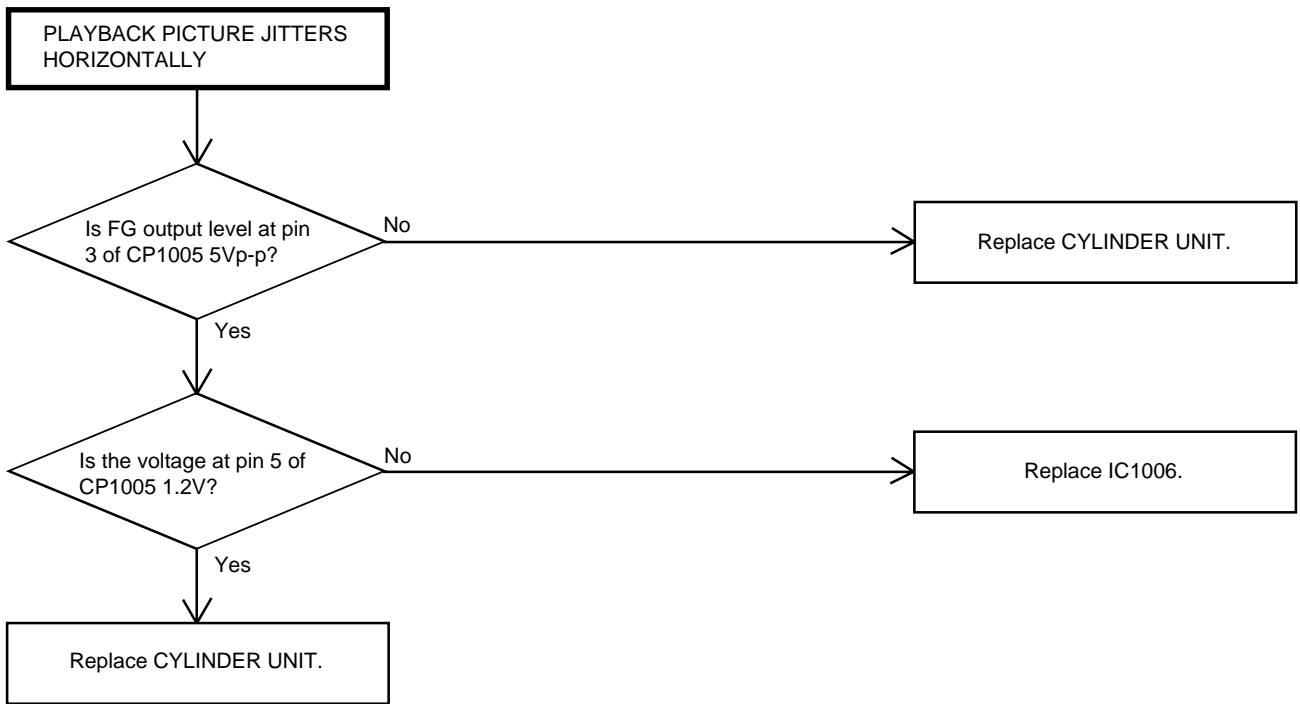




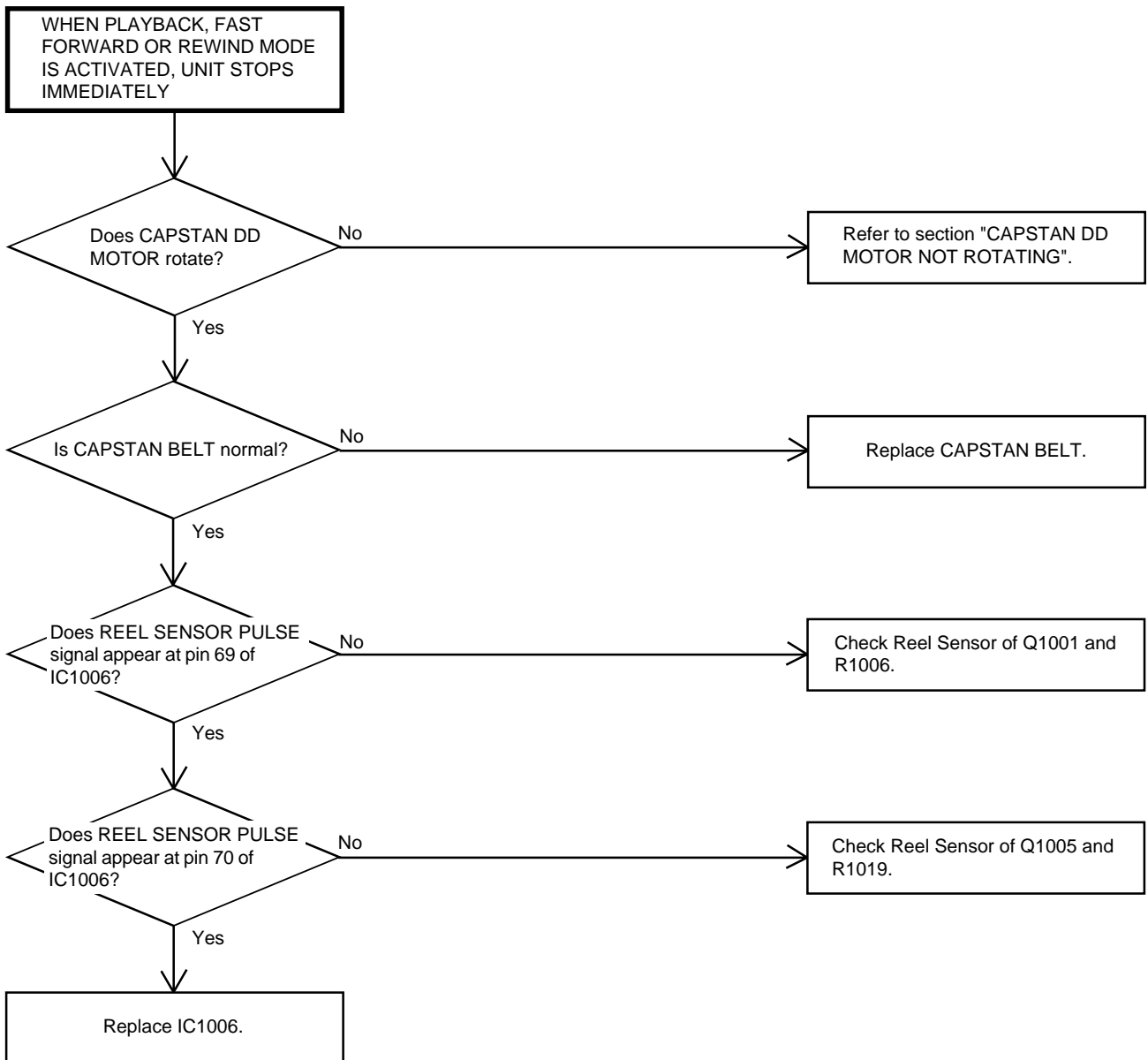
# TROUBLESHOOTING GUIDE



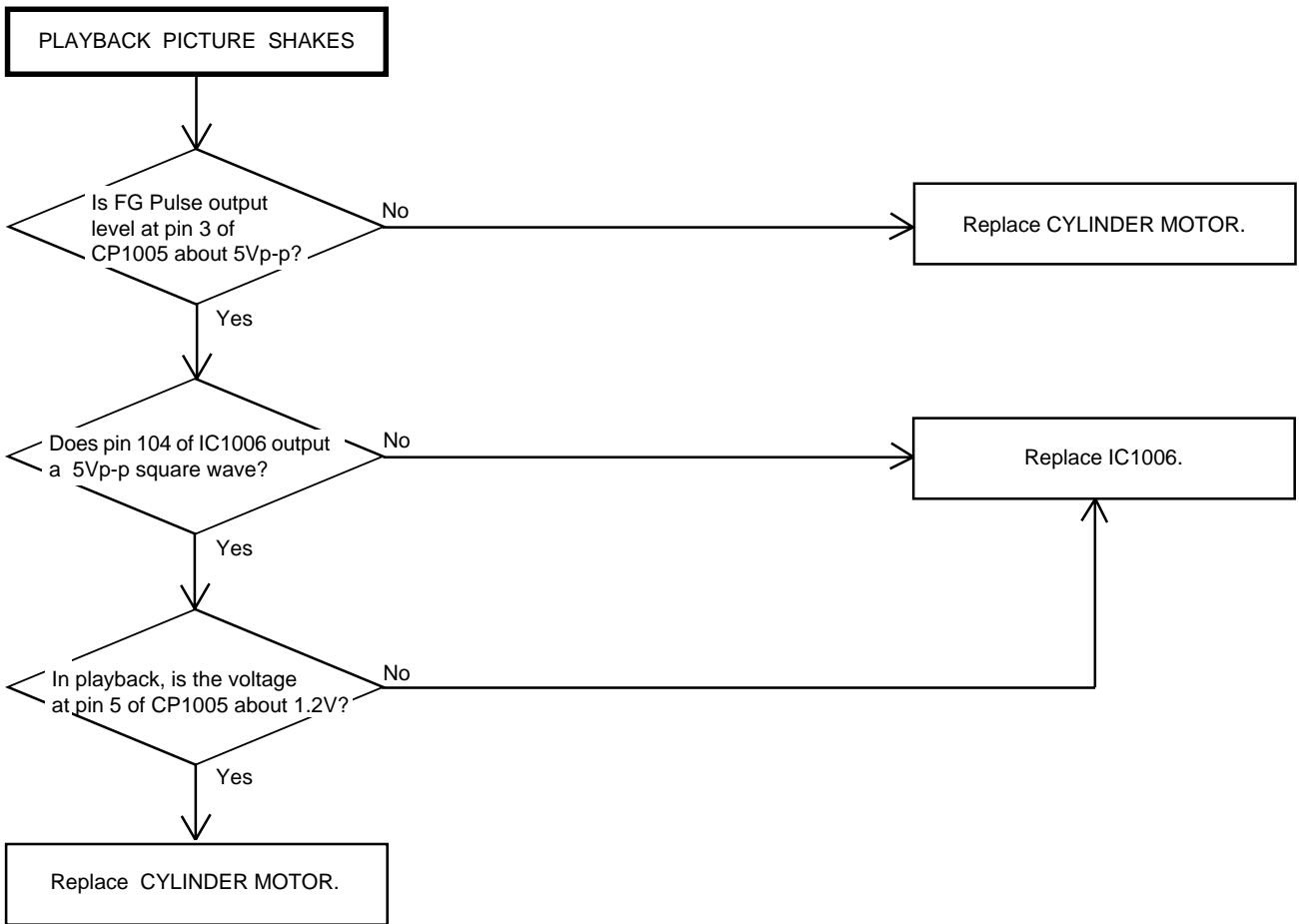
## TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE



# TROUBLESHOOTING GUIDE



## IC DESCRIPTIONS

OEC0096A

No.	PORT	PIN NAME	I/O	DESCRIPTION
1	SVSS	SVSS	-	Ground.
2	CTLREF	CTLREF	OUT	Output terminal for AMP REFERENCE.
3	CTL(+)	CTL(+)	I/O	Input and output terminal of Control Head.
4	CTL(-)	CTL(-)	I/O	Input terminal of Control Head.
5	CTLBIAS	CTLBIAS	IN	Input terminal of Control Bias.
6	CTLFB	CTLFB	IN	Input terminal for Control Feedback.
7	CTLAMP(O)	CTLAMP(O)	OUT	Output terminal for Control Amp Output.
8	CTLSMT(I)	CTLSMT(I)	IN	Input terminal for Control SMT Input.
9	CFG	CFG	IN	Input terminal for Capstan FG input.
10	SVCC	SVCC	-	P.CON +5 V.
11	AFCPC	AFCPC	I/O	AFC oscillation terminal.
12	AFCOSC	AFCOSC	I/O	AFC oscillation terminal.
13	AFCLPF	AFCLPF	I/O	AFC LPF terminal.
14	CSYNC/HSYNC	HSYNC	IN	input terminal of H.SYNC.
15	VLPF/VSYNC	VSYNC	IN	input terminal of V.SYNC.
16	CVIN2	CVIN2	IN	Not used.
17	CVIN1	CVIN1	IN	Not used.
18	OSDVCC	OSDVCC	-	P.CON +5 V.
19	CVOUT	CVOUT	OUT	Not used.
20	OSDVSS	OSDVSS	-	Ground.
21	4/2FSOUT	4/2FSOUT	OUT	Not used.
22	4/2FSCIN	4/2FSCIN	IN	Input terminal of 2FSC.
23	AVSS	AVSS	-	Ground.
24	ANB	VIDEO_ENV	IN	Input terminal of Video RF envelope.
25	ANA	BOT	IN	Tape start sensor input signal.
26	AN9	EOT	IN	Tape end sensor input signal.
27	AN8	MSEN_B	IN	Input terminal of mecha state sensor.
28	P07/AN7	MSEN_A	IN	
29	P06/AN6	KEY_B	IN	Main unit key input.
30	P05/AN5	KEY_A	IN	
31	P04/AN4	Hi-Fi_ENV	IN	Input terminal of HIFI sound envelope signal.
32	P03/AN3	NC	OUT	Not used.
33	P02/AN2	AFT.S.CURVE	IN	AFT S.CURVE input for monitor tuner.
34	P01/AN1	REC AFT.S.CURVE	IN	AFT S.CURVE input for rec tuner.
35	P00/AN0	TUNER AGC	IN	Input terminal of Electric field strength for Auto setup.
36	AVCC	AVCC	-	AT +5V.
37	P10/IRQ0	POWER_FAIL	IN	input for AC power.
38	P11/IRQ1	MO SYNC IN	IN	Input terminal for Judgement of the presence of broadcast.
39	P12/IRQ2	SERVICE	IN	Input terminal for Service Mode.
40	P13/IRQ3	DEGAUSS	OUT	output terminal for Degauss.
41	P14/IRQ4	IIC OFF	IN	Input terminal to Communications of all the terminals are cut(for Factory adjustment)
42	P15/IRQ5	DEC TU SW	OUT	Output terminal for control DEC_SW_IC.(rec_tuner/moni_tuner)
43	P16/IC	REMOCON IN	IN	Receive the remote control signal input.
44	P17/TMOW	TUNER CTL	OUT	Output terminal of DATA for 2-tuner control.
45	P67/RP7/TMB	T-REC LED	OUT	Output terminal control for T-REC-LED voltage drive.
46	P66/RP6/ADTRG	REC LED	OUT	Output terminal control for REC-LED voltage drive.
47	P65/RP5	ON_TIMER LED	OUT	Output terminal control for ON_TIMER-LED voltage drive.
48	P64/RP4	PLAY LED	OUT	Output terminal control for PLAY-LED voltage drive.
49	P63/RP3	OTP LED	OUT	Output terminal control for OTPB-LED voltage drive.
50	P62/RP2	TV POWER_ON-H	OUT	For control of the user TV-power switch ON/OFF.

## IC DESCRIPTIONS

OEC0096A

No.	PORT	PIN NAME	I/O	DESCRIPTION
51	P61/RP1	VCR POWER_ON-H	OUT	For control of the user VCR-power switch ON/OFF.
52	P60/RP0	CENT_LED	OUT	Output terminal for center LED control.
53	P37/TMO	TAB_SW	IN	Input terminal for judge the tape if it has TAB or not.
54	P36/BUZZ	CTL_MONITOR	OUT	Output terminal for control Monitor.
55	P35/PWM3	MS_SENS_CTL	OUT	Output terminal to drive sensor control.
56	VCC	VCC	-	AT +5V.(Back_up 5V)
57	VSS	VSS	-	Ground.
58	P27/SYNC1	EXT IN-L	IN	Input terminal for Compulsion outside input.
59	P26/SCL0	IIC_CLK_0	OUT	Output Clock terminal for I2CBUS communication.
60	P25/SDA0	IIC_DATA_0	I/O	Output Data terminal for I2CBUS communication.
61	P24/SCL1	TEXT RESET	OUT	Output terminal of reset for TEXT_IC.
62	P23/SDA1	AV3	OUT	Output terminal for control MONO_SW_IC.(TUNER,AV1,AV2)
63	P22/SCK1	SD-L	OUT	Output terminal of SD.
64	P21/SI1	SI1	IN	Input terminal of DATA FZTAT input.
65	P20/SO1	SOD DATA	OUT	Output terminal of DATA FZTAT output.
66	P47/RPTRG	PAL_H	OUT	Output terminal for judgement of colour system PAL/NTSC.
67	P46/FTOB	LDM_FWD	OUT	Output signal to control the rotation direction of the loading motor.
68	P45/FTOA	LDM_RVS	OUT	
69	P44/FTID	REEL-S	IN	Input terminal of reel sensor SUPPLY.
70	P43/FTIC	REEL-T	IN	Input terminal of reel sensor TAKE UP.
71	P42/FTIB	CAP_FWD-L	OUT	Capstan forward and backward command.
72	P41/FTIA	CAP_FULL	OUT	Output the HIGH during the acceleration force of Capstan Motor at SLOW mode.
73	P40/PWM14	VV-H	OUT	Output terminal for select Playback/Recording at the circuit of sound.
74	FWE	FWE	IN	Input terminal of FZTAT signal( L: low signal input).
75	X2	X2	OUT	Subclock plus (32.768KHz).
76	X1	X1	IN	Subclock plus (32.768KHz).
77	/RES	/RES	IN	RESET will be done when the voltage goes to HIGH after the restart signal.
78	OSC1	OSC1	IN	Connect the main crystal (10MHz).
79	VSS	VSS	-	Ground.
80	OSC2	OSC2	OUT	Connect the main crystal (10MHz).
81	VCL	VCL	IN	input terminal for Capacity.
82	MD0	MD0	IN	Input terminal of FZTAT signal.
83	P34/PWM2	CAP_LIMIT	OUT	Switch the maximum out put current of the CAPSTAN Motor.
84	P33/PWM1	REC AGC CONT.	IN	Input terminal of AGC adjustment for rec tuner.
85	P32/PWM0	VOLUME PWN	OUT	Output signal to PWM output for volume control.
86	P31/SV2	STAND_BY-H	OUT	Mute signal of audio mute for tuner.
87	P30/SV1	AV1	OUT	Output terminal for control AV_SW_IC(TUNER,AV1,AV2)
88	P70/PPG0	TV MUTE-H	OUT	Mute signal of TV mute.
89	P71/PPG1	VCR MUTE-H	OUT	Mute signal of VCR mute.
90	P72/PPG2	V.REC.START-H	OUT	Output terminal for REC signal when record.
91	P73/PPG3	TUNER MUTE	OUT	Mute signal of TUNER mute.
92	P74/PPG4/RP8	AV2	OUT	Output terminal for control AV_SW_IC(TUNER,AV1,AV2)
93	P75/PPG5/RP9	TEXT_H	OUT	Output signal to TEXT/MIX mode.
94	P76/PPG6/RPA	AFC OFF-H	OUT	Output signal to cut of AFC(chroma ic).
95	P77/PPG7/RPB	FF/REW-L	OUT	Output signal to FF/REW.(high speed)
96	P80/YCO	YCO	OUT	Output terminal of character data.
97	P81/YBO	BB_L	OUT	Output signal to blue back mode.
98	P82/EXCTL	DA RGB SW	OUT	Output signal to cut of RGB sync
99	P83/C.ROTARY/R	R	OUT	Output signal of R for OSD.
100	P84/H.AMP.SW/G	G	OUT	Output signal of G for OSD.

## IC DESCRIPTIONS

OEC0096A

101	P85/COMP/B	B	OUT	Output signal of B for OSD.
102	P86/EZTTRG	CYL_SPEED_UP	OUT	Output terminal for correct cylinder during SLOW.
103	P87/DPG	DPG	IN	Input terminal for DRUM PG signal.
104	A.DFG	DFG	IN	Input terminal for DRUM FG signal.
105	VIDEO_FF	VIDEO_H.SW	OUT	Output terminal of signal Video head switching.
106	AUDIO_FF	Hi-Fi_H.SW	OUT	Output terminal of signal HI-FI sound head switching.
107	DRMPWM	DRUM_PWM	OUT	Output terminal for PWM of Drum Motor.
108	CAPPWM	CAP_PWM	OUT	Output terminal for PWM of Capstan Motor.
109	V_PULSE	DUMMY.V.SYNC	OUT	Output terminal of Video Plus signal.
110	VSS	VSS	-	Ground.
111	C.SYNC_IN	C.SYNC	IN	Input terminal for composite C SYNC.
112	VCC	VCC	-	AT +5V.(Back_up 5V)

# SERVO TIMING CHART

IC1006 (OEC0085B)

DPG 107 PIN

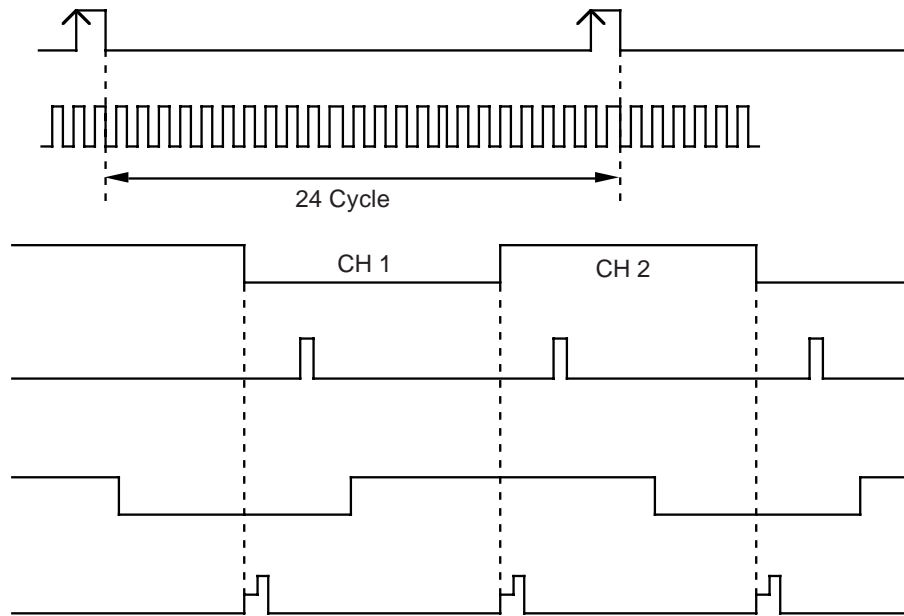
DFG 108 PIN

H. SW. P 100 PIN

V-SYNC (E-E) 98 PIN

REC CTL (REC)  
6 PIN

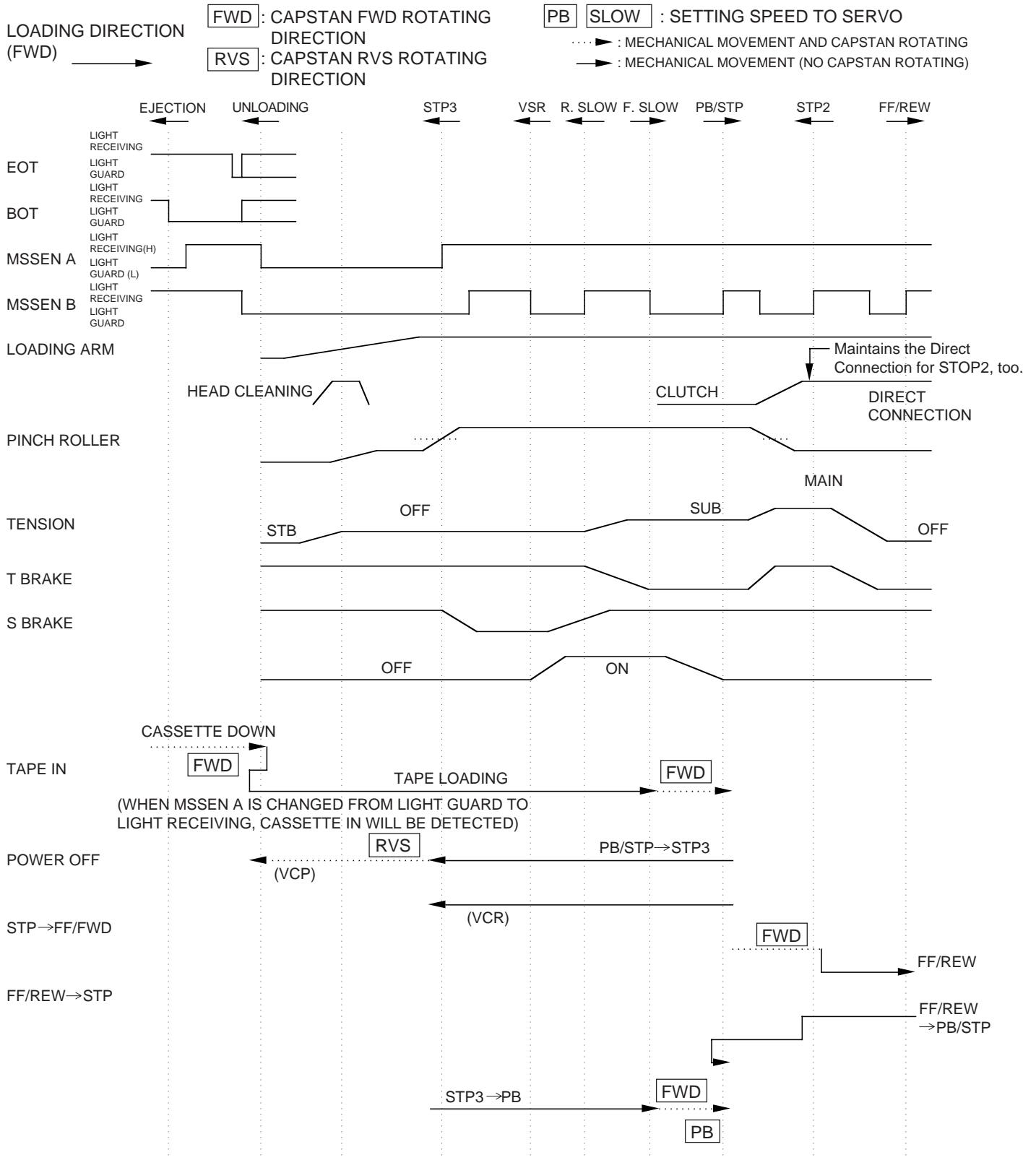
V-SYNC (TRICK PB)  
110 PIN



• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

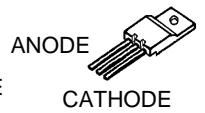
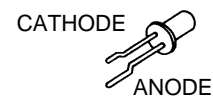


# SYSTEM SWITCH MODE



# SEMICONDUCTOR BASE CONNECTIONS

## DIODE



1SS133T-77  
MTZJ30B T-77  
MTZJ33B T-77  
MTZJ5.6B T-77  
MTZJ6.8B T-77  
SB10-03A3

11E1-EIC  
11EQS04N-TA1B2  
11EQS04TA1B2  
11ES1N-TA1B2  
1N4005E-6580-G23  
RD12FB-T7  
RU2YX-V1

10ELS2N-TA1B2  
21DQ09N-FC4  
21DQ09N-TA2B1  
EG-01CV1  
RMPG06J-G3  
RU2AM V1

MA367-(TX)

SID1050CM  
SLR-342VCT32

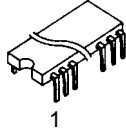
SLZ-345B-02-T1

FMV-3FULF027-102

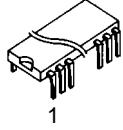
## IC



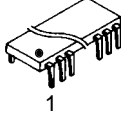
GBL06L-6177



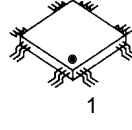
**16PIN**  
TC74HC4053AP



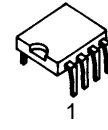
**20PIN**  
ET317  
**28PIN**  
ET106  
**54PIN**  
LA76812



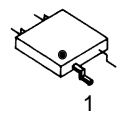
**24PIN**  
LA7567B



**100PIN**  
HA118217F  
**112PIN**  
OEC0096A  
**44PIN**  
TDA9605H  
TDA9874H



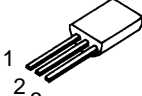
**8PIN**  
S-24C08ADPA-01



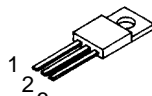
**24PIN**  
LC74793/JM



**8PIN**  
NJM2534V(Te2)



**3PIN**  
RE5VS31A



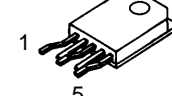
**3PIN**  
KIA7805API  
KIA7809API



**9PIN**  
LA7510  
LA7956



**8PIN**  
BA6955N

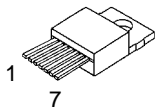


**5PIN**  
STR-F6707

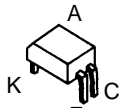


**12PIN**  
AN7522

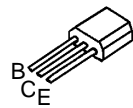
## TRANSISTOR



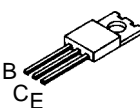
**7PIN**  
LA78040



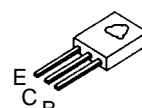
TLP621(GR)



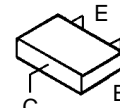
2SC1740SP TP  
DTC114TSTP



2SD1667(R,S)

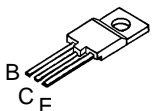


2SC2621(D,E)-RAC

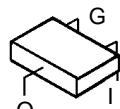


2SA1037AKT146R,S  
2SC2412KT146 R,S  
2SC2412KT147(R,S)  
2SC2814(F3,F4)-T  
DTC124EKT147

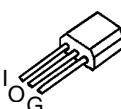
2SA1015Y(TPE2)  
2SA1371(D,E)-AE  
2SA608KF-NP-AA  
2SB698-AA  
2SB892(S,T)-AE  
2SC1317(Q,R,S)-T  
2SC1815Y(TPE2)  
2SC2909(S,T)-AA  
2SC3000-AA  
2SC3331(S,T,U)-A  
2SC945(C)-T(P,Q)  
2SD734(E,F)-AA



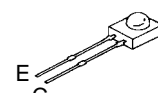
2SD2499(LBOEC1) RPI-352Q01R



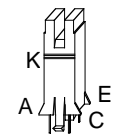
DTA124EKAT146  
DTC114EKAT146  
DTC114EKT147  
DTC114TKAT146  
DTC124EKAT146  
DTC143EKAT146  
DTC143TKAT146  
DTC144EKT147



DTC114ESTP

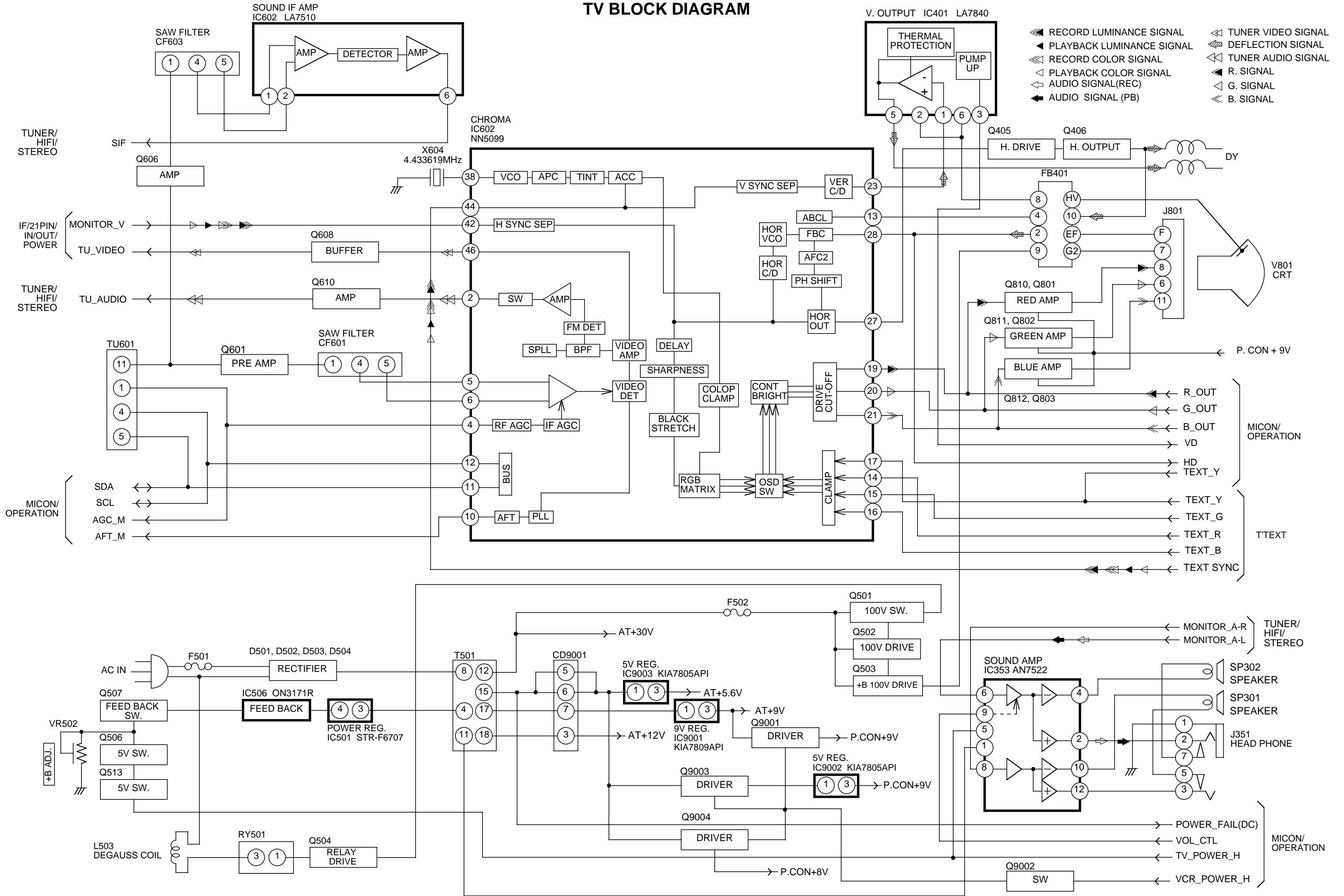


PNA2604M010R



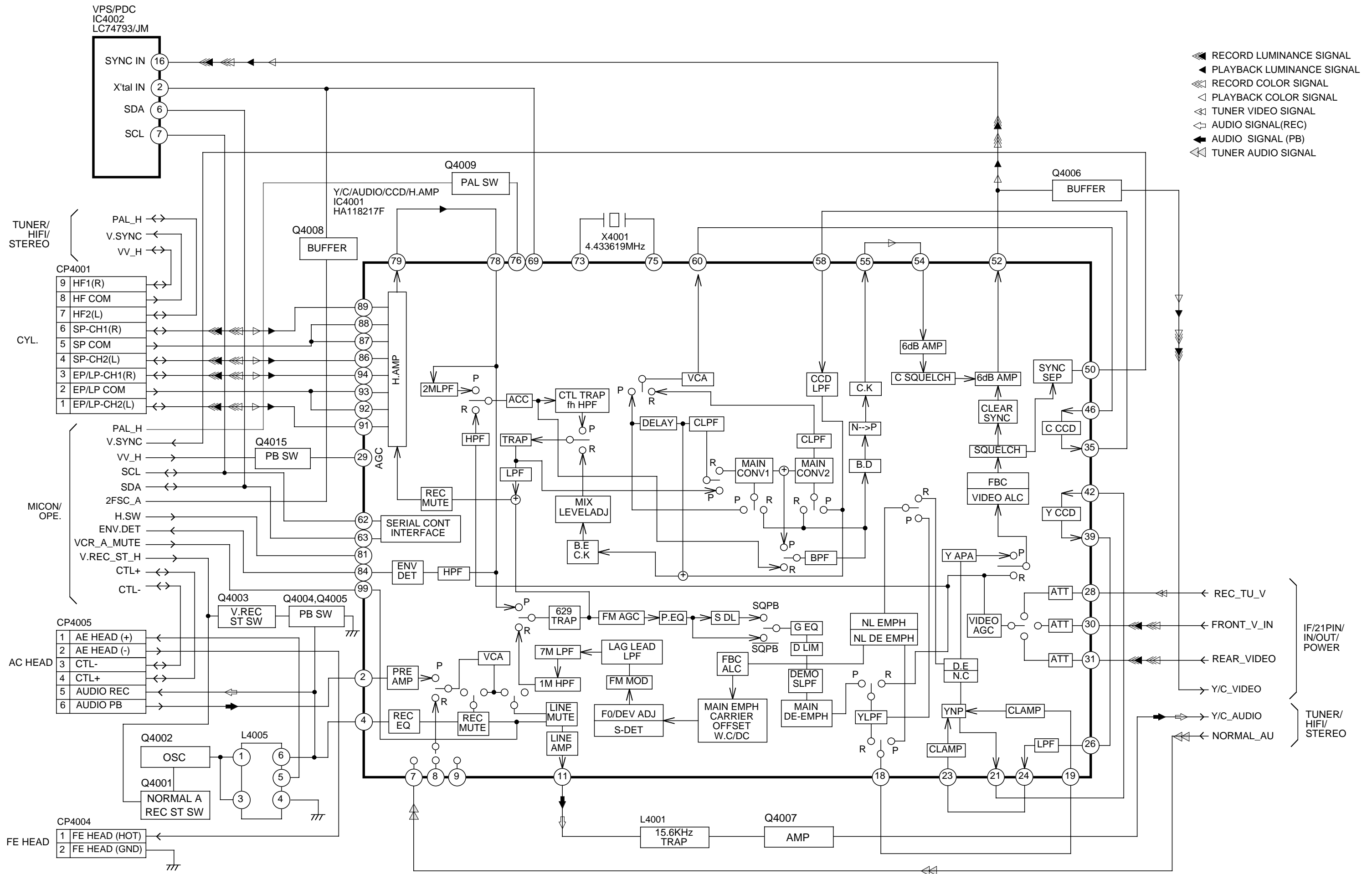
RPI-301

# TV BLOCK DIAGRAM

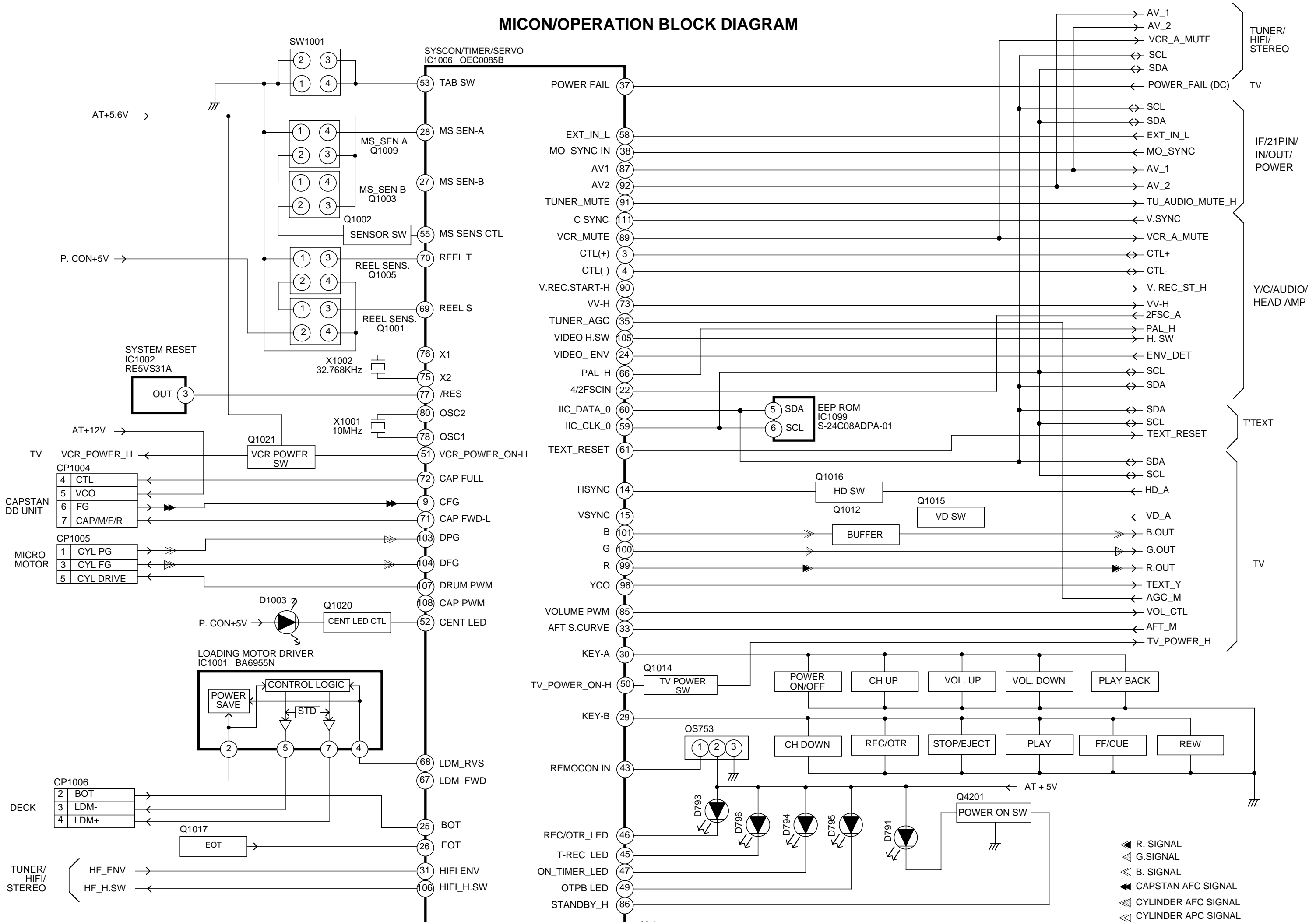


- ◀ RECORD LUMINANCE SIGNAL
- ◀ PLAYBACK LUMINANCE SIGNAL
- ◀ RECORD COLOR SIGNAL
- ◀ PLAYBACK COLOR SIGNAL
- ◀ AUDIO SIGNAL(REC)
- ◀ AUDIO SIGNAL (PB)
- ◀ TUNER VIDEO SIGNAL
- ◀ DEFLECTION SIGNAL
- ◀ TUNER AUDIO SIGNAL
- ◀ R. SIGNAL
- ◀ G. SIGNAL
- ◀ B. SIGNAL

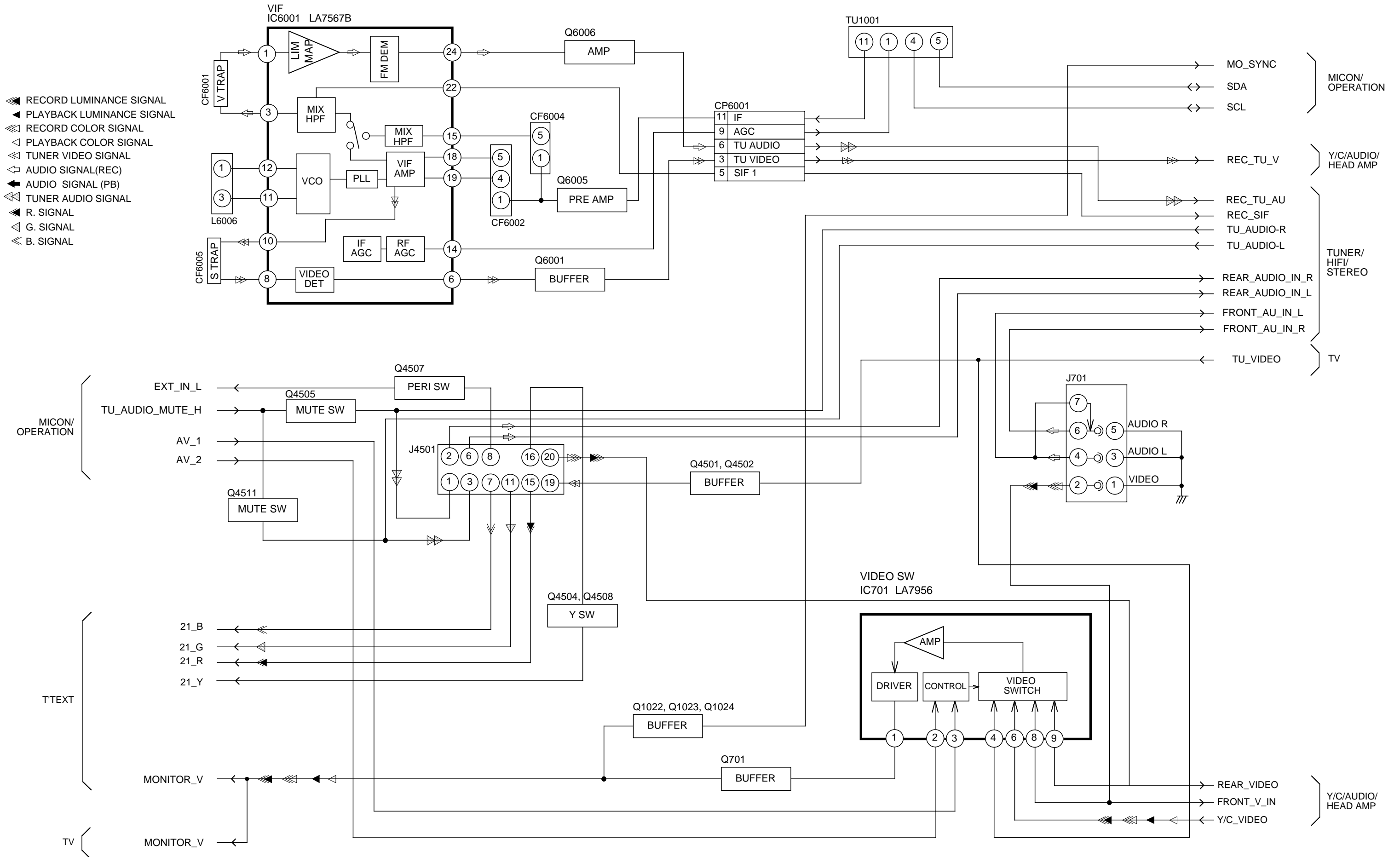
# Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



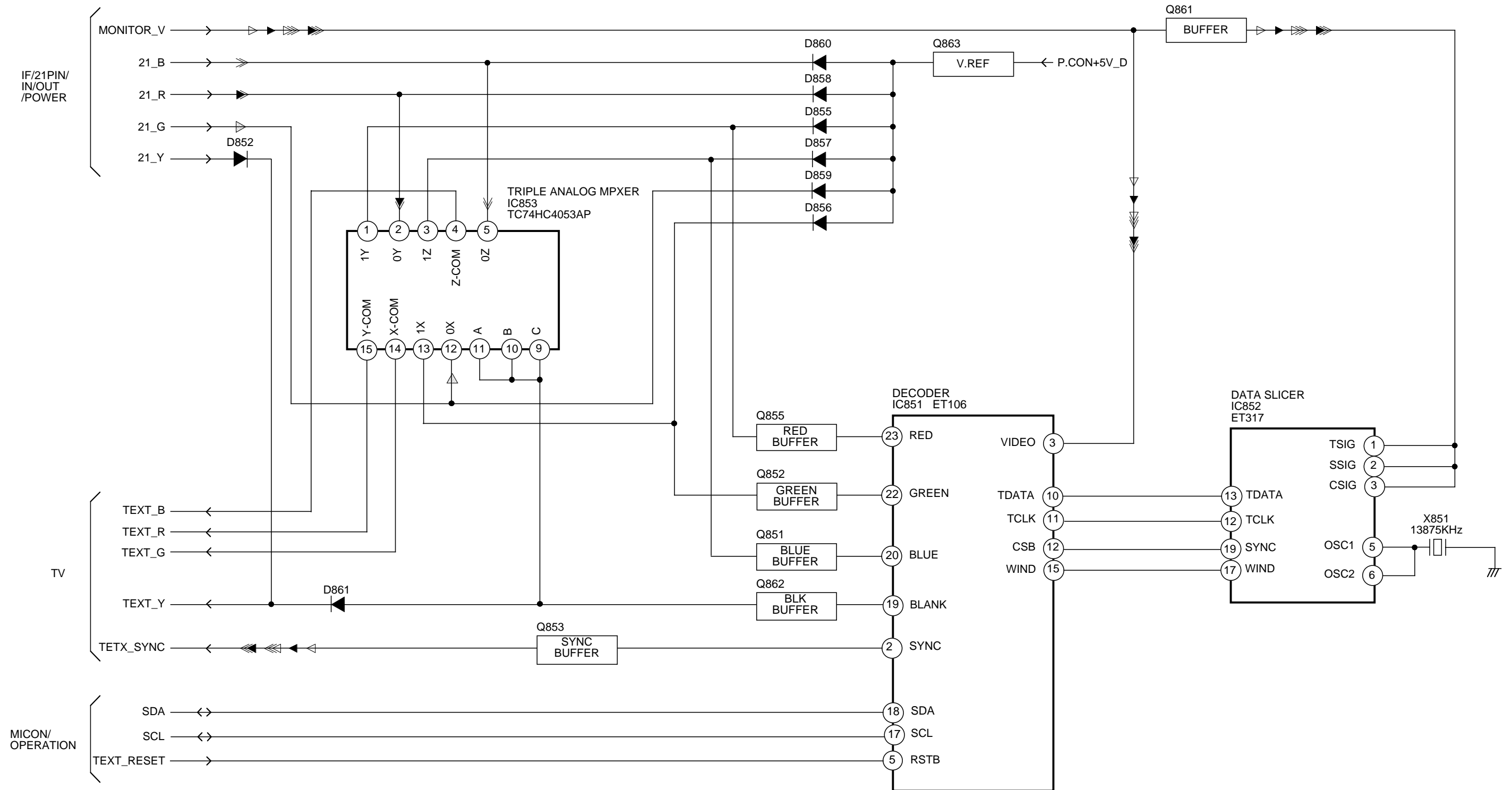
# MICON/OPERATION BLOCK DIAGRAM



# IF/21PIN/IN/OUT/POWER BLOCK DIAGRAM



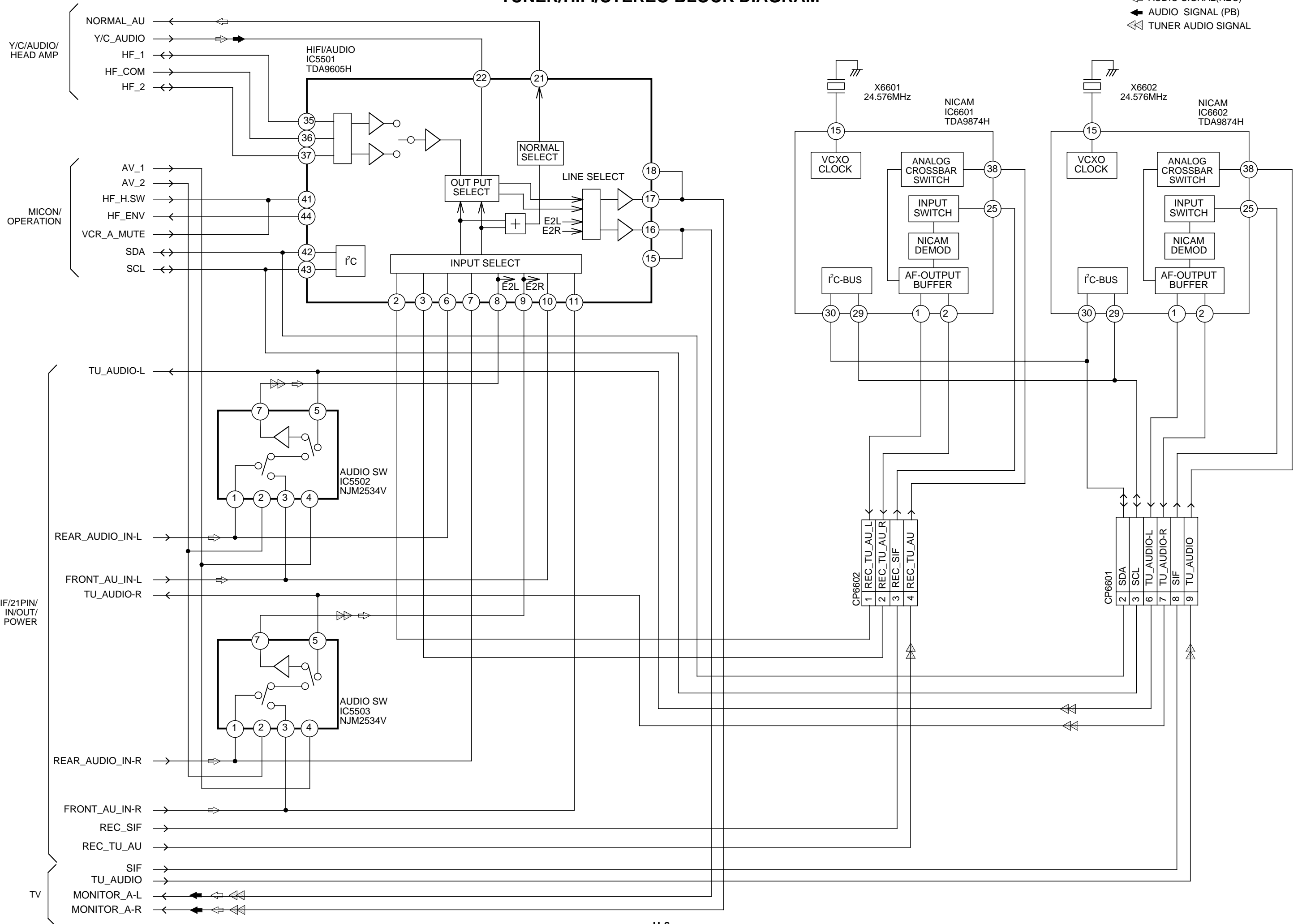
# T'TEXT BLOCK DIAGRAM



- ◀◀ RECORD LUMINANCE SIGNAL
- ◀ PLAYBACK LUMINANCE SIGNAL
- ◀◀ RECORD COLOR SIGNAL
- ◀ PLAYBACK COLOR SIGNAL
- ◀ R. SIGNAL
- ◀ G. SIGNAL
- ◀ B. SIGNAL

# TUNER/HIFI/STEREO BLOCK DIAGRAM

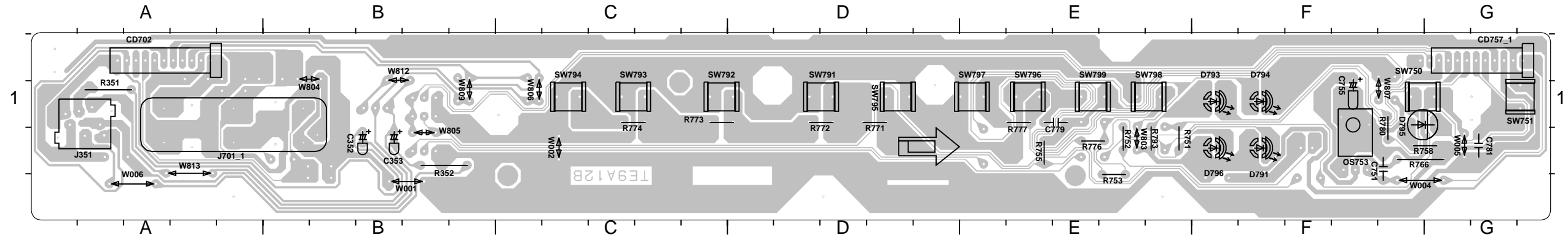
- ⇐ AUDIO SIGNAL (REC)
- ➡ AUDIO SIGNAL (PB)
- ⇐ TUNER AUDIO SIGNAL



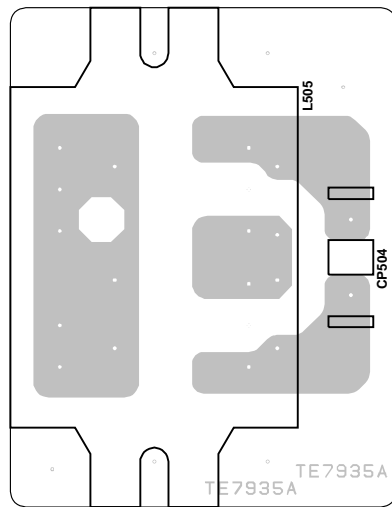


PRINTED CIRCUIT BOARDS

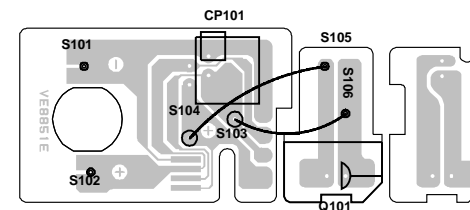
OPERATION  
SOLDER SIDE



TV POWER  
SOLDER SIDE

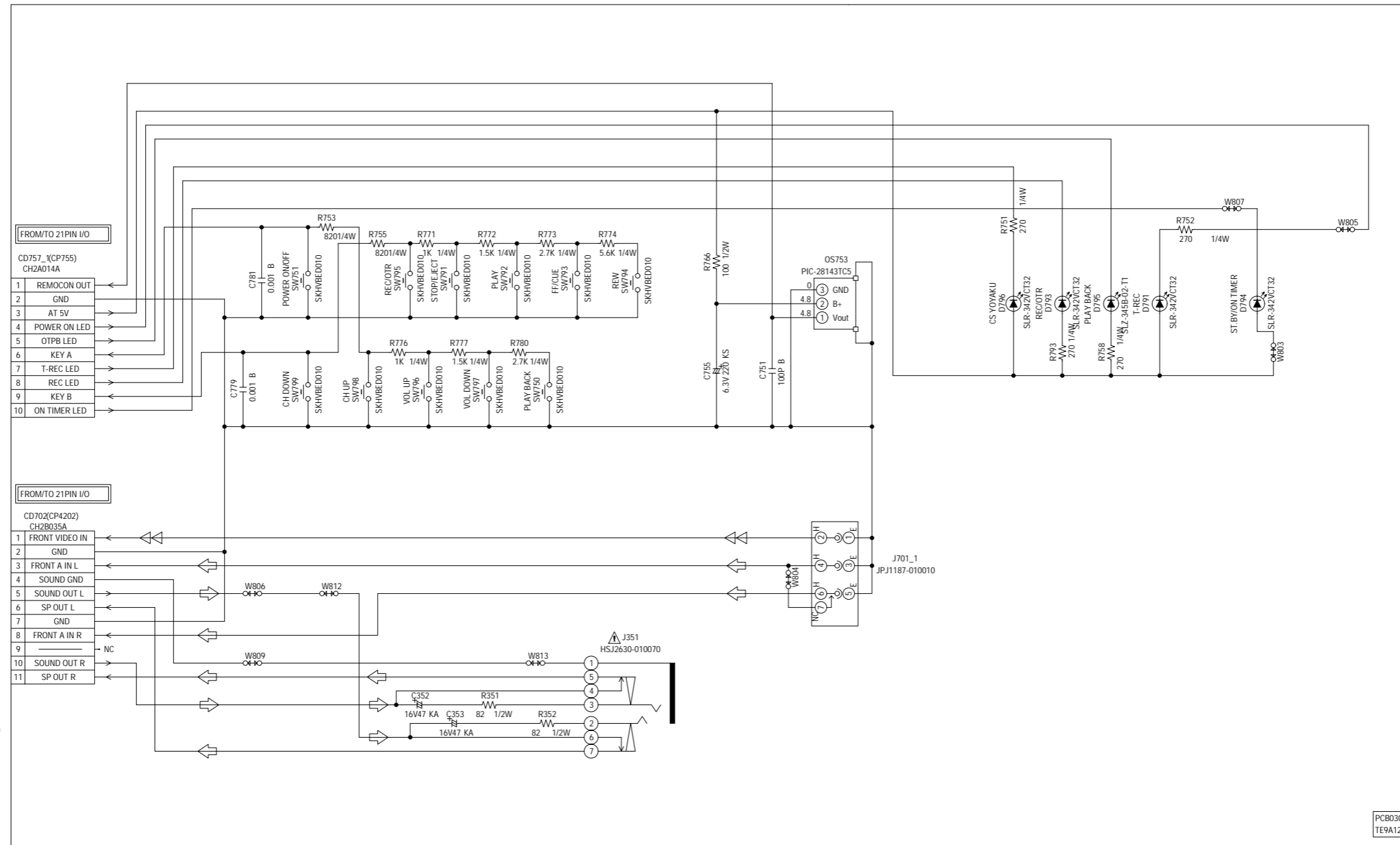


DECK  
SOLDER SIDE



# OPERATION SCHEMATIC DIAGRAM

## (OPERATION PCB)



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

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

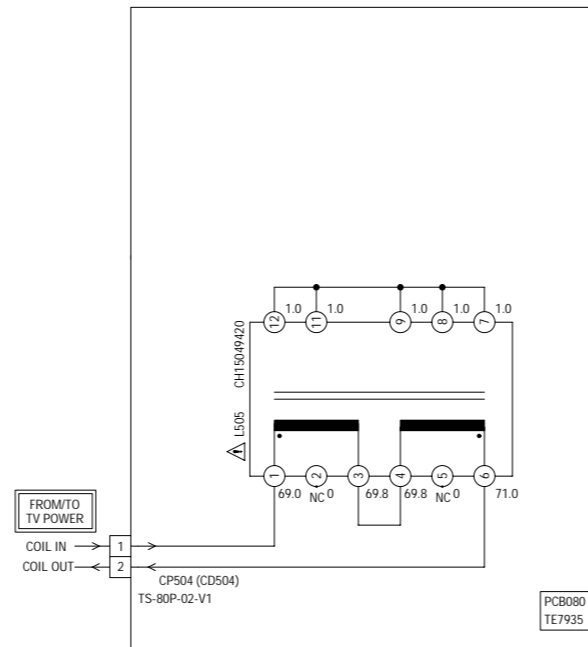
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

TUNER VIDEO SIGNAL  
 AUDIO SIGNAL

# CHOKE COIL SCHEMATIC DIAGRAM

## (TV POWER PCB)



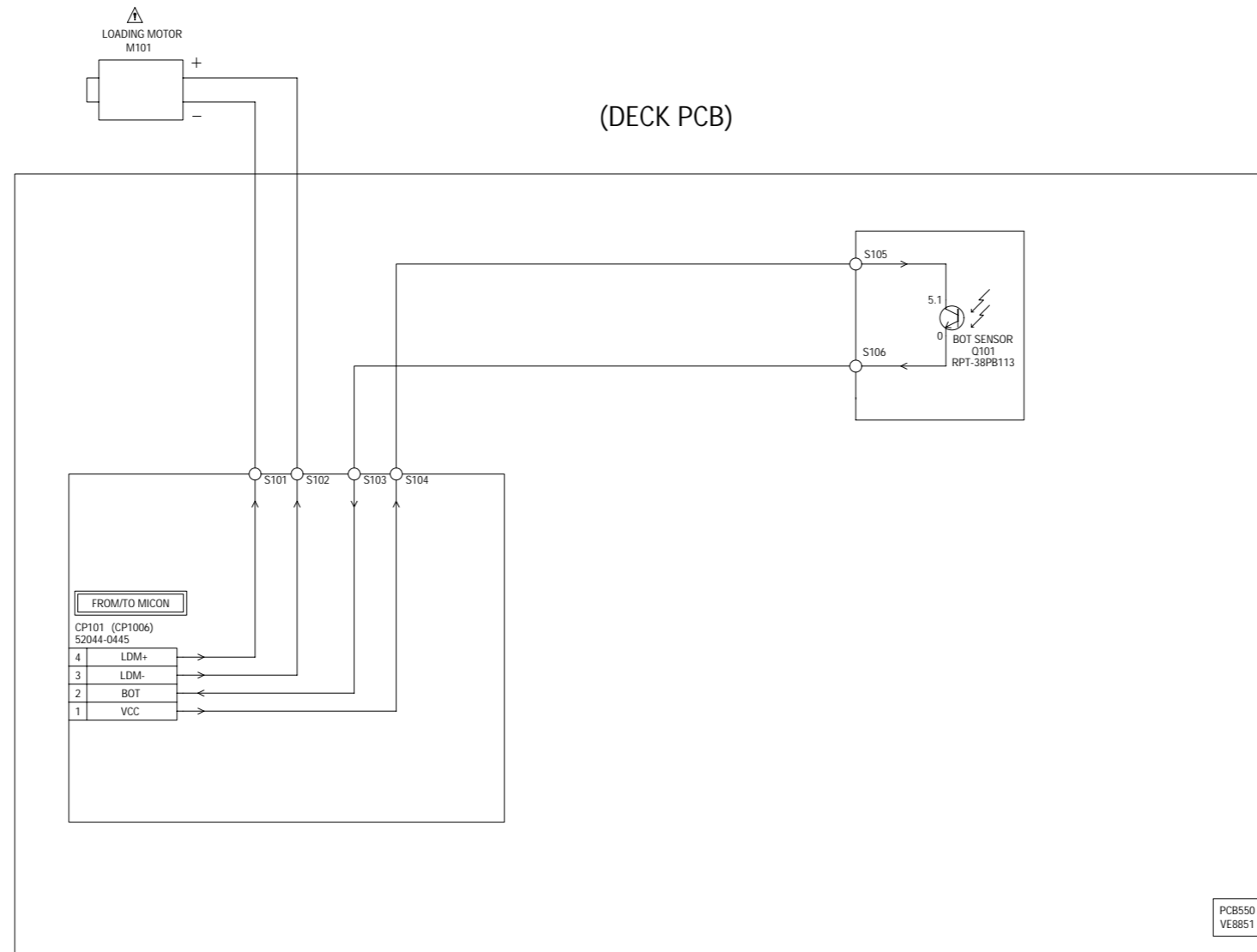
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.


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.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

# DECK SCHEMATIC DIAGRAM



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

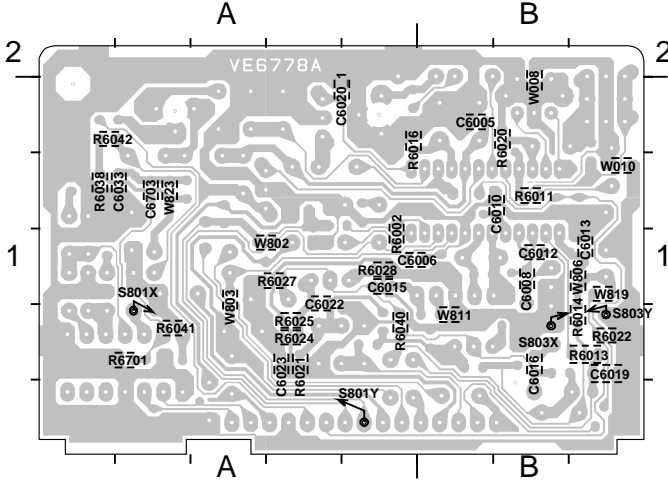
ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÉCES.

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

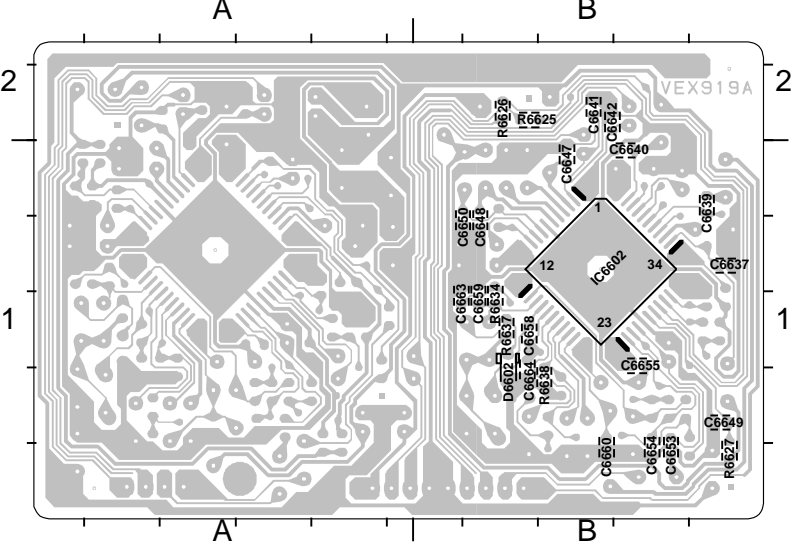
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

PRINTED CIRCUIT BOARDS

IF

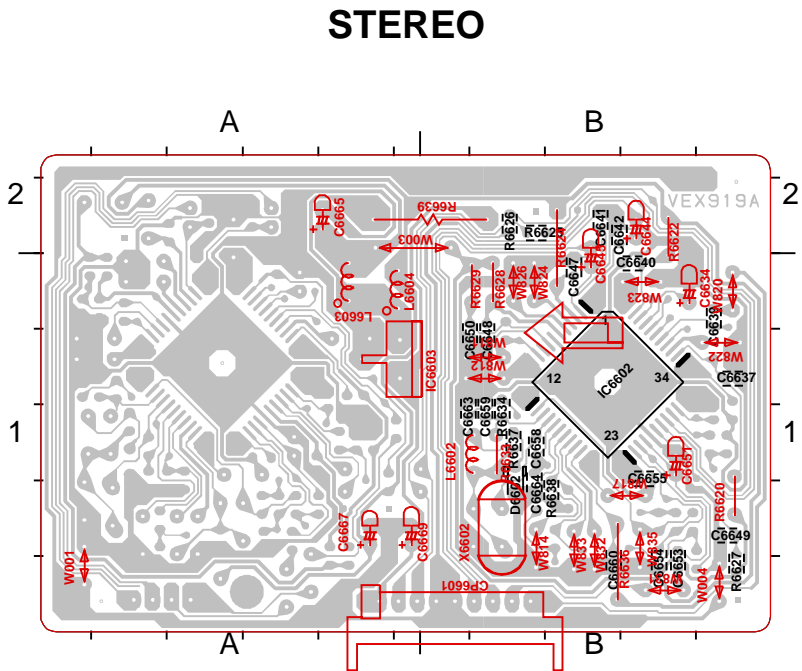
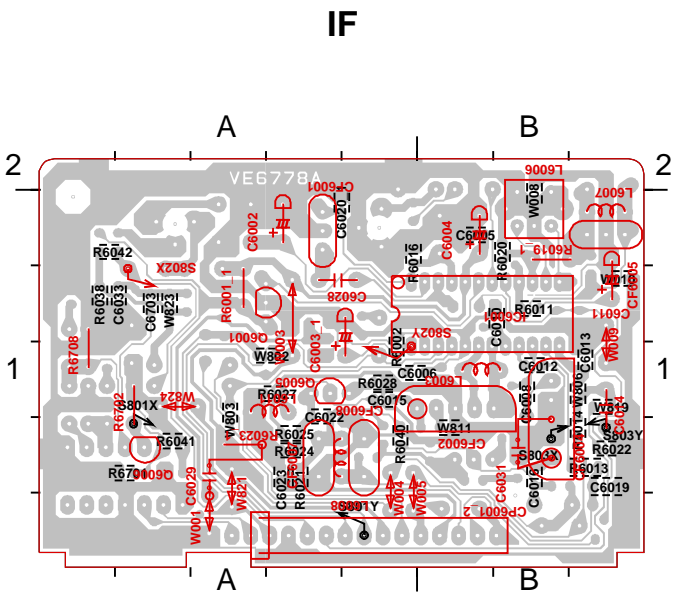


STEREO



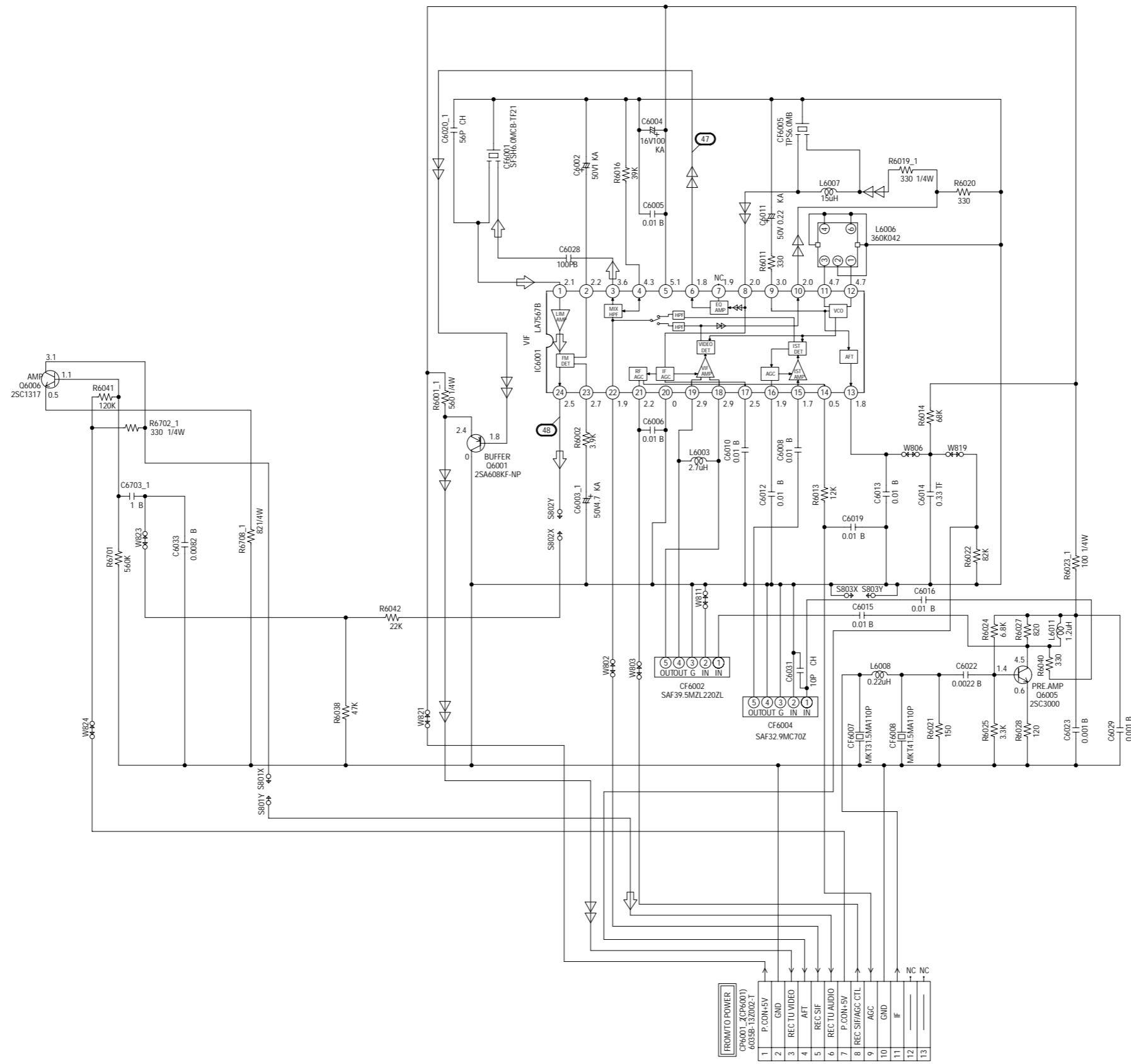


PRINTED CIRCUIT BOARDS



# IF SCHEMATIC DIAGRAM

(IF PCB)



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.

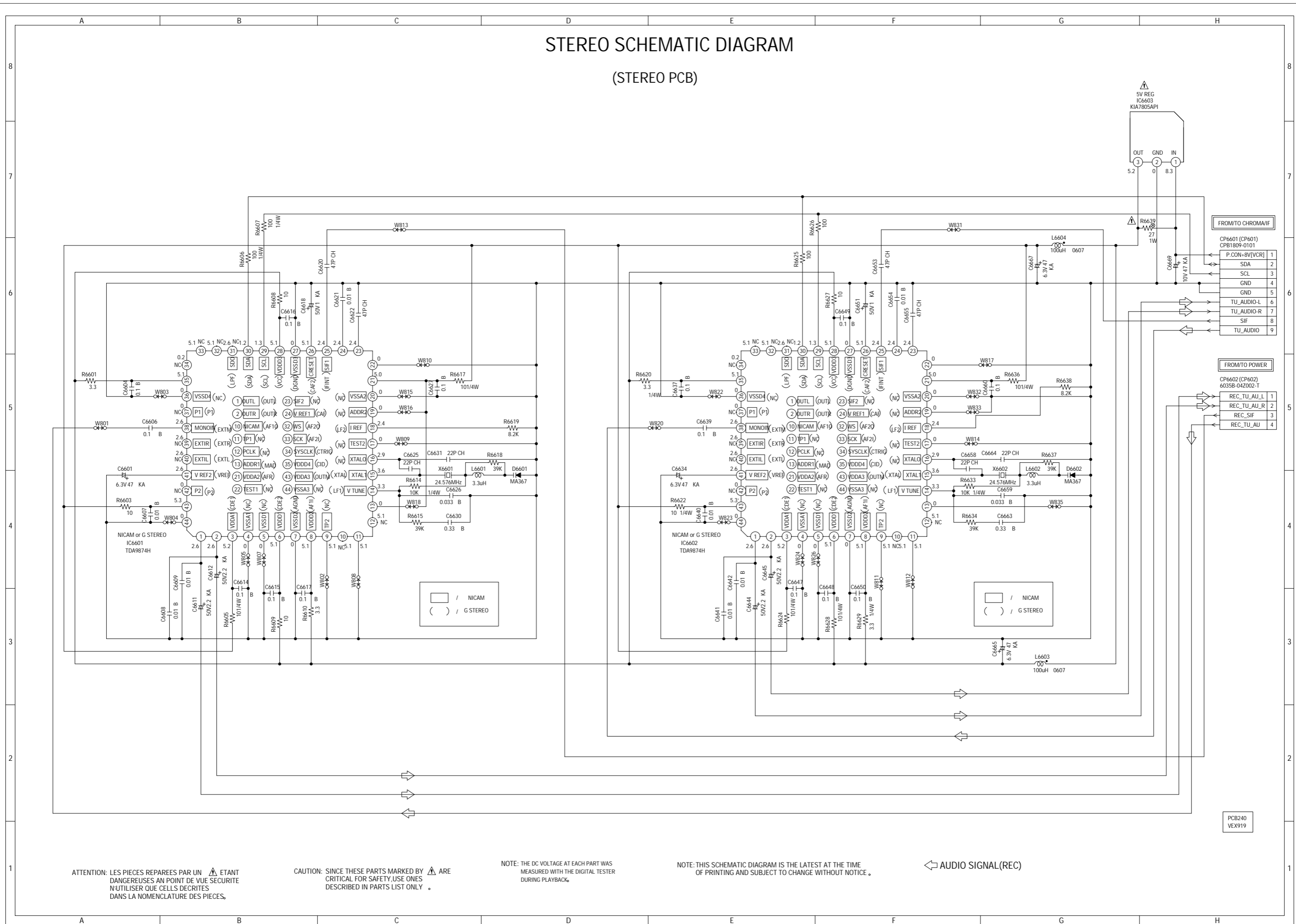
◁ TUNER VIDEO SIGNAL  
 ▷ AUDIO SIGNAL(REC)

PCB350  
VE6778



# STEREO SCHEMATIC DIAGRAM

(STEREO PCB)



ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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.

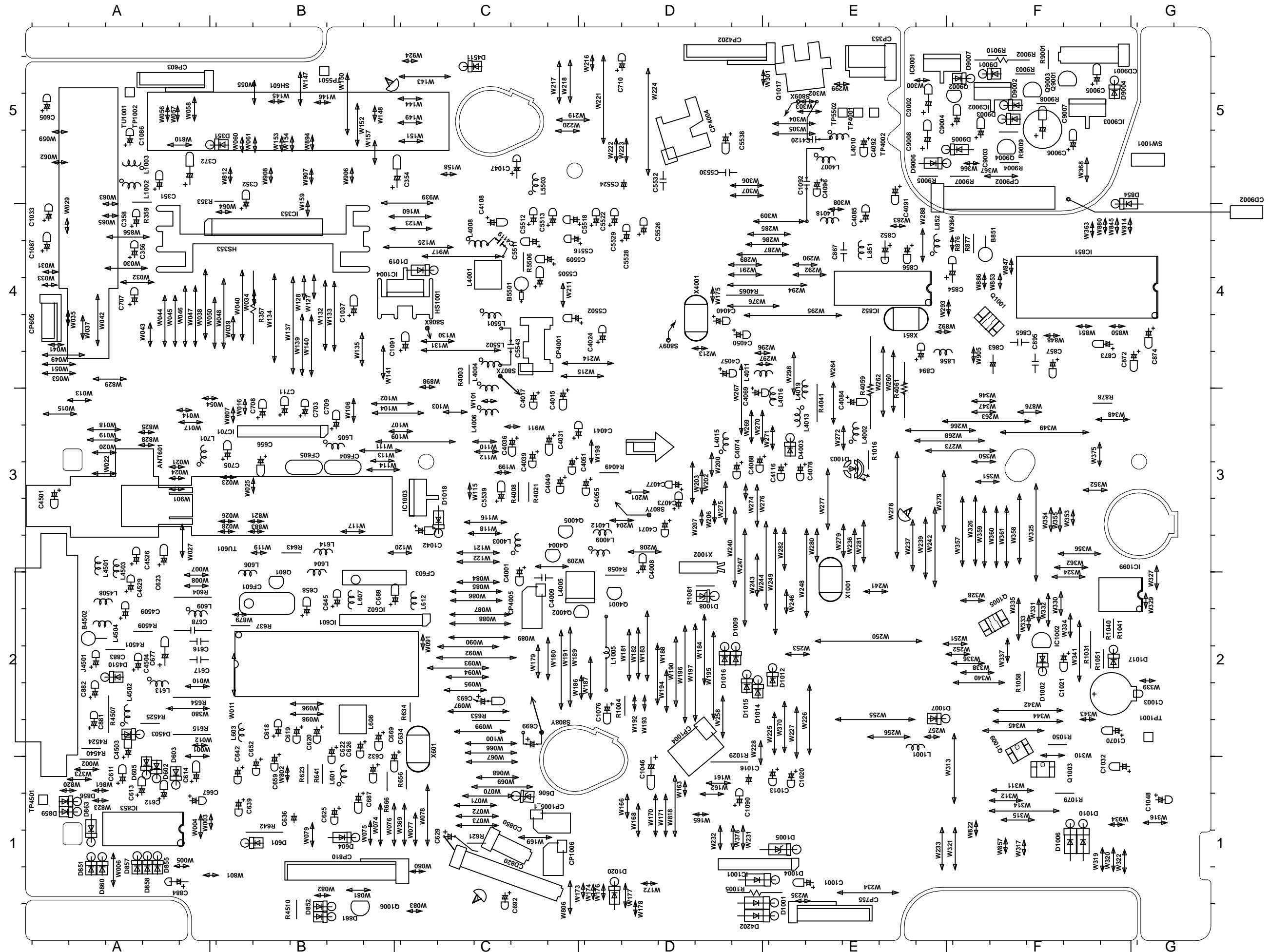
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

AUDIO SIGNAL(REC)



# PRINTED CIRCUIT BOARDS

## SYSCON/SUB POWER

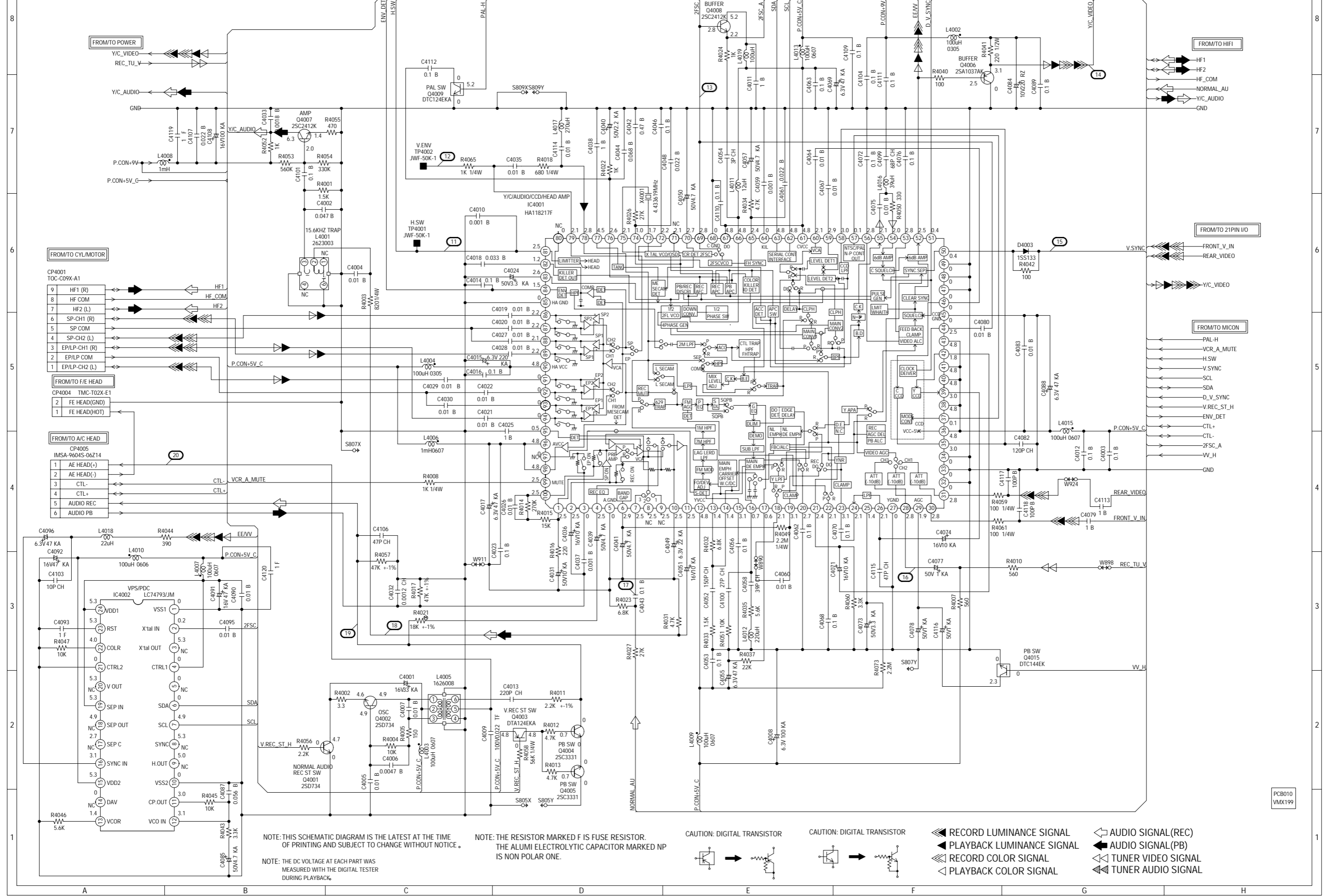








# Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)



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.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: DIGITAL TRANSISTOR



RECORD LUMINANCE SIGNAL

PLAYBACK LUMINANCE SIGNAL

RECORD COLOR SIGNAL

PLAYBACK COLOR SIGNAL

AUDIO SIGNAL (REC)

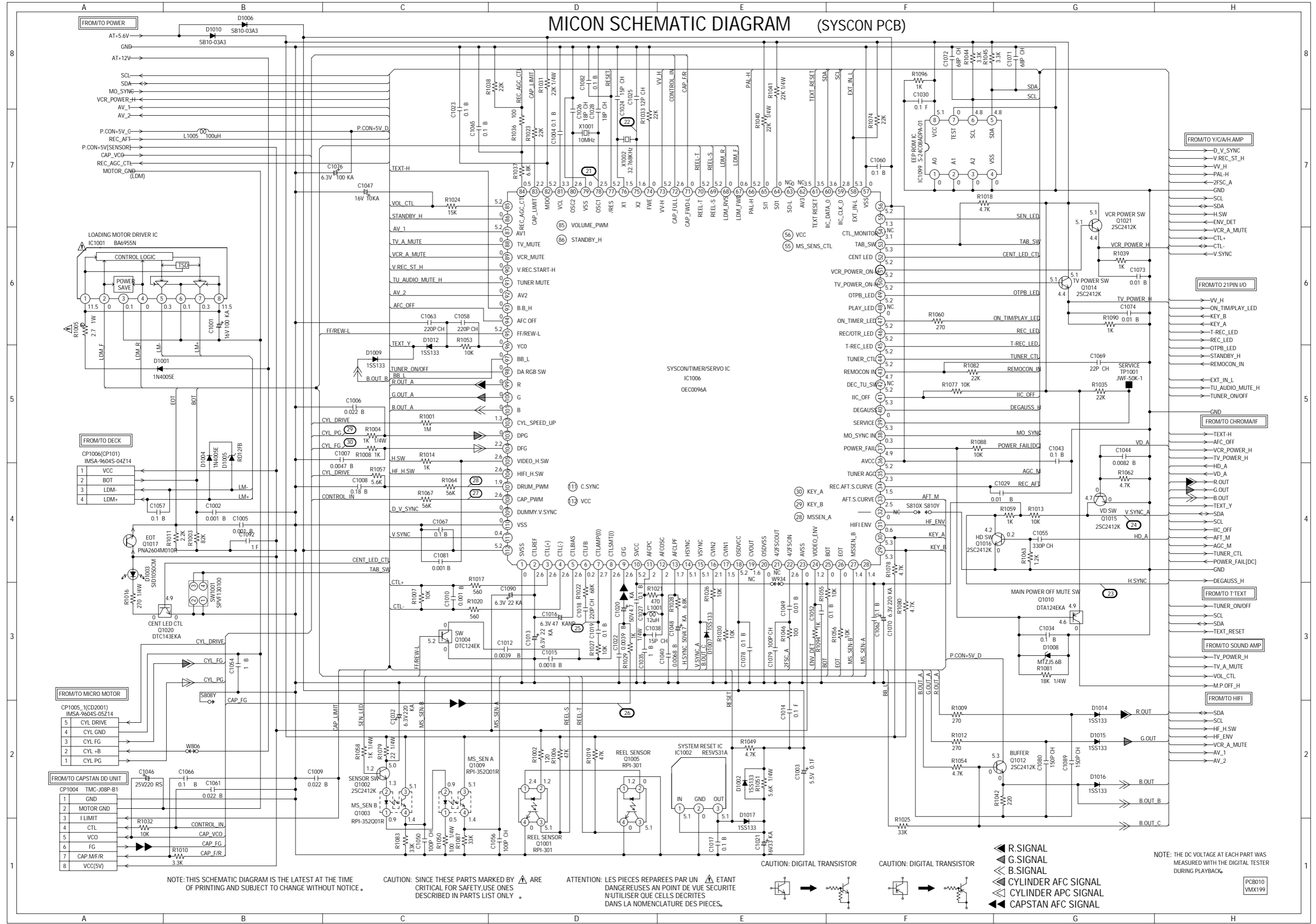
AUDIO SIGNAL (PB)

TUNER VIDEO SIGNAL

TUNER AUDIO SIGNAL

PCB010  
VMX199

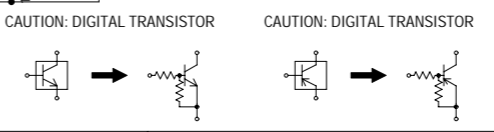
# MICON SCHEMATIC DIAGRAM (SYSCON PCB)



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.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.



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

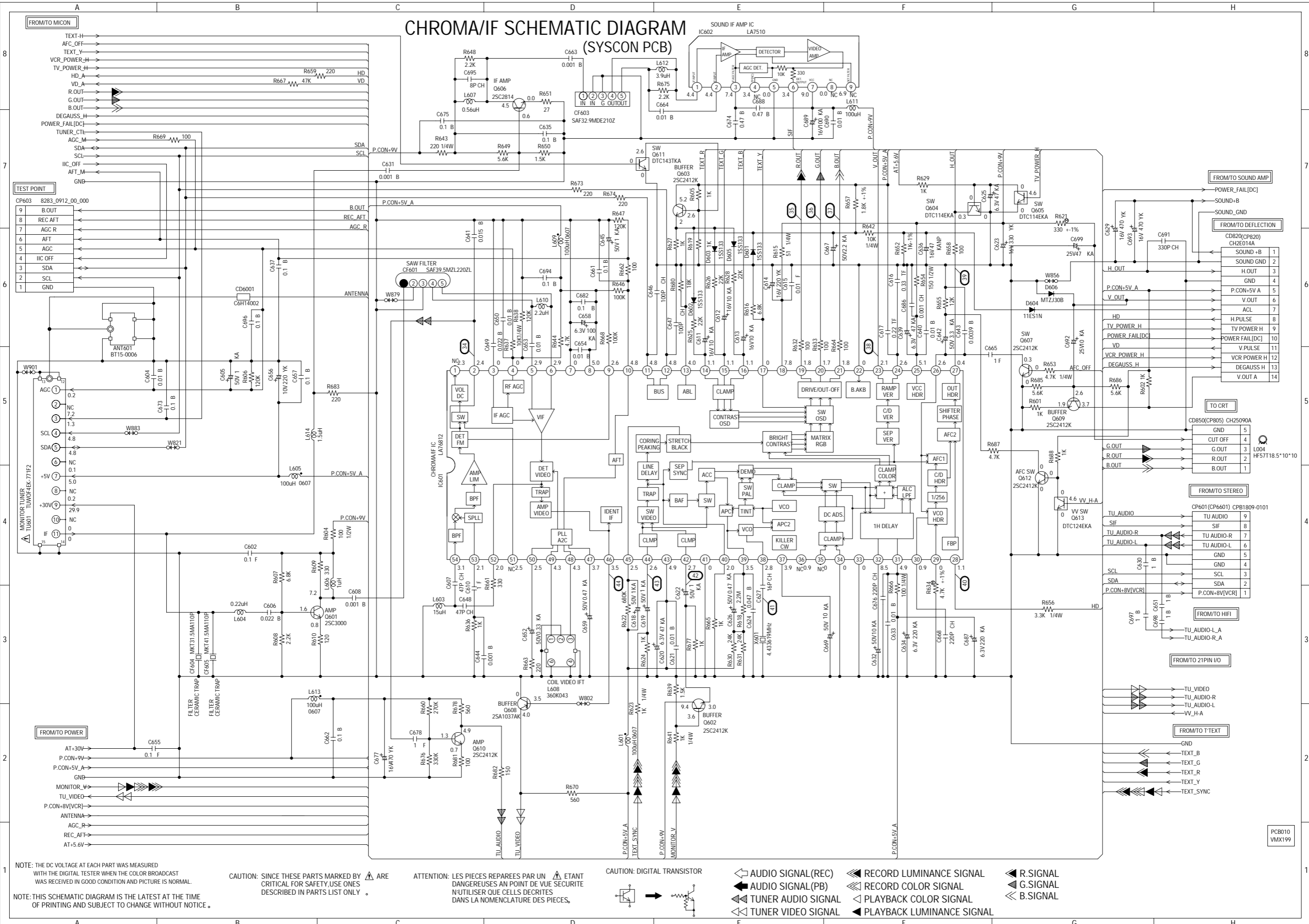
PCB010  
VMX199







# CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



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

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 DANGEROUS AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

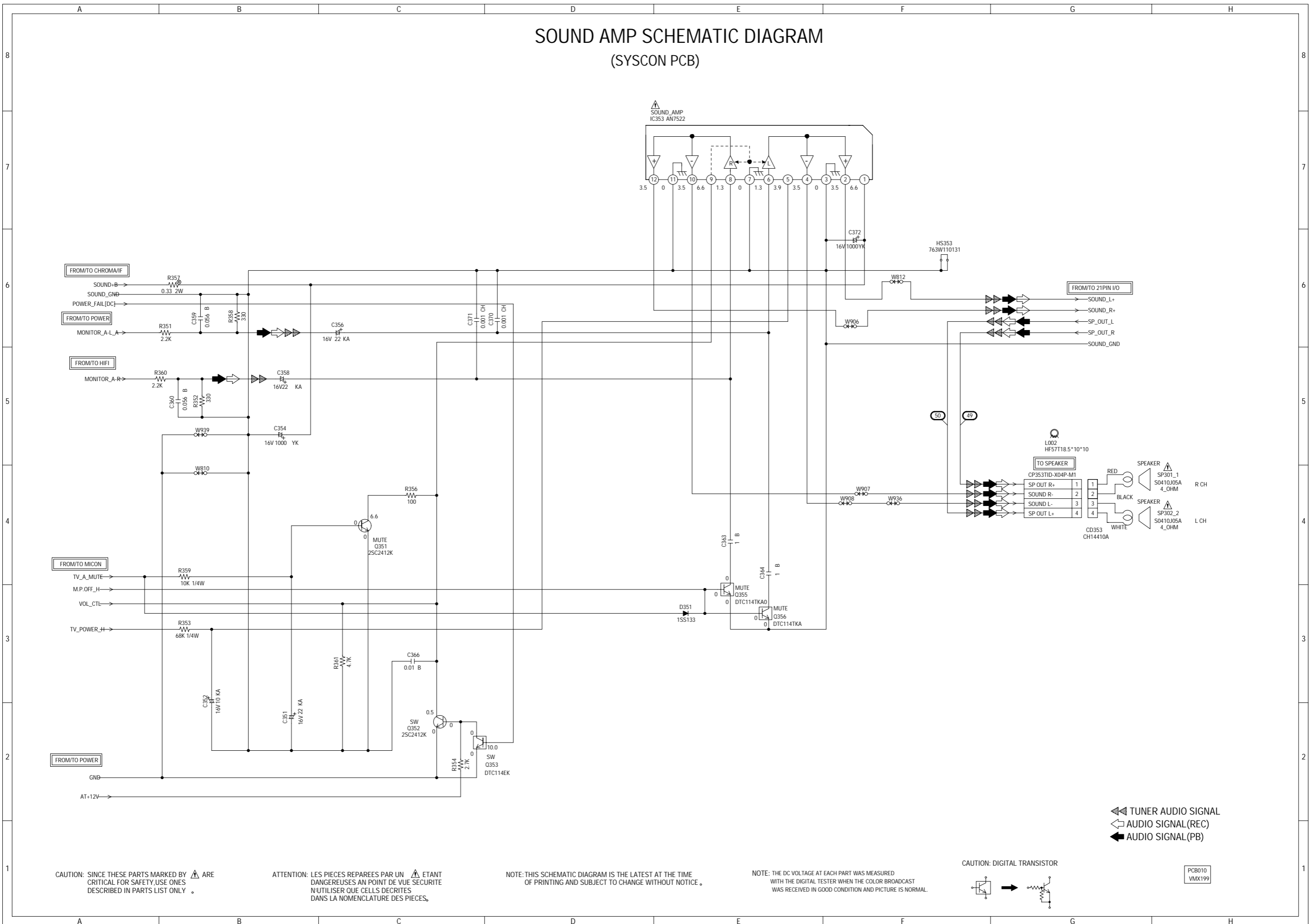
ATTENTION: LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR

- AUDIO SIGNAL (REC)
- AUDIO SIGNAL (PB)
- TUNER AUDIO SIGNAL
- TUNER VIDEO SIGNAL
- RECORD LUMINANCE SIGNAL
- RECORD COLOR SIGNAL
- PLAYBACK COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- R.SIGNAL
- G.SIGNAL
- B.SIGNAL

PCB010 VMX199

# SOUND AMP SCHEMATIC DIAGRAM (SYSCON PCB)



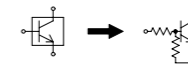
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

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

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

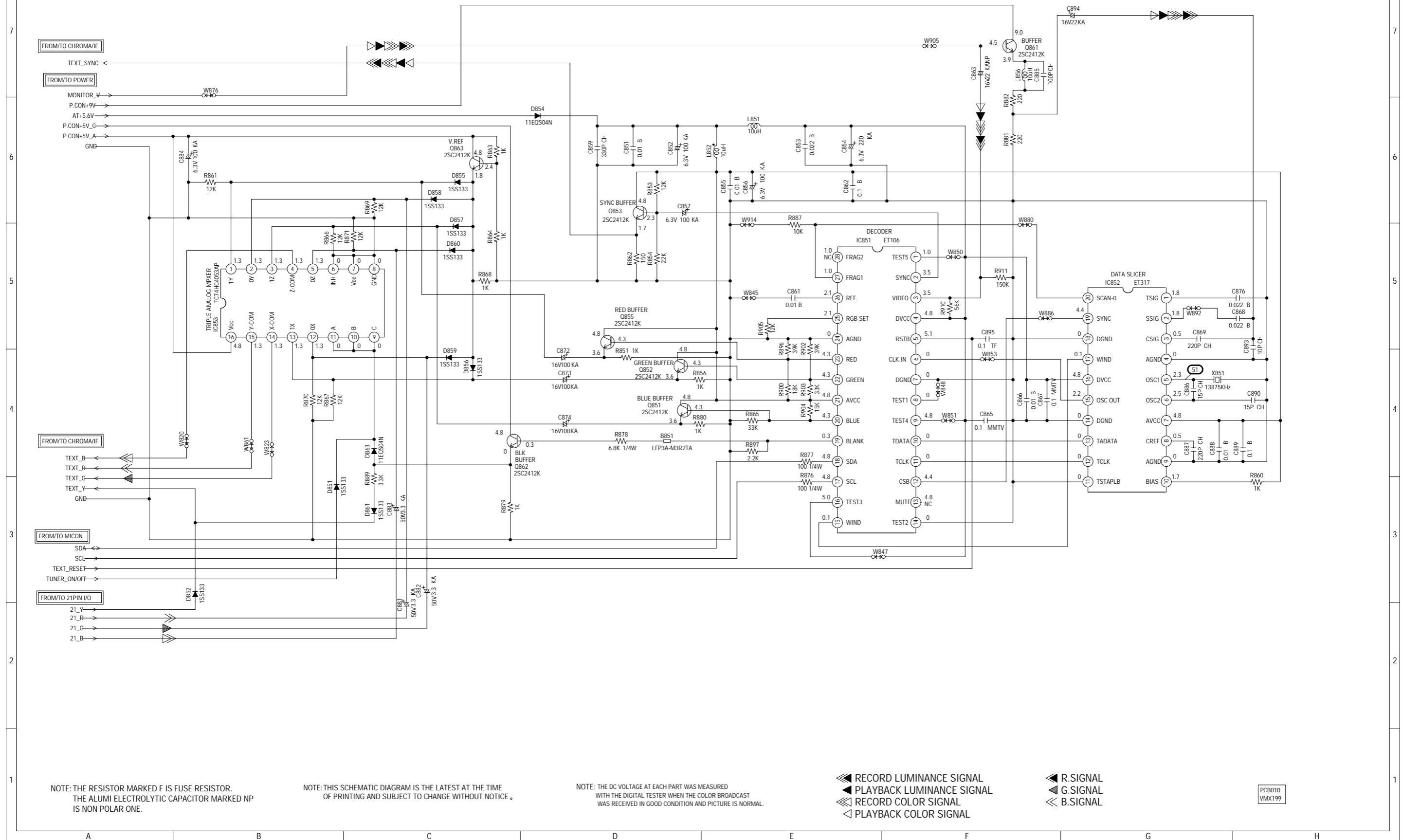
CAUTION: DIGITAL TRANSISTOR



PCB010  
VMX199

# T'TEXT SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

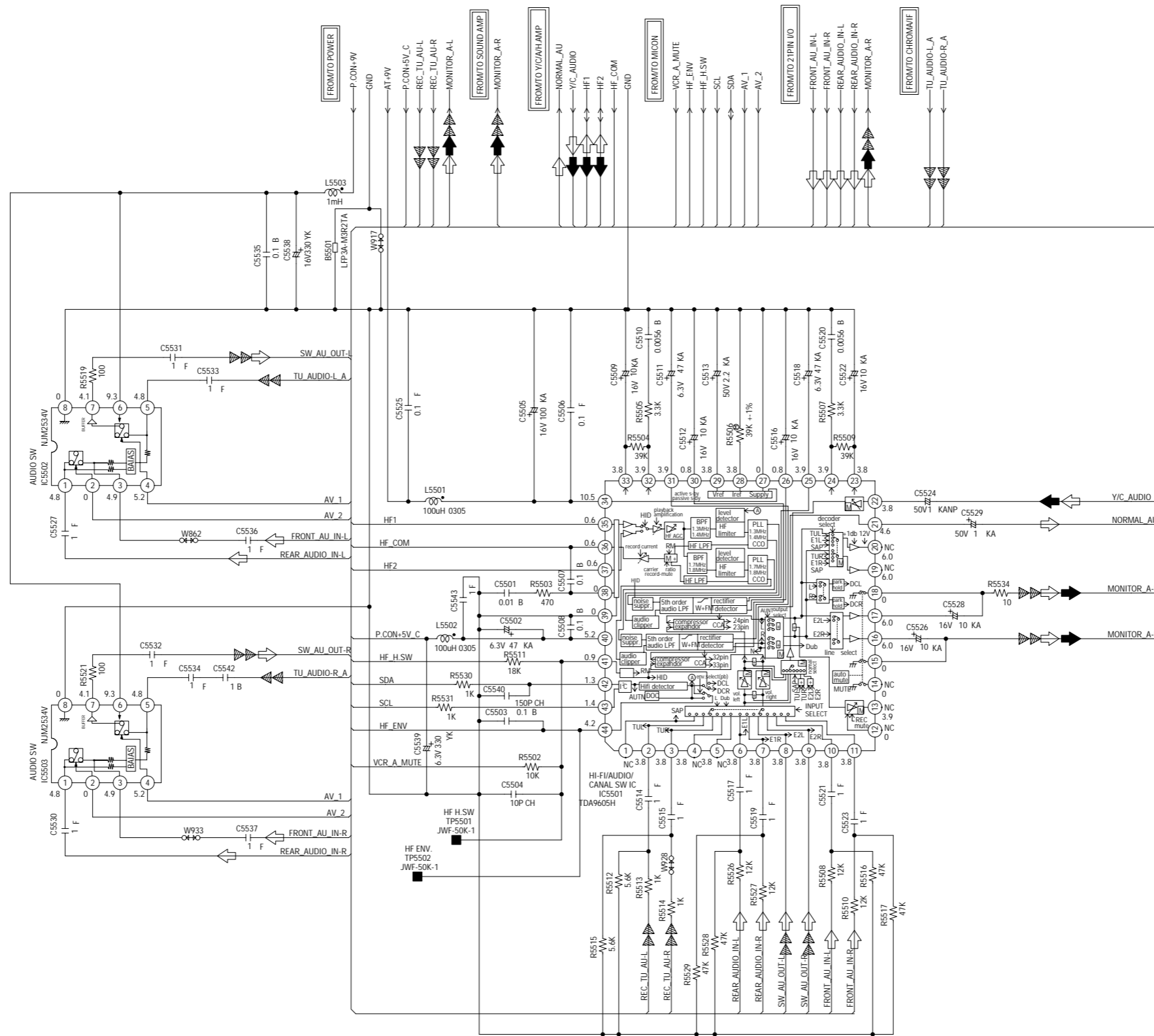
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

- ▶ RECORD LUMINANCE SIGNAL
- ▶▶ PLAYBACK LUMINANCE SIGNAL
- ▶▶▶ RECORD COLOR SIGNAL
- ▶▶▶▶ PLAYBACK COLOR SIGNAL
- ▶ R.SIGNAL
- ▶▶ G.SIGNAL
- ▶▶▶ B.SIGNAL

PCB010  
VMX199

# TUNER/HI-FI SCHEMATIC DIAGRAM (SYSCON PCB)



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.

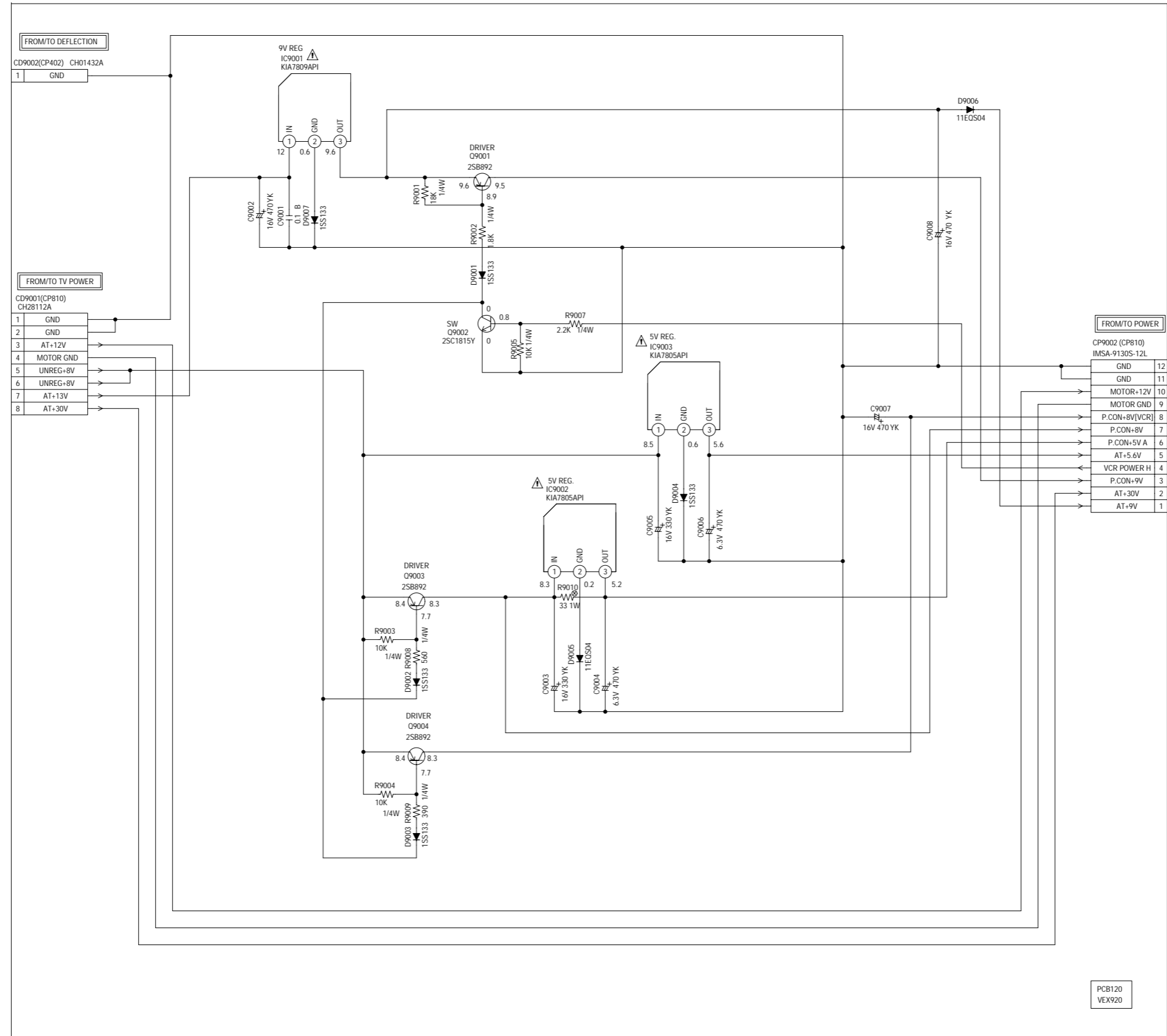
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

PCB010  
VMX199

# REGULATOR SCHEMATIC DIAGRAM (SYSCON PCB)



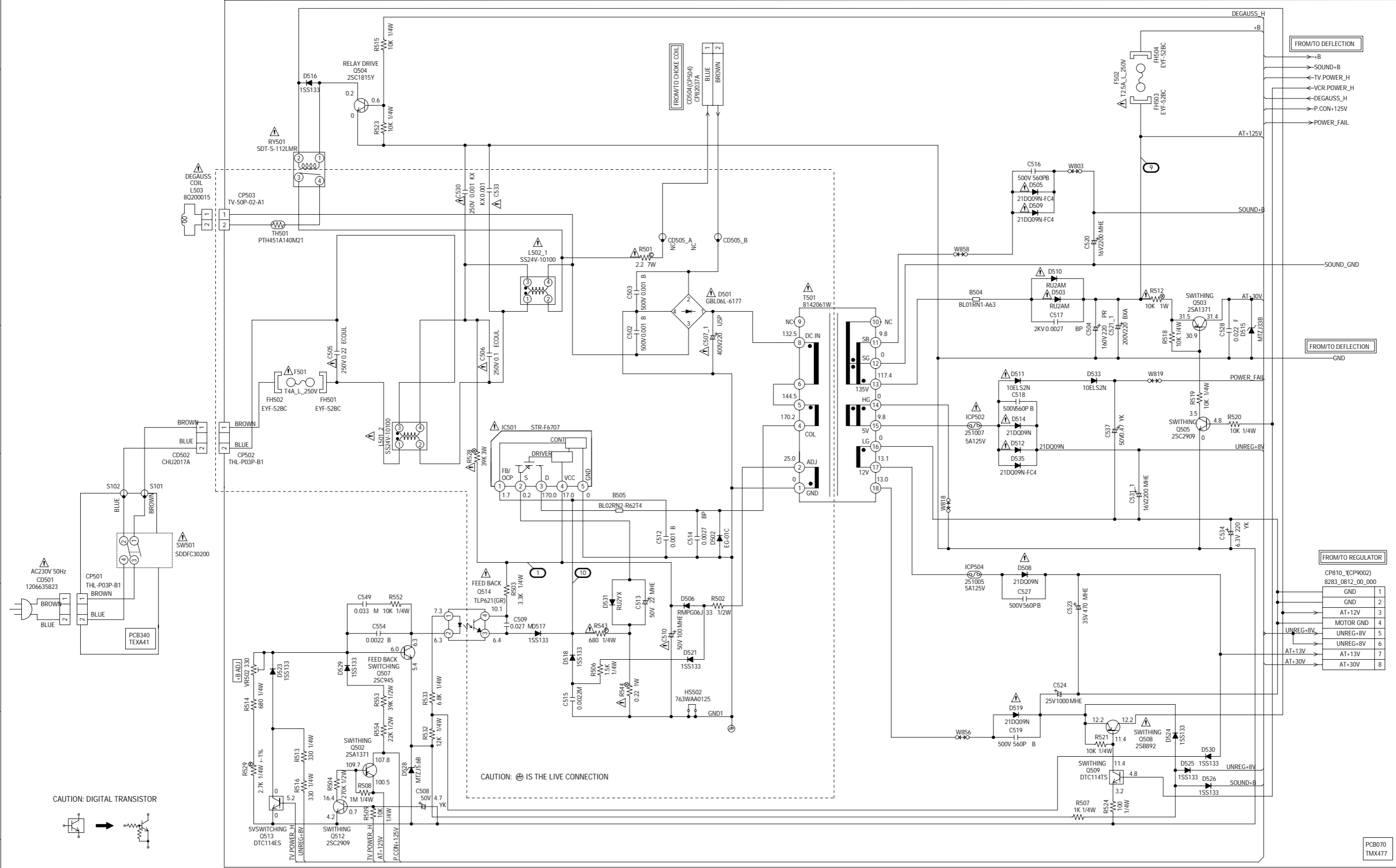
PCB120  
VEX920

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.



# TV POWER SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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

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

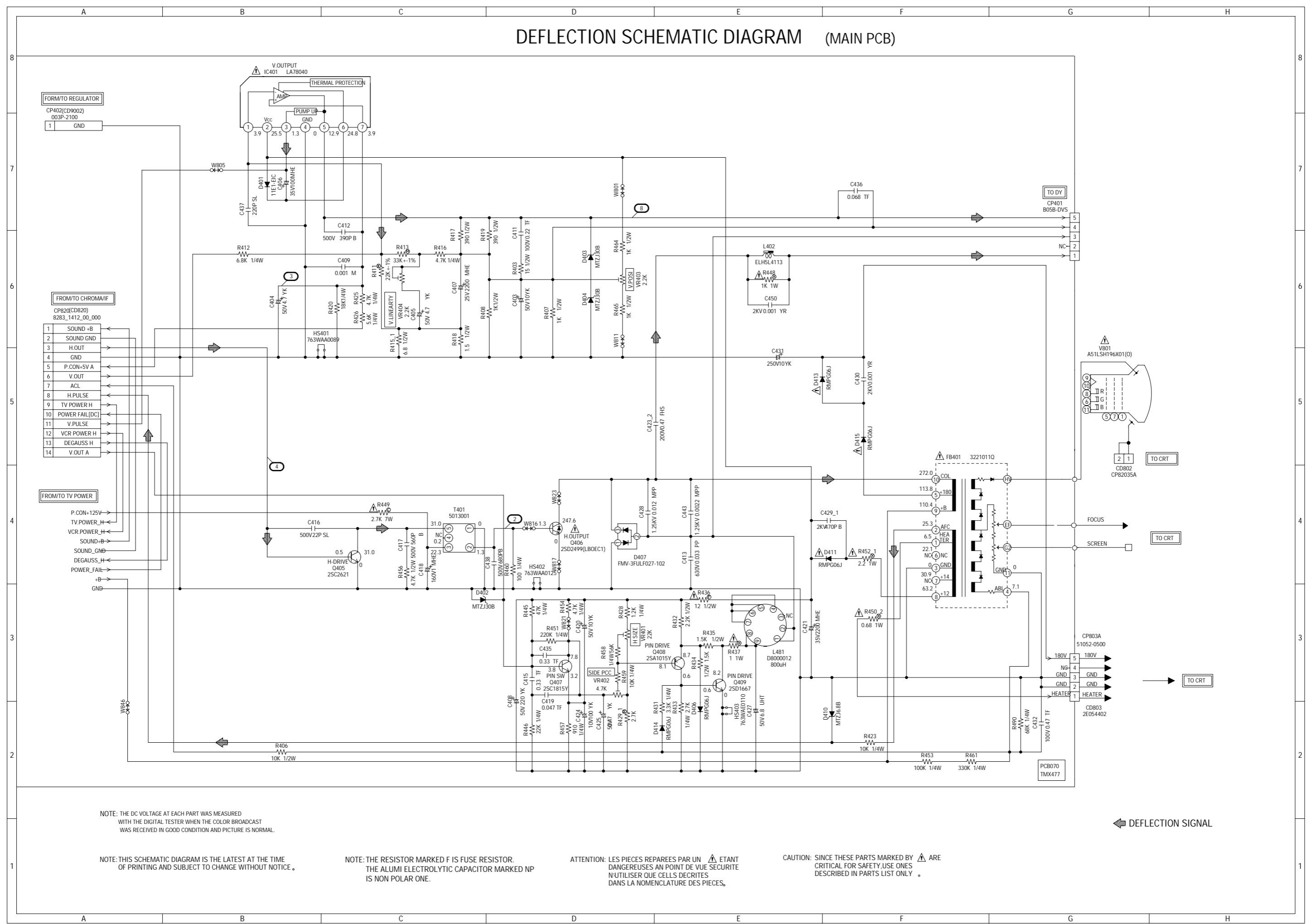
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

FROM/TO REGULATOR	
GND	1
GND	2
AT+12V	3
MOTOR GND	4
UNREG+8V	5
UNREG+8V	6
AT+13V	7
AT+30V	8

PCB070  
TMX477

# DEFLECTION SCHEMATIC DIAGRAM (MAIN PCB)



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

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

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN  $\Delta$  ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

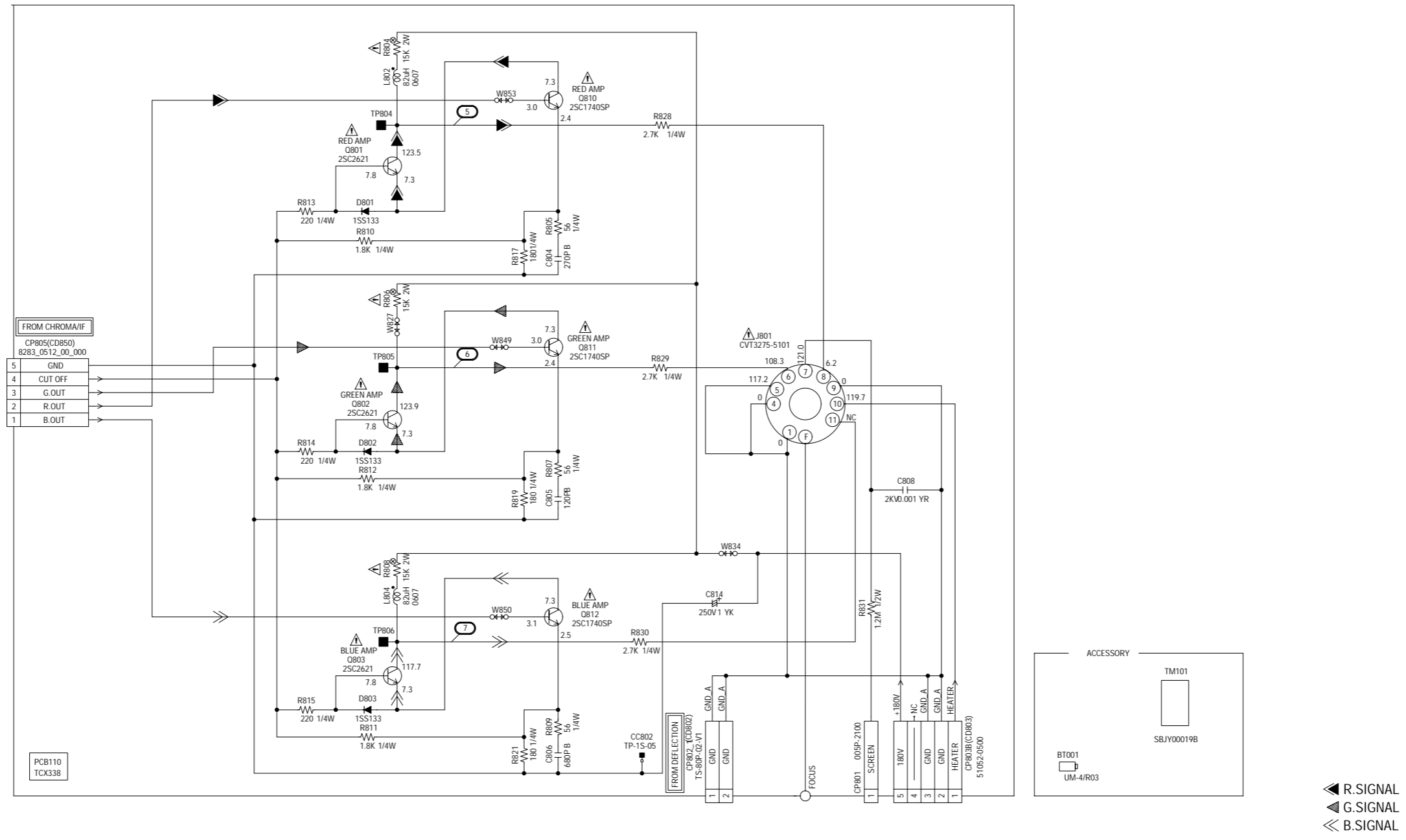
CAUTION: SINCE THESE PARTS MARKED  $\Delta$  ARE CRITICAL FOR SAFETY USE ONES DESCRIBED IN PARTS LIST ONLY.

$\blacktriangleleft$  DEFLECTION SIGNAL



# CRT SCHEMATIC DIAGRAM

(CRT PCB)



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

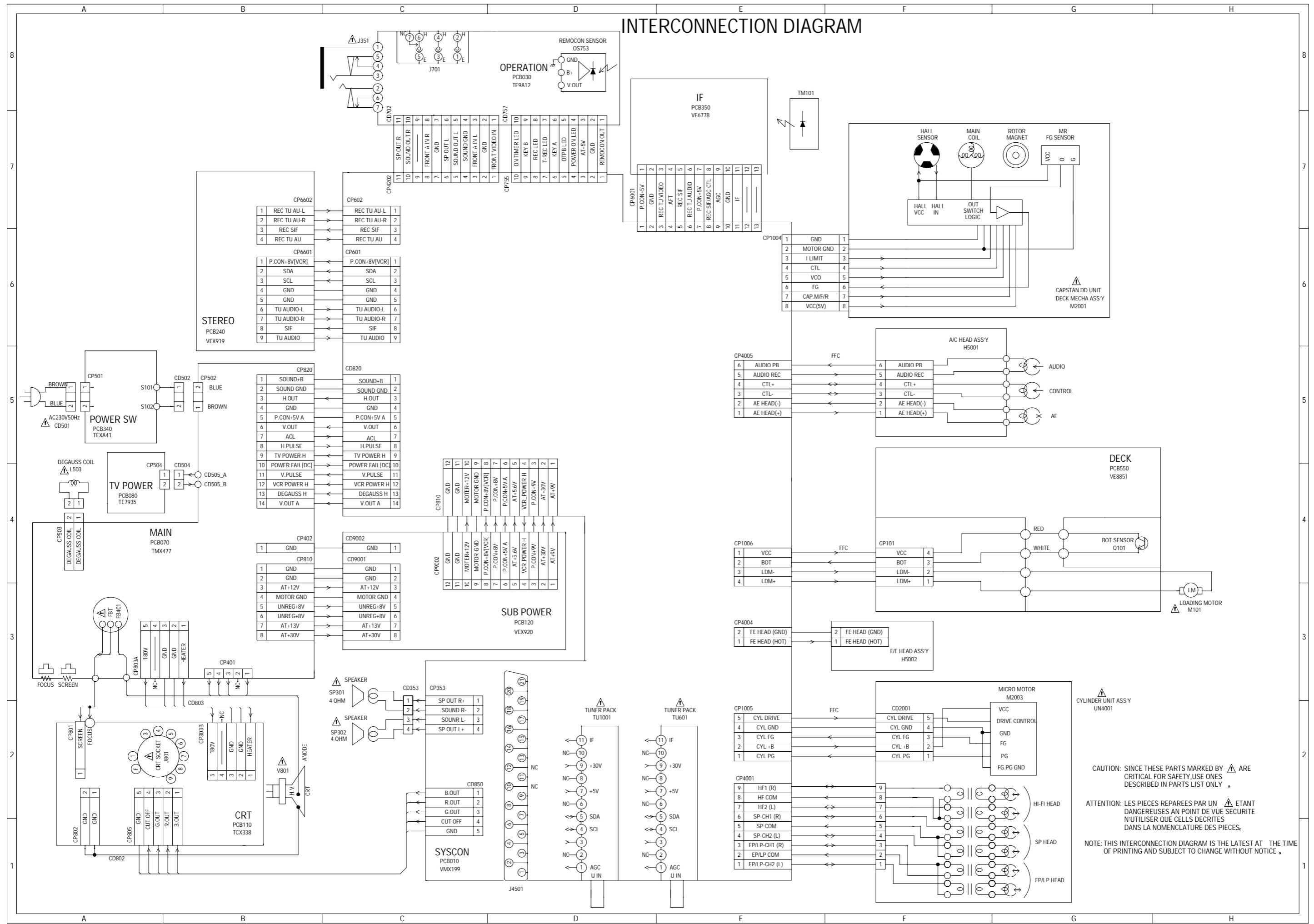
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

ATTENTION: LES PIÈCES REPARÉES PAR UN  $\Delta$  ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

◀ R.SIGNAL  
 ▲ G.SIGNAL  
 ◀ B.SIGNAL

# INTERCONNECTION DIAGRAM



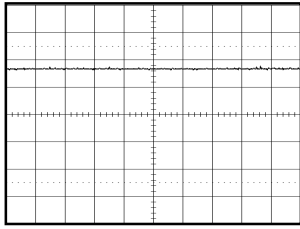
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIÈCES.

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

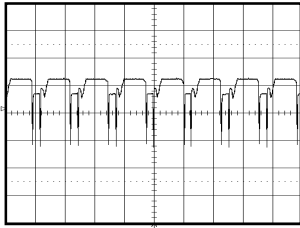
# WAVEFORMS

## TV POWER

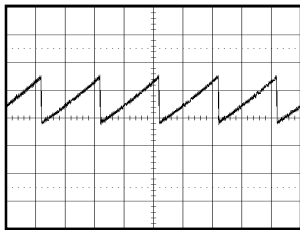


① 5V 0.1ms/div

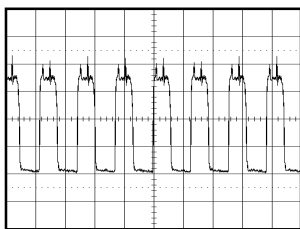
## DEFLECTION



② 5V 50μs/div

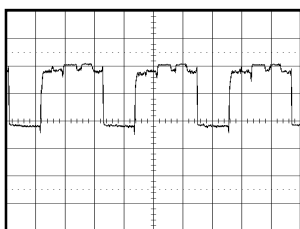


③ 0.5V 10ms/div

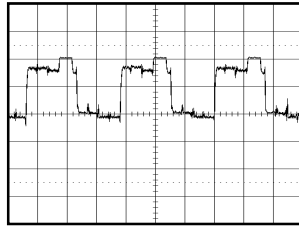


④ 200mV 50μs/div

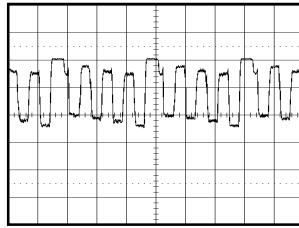
## CRT



⑤ 2V 20μs/div

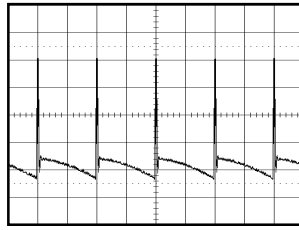


⑥ 20V 20μs/div



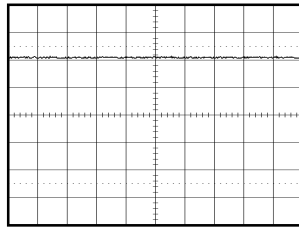
⑦ 20V 20μs/div

## DEFLECTION

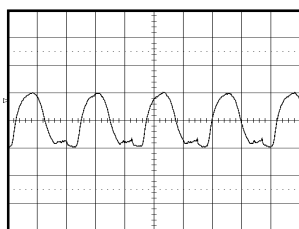


⑧ 10V 10ms/div

## TV POWER

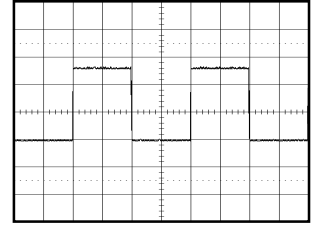


⑨ 20V 10ms/div

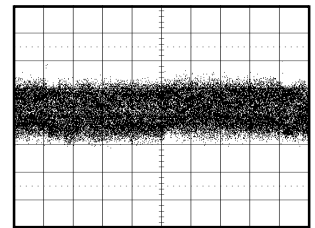


⑩ 2V 5μs/div

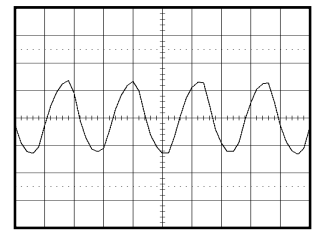
## Y/C/AUDIO/HEAD AMP



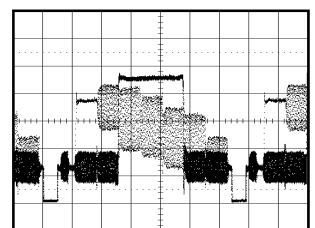
⑪ PB  
2V 10ms/div



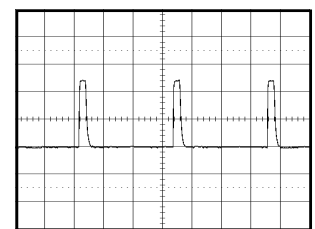
⑫ PB  
10mV 5ms/div



⑬ POWER ON  
200mV 50ns/div



⑭ POWER ON  
0.5V 10μs/div

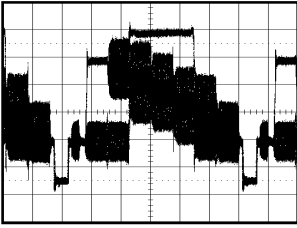


⑮ POWER ON  
2V 20μs/div

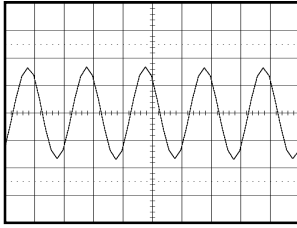
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# WAVEFORMS

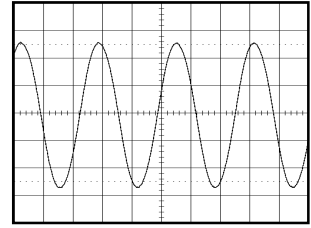
## MICON



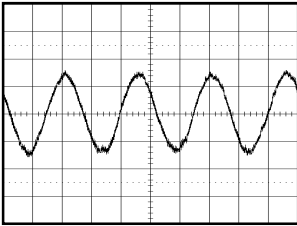
①⑥ POWER ON  
200mV 10µs/div



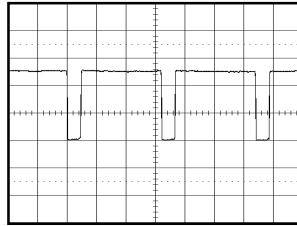
②① POWER ON  
1V 50ns/div



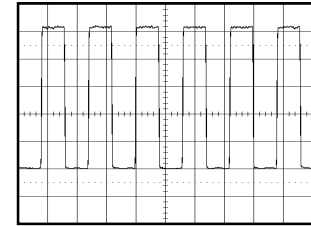
②⑥ PB  
50mV 0.5ms/div



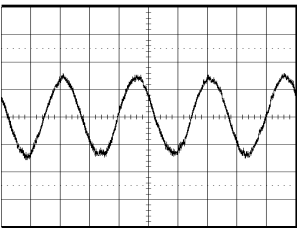
①⑦ POWER ON  
50mV 1ms/div



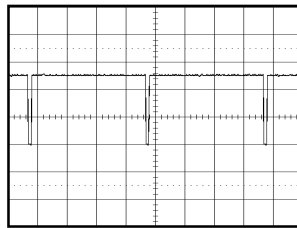
②② POWER ON  
1V 20µs/div



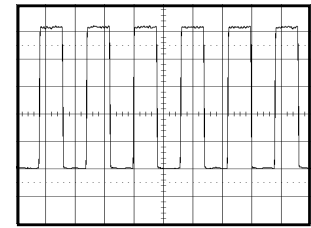
②⑦ PB  
1V 0.5µs/div



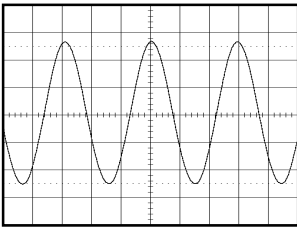
①⑧ POWER ON  
50mV 1ms/div



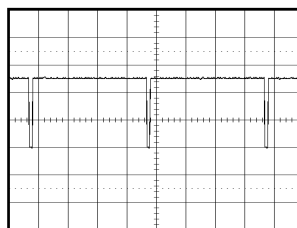
②③ POWER ON  
2V 20µs/div



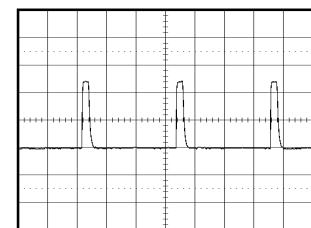
②⑧ PB  
1V 0.5µs/div



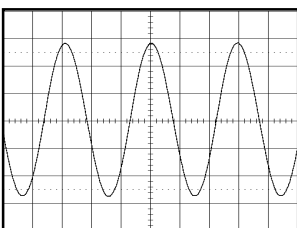
①⑨ REC  
10V 5µs/div



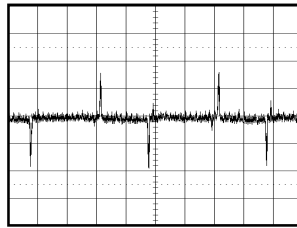
②④ POWER ON  
2V 5ms/div



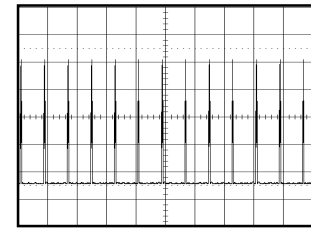
②⑨ PB  
2V 20µs/div



②⑩ REC  
10V 5µs/div



②⑤ PB  
50mV 10ms/div

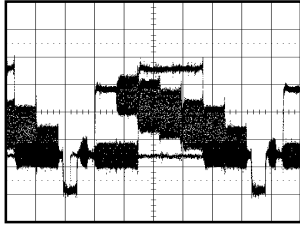


③⑩ PB  
1V 50ms/div

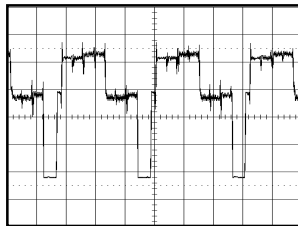
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

## WAVEFORMS

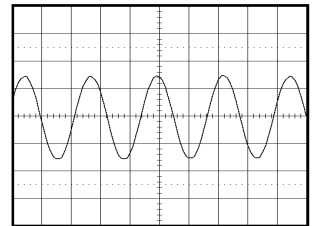
### POWER



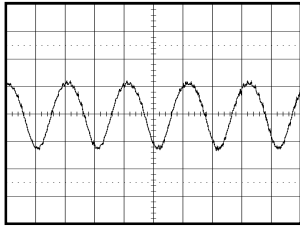
③① REC  
0.5V 10 $\mu$ s/div



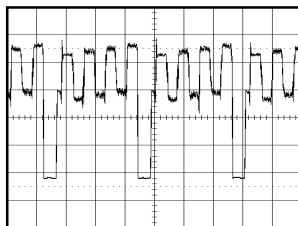
③⑥ POWER ON  
0.5V 20 $\mu$ s/div



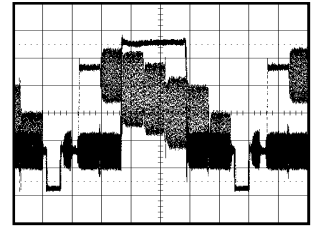
④① POWER ON  
200mV 0.1 $\mu$ s/div



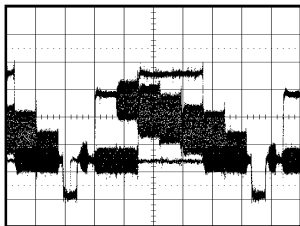
③② REC  
0.5V 0.5ms/div



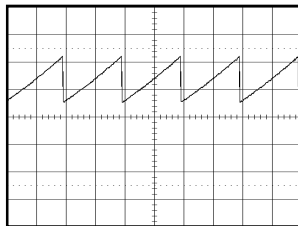
③⑦ POWER ON  
0.5V 20 $\mu$ s/div



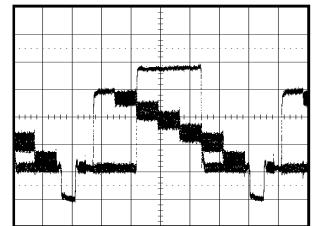
④② POWER ON  
200mV 10 $\mu$ s/div



③③ REC  
0.5V 10 $\mu$ s/div

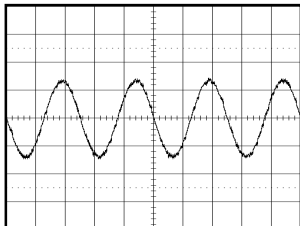


③⑧ POWER ON  
0.5V 10ms/div

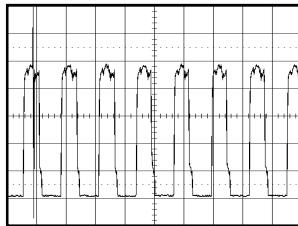


④③ POWER ON  
10mV 10 $\mu$ s/div

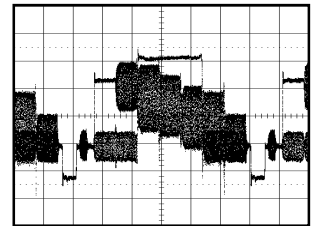
### CHROMA/IF



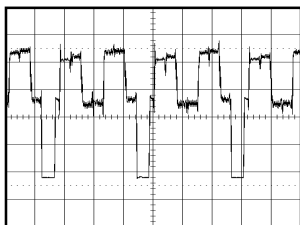
③④ POWER ON  
5mV 1ms/div



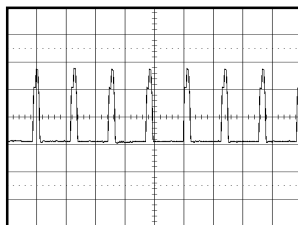
③⑨ POWER ON  
200mV 50 $\mu$ s/div



④④ POWER ON  
0.5V 10 $\mu$ s/div

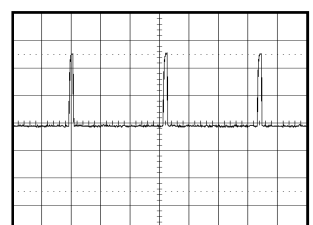


③⑤ POWER ON  
0.5V 20 $\mu$ s/div



④⑩ POWER ON  
2V 50 $\mu$ s/div

### POWER

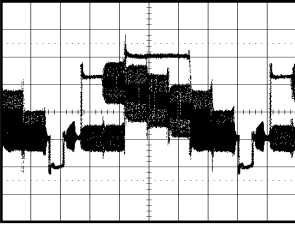


④⑤ REC  
2V 20 $\mu$ s/div

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

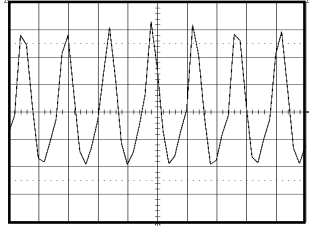
# WAVEFORMS

## 21PIN IN/OUT



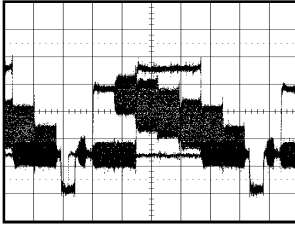
④⑥ POWER ON  
0.5V 10 $\mu$ s/div

## T'TEXT



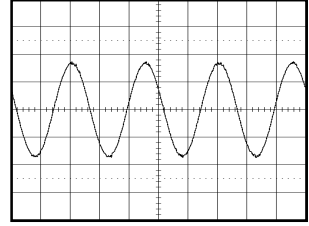
⑤① POWER ON  
200mV 50ns/div

## IF

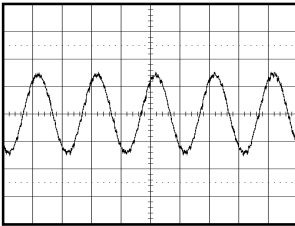


④⑦ REC  
0.5V 10 $\mu$ s/div

## 21PIN IN/OUT

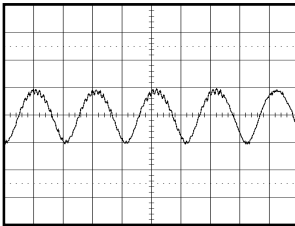


⑤② POWER ON  
20mV 1ms/div

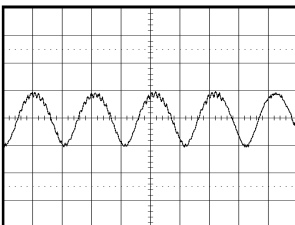


④⑧ REC  
100mV 0.5ms/div

## SOUND AMP



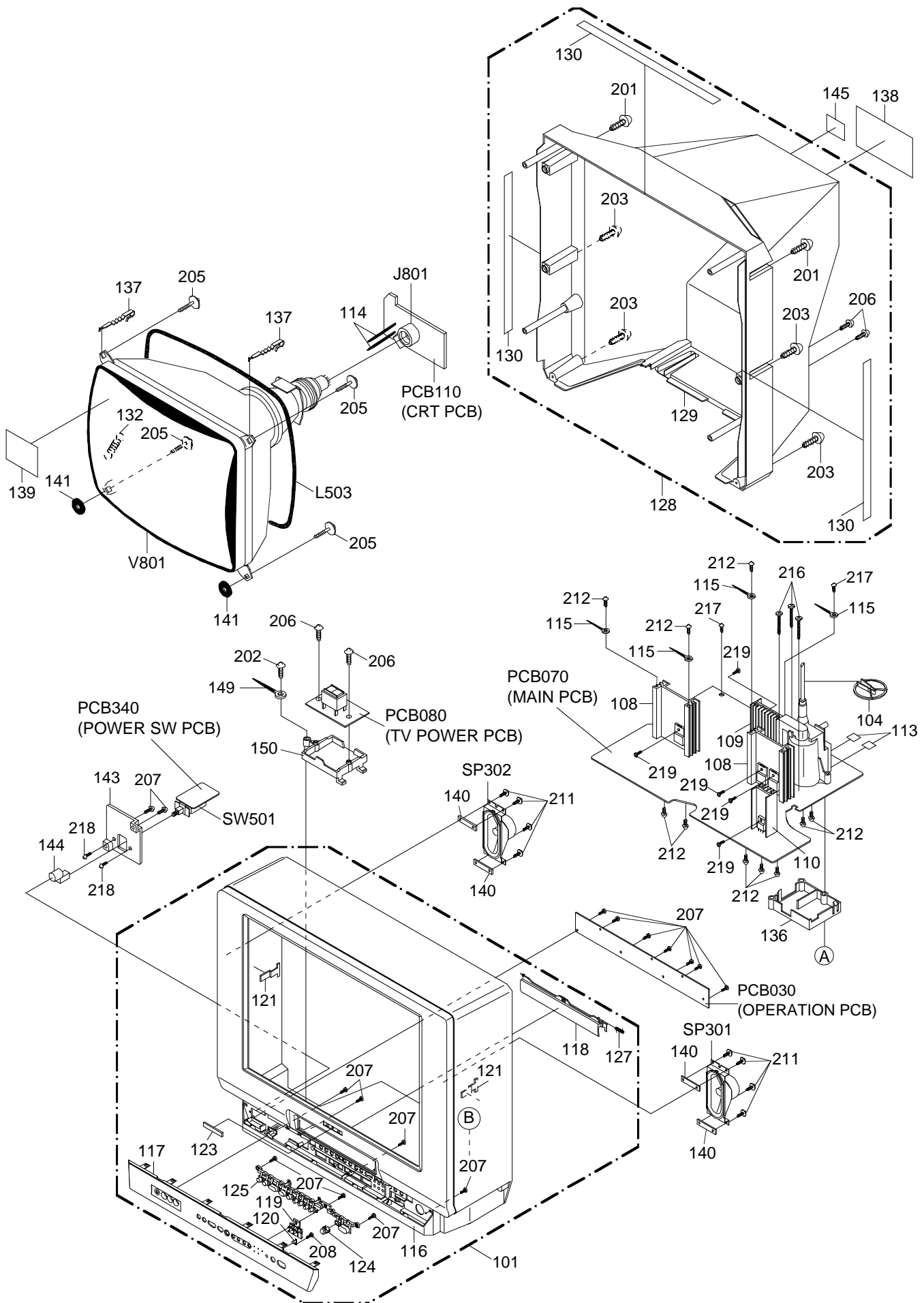
④⑨ REC  
0.5V 0.5ms/div



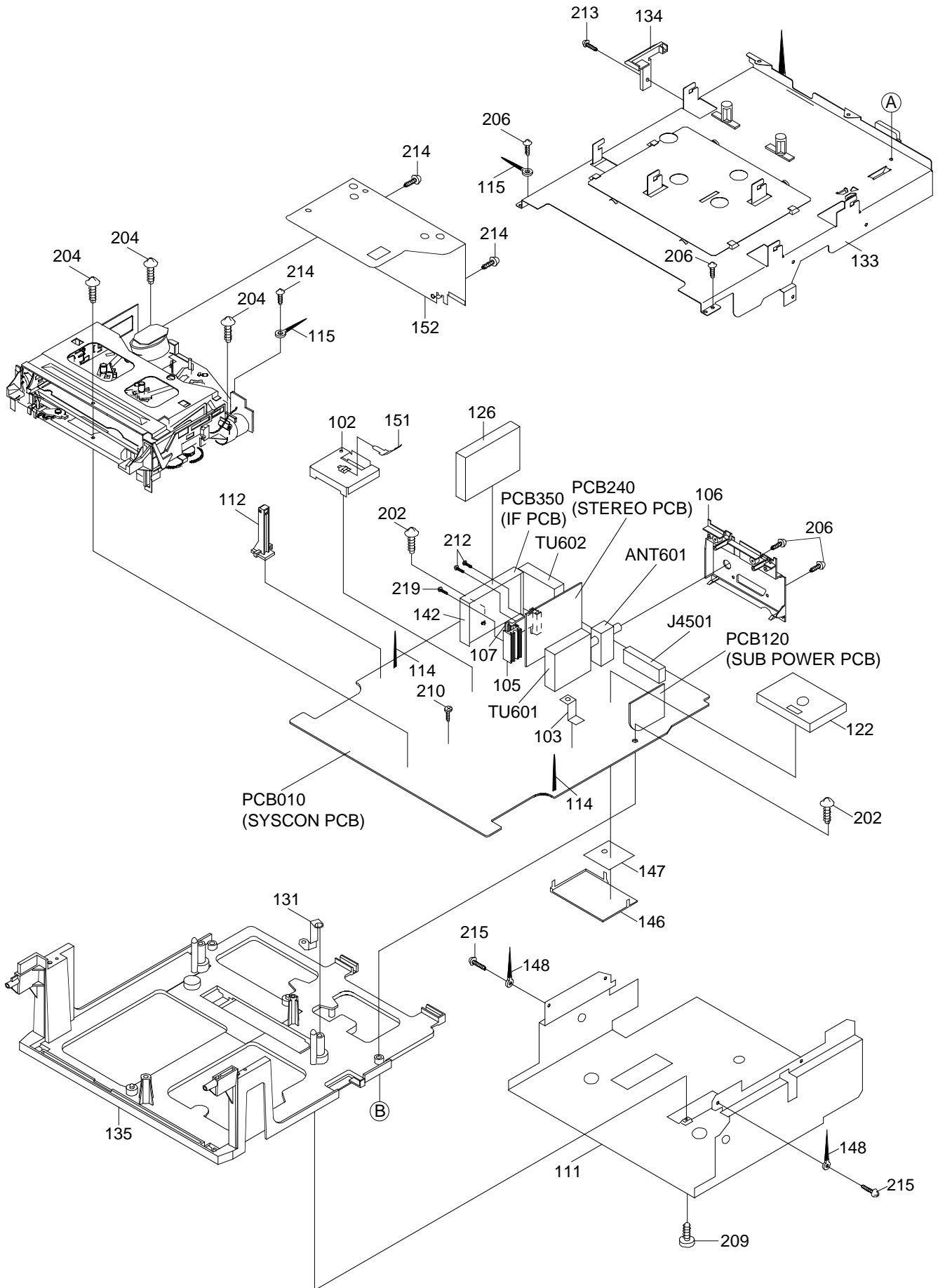
⑤⑩ REC  
0.5V 0.5ms/div

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

# MECHANICAL EXPLODED VIEW



# MECHANICAL EXPLODED VIEW





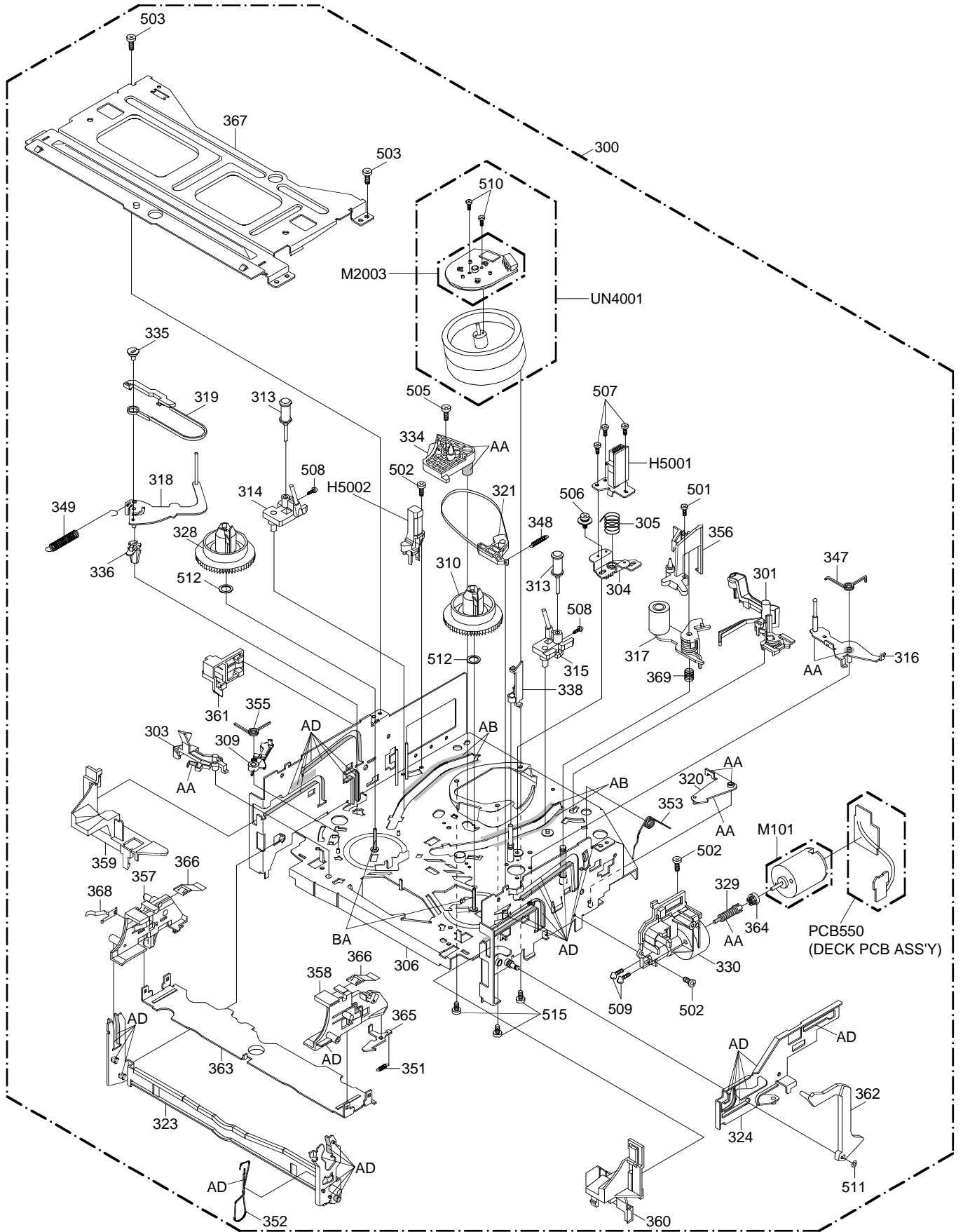
## MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REF. NO.	PART NO.	DESCRIPTION	Q'TY
101	S5-590-3Q7-200	CABI,FRONT ASS'Y	1	140	----	RUBBER,SPEAKER	4
102	----	SHIELD,CASE HEAD AMP	1	141	----	SHEET,CRT SUPPORT (A)	2
103	----	PLATE,EARTH-SYSCON	1	142	----	IF SHIELD BOTTOM	1
104	S9-9HV-3T0-000	HOLDER,ANODE WIRE	1	143	S5-2WS-A02-150	PLATE,POWER SW	1
105	----	HEAT SINK	1	144	S3-5WP-B00-900	BUTTON,POWER	1
106	S7-1WP-A02-590	PLATE,JACK	1	145	----	LABEL,ANTI-THEFT	1
107	----	HEAT SINK	1	146	----	SHIELD,COVER	1
108	----	HEAT SINK	2	147	----	SHEET,PVC	1
109	----	HEAT SINK	1	148	----	WIRING CLIP	2
				149	----	CORD CLAMP NO.P-45	1
110	----	HEAT SINK	1				
111	----	PLATE,SHIELD BOTTOM	1	150	S6-1WP-A01-530	HOLDER,TRANS	1
112	S5-OP7-000-360	HOLDER,EOT SENSOR	1	151	S5-3WU-AA0-060	SPRING,EARTH HEAD AMP	1
113	----	RUBBER,SILCON	2	152	----	SHIELD,COVER DECK	1
114	----	COATING CLIP	4				
115	----	CORD CLIP UL CO.	6	201	S1-172-40C-540	SCREW,TAPPING(B0) BIND 4x35	2
116	----	CABI,FRONT	1	202	S1-175-40B-040	SCREW,TAP(B0)TRUSS 4-20	3
117	S1-2WP-J07-160	PLATE,FRONT	1	203	S1-175-40A-640	TAP(B0)4-16	4
118	S1-2WP-J07-170	FLAP	1	204	S1-171-40A-240	TAP(B0)V+4-12	3
119	----	GLASS,LED	1	205	S1-11J-50D-040	SCREW TAP(A)5-40	4
				206	S1-106-30A-240	SCREW,TAP(P)3-12	8
120	S1-3WP-A01-000	GUIDE,REMOCON	1	207	S1-106-30A-040	UIT+3-10	16
121	S0-9WP-A00-220	STOPPER,PCB	2	208	S1-106-308-040	TAP(P)3-8	1
122	----	SHIELD,CASE	1	209	S1-106-306-040	UIT+3-6	1
123	S2-344-900-990	BADGE,BRAND	1				
124	S3-5WP-D06-700	BUTTON,OTPB	1	210	87-741-095-410	SCREW,TAP TITE(P) FLAT 3-8	1
125	S3-5WP-J01-230	BUTTON,FRAME	1	211	S1-46I-26A-040	SCREW,TAP M2.6x10	8
126	----	IF SHIELD CASE	1	212	87-753-095-410	SCREW,TAP 3-8	12
127	S4-3WK-A00-320	SPR,FLAP	1	213	S1-072-308-040	UT2+3-8	1
128	S5-590-3Q7-400	CABI,BACK ASS'Y	1	214	87-743-073-010	VT2+2.6-6	1
129	----	CABI,BACK	1	215	S1-076-306-040	BVTT+3-6	2
				216	S1-0A1-30B-040	SCREW,WASHER(A)M3-20	3
130	----	FELT SHEET	3	217	S1-0A1-306-040	SCREW,WASHER(A)M3-6	2
131	S5-3WS-A01-200	PLATE,BOTTOM-EARTH	1	218	S1-0A1-305-040	SCREW,WASHER(A) M3-5	2
132	S4-1WU-A00-010	SPR,EARTH	1	219	S1-09I-30A-040	SCREW,TAP TITE(B) 3-10	6
133	----	PLATE,DECK-SHIELD	1				
134	S6-1WP-A01-510	HOLDER,M/PCB	1				
135	S6-1WP-A01-980	HOLDER,DECK	1				
136	S6-1WP-A01-450	HOLDER,FBT	1				
137	S6-2WP-A00-110	HOLDER,CRT WIRE	2				
138	----	SHEET,RATING	1				
139	----	LABEL,POP	1				

## ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S7-660-DR0-100	TRANSMITTER SBJY00019A	1
2	S5-590-301-000	INSTRUCTION BOOK	1

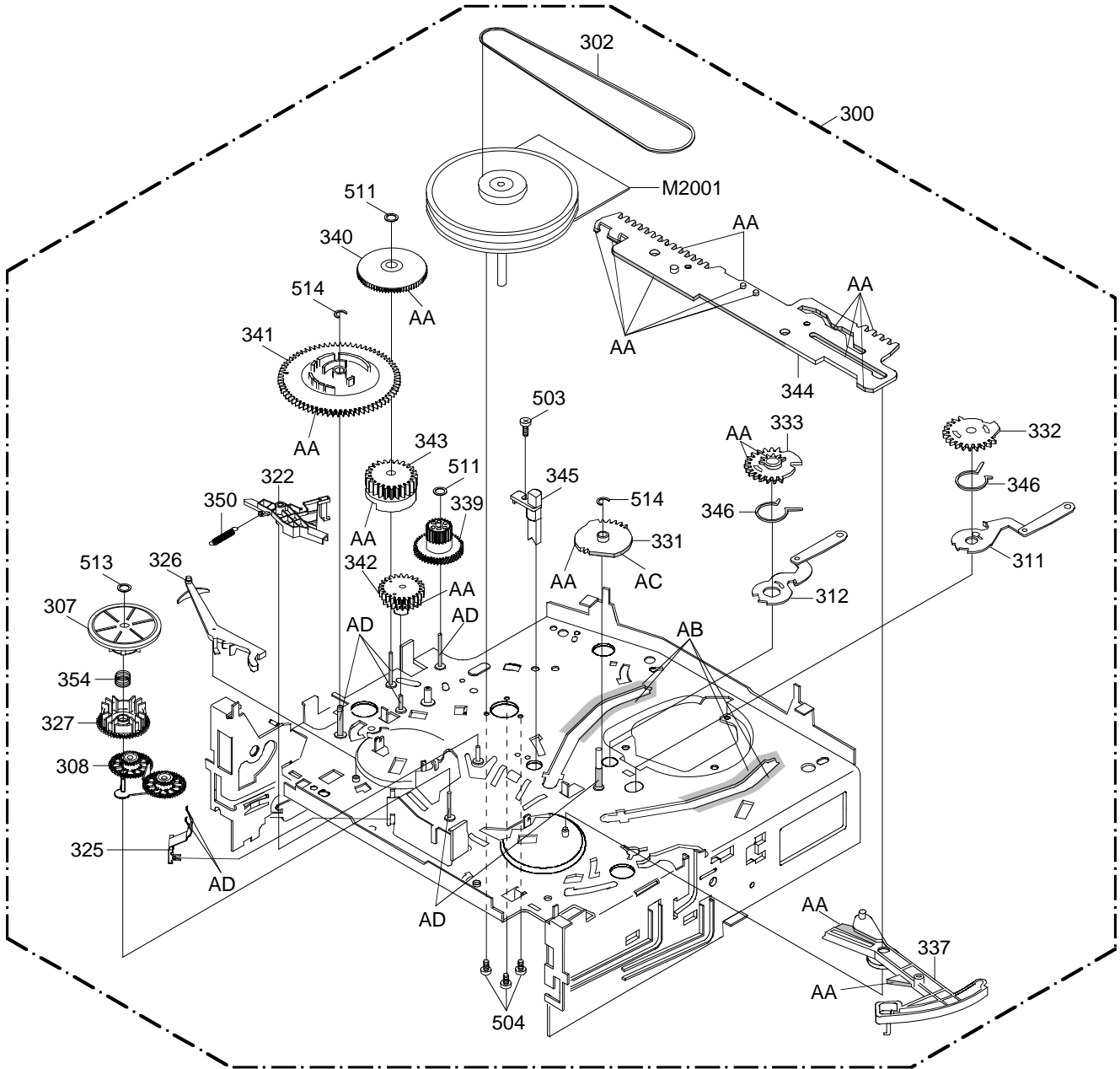
# CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

**NOTE:** Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

# CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

**NOTE:** Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

## CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY	REF. NO.	PART NO.	DESCRIPTION	Q'TY
300	----	DECK ASSY A55903B420A	1	360	S5-OP9-007-290	TAPE GUIDE R	1
301	S5-OA5-000-220	AHC ASS'Y	1	361	S5-OP9-007-140	COVER,SENSOR L3	1
302	S5-OP2-002-900	BELT,CAPSTAN (S)	1	362	S5-OP9-006-880	LEVER,FLAP	1
303	S5-OP9-007-100	LEVER,REC	1	363	S5-OP9-006-900	CASS HOLDER	1
304	S5-OP5-000-830	BASE,AC HEAD	1	364	S5-OP6-005-400	DRIVER,WORM	1
305	S5-OP8-003-240	SPR,AC HEAD	1	365	S5-OP9-007-130	LOCKER,R2	1
306	S5-OA0-003-670	MAIN CHASSIS ASS'Y (S-Z)	1	366	S5-OP9-006-940	SPR,PACK	2
307	S5-OA2-000-820	CLUTCH ASS'Y(S2)	1	367	S5-OP9-006-950	BRACKET,TOP	1
308	S5-OA2-000-800	ARM,IDLER ASS'Y (S)	1	368	----	SPR,CASS EARTH	1
309	S5-OP6-005-560	ARM,SS BRAKE (S)	1	369	S5-OP8-003-410	SPRING,P/R ARM	1
310	S5-OP2-002-920	REEL,T (S)	1	501	87-654-075-410	SCREW,TAP 2.6-10	1
311	S5-OA3-000-610	LOAD ARM S ASS'Y	1	502	S1-072-268-040	VT2+2.6-8	3
312	S5-OA3-000-620	LOAD ARM T ASS'Y	1	503	87-743-073-010	VT2+2.6-6	3
313	S5-OA4-002-100	GUIDE ROLLER ASS'Y	2	504	87-743-073-410	SCREW,TAP 2.6-6	3
314	S5-OA4-001-880	BASE,INCL S ASS'Y	1	505	S1-0A1-268-040	SCREW,WASHER(A)M2.6-8	1
315	S5-OA4-001-960	BASE,INCL T(S) ASS'Y	1	506	S1-0B1-264-040	SCREW,WASHER(B)M2.6-4	1
316	S5-OA4-001-990	P5-3 ARM ASS'Y(S)	1	507	87-261-035-410	SCREW,PAN M2-6	3
317	S5-OA4-002-050	PINCH ROLLER BLOCK	1	508	87-261-032-410	SCREW,PAN M2-3	2
318	S5-OA4-002-020	TENSION ARM ASS'Y (WT)	1	509	87-258-091-010	U+M3-3	2
319	S5-OA4-001-840	TENSION BAND ASS'Y (S)	1	510	S1-0A1-235-040	SEMS A M2.3-5	2
320	S5-OA4-001-780	PINCH ROLLER LEVER ASS'Y	1	511	S2-P26-600-5N0	PW(CUT)2.6-6-0.5	3
321	S5-OA6-001-960	BRAKE T ASSY(S)	1	512	S2-Q26-47C-5N0	POLY,WASHER 2.6-4.7	2
322	S5-OA6-001-910	CAP BRAKE ASS'Y(S)	1	513	S2-P18-450-5N0	PW(CUT)1.8-4.5-0.5	1
323	S5-OA9-002-130	LINK ASS'Y	1	514	S3-ETW-300-000	E-RING 3	2
324	S5-OA9-002-160	LINK LEVER ASS'Y	1	515	S1-0A1-265-040	SCREW,WASHER(A) M2.6-5	3
325	S5-OP2-002-840	LEVER,CLUTCH (S)	1	CP101	----	CONN,PWB SIDE 52044-0445	1
326	S5-OP2-002-850	ACTUATOR,CLUTCH	1	H5001	S5-23D-910-340	HEAD,AC HVMXA1072A	1
327	S5-OP2-002-980	GEAR,COUPLING(S2)	1	H5002	S5-43D-020-130	HEAD,FE	1
328	S5-OP2-002-910	REEL,S (S)	1	M101	S5-96P-780-010	MOTOR(LOADING)	1
329	S5-OP6-005-410	WORM	1	M2001	S5-94J-980-080	CAPSTAN DD UNIT EP15BC	1
330	S5-OP6-005-630	BRACKET,MOTOR	1	M2003	S5-89V-110-070	MICRO MOTOR	1
331	S5-OP3-001-780	GEAR,MAIN LOADING	1	PCB550	----	DECK PCB ASS'Y VE8851	1
332	S5-OP3-001-790	GEAR,LOADING S	1	Q101	S0-007-003-200	PHOTO,TR RPT-38PB113	1
333	S5-OP3-001-800	GEAR,LOADING T	1	UN4001	S4-D4A-1B5-000	CYLINDER UNIT ASSY A4D4A1B500	1
334	S5-OP3-001-870	HOLDER,LOADING GEAR (S-Z)	1				
335	S5-OP4-004-720	ADJUST,TENSION	1				
336	S5-OP4-004-920	HOLDER,TENSION	1				
337	S5-OP4-004-900	LEVER,TENSION	1				
338	S5-OP4-004-750	COVER,P4	1				
339	S5-OP6-005-430	GEAR,JOINT	1				
340	S5-OP6-005-440	GEAR,MIDDLE	1				
341	S5-OP6-005-540	CAM,MAIN (S)	1				
342	S5-OP6-005-460	CAM,P5	1				
343	S5-OP6-005-650	CAM,PINCH ROLLER	1				
344	S5-OP6-005-610	ROD,MAIN(S)	1				
345	S5-OP7-000-350	REFLECTOR,LED	1				
346	S5-OP8-003-180	SPR,LOADING GEAR	2				
347	S5-OP8-003-340	SPR,P5 (S)	1				
348	S5-OP8-003-350	SPR,BRAKE T (S)	1				
349	S5-OP8-003-220	SPR,TENSION	1				
350	S5-OP8-003-360	SPR,CAP BRAKE (S)	1				
351	S5-OP8-003-420	SPRING,LOCKER(S)	1				
352	S5-OP8-003-260	SPR,LINK	1				
353	S5-OP8-003-280	SPR,DAMPER	1				
354	S5-OP8-003-300	SPR,RING	1				
355	S5-OP8-003-370	SPR,SS BRAKE (S)	1				
356	S5-OP9-006-800	OPENER,CASS	1				
357	S5-OP9-007-310	CASS SIDE L	1				
358	S5-OP9-007-320	CASS SIDE R	1				
359	S5-OP9-007-280	TAPE GUIDE L(P,R)	1				

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
<b>SYSCON PCB ASS'Y</b>			<b>*** CAPACITORS ***</b>		
		*** RESISTORS ***			
R357	S3-X28-AR3-3J0	RES,M 0.33-2W	C1042	S0-2LU-047-1M0	CAP,E 470-6.3V
R621	S4-X5T-633-1F0	RES,M 330-1/6W	C1046	S0-32T-322-1M0	CAP,E 220-25V
R634	S4-X5T-647-2F0	RES,M 4.7K-1/6W	C1047	87-010-378-080	CAP,E 10-16V
▲ R1005	S6-150-12R-7J0	RES,FUSE 2.7-1W	C1048	87-010-404-080	CAP,E 4.7-50V
R4021	S4-X5T-618-3F0	RES,MF 18K-1/6W	C1070	87-016-088-040	CAP,E 220-6.3V
R5506	S4-X5T-639-3F0	RES,MF 39K-1/6W	C1076	87-015-677-010	CAP,E 100-6.3V
		*** CAPACITORS ***	C1086	87-015-695-080	CAP,E 1-50V
			C1087	87-015-677-010	CAP,E 100-6.3V
			C1090	87-010-076-040	CAP,E 22UF-6.3V
			C1091	S0-2LU-210-1M0	CAP,E 100-16V
			C4001	87-015-683-080	CAP,E 33-16V
C351	87-016-053-080	CAP,E 22-16V	C4008	87-015-677-010	CAP,E 100-6.3V
C352	87-015-075-040	CAP,E 10-16V	C4015	87-016-088-040	CAP,E 220-6.3V
C354	87-010-271-080	CAP,E 1000-16V	C4017	87-010-549-010	CAP,E 47-6.3V
C356	87-016-053-080	CAP,E 22-16V	C4024	87-010-403-080	CAP,E 3.3-50V
C358	87-016-053-080	CAP,E 22-16V	C4031	87-010-560-080	CAP,E 10-50V
C372	S0-2LT-210-2M0	CAP,E 1000-16V	C4036	87-015-075-040	CAP,E 10-16V
C605	S5-OHU-501-0M0	CAP,E 1-50V	C4039	87-010-404-080	CAP,E 4.7-50V
C611	87-015-075-040	CAP,E 10-16V	C4040	87-010-402-080	CAP,E 2.2-50V
C612	87-015-075-040	CAP,E 10-16V	C4041	87-010-404-080	CAP,E 4.7-50V
C613	87-015-075-040	CAP,E 10-16V	C4049	87-010-076-040	CAP,E 22UF-6.3V
C614	S0-2LU-222-1M0	CAP,E 220-16V	C4050	87-010-404-080	CAP,E 4.7-50V
C618	87-015-695-080	CAP,E 1-50V	C4051	87-015-075-040	CAP,E 10-16V
C619	87-015-695-080	CAP,E 1-50V	C4055	87-010-549-010	CAP,E 47-6.3V
C620	87-010-549-010	CAP,E 47-6.3V	C4057	87-010-404-080	CAP,E 4.7-50V
C622	87-015-695-080	CAP,E 1-50V	C4069	87-010-549-010	CAP,E 47-6.3V
C623	S0-2LU-233-1M0	CAP,E 330-16V	C4071	87-015-075-040	CAP,E 10-16V
C625	87-010-549-010	CAP,E 47-6.3V	C4073	87-010-403-080	CAP,E 3.3-50V
C626	87-010-400-080	CAP,E 0.47-50V	C4074	87-015-075-040	CAP,E 10-16V
C629	S0-2LT-247-1M0	CAP,E 470-16V	C4077	87-015-695-080	CAP,E 1-50V
C632	87-010-560-080	CAP,E 10-50V	C4078	87-015-695-080	CAP,E 1-50V
C634	87-016-088-040	CAP,E 220-6.3V	C4084	S6-32U-122-1D0	CAP,E 220-10V
C636	S0-ONU-247-0M0	CAP,E 47-16 V	C4085	87-010-404-080	CAP,E 4.7-50V
C639	87-010-549-010	CAP,E 47-6.3V	C4088	87-010-549-010	CAP,E 47-6.3V
C642	87-010-403-080	CAP,E 3.3-50V	C4091	87-010-380-080	CAP,E 47-16V
C645	87-015-695-080	CAP,E 1-50V	C4092	87-010-380-080	CAP,E 47-16V
C652	87-015-693-080	CAP,E 0.33-50V	C4096	87-010-549-010	CAP,E 47-6.3V
C656	87-010-754-040	CAP,E 220UF-10V	C4108	87-010-112-080	CAP,E 100-16V
C658	87-015-677-010	CAP,E 100-6.3V	C4116	87-015-695-080	CAP,E 1-50V
C659	87-010-400-080	CAP,E 0.47-50V	C4501	87-015-677-010	CAP,E 100-6.3V
C667	S5-OHU-52R-2M0	CAP,E 2.2-50V	C4503	S0-2LU-233-1M0	CAP,E 330-16V
C669	87-010-560-080	CAP,E 10-50V	C4504	87-015-075-040	CAP,E 10-16V
C677	87-010-235-080	CAP,E 470-16V	C4509	87-015-075-040	CAP,E 10-16V
C687	87-016-088-040	CAP,E 220-6.3V	C4526	87-015-075-040	CAP,E 10-16V
C689	87-010-112-080	CAP,E 100-16V	C4529	87-015-075-040	CAP,E 10-16V
C692	87-015-685-040	CAP,E 10UF-25V	C5502	87-010-549-010	CAP,E 47-6.3V
C693	S0-2LT-247-1M0	CAP,E 470-16V	C5505	87-010-112-080	CAP,E 100-16V
C699	S5-OHT-347-0M0	CAP,E 47-25 V	C5509	87-015-075-040	CAP,E 10-16V
C703	87-015-075-040	CAP,E 10-16V	C5511	87-010-549-010	CAP,E 47-6.3V
C705	S0-2LU-210-1M0	CAP,E 100-16V	C5512	87-015-075-040	CAP,E 10-16V
C707	87-015-075-040	CAP,E 10-16V	C5513	87-010-402-080	CAP,E 2.2-50V
C708	S0-2LU-022-1M0	CAP,E 220-6.3V	C5516	87-015-075-040	CAP,E 10-16V
C709	S0-2LU-022-1M0	CAP,E 220-6.3V	C5518	87-010-549-010	CAP,E 47-6.3V
C710	87-015-075-040	CAP,E 10-16V	C5522	87-015-075-040	CAP,E 10-16V
C711	87-010-380-080	CAP,E 47-16V	C5524	S0-ONU-501-0M0	CAP,E 1-50 V
C852	87-010-079-080	CAP,E 100-6.3V	C5526	87-015-075-040	CAP,E 10-16V
C854	87-015-975-080	CAP,E 220-6.3V	C5528	87-015-075-040	CAP,E 10-16V
C856	87-015-677-010	CAP,E 100-6.3V	C5529	87-015-695-080	CAP,E 1-50V
C857	87-015-677-010	CAP,E 100-6.3V	C5538	S0-2LU-233-1M0	CAP,E 330-16V
C863	87-010-379-080	CAP,E 22-16V	C5539	S0-2LU-033-1M0	CAP,E 330-6.3V
C872	87-010-112-080	CAP,E 100-16V	C9008	87-010-235-080	CAP,E 470-16V
C873	87-010-112-080	CAP,E 100-16V			
C874	87-010-112-080	CAP,E 100-16V			*** DIODES ***
C881	87-010-403-080	CAP,E 3.3-50V	D351	87-020-465-010	DIODE,1SS133T
C882	87-010-403-080	CAP,E 3.3-50V	D601	87-020-465-010	DIODE,1SS133T
C883	87-010-403-080	CAP,E 3.3-50V	D602	87-020-465-010	DIODE,1SS133T
C884	87-010-079-080	CAP,E 100-6.3V	D603	87-020-465-010	DIODE,1SS133T
C894	87-016-053-080	CAP,E 22-16V	D604	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
C1001	87-010-112-080	CAP,E 100-16V	D605	87-020-465-010	DIODE,1SS133T
C1003	S0-001-937-600	CAP,E 0.1F-5.5V	D606	S9-7U0-300-1B0	ZENER,MTZJ30B T-77
C1013	87-010-076-040	CAP,E 22UF-6.3V	D851	87-020-465-010	DIODE,1SS133T
C1016	S0-ONU-047-0M0	CAP,E 47-6.3V	D852	87-020-465-010	DIODE,1SS133T
C1020	87-010-404-080	CAP,E 4.7-50V	D854	87-020-465-010	DIODE,11EQS04N-TA
C1021	87-015-683-080	CAP,E 33-16V	D855	87-020-465-010	DIODE,1SS133T
C1032	87-016-088-040	CAP,E 220-6.3V	D856	87-020-465-010	DIODE,1SS133T
C1033	87-010-404-080	CAP,E 4.7-50V	D857	87-020-465-010	DIODE,1SS133T
C1037	S0-2LU-047-1M0	CAP,E 470-6.3V			

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
*** DIODES ***			*** TRANSISTORS ***		
D858	87-020-465-010	DIODE,1SS133T	Q863	89-324-122-080	TR,2SC2412KT
D859	87-020-465-010	DIODE,1SS133T	Q1001	S0-027-005-900	PHOTO COUPLER RPI-301
D860	87-020-465-010	DIODE,1SS133T	Q1002	89-324-122-080	TR,2SC2412KT
D861	87-020-465-010	DIODE,1SS133T	Q1003	S0-027-005-300	PHOTO,COUPLER RPI-352Q01
D863	S2-8TE-QS0-400	DIODE,11EQS04N-TA	Q1004	SN-YTC-050-010	TR,DTC124E
D1001	S2-LXE-658-000	DIODE,1N4005E-G23	Q1005	S0-027-005-900	PHOTO COUPLER RPI-301
D1002	87-020-465-010	DIODE,1SS133T	Q1006	SB-3T0-069-800	TR,2SB698(E,F)
D1003	S0-106-000-600	LED,SID1050CM	Q1007	87-026-239-080	DTC114TKAT14
D1004	S2-LXE-658-000	DIODE,1N4005E-G23	Q1009	S0-027-005-300	PHOTO,COUPLER RPI-352Q01
D1005	S9-2T1-120-B00	ZENER,RD12FB-T7	Q1010	87-026-228-080	TR,DTA124EK
D1006	S2-3U1-003-A30	DIODE,SB10-03A3	Q1012	89-324-122-080	TR,2SC2412KT
D1007	87-020-465-010	DIODE,1SS133T	Q1014	89-324-122-080	TR,2SC2412KT
D1008	87-017-931-010	ZENER,MTZJ5.6B	Q1015	89-324-122-080	TR,2SC2412KT
D1009	87-020-465-010	DIODE,1SS133T	Q1016	89-324-122-080	TR,2SC2412KT
D1010	S2-3U1-003-A30	DIODE,SB10-03A3	Q1017	S0-001-003-800	PHOTO TR,PNA2604M010R
D1012	87-020-465-010	DIODE,1SS133T	Q1020	87-026-287-080	TR,DTC143EKAT146
D1014	87-020-465-010	DIODE,1SS133T	Q1021	89-324-122-080	TR,2SC2412KT
D1015	87-020-465-010	DIODE,1SS133T	Q1022	89-110-372-080	TR,2SA1037AK
D1016	87-020-465-010	DIODE,1SS133T	Q1023	89-324-122-080	TR,2SC2412KT
D1017	87-020-465-010	DIODE,1SS133T	Q1024	89-324-122-080	TR,2SC2412KT
D1018	S2-8TE-QS0-400	DIODE,11EQS04TA1	Q4001	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
D1019	S2-8TE-QS0-400	DIODE,11EQS04TA1	Q4002	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
D1020	S2-8TE-QS0-400	DIODE,11EQS04TA1	Q4003	87-026-228-080	TR,DTA124EK
D4003	87-020-465-010	DIODE,1SS133T	Q4004	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
D4202	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2	Q4005	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
D4503	87-020-465-010	DIODE,1SS133T	Q4006	89-110-372-080	TR,2SA1037AK
D4510	87-020-465-010	DIODE,1SS133T	Q4007	89-324-122-080	TR,2SC2412KT
D4511	S1-VT0-013-300	DIODE,1SS133T-77	Q4008	89-324-122-080	TR,2SC2412KT
*** ICS ***			Q4009	SN-YJC-050-010	TR,DTC124EKAT146
IC353	S0-FSP-752-200	IC,AN7522	Q4015	SN-YTD-050-010	TR,DTC144EK
IC601	S0-3DE-681-200	IC,LA76812	Q4201	SN-YTB-050-010	TR,DTC114E
IC602	S0-3SB-751-000	IC,LA7510	Q4501	89-324-122-080	TR,2SC2412KT
IC701	87-002-779-010	IC,LA7956	Q4502	89-110-372-080	TR,2SA1037AK
IC851	SC-KD0-010-600	IC,ET106	Q4504	89-324-122-080	TR,2SC2412KT
IC852	SC-KD0-031-700	IC,ET317	Q4505	89-324-122-080	TR,2SC2412KT
IC853	S5-5DC-405-3A0	IC,TC74HC4053AP	Q4507	89-324-122-080	TR,2SC2412KT
△ IC1001	S0-7SQ-695-500	IC,BA6955N	Q4508	89-324-122-080	TR,2SC2412KT
IC1002	SE-1J0-S31-AH0	IC,RE5V331A	Q4510	89-324-122-080	TR,2SC2412KT
IC1003	S1-KA9-780-5A0	IC,KIA7805API	Q4511	89-324-122-080	TR,2SC2412KT
IC1004	S1-KA9-780-5A0	IC,KIA7805API	*** COILS ***		
IC1006	S5-4F5-009-6A0	IC,OEC0096A	ANT601	S2-3S0-002-4A0	ANT UNIT BT15-0006
IC1099	S5-590-3Q0-150	IC,S-24C08ADPA-01	B851	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
IC4001	S0-4F3-821-7F0	IC,HA118217F	B4501	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
IC4002	S0-3F6-479-300	IC,LC74793/JM	B4502	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
IC5501	S0-KF7-960-5H0	IC,TDA9605H	B5501	S2-4DT-035-810	CORE BEADS LFP3A-M3R2TA
IC5502	S0-QF0-253-4V0	IC,NJM2534V(TE2)	L601	S2-167-D10-1K0	COIL,100UH
IC5503	S0-QF0-253-4V0	IC,NJM2534V(TE2)	L603	87-003-146-010	COIL,15UH
*** TRANSISTORS ***			L604	S2-1LA-6R2-2M0	COIL,0.22UH
Q351	89-324-122-080	TR,2SC2412KT	L605	S2-167-D10-1K0	COIL,100UH
Q352	89-324-122-080	TR,2SC2412KT	L606	S2-1LA-61R-0M0	COIL,1UH
Q353	SN-YTB-050-010	TR,DTC114E	L607	S2-1LA-6R5-6M0	COIL,0.56UH
Q355	87-026-239-080	DTC114TKAT14	L608	S3-360-K04-380	COIL,V IFT 360K043
Q356	87-026-239-080	DTC114TKAT14	L609	S2-167-D10-1K0	COIL,100UH
Q601	SC-3T0-300-000	TR,2SC3000	L610	S2-16S-12R-2J0	COIL,2.2UH
Q602	89-324-122-080	TR,2SC2412KT	L611	S2-16S-110-1J0	COIL,100 NL322522T-101J
Q603	89-324-122-080	TR,2SC2412KT	L612	S2-1LA-63R-9K0	COIL,3.9UH
Q604	87-026-235-010	TR,DTC114EK	L613	S2-167-D10-1K0	COIL,100UH
Q605	87-026-235-010	TR,DTC114EK	L614	S2-1LA-61R-5K0	COIL,1.5UH
Q606	87-026-189-010	TR,2SC2814(F3,F4)(T)	L701	S2-167-D10-1K0	COIL,100UH
Q607	89-324-122-080	TR,2SC2412KT	L851	87-003-102-010	COIL,10UH
Q608	89-110-372-080	TR,2SA1037AK	L852	87-003-102-010	COIL,10UH
Q609	S8-7A0-241-2K0	TR,2SC2412KT147(R,S)	L856	87-003-102-010	COIL,10UH
Q610	89-324-122-080	TR,2SC2412KT	L1001	87-003-282-010	COIL,12UH
Q611	86-NFZ-664-040	TR,DTC143TKAT14	L1002	S2-167-D10-1K0	COIL,100UH
Q612	89-324-122-080	TR,2SC2412KT	L1003	S2-167-D10-1K0	COIL,100UH
Q613	87-026-236-080	TR,DTC124EK	L1005	S2-1LA-610-1K0	COIL,100UH
Q701	89-110-372-080	TR,2SA1037AK	L4001	S3-262-300-380	COIL,TRAP 2623003
Q851	89-324-122-080	TR,2SC2412KT	L4002	S2-167-F10-1J0	COIL,100UH
Q852	89-324-122-080	TR,2SC2412KT	L4003	S2-167-D10-1K0	COIL,100UH
Q853	89-324-122-080	TR,2SC2412KT	L4004	S2-167-F10-1J0	COIL,100UH
Q855	89-324-122-080	TR,2SC2412KT	L4005	S3-162-600-880	COIL,BIAS OSC 1626008
Q861	89-324-122-080	TR,2SC2412KT	L4006	87-003-112-010	COIL,1MH
Q862	89-324-122-080	TR,2SC2412KT	L4007	S2-167-D10-1K0	COIL,100UH

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
		*** COILS ***			*** RESISTORS ***
L4007	S2-167-D10-1K0	COIL,100UH	R352	S0-02T-282-0J0	RES,82-1/2W
L4008	87-003-112-010	COIL,1MH			*** CAPACITORS ***
L4009	S2-167-D10-1K0	COIL,100UH			
L4010	S2-167-310-1K0	COIL,100UH			
L4011	87-003-282-010	COIL,12UH	C352	87-010-380-080	CAP,E 47-16V
L4012	87-003-154-080	COIL,220UH	C353	87-010-380-080	CAP,E 47-16V
L4013	S2-167-D10-1K0	COIL,100UH	C755	87-015-975-080	CAP,E 220-6.3V
L4015	S2-167-D10-1K0	COIL,100UH			*** DIODES ***
L4016	87-003-285-010	COIL,39UH			
L4017	S2-1LA-627-1K0	COIL,270UH			
L4018	87-003-147-010	COIL,22UH	D791	S0-217-211-500	LED,
L4019	S2-1LA-610-1J0	COIL,100UH	D793	S0-217-211-500	LED,
L4501	87-003-102-010	COIL,10UH	D794	S0-217-211-500	LED,
L4502	87-003-152-010	COIL,100UH	D795	S0-213-5Q1-600	LED,SLZ-345B-02
L4503	87-003-102-010	COIL,10UH	D796	S0-217-211-500	LED,
L4504	87-003-102-010	COIL,10UH			*** COILS ***
L4508	87-003-102-010	COIL,10UH			
L5501	S2-167-F10-1J0	COIL,100UH			
L5502	S2-167-F10-1J0	COIL,100UH	L002	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
L5503	S2-1B7-310-2K0	COIL,1MH	L003	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
		*** JACKS ***			*** JACKS ***
J4501	S6-3G1-000-370	SOCKET,21PIN 035_0_9985_0	▲ J351	S6-021-310-120	JACK,RCA 3.5 HSJ2630-0100
		*** SWITCHES ***	J701	S6-024-310-130	JACK,RCA
					*** SWITCHES ***
SW1001	S5-082-210-010	SW,LEAF SPVF130100			
		*** CONNECTORS ***	SW750	S5-042-01T-310	SW,TACT SKHVBED010
CP353	S6-9W1-400-290	CONN,PCB TID-X04P-M1	SW751	S5-042-01T-310	SW,TACT SKHVBED010
CP603	S6-9E2-901-290	CONN,PWB SIDE	SW791	S5-042-01T-310	SW,TACT SKHVBED010
CP605	S6-9E2-501-290	CONN,PWB SIDE	SW792	S5-042-01T-310	SW,TACT SKHVBED010
CP755	S6-9E2-A01-290	CONN,PWB SIDE	SW793	S5-042-01T-310	SW,TACT SKHVBED010
CP810	S6-9J1-C00-380	CONN,IMSA-9130B-12	SW794	S5-042-01T-310	SW,TACT SKHVBED010
CD1001	S2-2S0-408-040	CORD,1.25-4-83-C	SW795	S5-042-01T-310	SW,TACT SKHVBED010
CD4001	S2-2S0-614-010	CORD,1.25-6-138-C	SW796	S5-042-01T-310	SW,TACT SKHVBED010
CP1004	S6-972-805-900	CONN PWB SIDE TMC-J08P-B1	SW797	S5-042-01T-310	SW,TACT SKHVBED010
CP1005	S6-9J7-500-290	CONN,IMSA-9604S-05Z14	SW798	S5-042-01T-310	SW,TACT SKHVBED010
CP1006	S6-9J7-400-290	CONN,PCB SIDE IMSA-9604S-04Z14	SW799	S5-042-01T-310	SW,TACT SKHVBED010
CP4001	S6-972-906-200	CONN PWB SIDE TOC-C09X-A1			*** OTHERS ***
CP4004	S6-971-203-200	CONN,TMC-TD2X-E1	CD702	S6-CH2-B03-5A0	CORD CONN CH2B035A
CP4005	S6-9J7-600-290	CONN,IMSA-9604S-06Z14	CD757	S6-CH2-A01-4A0	CORD,CONN CH2A014A
CP4202	S6-9E2-B01-290	CONN,PWB SIDE			
		*** FILTERS ***	OS753	S7-7Q0-000-190	REMOTE RECEIVER PIC-28143TC5
					<b>MAIN PCB ASS'Y</b>
CF601	S0-22V-39R-520	FILTER,SAW SAF39.5MZL220ZL			*** RESISTORS ***
CF603	S0-22U-32R-910	FILTER,SAW SAF32.9MDE210Z			
CF604	S0-12T-031-020	FILTER,CERAMIC TRAP MKT31.5MA110P	R406	S0-02T-210-3J0	RES,10K-1/2W
CF605	S0-12T-041-010	FILTER,CERA MKT41.5MA110P	R411	S4-X5T-622-3F0	RES,MF 22K-1/6W
		*** CRYSTAL & CERAMIC OSCILLATORS ***	R413	S4-X5T-633-3F0	RES,M 33K-1/6W
X601	S0-OCT-4R4-060	X'TAL HC-94/U	R429	S4-X5T-627-2F0	RES,M 2.7K-1/6W
X851	S0-OCT-013-020	X'TAL HC-49/U-S	▲ R436	S6-558-212-0J0	RES,FUSE 12-1/2W
X1001	S0-OCT-010-020	X'TAL,HC-49/U	▲ R437	S3-X18-101-0J0	RES,M MOR1W010JB/B 1
X1002	S0-0D3-2R8-010	X'TAL,32.768K	▲ R448	SF-F01-02J-B10	RES,M 1K-1W
X4001	S0-OCT-4R4-070	X'TAL HC-49/U	▲ R449	S5-X2C-E27-2J0	RES,CEMENT 2.7K-7W
		*** TUNER ***	▲ R450	S3-X18-1R6-8J0	RES,M 0.68
			▲ R452	S3-X18-12R-2J0	RES,M/O 2.2-1W
▲ TU601	S1-445-070-010	TUNER,UHF TUWOF4EK-771F2	▲ R501	S5-X2C-E2R-2J0	RES,CEM 2.2-7W
TU1001	S1-445-070-010	TUNER,UHF TUWOF4EK-771F2	▲ R512	S3-X18-110-3J0	RES,MO 10K-1W
		*** OTHERS ***	▲ R528	S3-328-B39-3J0	RES,M/O 39K-3W
			R529	87-025-277-010	RES,M 2.7K-1/4W
			▲ R543	S6-358-468-1J0	RES,FUSE 680-1/4W
			R544	S3-X18-1R2-2J0	RES,MO 0.22-1W
					*** CAPACITORS ***
CD820	S6-CH2-E01-4A0	CORD CONN CH2E014A	C403	87-010-560-080	CAP,E 10-50V
CD850	S6-CH2-509-0A0	CORD CONN CH25090A	C404	87-016-636-080	CAP,E 4.7-50V
CD6001	S6-C6H-140-020	CORD,COAXIAL C6H14002	C405	87-016-636-080	CAP,E 4.7-50V
		<b>OPERATION PCB ASS'Y</b>	C406	S5-EZT-410-1M0	CAP,E 100-35V
		*** RESISTORS ***	▲ C407	S5-EZF-322-2M0	CAP,E 2200-25V
R351	S0-02T-282-0J0	RES,82-1/2W	C408	S0-2LT-522-1M0	CAP,E 220-50V
			C412	S0-JTB-05N-2K0	CAP,CER 390P-500V

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
*** CAPACITORS ***			*** DIODES ***		
△ C413	S3-N1F-533-J0	CAP,PP 0.033-630V	D533	S2-8T1-0EL-S20	DIODE,10ELS2N-TA1
C417	S0-JTB-05S-2K0	CAP,CER 560PF-500V	D535	S2-8F2-1DQ-N90	DIODE,21DQ09N-FC4
C418	S5-EZT-B01-0M0	CAP,E 1-160V	△ Q514	S0-025-004-500	PHOTO,COUPLER TLP621(GR)
C420	87-010-560-080	CAP,E 10-50V	△ TH501	S8-R0A-140-M00	DEGAUSS ELEMENT PTH451A140M21
△ C421	S5-EZF-422-2M0	CAP,E 2200-35V	*** ICS ***		
C423	S4-41F-247-4J0	CAP,MPP 0.47-200V	△ IC401	S0-3TD-804-000	IC,LA78040
C424	87-010-263-010	CAP,E 100-10V	IC501	S2-BT0-670-700	IC,STR-F6707
C425	87-015-694-080	CAP,E 0.47-50V	*** TRANSISTORS ***		
C427	S5-3FF-56R-8K0	CAP,E 6.8-50V NP	△ Q405	S2-SC2-621-D00	TR,2SC2621(D,E)
△ C428	S4-N8F-J12-3H0	CAP,MPP 0.012-1.25KV	△ Q406	SD-UU0-249-900	TR,2SD2499(LBOEC1)
C429	87-012-386-080	CAP,CER 470PF-2K	Q407	89-318-154-080	TR,2SC1815Y
C430	S0-34B-N71-3K0	CAP,CER 0.001-2KV	Q408	89-110-154-080	TR,2SA1015Y(TPE2)
△ C431	87-016-373-080	CAP,E 10UF-250V	Q409	SD-300-166-700	TR,2SD1667(R,S)
C438	87-010-977-010	CAP,CER 680PF-500V	Q502	SA-3T1-371-A00	TR,2SA1371
△ C443	S4-N8F-J22-2H0	CAP,M 0.0022UF-1.25KV	Q503	SA-3T1-371-A00	TR,2SA1371
C450	S0-34B-N71-3K0	CAP,CER 0.001-2KV	Q504	89-318-154-080	TR,2SC1815Y
C504	S5-3VF-C22-1M0	CAP,E 220-200V	Q505	SC-3T0-290-900	TR,2SC2909
△ C505	S2-122-B22-4M0	CAP,0.22-250V E	Q507	89-309-458-010	TR,2SC945(C)
△ C506	S2-122-B10-4M0	CAP,MP 0.1-250V	△ Q508	SB-3T0-089-200	TR,2SB892
△ C507	S5-2C0-H22-1M0	CAP,E 220-400V	Q509	87-026-464-080	TR,DTC114TS
C508	S0-2LT-54R-7M0	CAP,E 4.7-50V	Q512	SC-3T0-290-900	TR,2SC2909
△ C510	S5-EZT-510-1M0	CAP,E 100-50V MTA	Q513	SN-YTB-030-010	TR,DTC114E
C513	S5-EZT-522-0M0	CAP,E 22-50V	*** COILS ***		
C514	S0-1BB-P7K-3K0	CAP,CER 0.0027-2KV	B504	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
C516	S0-JTB-05S-2K0	CAP,560P-500V B	B505	S2-4AT-034-820	CORE,BEADS
C517	S0-1BB-P7K-3K0	CAP,0.0027-2KV BP	△ L402	S2-210-002-7A0	COIL,LINERITY ELH5L4113
C518	S0-JTB-05S-2K0	CAP,560P-500V B	L481	S2-D80-000-120	TIB PIN PHASE COIL D8000012
C519	S0-JTB-05S-2K0	CAP,560P-500V B	△ L501	S2-9X0-000-870	COIL,FILTER SS24V-10100
△ C520	87-010-618-010	CAP,E 2200-16V	△ L502	S2-9X0-000-870	COIL,FILTER SS24V-10100
△ C521	S6-2D0-C22-1M0	CAP,E 220-200V	*** TRANSFORMERS ***		
△ C523	S5-EZT-447-1M0	CAP,E 470-35V	△ FB401	S4-322-101-1Q0	TRANS,FLYBACK 3221011Q
△ C524	S5-EZF-310-2M0	CAP,E 1000-25V	T401	S4-501-300-1J0	TRANS,H DRIVE
C527	S0-JTB-05S-2K0	CAP,560P-500V B	△ T501	S4-814-206-1W0	TRANS,SW 8142061W
C530	SB-393-0M1-3M0	CAP,CER 0.001-250V	*** VARIABLE RESISTORS ***		
C531	87-010-618-010	CAP,E 2200-16V	VR401	S1-262-H4B-T60	VR,RH063LCJ4R
△ C533	SB-373-0M1-3M0	CAP,0.001-250V	VR402	S1-262-Q3B-T60	VOLUME,SFR RH063LCS3R
C534	87-016-088-040	CAP,E 220-6.3V	VR403	S1-262-H3B-T60	SFR,RH063LCJ3R17A
△ C537	87-015-694-080	CAP,E 0.47-50V	VR404	S1-262-H3B-T60	SFR,RH063LCJ3R17A
*** DIODES ***			VR502	S1-163-L2B-TC0	VOL,EVNCYAA03BY2
D401	S2-WT0-11E-100	DIODE,11E1-EIC	*** CONNECTORS ***		
D402	S9-7U0-300-1B0	ZENER,MTZJ30B T-77	CD803	S2-2E0-544-020	CORD JUMPER 2E054402
D403	87-A40-500-080	ZENER,MTZJ30B T-77	CP401	S6-9X4-500-290	CONN PWB SIDE B05B-DVS
D404	87-A40-500-080	ZENER,MTZJ30B T-77	CP402	S6-9W0-100-1A0	CONN PCB SIDE 003P-2100
D406	S2-LTP-G06-J00	DIODE,RMPG06J	CP502	S6-973-200-390	CORD UX CONNECTOR
△ D407	SC-BFM-V3F-U00	DIODE,FMV-3FULF027-102	CP820	S6-9E2-E01-290	CONN,8283_1412_00_000
D410	S3-Z68-V10-000	ZENER,MTZJ6.8B	*** FUSES ***		
△ D411	S2-LTP-G06-J00	DIODE,RMPG06J	CP803A	S6-7R1-050-190	HOLDER,WIRE 51052-0500
△ D413	S2-LTP-G06-J00	DIODE,RMPG06J	△ F501	S8-0PT-040-020	FUSE,4A-250V T
D414	S2-LTP-G06-J00	DIODE,RMPG06J	△ F502	S8-08T-2R5-020	FUSE 21802.5
△ D415	S2-LTP-G06-J00	DIODE,RMPG06J	FH501	S6-710-T00-060	HOLDER,FUSE EYF-52B
△ D501	S4-LZB-L06-L00	DIODE,GBL06L-6177	FH502	S6-710-T00-060	HOLDER,FUSE EYF-52B
D502	S2-BX0-EG0-1C0	DIODE,EG-01CV1	FH503	S6-710-T00-060	HOLDER,FUSE EYF-52B
△ D503	S2-BTR-U2A-M00	DIODE,RU2AM V1	FH504	S6-710-T00-060	HOLDER,FUSE EYF-52B
△ D505	S2-8F2-1DQ-N90	DIODE,21DQ09N-FC4	*** RELAYS ***		
D506	S2-LTP-G06-J00	DIODE,RMPG06J	△ RY501	S5-60Q-201-140	RELAY SDT-S-112LMR
△ D508	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B			
D509	S2-8F2-1DQ-N90	DIODE,21DQ09N-FC4			
△ D510	S2-BTR-U2A-M00	DIODE,RU2AM V1			
△ D511	S2-8T1-0EL-S20	DIODE,10ELS2N-TA1			
△ D512	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B			
△ D514	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B			
△ D515	87-002-743-080	ZENER,MTZJ33B T77			
D516	87-020-465-010	DIODE,1SS133T			
D517	87-020-465-010	DIODE,1SS133T			
D518	87-020-465-010	DIODE,1SS133T			
△ D519	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B			
D521	87-020-465-010	DIODE,1SS133T			
D523	87-020-465-010	DIODE,1SS133T			
D524	87-020-465-010	DIODE,1SS133T			
D525	87-020-465-010	DIODE,1SS133T			
D526	87-020-465-010	DIODE,1SS133T			
D528	87-017-931-010	ZENER,MTZJ5.6B			
D529	87-020-465-010	DIODE,1SS133T			
D530	87-020-465-010	DIODE,1SS133T			
D531	S2-BTR-U2Y-X00	DIODE,RU2YX-V1			



# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
		*** OTHERS ***			*** DIODES ***
CD504	S6-CP8-203-7A0	CORD CONN CP82037A	D9001	87-020-465-010	DIODE,1SS133T
CD802	S6-CP8-203-5A0	CORD CONN CP82035A	D9002	87-020-465-010	DIODE,1SS133T
EL002	S2-412-030-1A0	EYE LET XRY20X30BD	D9003	87-020-465-010	DIODE,1SS133T
ICP502	S8-3PC-070-020	MICRO FUSE 251007	D9004	87-020-465-010	DIODE,1SS133T
ICP504	S8-3PC-050-020	MICRO FUSE,251005	D9005	S2-8TE-QS0-400	DIODE,11EQS04TA1
			D9006	S2-8TE-QS0-400	DIODE,11EQS04TA1
			D9007	87-020-465-010	DIODE,1SS133T
		<b>TV POWER PCB ASS'Y</b>			*** ICS ***
		*** COILS ***	IC9001	S1-KA9-780-9A0	IC,KIA7809API
L505	S2-D50-000-510	COIL CHOKE CH15049420	IC9002	S1-KA9-780-5A0	IC,KIA7805API
			IC9003	S1-KA9-780-5A0	IC,KIA7805API
		<b>CRT PCB ASS'Y</b>			*** TRANSISTORS ***
		*** RESISTORS ***	Q9001	SB-3T0-089-200	TR,2SB892
▲ R804	87-025-590-060	RES,M 15K-2W	Q9002	89-318-154-080	TR,2SC1815Y
▲ R806	87-025-590-060	RES,M 15K-2W	Q9003	SB-3T0-089-200	TR,2SB892
▲ R808	87-025-590-060	RES,M 15K-2W	Q9004	SB-3T0-089-200	TR,2SB892
					*** CONNECTORS ***
		*** CAPACITORS ***	CP9002	S6-9J1-C00-480	CONN,IMSA-9130S-12L
C808	S0-34B-N71-3K0	CAP,CER 0.001-2KV			*** OTHERS ***
C814	87-016-322-080	CAP,E 1-250V			
			CD9001	S6-CH2-811-2A0	CORD CONN CH28112A
		*** DIODES ***	CD9002	S6-CH0-143-2A0	CORD CONN CH01432A
D801	87-020-465-010	DIODE,1SS133T			<b>STEREO PCB ASS'Y</b>
D802	87-020-465-010	DIODE,1SS133T			*** RESISTORS ***
D803	87-020-465-010	DIODE,1SS133T			
			R6639	S3-X18-127-0J0	RES,MO 27-1W MOR1W270JB/B
		*** TRANSISTORS ***			*** CAPACITORS ***
▲ Q801	S2-SC2-621-D00	TR,2SC2621(D,E)	C6601	87-010-549-010	CAP,E 47-6.3V
▲ Q802	S2-SC2-621-D00	TR,2SC2621(D,E)	C6611	87-010-402-080	CAP,E 2.2-50V
▲ Q803	S2-SC2-621-D00	TR,2SC2621(D,E)	C6612	87-010-402-080	CAP,E 2.2-50V
▲ Q810	SC-7T1-740-S00	TR,2SC1740SP(R,S)	C6618	87-015-695-080	CAP,E 1-50V
▲ Q811	SC-7T1-740-S00	TR,2SC1740SP(R,S)	C6634	87-010-549-010	CAP,E 47-6.3V
▲ Q812	SC-7T1-740-S00	TR,2SC1740SP(R,S)	C6644	87-010-402-080	CAP,E 2.2-50V
			C6645	87-010-402-080	CAP,E 2.2-50V
		*** COILS ***	C6651	87-015-695-080	CAP,E 1-50V
L802	S2-167-D82-0K0	COIL,82UH EL0607RA-820	C6665	87-010-549-010	CAP,E 47-6.3V
L804	S2-167-D82-0K0	COIL,82UH EL0607RA-820	C6667	87-010-549-010	CAP,E 47-6.3V
			C6669	87-015-680-010	CAP,E 47-10V
					*** DIODES ***
		*** CONNECTORS ***	D6601	SD-1RM-A36-700	DIODE,MA367
CP805	S6-9E2-501-290	CONN,PWB SIDE	D6602	SD-1RM-A36-700	DIODE,MA367
					*** ICS ***
		*** FUSES ***	IC6601	S0-KFA-987-4H0	IC,TDA9874H
CP803B	S6-7R1-050-190	HOLDER,WIRE 51052-0500	IC6602	S0-KFA-987-4H0	IC,TDA9874H
			IC6603	S1-KA9-780-5A0	IC,KIA7805API
					*** COILS ***
		*** CRT SOCKET ***	L6601	87-003-142-010	COIL,3.3UH
▲ J801	S6-6C1-300-170	SOCKET,CRT CVT3275-5101	L6602	87-003-142-010	COIL,3.3UH
			L6603	S2-167-D10-1K0	COIL,100UH
			L6604	S2-167-D10-1K0	COIL,100UH
		<b>SUB POWER PCB ASS'Y</b>			*** CONNECTORS ***
		*** RESISTORS ***	CP6601	S6-9Q1-901-790	CONN,CPB1809-0101
R9010	S3-X18-133-0J0	RES,M/O 33-1W	CP6602	S6-9J1-402-600	CONN,PCB 6035B-04Z002-T
		*** CAPACITORS ***			
C9002	87-010-235-080	CAP,E 470-16V			
C9003	S0-2LU-233-1M0	CAP,E 330-16V			
C9004	S0-2LU-047-1M0	CAP,E 470-6.3V			
C9005	S0-2LU-233-1M0	CAP,E 330-16V			
C9006	S0-2LU-047-1M0	CAP,E 470-6.3V			
C9007	87-010-235-080	CAP,E 470-16V			
C9008	87-010-235-080	CAP,E 470-16V			

# ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
	*** CRYSTAL & CERAMIC OSCILLATORS ***			*** OTHERS ***	
X6601	S0-OCT-024-010	X'TAL,HC-49/U	CD353	S6-CH1-441-0A0	CORD CONN CH14410A
X6602	S0-OCT-024-010	X'TAL,HC-49/U	SP301	S7-0V0-420-010	SPKR S0410J05A
		<b>POWER SW PCB ASS'Y</b>	SP302	S7-0V0-420-010	SPKR S0410J05A
		*** SWITCHES ***	▲ V801	S9-8W2-104-190	CRT,W/DY A51LSH196X01(O)
▲ SW501	S5-302-050-010	SW,PLUS SDDFC3056A	BT001	S4-120-040-070	BATT,UM-4(GR)
		*** CONNECTORS ***			
CP501	S6-973-200-390	CORD UX CONNECTOR			
		*** AC CORD ***			
▲ CD501	S2-066-358-230	CORD AC 1206635823			
		*** OTHERS ***			
CD502	S6-CHU-201-7A0	CORD CONN CHU2017A			
		<b>IF PCB ASS'Y</b>			
		*** CAPACITORS ***			
C6002	87-010-071-080	CAP,E 1-50V			
C6003	87-010-404-080	CAP,E 4.7-50V			
C6004	87-010-112-080	CAP,E 100-16V			
C6011	87-010-825-010	CAP,E 0.22-50V			
		*** ICS ***			
IC6001	S0-3D7-567-B00	IC,LA7567B			
		*** TRANSISTORS ***			
Q6001	SA-3T0-608-KF0	TR,2SA608KF-NP-AA			
Q6005	SC-3T0-300-000	TR,2SC3000			
Q6006	SC-KT0-131-700	TR,2SC1317(Q,R,S)-T			
		*** COILS ***			
L6003	S2-1LA-62R-7K0	COIL,2.7 LAP02TA2R7K			
L6006	S3-360-K04-2R0	COIL,VIDEO IFT 360K042			
L6007	87-003-146-010	COIL,15UH			
L6008	S2-1LA-6R2-2M0	COIL,0.22 LAP02TAR22M			
L6011	87-003-141-010	COIL,1.2UH			
		*** FILTERS ***			
CF6001	S0-12T-6R0-120	FILTER,CER SFSH6.0MCB-TF21			
CF6002	S0-22V-39R-520	FILTER,SAW SAF39.5MZL220ZL			
CF6004	S0-221-32R-910	FILTER,SAW SAF32.9MC70Z			
CF6005	S0-12T-6R0-030	CER,FLTR TPS6.0M			
CF6007	S0-12T-031-020	FILTER,CERA MKT31.5MA110P			
CF6008	S0-12T-041-010	FILTER,CERA MKT41.5MA110P			
		<b>AND OTHERS</b>			
		*** OTHERS ***			
CD802	S6-CP8-203-5A0	CORD CONN CP82035A			
		*** CONNECTORS ***			
CD1001	S2-2S0-408-040	CORD,1.25-4-83-C			
CD4001	S2-2S0-614-010	CORD,1.25-6-138-C			
		*** COILS ***			
▲ L503	S2-8Q2-000-150	COIL,DEGAUSS 8Q200015			

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)  
**AIWA CO.,LTD.** 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03(3827)3111