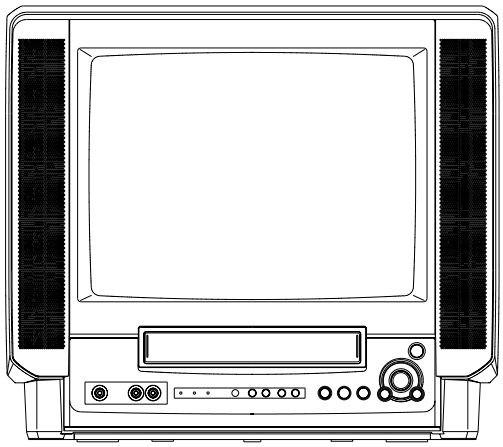
aiwa SERVICE

VX-C131 U



SERVICE MANUAL

INTEGRATED COLOR TV / STEREO VIDEO CASSETTE RECORDER

BASIC TAPE MECHANISM : OVD-6

SPECIFICATIONS

GENERAL

POWER REQUIREMENTS	120V AC, 60Hz
POWER CONSUMPTION	89W TYP 4W (power save mode)
WEIGHT	13.5 kg (29.8 lbs.)
DIMENSIONS	435 mm (W) x 370.5 mm (D) x 384.5 mm (H) (17 1/4 x 14 5/8 x 15 1/4 in.)

TV SECTION

PICTURE TUBE	208 mm (W) x 211 mm (H) (8 1/4 x 8 3/8 in.) 335 mm (diagonal) (13 in.)
TUNER SYSTEM	Frequency synthesized tuner
CHANNEL COVERAGE	VHF: 2 to 13 UHF: 14 to 69 CATV: 5A, A-1 to A-5, A to W, W+1 to W+84
PROGRAM MEMORY	181
TV SYSTEM	M
HORIZONTAL RESOLUTION	230 lines
ANTENNA INPUT	75 ohms, unbalanced

VCR SECTION

OPERATING TEMPERATURE	5°C to 40°C
VIDEO RECORDING SYSTEM	Rotary 2 head helical scanning system
VIDEO SIGNAL SYSTEM	NTSC color system, 525 lines, 60 fields
VIDEO HEAD	Azimuth 2 head
USABLE CASSETTES	VHS video cassette S-VHS video cassette (play back only)
TAPE SPEED	SP: 33.35 mm/sec LP: 16.67 mm/sec SLP: 11.12 mm/sec
RECORDING/PLAYBACK TIME	SP: 3 hours with T-180 tape LP: 6 hours with T-180 tape SLP: 9 hours with T-180 tape
VIDEO INPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO OUTPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO S/N	53dB (nominal)
AUDIO INPUT	–8dBs, 50K ohm
AUDIO OUTPUT	–8dBs, less than 1K ohm
AUDIO TRACK	1 tracks (Normal sound)
FAST-FORWARD TIME	Approx. 2 minutes 15 seconds with T-120 tape
REWIND TIME	Approx. 1 minute 48 seconds with T-120 tape

- **Design and specifications are subject to change without notice.**

aiwa

S/M Code No. 09-004-344-4N1

DATA

TABLE OF CONTENTS

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. AVOID AN ELECTRIC SHOCK

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

3. USE THE DESIGNATED PARTS

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

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

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

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

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

6. AVOID AN X-RAY

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

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]

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

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

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 2 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.

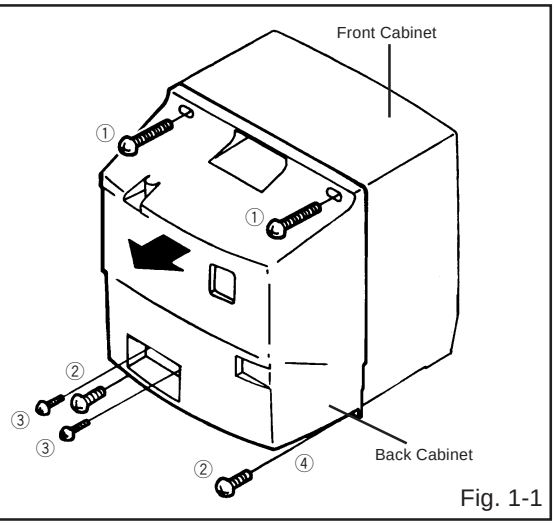


Fig. 1-1

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:
   (CP801, CP802 and CP850).
3. Remove the CRT PCB in the direction of arrow.

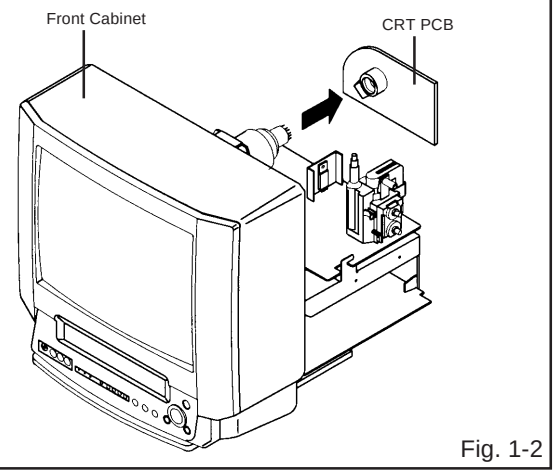


Fig. 1-2

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

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP351, CP352, CP353, CP354, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

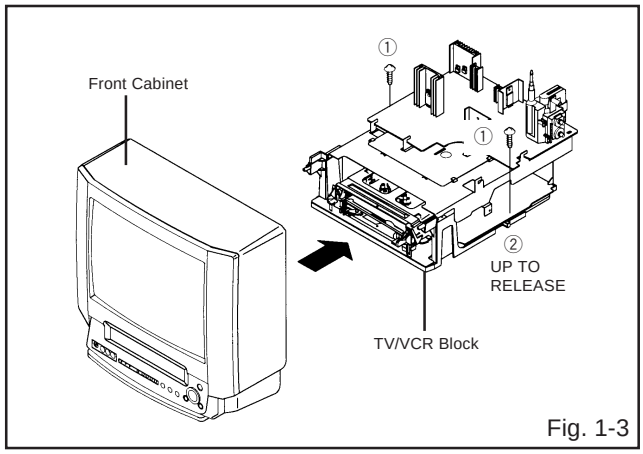


Fig. 1-3

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:
   (CP810, CP820, CP811 and CP804).
6. Remove the Main PCB in the direction of arrow.

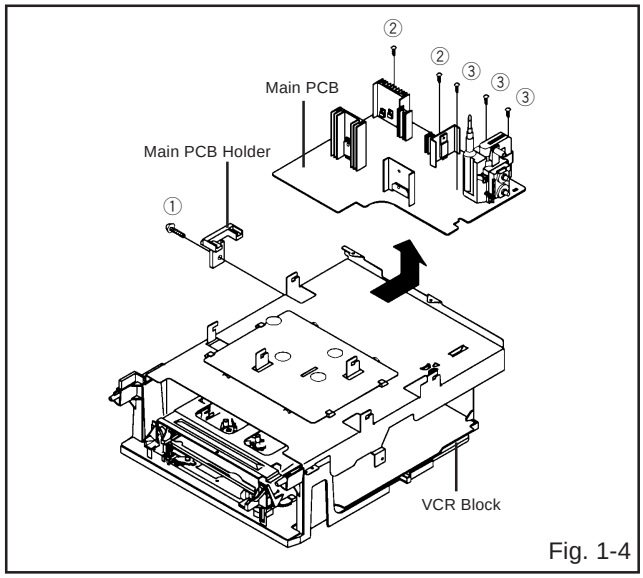


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

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

1. Remove the 2 screws ①.
2. Remove the screw ②.
3. Remove the Deck Shield Plate in the direction of arrow.

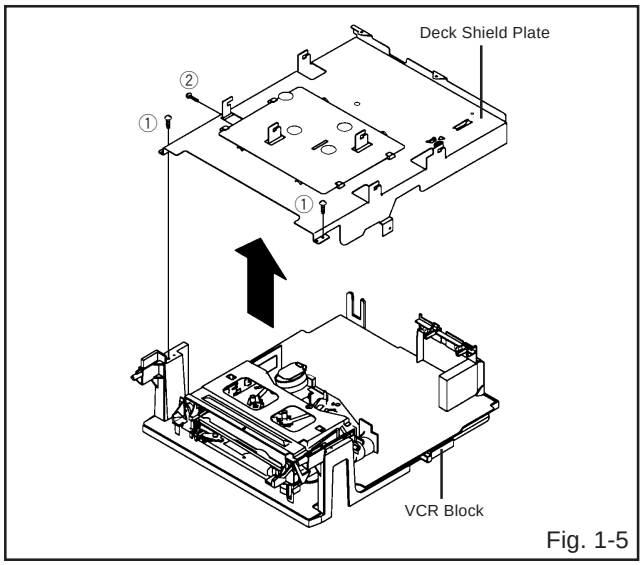


Fig. 1-5

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

1. Remove the 3 screws ①.
2. Disconnect the following connectors:
   (CP1002, CP1005, CP1006, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis in the direction of arrow.

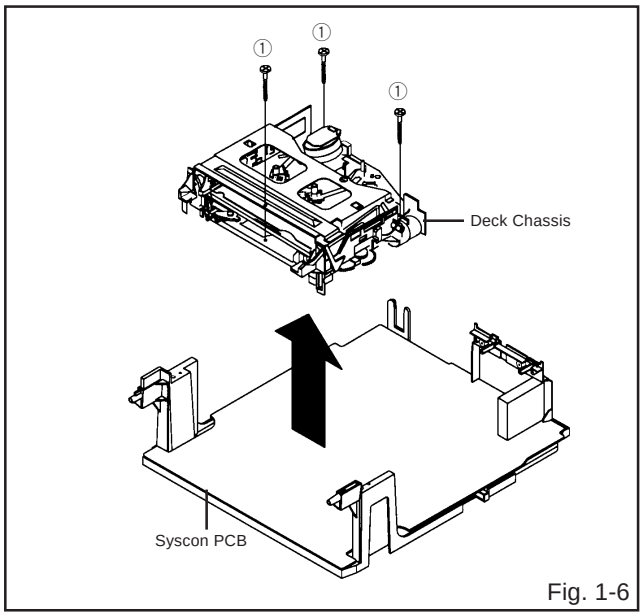


Fig. 1-6

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 screw ②.
4. Remove the nut ③.
5. Remove the washer ④.
6. Unlock the 2 supports ⑤.
7. Remove the Jack Plate in the direction of arrow (B).

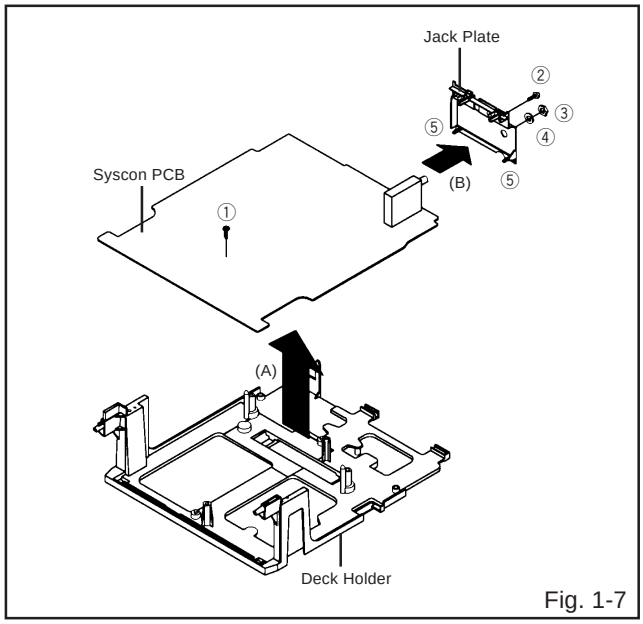


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

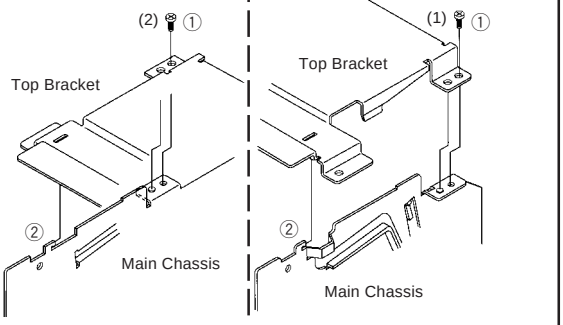
2. REMOVAL OF DECK PARTS

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).



• Screw Torque: 5 ± 0.5kgf•cm

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.

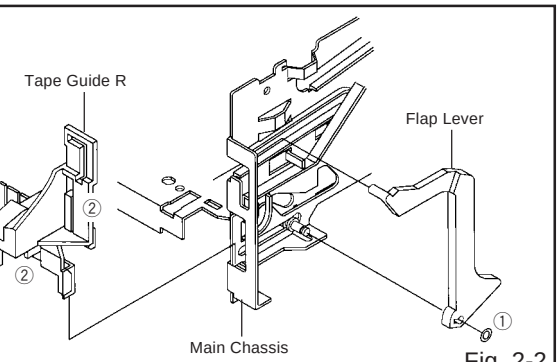
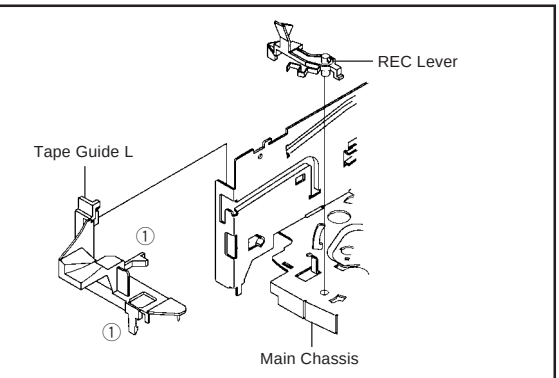


Fig. 2-2

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)

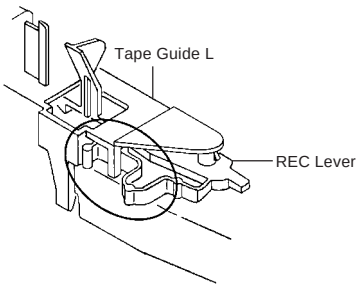


• The REC Lever is not installed on the Video Cassette Player.

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)**



• The REC Lever is not installed on the Video Cassette Player.

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.

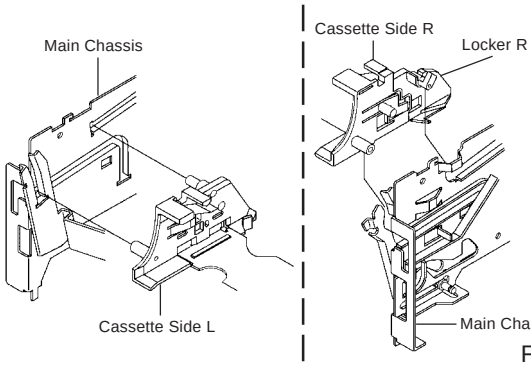


Fig. 2-4

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

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

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

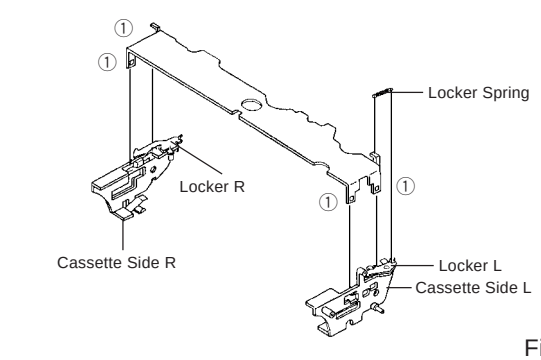


Fig. 2-5

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.

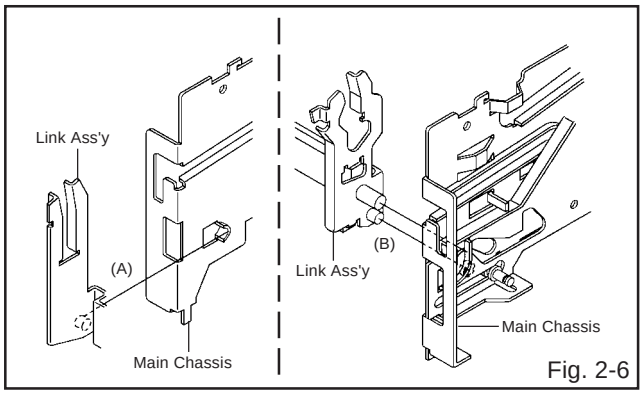
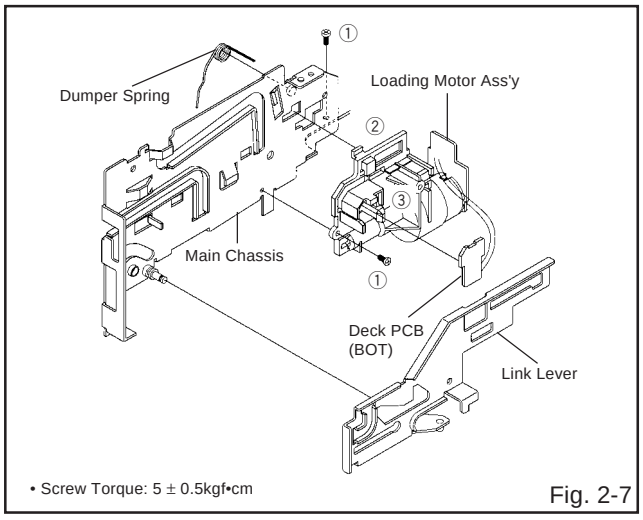


Fig. 2-6

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).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-7

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

1. Unlock the support ① and remove the Sensor Cover L.
2. Unlock the 2 supports ② and remove the Deck PCB (EOT).

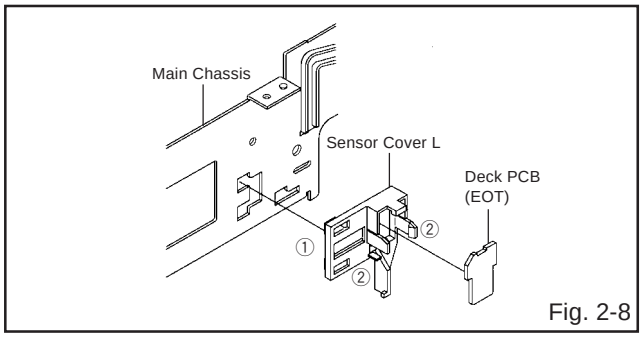


Fig. 2-8

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

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

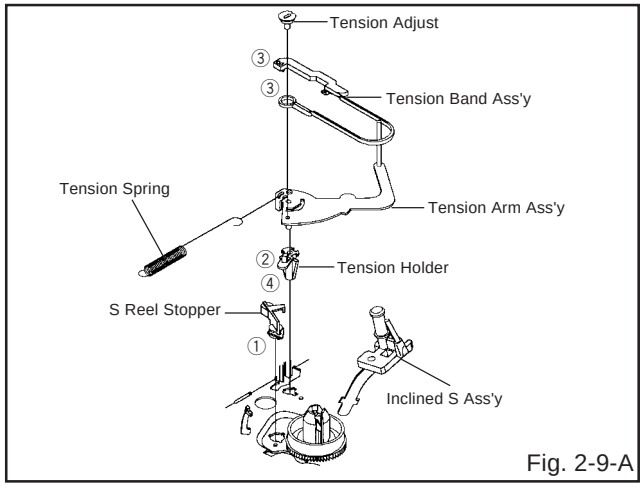


Fig. 2-9-A

NOTE

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

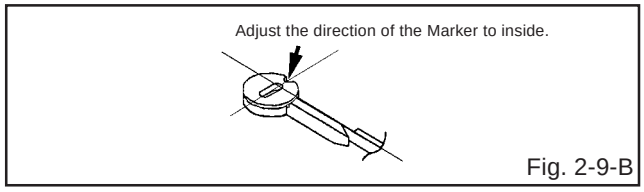


Fig. 2-9-B

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

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

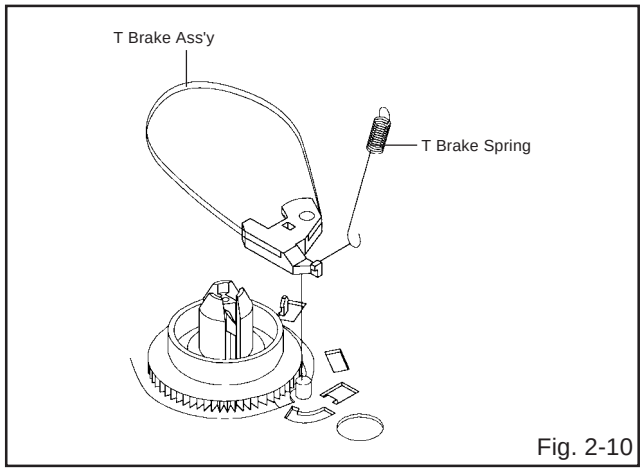


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL ASS'Y (Refer to Fig. 2-11)

1. Remove the Idler Ass'y.
2. Remove the S Reel and T Reel Ass'y.
3. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel, T Reel Ass'y and Idler Ass'y.
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 Ass'y. (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 (KYODO OIL Slidas #150). (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)**

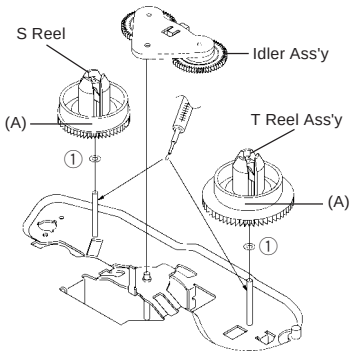
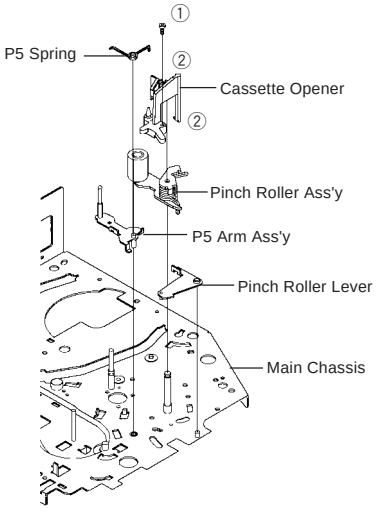


Fig. 2-11

2-12: PINCH ROLLER ASS'Y/P5 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 Ass'y, Pinch Roller Lever and P5 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-12-A

NOTE

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

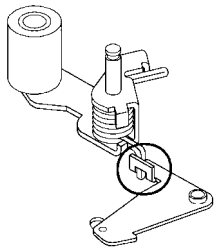


Fig. 2-12-B

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).

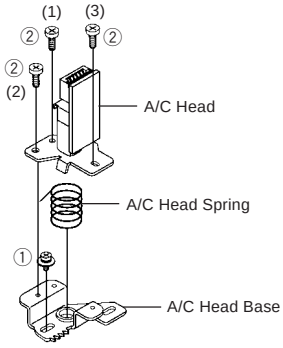


Fig. 2-13-A

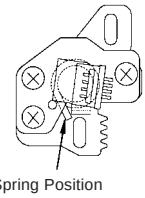
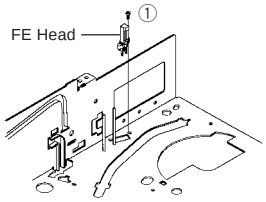


Fig. 2-13-B

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.

Fig. 2-14

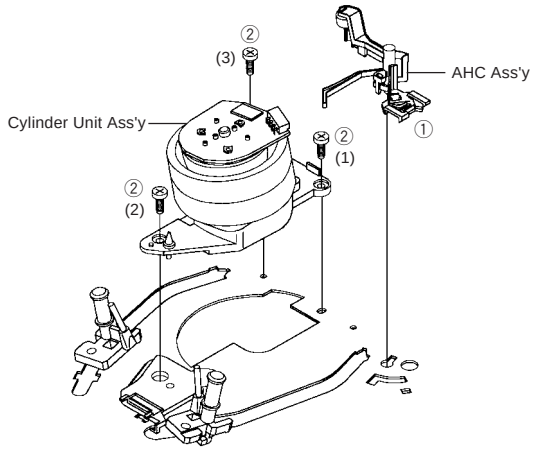
DISASSEMBLY INSTRUCTIONS

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.

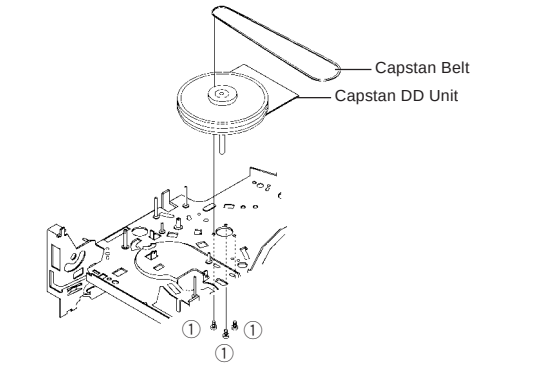


• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-15

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.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-16

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, Link Lever Spacer and P5 Cam.
3. Remove the Polyslider Washer ②, then remove the Pinch Roller Cam.
4. Remove the Polyslider Washer ③, then remove the Joint Gear.

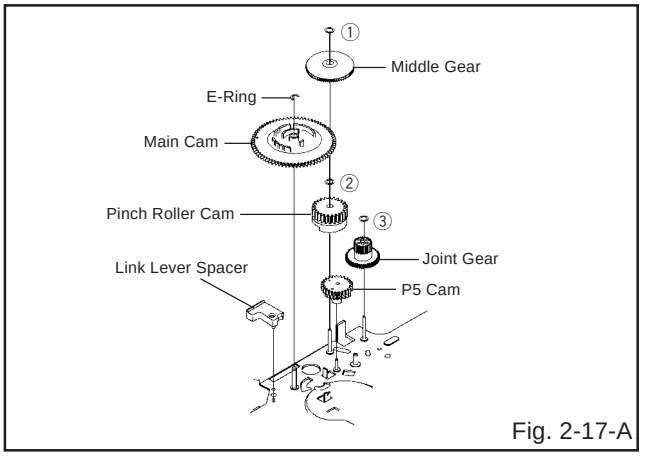


Fig. 2-17-A

NOTE

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

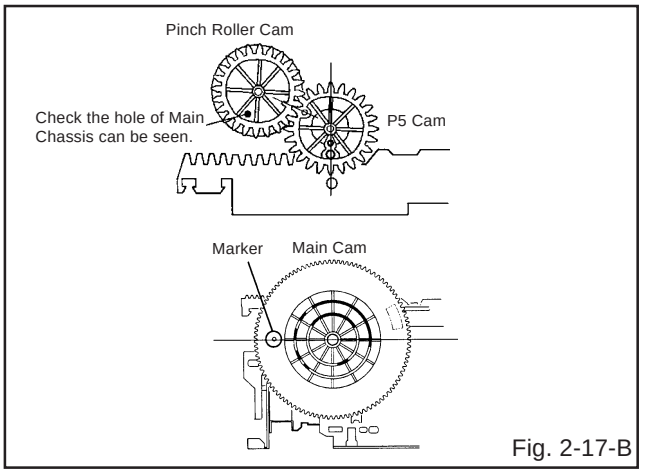


Fig. 2-17-B

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

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring, Ring Clutch, Gear Clutch and Polyslider Washer ②.

NOTE

When you install the Clutch Ass'y, oil the shaft (KYODO OIL Slidas #150).

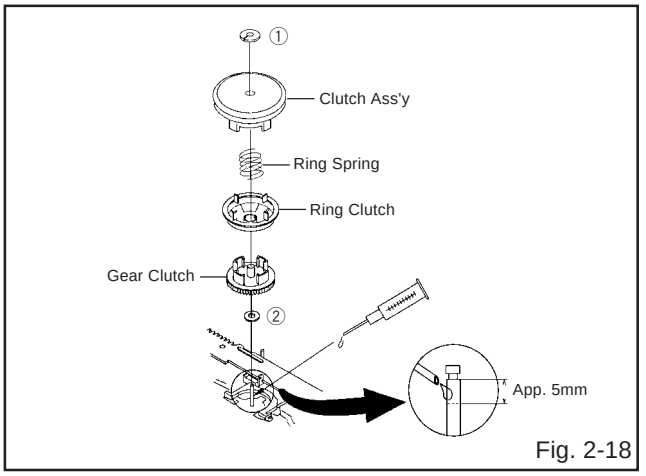


Fig. 2-18

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 Arm Ass'y.
4. Remove the Main Rod.
5. Remove the Tension Lever.
6. Unlock the 2 supports ② and remove the Clutch Lever.
7. Remove the screw ③.
8. Remove the LED Reflector.
9. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
10. Remove the Loading Gear S and Loading Gear T.
11. Remove the Loading Gear Spring.

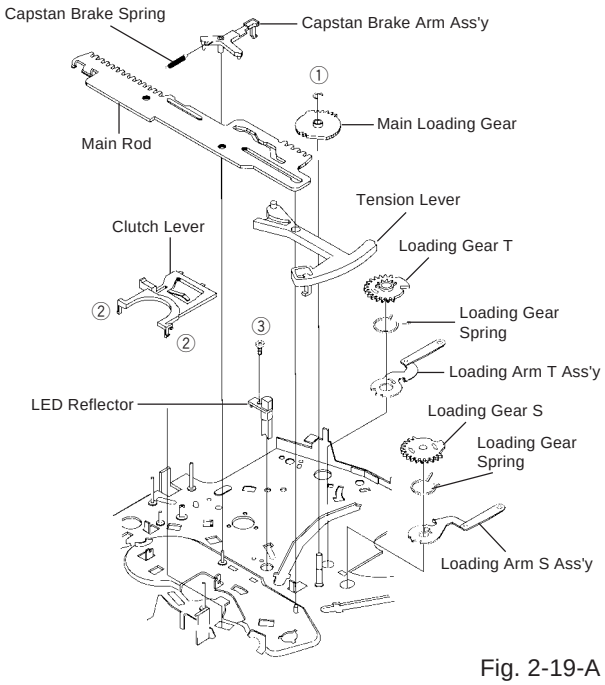


Fig. 2-19-A

NOTE

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)**

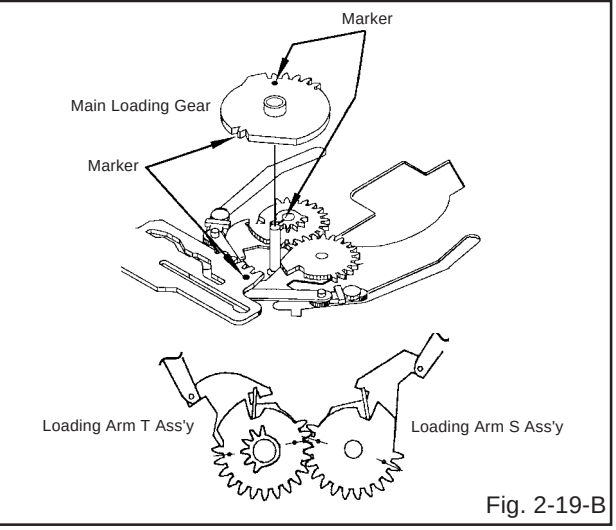


Fig. 2-19-B

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

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

NOTE

Do not touch the roller of Guide Roller.

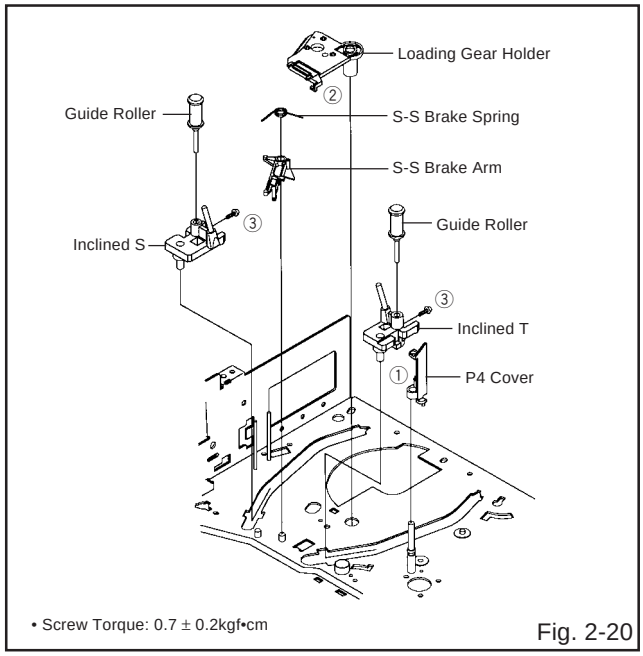


Fig. 2-20

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.

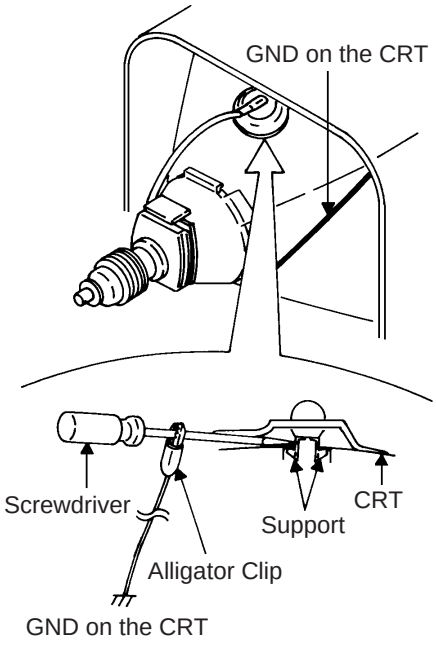


Fig. 3-1

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.)**

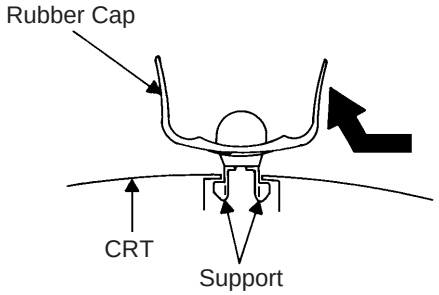


Fig. 3-2

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.)**

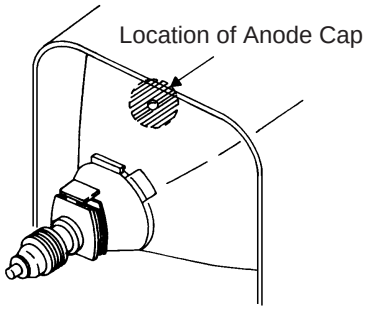


Fig. 3-3

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.)**

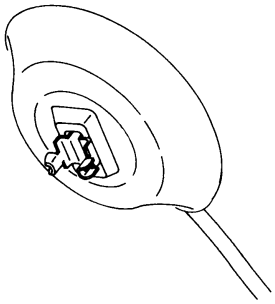


Fig. 3-4

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

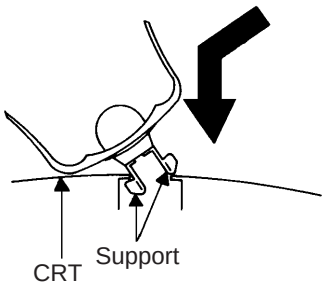


Fig. 3-5

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

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 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	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

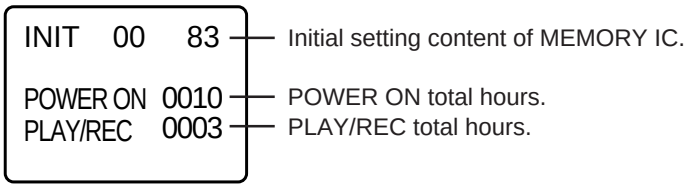
■ : Clean
● : Replace

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 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
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

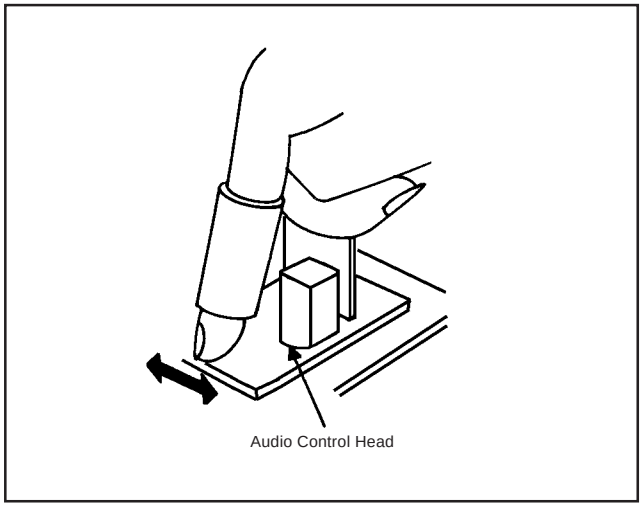
CLEANING

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

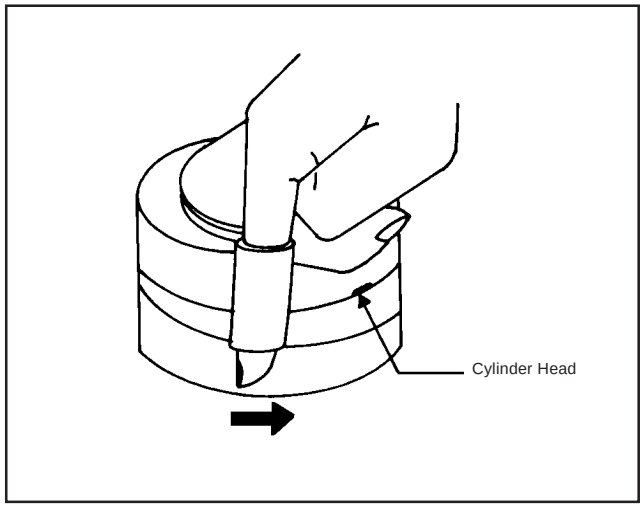
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

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 5 seconds before Power On.

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
00	81	0A	2B	14	90	1E	43	28	39
01	6D	0B	24	15	A0	1F	13	29	02
02	07	0C	CB	16	6D	20	7D		
03	00	0D	01	17	54	21	0A		
04	00	0E	04	18	B9	22	3E		
05	00	0F	05	19	0C	23	00		
06	A4	10	6C	1A	08	24	39		
07	CB	11	2B	1B	82	25	00		
08	39	12	21	1C	6B	26	00		
09	16	13	15	1D	FA	27	3A		

Table 1

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

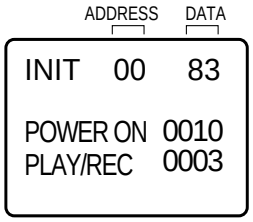
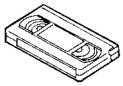
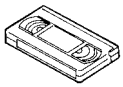
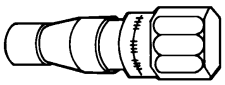
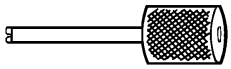
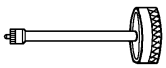
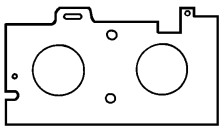
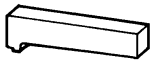
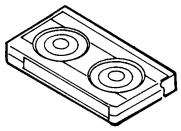
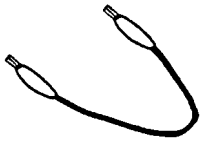
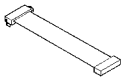
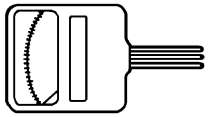


Fig. 1

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

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

SERVICING FIXTURES AND TOOLS

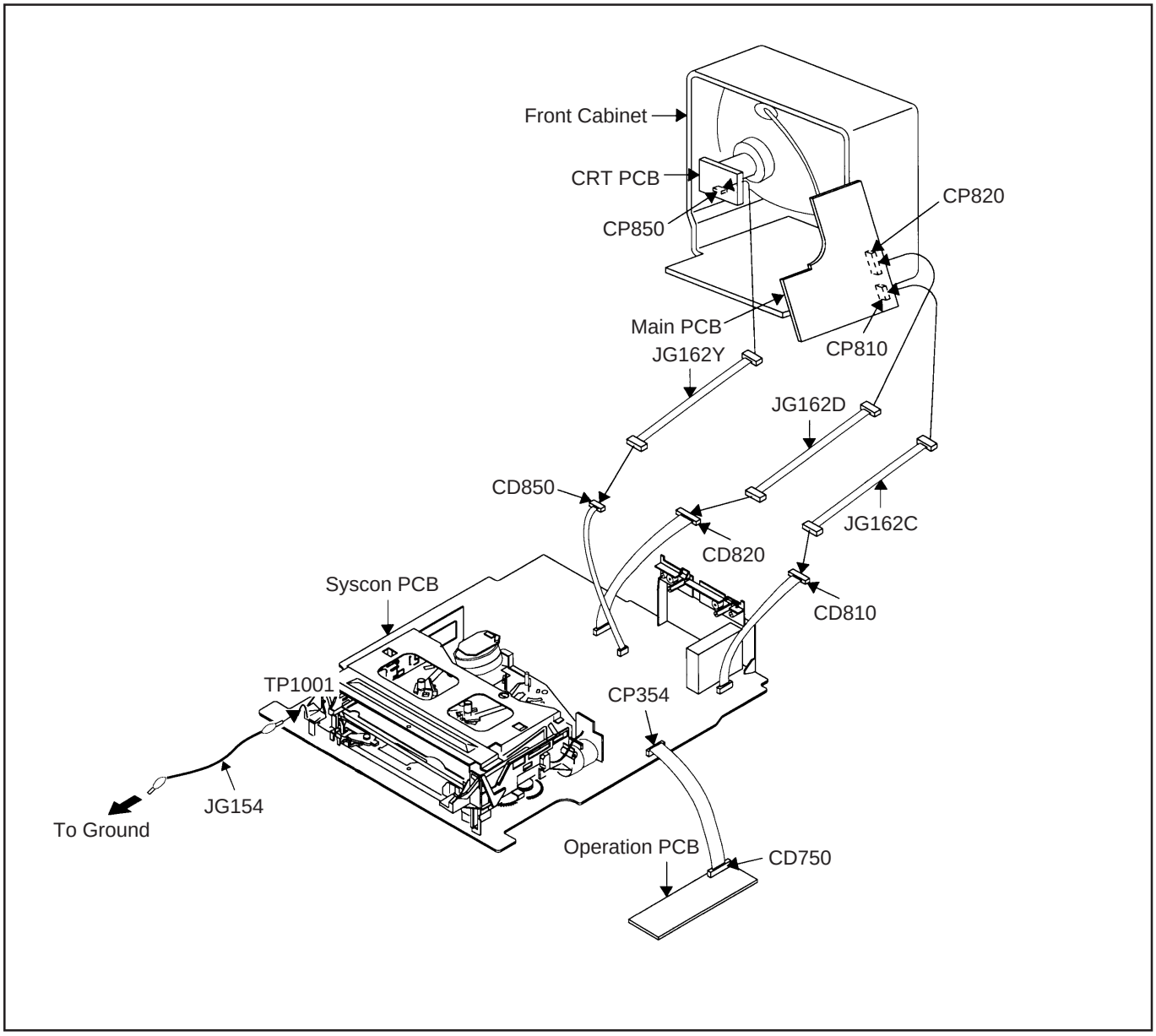
(For 2 heads model) VHS Alignment Tape JG001 (TTV-N2) JG001A (TTV-N12) JG001T (VN_2S-X6^3) 	**(For 4 heads model)** VHS Alignment Tape JG001B (TTV-N2) JG001I (TTV-N12) JG001S (VN_1S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable Parts No. SJ-G15-400-000 	JG162C Cable (10 Pins) Parts No. SJ-G16-2C0-000 JG162D Cable (11 Pins) Parts No. SJ-G16-2D0-000 JG162Y Cable (5 Pins) Parts No. SJ-G16-2Y0-000 	Tentelometer 	

Part No.	Remarks
JG001	Stair Steps, 7KHz **(For 2 heads model)**
JG001A	Color Bar, 1KHz **(For 2 heads model)**
JG001T	X Value Adjustment **(For 2 heads model)**
JG001B	Stair Steps, 7KHz **(For 4 heads model)**
JG001I	Color Bar, 1KHz **(For 4 heads model)**
JG001S	X Value Adjustment **(For 4 heads model)**
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
JG162C/JG162D	Used to connect the Syscon PCB and Main PCB
JG162Y	Used to connect the Syscon PCB and CRT PCB

PREPARATION FOR SERVICING

Basic Servicing Position (In case of needing to check on all blocks)

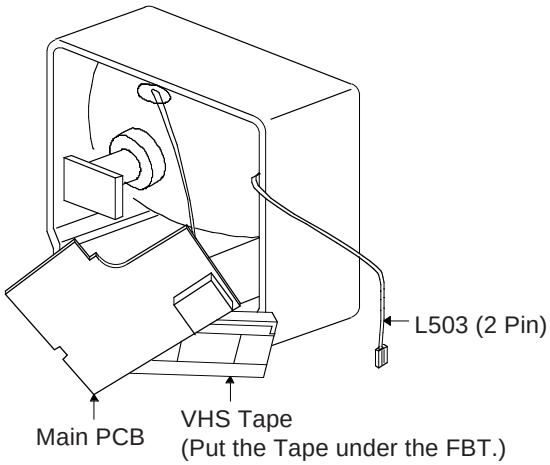
1. Unplug the connector CP351, CP352, CP353 and CP354, then remove the TV/VCR Block from the set.
2. Unplug the connector CP810, CP820 and CP850, then remove the Main PCB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
   • Connect the Syscon PCB to the Main PCB with the cable JG162C and JG162D.
   • 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 CP351. (Front A/V Jack Input Terminal)
5. Short circuit between **TP1001** and **GND** with the cable JG154.
   (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.)



• Be careful for the short circuit.

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.

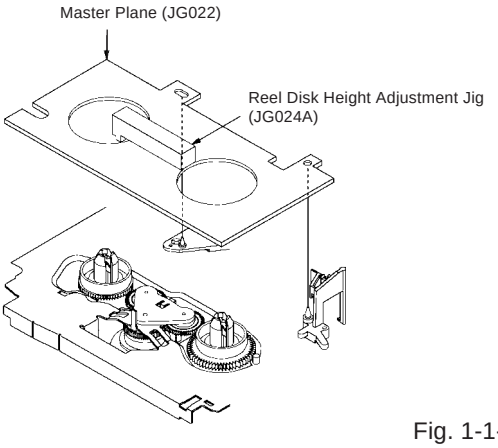


Fig. 1-1-A

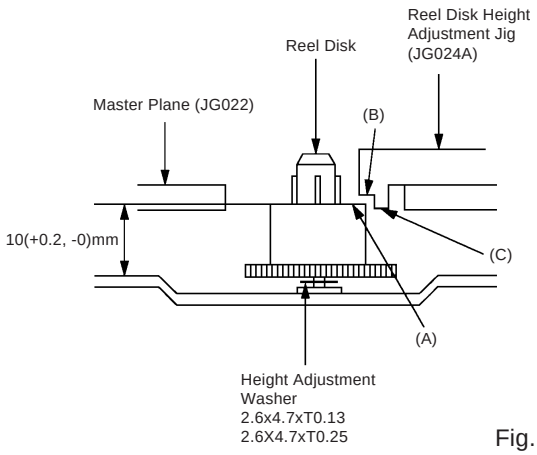


Fig. 1-1-B

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.

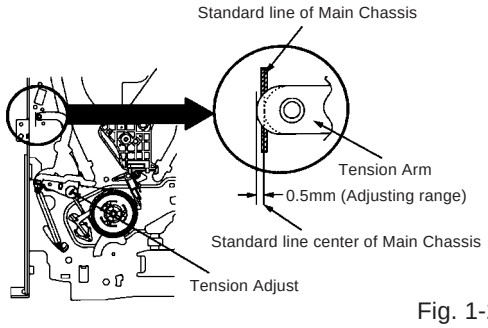


Fig. 1-2-A

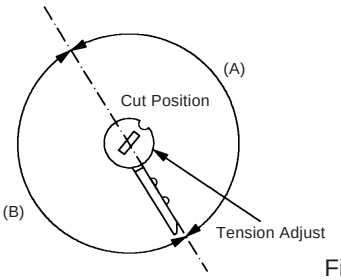


Fig. 1-2-B

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

1. Load a video tape (T-120) 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 ± 2gf 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 70~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

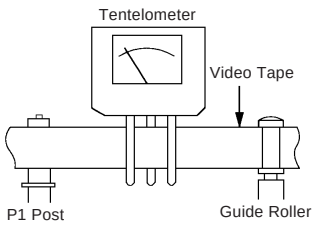


Fig. 1-3

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 70~100gf•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 Ass'y.
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 35~60gf•cm.

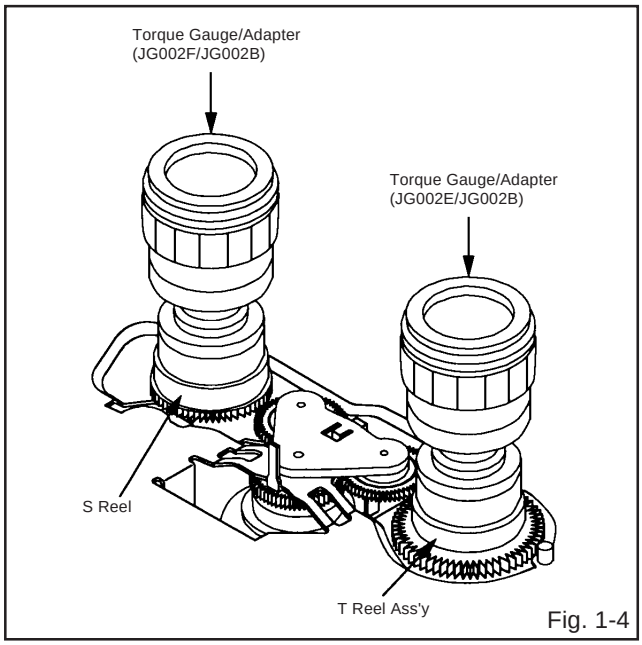


Fig. 1-4

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 **(JG001 or JG001B)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (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 begins 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)**

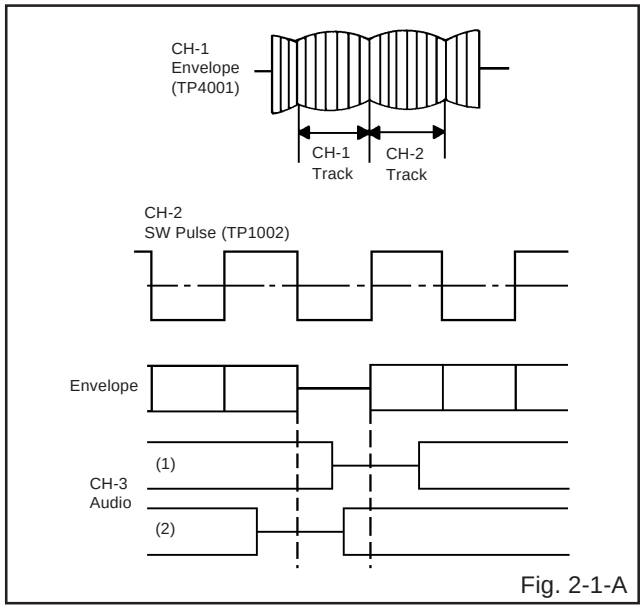


Fig. 2-1-A

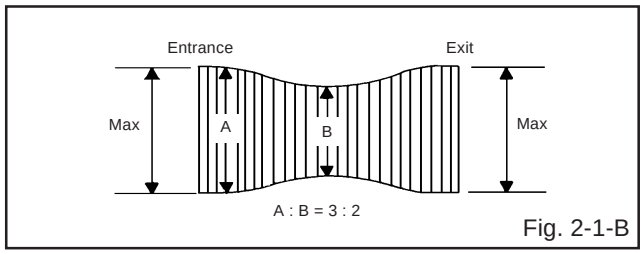


Fig. 2-1-B

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 **(JG001 or JG001B)**. **(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.

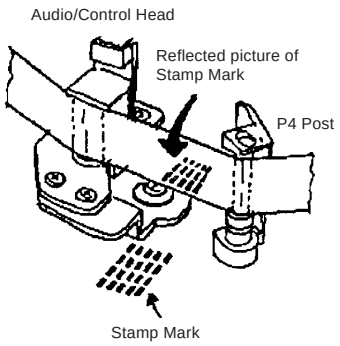


Fig. 2-2-A

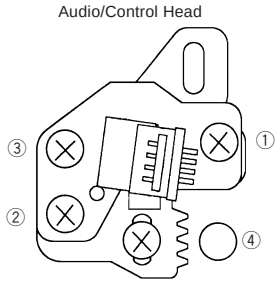


Fig. 2-2-B

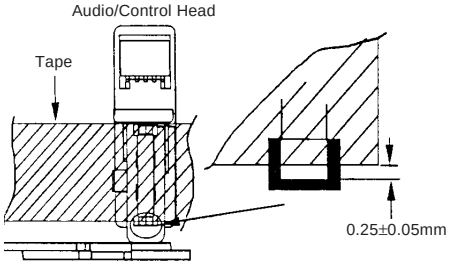


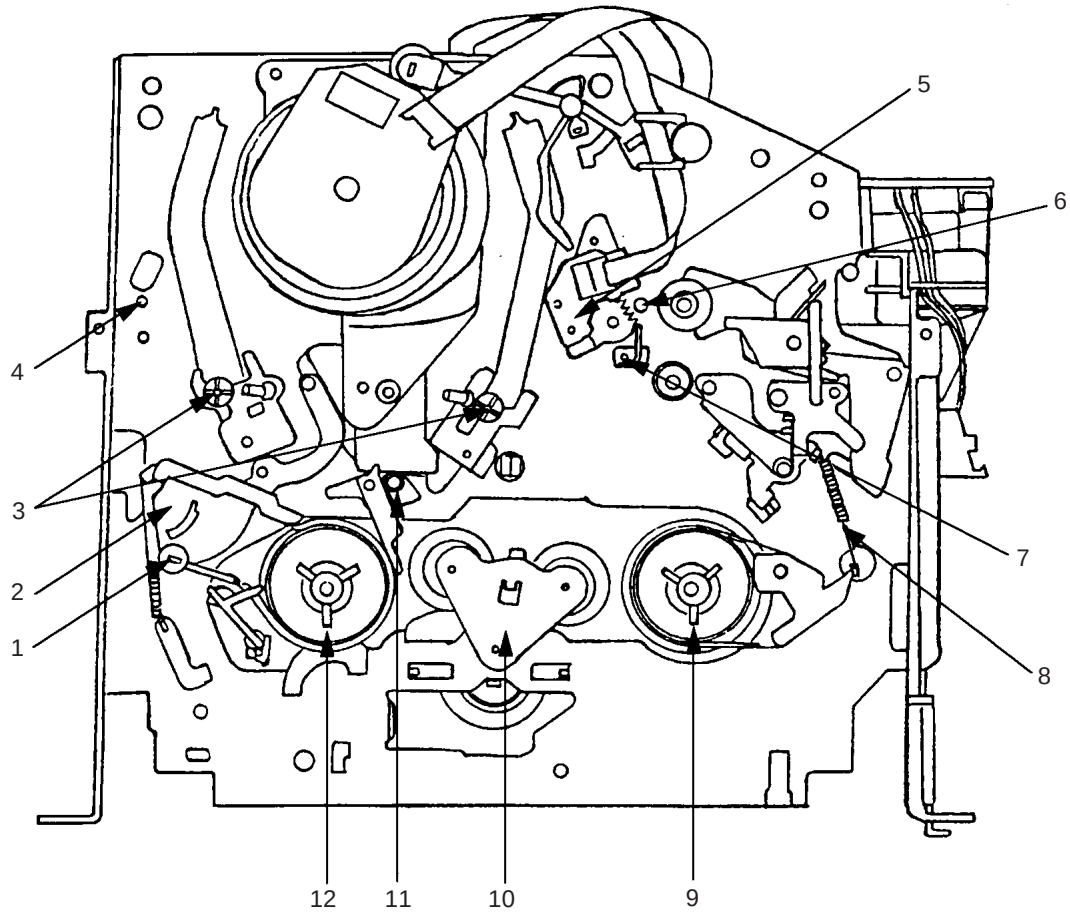
Fig. 2-2-C

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 **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001S or JG001T)**. **(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
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel Ass'y
10. Idler Ass'y
11. S-S Brake Spring
12. 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 5 seconds to set the clock to the non-setting state. 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 simultaneously 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)** on the remote control to end the adjustments.

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

"The adjustment items 3, 6, 7 and 8 are 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 **TP1002** and CH-2 to **TP4201**.
2. Playback the alignment tape. **(JG001I)**
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 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

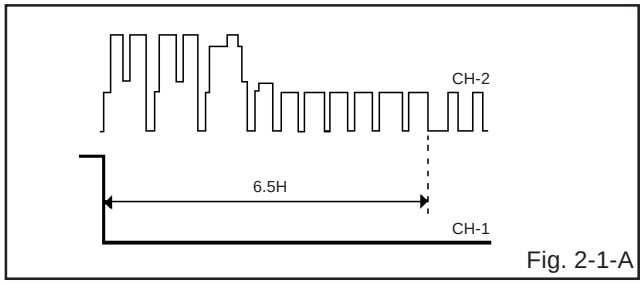


Fig. 2-1-A

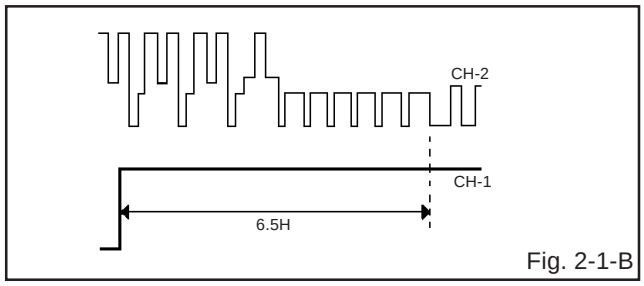


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter to **TP601**.
7. Adjust the **L610** until the digital voltmeter is 3.1 ± 0.05V.

2-3: RF AGC

1. Receive the VHF HIGH (70dB).
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. The **Fig. 2-2** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.3 ± 0.05V.

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

"The adjustment items 2 and 3 are not used for this model."

Fig. 2-2

ELECTRICAL ADJUSTMENTS

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to **TP401**.
2. Set condition is AV MODE without signal.
3. Adjust the **VR502** until the DC voltage is 135 ± 0.5V.

2-5: 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. The **Fig. 2-2** appears on the display.
3. Press the channel button **(4)** on the remote control.
4. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

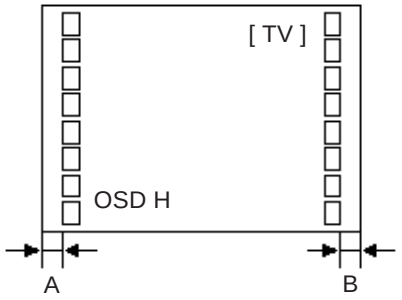


Fig. 2-3

2-6: HORIZONTAL PHASE

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

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

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

Fig. 2-4

2-7: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-6.

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. The **Fig. 2-4** appears on the display.
4. Press the channel button **(3)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
6. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-7.

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. The **Fig. 2-4** appears on the display.
4. Press the channel button **(5)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-9: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-8.

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. The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: FOCUS

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

2-11: 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. The **Fig. 2-2** appears on the display.
5. Press the channel button **(5)** on the remote control.
6. Adjust the **Screen Volume** until a dim raster is obtained.

ELECTRICAL ADJUSTMENTS

2-12: SUB BRIGHTNESS

1. Receive the black pattern*. (RF Input)
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 **(4)** on the remote control. The **Fig. 2-5** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
6. Receive the black pattern*. (Audio Video Input)
7. Press the TV/VCR button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

*The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

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

Fig. 2-5

2-13: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the synchro scope to **TP801**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-5** appears on the display.
5. Press the channel button **(3)** on the remote control.
6. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 100 ± 5% of the white level. **(Refer to Fig. 2-6)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/VCR button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

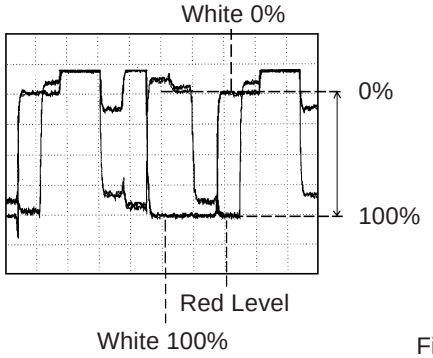


Fig. 2-6

2-14: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the synchro scope to **TP803**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-5** appears on the display.
5. Press the channel button **(4)** on the remote control.
6. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-7)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the TV/VCR button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

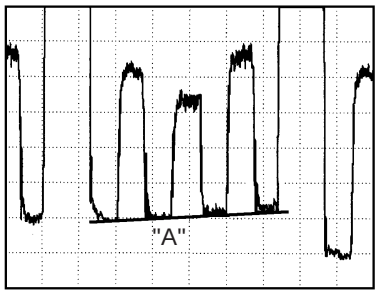


Fig. 2-7

2-15: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-5** appears on the display.
2. Press the channel button **(2)** on the remote control.
3. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "82"
4. Press the TV/VCR button on the remote control to set to the AV mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-5** appears on the display.
6. Press the channel button **(2)** on the remote control.
7. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "97"

2-16: SUB SHARPNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-5** appears on the display.
2. Press the channel button **(5)** on the remote control.
3. Check if the step No. of SHARPNESS is "24".
4. Press the TV/VCR button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-17: OSD CONTRAST

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 **(4)** on the remote control. The **Fig. 2-5** appears on the display.
3. Press the channel button **(6)** on the remote control.
4. Check if the step No. of OSD CONT. is "0".

ELECTRICAL ADJUSTMENTS

2-18: WHITE BALANCE

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

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. The **Fig. 2-8** appears on the display.
5. Perform channel button 2 through 7 on the remote control until the screen becomes 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 are not used for this model."

Fig. 2-8

2-19: H. BLK

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-4** appears on the display.
2. Press the channel button **(2)** on the remote control.
3. Switch the R/L by using the ENTER button on the remote control and check if the H. BLK step No. becomes "R0, L0".

2-20: V. S-CORRECTION (V. SC)

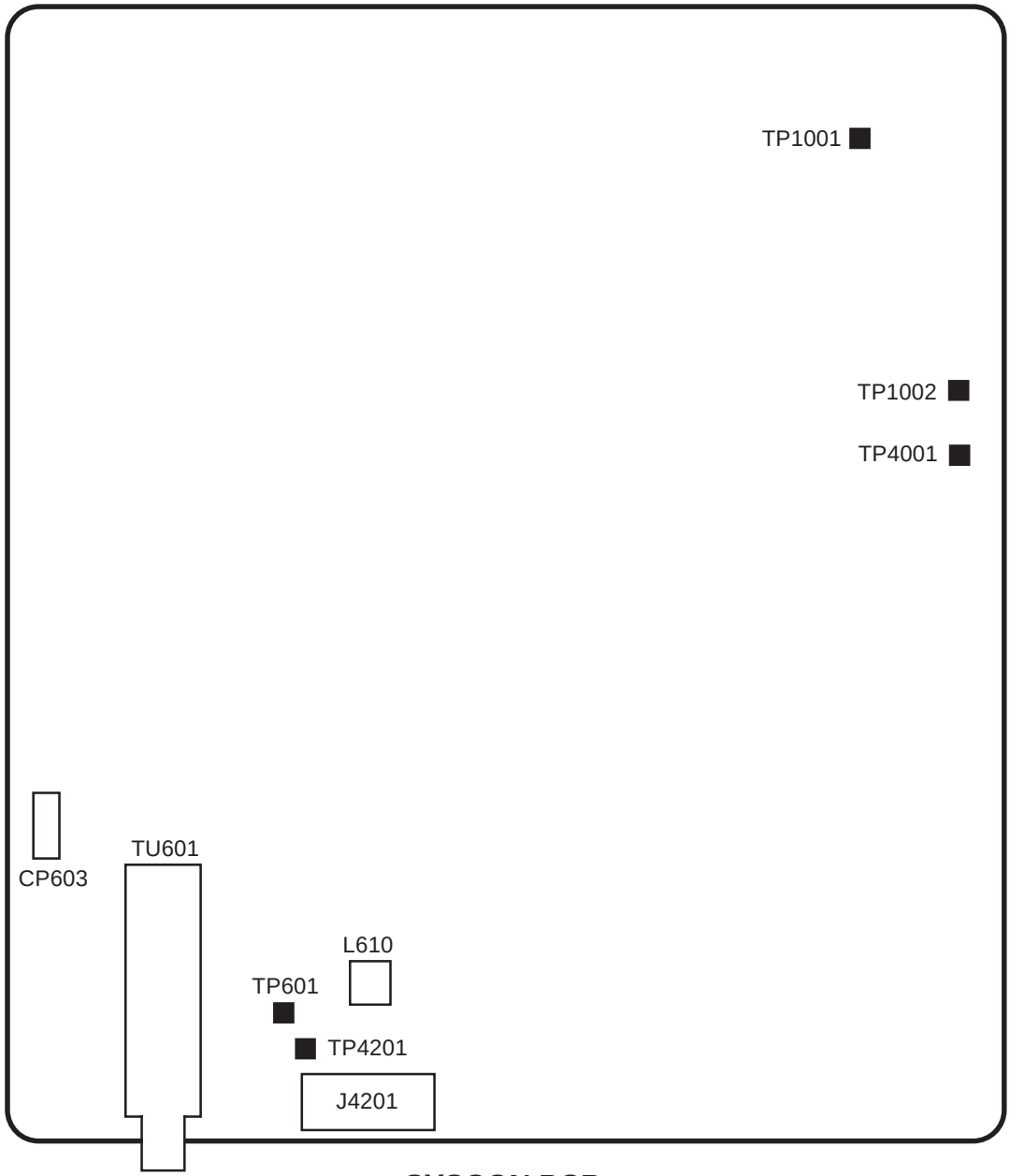
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-4** appears on the display.
2. Press the channel button **(6)** on the remote control.
3. Check if the step No. of V. SC is "0".

2-21: V. COMP

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

ELECTRICAL ADJUSTMENTS

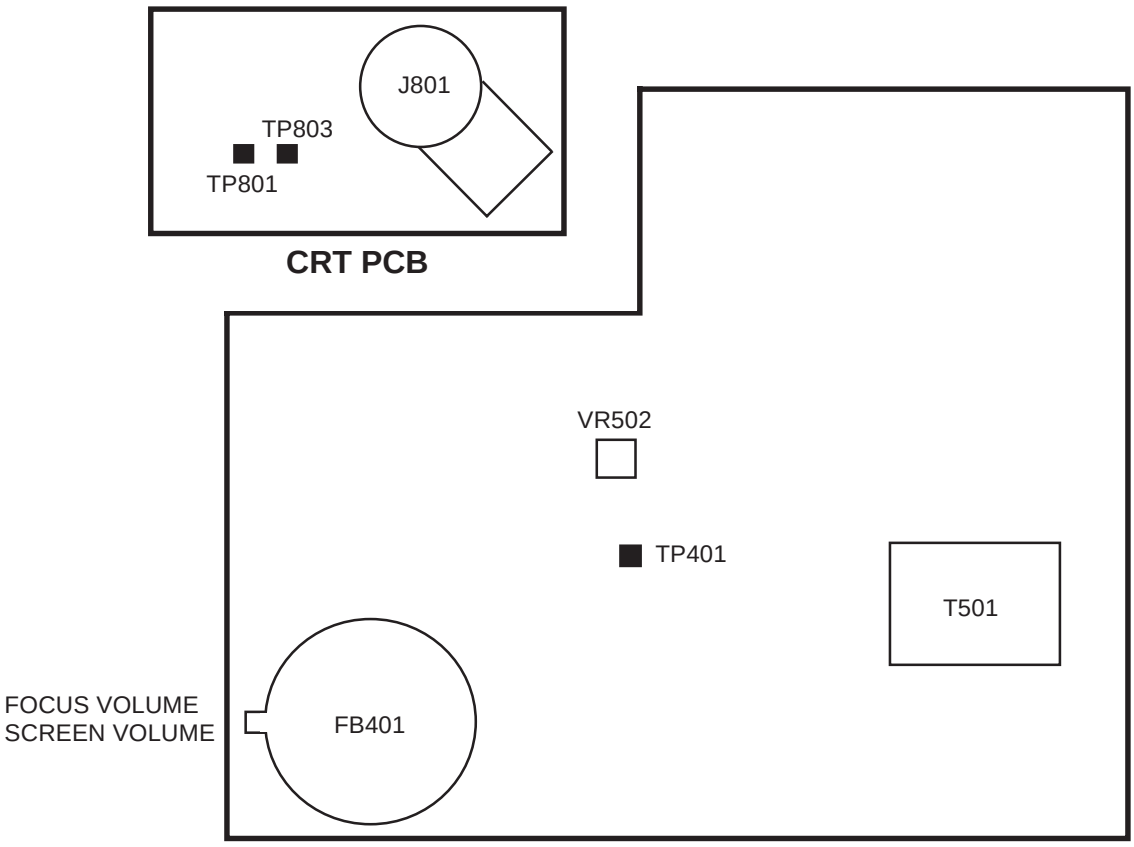
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



SYSCON 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 colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

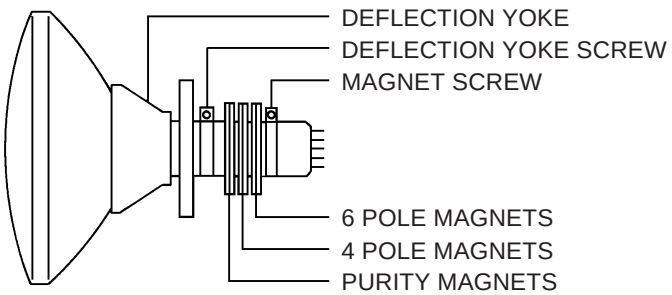


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

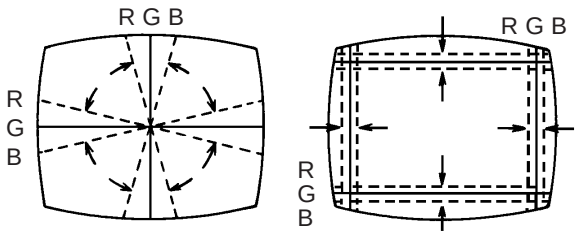
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

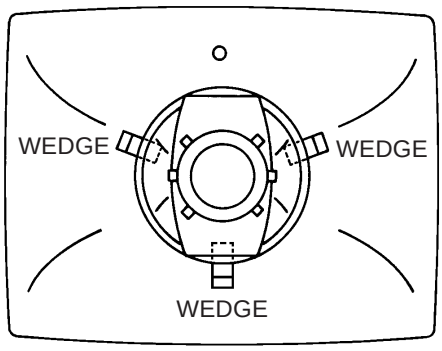
Adjust after performing adjustments in section 4-3.

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

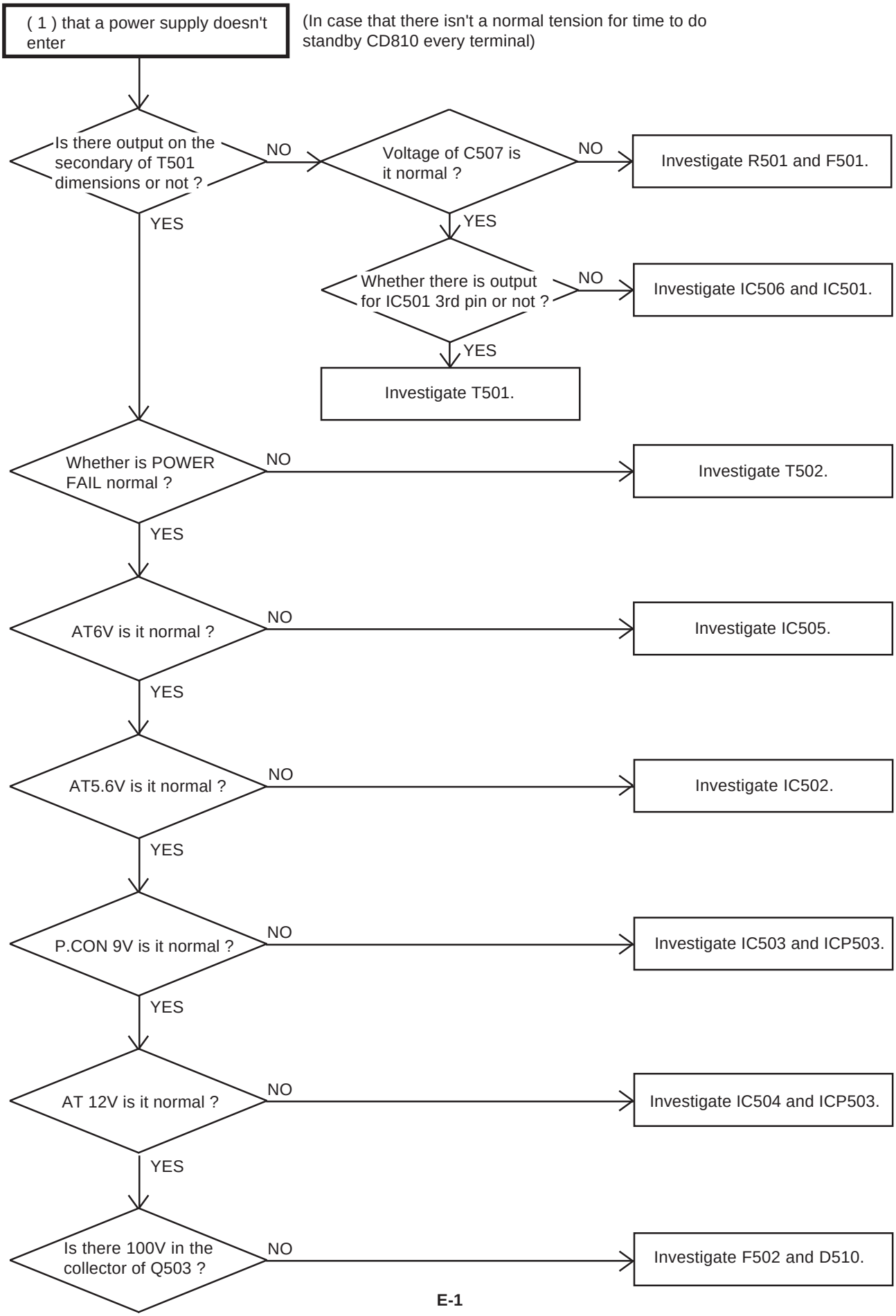


WEDGE POSITION

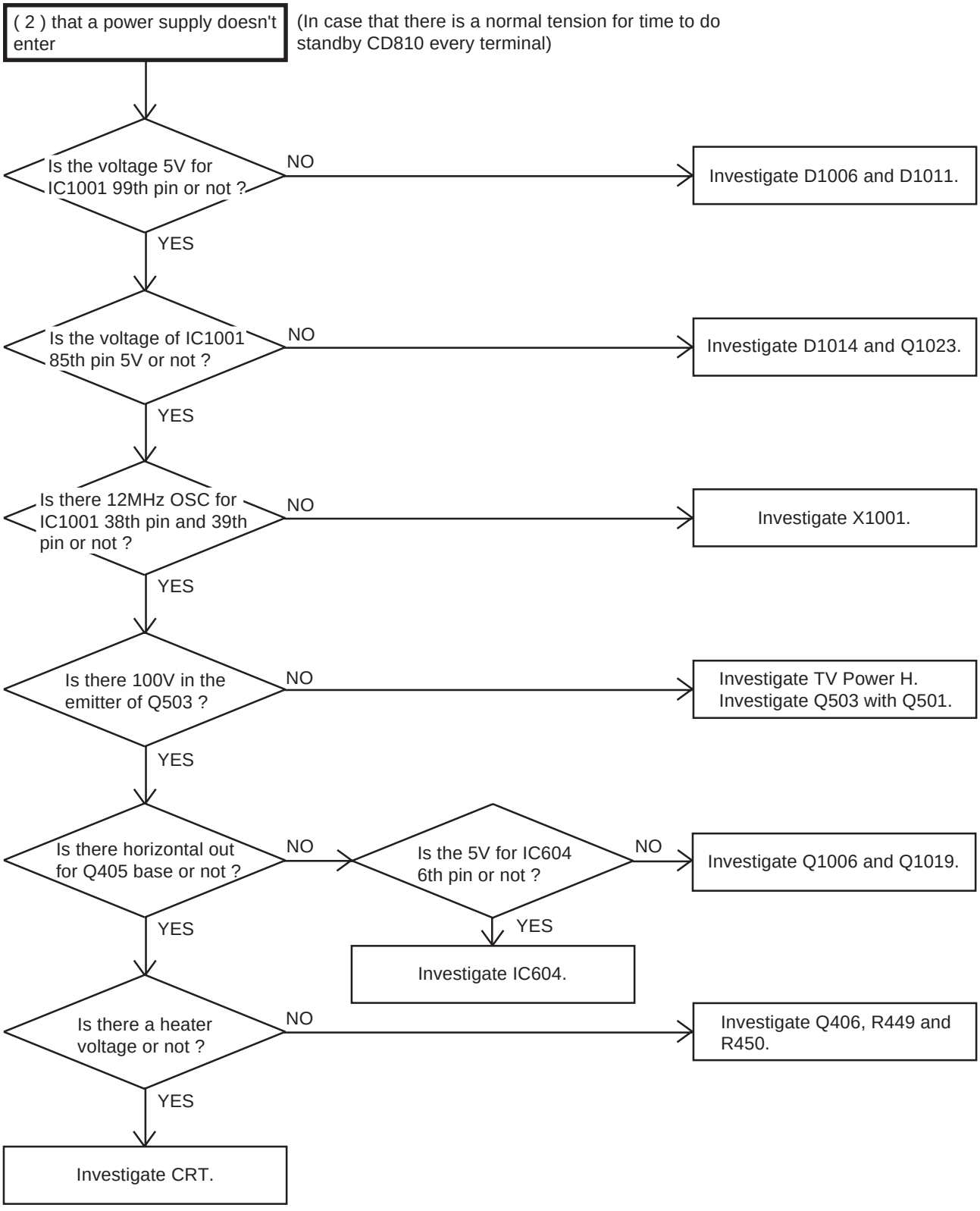
Fig. 4-2-b

TROUBLESHOOTING GUIDE

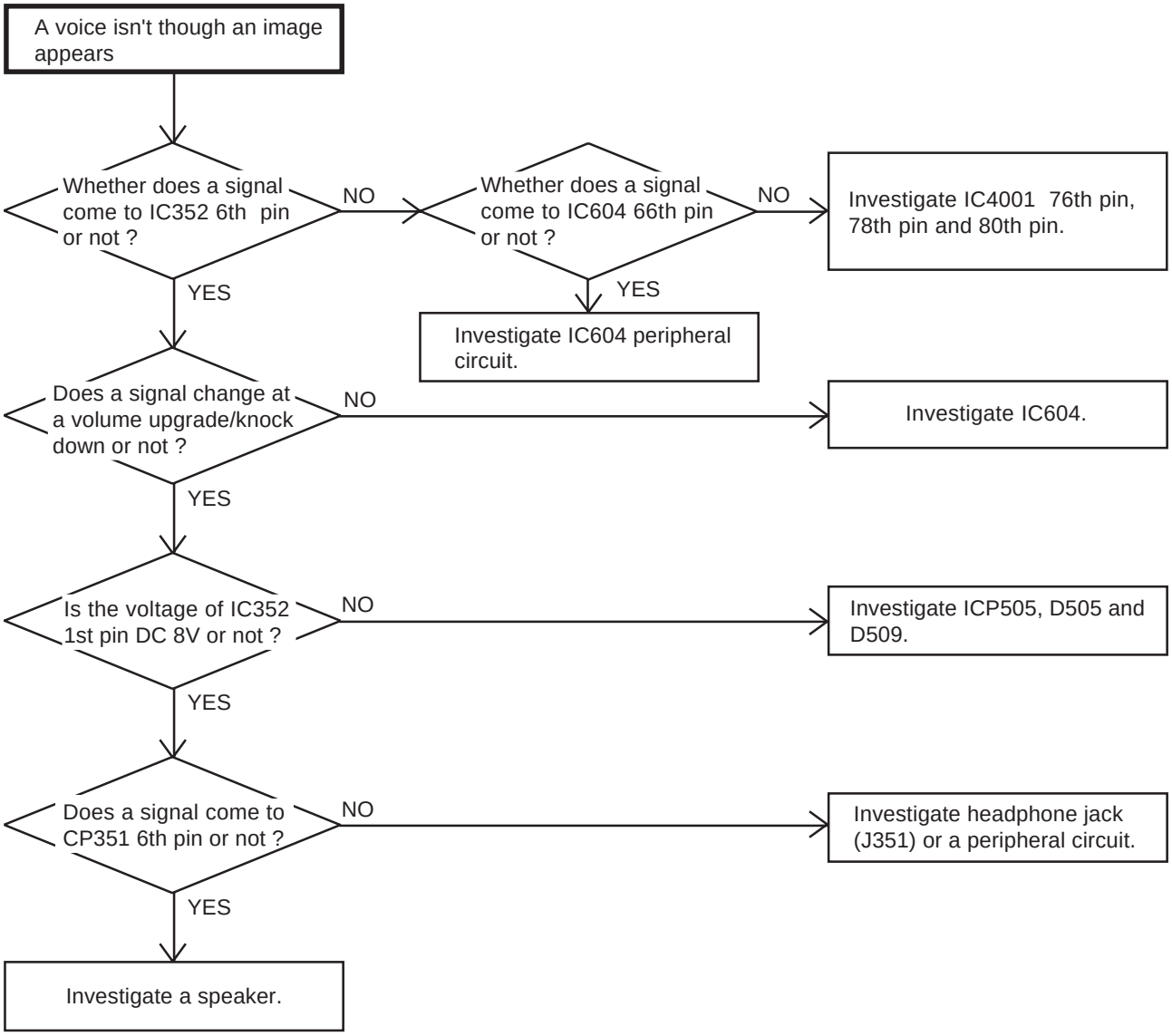
(Television division)



TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



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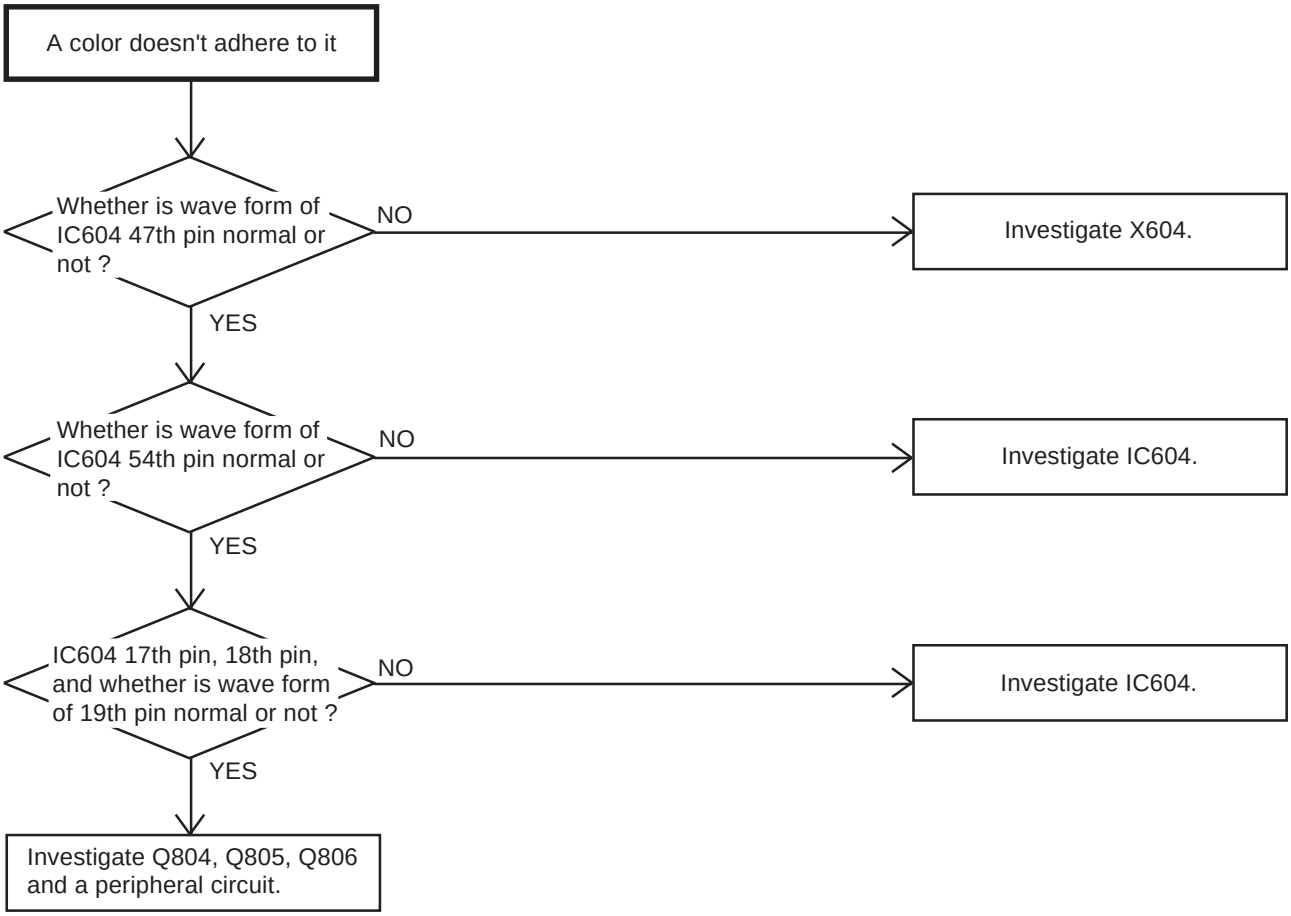

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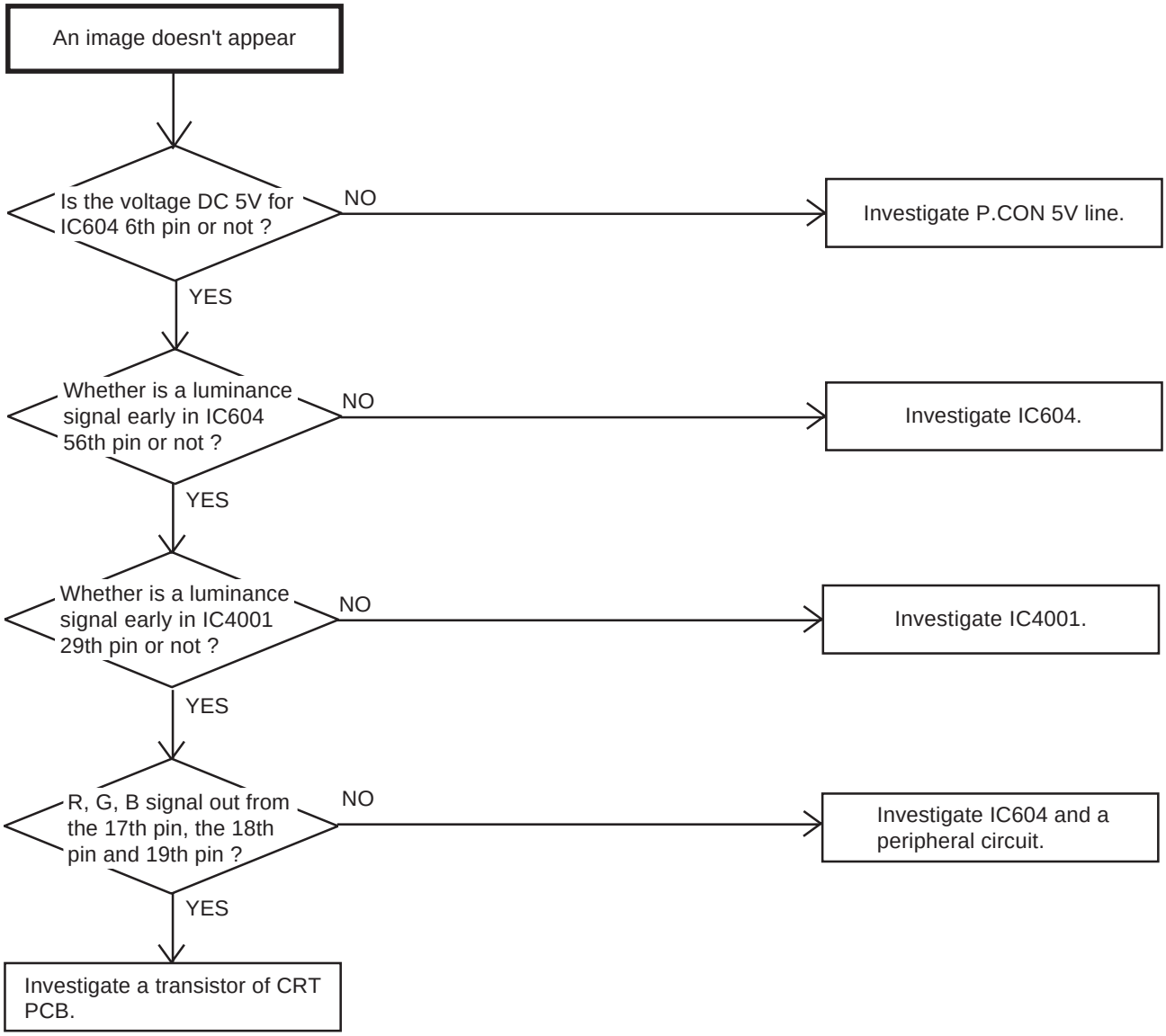

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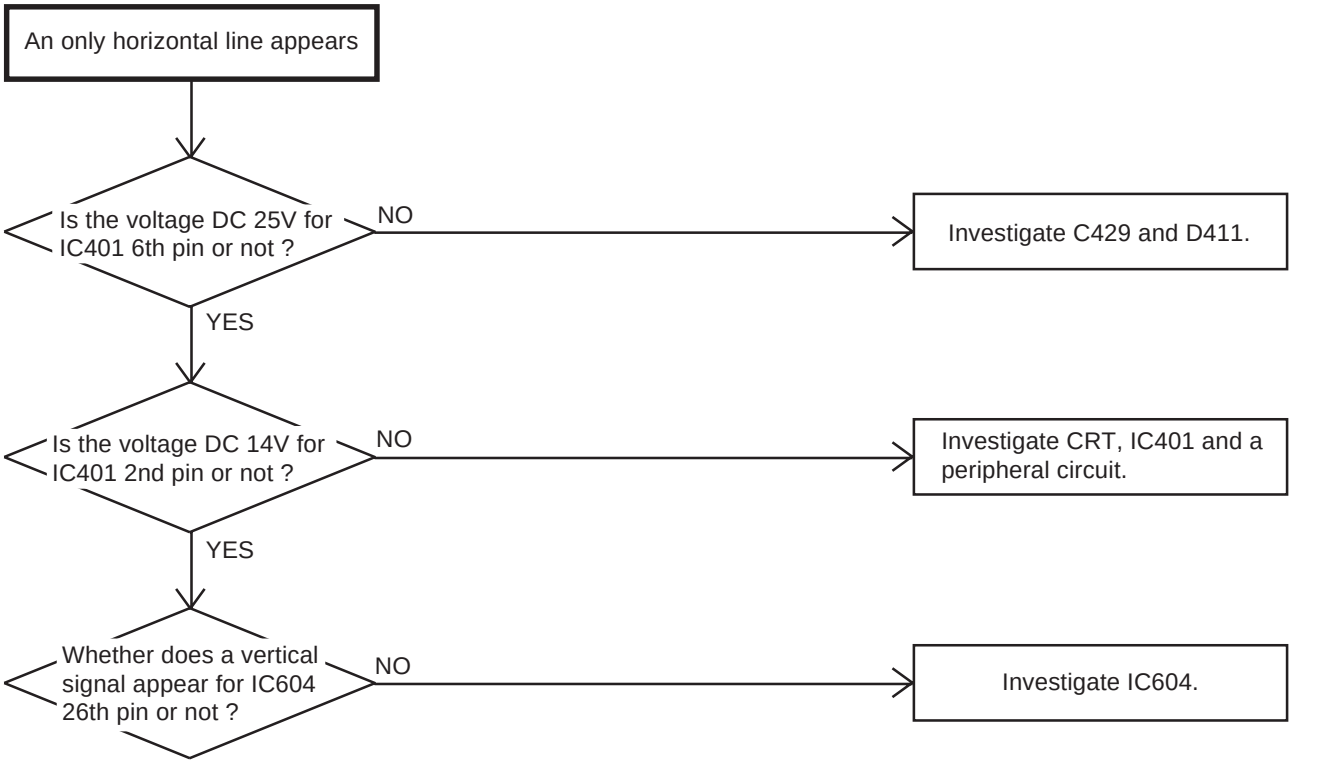
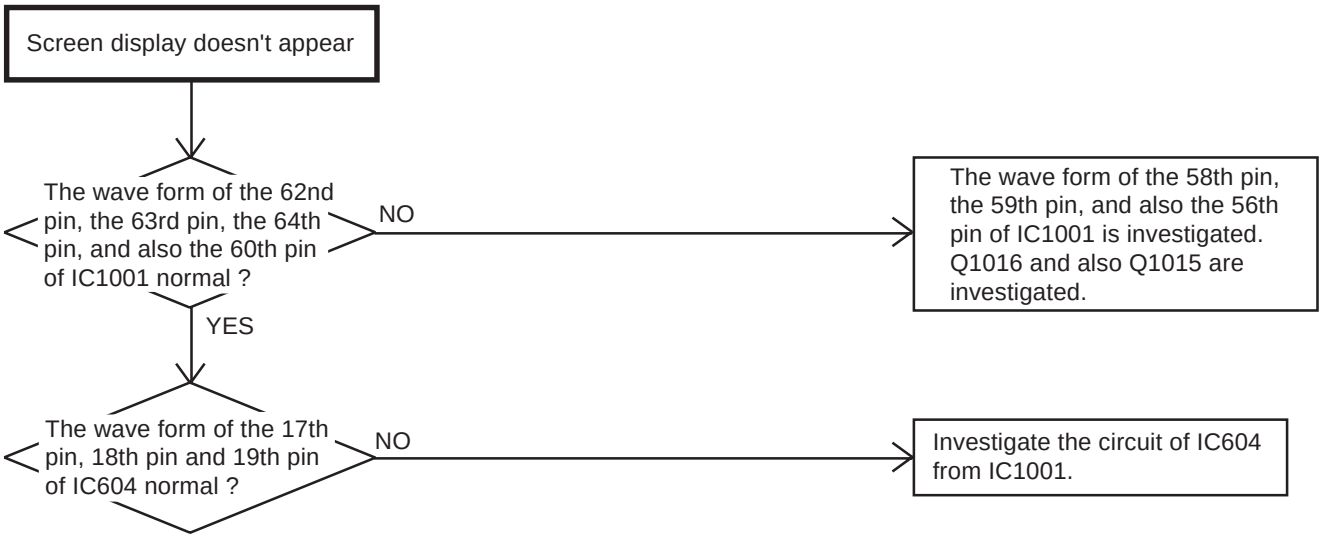
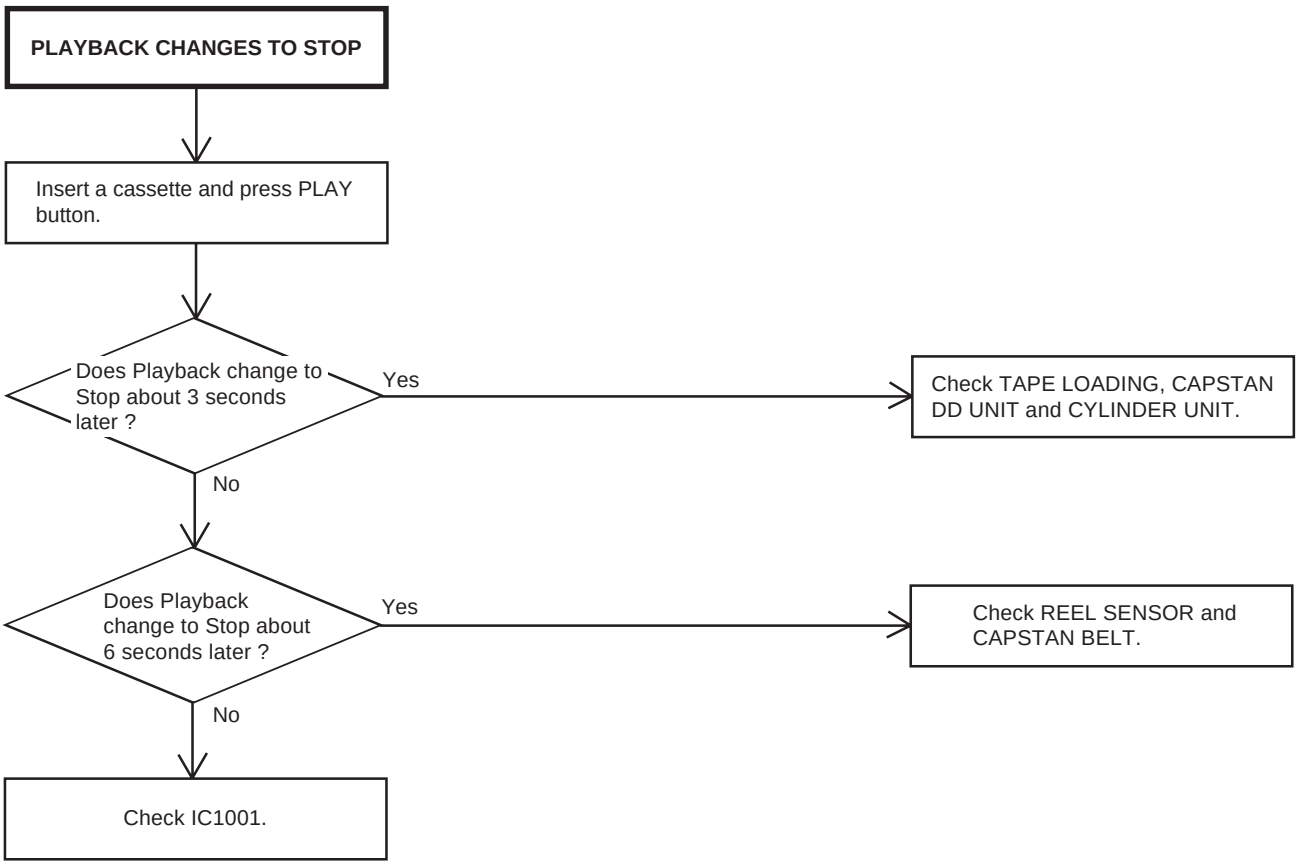




TROUBLESHOOTING GUIDE

(VCR SECTION)



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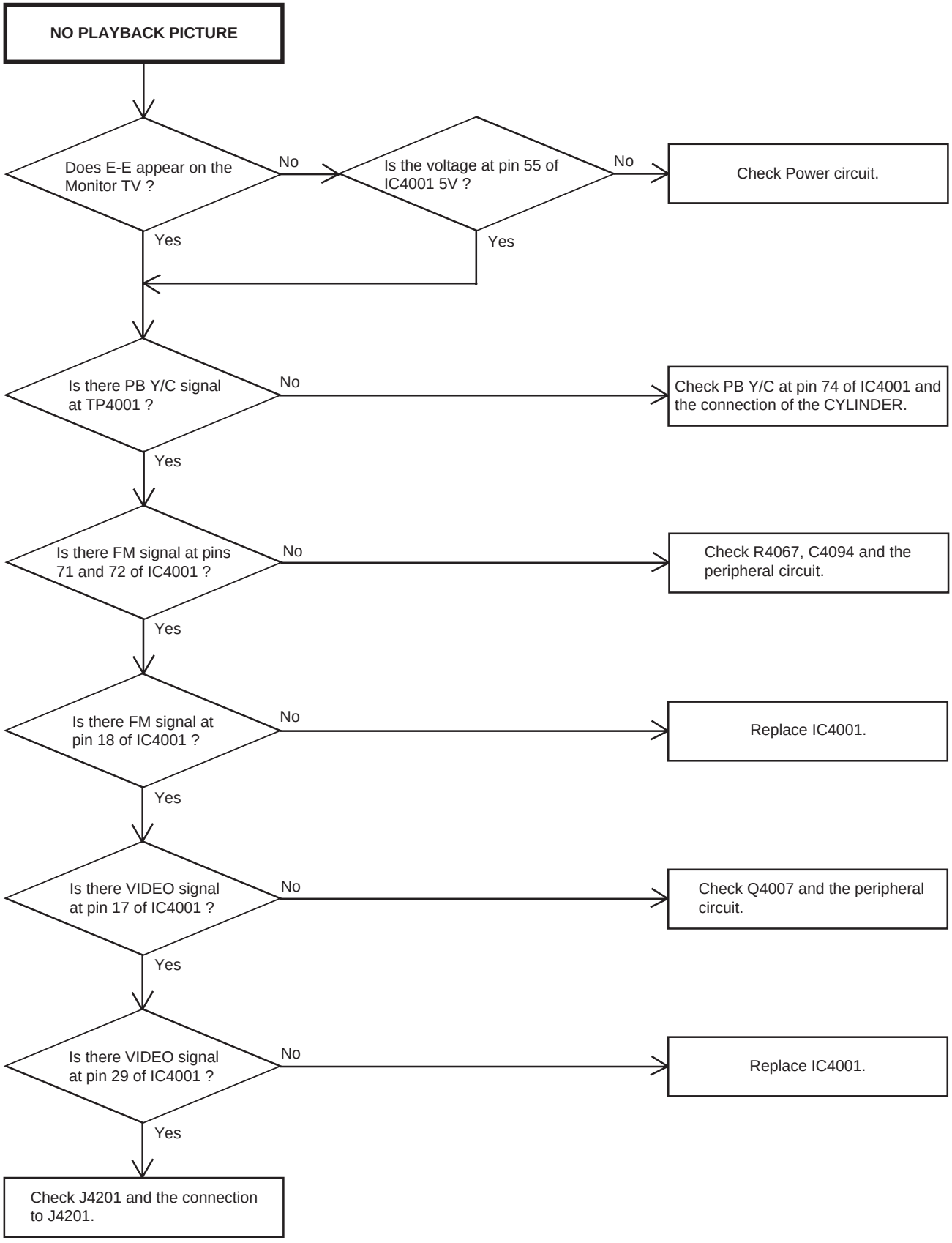

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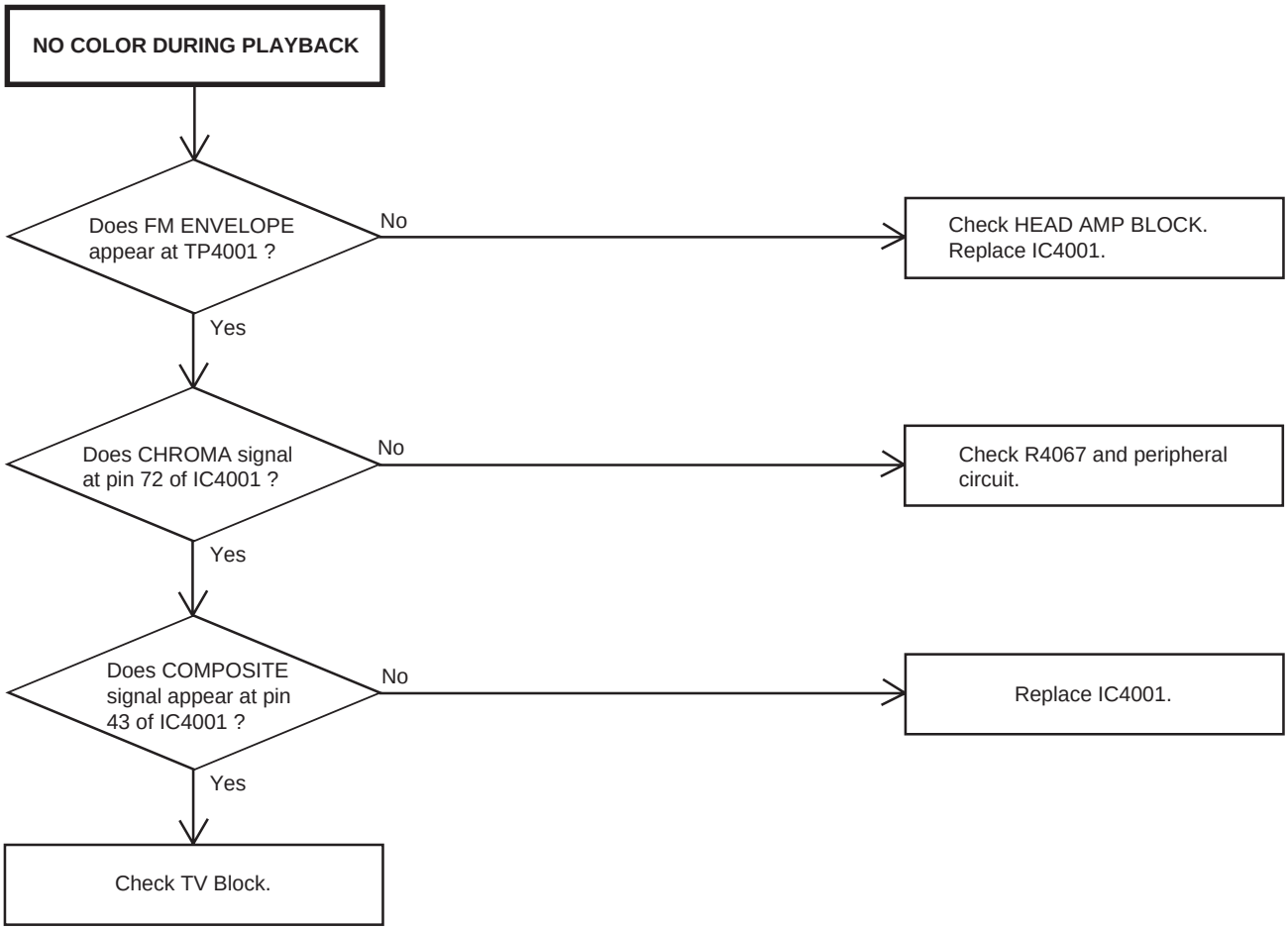

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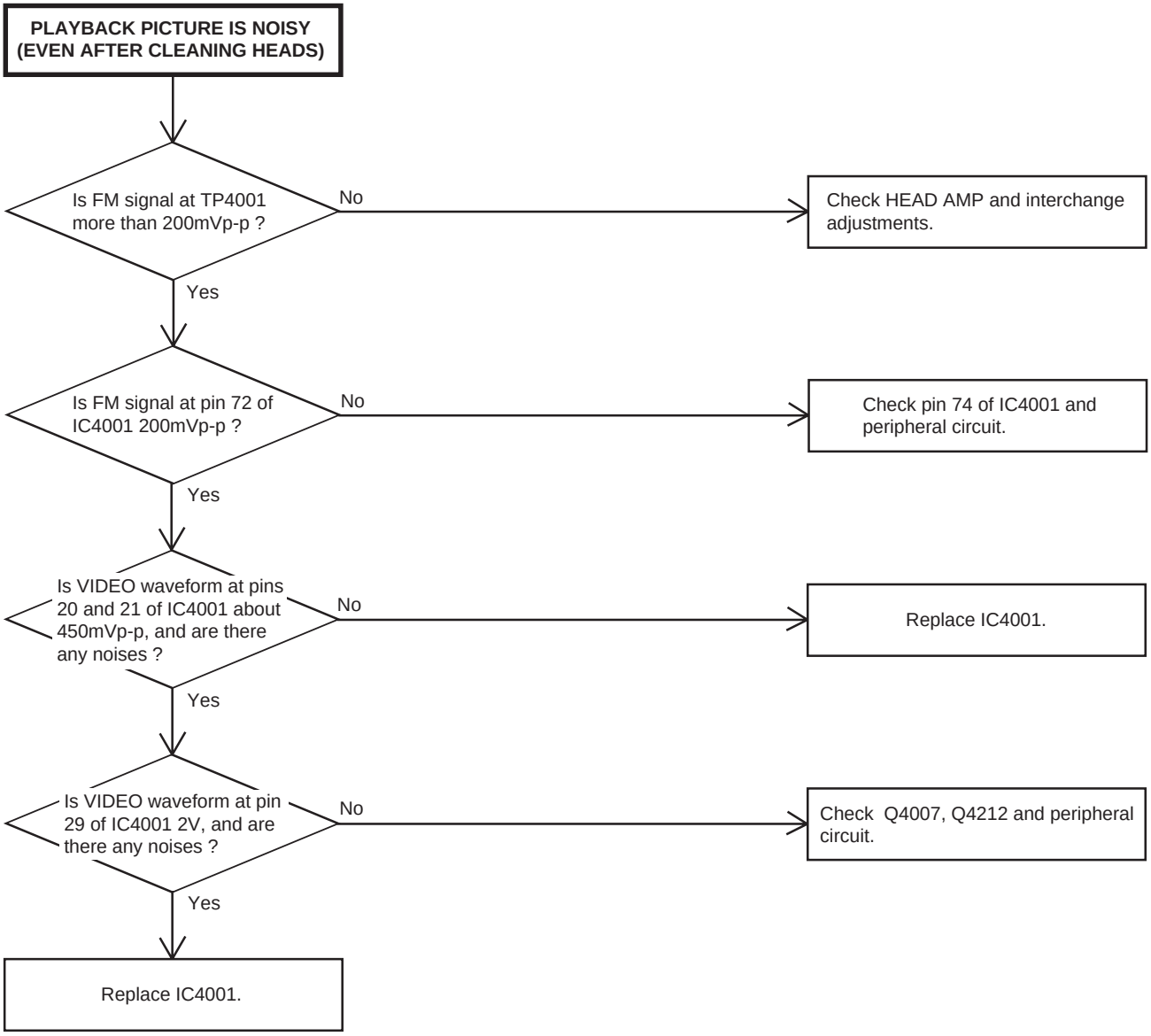

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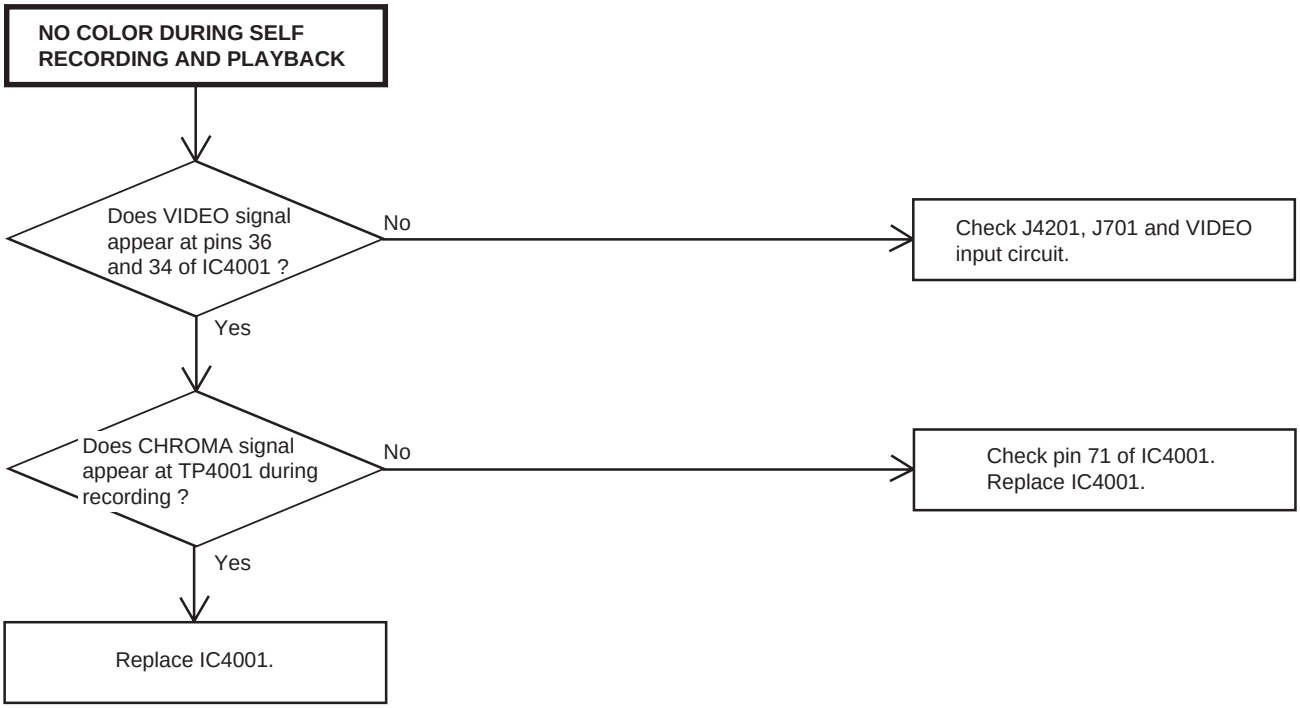

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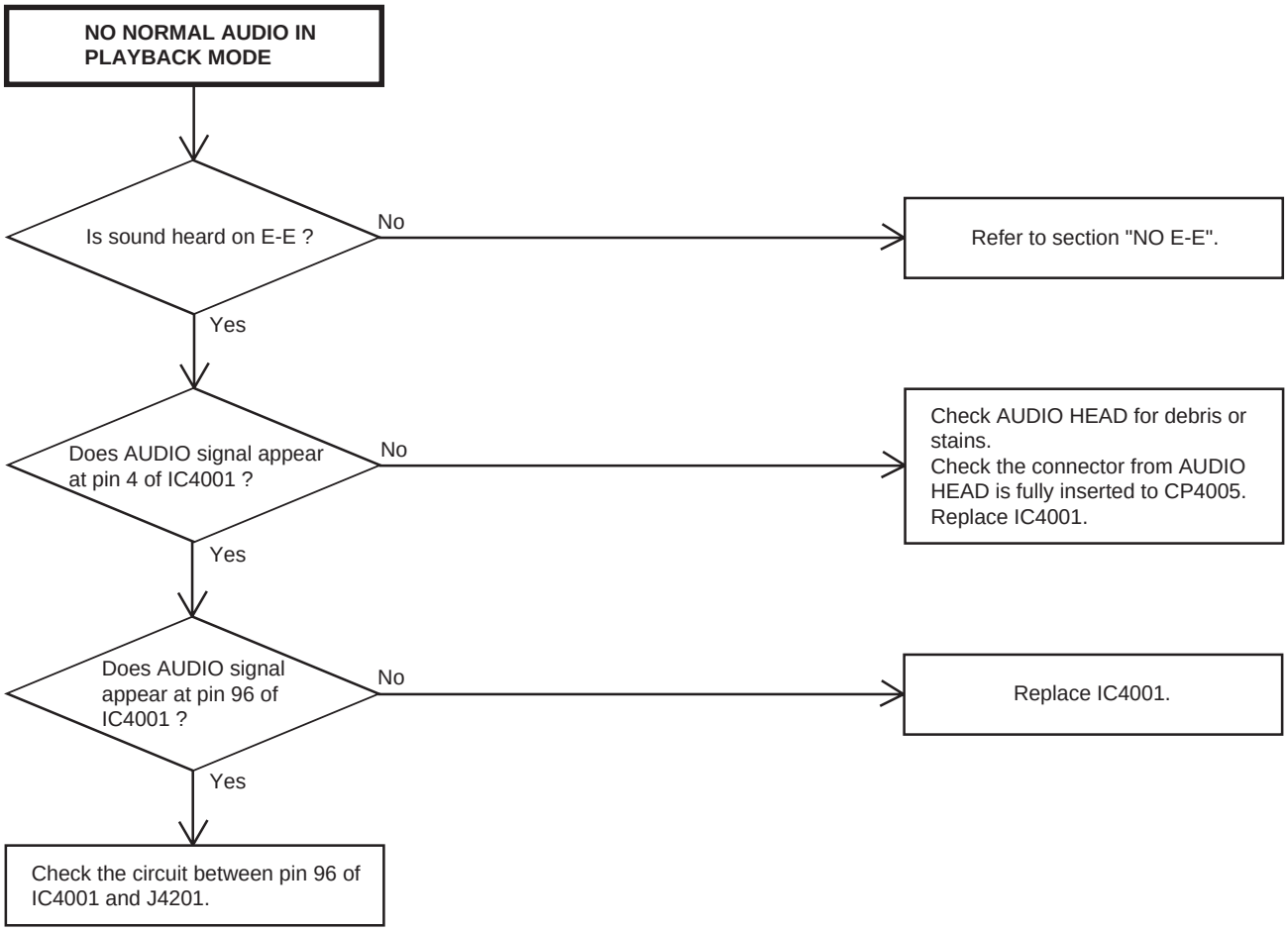

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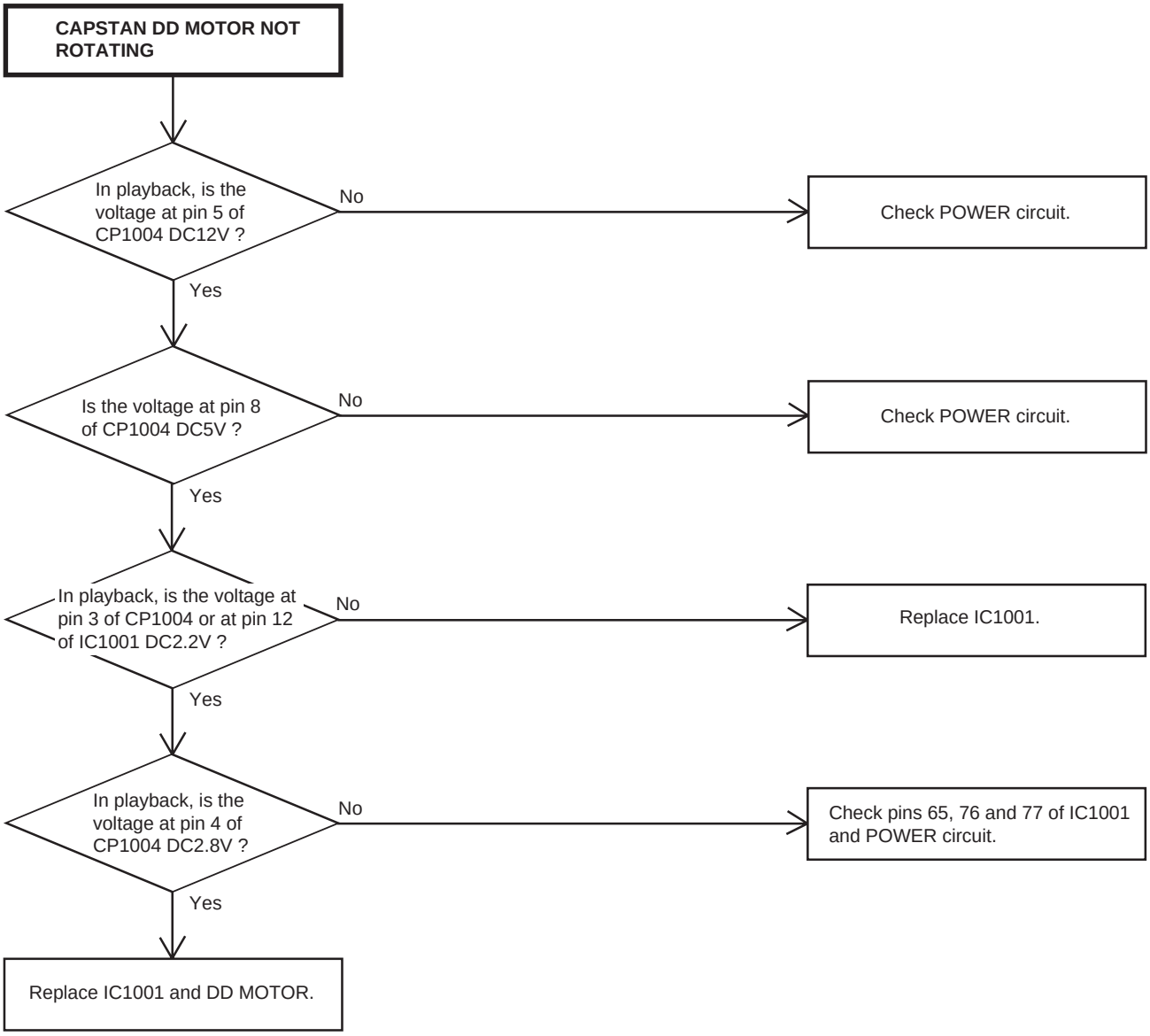

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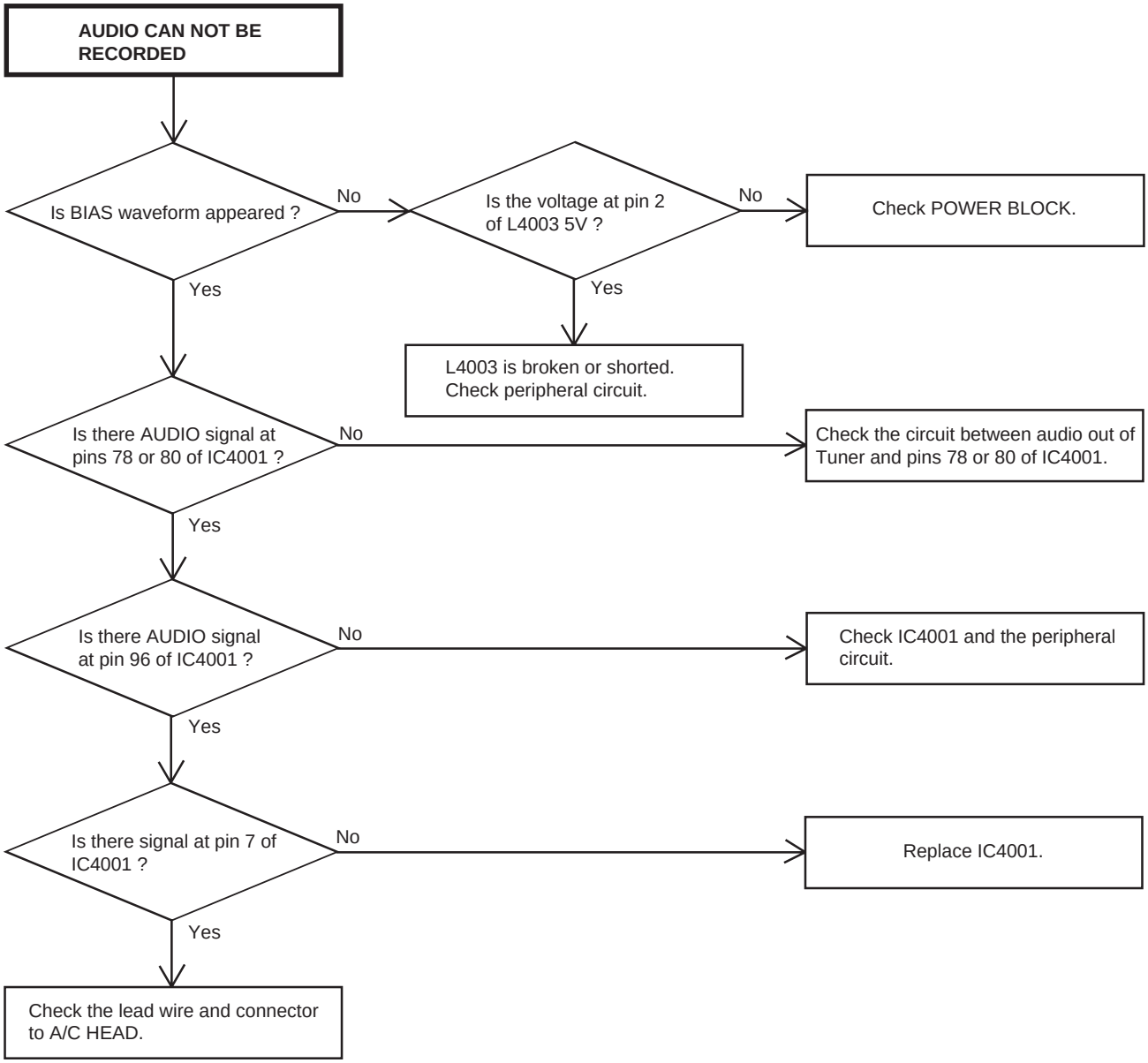

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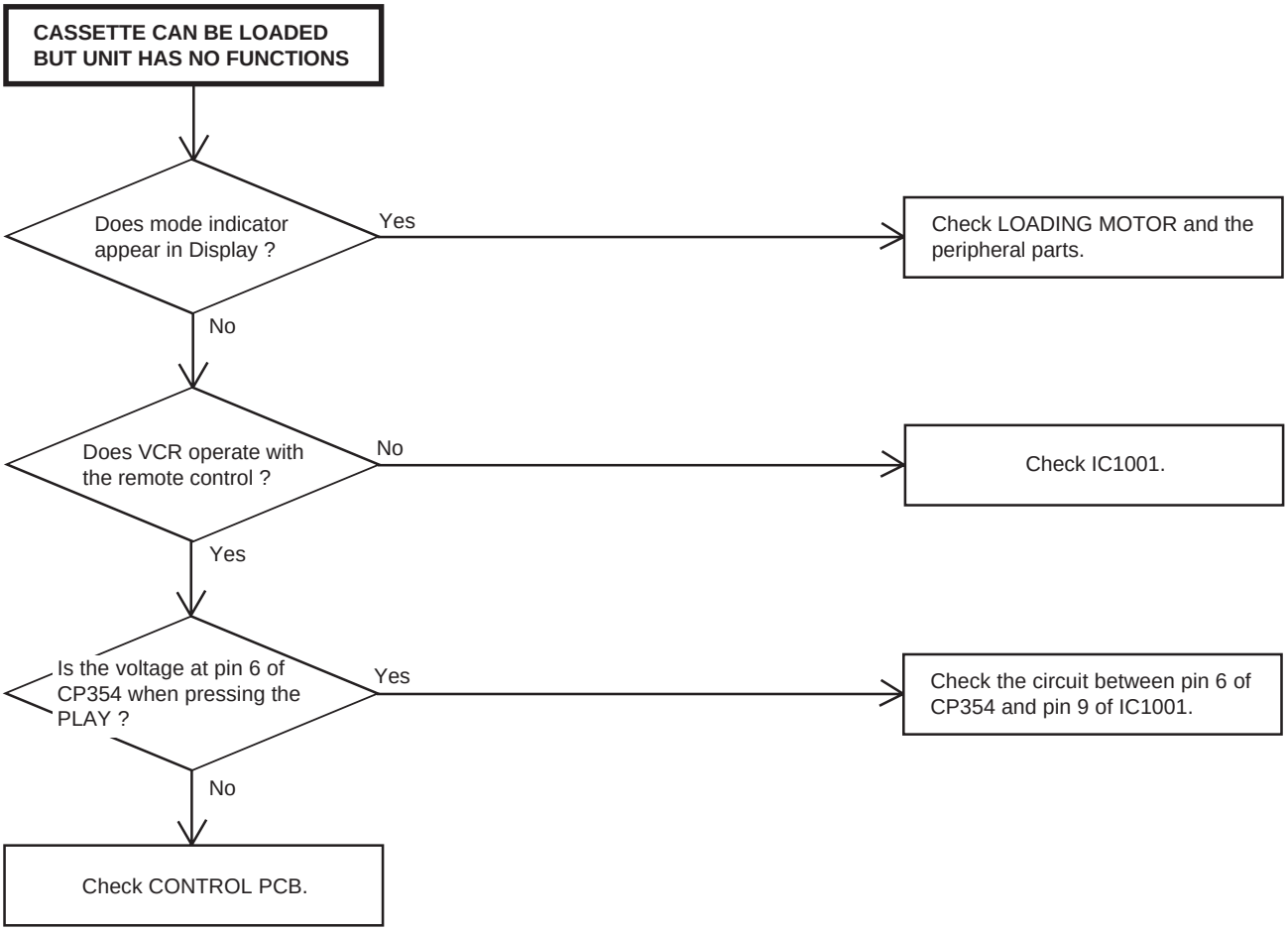

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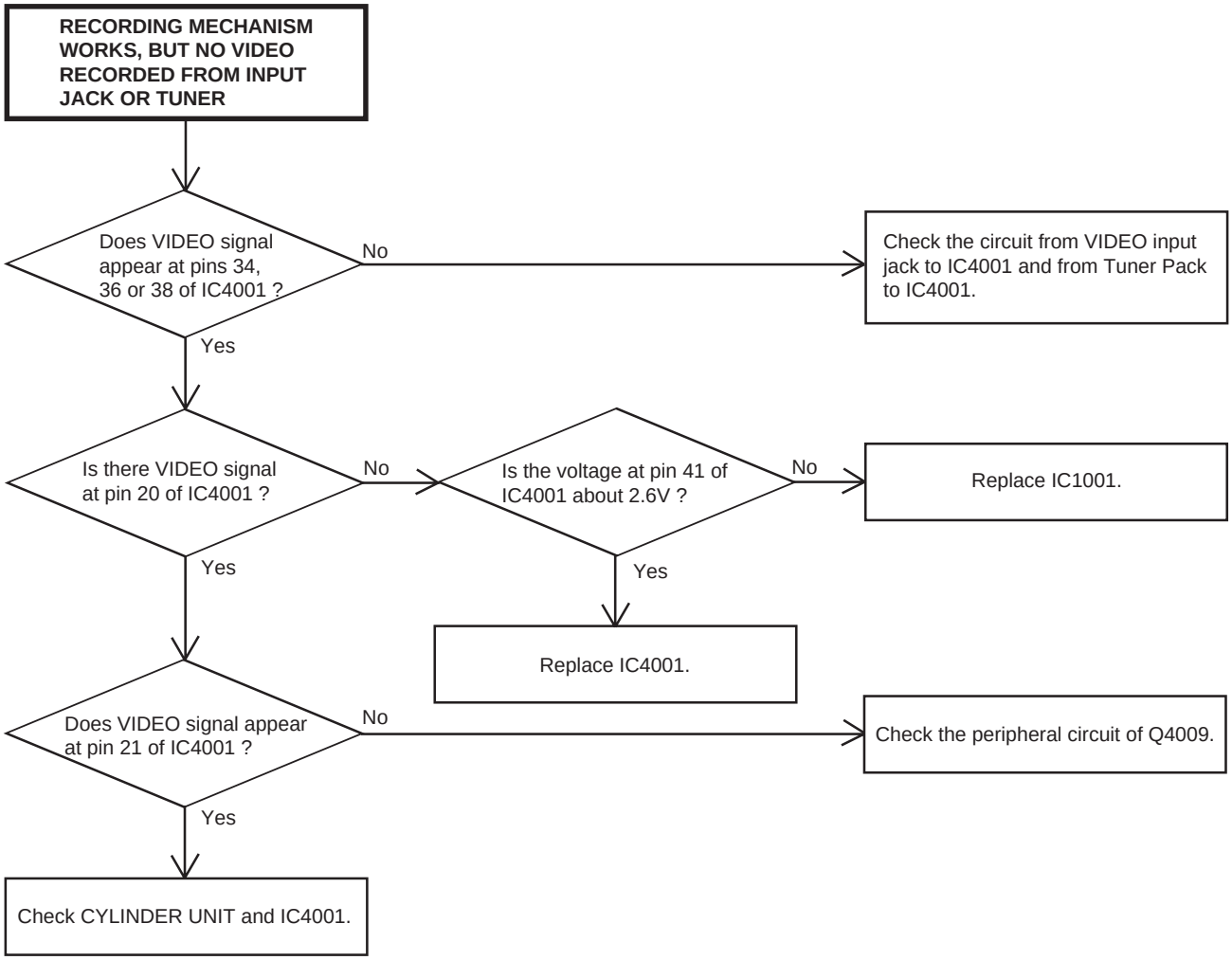

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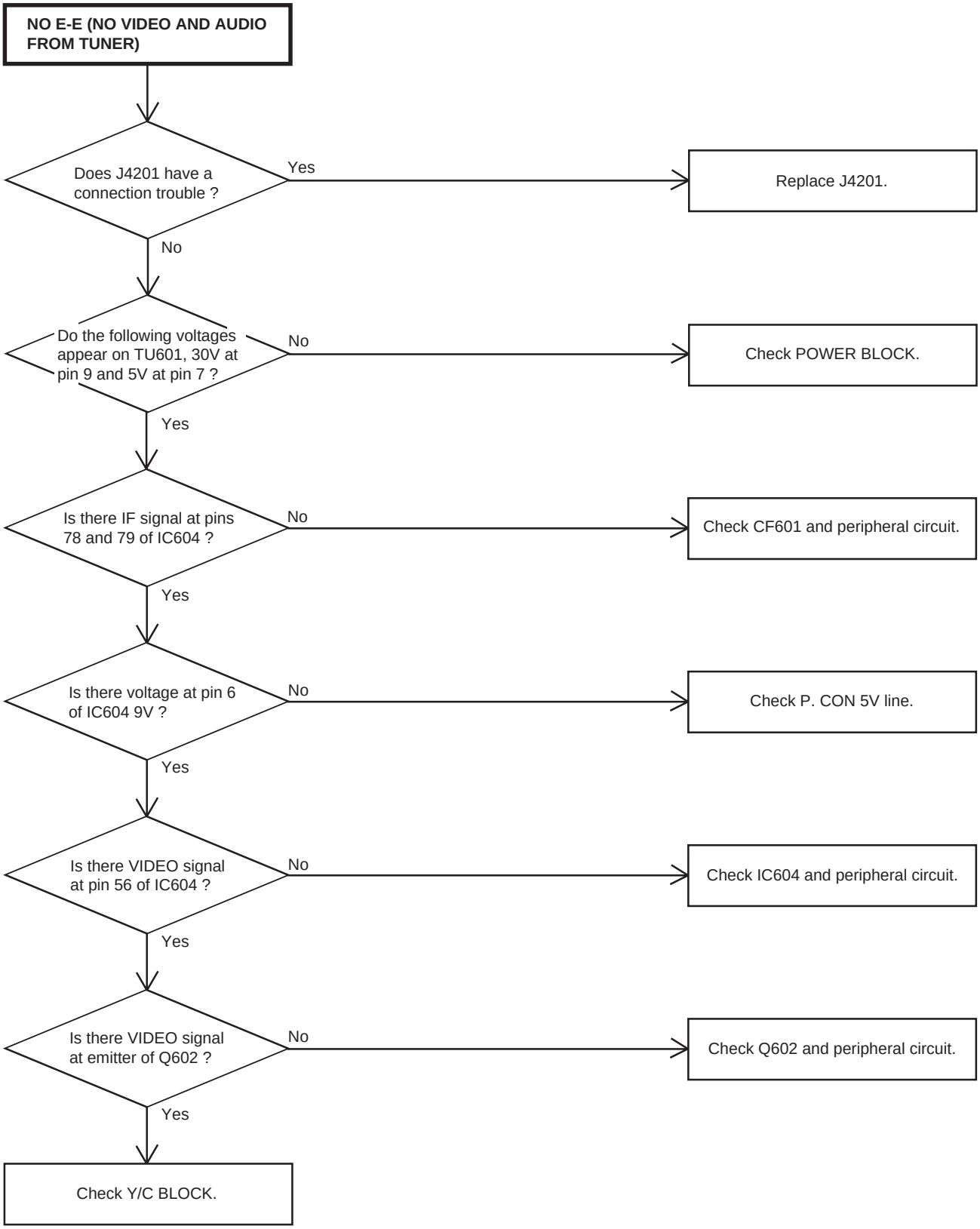

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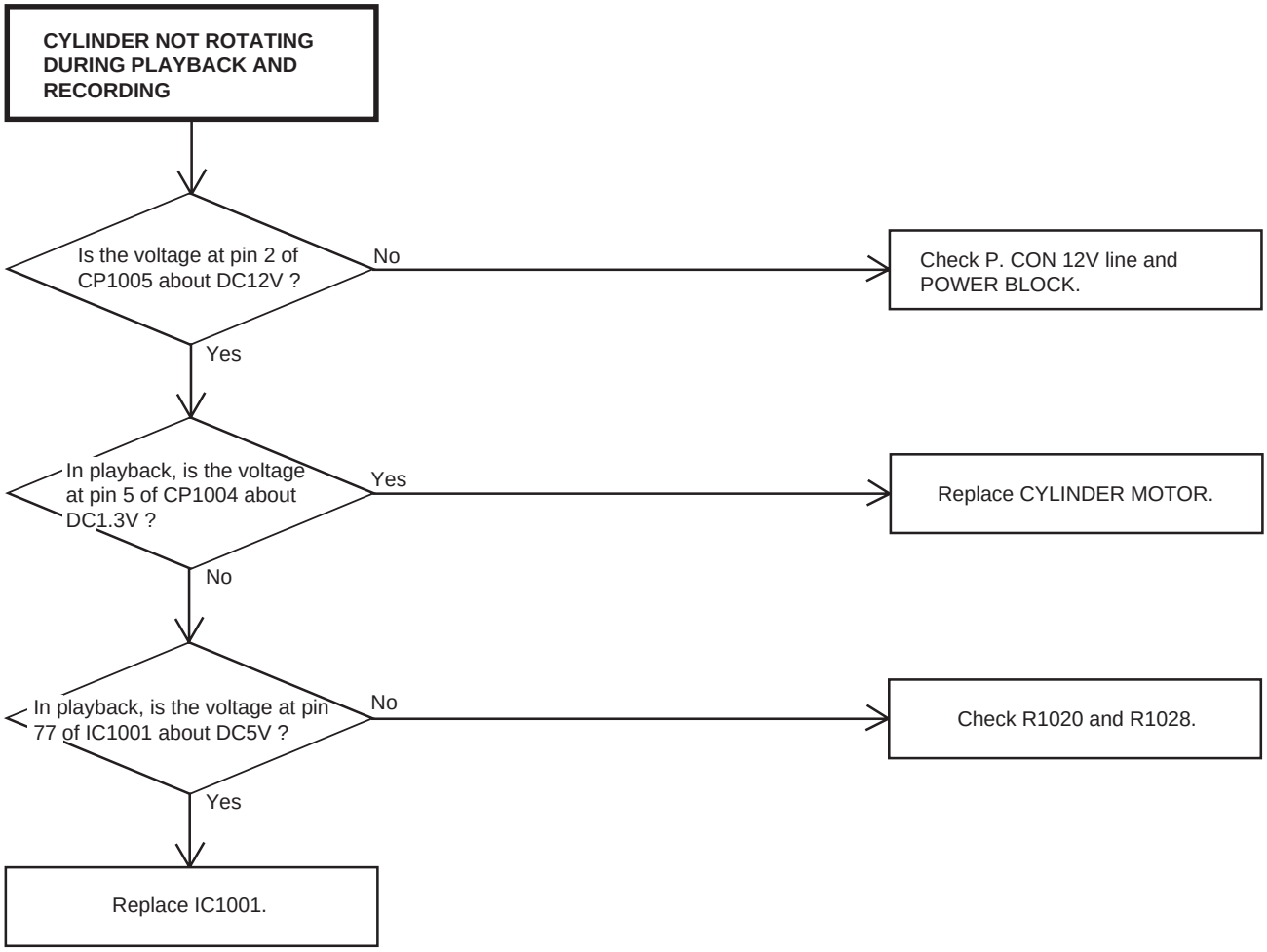

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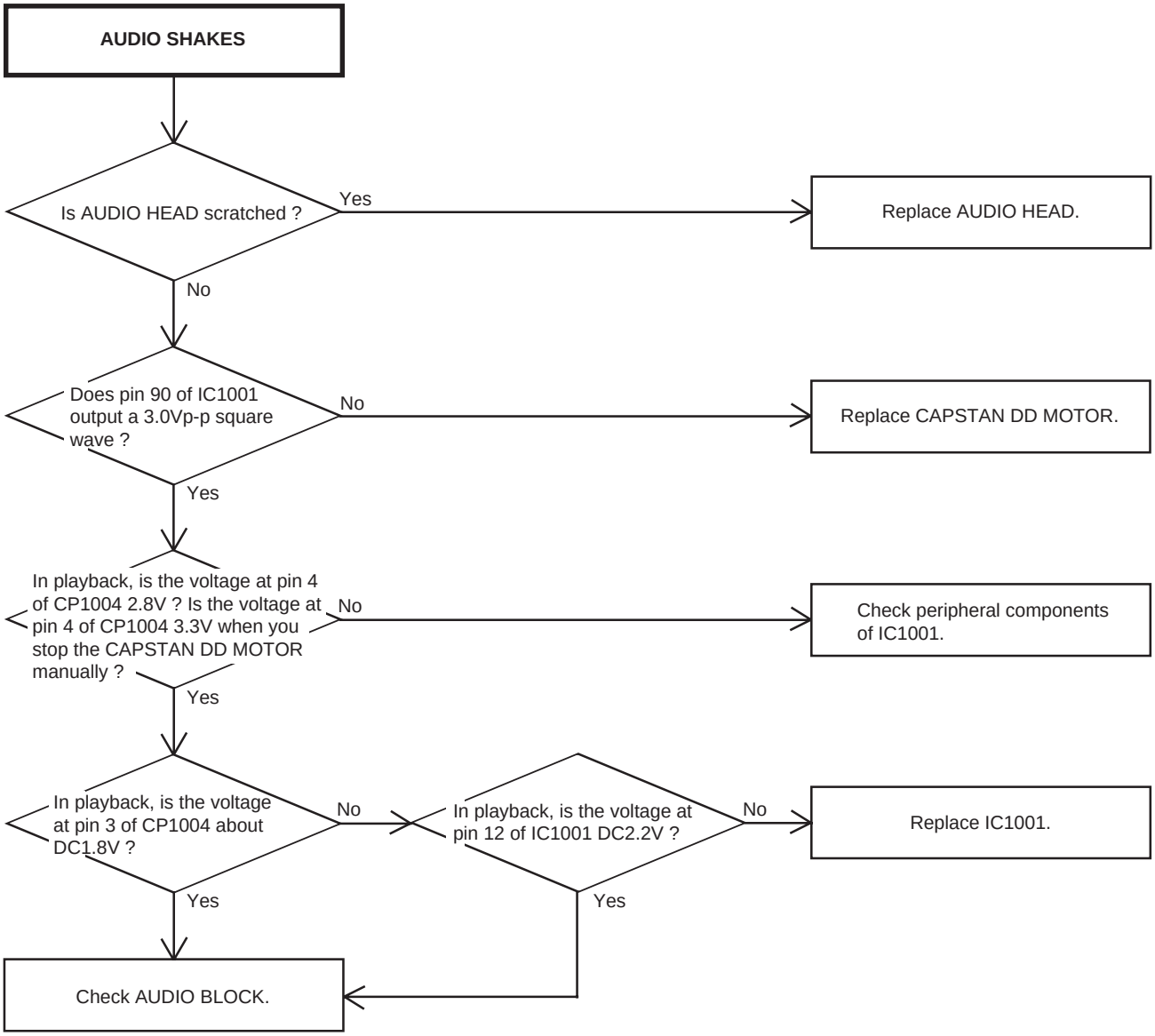

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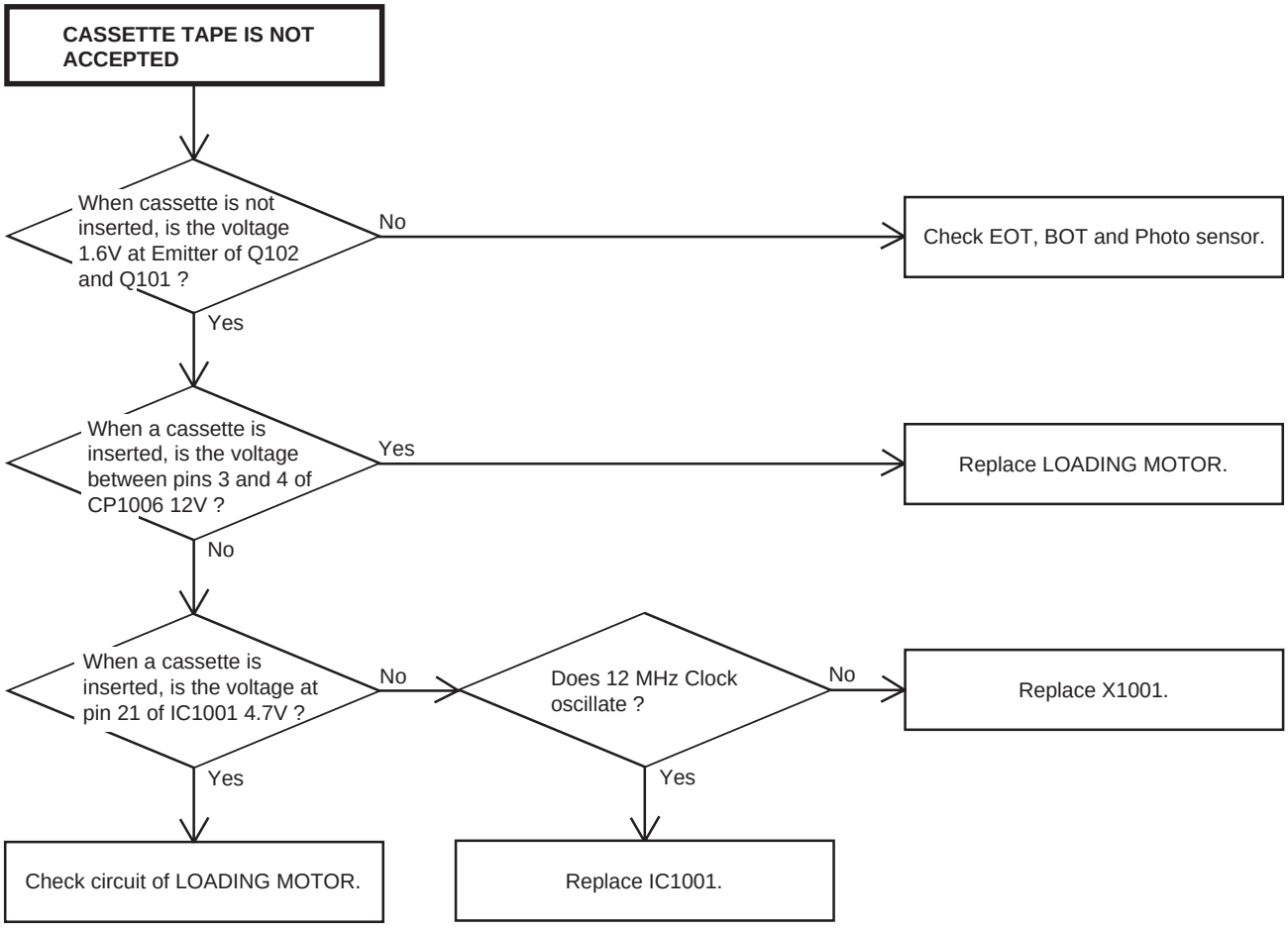

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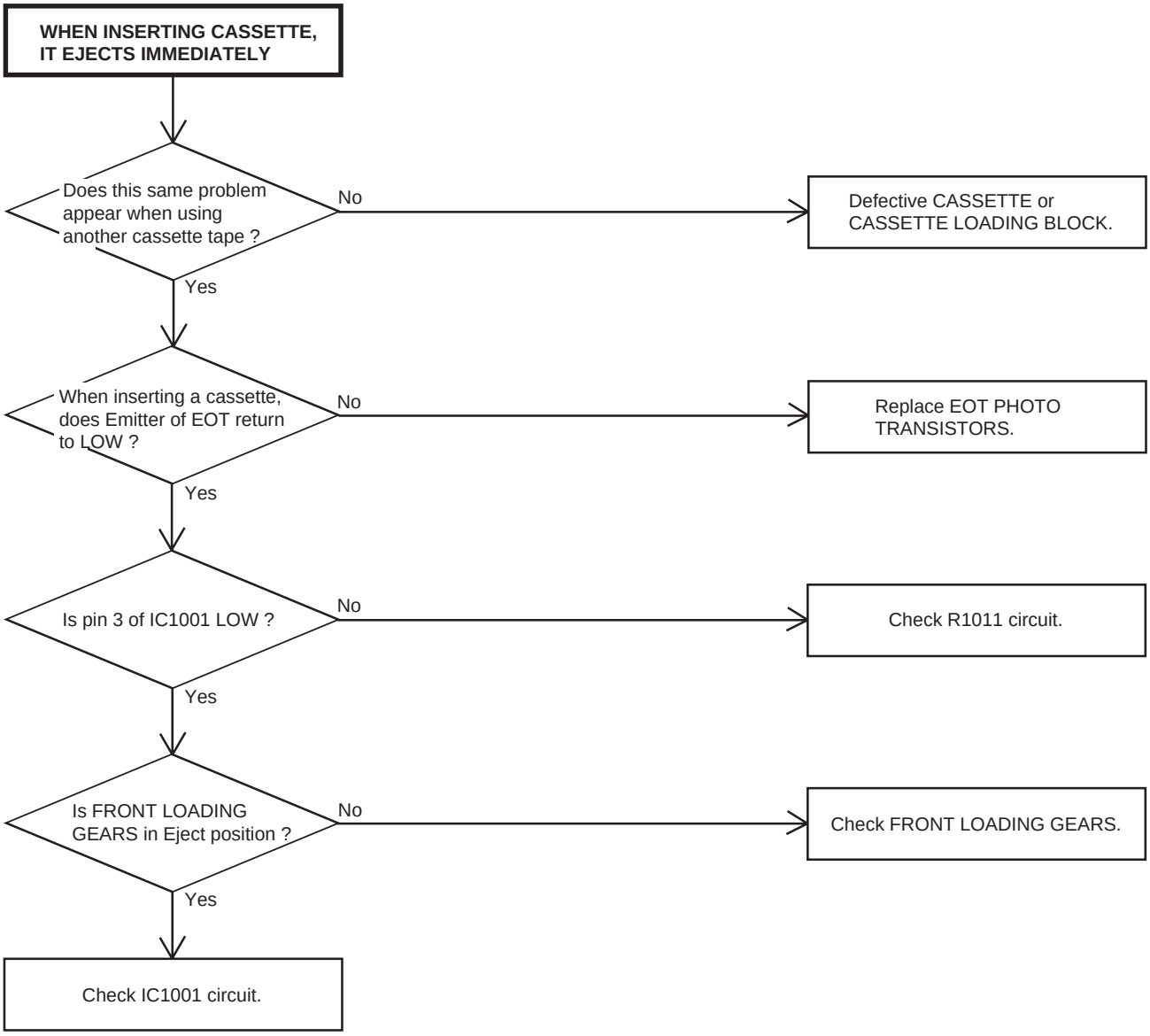

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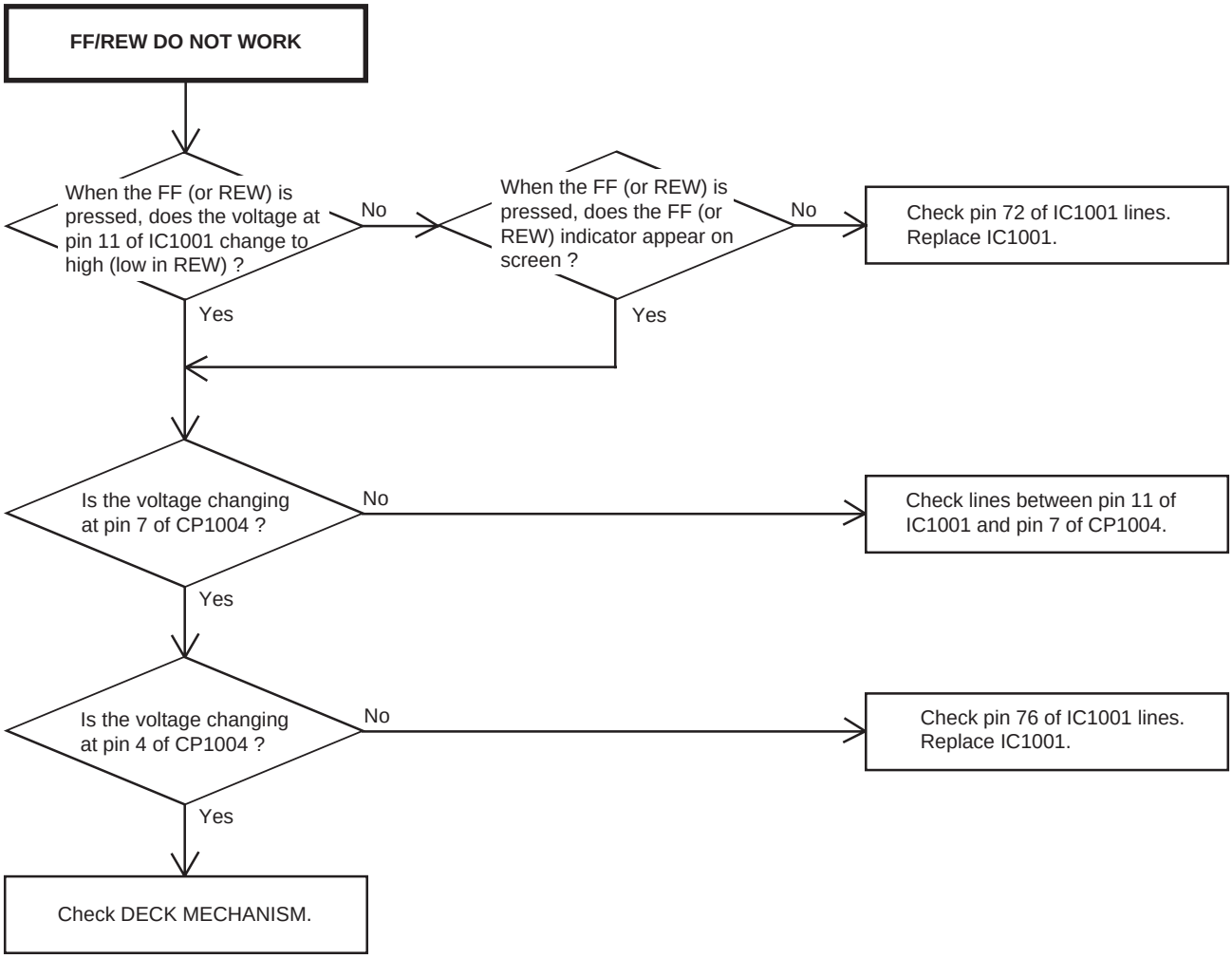

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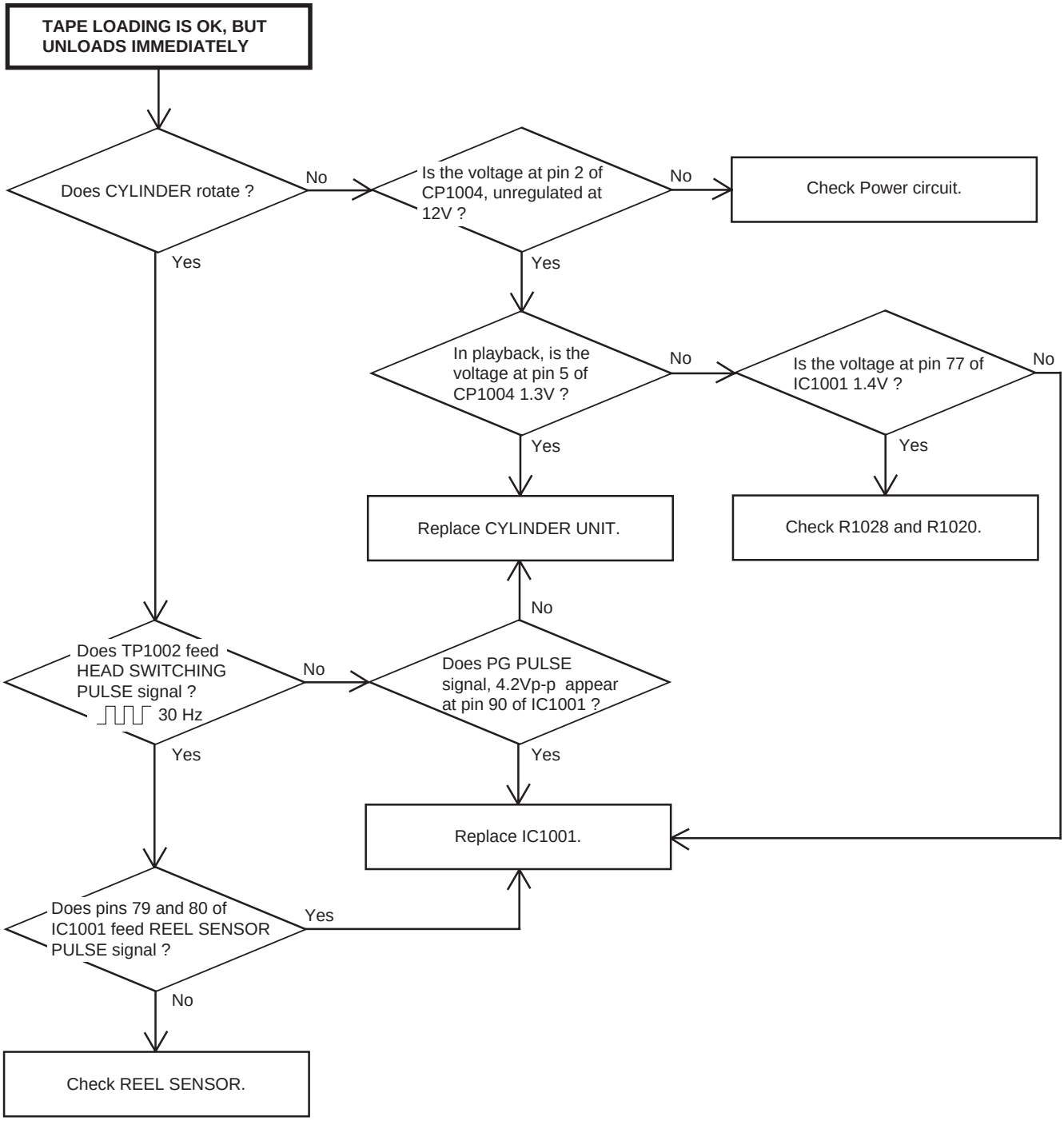

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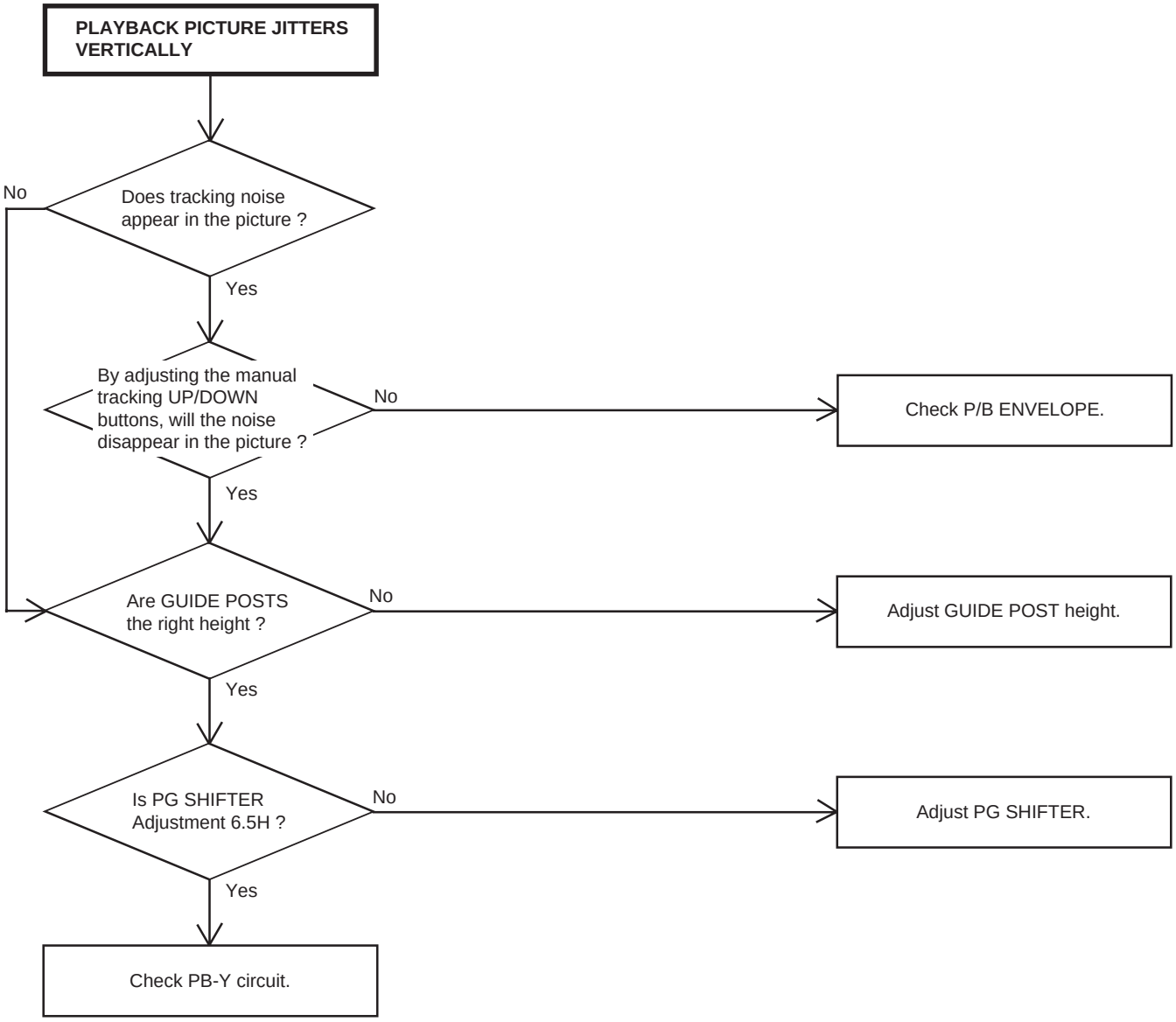

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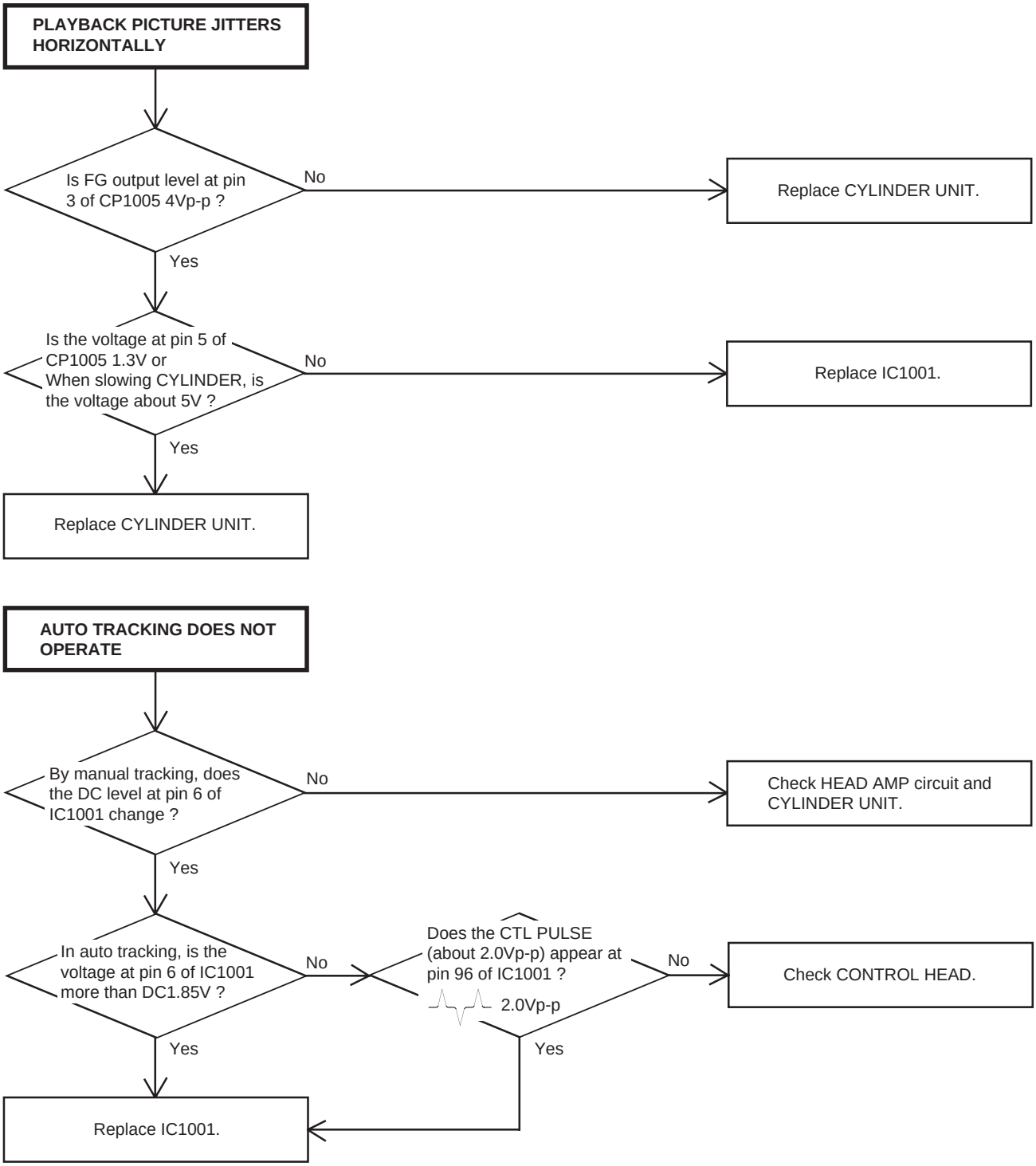

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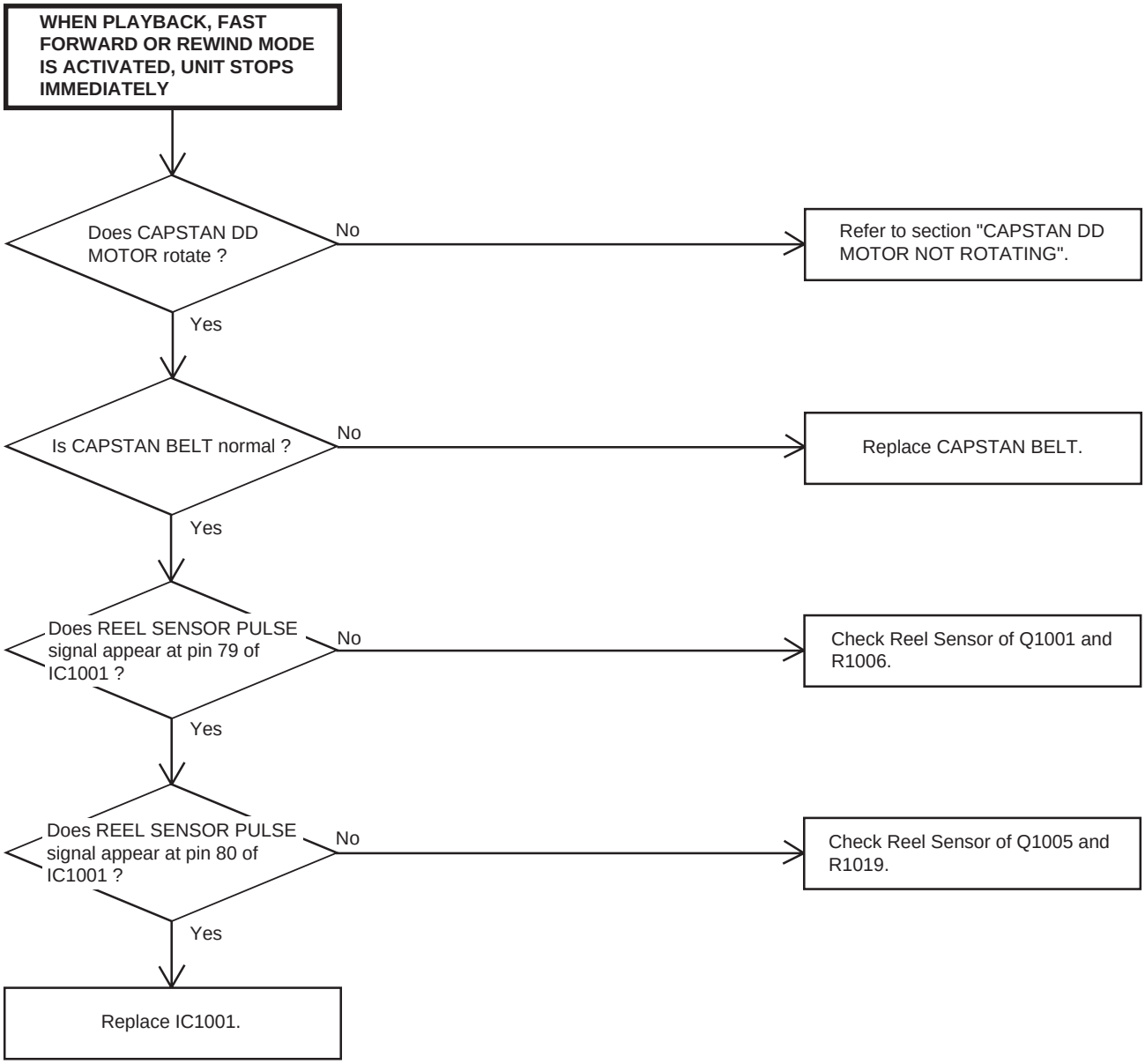


IC DESCRIPTION

OEC7041A (IC1001)

Pin No.	Pin Name	I/O	DESCRIPTION
1	MSSEN-A	I	Input terminal of mecha state sensor.
2	MSSEN-B	I	
3	EOT	I	Tape end sensor input signal.
4	BOT	I	Tape start sensor input signal.
5	HI-FI-ENV	I	Input terminal of HiFi RF envelope.
6	VIDEO-ENV	I	Input terminal of video RF envelope.
7	AFT(MONI)	I	Input terminal of AFT.
8	AFT(REC)	I	Not used.
9	KEY A	I	Main unit key input.
10	KEY B	I	
11	CAP-FWD	O	Capstan forward and backward command.(forward "L" output)
12	CAP-LIMIT	O	Switch the maximum output current of the Capstan Motor.
13	DUMMY-V.SYNC	O	Virtual V Pulse output.
14	REMOCON-IN	I	Receive the remote control signal.
15	COLOR ROTARY	O	Color Rotary Control output.
16	HEAD.AMP.SW	O	Switching output of Head Amp SW on 4 heads.
17	ENV-CMP-IN	I	Comparison results input of Playback Envelope level ON SP/LP heads(4heads).
18	VIDEO-H.SW	O	Output terminal of Head SW to Y/C/A and Head Amp.
19	HI-FI-H.SW	O	Output terminal of audio Head SW to Y/C/A and Head Amp.
20	LDM-RVS	O	Output signal to control the rotation direction of the loading motor.
21	LDM-FWD	O	
22	TRICK-PB-H	O	Special effect playback.(CUE/REVIEW/STILL/SLOW etc)
23	MSSENS-CTL	O	MSSEN sensor LED.
24	CAP-HI H	O	Power of Capstan Motor select.
25	PLAY LED	O	PLAY indication LED output.
26	EXT-MUTE	O	Mute signal of external video mute.
27	VCR-POWER	O	VCR power output.
28	TV-POWER	O	TV power output.
29	T-REC LED	O	T-REC indication LED output.
30	REC LED	O	REC indication LED output.
31	ON-TIMER LED	O	ON-TIMER indication LED output.
32	OTPB LED	O	OTPB indication LED output.
33	AKB CTL	O	"H" is output at the time of AKB white adjustment.
34	RESET-L	I	RESET will be done when the voltage goes to HIGH after the reset signal.
35	XC_IN(32kHz)	I	Subclock pulse.(32kHz)
36	XC_OUT(32kHz)	O	
37	VCC	-	5V
38	X-IN(12MHz)	I	Connect the main crystal.(10MHz)
39	X-OUT(12MHz)	O	
40	VSS	-	Ground.
41	AV1	O	Not used.
42	AV2	O	Not used.
43	CLKSEL	I	5V
44	OSC-IN2	I	Condenser connection for OSC-IN2.

IC DESCRIPTION

OEC7041A (IC1001)

Pin No.	Pin Name	I/O	DESCRIPTION
45	OSC-OUT2	O	Condenser connection for OSC-OUT2.
46	NUB	-	Ground.
47	CM_ADV_VIDEO	I/O	Not used.
48	CM_ADV_AUDIO	I	Not used.
49	OSD-VSS	-	Ground.
50	TAB SW	I	Input terminal for judge the tape if it has TAB or not.
51	SERVICE	I	Input terminal for Service Mode.
52	SD-IN(MONI)	I	Not used.
53	OSD-VCC	-	5V
54	HLF	-	Condenser connection for HLF.
55	VHOLD	-	Condenser connection for VHOLD.
56	CVIN	I	Composite Video input terminal.
57	NUA	-	Ground.
58	H/C-SYNC	I	Input terminal for H-SYNC.
59	V-SYNC	I	Input terminal for V-SYNC.
60	OSD OUT1	O	Blanking output terminal of OSD.
61	CENTER LED	O	Tape end sensor LED.
62	B	O	Color signal blue output.
63	G	O	Color signal green output.
64	R	O	Color signal red output.
65	CAP FULL	O	Output the HIGH during the acceleration force of capstan motor at SLOW mode.
66	V-REC-ST-H	O	On control of A/V recording (Whole width erase) circuit.
67	IIC-CLK3	O	Not used.
68	IIC-DATA3	I/O	Not used.
69	SP-H	O	Output "H" terminal of Playback/Recording SP mode.
70	IIC-DATA2	I/O	Terminal for I2C BUS communication.
71	IIC-CLK1	O	CLOCK terminal for I2C BUS communication.
72	IIC-DATA1	I/O	DATA terminal for I2C BUS communication.
73	IIC-OFF	I	When input "L" the I2CBUS communication is stopped.
74	JUST CLOCK	I	Not used.
75	AGC(REC)	O	Not used.
76	CAP-PWM	O	PWM putput of Capstan control.
77	DRUM-PWM	O	PWM putput of Cylinder control.
78	E/V_MASK	I	Not used.
79	REEL-S	I	Input terminal of reel sensor supply.
80	REEL-T	I	Input terminal of reel sensor take up.
81	VCR_A_MUTE	O	Mute signal of audio mute.(VCR)
82	TV_A_MUTE	O	Mute signal of audio mute.(TV)
83	FF/REW-L	O	The output terminal of to that switches the frequency characteristic of CTL by the circuit bill outside.
84	CA/MA_SEL	O	Not used.
85	POWER_FAIL_L	I	Input for the detection of power interruption.
86	CFG AMP-OUT	O	Not used.
87	CAP-FG	I	Input terminal for capstan rotation signal detection.

IC DESCRIPTION

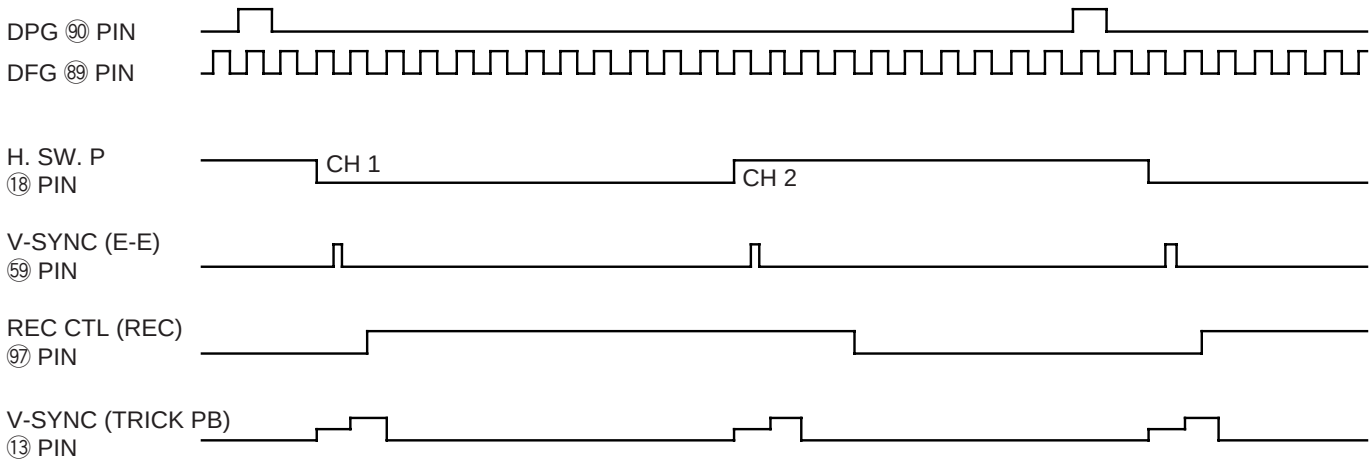
OEC7041A (IC1001)

Pin No.	Pin Name	I/O	DESCRIPTION
88	AMP-VSS	-	Ground.
89	DRUM-FG	I	Input terminal for drum rotation signal detection.
90	DRUM-PG	I	Input terminal for DRUM PG signal detection.
91	AMP-VREFOUT	O	Condenser connection for AMP-VREFOUT.
92	AMP-VREFIN	I	Condenser connection for AMP-VREFIN.
93	C	I	Condenser connection for C.
94	CTL-	I/O	Input and output terminal of Control Head.
95	CTL+	I/O	Input terminal of Control Head.
96	AMP C	-	Condenser connection for AMP C.
97	CTL AMP-OUT	O	Output terminal for amp out.
98	AMP-VCC	-	5V
99	ANALOG VCC	-	5V
100	DEW(mono)	I	Input terminal for the detection with the dew of the cylinder.
100	STEREO SEL(HiFi)	I	Input terminal for the judgement of voice reception condition.

- The assignment for Pin 100 is varies according to the SET which is MONO or Hi-Fi.
  It is used for DEW terminal in MONO and STEREO SEL terminal in Hi-Fi.

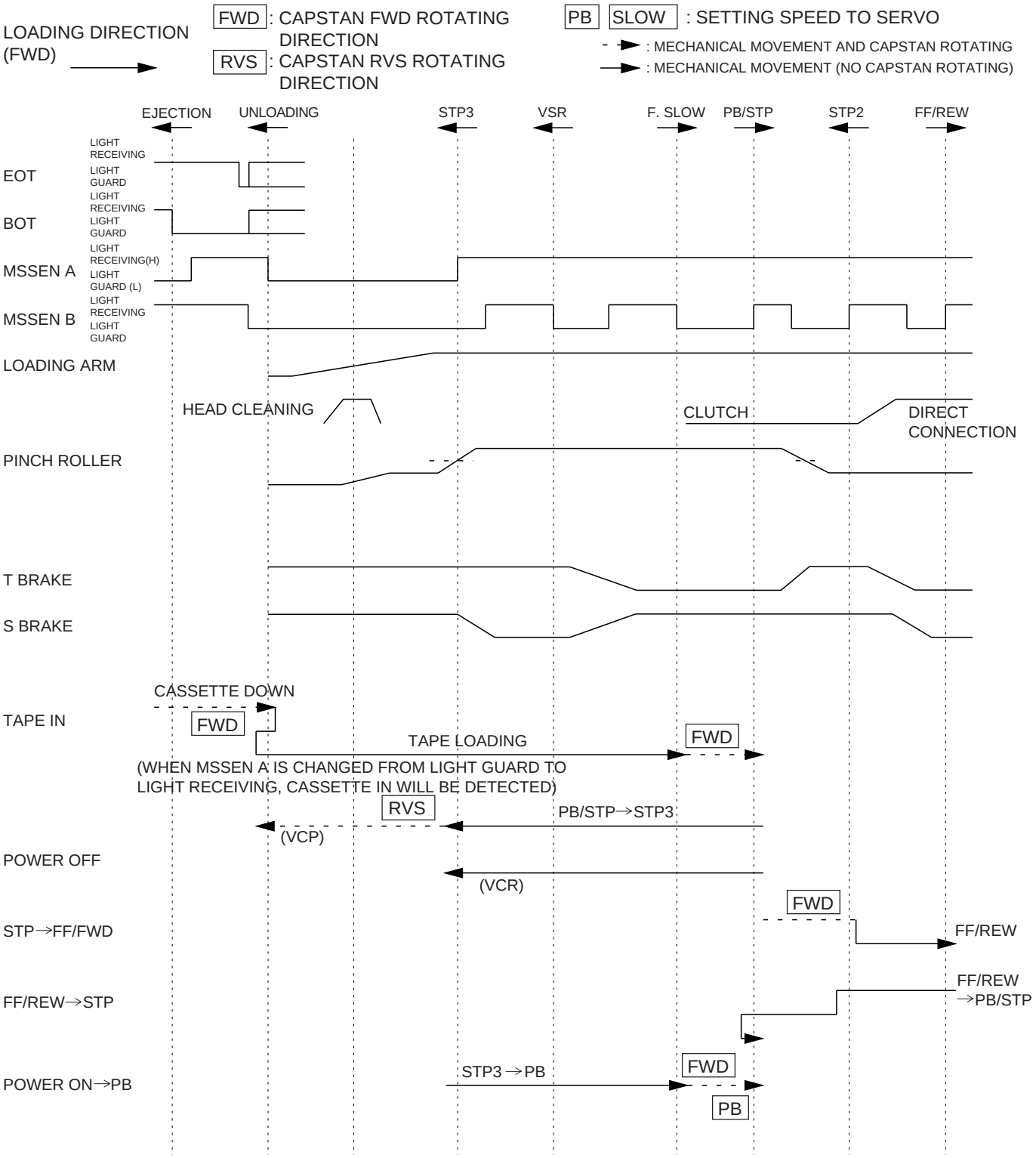
SERVO TIMING CHART

IC1001 (OEC7041A)



• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

SYSTEM SWITCH MODE



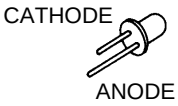
SEMICONDUCTOR BASE CONNECTIONS

DIODE

1SS133T-77
HZ11B3L TD
HZ27-1L TD
HZ30-1L TD
HZ6A3L TD
MTZJ5.1B T-77
MTZJ5.6B T-77
MTZJ6.8B T-77
MTZJ9.1B T-77
SB10-03A3

11E1N-TA1B2
11EQS04N-TA1B2
11ES1N-TA1B2
1N4005E-G23
RD12FB-T7
RMPG06J

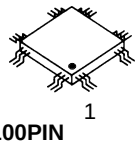
21DQ09N-TA2B1
RM11C
RU2AM V1



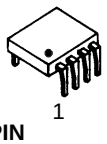
SID1050CM

EM-553-F1T
EQ-552-F1T

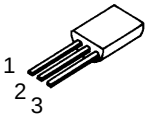
IC



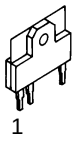
100PIN
LA71170M-MPB



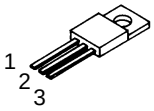
8PIN
S-24C04BDP-LA



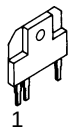
3PIN
PST600H



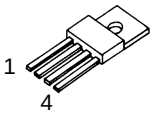
7PIN
LA7840



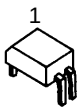
3PIN
KIA7806PI
KIA7812PI



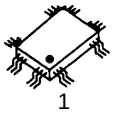
9PIN
AN7523



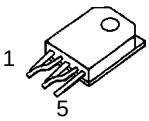
4PIN
PQ09RD08



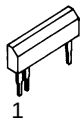
4PIN
TLP621(D4-GR-LF2)



80PIN
LA76814BM-MPB
100PIN
OEC7041A

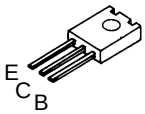


5PIN
STR-F6612

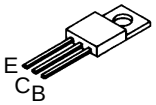


8PIN
BA6955AN

TRANSISTOR

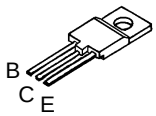


2SC4217(D,E)-RAC

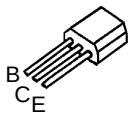


2SD2396(J,K)

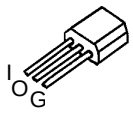
GP1S94L



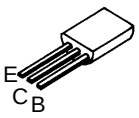
2SD2599



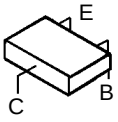
DTC114TSTP



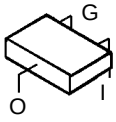
DTC114ESTP



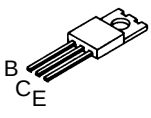
2SA1318(S,T)-AA
2SA1371(D,E)-AE
2SA733(C)-T_Q
2SC1317(Q,R,S)-T
2SC1815Y(TPE2)
2SC2271(D,E)-AE
2SC2909(S,T)-AA
2SC3331(S,T,U)-A
2SC945(C)-T(P,Q)



2SA1037AKT146R,S
2SC2412KT146 R,S
DTC114TKAT146



DTA114EKAT146
DTA124EKAT146
DTC114EKAT146
DTC124EKAT146
DTC143EKAT146



2SB1134R
2SC4160-OEC-YAC1

GP1S566
SG-260

TV BLOCK DIAGRAM

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

V. OUTPUT IC401 LA7840
THERMAL PROTECTION
PUMP UP
AMP
VCC
2 5 6 7

Q405 H. DRIVE
Q406 H. OUTPUT
DY

X604
3.579545MHz

CHROMA/IF
IC604 LA76814BM
47

Q608 BUFFER
52 CLMP
54 CLMP
66
73 DC VOL SW
75 DET FM
69 BPF BPF
67 SPLL
56 VIDEO PMP VIDEO DET
9 BUS
10 BUS
77 RF AGC IF AGC
79
78
59
60

Y/C VIDEO
Y/C AUDIO
TU_AUDIO
TU_VIDEO
Y/C/AUDIO/ HEAD AMP/ IN/OUT

VIDEO SW
PMP LIM
SW
SW
ACC
PPC1
VCO
TINT
HOR VCO
1/256
HOR C/D
FBP
PFC2
PHASE AHIFTER
HOR OUT
ABL
11
33
30
26
19
17
18
15
14
13
12
8

SYNC SEP
PFC1
VER C/D
VER RANP
VER SEP
DEMO
COLOR CLAMP
CONTRAST BRIGHT
RGB MATRIX
OSD SW
DRIVE/CUT-OFF
DELAY LINE
BLACK STRETCH
PEAKING CORING
BLACK STRETCH
PLL P2C
OSD FIX GAIN
CLAMP
AFT

FB401
8 4 2 9 1
HV EF G2

J801
F 8 3 7 9

V801 CRT

Q806 BLUE AMP
Q804 RED AMP
Q805 GREEN AMP
Q605 CUT OFF
P.CON+9V

X_RAY
VD
HD
OSD_BLK
OSD_B
OSD_G
OSD_R
AFT_M
MICON/ POWER

MICON/ POWER
SDA
SCL

TU601
1 4 5 11

SAW FILTER
CF601
1 4 5

L610
6 1 4 3

L503
DEGAUSS COIL

TH501
DEGAUSS ELEMENT
3 2 1

RY501
RELAY

D501~D504
RECTIFIER

F501
AC IN

6V POWER REG.
IC505 KIA7806PI
3 9 4 8
1 3
T502
AT 10V

Q507 FEED BACK SW.
IC506 TLP621
FEED BACK
1 3
SW. REG.
IC501
STR-F6612

VR502
+B ADJ.
Q506 5V SW.
Q513 5V SW.
Q504 RELAY DRIVE

T501
14 6 4 12 16 9

F502
AT 30V
AT 5.6V
AT +12V

5V POWER REG.
IC502 KIA7806PI
1 3
1 3

12V REG.
IC504 KIA7812PI
1 2 4

9V REG.
IC503 PQ09RD08
P.CON +9V

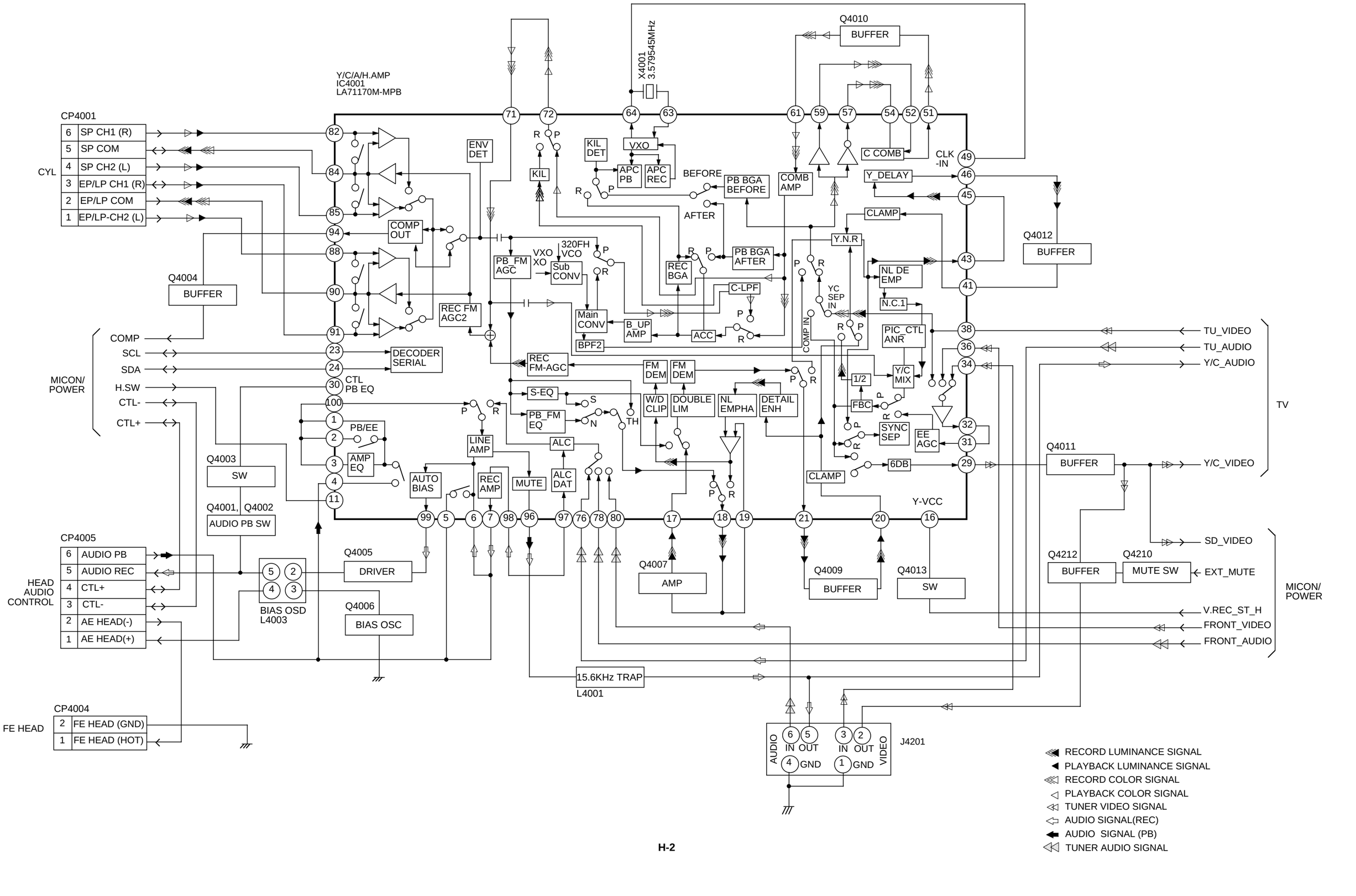
Q503 +B 100V DRIVE
Q502 100V DRIVE
Q501 100V SW.

SOUND AMP.
IC352 AN7523
6 1 5 4 2

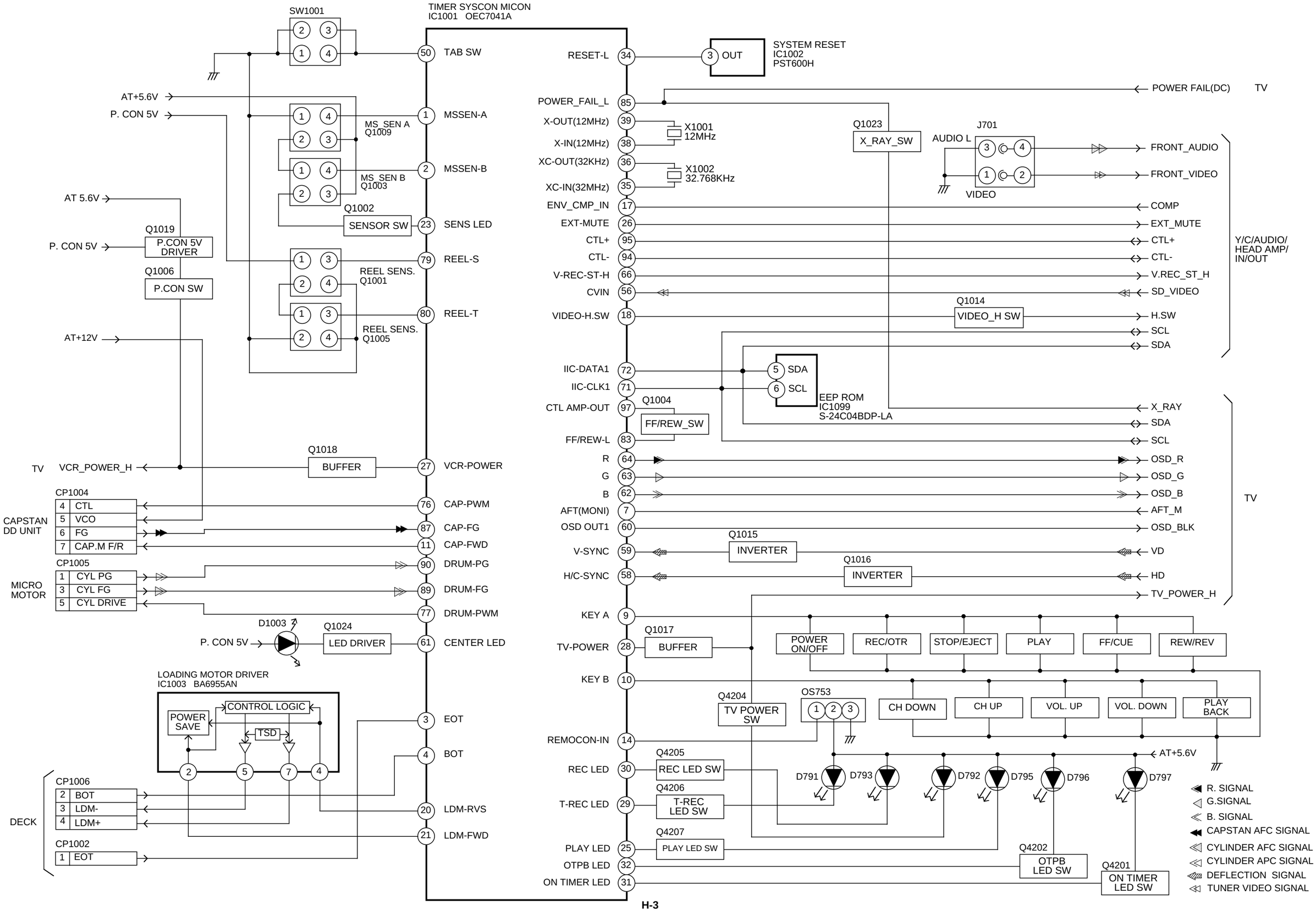
SP352 SPEAKER
SP351 SPEAKER
J351 HEAD PHONE
1 2 7

TV_POWER-H
VCR_POWER-H
POWER FAIL(DC)
MICON/ POWER

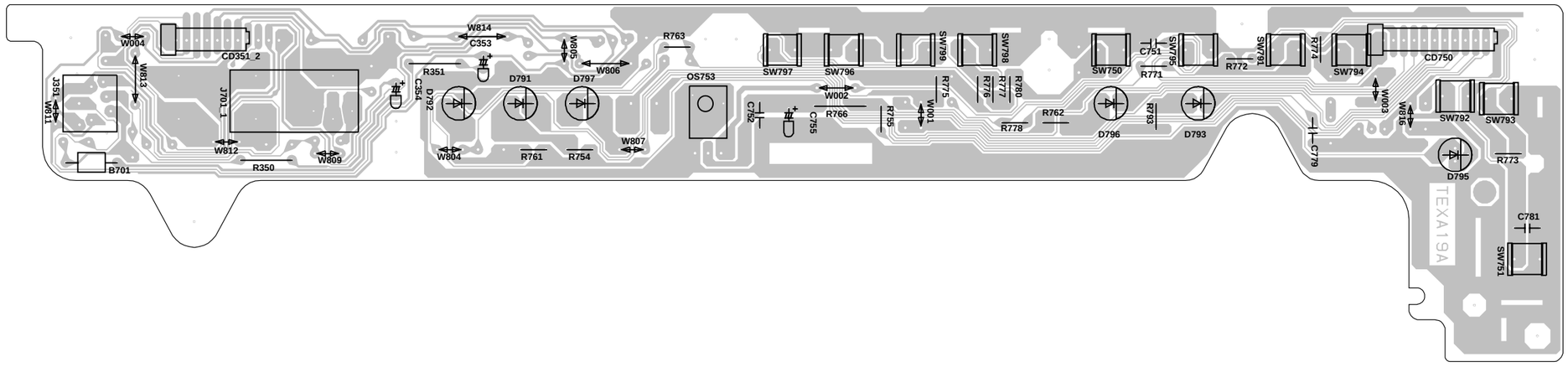
Y/C/AUDIO/HEAD AMP/IN/OUT BLOCK DIAGRAM



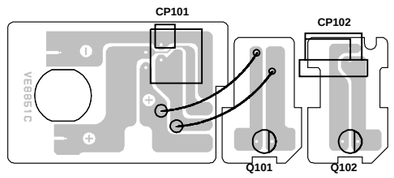
MICON/POWER/OPERATION BLOCK DIAGRAM



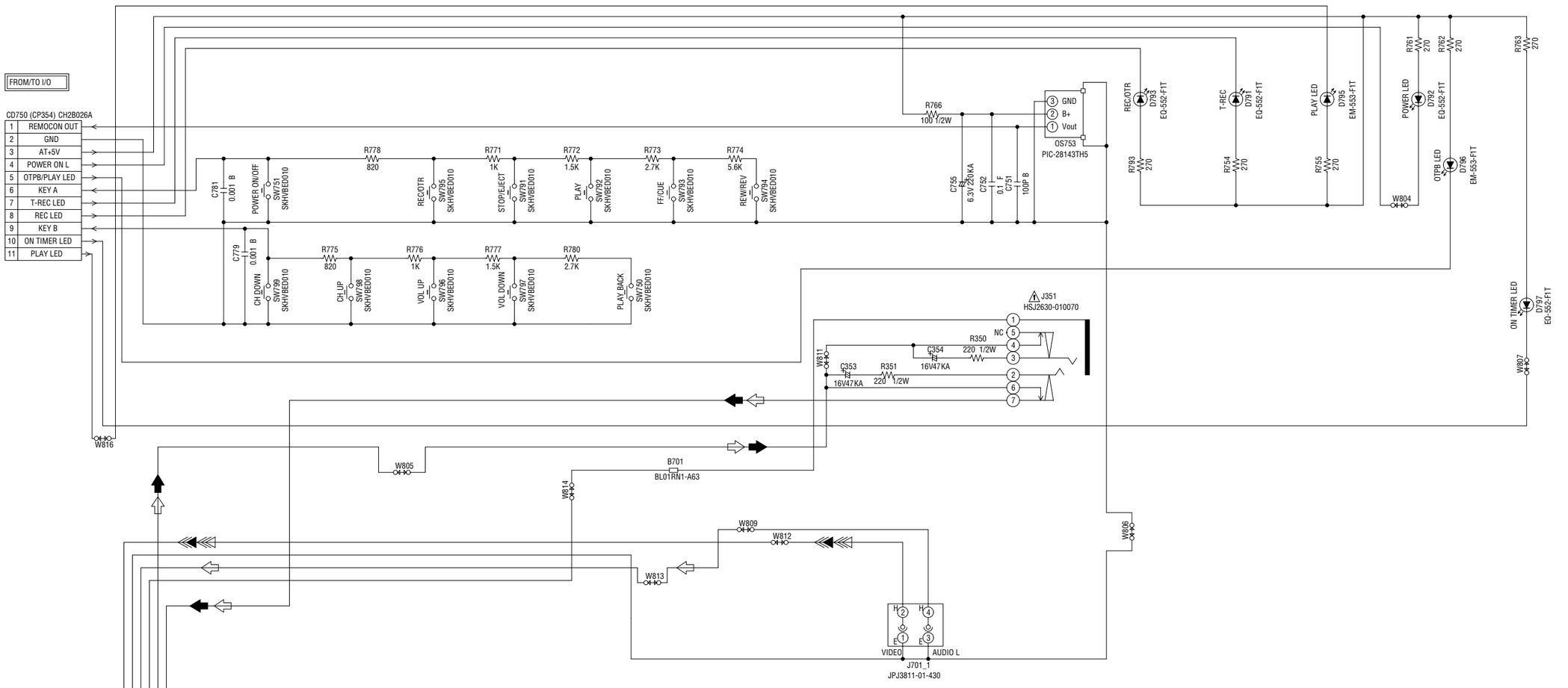
OPERATION
SOLDER SIDE



DECK
SOLDER SIDE



OPERATION SCHEMATIC DIAGRAM
(OPERATION PCB)



AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL

PCB030
TEXA19

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

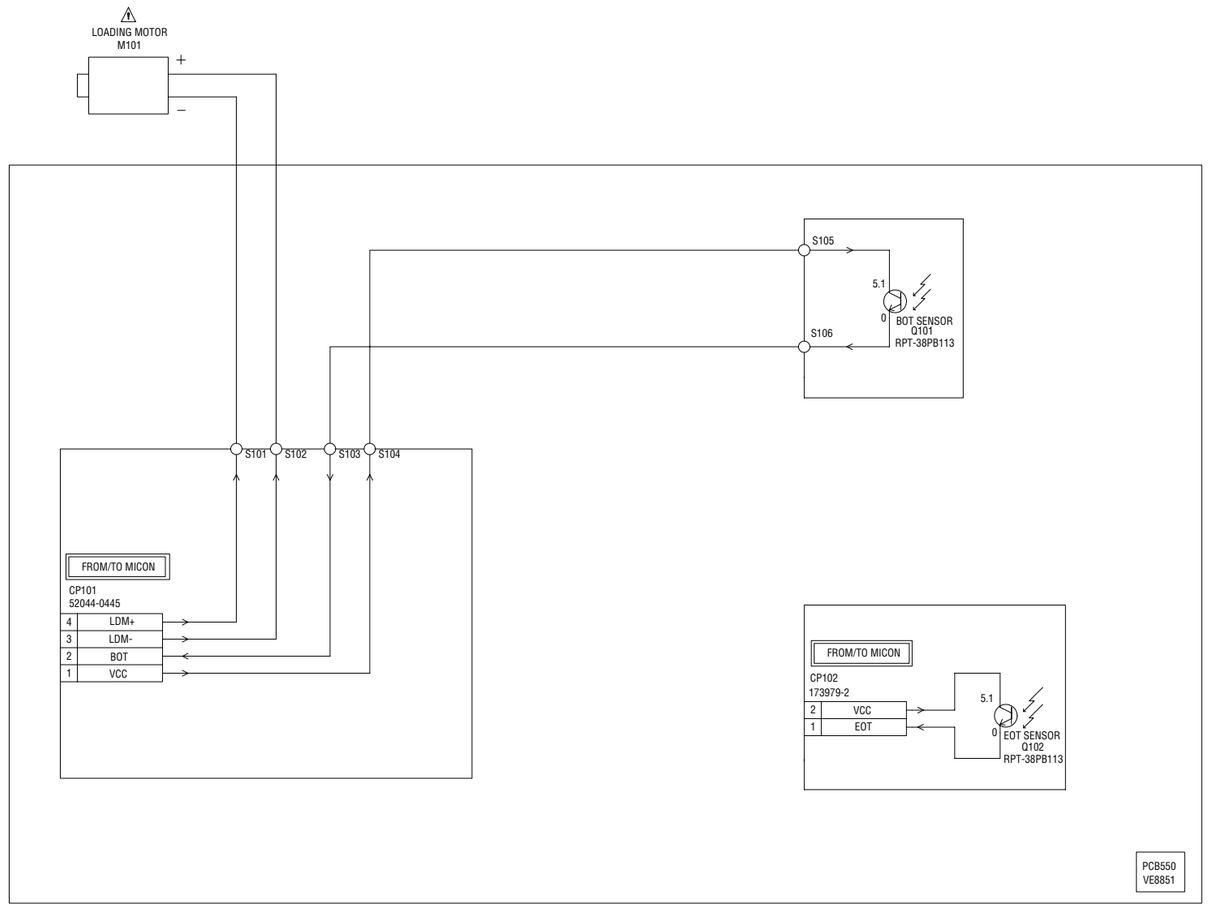
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

DECK SCHEMATIC DIAGRAM

(DECK PCB)



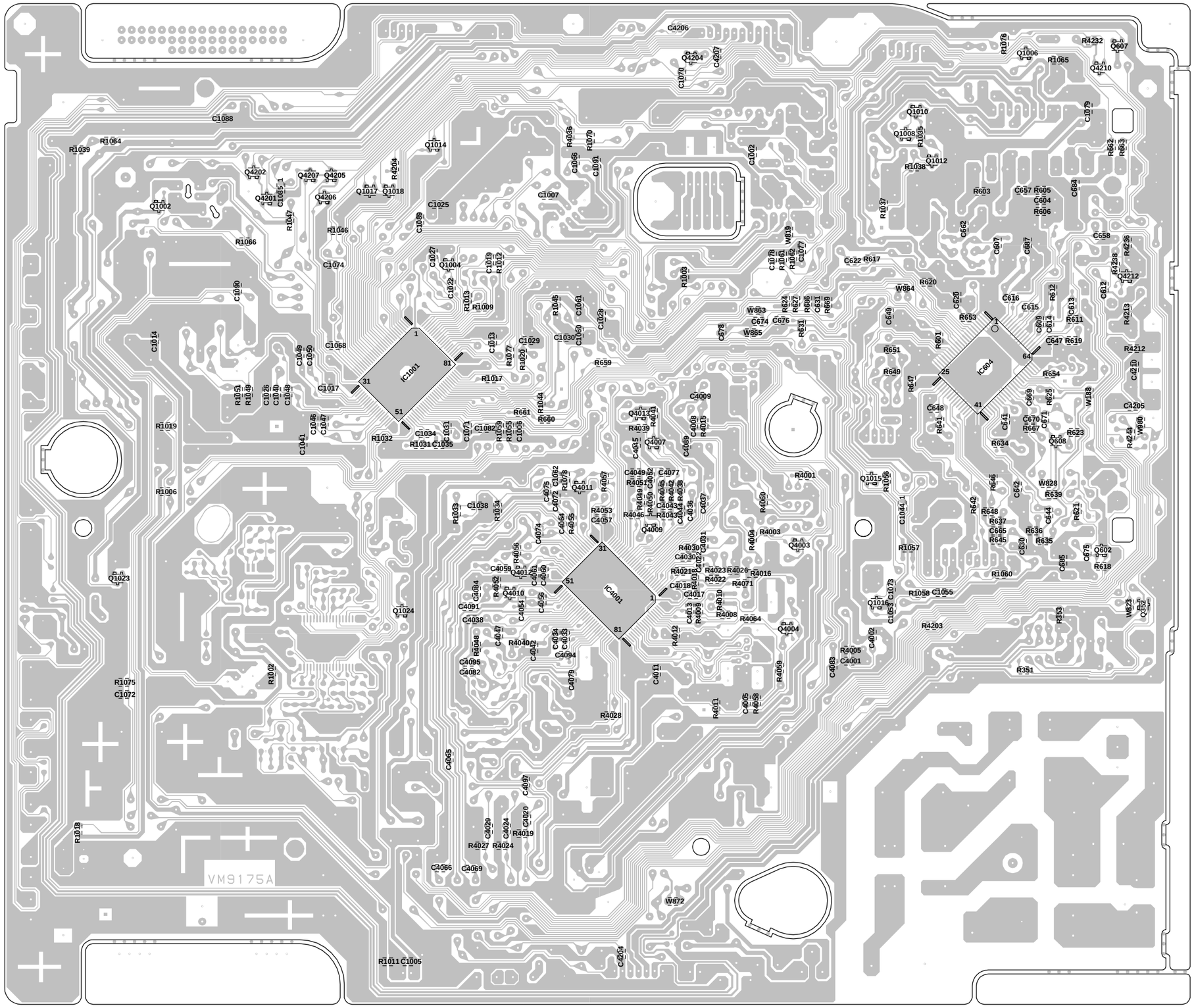
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

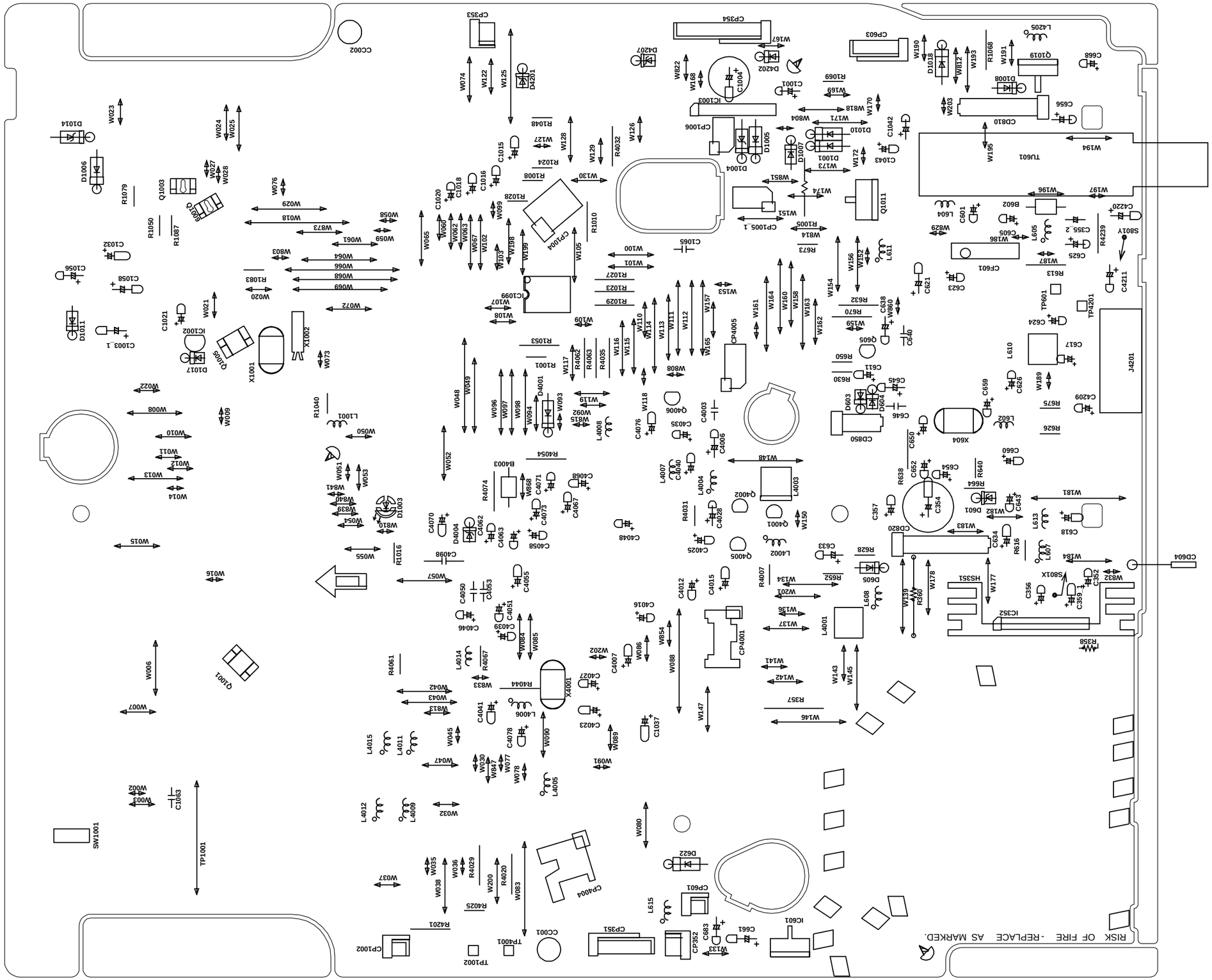
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

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

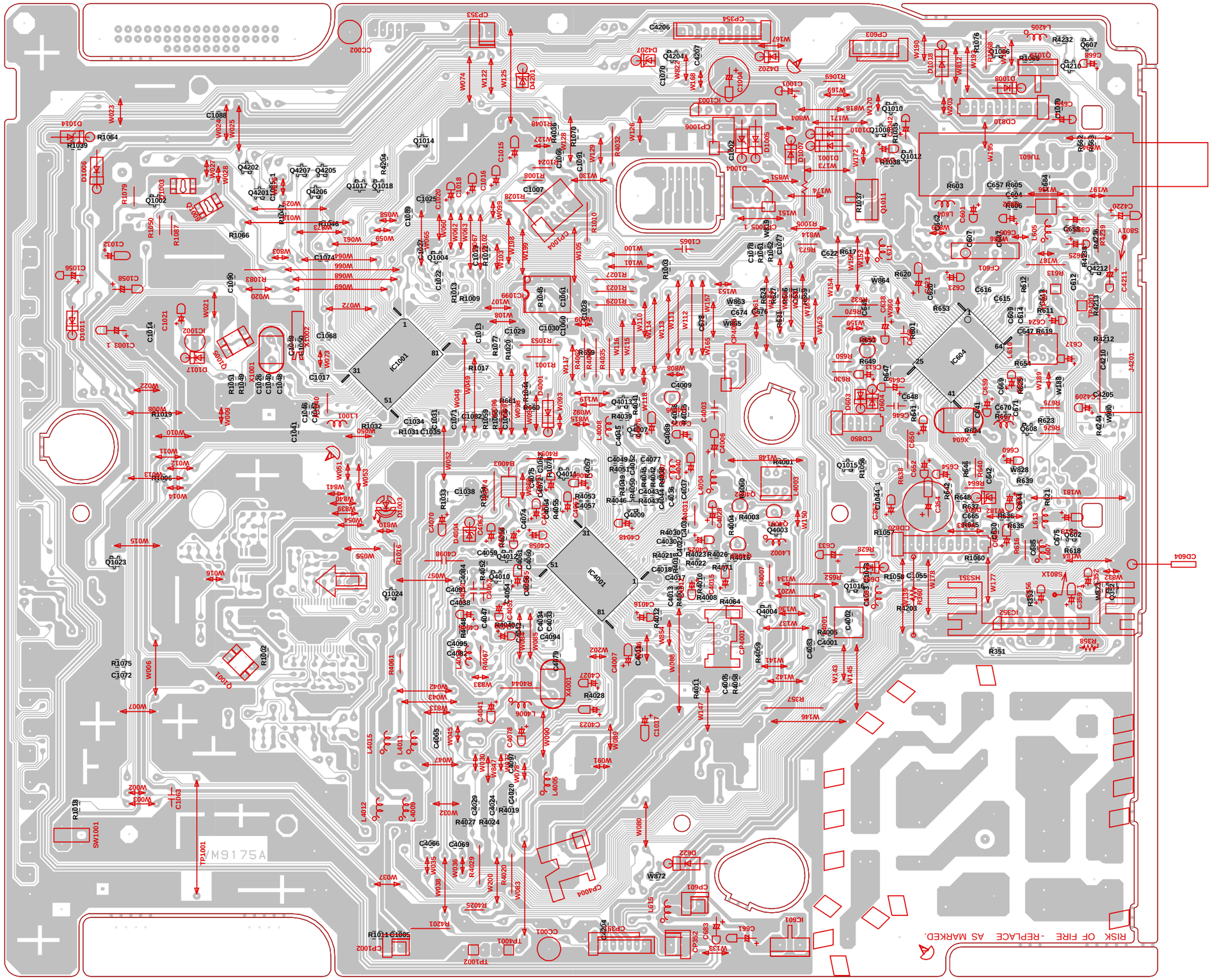
PRINTED CIRCUIT BOARDS
SYSCON



PRINTED CIRCUIT BOARDS
SYSCON

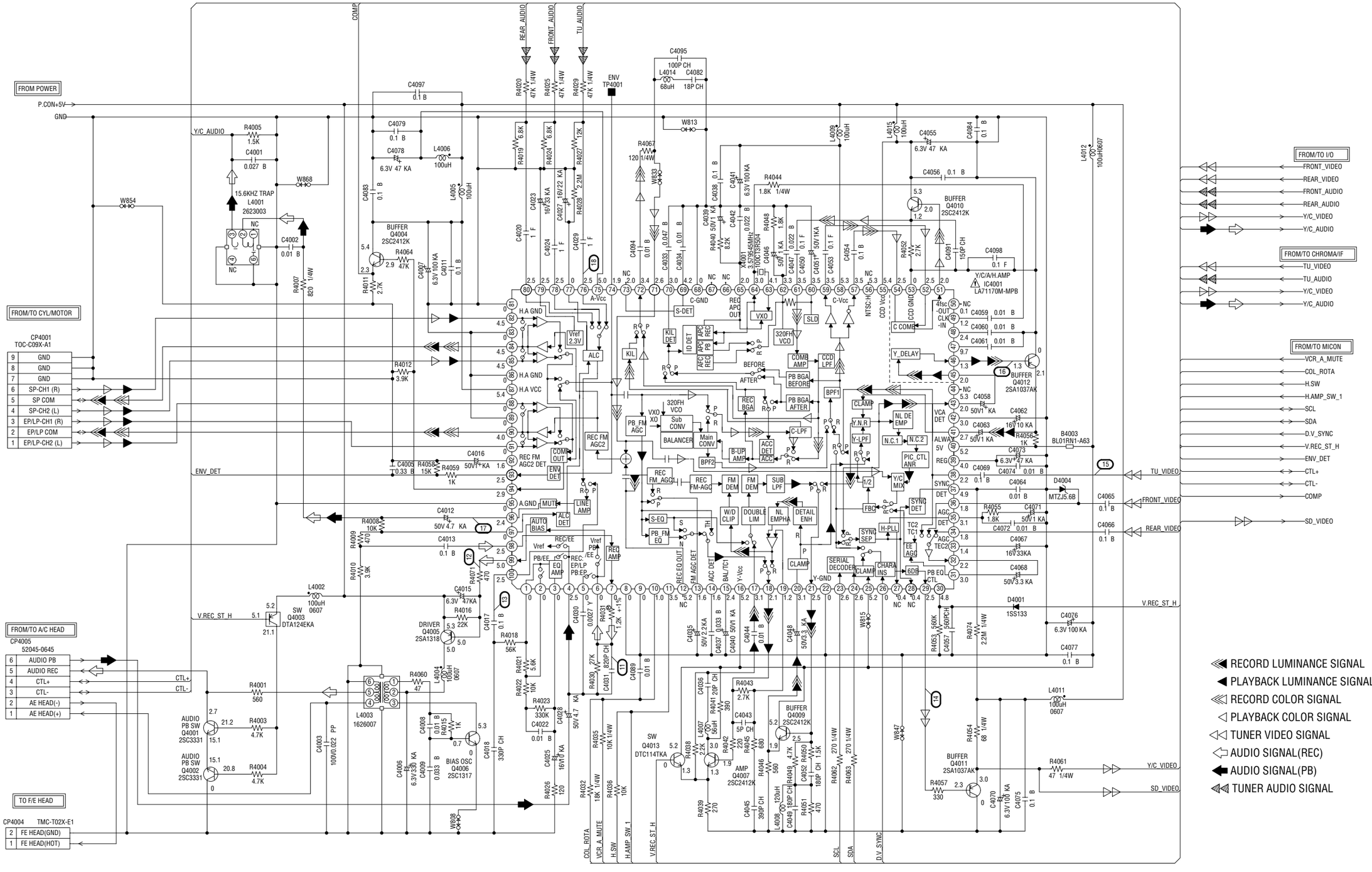


PRINTED CIRCUIT BOARDS
SYSCON



Y/C/AUDIO/HEAD AMP 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 REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR

MICON SCHEMATIC DIAGRAM (SYSCON PCB)

FROM/TO POWER
AT+5.6V
P.CON+5V
P.CON+12V
POWER_FAIL[DC]
VCR_POWER_H
CAP_HI_H
CAP_VCO
GND (S/S)
MOTOR_GND

LOADING MOTOR DRIVER IC1003 BA6955AN
CONTROL LOGIC
STD
POWER SAVE
LDM_F
LDM_R
LM-
LM+

FROM/TO DECK
CP1006 52045-0445
1 VCC
2 BOT
3 LDM-
4 LDM+
CENTLED
CP1002 CH22076A
1 EOT
2 VCC

FROM/TO MICRO MOTOR
CP1005_1 52045-0545
5 CYL DRIVE
4 CYL GND
3 CYL FG
2 CYL +B
1 CYL PG

FROM/TO CAPSTAN DD UNIT
CP1004 TMC-J08P-B1
1 GND
2 MOTOR GND
3 I LIMIT
4 CTL
5 VCO
6 FG
7 CAP.M F/R
8 VCC(5V)
CAP_CTL
CAP_VCO
CAP_FG
CAP_F/R

TIMER SYSCON MICON IC1001 OEC7041A

FROM/TO Y/C/A/H.AMP
H.SW
SCL
SDA
SD_VIDEO
ENV_DET
VCR_A_MUTE
CTL+
CTL-
COL_ROTA
D.V_SYNC
V.REC_ST_H
H.AMP_SW_1
COMP

FROM/TO CHROMA/IF
HD
VD
X_RAY
AFT_M
SCL
SDA
OSD_R
OSD_G
OSD_B
OSD_BLK
TV_POWER_H
VCR_POWER_H
TRICK-PB-H

FROM/TO I/O
IIC_OFF
EXT_MUTE
ON_TIM_LED
OTPB_LED
TV_POWER_H
REC_LED
T-REC_LED
PLAY_LED
KEY_A
KEY_B
REMOCON_IN
SCL
SDA

TO SOUND AMP
TV_POWER_H
TV_A_MUTE

TUNER VIDEO SIGNAL
DEFLECTION SIGNAL
CAPSTAN AFC SIGNAL
CYLINDER AFC SIGNAL
CYLINDER APC SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL

CAUTION: DIGITAL TRANSISTOR

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 。

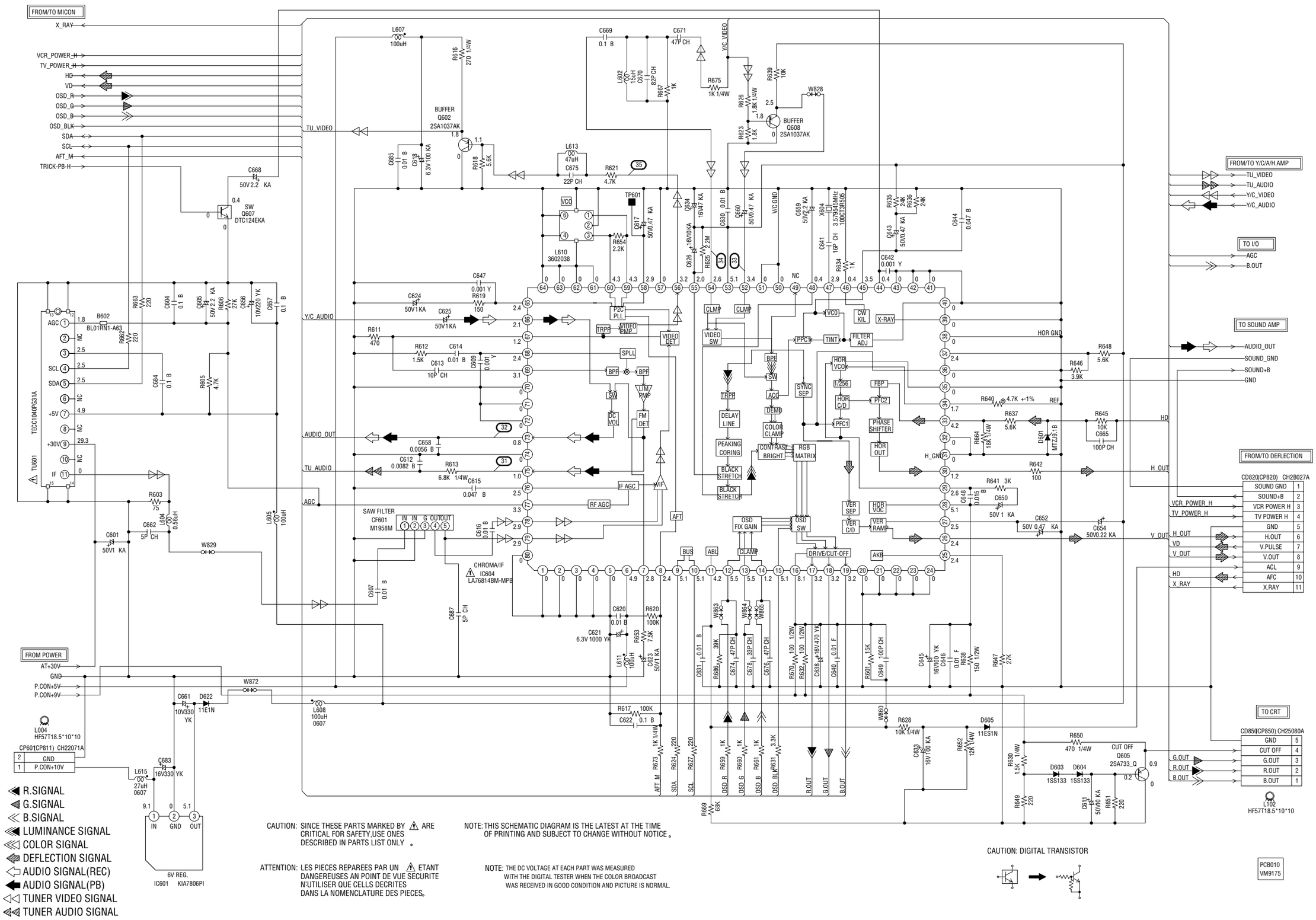
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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

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

PCB010
VM9175

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



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

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

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.

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

TEST POINT
CP603
8283_0612_00_000
B OUT 6
AGC 5
IIC OFF 4
SDA 3
SCL 2
GND 1

FROM/TO OPERATION
CP354(CD750)
8283_1112_00_000
PLAY LED 11
ON TIMER LED 10
KEY B 9
REC LED 8
T-REC LED 7
KEY A 6
OTPB LED 5
POWER ON L 4
AT 5V 3
GND 2
REMOCON OUT 1

FROM/TO OPERATION
CP351(CD351)
8283_0712_00_000
GND 7
SP OUT L 6
SOUND OUT L 5
GND / SOUND GND 4
FRONT A IN L 3
GND 2
FRONT VIDEO IN 1

FROM CHROMA/IF
B.OUT
AGC

C1085_1 220PCH

FROM/TO MICON
ON_TIM_LED
PLAY_LED
IIC_OFF
SDA
SCL
OTPB_LED
REC_LED
T-REC_LED
KEY_B
KEY_A
REMOCON_IN
TV_POWER_H
EXT_MUTE

PLAY LED SW Q4207 DTC114EKA
ON TIM LED SW Q4201 DTC114EKA
REC LED SW Q4205 DTC114EKA
T-REC LED SW Q4206 DTC114EKA
OTPB LED SW Q4202 DTC114EKA
TV POWER SW Q4204 DTC114EKA

C4206 0.1 B
C4207 0.1 B
D4202 SB10-03A3
D4207 MTZJ6.8B
C4204 470P CH
R4201 W.W 75 1/4W

W822

FROM/TO SOUND AMP
SOUND_GND
SOUND+
SP_OUT

FROM POWER
GND
AT+5.6V
P.CON+9V

FROM/TO Y/C/A/H.AMP
FRONT_AUDIO
FRONT_VIDEO
Y/C_VIDEO
REAR_AUDIO
REAR_VIDEO
Y/C_AUDIO

W980
R4244 1K
C4209 25V 10 KA
R4203 100
V.OUT TP4201
R4213 75
C4211 16V470 YK
R4239 220 1/2W
R4238 33
C4210 470P CH
C4205 470P CH
J4201 T6582-ABCC
R4212 75
R4236 1K
BUFFER Q4212 2SA1037AK
MUTE SW Q4210 2SA1037AK
R4232 10K
D4201 MTZJ5.6B
R4204 1K
L4205 100uH
C4220 10V100YK
S801Y

≪ B.SIGNAL
⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)
⇚ TUNER AUDIO SIGNAL
⇐ TUNER VIDEO SIGNAL

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

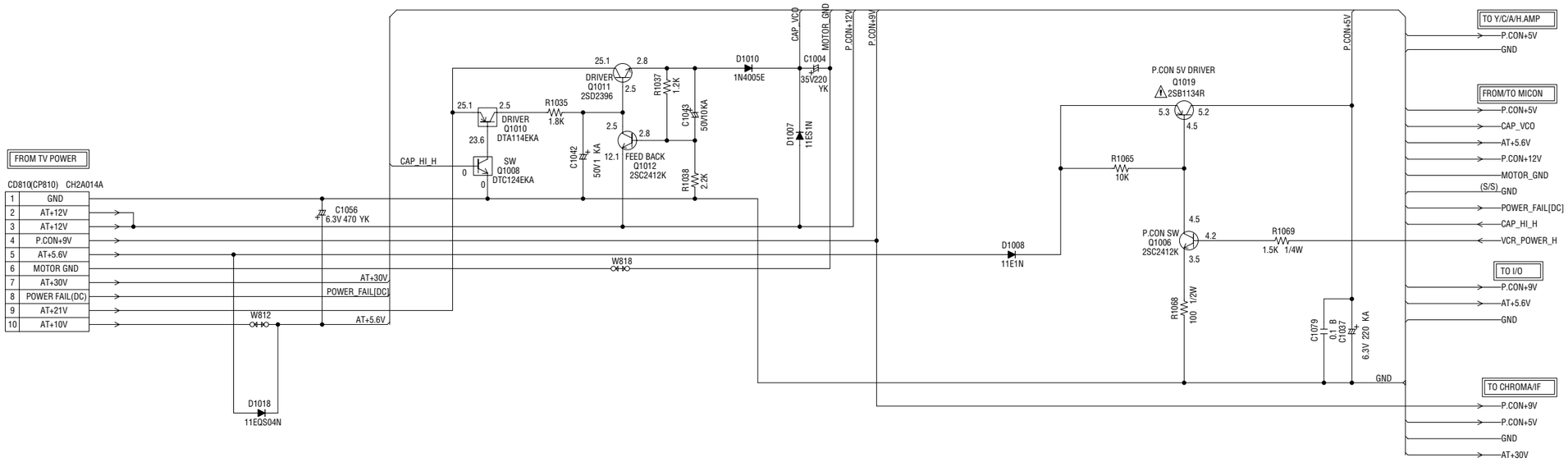
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

PCB010
VM9175

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)



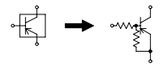
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

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

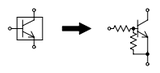
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

CAUTION: DIGITAL TRANSISTOR



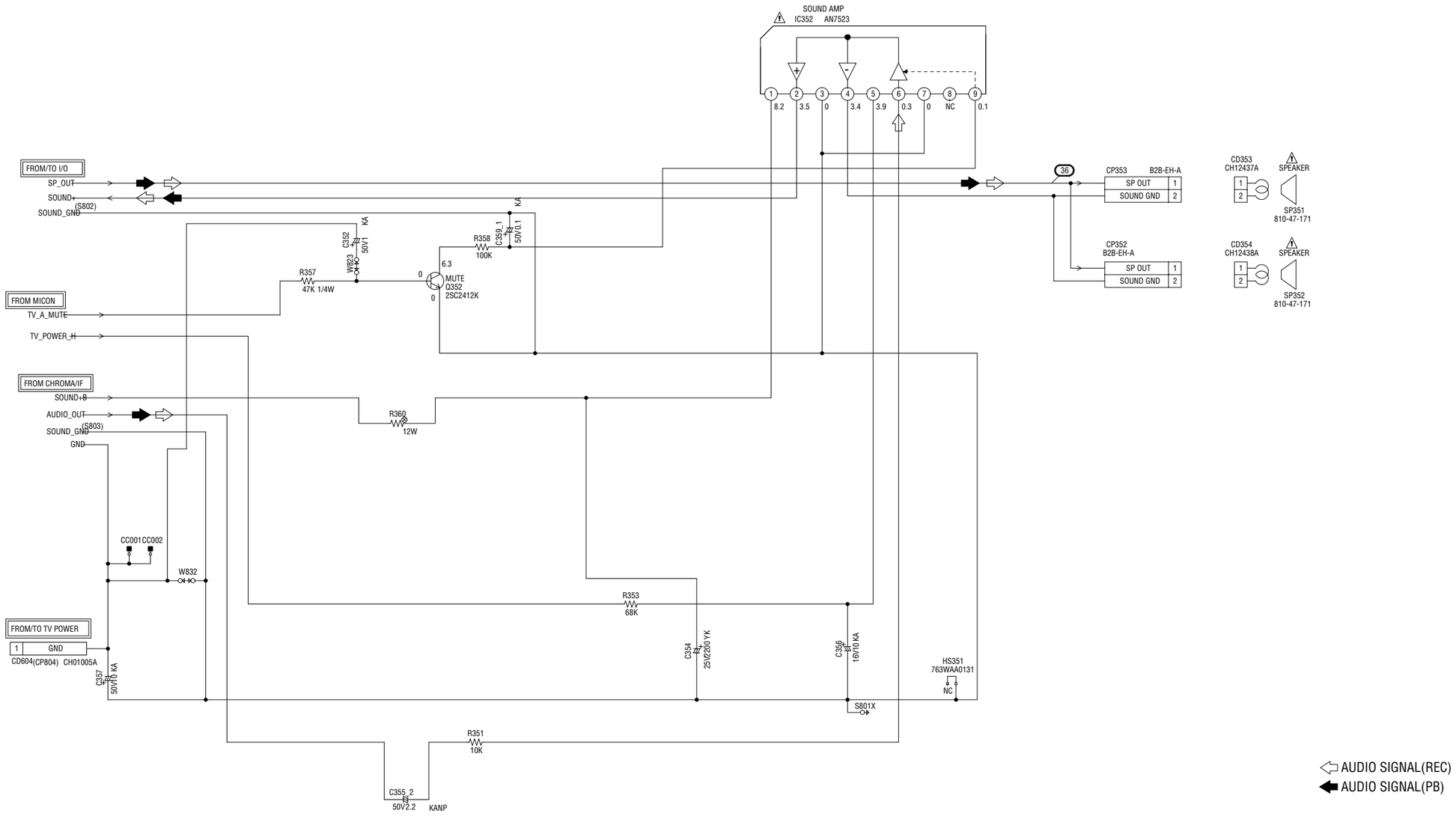
CAUTION: DIGITAL TRANSISTOR



PCB010
VM9175

SOUND 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 WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

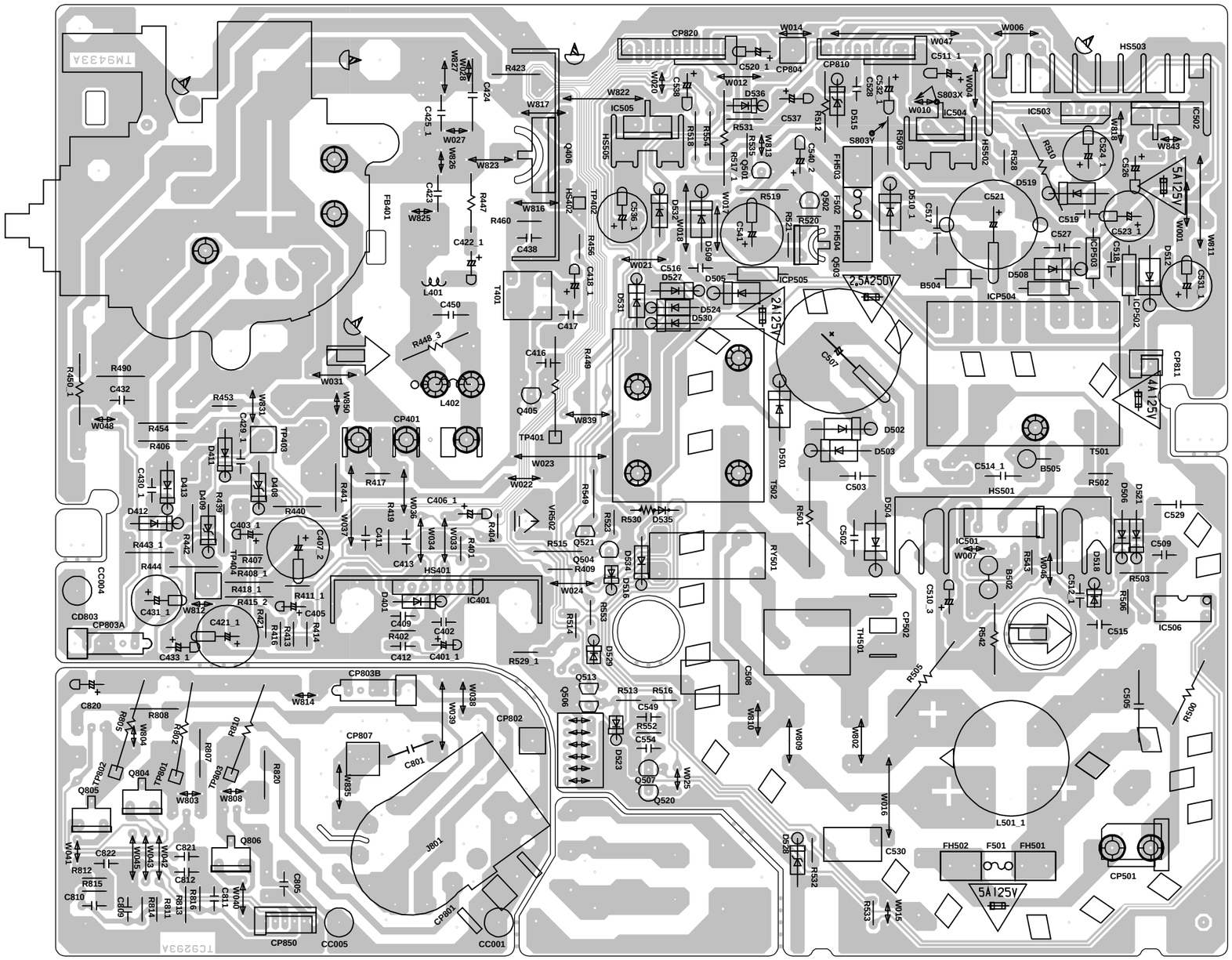
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY.USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

PCB010
VM9175

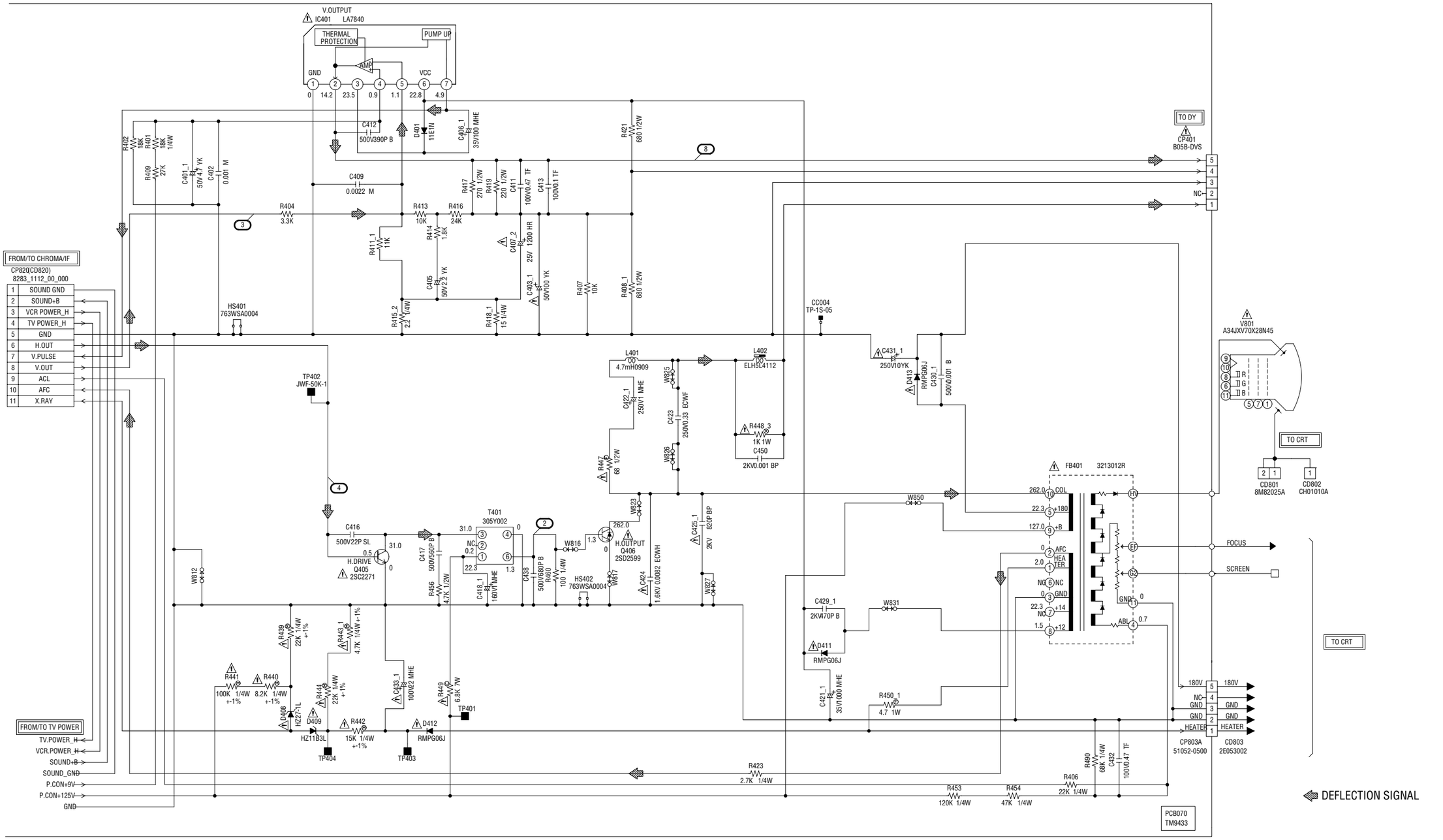
PRINTED CIRCUIT BOARDS

MAIN/CRT



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: 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。

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

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

TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)

5A 125V | 2.5A 250V | 4A 125V | 3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F501,ICP503,ICP504),2.5A 250V(F502), 4A 125V(ICP502) AND 2A 125V(ICP505).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V(F501,ICP503,ICP504),2.5A 250V(F502), 4A 125V(ICP502) ET 2A 125V(ICP505). (3A)

CAUTION: ICP502,ICP503,ICP504,AND ICP505 ARE MANUFACTURED BY LITTELFUSE INC.,TYPE 251.

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 。

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

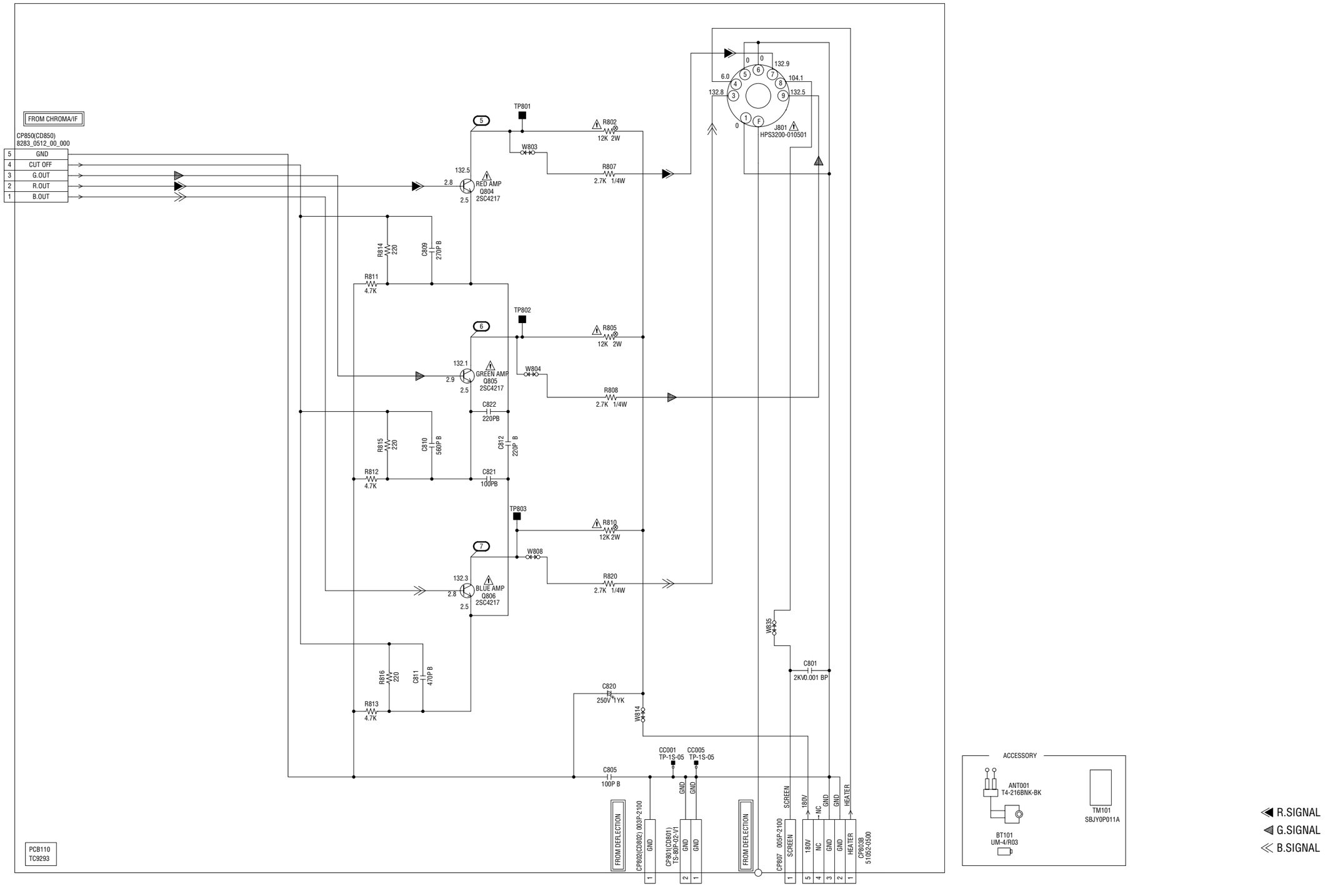
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR

CAUTION: ⏚ IS THE LIVE CONNECTION

CRT SCHEMATIC DIAGRAM

(CRT PCB)



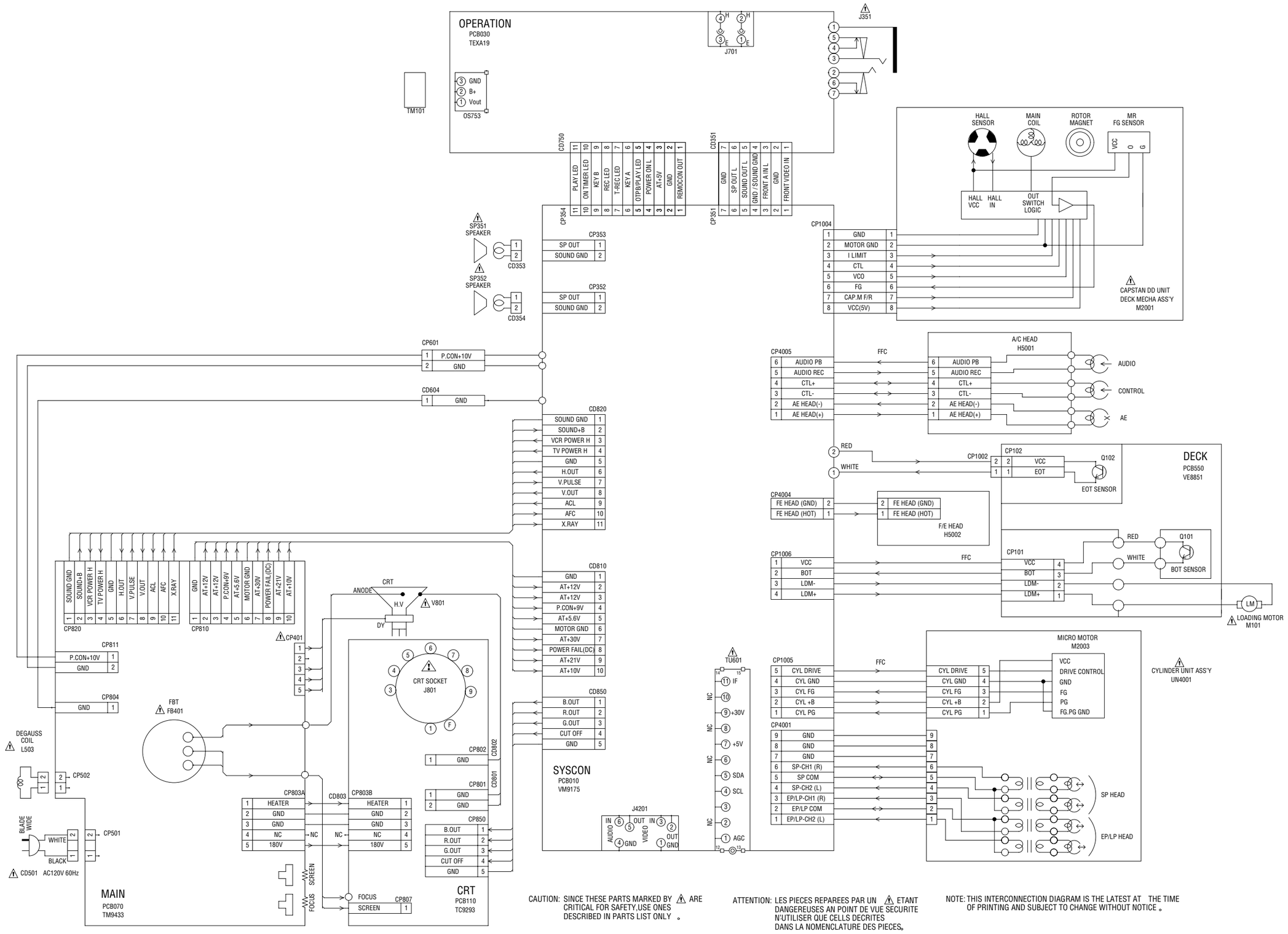
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

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.

INTERCONNECTION DIAGRAM



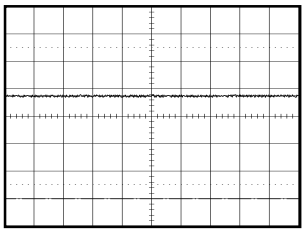
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

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

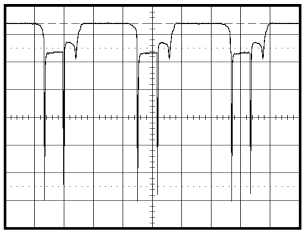
WAVEFORMS

TV POWER

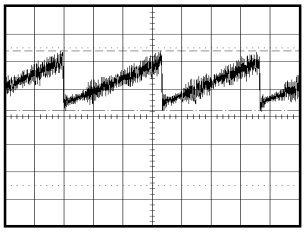


① 5.0V 0.1ms/div

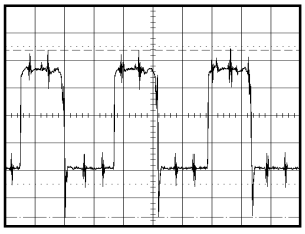
DEFLECTION



② 2.0V 20µs/div

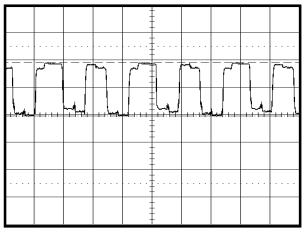


③ 0.5V 5ms/div

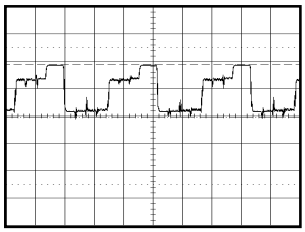


④ 200mV 20µs/div

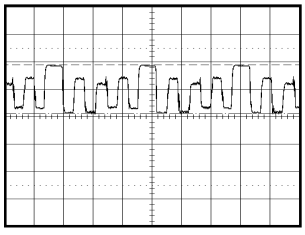
CRT



⑤ 50.0V 20µs/div

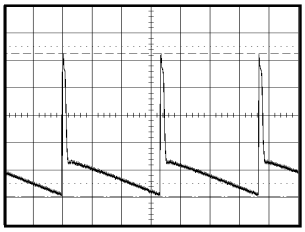


⑥ 50.0V 20µs/div



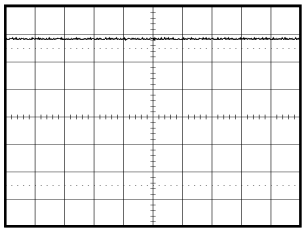
⑦ 50.0V 20µs/div

DEFLECTION

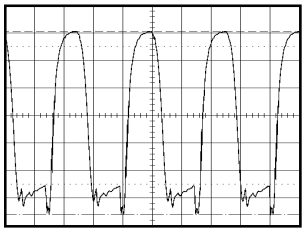


⑧ 10.0V 5ms/div

TV POWER

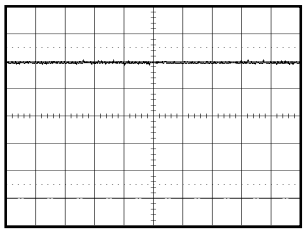


⑨ 20.0V 0.1ms/div

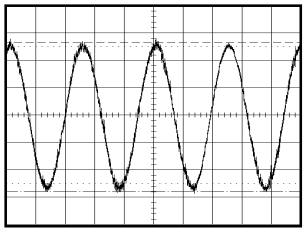


⑩ 0.5V 5µs/div

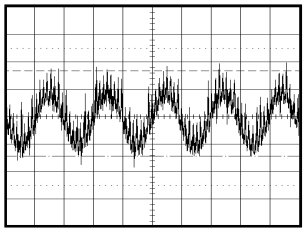
Y/C/AUDIO/HEAD AMP



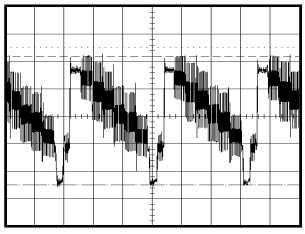
⑪ PB
0.5V 0.5ms/div



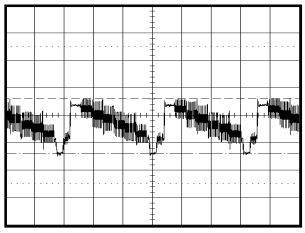
⑫ PB
100mV 1ms/div



⑬ PB
50mV 0.5ms/div



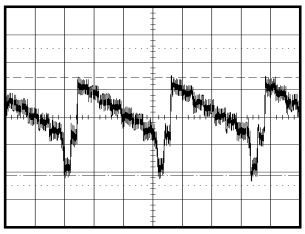
⑭ PB
0.5V 20µs/div



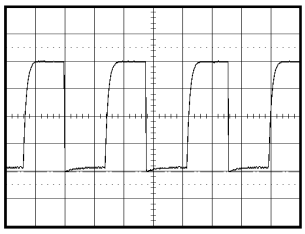
⑮ POWER ON
0.5V 20µs/div

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

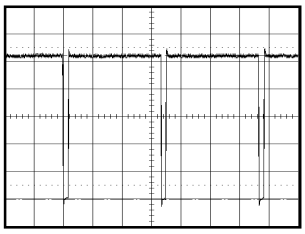
WAVEFORMS



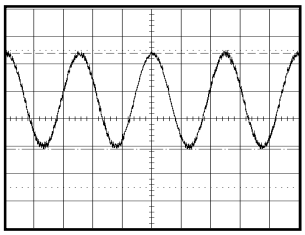
⑯ REC
100mV 20µs/div



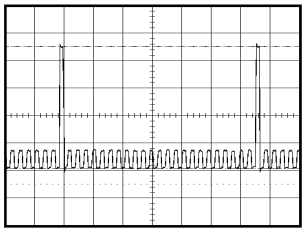
㉑ PB
1.0V 0.5ms/div



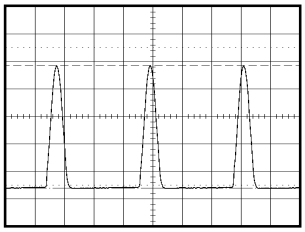
㉖ POWER ON
0.5V 10ms/div



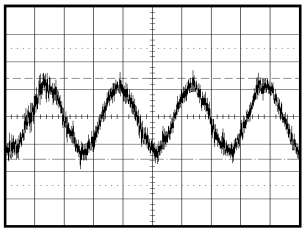
⑰ POWER ON
0.5V 1ms/div



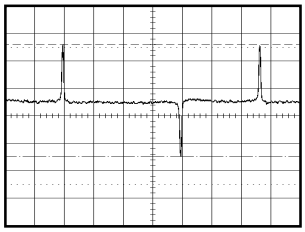
㉒ PB
1.0V 5ms/div



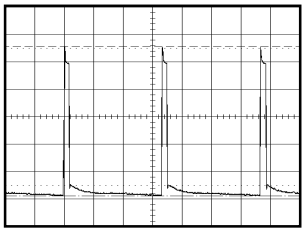
㉗ POWER ON
20.0V 20µs/div



⑱ POWER ON
50mV 1ms/div

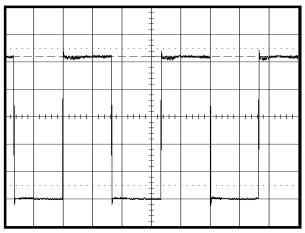


㉓ PB
1.0V 5ms/div

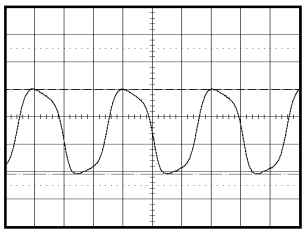


㉘ POWER ON
5.0V 5ms/div

MICON

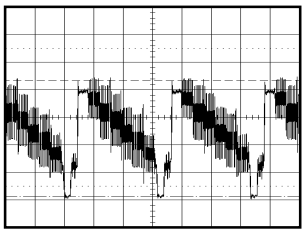


⑲ PB
1.0V 10ms/div

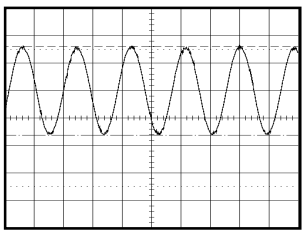


㉔ POWER ON
1.0V 10µs/div

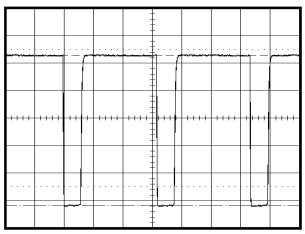
IN/OUT



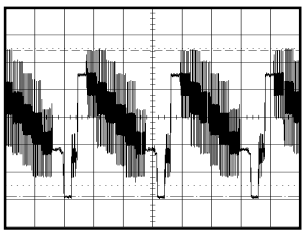
㉙ POWER ON
0.5V 20µs/div



⑳ PB
0.5V 0.5ms/div



㉕ POWER ON
1.0V 20µs/div

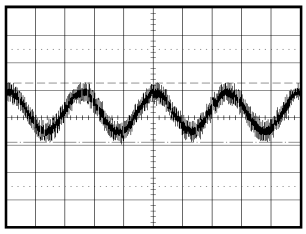


㉚ POWER ON
200mV 20µs/div

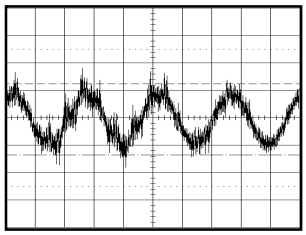
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

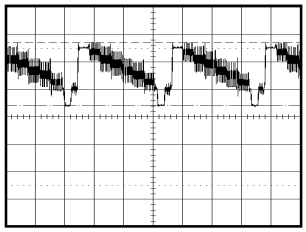
CHROMA/IF



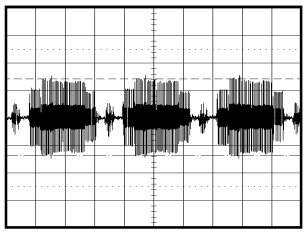
㉛ POWER ON
0.5V 1ms/div



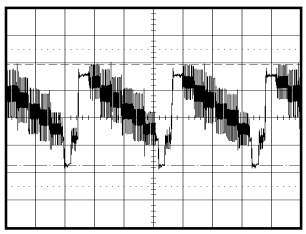
㉜ POWER ON
50mV 1ms/div



㉝ POWER ON
0.5V 20µs/div

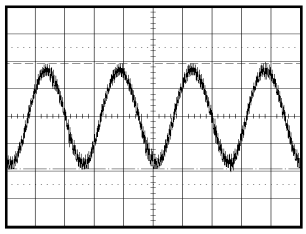


㉞ POWER ON
200mV 20µs/div



㉟ POWER ON
10.5V 20µs/div

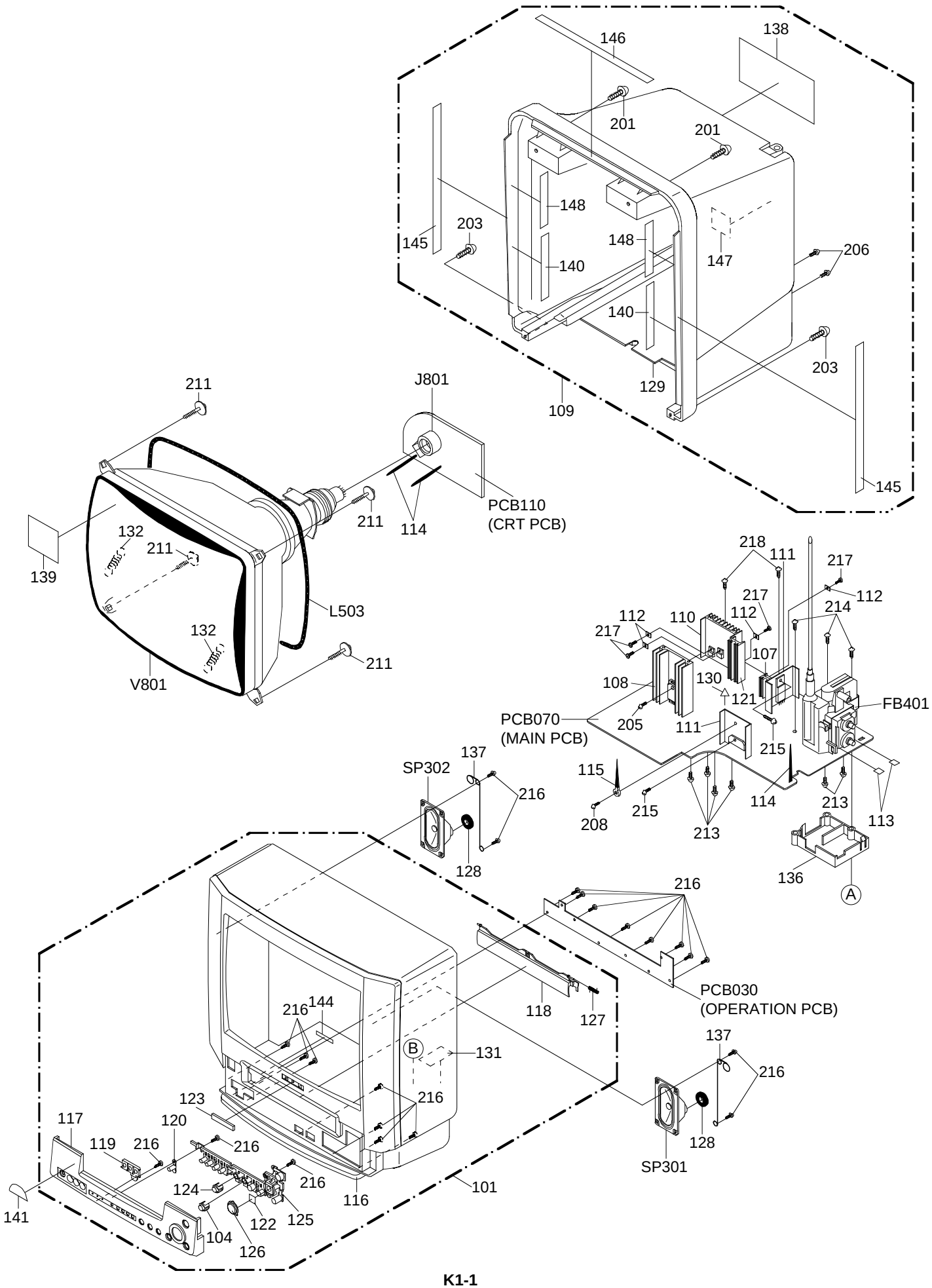
SOUND AMP



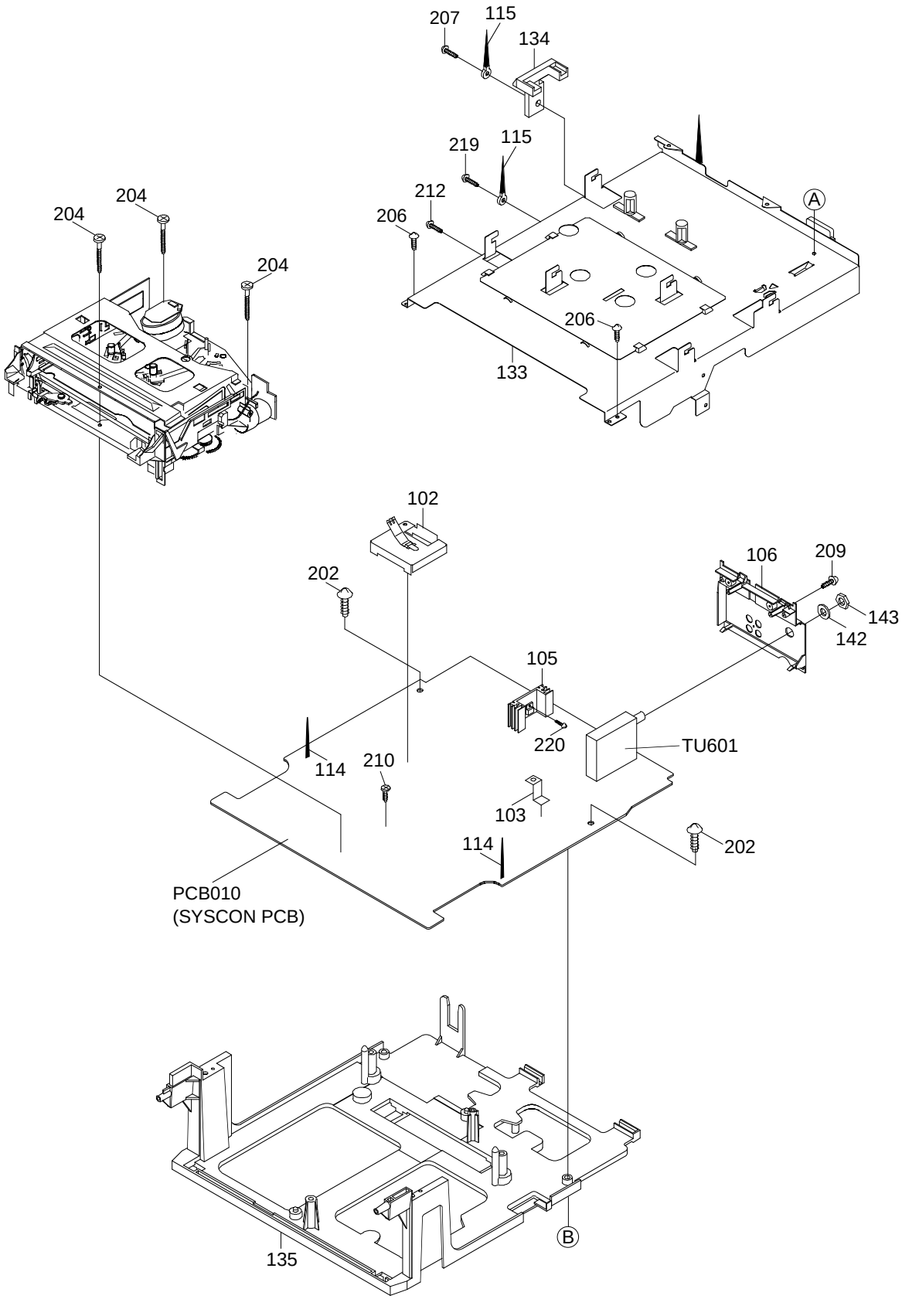
㊱ POWER ON
200mV 1ms/div

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

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



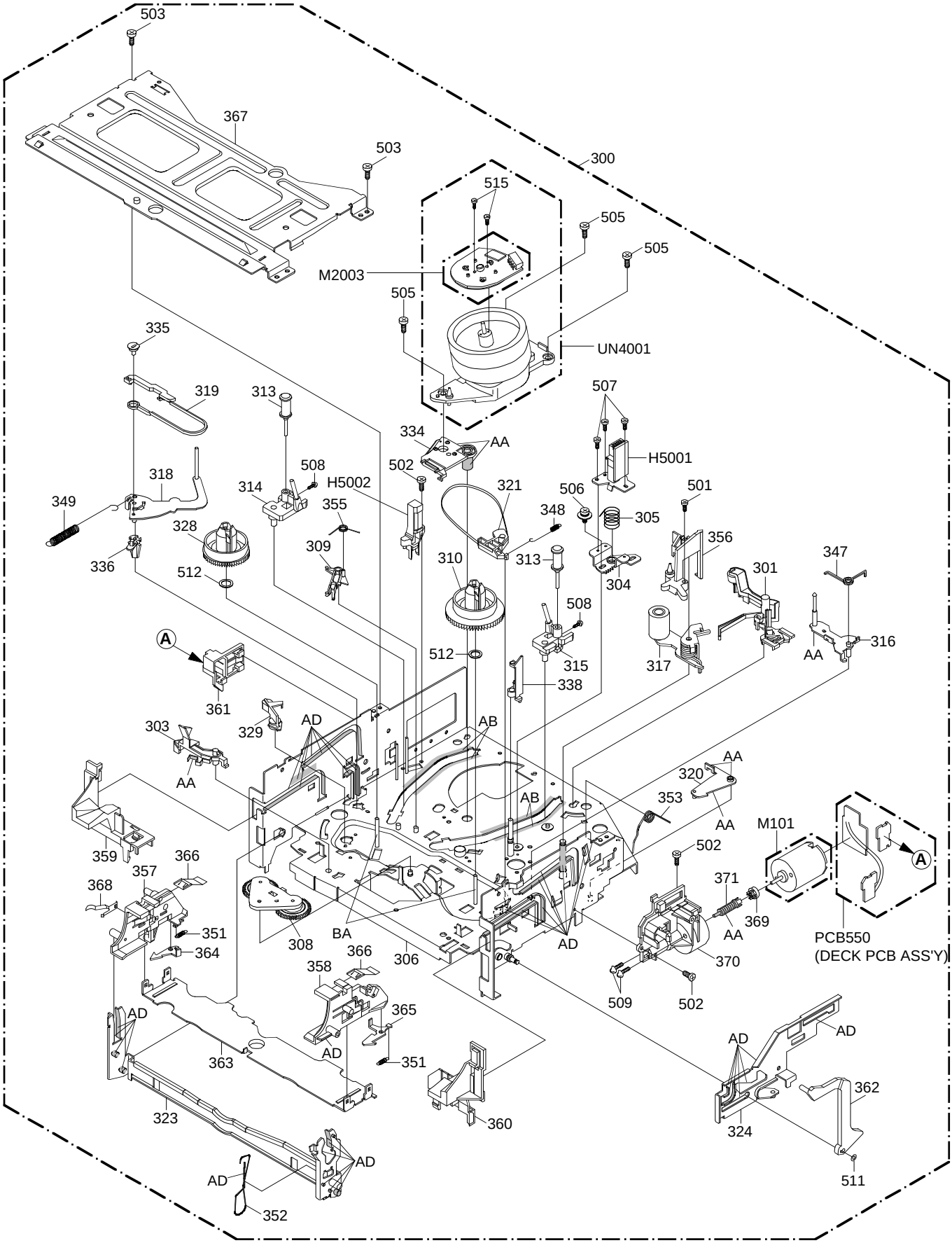
MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
101	S5-505-1C7-200	CABINET,FRONT ASS'Y	1
102	----	SHIELD,CASE HEAD AMP ASS'Y	1
103	----	PLATE,EARTH-SYSCON	1
104	S3-5WP-D06-800	BUTTON,REC	1
105	----	HEAT SINK	1
106	S7-1WP-AA0-100	PLATE,JACK	1
107	----	HEAT SINK	1
108	----	HEAT SINK	1
109	S5-505-1C7-400	CABINET,BACK ASS'Y	1
110	----	HEAT SINK	1
111	----	HEAT SINK	2
112	----	METAL SPACER	4
113	----	RUBBER,SILCON	2
114	----	COATING CLIP	5
115	----	CORD CLIP UL CO.	3
116	----	CABINET,FRONT	1
117	S1-2WP-J06-800	PLATE,FRONT	1
118	S1-2WP-J06-810	FLAP	1
119	S1-3WP-A01-110	GLASS,LED	1
120	S1-3WP-A01-100	GUIDE,REMOCON	1
121	----	HEAT SINK	1
122	----	SHEET,LED	1
123	S2-344-901-020	BADGE,BRAND	1
124	S3-5WP-D06-790	BUTTON,OTPB	1
125	S3-5WP-J01-280	BUTTON,FRAME	1
126	S3-5WP-D06-860	BUTTON,PLAY	1
127	S4-3WK-A00-320	SPR,FLAP	1
128	----	RUBBER,SPEAKER	2
129	----	CABI,BACK	1
130	----	SHEET,FUSE	1
131	----	SHEET,CRT SERVICEMAN	1
132	----	SPRING,EARTH	2
133	----	PLATE,DECK SHIELD ASS'Y	1
134	S6-1WP-A01-510	HOLDER,M/PCB	1
135	S6-1WP-A01-570	HOLDER,DECK	1
136	S6-1WP-A01-450	HOLDER,FBT	1
137	----	WIRE,SPEAKER	2
138	----	SHEET,RATING	1
139	----	LABEL,POP	1
140	----	FELT SHEET	2
141	----	LABEL,ENEGY STAR	1
142	S2-A97-A40-770	WASHER 9.7x14xT0.7	1
143	S3-004-952-070	NUT 3/8 INCH	1
144	----	FELT SHEET	1
145	----	FELT SHEET	2
146	----	FELT SHEET	1
147	----	FELT SHEET	1
148	----	FELT SHEET	2
201	S1-172-40C-540	SCREW,TAP(B0)BIND 4-35	2
202	S1-175-40B-040	SCREW,TAP(B0)TRUSS 4-20	2
203	S1-175-40A-640	TAP(B0)4-16	2
204	S1-171-40A-240	TAP(B0)V+4-12	3
205	S1-0A1-30A-040	SCREW/WASHER(B)M3-10	1
206	S1-106-30A-240	SCREW,TAP(P)3-12	4
207	S1-072-308-040	UT2+3-8	1
208	S1-0A1-308-040	SCREW,M3x8	1
209	S1-102-30A-020	VT2+3-10	1
210	87-741-095-410	SCREW,TAP TITE(P) FLAT 3-8	1
211	S1-21F-50B-840	SCREW,TAP 5-28	4
212	87-743-073-010	VT2+2.6-6	1
213	87-753-095-410	SCREW,TAP 3-8	6
214	S1-0A1-30B-040	SCREW,WASHER(A) M3x20	3
215	S1-0B1-308-040	SCREW/WASHER(B)M3-8	2
216	S1-106-30A-040	UIT+3-10	22
217	S1-0A1-30A-040	SCREW,WASHER(A) M3x10	4
218	S1-0A1-306-040	SCREW,WASHER(A)M3-6	2
219	S1-076-306-040	BVTT+3-6	1
220	S1-106-306-040	SCREW,TAP 3-6	1

ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S2-5C1-080-270	ANTENNA,ROD	1
2	S7-660-DB0-200	TRANSMITTER(VXC131)	1
3	S5-505-101-000	INSTRUCTION BOOK	1

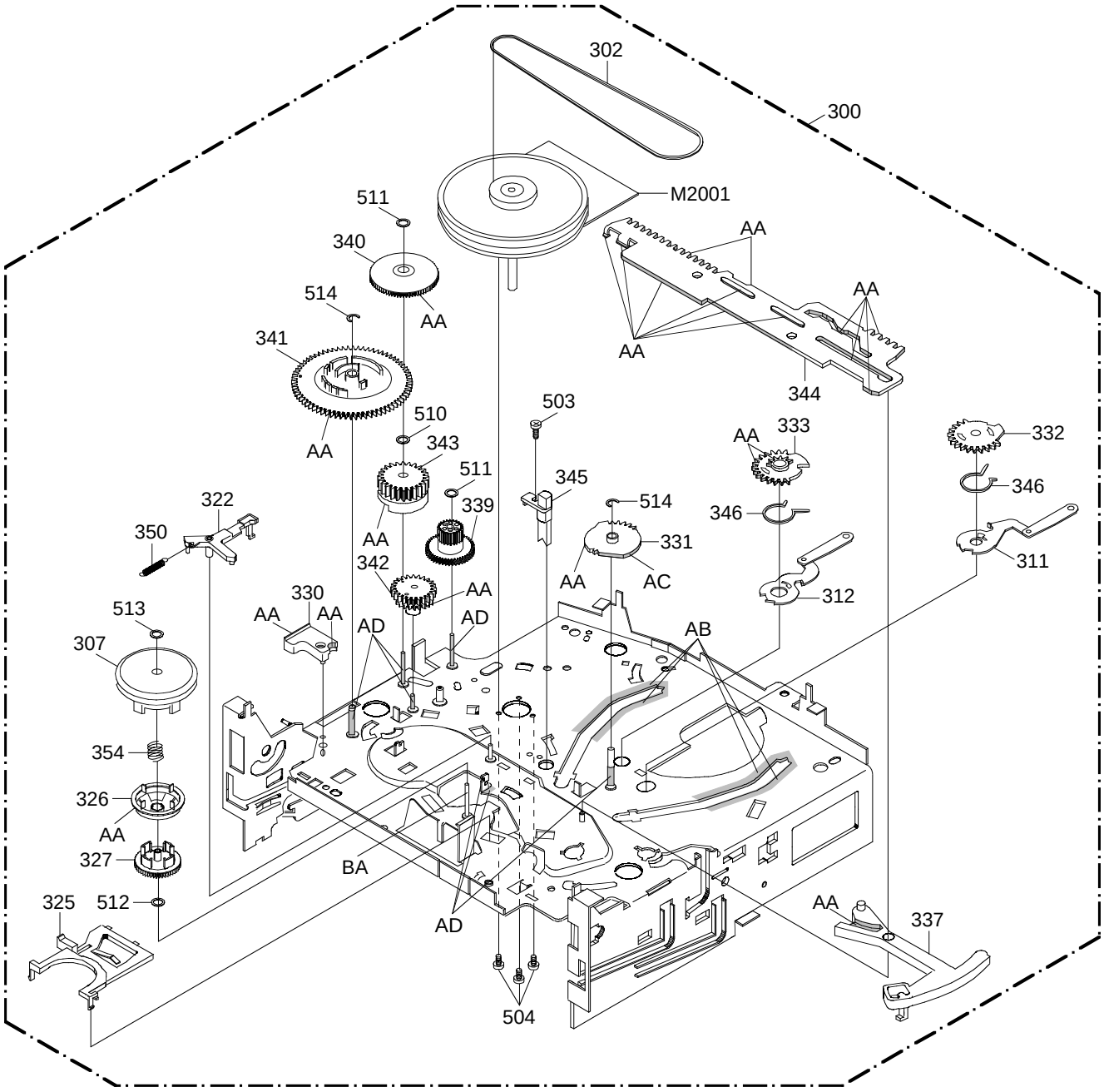
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	KYODO OIL SLIDAS No. 150	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	KYODO OIL SLIDAS No. 150	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
300	----	DECK ASS'Y A55002A420A	1
301	S5-OA5-000-220	AHC ASS'Y	1
302	S5-OP2-002-700	BELT,CAPSTAN	1
303	S5-OP9-007-100	LEVER,REC	1
304	S5-OP5-000-830	BASE,AC HEAD	1
305	S5-OP8-003-240	SPR,AC HEAD	1
306	S5-OA0-003-600	MAIN CHASSIS ASS'Y	1
307	S5-OA2-000-810	CLUTCH ASS'Y X	1
308	S5-OA2-000-730	ARM,IDLER ASS'Y	1
309	S5-OP6-005-530	ARM,S-S BRAKE	1
310	S5-OA2-000-760	T REEL ASS'Y	1
311	S5-OA3-000-610	LOAD ARM S ASS'Y	1
312	S5-OA3-000-620	LOAD ARM T ASS'Y	1
313	S5-OA4-001-870	G-ROLLER ASS'Y	2
314	S5-OA4-001-880	BASE,INCL S ASS'Y	1
315	S5-OA4-001-960	BASE,INCL T(S) ASS'Y	1
316	S5-OA4-001-970	P5-3 ARM ASS'Y	1
317	S5-OA4-002-050	PINCH ROLLER BLOCK	1
318	S5-OA4-001-750	TENSION ARM ASS'Y	1
319	S5-OA4-001-760	TENSION BAND ASS'Y	1
320	S5-OA4-001-780	PINCH ROLLER LEVER ASS'Y	1
321	S5-OA6-001-820	BRAKE T ASS'Y	1
322	S5-OA6-001-830	CAP BRAKE ARM ASS'Y	1
323	S5-OA9-002-130	LINK ASS'Y	1
324	S5-OA9-002-160	LINK LEVER ASS'Y	1
325	S5-OP2-002-610	LEVER,CLUTCH	1
326	S5-OP2-002-620	RING,CLUTCH	1
327	S5-OP2-002-630	GEAR,CLUTCH	1
328	S5-OP2-002-710	REEL,S	1
329	S5-OP2-002-730	STOPPER,REEL S	1
330	S5-OP2-002-740	SPACER,LINK LEVER	1
331	S5-OP3-001-780	GEAR,MAIN LOADING	1
332	S5-OP3-001-790	GEAR,LOADING S	1
333	S5-OP3-001-800	GEAR,LOADING T	1
334	S5-OP3-001-860	HOLDER,LOADING GEAR	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-OP6-005-450	CAM,MAIN	1
342	S5-OP6-005-460	CAM,P5	1
343	S5-OP6-005-650	CAM,PINCH ROLLER	1
344	S5-OP6-005-480	ROD,MAIN	1
345	S5-OP7-000-350	REFLECTOR,LED	1
346	S5-OP8-003-180	SPR,LOADING GEAR	2
347	S5-OP8-003-190	SPR,P5	1
348	S5-OP8-003-210	SPR,BRAKE T	1
349	S5-OP8-003-220	SPR,TENSION	1
350	S5-OP8-003-230	SPR,CAP BRAKE	1
351	S5-OP8-003-420	SPRING,LOCKER(S)	2
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-OP8-003-320	SPR,S-S BRAKE	1
356	S5-OP9-006-800	OPENER,CASS	1
357	S5-OP9-006-830	CASS SIDE L	1
358	S5-OP9-006-840	CASS SIDE R	1
359	S5-OP9-007-090	TAPE GUIDE L(P,R)	1
360	S5-OP9-006-860	TAPE GUIDE R	1
361	S5-OP9-007-070	COVER,SENSOR L	1
362	S5-OP9-006-880	LEVER,FLAP	1
363	S5-OP9-006-900	CASS HOLDER	1
364	S5-OP9-006-910	LOCKER,L	1
365	S5-OP9-006-920	LOCKER,R	1
366	S5-OP9-006-940	SPR,PACK	2
367	S5-OP9-006-950	BRACKET,TOP	1
368	----	SPR,CASS EARTH	1
369	S5-OP6-005-400	DRIVER,WORM	1
370	S5-OP6-005-630	BRACKET,MOTOR	1
371	S5-OP6-005-410	WORM	1
501	87-654-075-410	SCREW,TAP 2.6-10	1
502	S1-072-268-040	VT2+2.6-8	3
503	87-743-073-010	VT2+2.6-6	3
504	87-743-073-410	SCREW,TAP 2.6-6	3
505	S1-0A1-268-040	SCREW,WASHER(A)M2.6-8	3
506	S1-0B1-264-040	SCREW,WASHER(B)M2.6-4	1
507	87-261-035-410	SCREW,PAN M2-6	3
508	87-261-032-410	SCREW,PAN M2-3	2
509	87-258-091-010	U+M3-3	2
510	S2-Q31-54C-5N0	PW,3.1-5.4-0.25	1
511	S2-P26-600-5N0	PW(CUT)2.6-6-0.5	3
512	S2-Q26-471-3N0	PW 2.6-4.7-0.13	3
513	S2-P18-450-5N0	PW(CUT)1.8-4.5-0.5	1
514	S3-ETW-300-000	E-RING 3	2
515	S1-0A1-235-040	SEMS A M2.3-5	2
CP101	----	CONN,PWB SIDE	1
CP102	----	CONN,PWB SIDE 173979-2	1
H5001	S5-23D-910-340	HEAD,AC	1
H5002	S5-43D-020-130	HEAD,FE	1
⚠ M101	S5-96P-780-010	MOTOR(LOADING)	1
⚠ M2001	S5-94J-980-080	CAPSTAN DD UNIT EP15BC	1
M2003	S5-89V-110-070	MICRO MOTOR	1
PCB550	----	DECK PCB ASS'Y VE8851	1
Q101	S0-007-003-200	PHOTO,TR RPT-38PB113	1
Q102	S0-007-003-200	PHOTO,TR RPT-38PB113	1
⚠ UN4001	S5-500-2A5-000	CYLINDER UNIT ASS'Y A55002A50(	1

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		SYSCON PCB ASS'Y
		*** RESISTORS ***
R360	S3-118-A01-0J0	RES,M/O 1-2W
R640	S4-X5T-647-2F0	RES,M 4.7K-1/6W
⚠ R1005	S6-150-12R-7J0	RES,FUSE 2.7-1W
R4031	S4-X5T-612-2F0	RES,MF 1.2K-1/6W
		*** CAPACITORS ***
C352	87-015-695-080	CAP,E 1-50V
C354	87-016-588-080	CAP,E 2200-25V
C355	S0-2NT-52R-2M0	CAP,E 2.2-50V
C356	87-015-075-040	CAP,E 10-16V
C357	87-010-560-080	CAP,E 10-50V
C359	87-010-067-010	CAP,E 0.1-50V
C601	87-015-695-080	CAP,E 1-50V
C605	87-010-402-080	CAP,E 2.2-50V
C611	87-010-560-080	CAP,E 10-50V
C617	87-010-400-080	CAP,E 0.47-50V
C618	87-015-677-010	CAP,E 100-6.3V
C621	87-010-550-080	CAP,E 1000-6.3V
C623	87-015-695-080	CAP,E 1-50V
C624	87-015-695-080	CAP,E 1-50V
C625	87-010-071-080	CAP,E 1-50V
C626	87-015-075-040	CAP,E 10-16V
C633	87-010-112-080	CAP,E 100-16V
C634	87-010-380-080	CAP,E 47-16V
C638	87-010-235-080	CAP,E 470-16V
C643	87-010-400-080	CAP,E 0.47-50V
C645	87-010-112-080	CAP,E 100-16V
C650	87-015-695-080	CAP,E 1-50V
C652	87-010-400-080	CAP,E 0.47-50V
C654	87-010-545-040	CAP,E 0.22-50V
C656	87-A10-189-040	CAP,E 220-10V
C659	87-010-402-080	CAP,E 2.2-50V
C660	87-010-400-080	CAP,E 0.47-50V
C661	87-010-375-010	CAP,E 330-10V
C668	87-010-402-080	CAP,E 2.2-50V
C683	87-010-685-080	CAP,E 330-16V
⚠ C1001	87-010-135-010	CAP,E 100-25V
C1003	87-010-550-080	CAP,E 1000-6.3V
C1004	S0-2LT-422-1M0	CAP,E 220-35V
C1015	87-015-680-010	CAP,E 47-10V
C1016	87-016-053-080	CAP,E 22-16V
C1018	87-010-404-080	CAP,E 4.7-50V
C1020	87-015-075-040	CAP,E 10-16V
C1021	87-015-683-080	CAP,E 33-16V
C1032	87-016-088-040	CAP,E 220-6.3V
C1037	87-016-088-040	CAP,E 220-6.3V
C1042	87-010-071-080	CAP,E 1-50V
C1043	87-010-560-080	CAP,E 10-50V
C1056	87-010-371-080	CAP,E 470-6.3V
C1058	87-010-079-080	CAP,E 100-6.3V
C4006	87-010-370-080	CAP,E 330-6.3V
C4007	87-015-677-010	CAP,E 100-6.3V
C4012	87-010-404-080	CAP,E 4.7-50V
C4015	S5-0HU-047-0M0	CAP,E 47-6.3V
C4016	87-015-695-080	CAP,E 1-50V
C4023	87-015-683-080	CAP,E 33-16V
C4025	87-015-075-040	CAP,E 10-16V
C4027	87-016-053-080	CAP,E 22-16V
C4028	87-010-404-080	CAP,E 4.7-50V
C4035	87-010-402-080	CAP,E 2.2-50V
C4039	87-015-695-080	CAP,E 1-50V
C4040	87-015-695-080	CAP,E 1-50V
C4041	87-015-677-010	CAP,E 100-6.3V
C4046	87-015-695-080	CAP,E 1-50V
C4048	87-010-403-080	CAP,E 3.3-50V
C4051	87-015-695-080	CAP,E 1-50V
C4055	87-010-549-010	CAP,E 47-6.3V
C4058	87-015-695-080	CAP,E 1-50V
C4062	87-015-075-040	CAP,E 10-16V
C4063	87-015-695-080	CAP,E 1-50V
C4067	87-015-683-080	CAP,E 33-16V
C4068	87-010-403-080	CAP,E 3.3-50V
C4070	87-015-677-010	CAP,E 100-6.3V
C4071	87-015-695-080	CAP,E 1-50V
C4073	87-010-549-010	CAP,E 47-6.3V
C4076	87-015-677-010	CAP,E 100-6.3V
C4078	87-010-549-010	CAP,E 47-6.3V
C4209	87-015-685-040	CAP,E 10UF-25V
C4211	87-010-235-080	CAP,E 470-16V
C4220	87-010-263-010	CAP,E 100-10V
		*** DIODES ***
D601	S9-7U0-9R1-1B0	ZENER,MTZJ9.1B
D603	87-020-465-010	DIODE,1SS133T
D604	87-020-465-010	DIODE,1SS133T
D605	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
D622	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D1001	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D1003	S0-106-000-600	LED,SID1050CM
D1004	S9-2T1-120-B00	ZENER,RD12FB-T7
D1005	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D1006	S2-3U1-003-A30	DIODE,SB10-03A3
D1007	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
D1008	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D1010	S2-LXE-658-000	DIODE,1N4005E-G23
D1011	S2-3U1-003-A30	DIODE,SB10-03A3
D1014	S9-7U0-5R1-1B0	ZENER,MTZJ5.1B
D1017	87-020-465-010	DIODE,1SS133T
D1018	S2-8TE-QS0-400	DIODE,11EQS04N-TA
D4001	87-020-465-010	DIODE,1SS133T
D4004	87-017-931-010	ZENER,MTZJ5.6B
D4201	87-017-931-010	ZENER,MTZJ5.6B
D4202	S2-3U1-003-A30	DIODE,SB10-03A3
D4207	S3-Z68-V10-000	ZENER,MTZJ6.8B
		*** ICS ***
⚠ IC352	S0-FSP-752-300	IC,AN7523
IC601	87-A20-790-010	IC,KIA7806P
⚠ IC604	S0-3FE-814-B00	IC,LA76814BM-MPB
IC1001	S5-6F5-704-1A0	IC,OEC7041A
IC1002	S9-UJ0-T60-0H0	IC,PST600H
⚠ IC1003	S0-7SQ-955-AN0	IC,BA6955AN
IC1099	S5-505-1C0-150	IC,S-24C04BDP-LA
IC4001	S0-3F3-711-700	IC,LA71170M-MPB
		*** TRANSISTORS ***
Q352	89-324-122-080	TR,2SC2412KT
Q602	89-110-372-080	TR,2SA1037AK
Q605	84-LB2-698-080	TR,2SA733(C)-T
Q607	87-026-236-080	TR,DTC124EK
Q608	89-110-372-080	TR,2SA1037AK
Q1001	8Z-JU1-603-010	PHOTO,COUPLER GP1S566
Q1002	89-324-122-080	TR,2SC2412KT
Q1003	S0-02G-004-900	PHOTO,COUPLER GP1S94L
Q1004	87-026-236-080	TR,DTC124EK
Q1005	8Z-JU1-603-010	PHOTO,COUPLER GP1S566
Q1006	89-324-122-080	TR,2SC2412KT
Q1008	87-026-236-080	TR,DTC124EK
Q1009	S0-02G-004-900	PHOTO,COUPLER GP1S94L
Q1010	87-026-227-080	TR,DTA114E
Q1011	SD-70D-239-600	TR,2SD2396(J,K)
Q1012	89-324-122-080	TR,2SC2412KT
Q1014	87-026-236-080	TR,DTC124EK
Q1015	89-324-122-080	TR,2SC2412KT
Q1016	89-324-122-080	TR,2SC2412KT
Q1017	89-324-122-080	TR,2SC2412KT
Q1018	89-324-122-080	TR,2SC2412KT
⚠ Q1019	SB-300-113-4R0	TR,2SB1134R
Q1023	89-324-122-080	TR,2SC2412KT
Q1024	87-026-287-080	TR,DTC143EKAT146
Q4001	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
Q4002	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
Q4003	87-026-228-080	TR,DTA124EK
Q4004	89-324-122-080	TR,2SC2412KT
Q4005	89-113-187-080	TR,2SA1318(S,T)
Q4006	89-313-172-010	TR,2SC1317

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		*** TRANSISTORS ***
Q4007	89-324-122-080	TR,2SC2412KT
Q4009	89-324-122-080	TR,2SC2412KT
Q4010	89-324-122-080	TR,2SC2412KT
Q4011	89-110-372-080	TR,2SA1037AK
Q4012	89-110-372-080	TR,2SA1037AK
Q4013	87-026-239-080	DTC114TKAT14
Q4201	87-026-235-010	TR,DTC114EK
Q4202	87-026-235-010	TR,DTC114EK
Q4204	87-026-235-010	TR,DTC114EK
Q4205	87-026-235-010	TR,DTC114EK
Q4206	87-026-235-010	TR,DTC114EK
Q4207	87-026-235-010	TR,DTC114EK
Q4210	89-110-372-080	TR,2SA1037AK
Q4212	89-110-372-080	TR,2SA1037AK
		*** COILS ***
B602	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
B4003	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
L102	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
L602	87-003-146-010	COIL,15UH
L604	87-003-039-080	COIL,0.56UH
L605	87-003-152-010	COIL,100UH
L607	87-003-152-010	COIL,100UH
L608	S2-167-D10-1K0	COIL,100UH
L610	S3-360-203-880	COIL,V IFT
L611	87-005-096-010	COIL,100UH
L613	S2-16A-647-0K0	COIL,47UH
L615	S2-167-D27-0K0	COIL,27UH
L1001	87-A50-040-010	COIL,2.2UH
L4001	S3-262-300-380	COIL,TRAP 2623003
L4002	S2-167-D10-1K0	COIL,100UH
L4003	S3-162-600-7S0	COIL,BIAS OSC
L4004	S2-167-D10-1K0	COIL,100UH
L4005	87-005-096-010	COIL,100UH
L4006	87-005-096-010	COIL,100UH
L4007	S2-16A-656-0K0	COIL,56UH
L4008	S2-16A-612-1K0	COIL,120UH
L4009	87-005-096-010	COIL,100UH
L4011	S2-167-D10-1K0	COIL,100UH
L4012	S2-167-D10-1K0	COIL,100UH
L4014	87-003-150-010	COIL,68UH
L4015	87-005-096-010	COIL,100UH
L4205	87-003-152-010	COIL,100UH
		*** JACK ***
J4201	S6-3P0-000-640	PLATE,JACK T6582-ABCC
		*** SWITCH ***
SW1001	S5-082-210-010	SW,LEAF
		*** CONNECTORS ***
CP351	S6-9E2-701-290	CONN PWB SIDE
CP354	S6-9E2-B01-290	CONN,PWB SIDE
CP603	S6-9E2-601-290	CONN,PWB SIDE
CP1004	S6-972-805-900	CONN PWB SIDE
CP1005	S6-9R7-500-280	CONN,PWB SIDE 52045-0545
CP1006	S6-9R7-400-280	CONN,52045-0445
CP4001	S6-972-906-200	CONN PWB SIDE
CP4004	S6-971-203-200	CONN
		*** FILTER ***
CF601	S0-2E2-45R-710	FLTR,SAW M1958M
		*** CRYSTAL & CERAMIC OSCILLATORS ***
X604	S0-0CT-3R5-050	X'TAL,HC-49/C
X1001	S0-0CT-012-070	X'TAL,HC-49/U-S
X1002	S0-0D3-2R8-010	X'TAL,32.768K
X4001	S0-0CT-3R5-040	X'TAL,HC-49/C

REF.NO.	PART NO.	DESCRIPTION
		*** TUNER ***
⚠ TU601	S1-45K-000-500	TUNER,UHF-VHF TECC1040PG31
		*** OTHERS ***
CD604	S6-CH0-100-5A0	CORD,CONN CH01005A
CD810	S6-CH2-A01-4A0	CORD,CONN CH2A014A
CD820	S6-CH2-B02-7A0	CORD,CONN CH2B027A
CD850	S6-CH2-508-0A0	CORD CONN CH25080A
CP601	S6-CH2-207-1A0	CORD,CONN CH22071A
CP1002	S6-CH2-207-6A0	CORD CONN CH22076A
		OPERATION PCB ASS'Y
		*** CAPACITORS ***
C353	87-010-380-080	CAP,E 47-16V
C354	87-010-380-080	CAP,E 47-16V
C755	87-016-088-040	CAP,E 220-6.3V
		*** DIODES ***
D791	S0-21M-2Q1-200	LED,EQ-552-F1T
D792	S0-21M-2Q1-200	LED,EQ-552-F1T
D793	S0-21M-2Q1-200	LED,EQ-552-F1T
D795	S0-21M-5Q1-500	LED,EM-553-F1T
D796	S0-21M-5Q1-500	LED,EM-553-F1T
D797	S0-21M-2Q1-200	LED,EQ-552-F1T
		*** COILS ***
B701	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
L004	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
		*** JACKS ***
⚠ J351	S6-021-310-120	JACK,RCA 3.5 HSJ2630-0100
J701	S6-021-010-200	JACK,RCA
		*** SWITCHES ***
SW750	S5-042-01T-310	SW,TACT SKHVBED10
SW751	S5-042-01T-310	SW,TACT SKHVBED10
SW791	S5-042-01T-310	SW,TACT SKHVBED10
SW792	S5-042-01T-310	SW,TACT SKHVBED10
SW793	S5-042-01T-310	SW,TACT SKHVBED10
SW794	S5-042-01T-310	SW,TACT SKHVBED10
SW795	S5-042-01T-310	SW,TACT SKHVBED10
SW796	S5-042-01T-310	SW,TACT SKHVBED10
SW797	S5-042-01T-310	SW,TACT SKHVBED10
SW798	S5-042-01T-310	SW,TACT SKHVBED10
SW799	S5-042-01T-310	SW,TACT SKHVBED10
		*** OTHERS ***
CD351	S6-CH2-708-6A0	CORD,CONN CH27086A
CD750	S6-CH2-B02-6A0	CORD,CONN CH2B026A
OS753	S7-7Q0-000-170	REMOTE RECEIV
		MAIN PCB ASS'Y
		*** RESISTORS ***
⚠ R439	S4-X5T-422-3F0	RES,MF 22K-1/4W
⚠ R440	S4-X5T-482-2F0	RES,M 8.2K-1/4W
⚠ R441	87-025-571-080	RES,M 100K-1/4W
⚠ R442	87-025-459-080	RES,M 15K-1/4W
⚠ R443	87-025-297-080	RES,M/F 4.7K-1/4W
⚠ R444	S4-X5T-422-3F0	RES,MF 22K-1/4W
⚠ R447	87-A00-100-060	RES,FUSE 68-1/2W
⚠ R448	SF-F01-02J-B10	RES,M 1K-1W
⚠ R449	S5-X2C-E68-2J0	RES,CEMENT 6.8K-7W
⚠ R450	S6-558-14R-7J0	RES,FUSE 4.7-1W
⚠ R501	S5-X2C-E1R-2J0	RES,CEMENT 1.2-7W

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		*** RESISTORS ***
⚠ R505	87-022-448-090	RES,M/O 22K-3W
⚠ R510	S3-U28-B1R-2J0	RES,M 1.2-3W
⚠ R512	S3-X18-127-3J0	RES,M 27K
⚠ R517	S3-X28-AR3-3J0	RES,M 0.33-2W
⚠ R529	S4-X5T-627-2F0	RES,M 2.7K-1/6W
⚠ R542	87-A00-091-080	RES,M 0.15-1W
		*** CAPACITORS ***
C401	87-016-636-080	CAP,E 4.7-50V
C403	87-010-047-010	CAP,E 100-50V
C406	S5-EZT-410-1M0	CAP,E 100-35V
⚠ C407	S6-2I0-312-2M0	CAP,E 1200-25V
C412	S0-JTB-05N-2K0	CAP,390P-500V B
C417	S0-JTB-05S-2K0	CAP,CER 560PF-500V
C418	S5-EZT-B01-0M0	CAP,E 1-160V
⚠ C421	S5-EZ0-410-2M0	CAP,E 1000-35V
C422	S5-EZT-D01-0M0	CAP,E 1-250V
C423	S4-11F-333-4J0	CAP,MPP 0.33-250V
⚠ C424	SA-LR8-22J-010	CAP,MPP 0.0082-1.6KV
⚠ C425	S0-34B-N7W-2K0	CAP,CER 820P-2KV BP
C429	87-012-386-080	CAP,CER 470PF-2KV
⚠ C431	87-016-373-080	CAP,E 10-250V
⚠ C433	S5-EZT-822-0M0	CAP,E 22-100V
C438	87-010-977-010	CAP,CER 680PF-500V
C450	S0-34B-N71-3K0	CAP,CER 0.001-2KV
C505	S2-122-B22-4M0	CAP,0.22-250V E
⚠ C507	S5-2SF-C47-1M0	CAP,E 470-200V
⚠ C510	S5-EZT-822-0M0	CAP,E 22-100V
⚠ C511	S5-EZT-247-1M0	CAP,E 470-16V
C514	S0-1BB-P7K-3K0	CAP,0.0027-2KV
C516	87-012-376-010	CAP,CER 470PF-500V
C517	S0-34B-N7W-2K0	CAP,CER 820P-2KV BP
C518	87-012-376-010	CAP,CER 470PF-500V
C519	87-012-376-010	CAP,CER 470PF-500V
C520	S6-2FT-247-1M0	CAP,E 470-16V
⚠ C521	S5-3J0-B22-1M0	CAP,E 220-160V
⚠ C523	S0-2LT-447-1M0	CAP,E 470-35V
⚠ C524	S5-EZT-347-1M0	CAP,E 470-25V
⚠ C526	S5-EZT-147-1M0	CAP,E 470-10V
C527	S0-34B-N7Q-2K0	CAP,CER 470P-2KV BP
⚠ C531	87-010-271-080	CAP,E 1000-16V
⚠ C532	S5-EZT-247-1M0	CAP,E 470-16V
⚠ C536	S5-EZT-447-1M0	CAP,E 470-35V
⚠ C537	S5-EZT-54R-7M0	CAP,E 4.7-50V
⚠ C538	S5-EZT-147-1M0	CAP,E 470-10V
⚠ C540	S5-EZT-B10-0M0	CAP,E 10-160V
⚠ C541	S6-2DF-B47-0M0	CAP,E 47-160V
		*** DIODES ***
D401	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
⚠ D408	87-020-407-010	ZENER,HZ27-1L TD
⚠ D409	87-027-556-080	ZENER,HZ11B3L TD
⚠ D411	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D412	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D413	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D501	S2-BTR-M11-C00	DIODE,RM11C
⚠ D502	S2-BTR-M11-C00	DIODE,RM11C
⚠ D503	S2-BTR-M11-C00	DIODE,RM11C
⚠ D504	S2-BTR-M11-C00	DIODE,RM11C
⚠ D505	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
D506	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D508	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
⚠ D509	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
⚠ D510	S2-BTR-U2A-M00	DIODE,RU2AM V1
⚠ D512	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
⚠ D515	87-027-661-010	ZENER,HZ30-1L TD
D516	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	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D527	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2

REF.NO.	PART NO.	DESCRIPTION
		*** DIODES ***
D528	S9-4TA-6RA-130	ZENER,HZ6A3L TD
D529	87-020-465-010	DIODE,1SS133T
D530	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D531	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D532	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D534	S2-8T1-1E1-N10	DIODE,11E1N-TA1B2
D535	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
D536	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
⚠ IC506	S0-025-004-800	PHOTO,COUPLER TLP621
⚠ TH501	SF-20C-3R0-Q00	DEGAUSS ELEMENT PTH451C3R0Q11
		*** ICS ***
⚠ IC401	87-A20-128-010	IC,LA7840
⚠ IC501	S2-BT0-661-200	IC,STR-F6612
⚠ IC502	87-A20-790-010	IC,KIA7806P
⚠ IC503	S0-GA9-09R-D00	IC,PQ09RD08
⚠ IC504	87-A20-525-010	IC,KIA7812PI
IC505	87-A20-790-010	IC,KIA7806P
		*** TRANSISTORS ***
⚠ Q405	SC-3T0-227-100	TR,2SC2271(D,E)-AE
⚠ Q406	SD-UQ0-259-900	TR,2SD2599
⚠ Q501	SC-3T0-290-900	TR,2SC2909
⚠ Q502	SA-3T1-371-A00	TR,2SA1371
⚠ Q503	SC-300-416-000	TR,2SC4160-OEC
⚠ Q504	89-318-154-080	TR,2SC1815Y
Q506	87-026-464-080	TR,DTC114TS
Q507	89-309-458-010	TR,2SC945(C)
Q513	SN-YTB-030-010	TR,DTC114E
Q520	87-026-464-080	TR,DTC114TS
Q521	87-026-464-080	TR,DTC114TS
		*** COILS ***
B502	S2-4AT-034-820	CORE,BEADS
B504	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
B505	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
L401	87-003-143-010	COIL,4.7MH
L402	S2-210-000-130	COIL,LINEA ELH5L4112
⚠ L501	S2-9X0-000-360	FILTER,SS28V-15125
T401	S3-305-Y00-2S0	TRANS,H DRIVE 305Y002S
		*** TRANSFORMERS ***
⚠ FB401	S4-321-301-2R0	TRANS,FLYBACK 3213012R
⚠ T501	S4-813-505-0W0	TRANS,SW 8135050W
⚠ T502	S4-013-600-160	TRANS,POWER AC 0136001
		*** VARIABLE RESISTORS ***
VR502	S1-263-L2B-TC0	SFR,RH063MCN2R07
		*** CONNECTORS ***
⚠ CP401	S6-9X4-500-290	CONN PWB SIDE B05B-DVS
⚠ CP501	S6-973-200-390	CORD UX CONNECTOR
CP810	S6-9E2-A01-290	CONN,PWB SIDE
CP820	S6-9E2-B01-290	CONN,PWB SIDE
		*** FUSES ***
CP803A	S6-7R1-050-190	HOLDER,WIRE 51052-0500
⚠ F501	S8-1PA-050-030	FUSE,233005-MB000
⚠ F502	S8-0PA-2R5-010	FUSE,23302.5-MB00
FH501	S6-710-T00-060	HOLDER,FUSE EYF-52B
FH502	S6-710-T00-060	HOLDER,FUSE EYF-52B
FH503	S6-710-T00-060	HOLDER,FUSE EYF-52B
FH504	S6-710-T00-060	HOLDER,FUSE EYF-52B

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		*** RELAY ***
⚠ RY501	S5-60Q-102-010	RELAY,SDT-S-109LMR
		*** OTHERS ***
EL002	S2-412-030-1A0	EYE LET XRY20X30BD
⚠ ICP502	S8-3PC-040-020	MICRO FUSE 251004
⚠ ICP503	S8-3PC-050-020	MICRO FUSE,251005
⚠ ICP504	S8-3PC-050-020	MICRO FUSE,251005
⚠ ICP505	S8-3PC-030-020	MICRO FUSE,251003
		CRT PCB ASS'Y
		*** RESISTORS ***
⚠ R802	87-A00-164-090	RES,M 12K-2W
⚠ R805	87-A00-164-090	RES,M 12K-2W
⚠ R810	87-A00-164-090	RES,M 12K-2W
		*** CAPACITORS ***
C801	S0-34B-N71-3K0	CAP,CER 0.001-2KV
C820	87-016-322-080	CAP,E 1-250V
		*** TRANSISTORS ***
⚠ Q804	SC-3F0-421-700	TR,2SC4217(D,E)
⚠ Q805	SC-3F0-421-700	TR,2SC4217(D,E)
⚠ Q806	SC-3F0-421-700	TR,2SC4217(D,E)
		*** CONNECTOR ***
CP850	S6-9E2-501-290	CONN,PWB SIDE
		*** FUSE ***
CP803B	S6-7R1-050-190	HOLDER,WIRE 51052-0500
		*** CRT SOCKET ***
⚠ J801	S6-6X1-200-140	SOCKET,CRT HPS320
		AND OTHERS
		*** CONNECTOR ***
CD801	S6-8M8-202-5A0	CORD CONN 8M82025
		*** OTHER ***
CD802	S6-CH0-101-0A0	CORD,CONN CH01010A
		*** COIL ***
⚠ L503	S2-8R1-400-230	COIL,DEGAUSS 8R140023
		*** AC CORD ***
⚠ CD501	S2-0R6-149-180	CORD,AC 0R614918
		*** OTHERS ***
CD353	S6-CH1-243-7A0	CORD,CONN CH12437A
CD354	S6-CH1-243-8A0	CORD,CONN CH12438A
⚠ SP351	S7-0C5-330-080	SPEAKER,810-47-171
⚠ SP352	S7-0C5-330-080	SPEAKER,810-47-171
⚠ V801	S9-8Y1-404-970	CRT W/DY A34JXV70X28N45

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