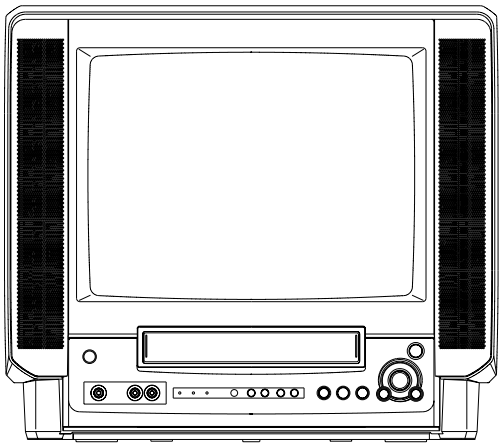
aiwa SERVICE

VX-T149 KAL

This SERVICE MANUAL is exclusive with KAL model.
The Ⓐ is indicated for KAL model after the Model Name on the Spec. Plate.
The specification for KAL model and K model is common. But, there are slightly differences between the 2 models on the Electric Circuit and Structure Parts.



SERVICE MANUAL

INTEGRATED COLOR TV /VIDEO CASSETTE RECORDER

BASIC TAPE MECHANISM : OVD-6S

SPECIFICATIONS

POWER REQUIREMENTS	230V AC, 50Hz
POWER CONSUMPTION	55W Standby 6W
WEIGHT	Approx.12.8 kg (28.16 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.)
PICTURE TUBE	14 in. (34 cm "V"), 90 degree deflection
TUNER SYSTEM	Frequency synthesized tuner
CHANNEL COVERAGE	UHF: 21 to 69
TV SYSTEM	I
HORIZONTAL RESOLUTION	240 lines
OPERATING TEMPERATURE	5°C to 40°C
VIDEO RECORDING SYSTEM	Rotary 2 head helical scanning system
VIDEO SIGNAL SYSTEM	PAL colour signal, 625 lines, 50 fields
VIDEO HEAD	Azimuth 2 heads
USABLE CASSETTES	VHS video cassettes
TAPE SPEED	PAL SP: 23.39 mm/sec. LP: 11.69 mm/sec. NTSC (playback SP only) 33.35 mm/sec.
RECORDING/PLAYBACK TIME	PAL SP: 5 hours max. with E-300 tape LP: 10 hours max. with E-300 tape NTSC (playback SP only) 3 hours 30 minutes max. with T-210 tape
VIDEO INPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO OUTPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO S/N	53dB (nominal)
AUDIO INPUT	SCART: –3.8 dBs, 50K ohm RCA: –3.8 dBs, 50K ohm
AUDIO OUTPUT	SCART: –3.8 dBs less than 1K ohm
AUDIO TRACK	1 track (mono)

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

aiwa

S/M Code No. 09-005-345-1N2

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.W. 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.

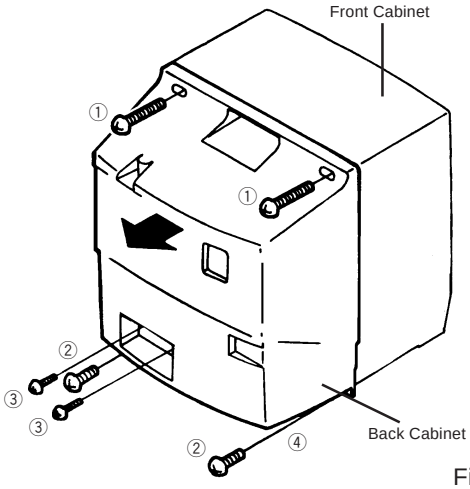


Fig. 1-1

1-2: CRT PWB (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 PWB, 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 and CP850).
3. Remove the CRT PWB in the direction of arrow.

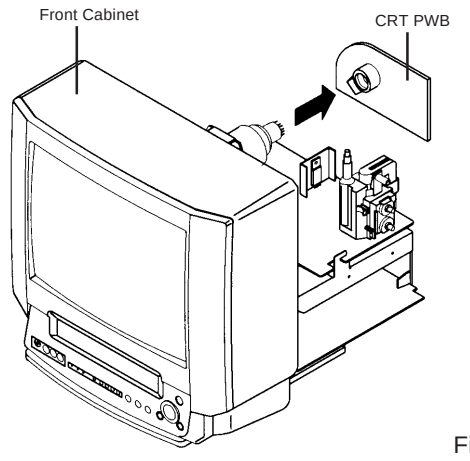


Fig. 1-2

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

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP351, CP757, CP302, CP401, CP501 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

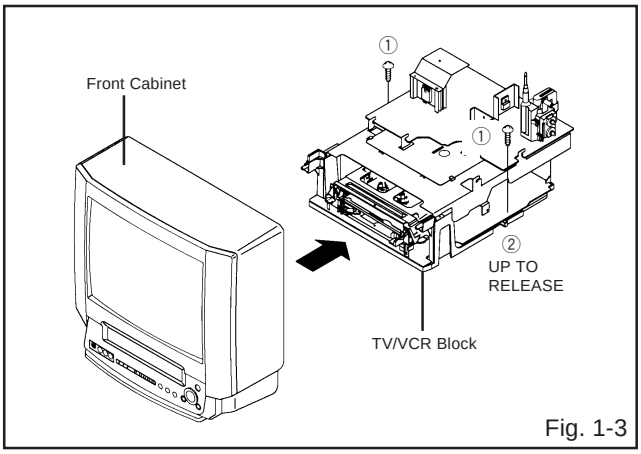


Fig. 1-3

1-4: MAIN PWB (Refer to Fig. 1-4)

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

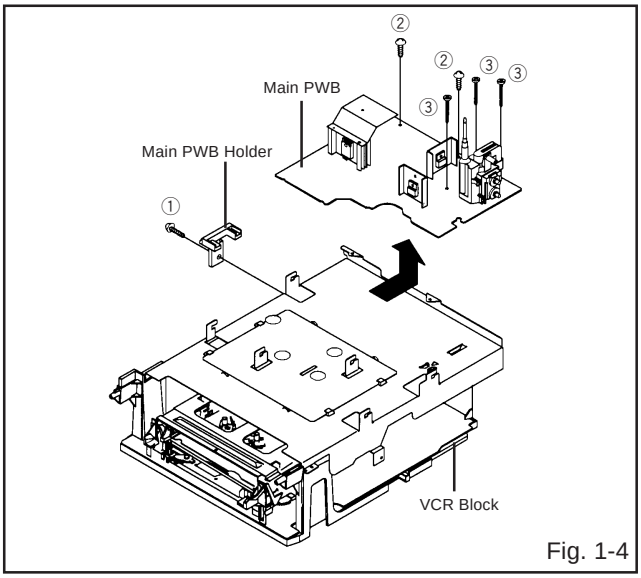


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

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

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

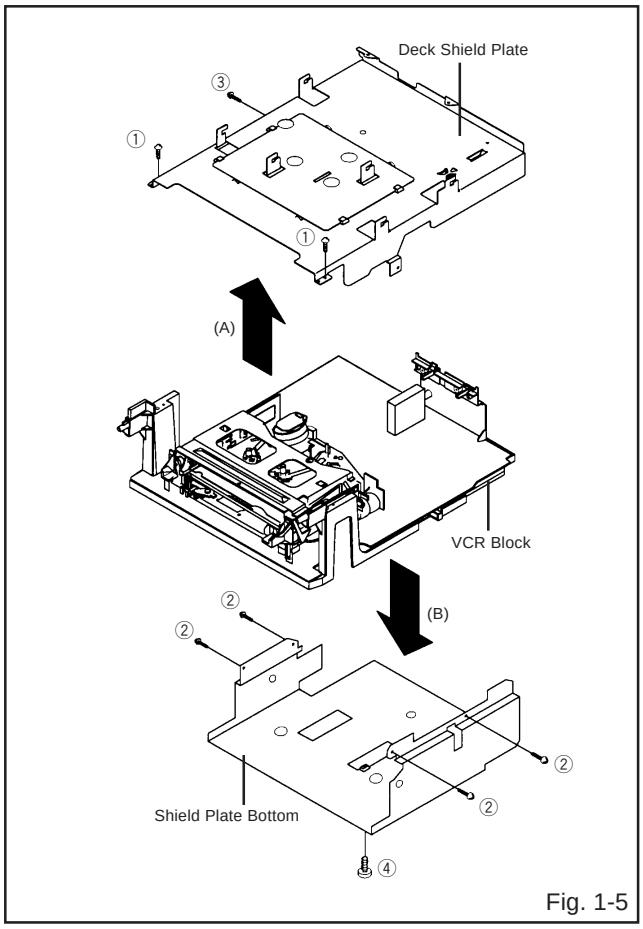


Fig. 1-5

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

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

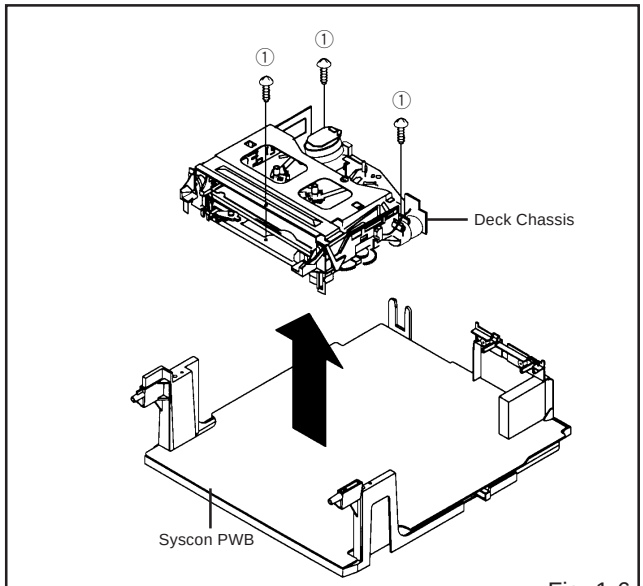


Fig. 1-6

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

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

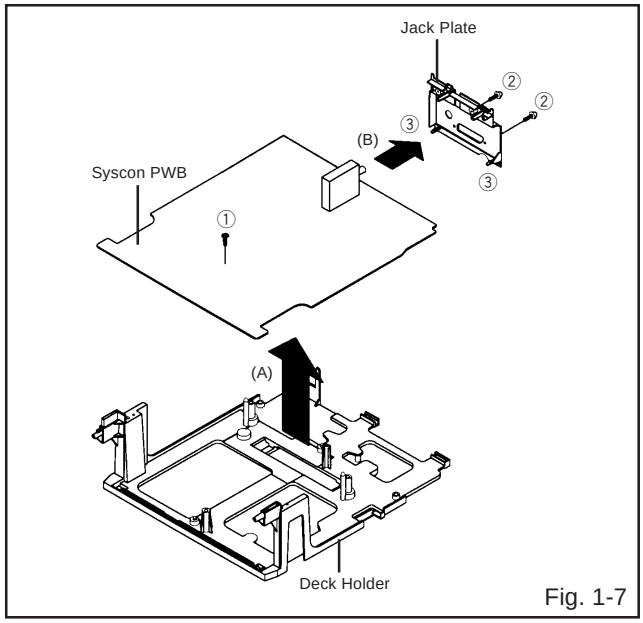


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

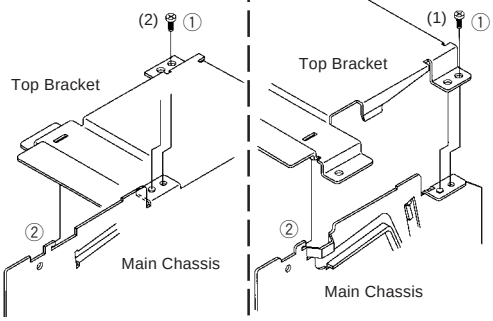
2. REMOVAL OF DECK PARTS

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

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

NOTE

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



• 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.

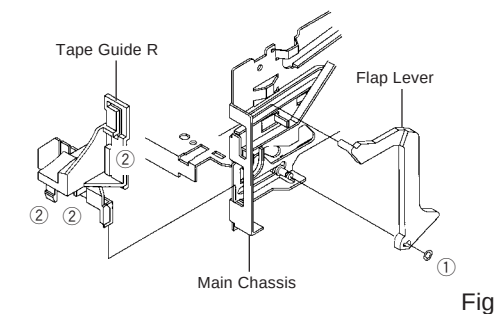
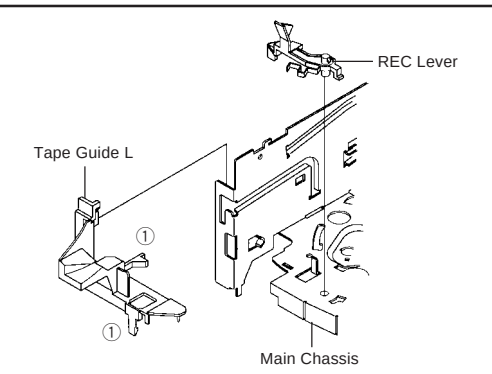


Fig. 2-2

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)

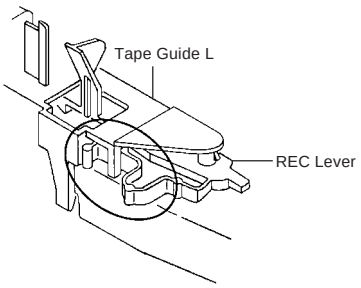


• The REC Lever is not installed on the Video Cassette Player.

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.

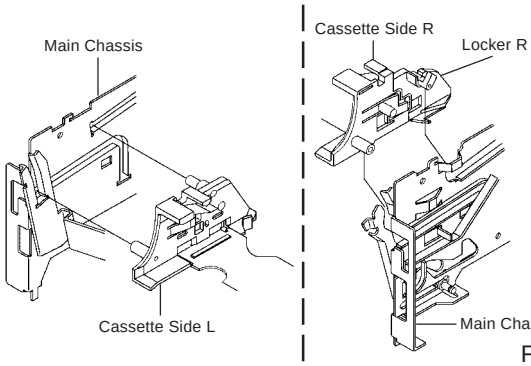


Fig. 2-4

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

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

NOTE

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

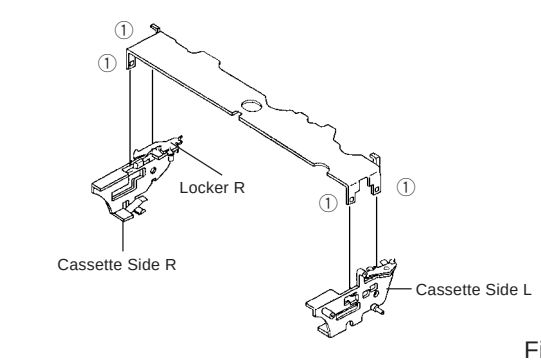


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

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

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

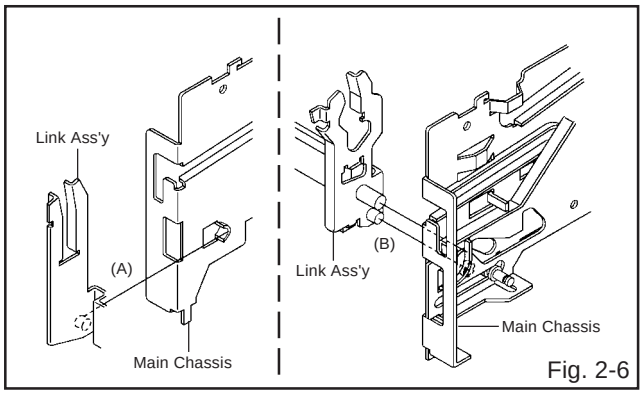
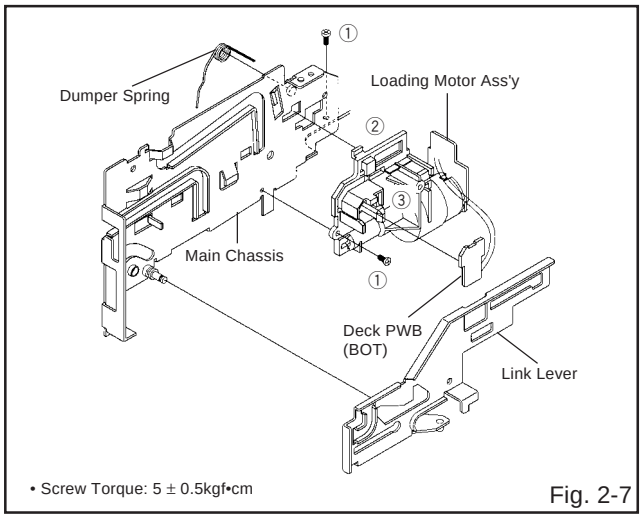


Fig. 2-6

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

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



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-7

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

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

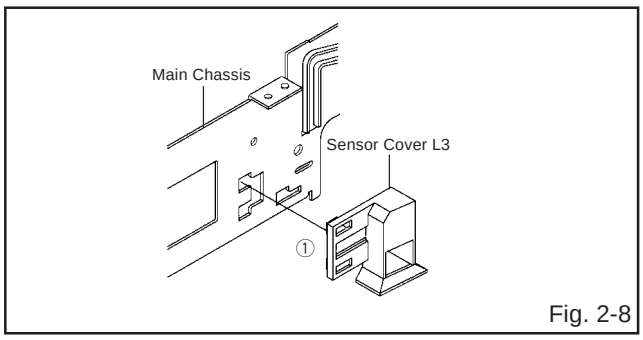


Fig. 2-8

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

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

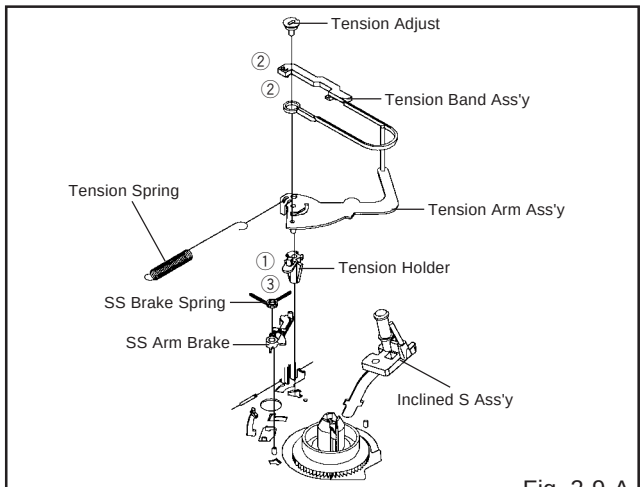


Fig. 2-9-A

NOTE

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

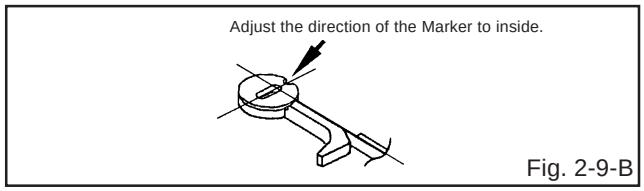


Fig. 2-9-B

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

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

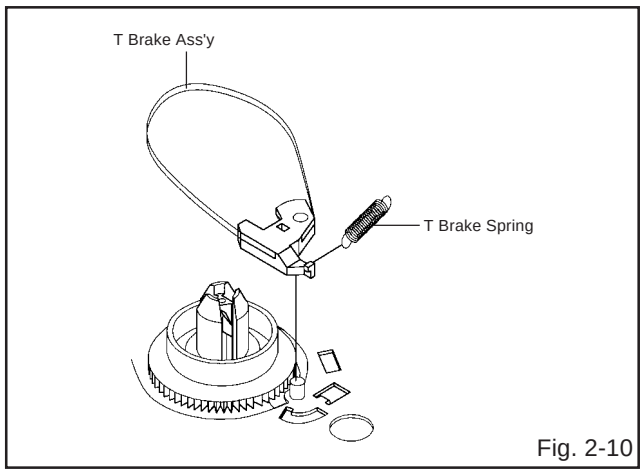


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

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

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

NOTE

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

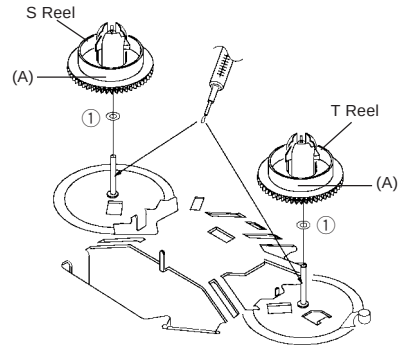
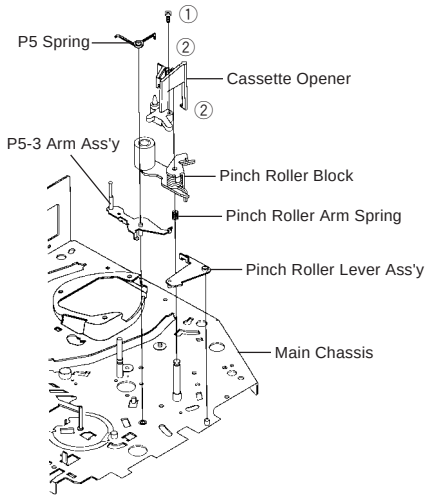


Fig. 2-11

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

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



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-12-A

NOTE

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

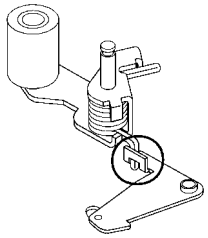


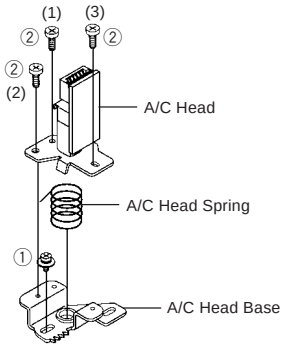
Fig. 2-12-B

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

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

NOTE

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



• Screw Torque: 4 ± 0.5kgf•cm (Screw ①)

Fig. 2-13-A

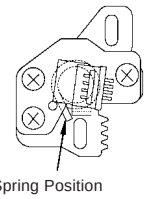
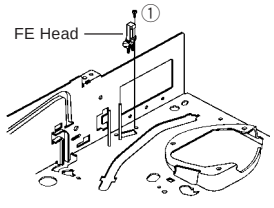


Fig. 2-13-B

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.
• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

DISASSEMBLY INSTRUCTIONS

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

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

NOTE

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

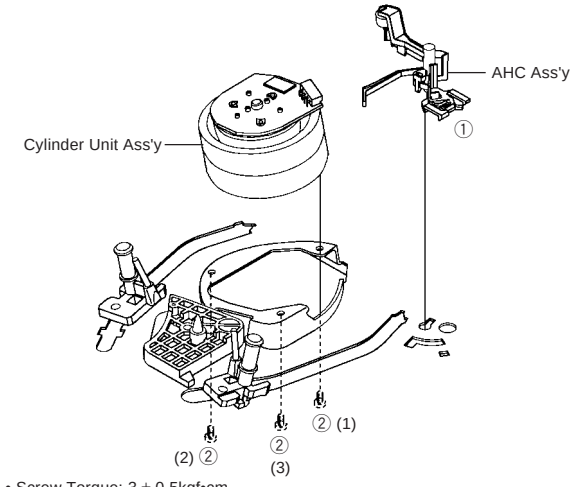


Fig. 2-15

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.

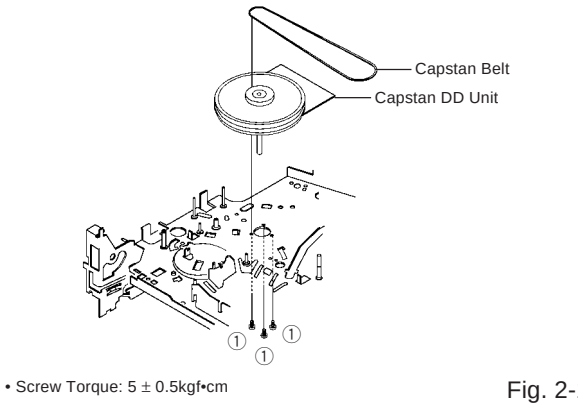


Fig. 2-16

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

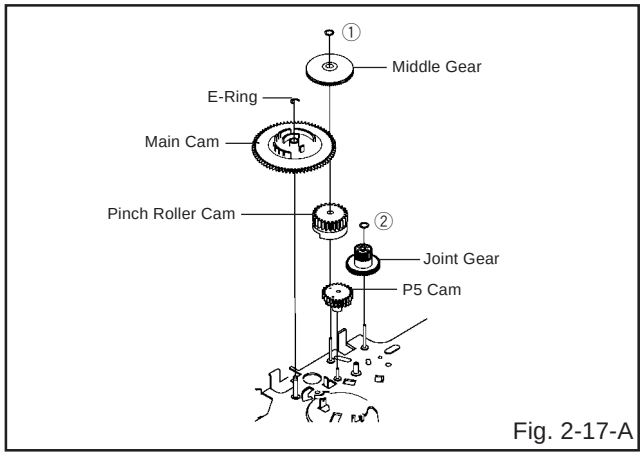


Fig. 2-17-A

NOTE

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

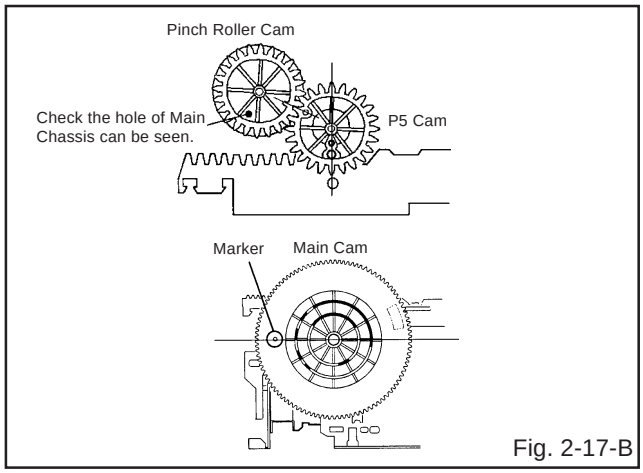


Fig. 2-17-B

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

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

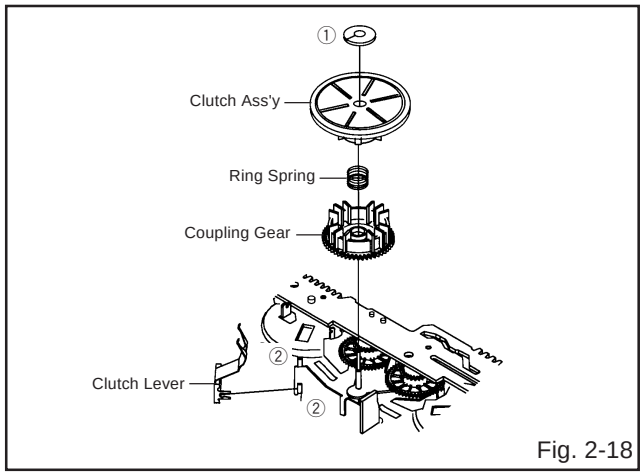
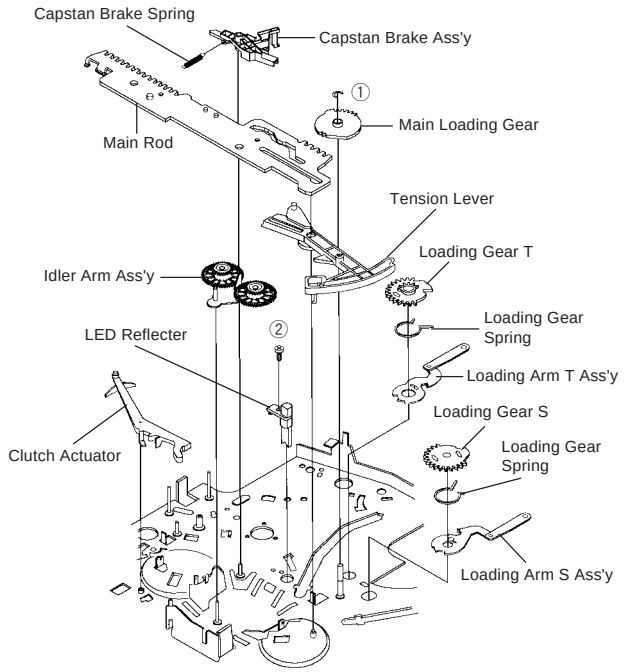


Fig. 2-18

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 Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflecter.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-19-A

NOTES

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

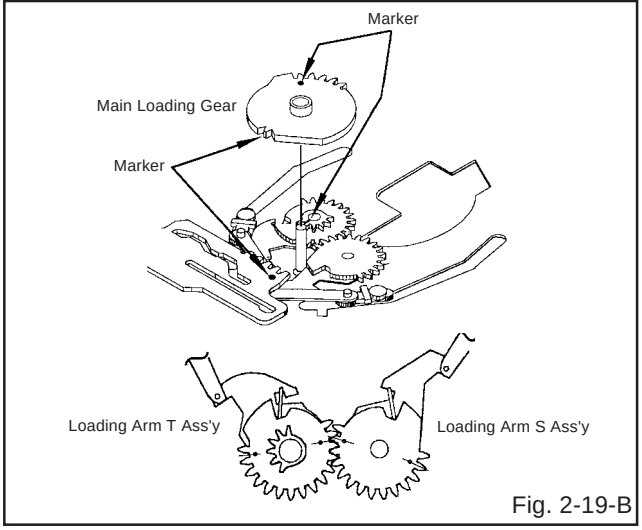


Fig. 2-19-B

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

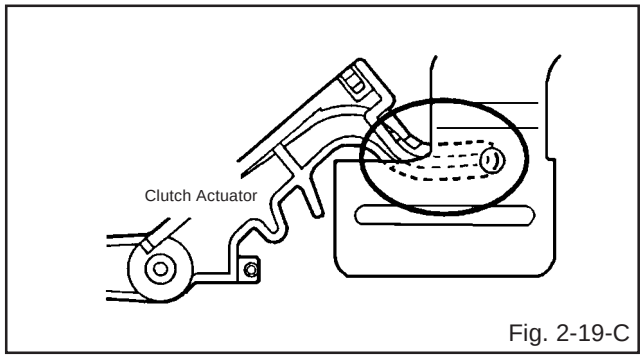


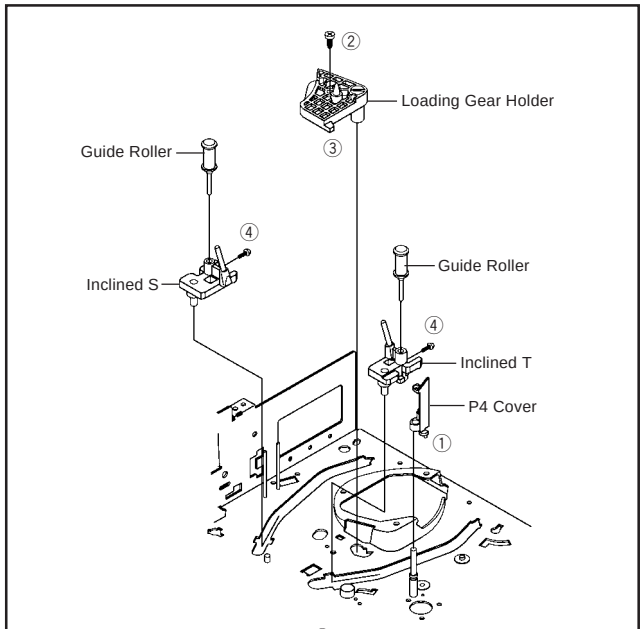
Fig. 2-19-C

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

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

NOTE

Do not touch the roller of Guide Roller.



• Screw Torque: 5 ± 0.2kgf•cm (Screw ②)
• Screw Torque: 0.7 ± 0.2kgf•cm (Screw ④)

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.

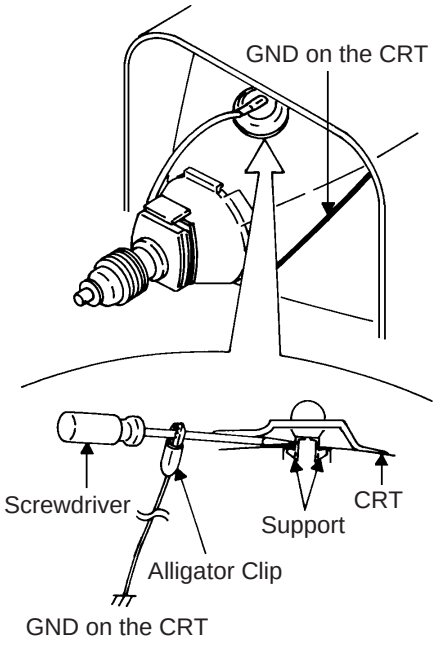


Fig. 3-1

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.)**

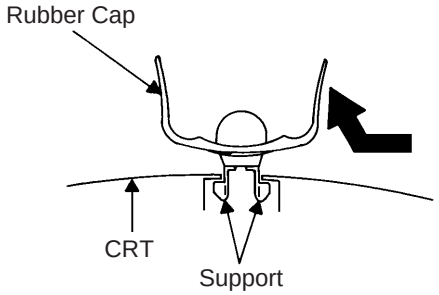


Fig. 3-2

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.)**

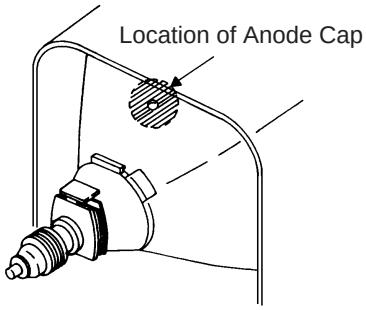


Fig. 3-3

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.)**

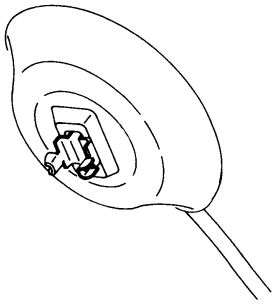


Fig. 3-4

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

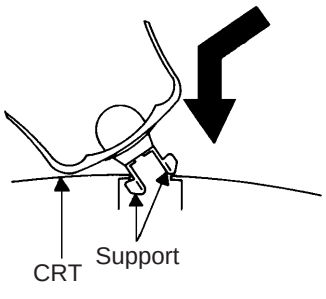


Fig. 3-5

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
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
	PWB	:	Printed Wiring Board
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 for more than 2 seconds.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

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

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

PREVENTIVE CHECKS AND SERVICE INTERVALS

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

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

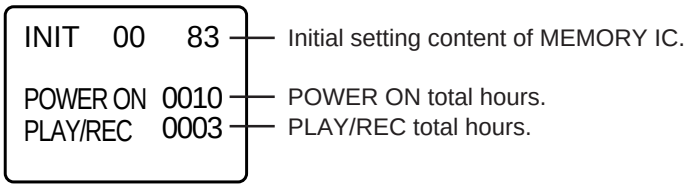
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

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

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

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



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

PREVENTIVE CHECKS AND SERVICE INTERVALS

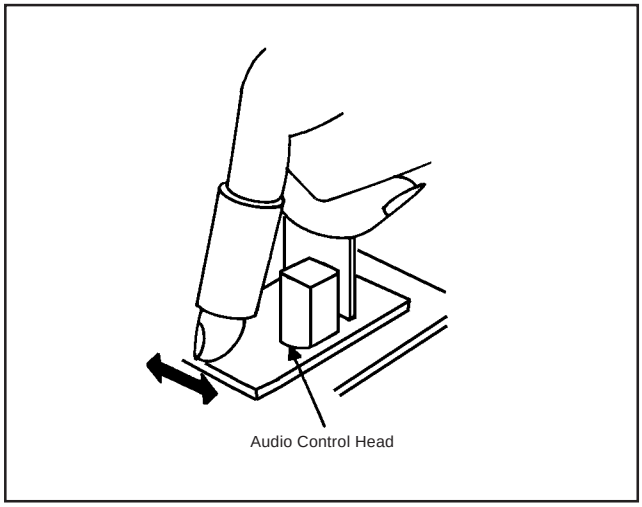
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

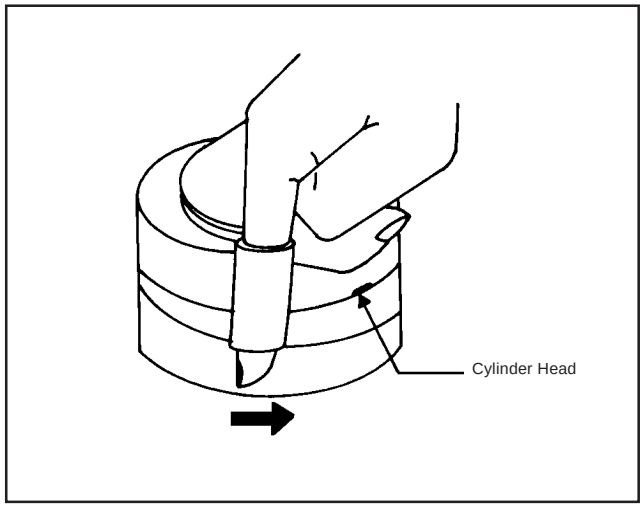
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

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

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

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

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	5C	1E	07	81	6A	02	00	07	C4	01	12	F1	67	0D	90	00
10	00	05	63	65	66	46	40	00	05	00	18	00	00	00	00	00
20	01	0B	01	00	04	6A	00	F5	77	A0	68	00	00	5F	05	C0
30	52	F0	00	00	00	00	00	5F	01	F0	01	F0	0E	00	01	6C
40	2B	21	15	50	A0	C4	20	08	BF	10	---	---	---	---	---	---

Table 1

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

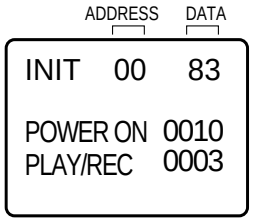
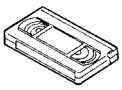
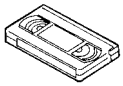
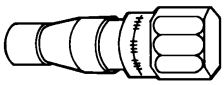
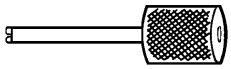
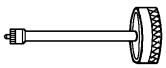
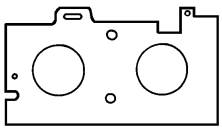
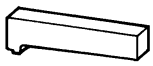
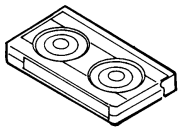
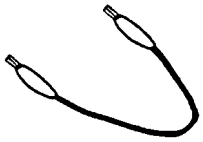
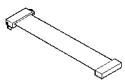
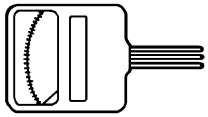


Fig. 1

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

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

SERVICING FIXTURES AND TOOLS

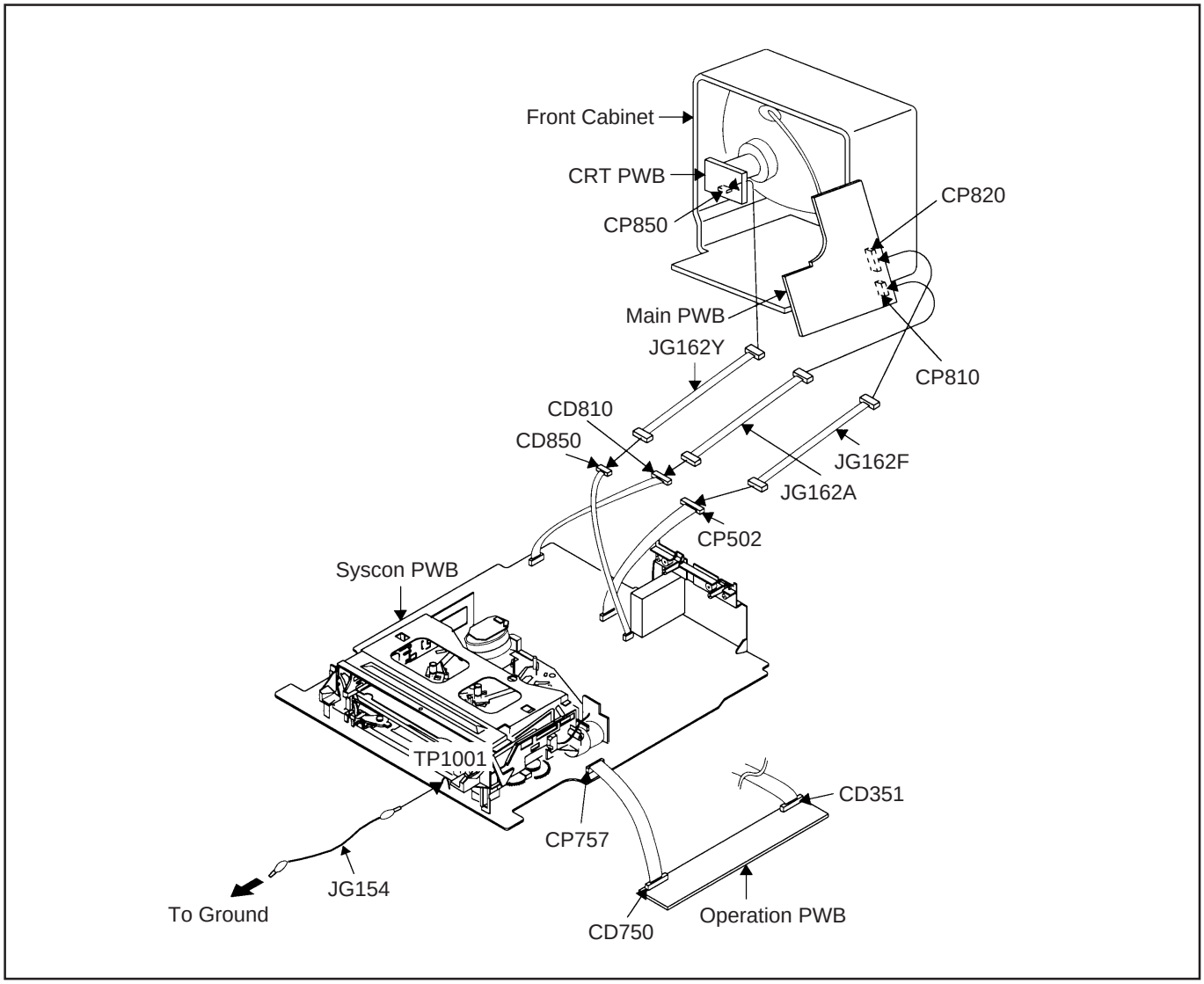
(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (TTV-P2) JG001F (TTV-P1L) JG001U (VP_1 S-X6 ^{3}) 	**(For 2 head 2 speed model)** VHS Alignment Tape JG001C (TTV-P2) JG001D (TTV-P1L) JG001V (VP_2 S-X6 ^{3}) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	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 	JG162A Cable (8 Pins) Parts No. SJ-G16-2A0-000 JG162F Cable (13 Pins) Parts No. SJ-G16-2F0-000 JG162Y Cable (5 Pins) Parts No. SJ-G16-2Y0-000 	Tentelometer 	

Part No.	Remarks
JG001E	Stair Steps, 7KHz **(For 2 head 1 speed model, 4 head model)**
JG001F	Color Bar, 1KHz **(For 2 head 1 speed model, 4 head model)**
JG001U	X Value Adjustment **(For 2 head 1 speed model, 4 head model)**
JG001C	Stair Steps, 7KHz **(For 2 head 2 speed model)**
JG001D	Color Bar, 1KHz **(For 2 head 2 speed model)**
JG001V	X Value Adjustment **(For 2 head 2 speed 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
JG162A/JG162F	Used to connect the Syscon PWB and Main PWB
JG162Y	Used to connect the Syscon PWB and CRT PWB

PREPARATION FOR SERVICING

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

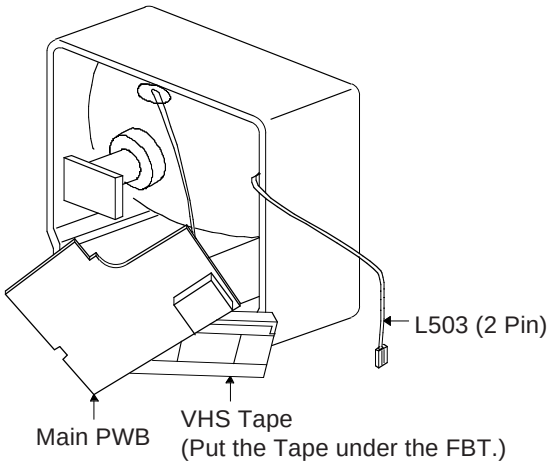
1. Unplug the connector CP351, CP757 and CP302, then remove the TV/VCR Block from the set.
2. Unplug the connector CP810, CP820 and CP850, then remove the Main PWB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
   - Connect the Syscon PWB to the Main PWB with the cable JG162A and JG162F.
   - Connect the Syscon PWB to the CRT PWB with the cable JG162Y.
4. Remove the Operation PWB from the set, then connect it with the Syscon PWB.
   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 PWB (In case of needing to check on Main PWB)

• 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.

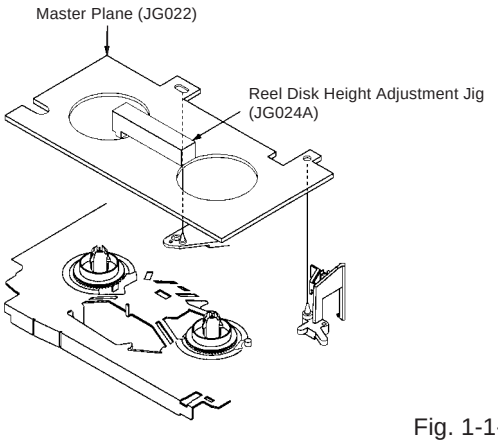


Fig. 1-1-A

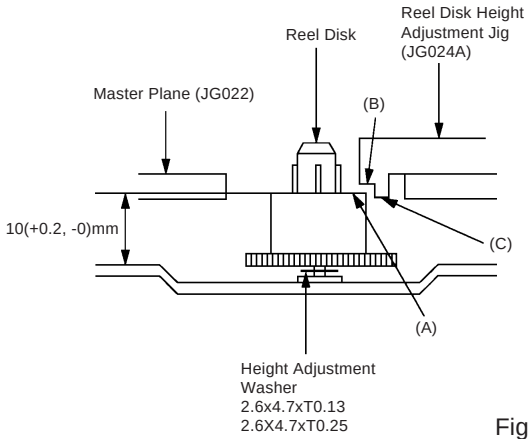


Fig. 1-1-B

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.

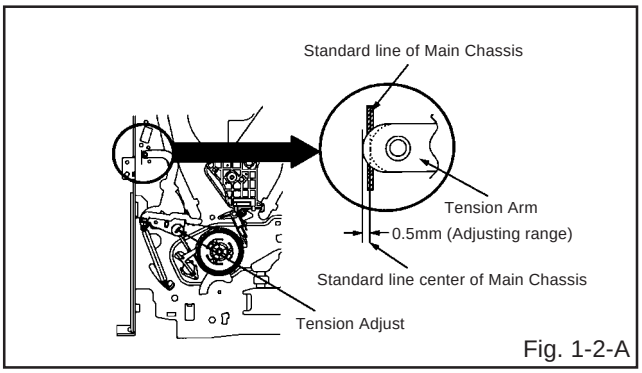


Fig. 1-2-A

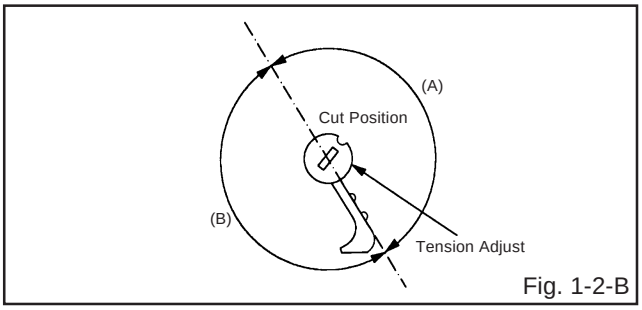


Fig. 1-2-B

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

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 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 60~110gf•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.

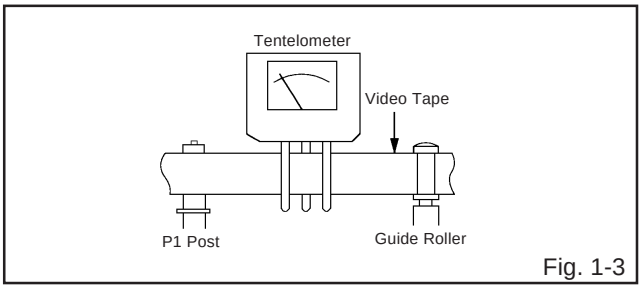


Fig. 1-3

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 60~100gf•cm.

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

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

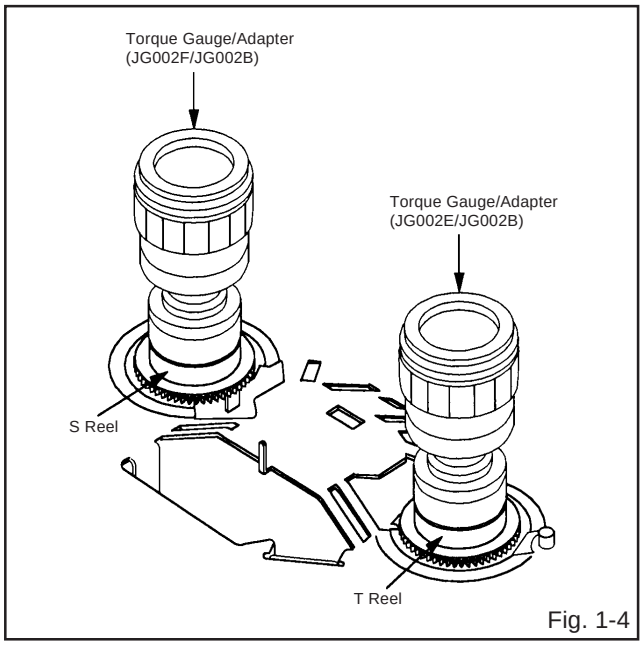


Fig. 1-4

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

NOTE

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

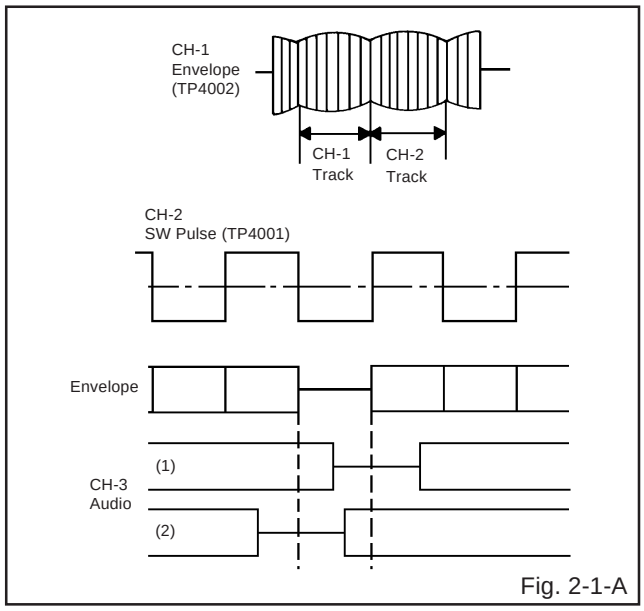


Fig. 2-1-A

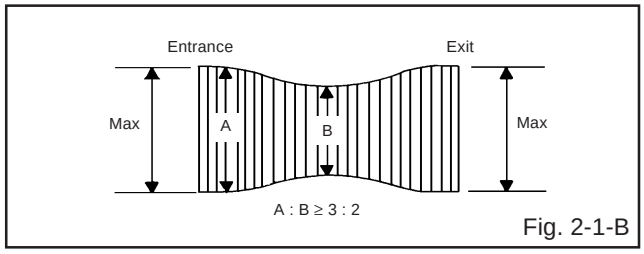


Fig. 2-1-B

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

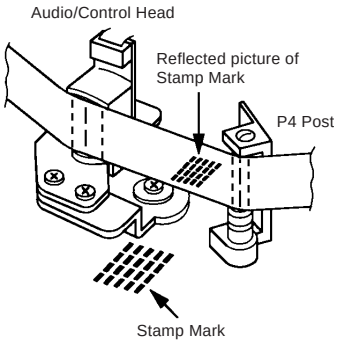


Fig. 2-2-A

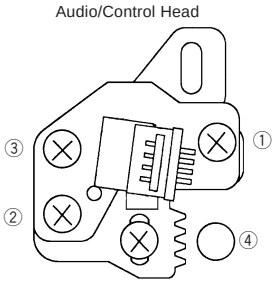


Fig. 2-2-B

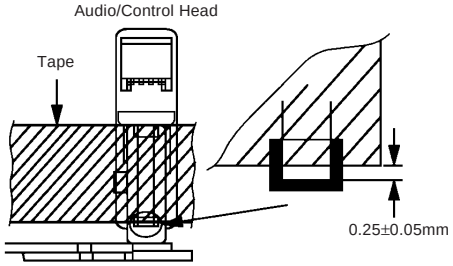


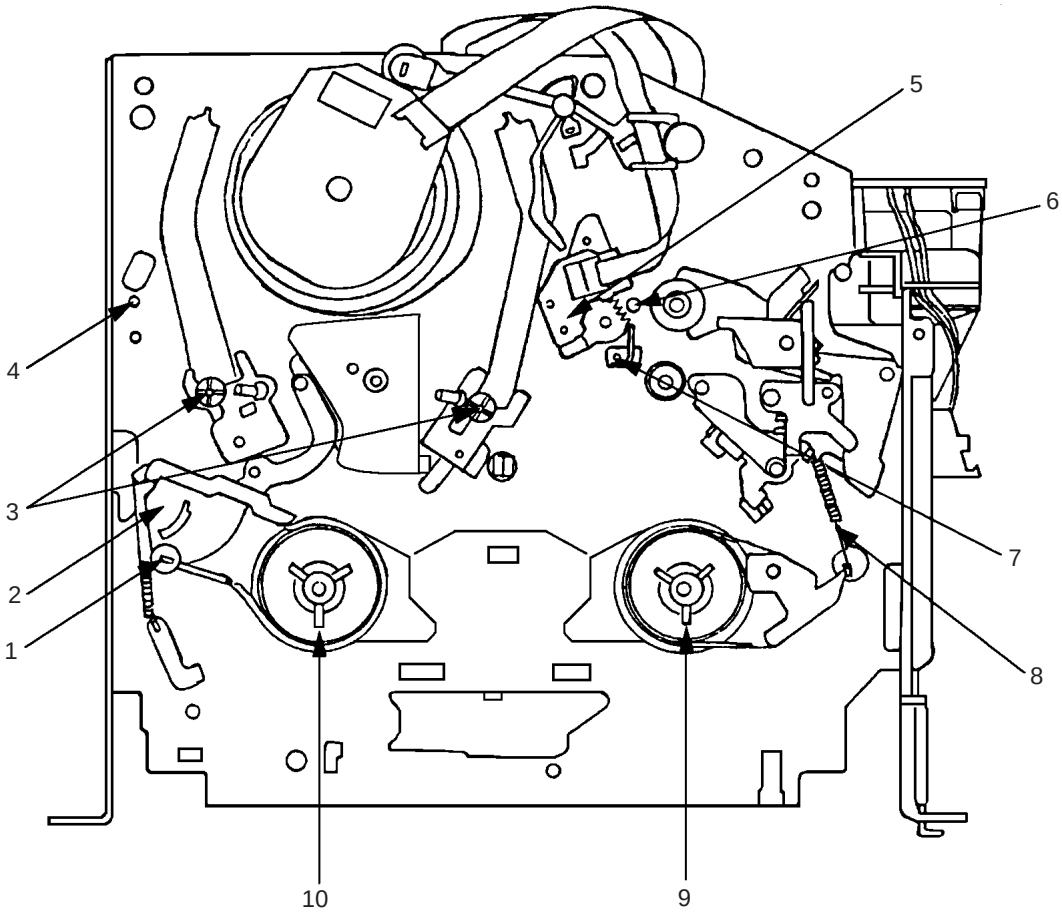
Fig. 2-2-C

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

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
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
10. S Reel

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

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

CAUTION

When replacing IC's or transistors, use only specified silicon grease **(G746)**.
(To prevent the damage to IC's and transistors.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C1003** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

NOTE

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

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

"The adjustment items 3 and 6 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 **TP4001** and CH-2 to **pin 7 of CP603**.
2. Playback the alignment tape. **(JG001D)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

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

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Stop the alignment tape.

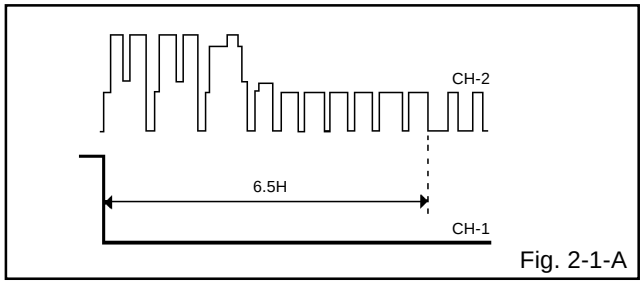


Fig. 2-1-A

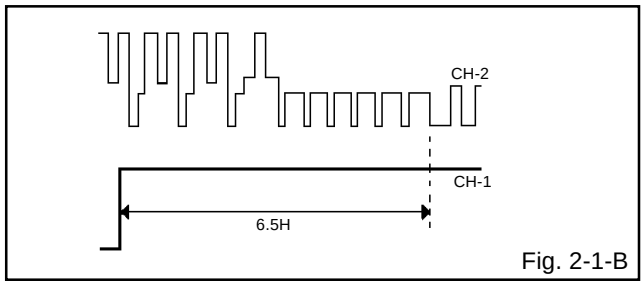


Fig. 2-1-B

2-2: VCO

1. Connect the oscillator (39.5MHz) to **pin 11 of TU601** through 100 Ω resistor.
2. Connect the digital voltmeter between the **pin 47 of IC601** and the **GND**.
3. Adjust the **L608** until the digital voltmeter is 3.8 ± 0.05V.

2-3: RF AGC

1. Receive the UHF (80dB).
2. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(1)** on the remote control to select "RF AGC DELAY".
5. Press the PLAY or STOP button on the remote control until the digital voltmeter is 2.25 ± 0.05V.

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

"The adjustment items 2, 3 and 6 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: CUT OFF

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

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

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

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

Fig. 2-3

2-7: FOCUS

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

2-8: HORIZONTAL PHASE

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

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

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

Fig. 2-4

2-9: VERTICAL LINEARITY

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

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(5)** on the remote control to select "V. LIN 50/60".
5. Press the PLAY or STOP button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

2-10: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-9.

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control to select "V. POSI 50/60".
5. Press the PLAY or STOP button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.
6. Receive the center cross signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

ELECTRICAL ADJUSTMENTS

2-11: VERTICAL SIZE

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

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

2-12: OSD HORIZONTAL

1. Set condition is AV MODE without signal.
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 **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(4)** on the remote control to select "OSD H".
5. Press the PLAY or STOP button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-5)**

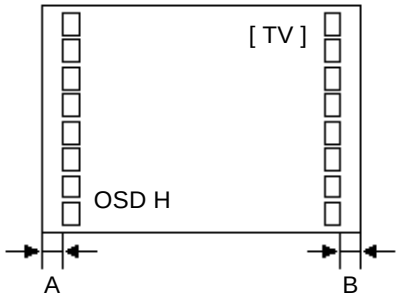


Fig. 2-5

2-13: 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 to select "PICTURE". The **Fig. 2-6** appears on the display.
4. Press the channel button **(1)** on the remote control to select "BRIGHT".
5. Press the PLAY or STOP 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. TEXT CONT
7.
8. 0. RETURN

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

Fig. 2-6

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color 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 to select "PICTURE". The **Fig. 2-6** appears on the display.
5. Press the channel button **(3)** on the remote control to select "COLOR".
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 PLAY or STOP button on the remote control until the red color level is adjusted to 95% of the white level. **(Refer to Fig. 2-7)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

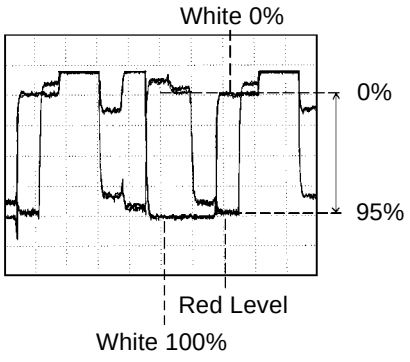


Fig. 2-7

2-15: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-6** appears on the display.
2. Press the channel button **(2)** on the remote control to select "CONTRAST".
3. Press the PLAY or STOP button on the remote control until the contrast step No. becomes "105"
4. Press the AV 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 to select "PICTURE". The **Fig. 2-6** appears on the display.
6. Press the channel button **(2)** on the remote control to select "CONTRAST".
7. Press the PLAY or STOP button on the remote control until the contrast step No. becomes "112"

ELECTRICAL ADJUSTMENTS

2-16: SUB SHARPNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-6** appears on the display.
2. Press the channel button **(5)** on the remote control to select "SHARPNESS".
3. Check if the step No. of SHARPNESS is "30".
4. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-17: TEXT 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 to select "PICTURE". The **Fig. 2-6** appears on the display.
3. Press the channel button **(6)** on the remote control to select "TEXT CONT".
4. Check if the step No. of TEXT CONT is "40".

2-18: H. BLK

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

2-19: 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 to select "H/V". The **Fig. 2-4** appears on the display.
2. Press the channel button **(6)** on the remote control to select "V. SC 50/60".
3. Check if the step No. of V. SC is "0".
4. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-20: V. COMP

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

2-21: E-E LEVEL

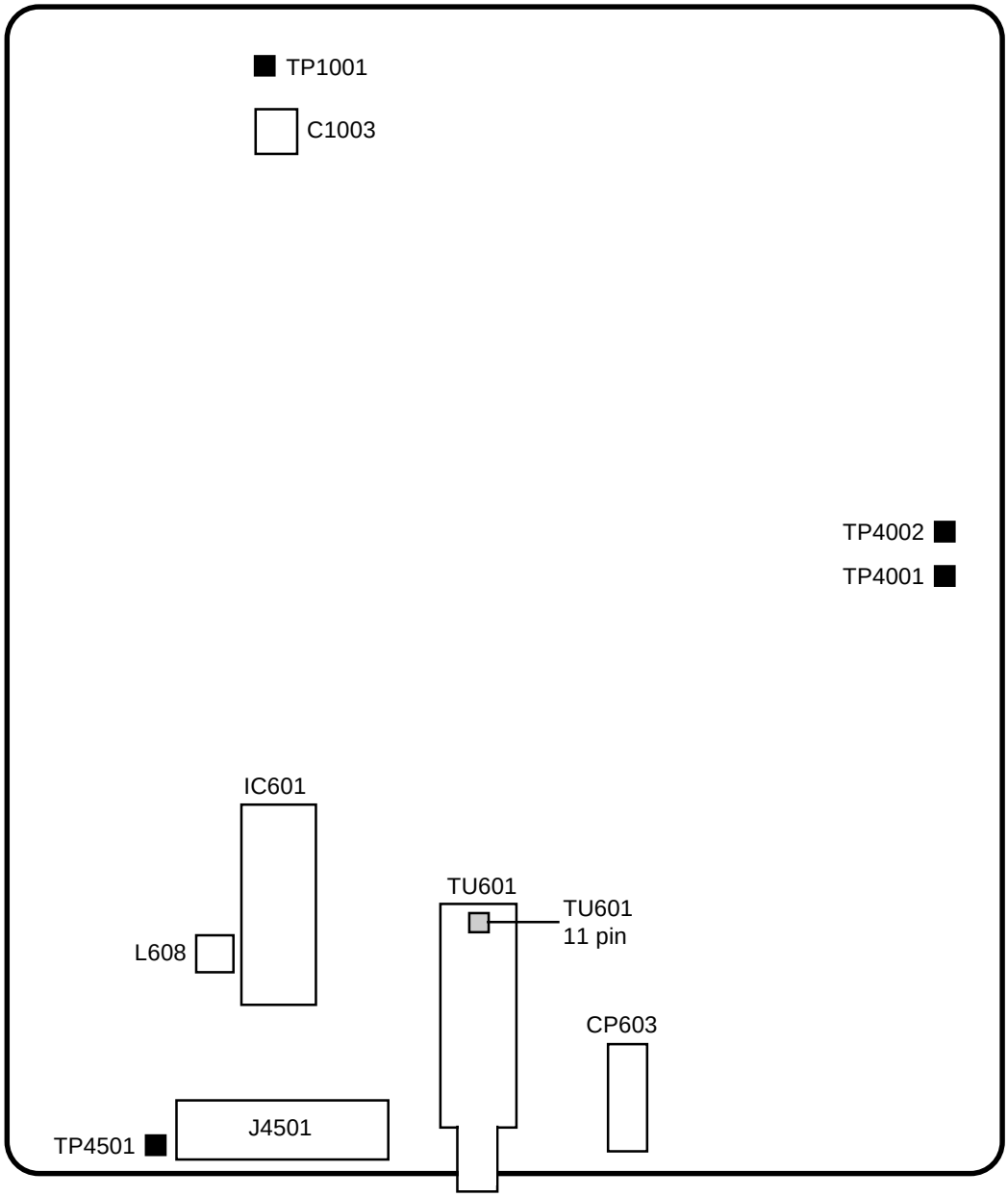
1. Receive the color bar pattern. (Audio Video Input)
2. Connect the oscilloscope to **TP4501**.
3. Check if the VIDEO OUT LEVEL is 1Vp-p ± 3dB.

2-22: COLOR LEVEL

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP4501**.
3. When setting to the Y-LEVEL 100%, check if the MAGENTA is 45 ± 10%.

ELECTRICAL ADJUSTMENTS

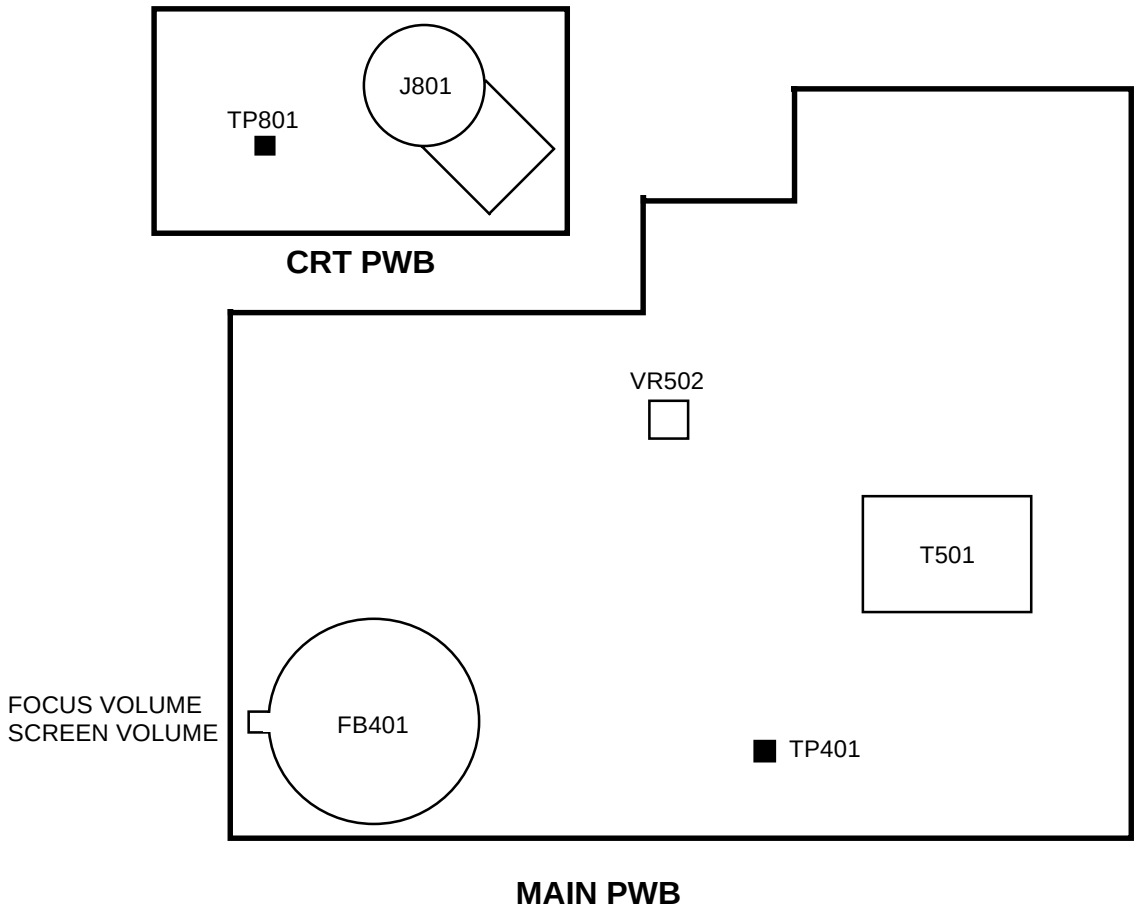
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



SYSCON PWB

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.

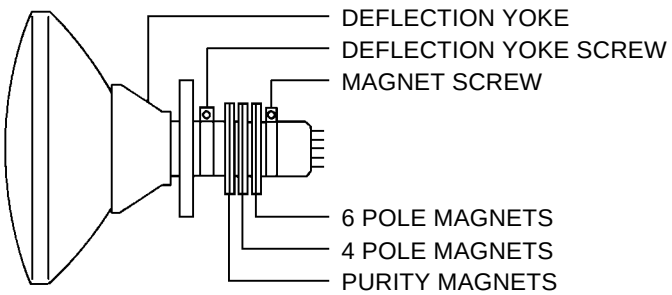


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

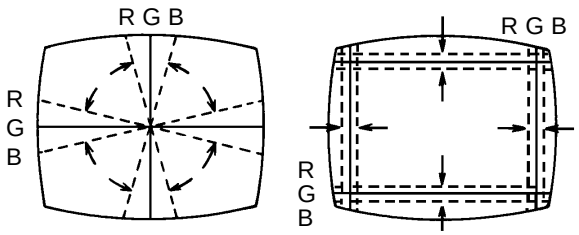
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

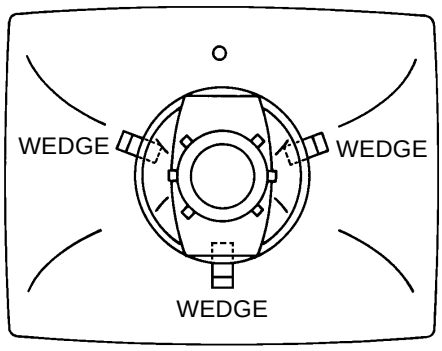
Adjust after performing adjustments in section 4-3.

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

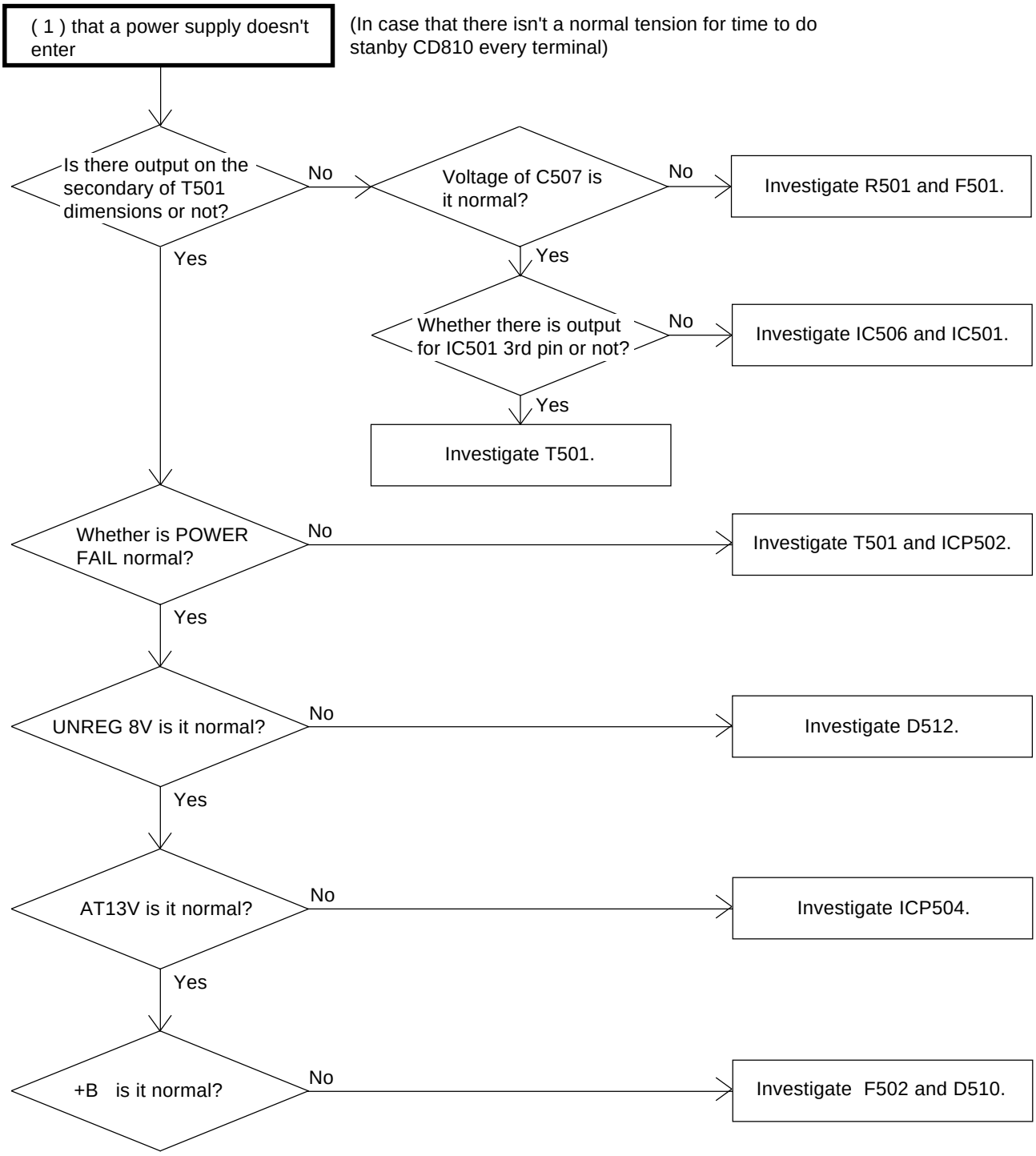


WEDGE POSITION

Fig. 4-2-b

TROUBLESHOOTING GUIDE

(TV SECTION)



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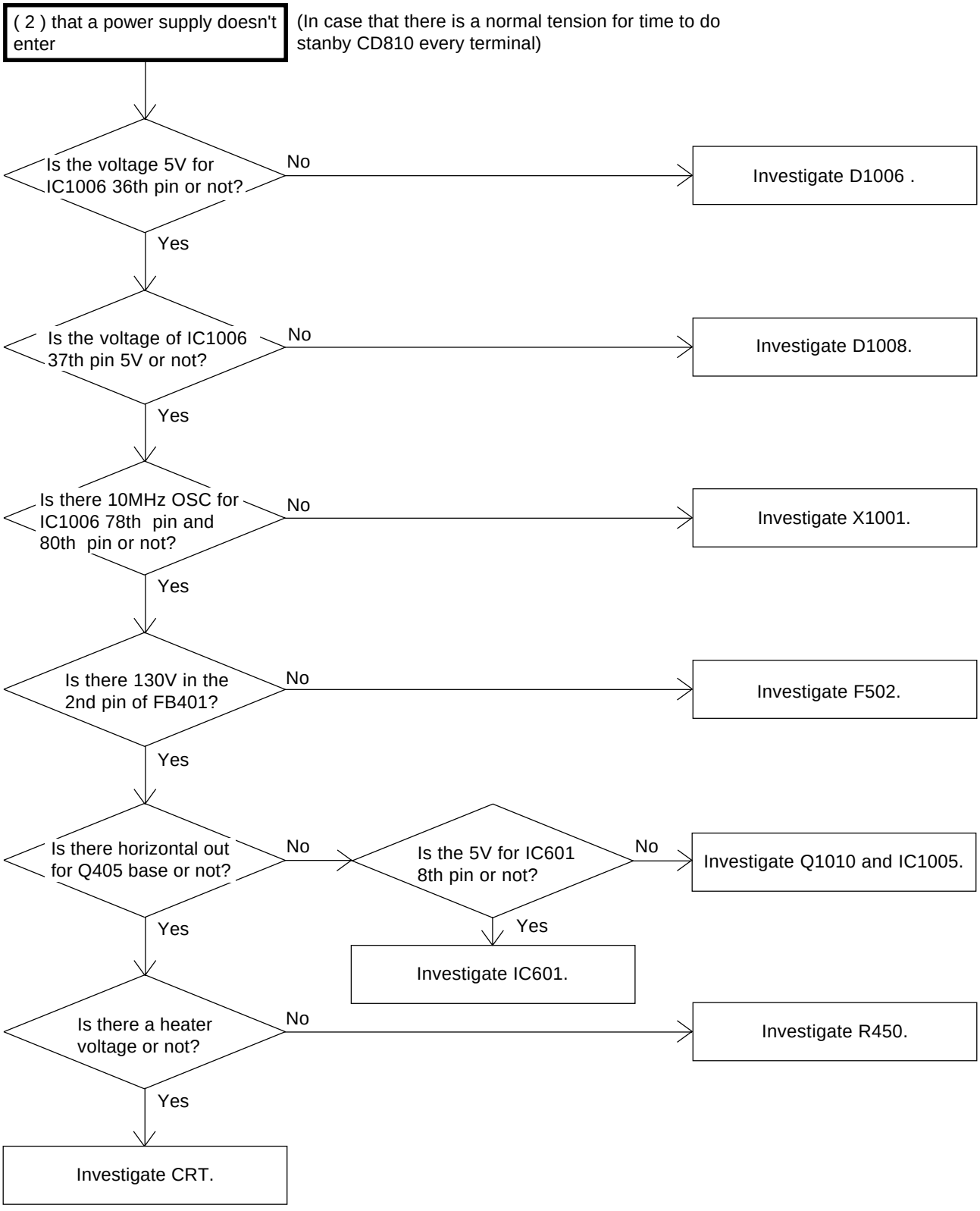

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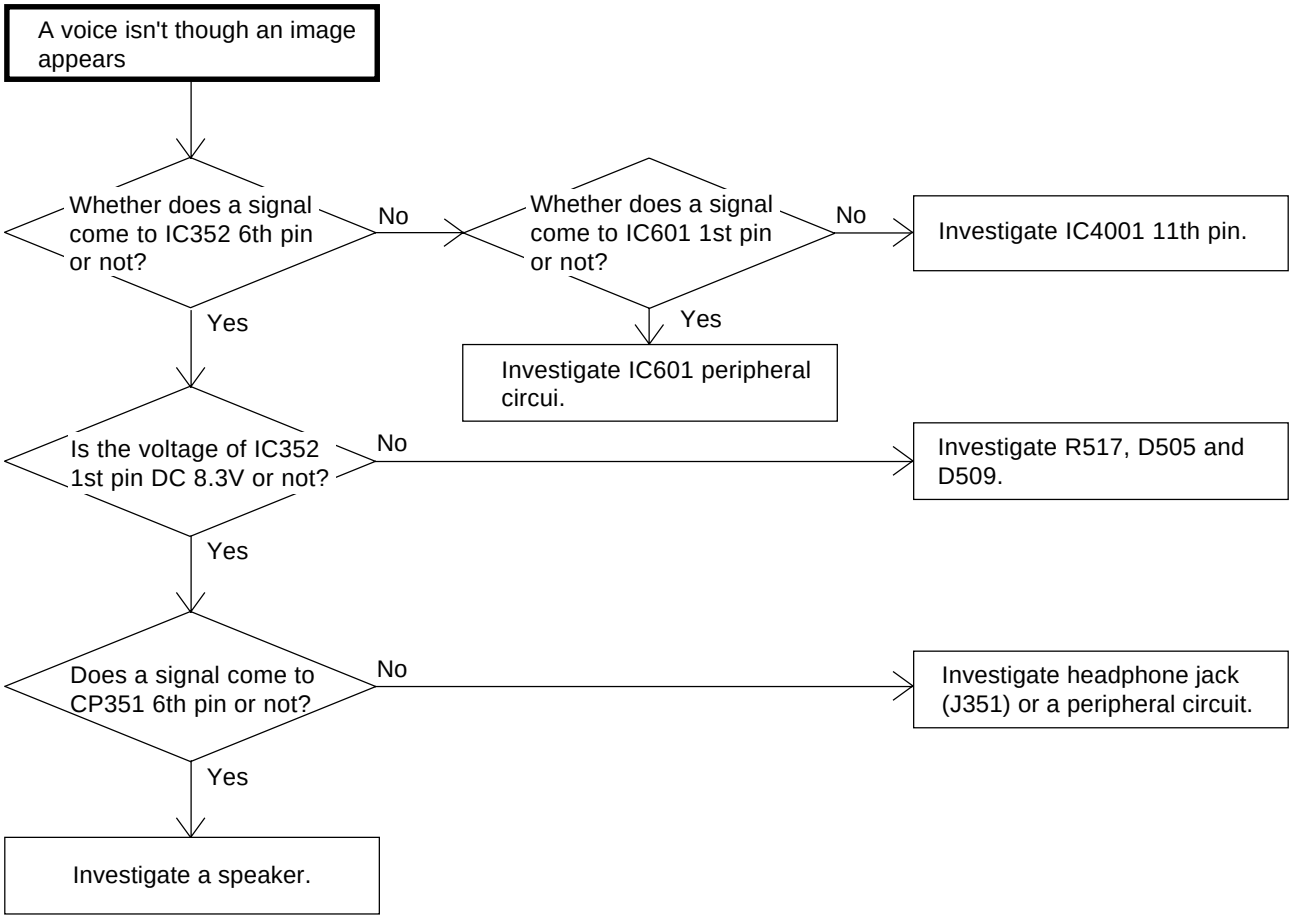

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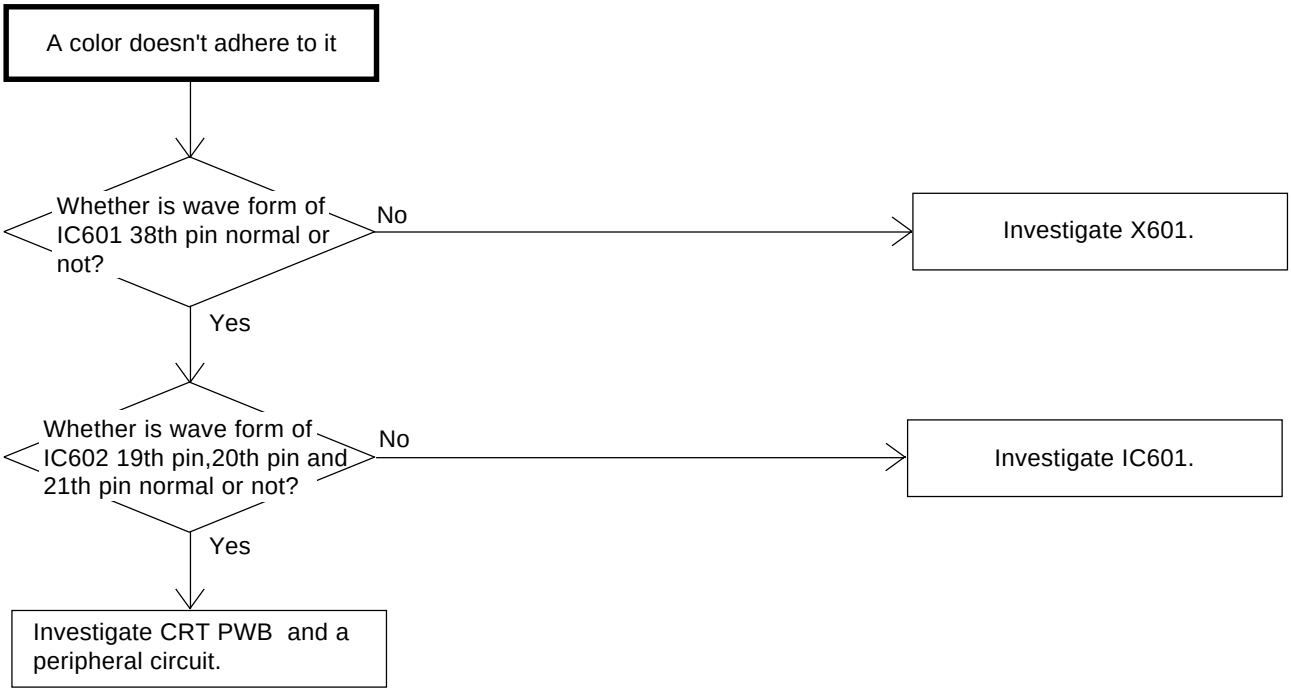

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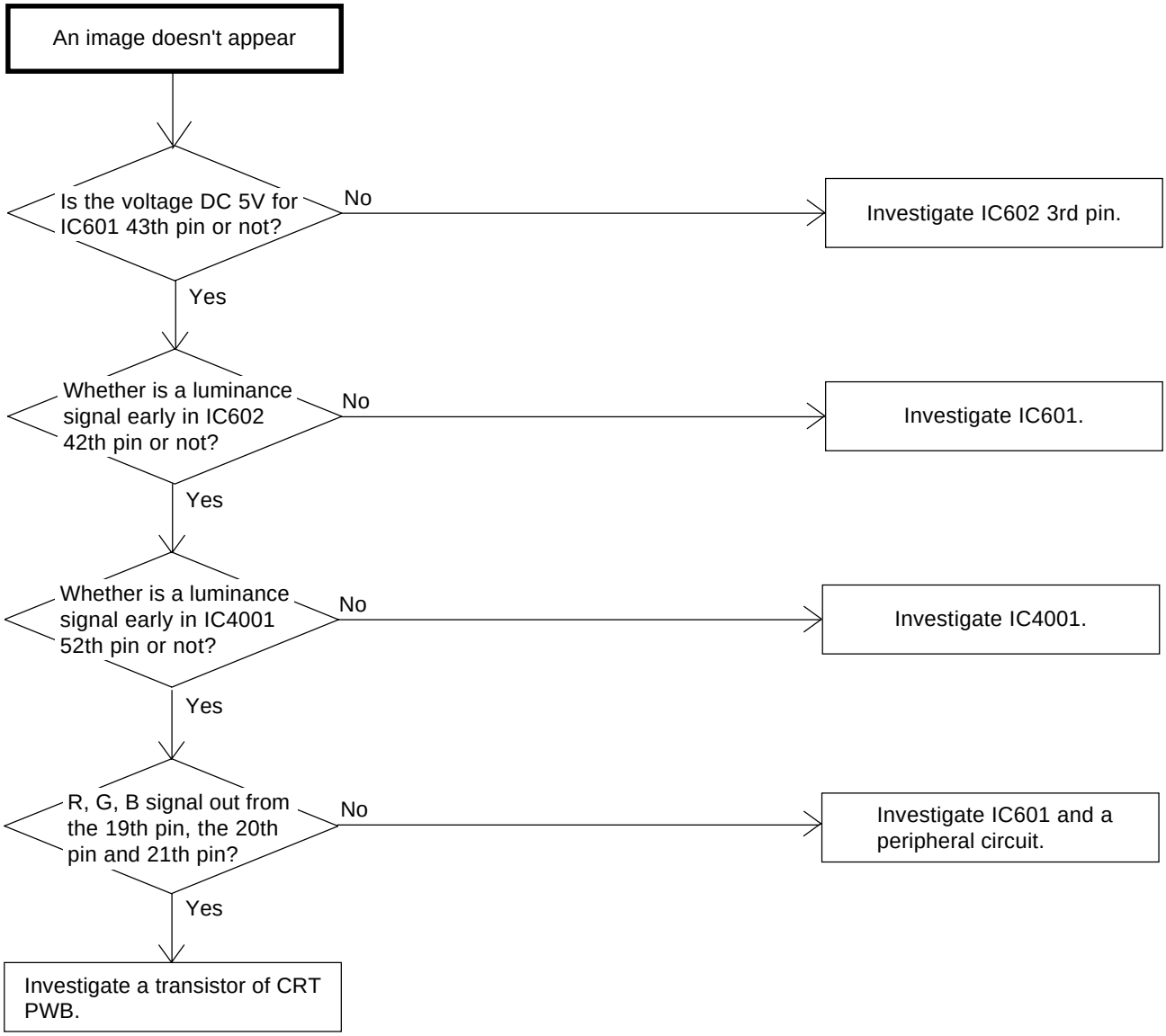

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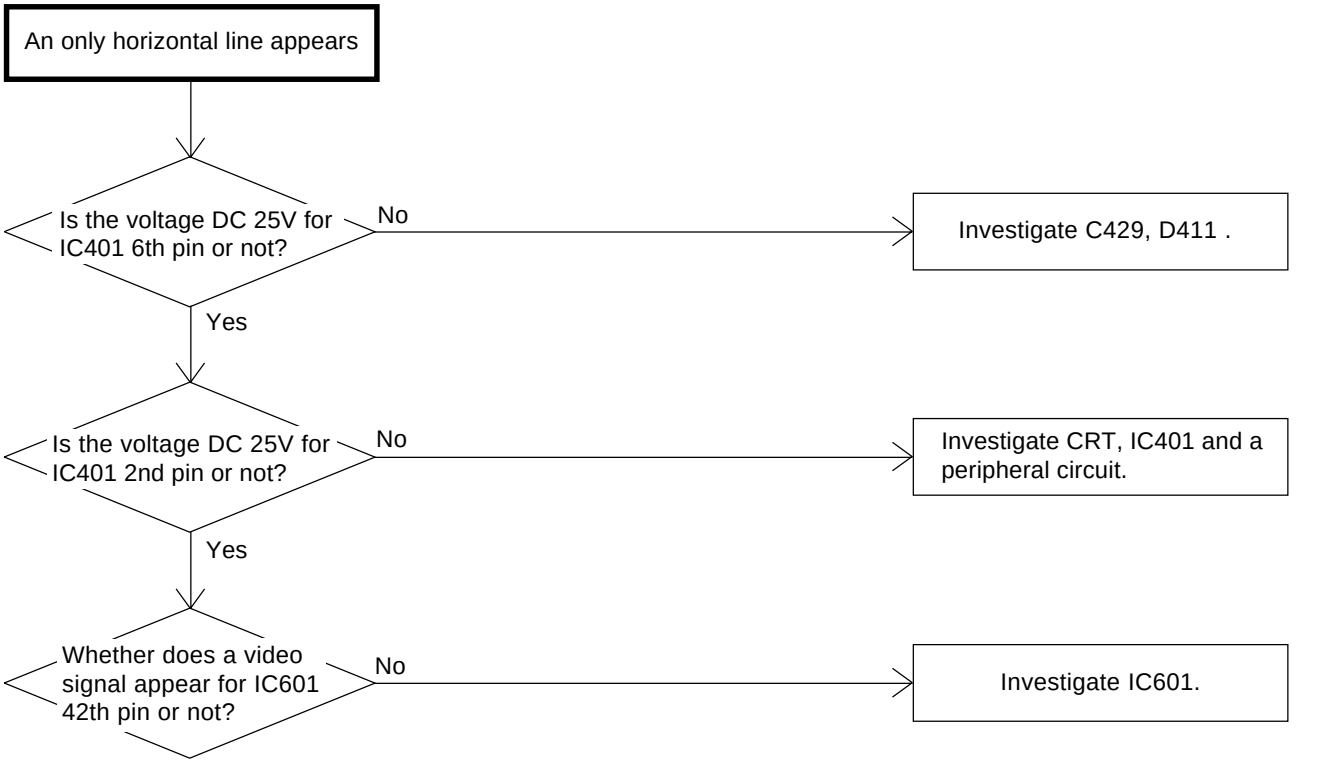
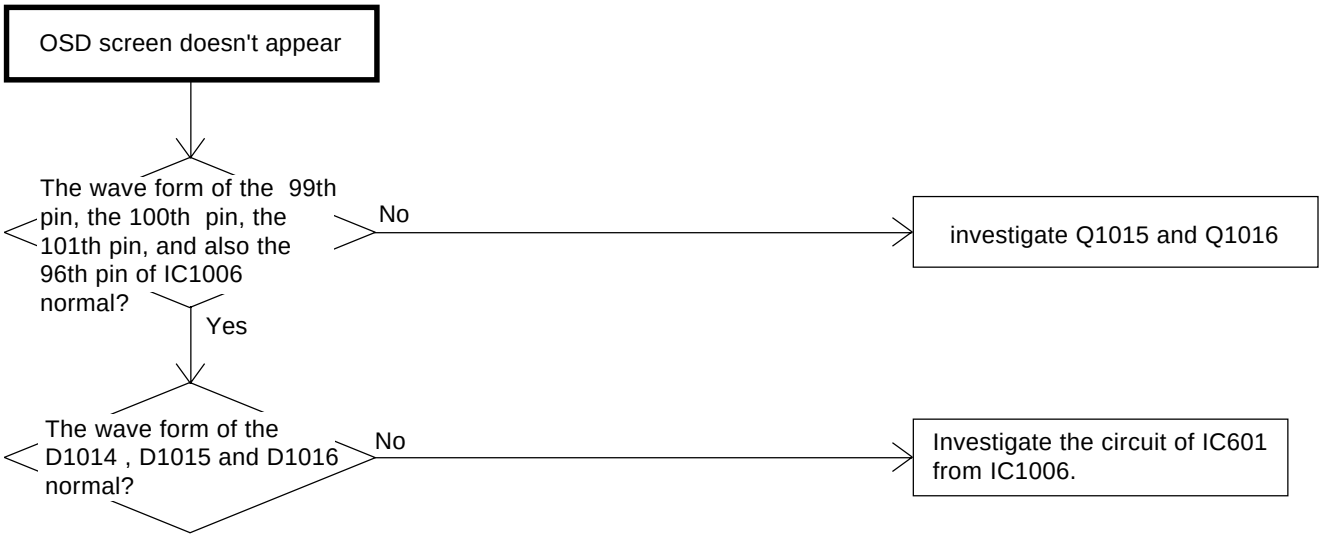
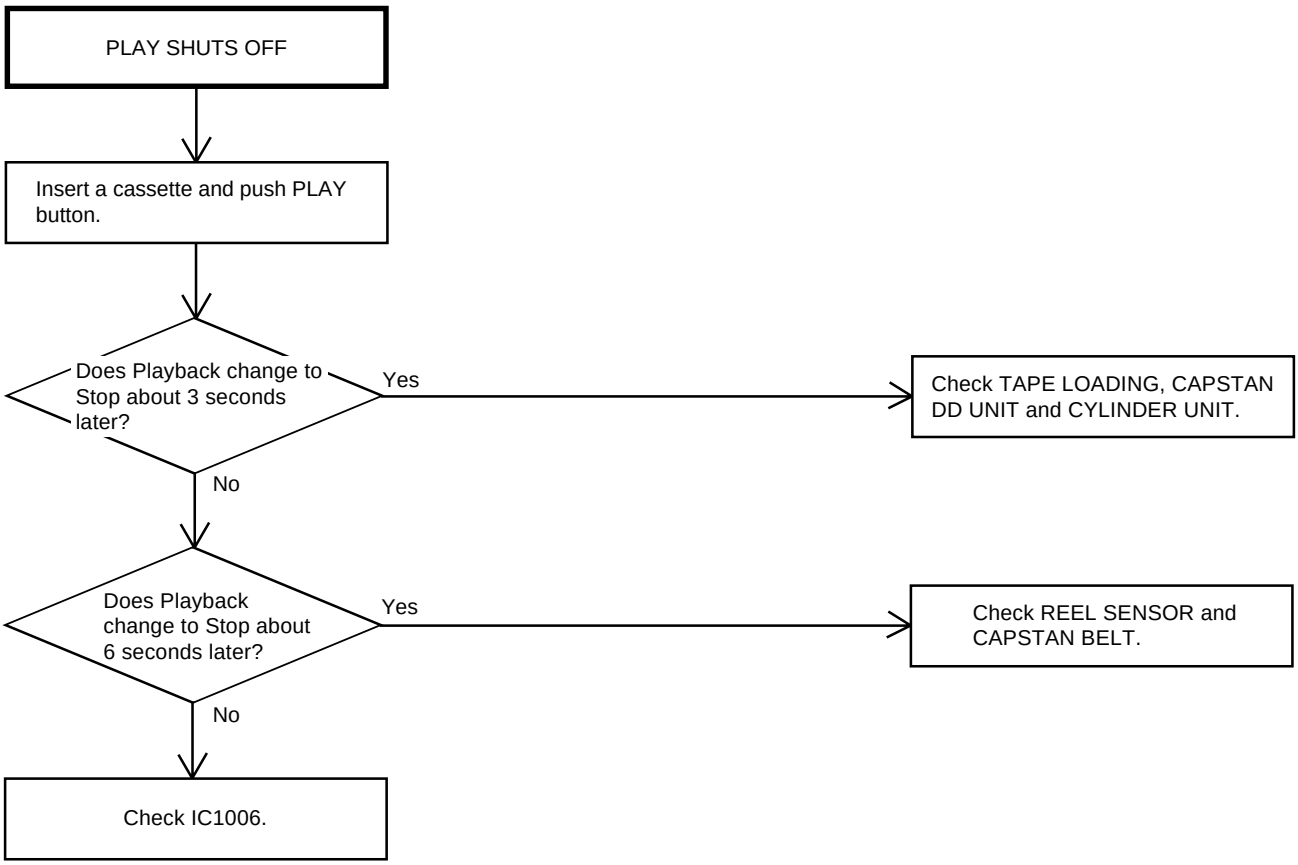




TROUBLESHOOTING GUIDE

(VCR SECTION)



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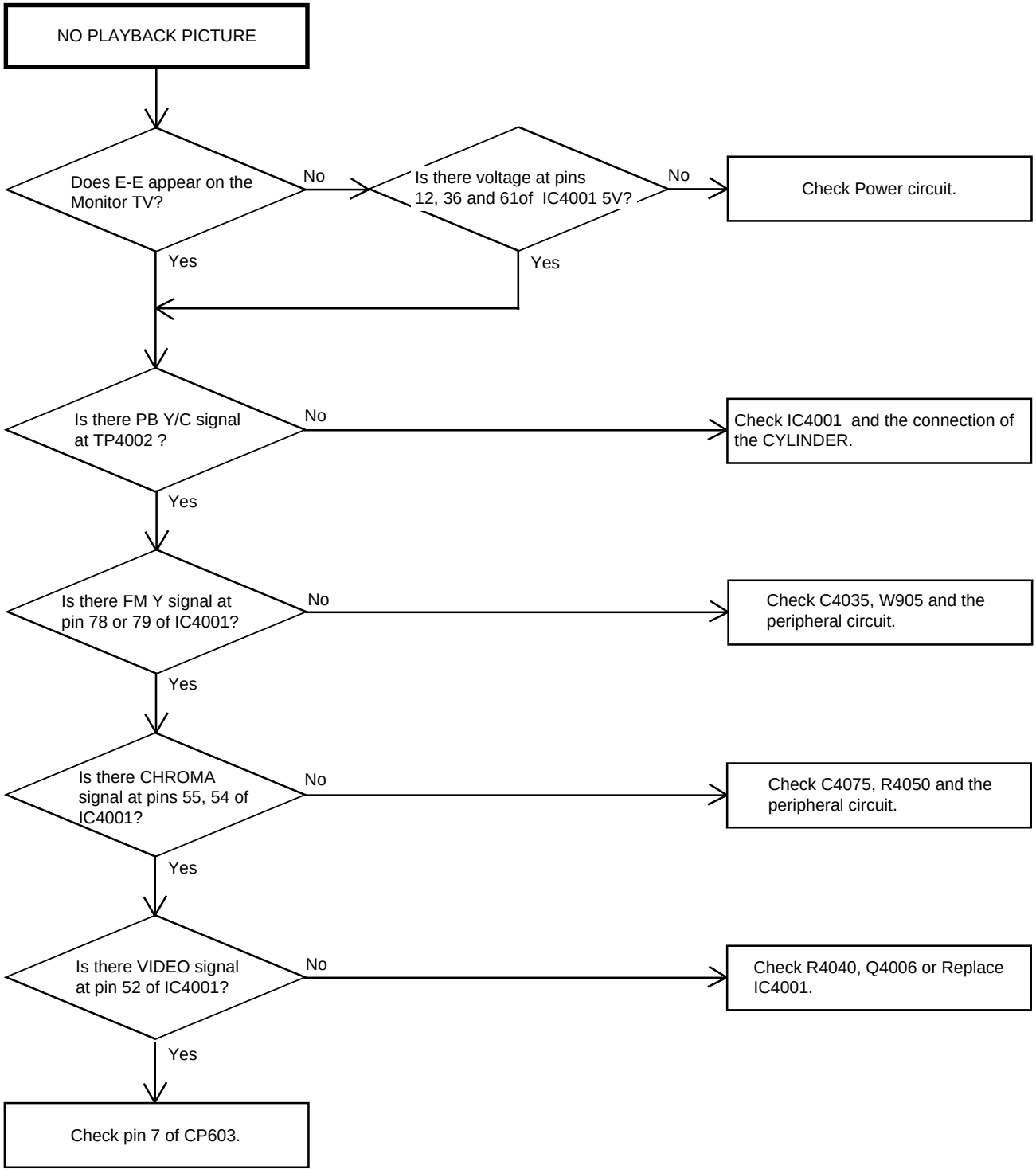

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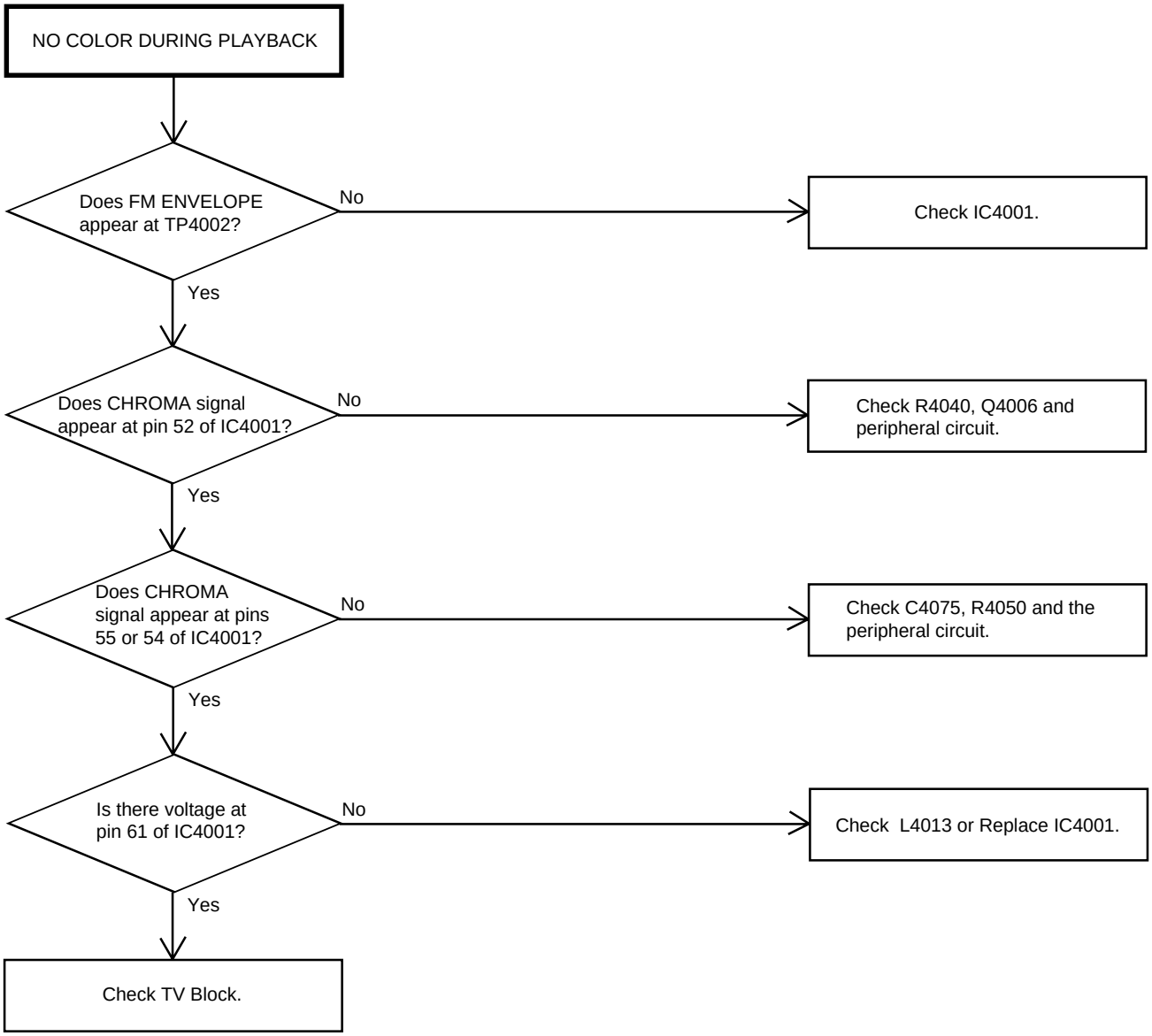

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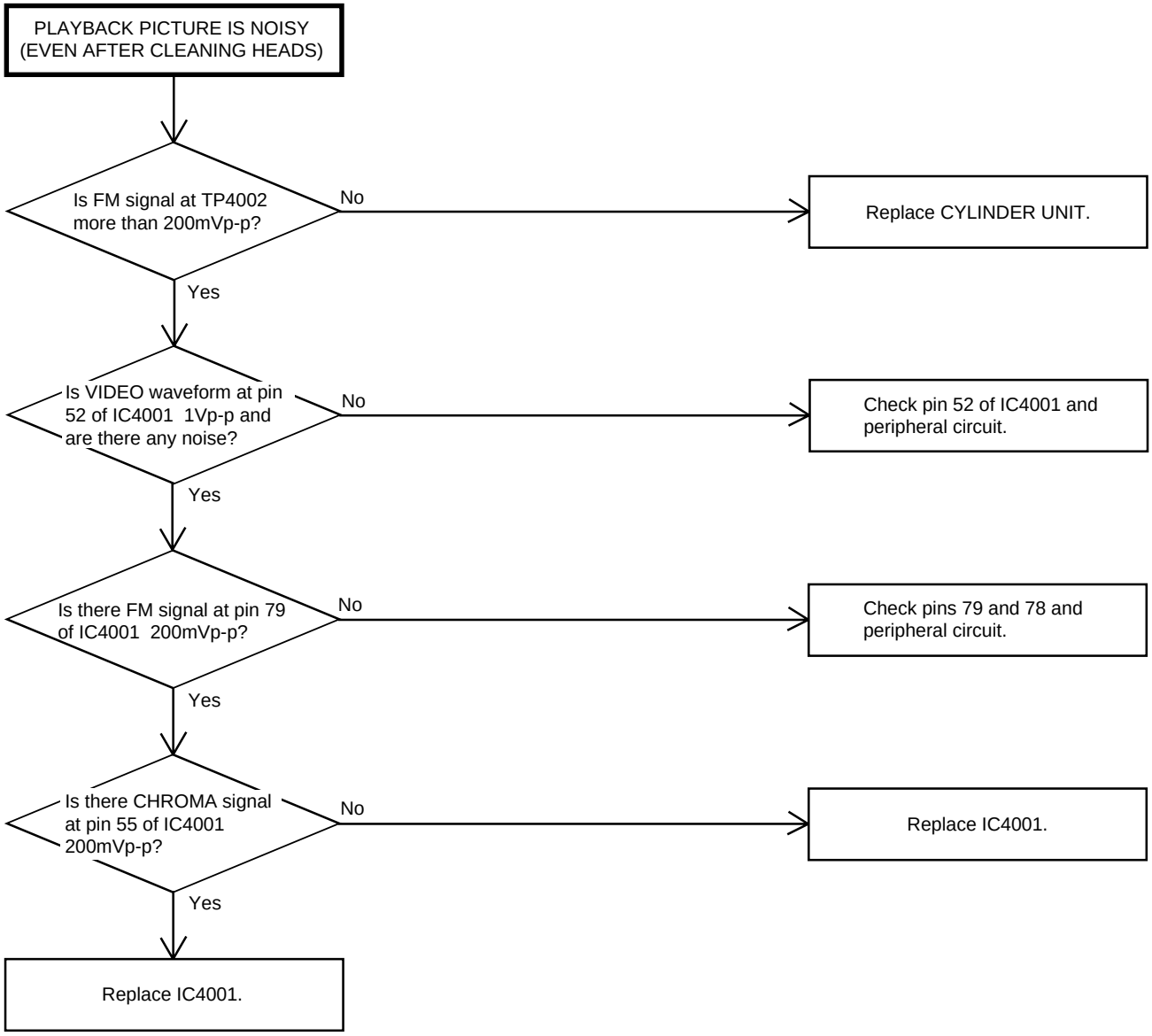

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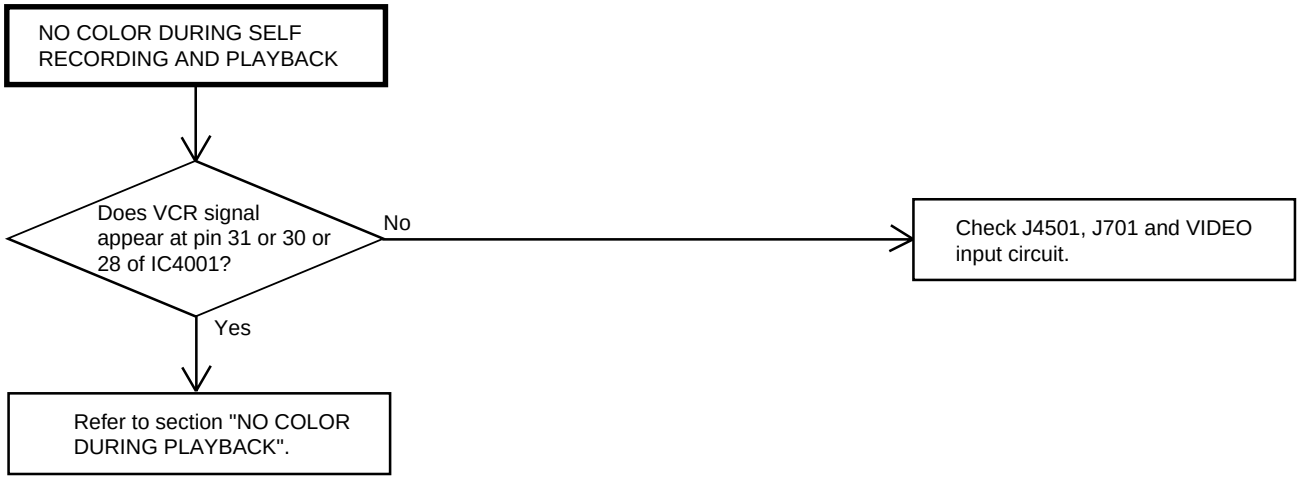

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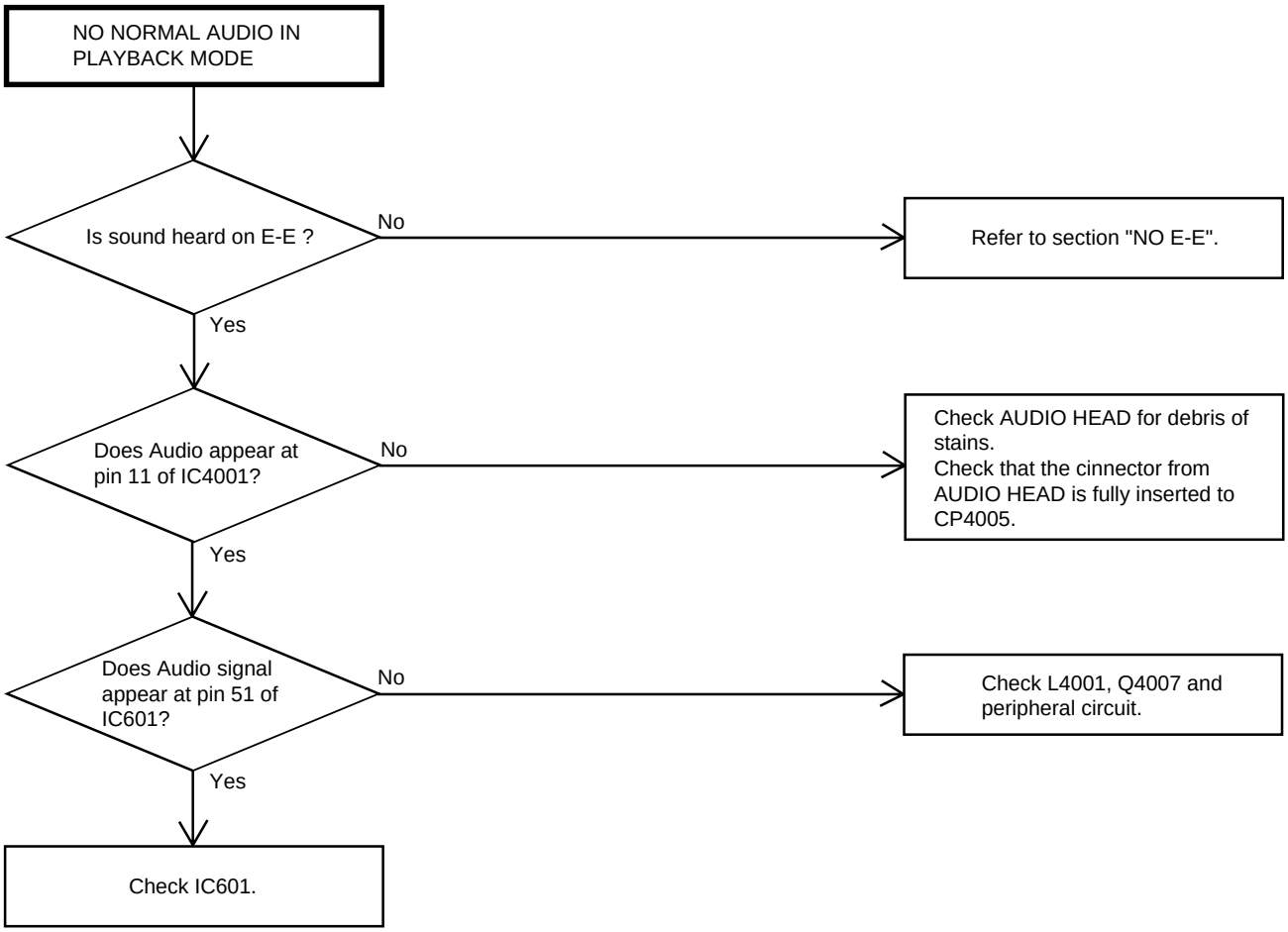

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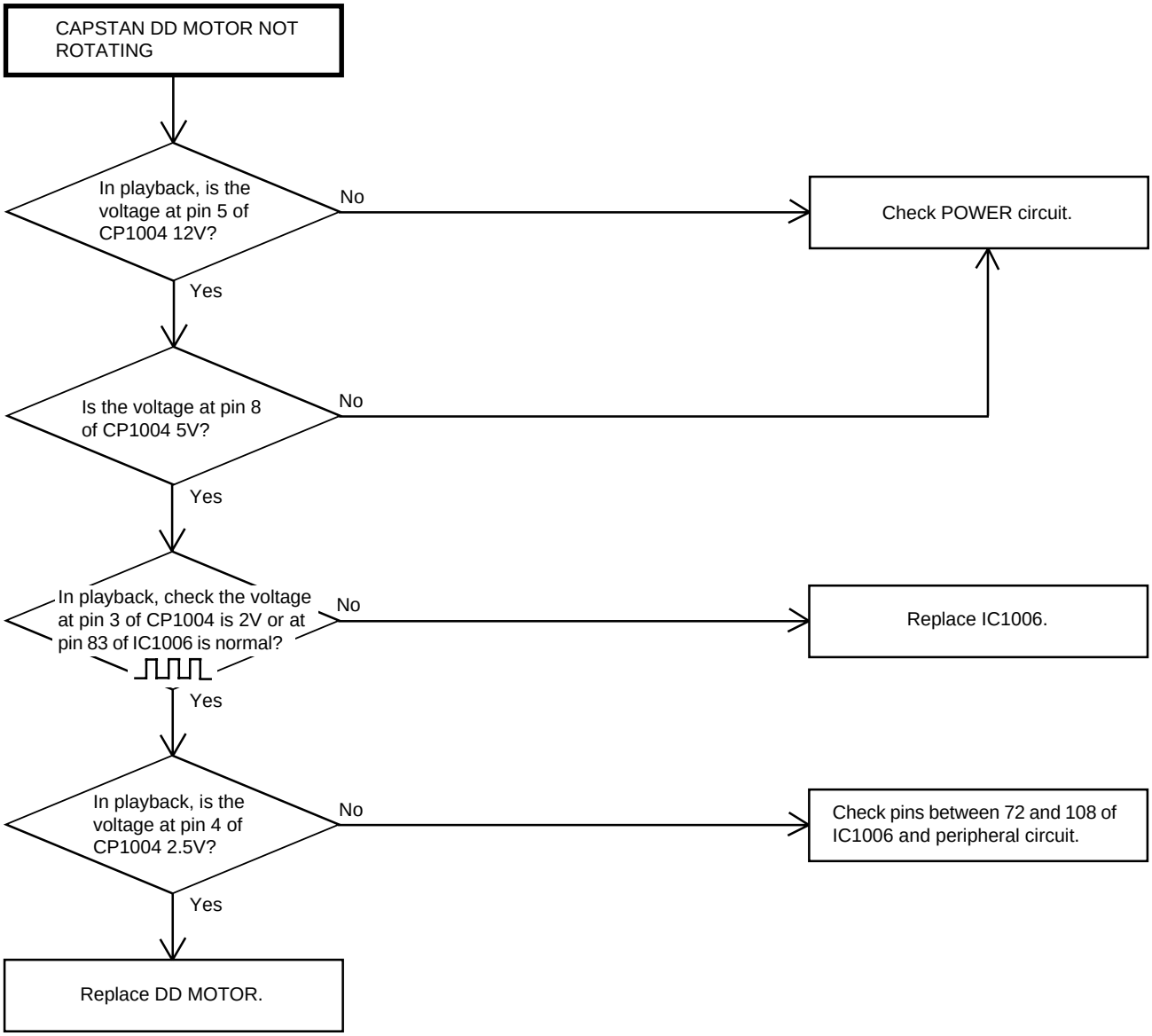

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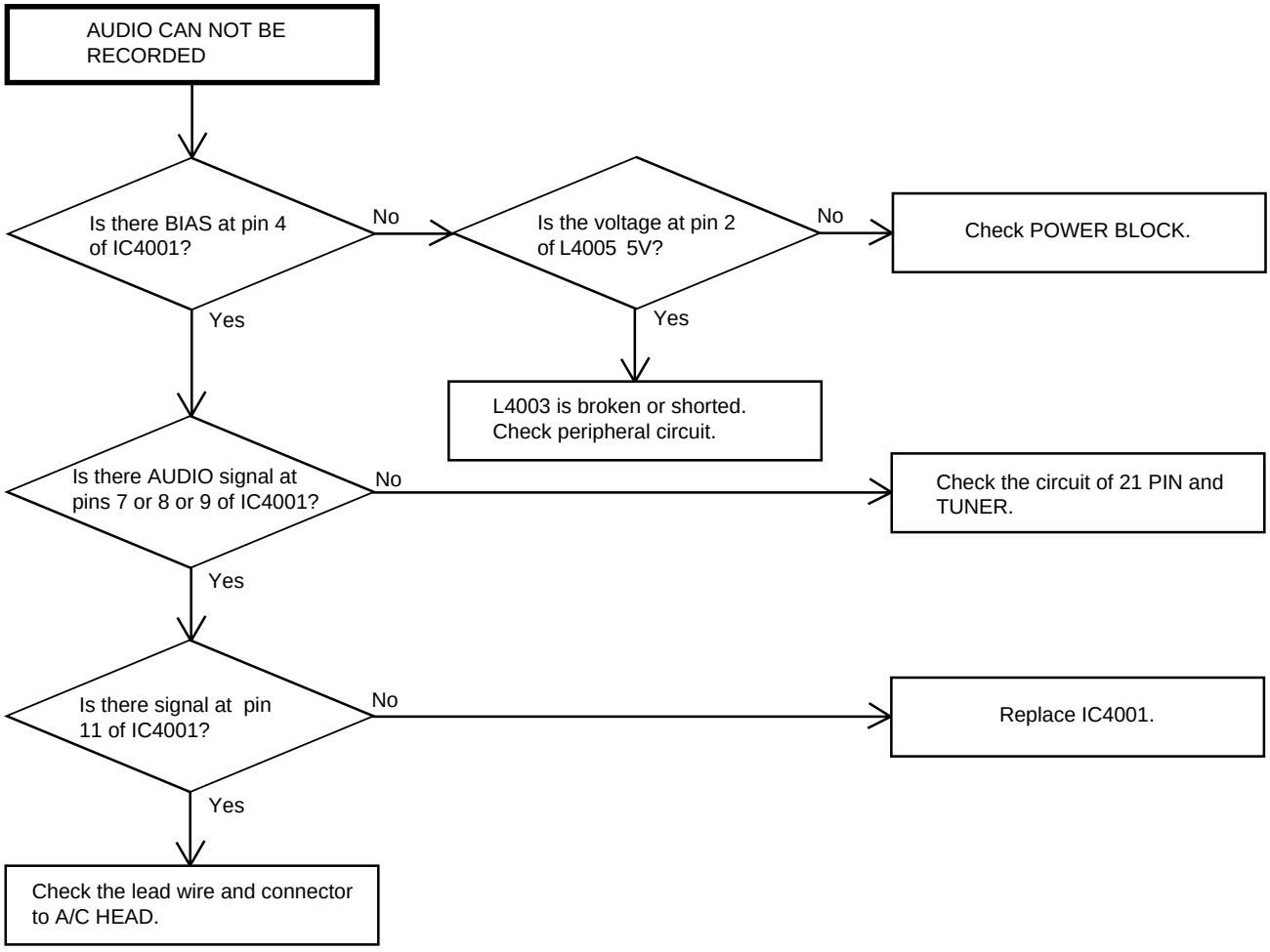

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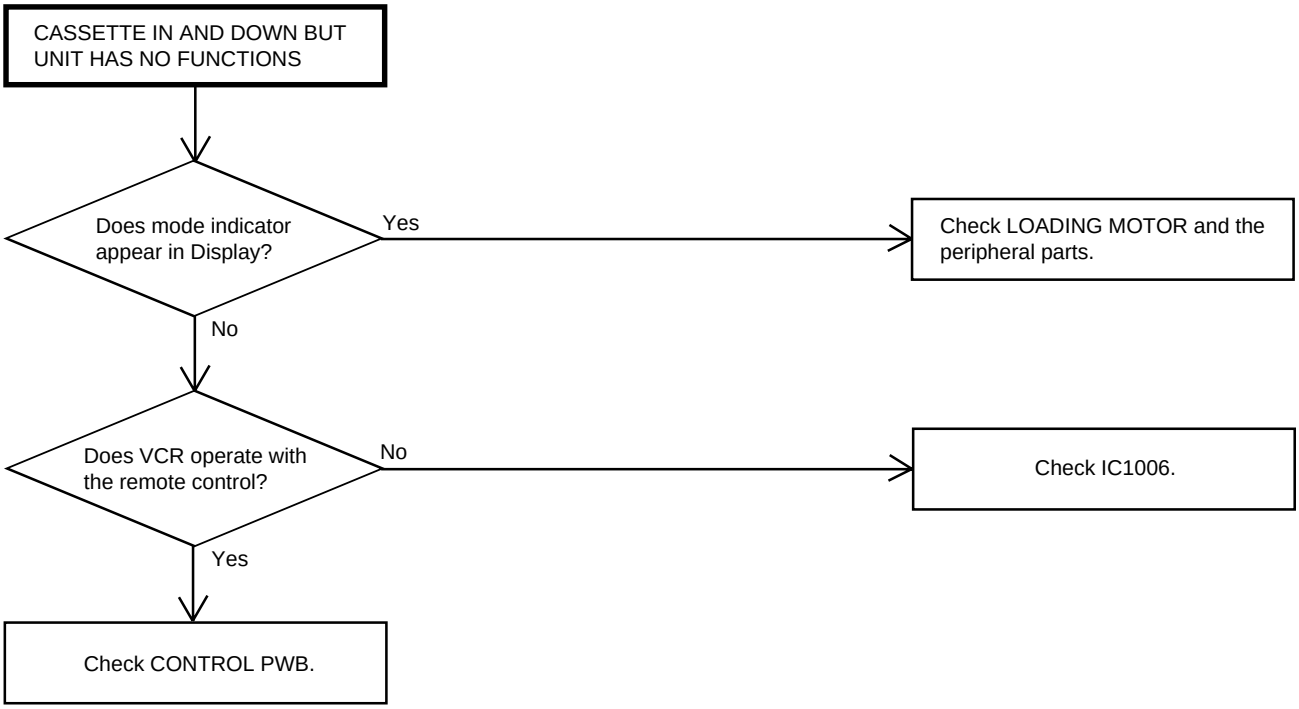

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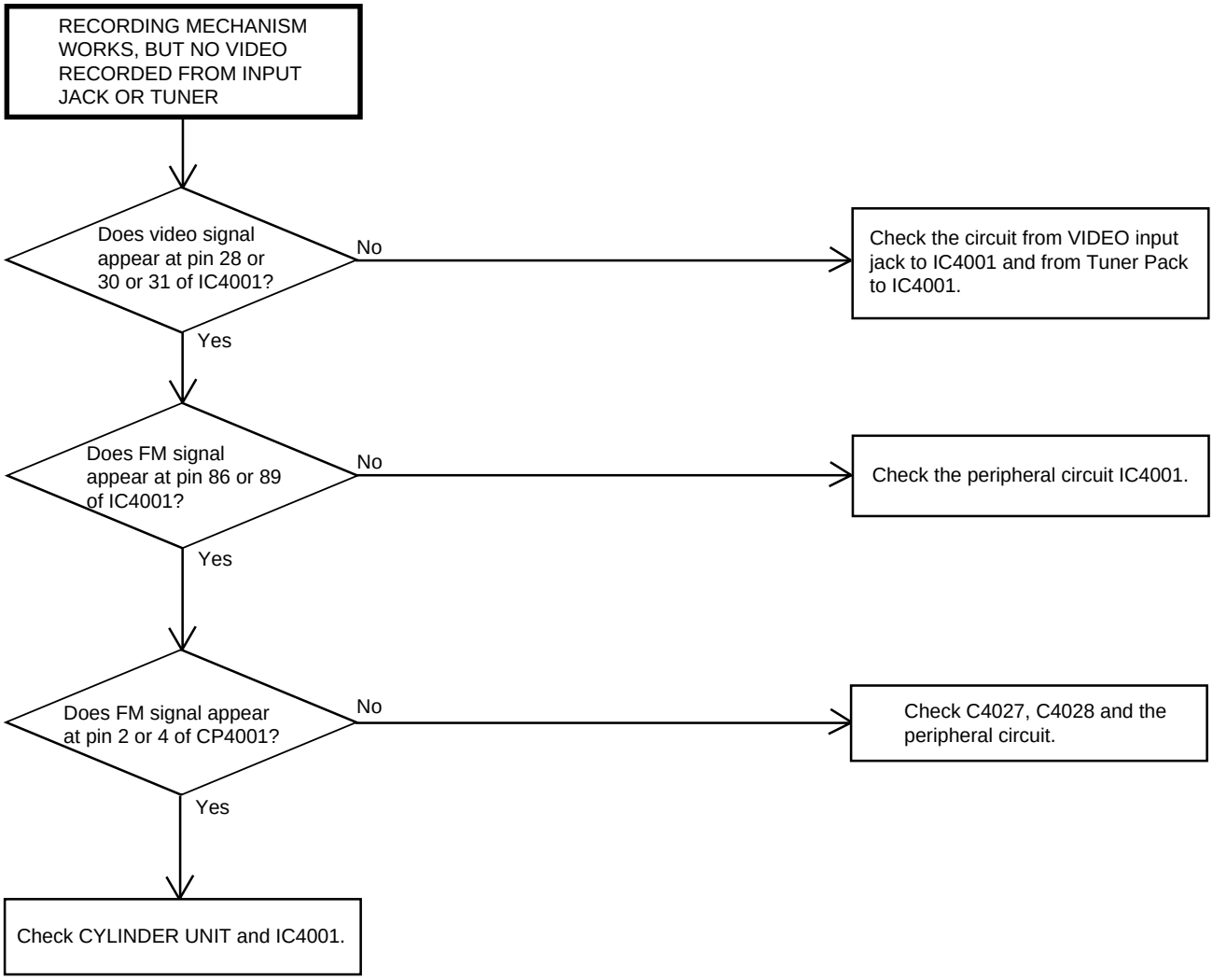

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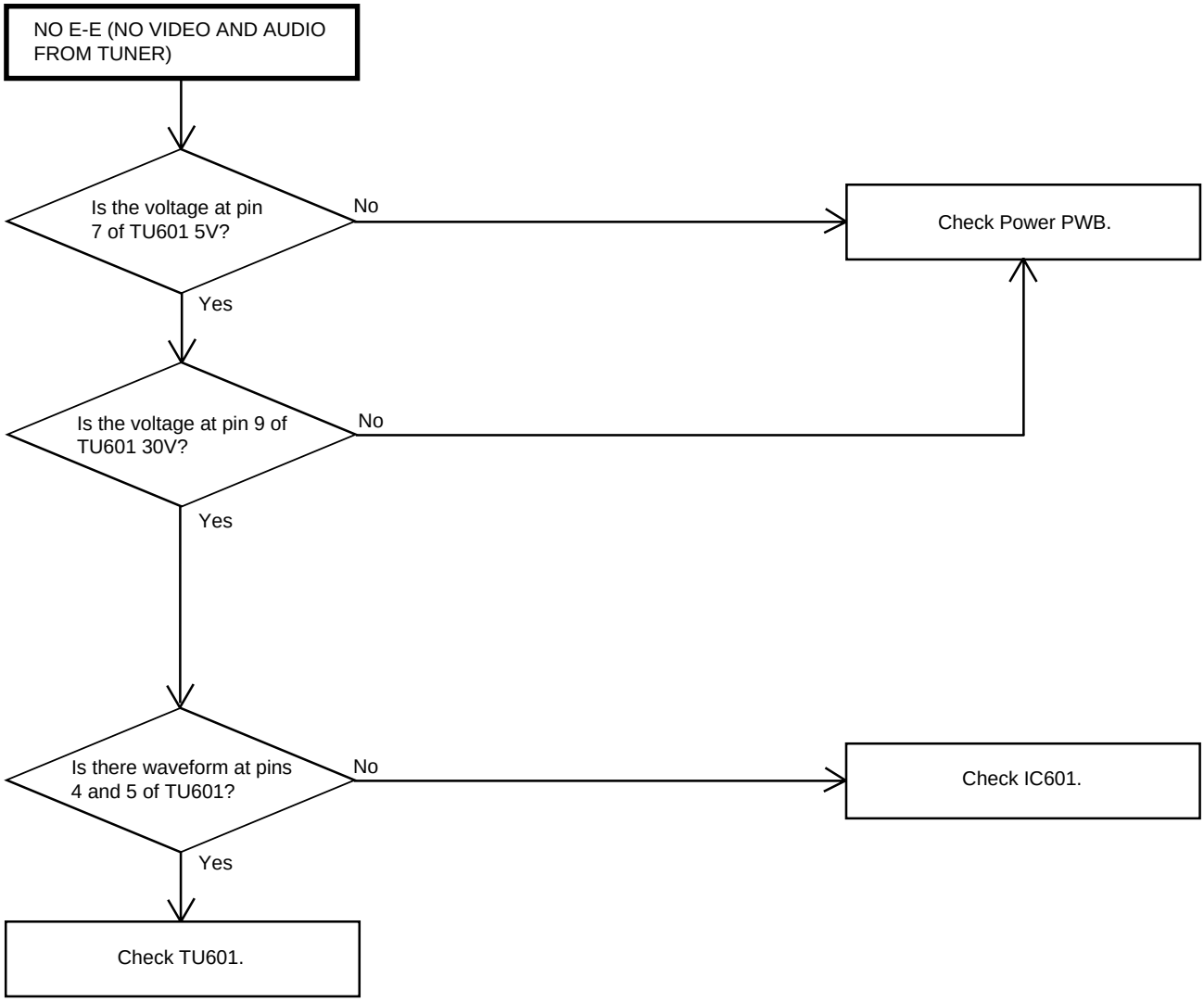

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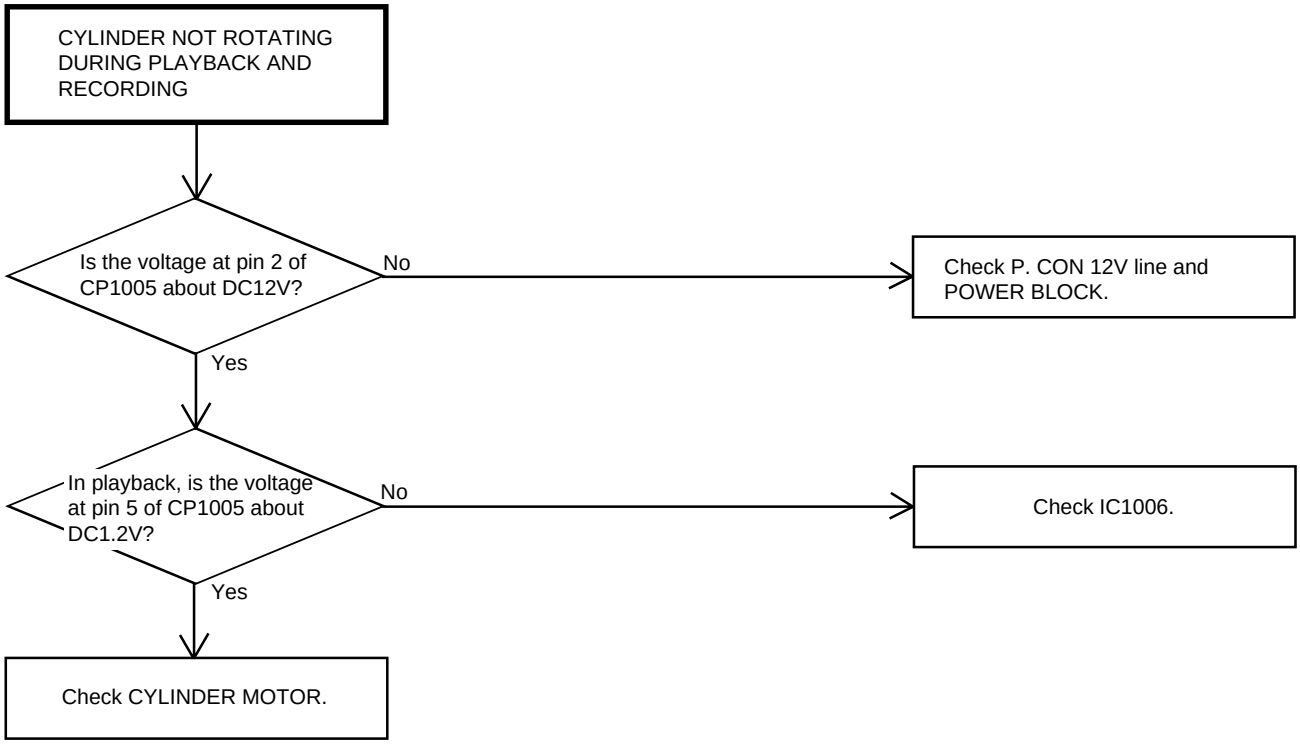

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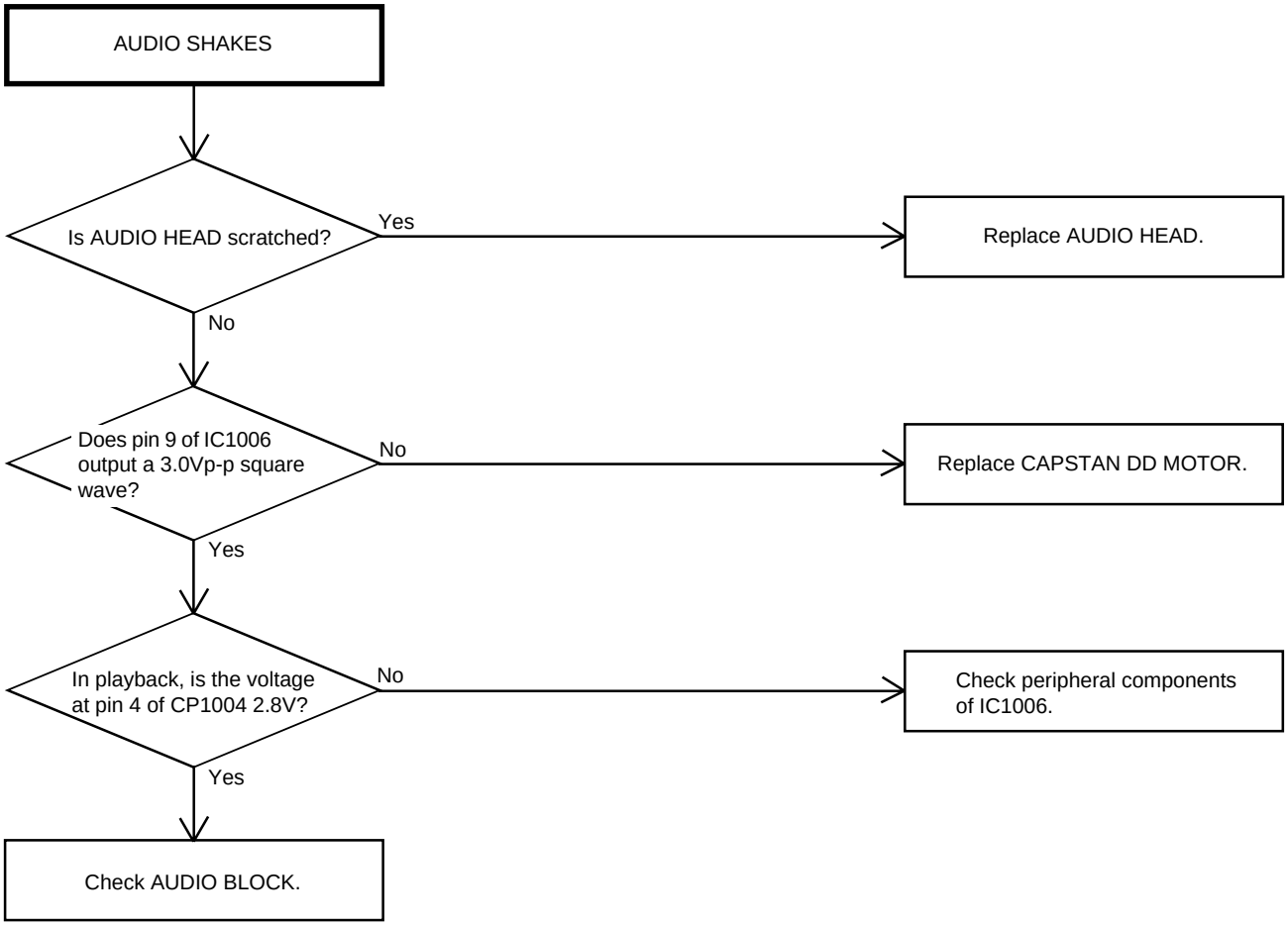

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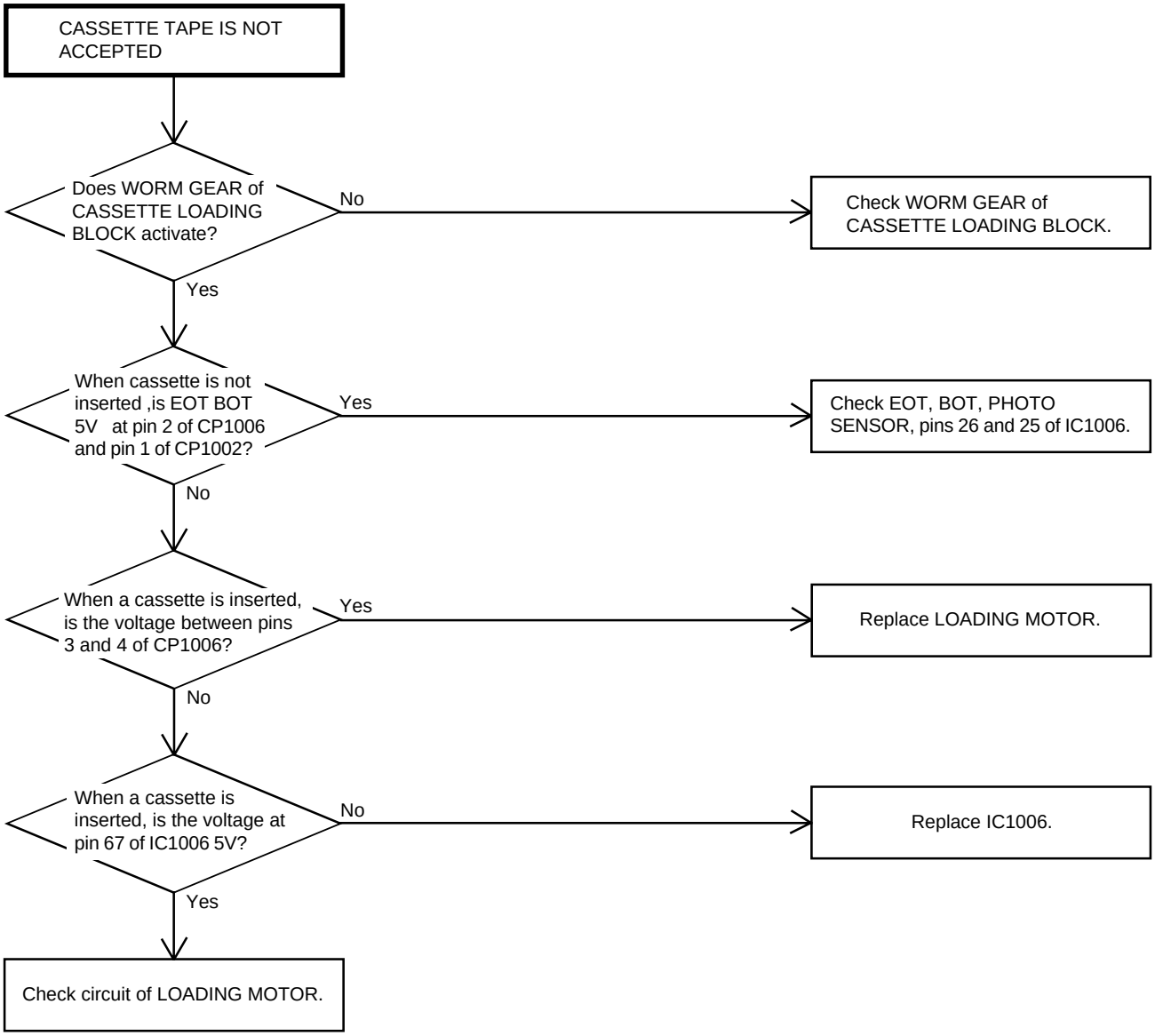

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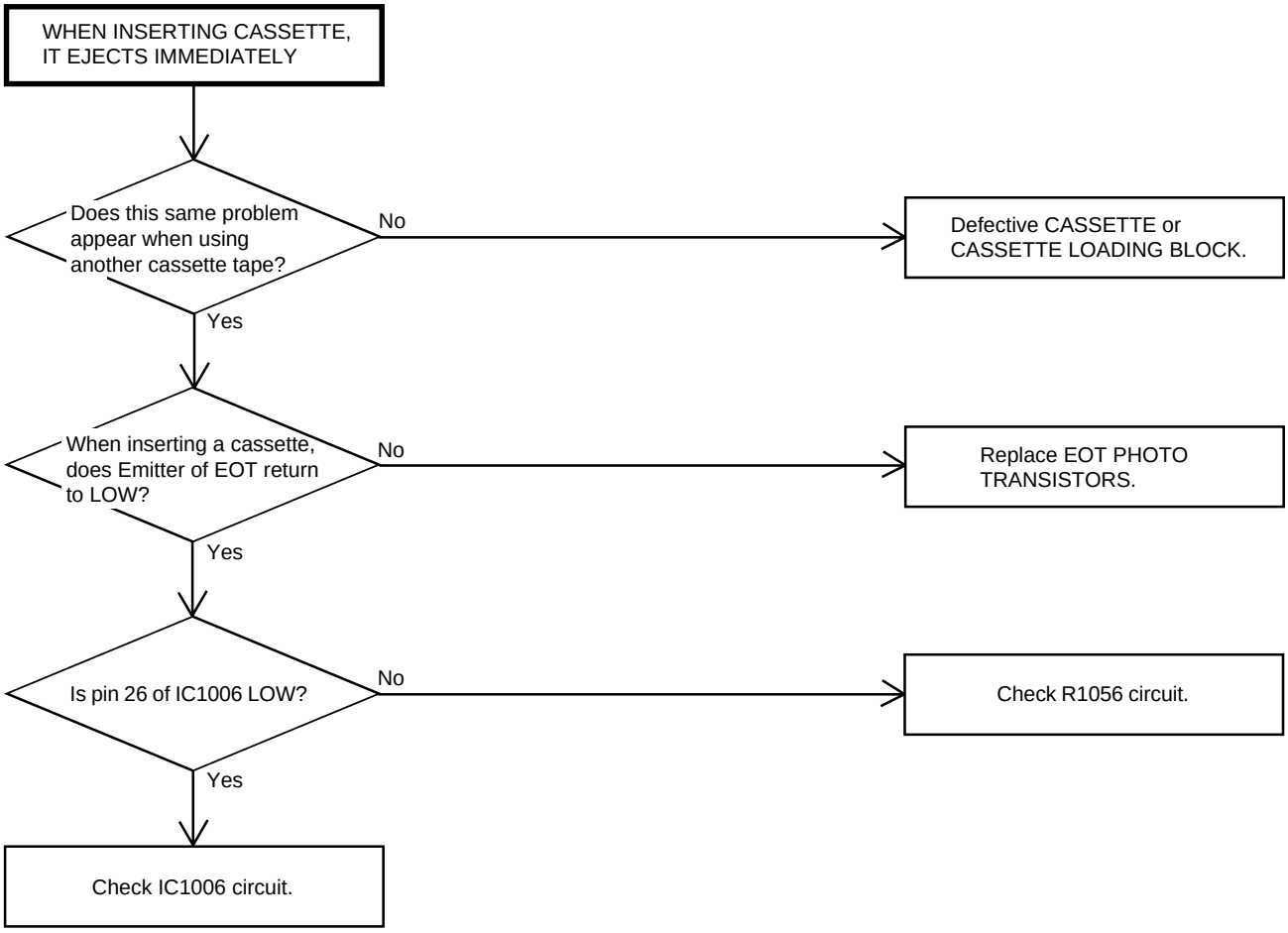

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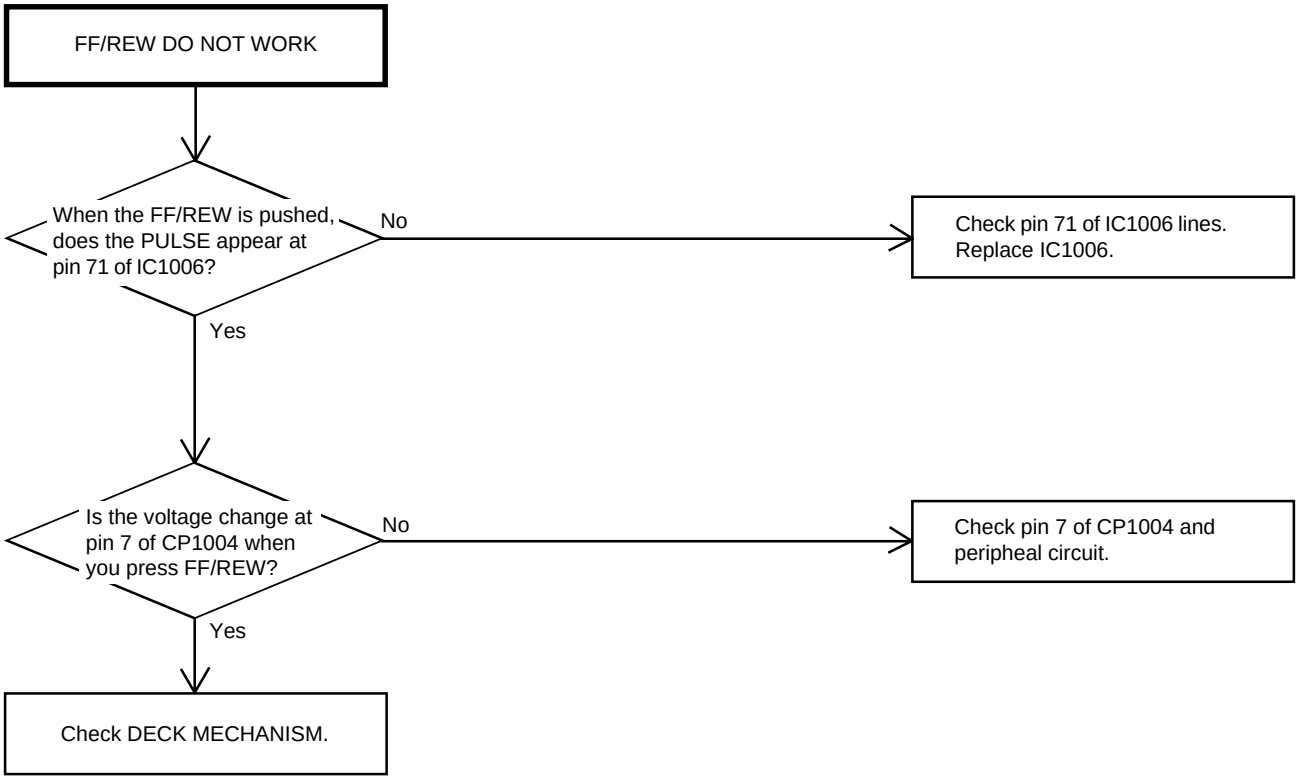

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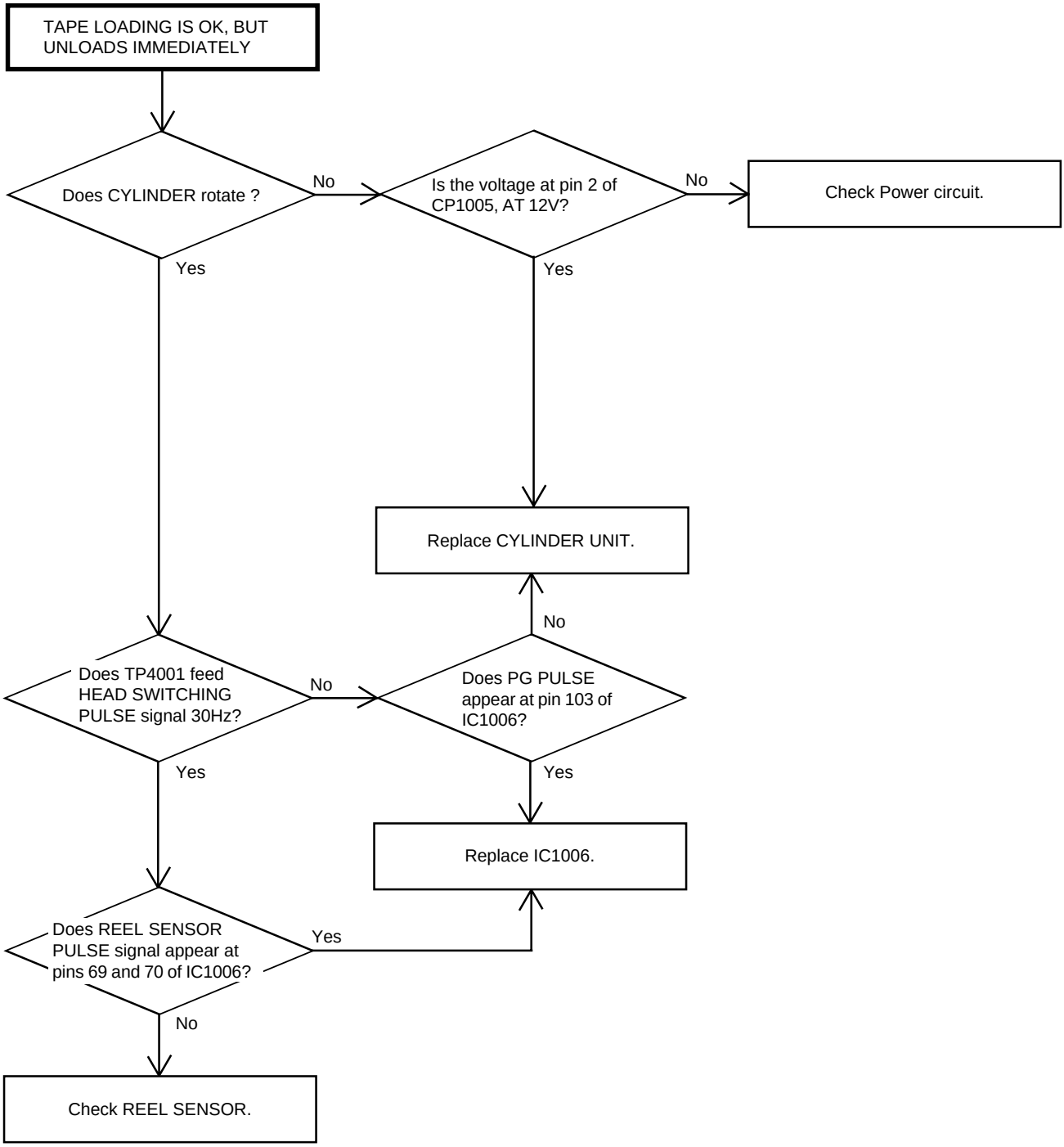

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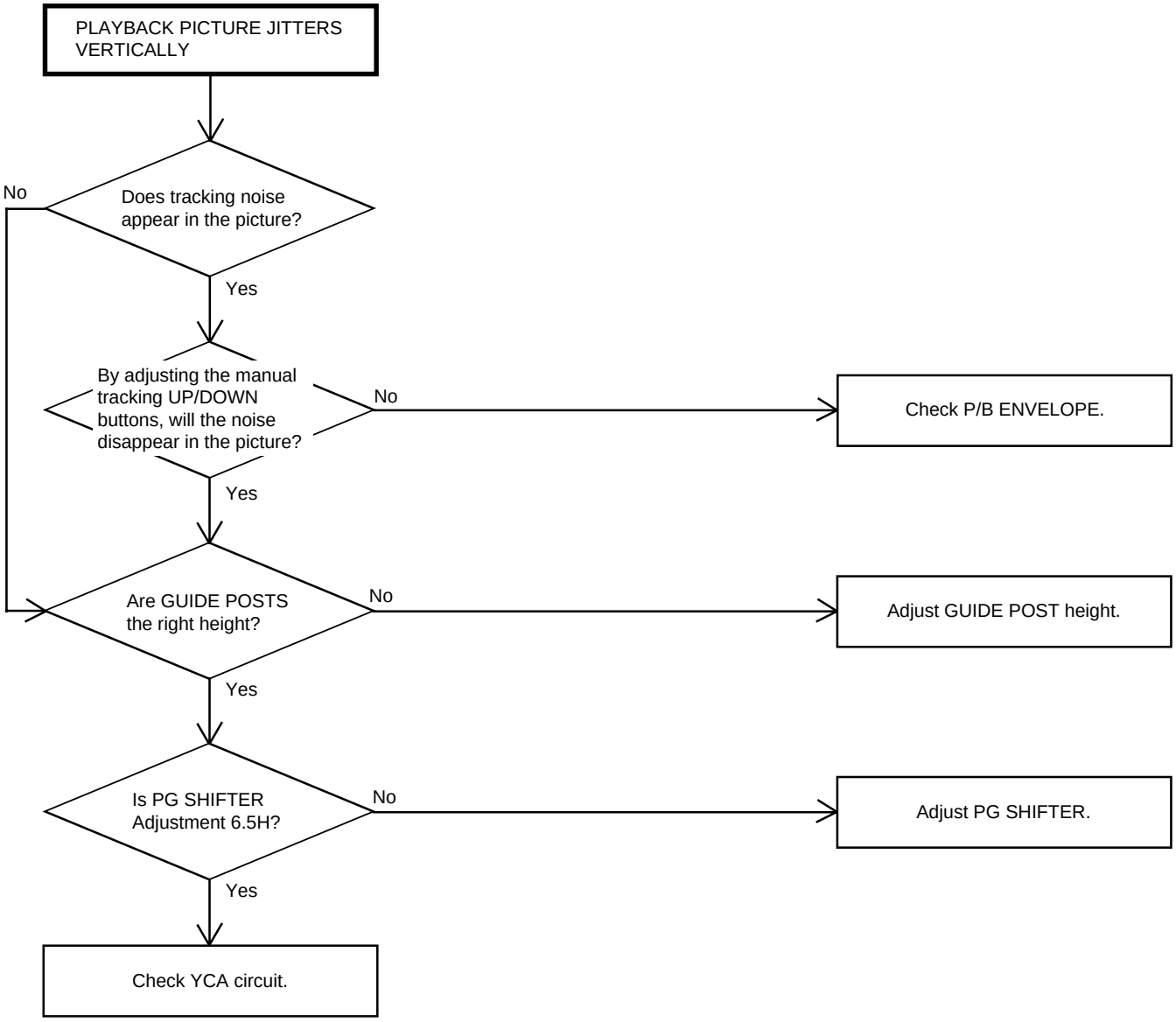

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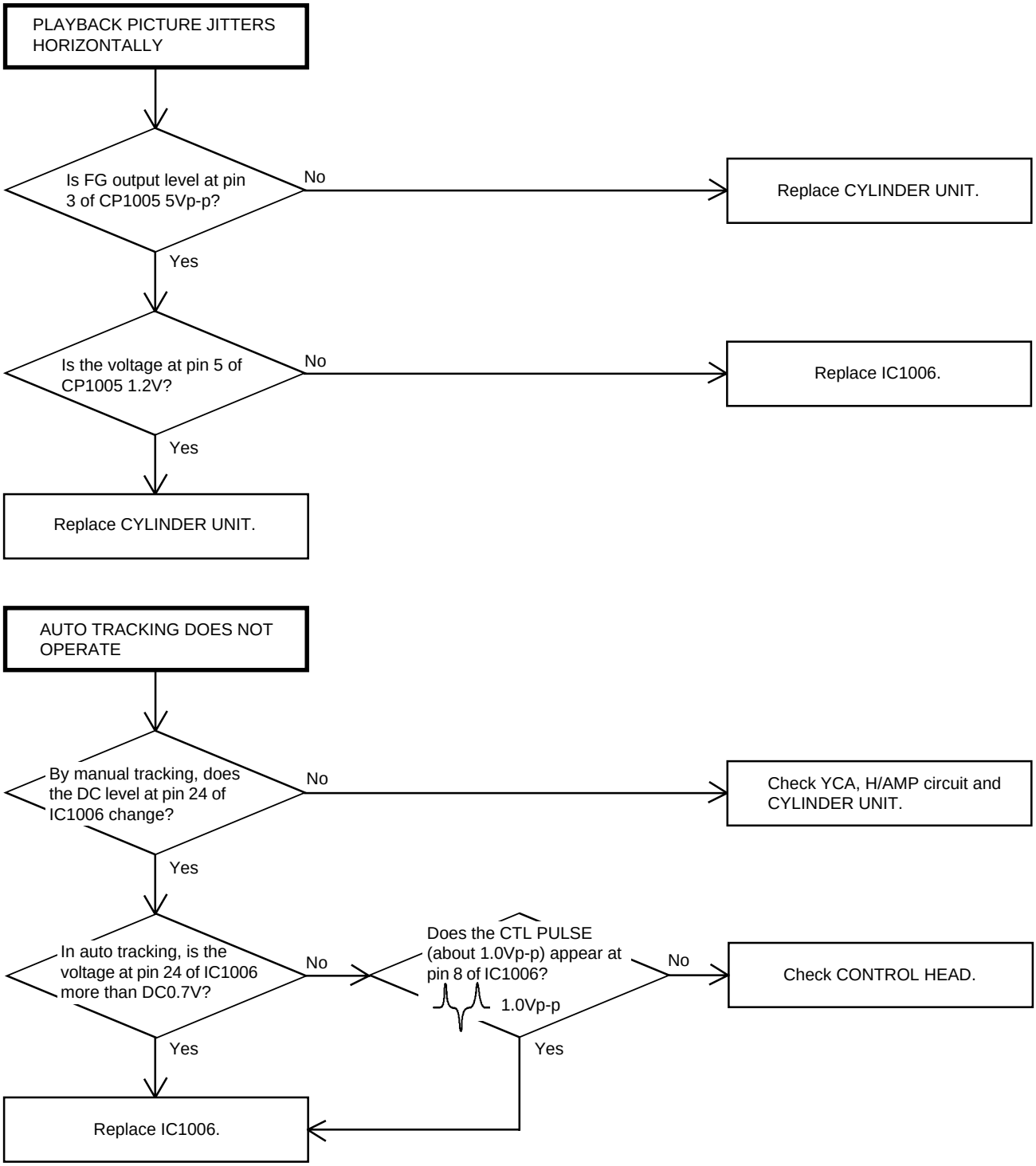

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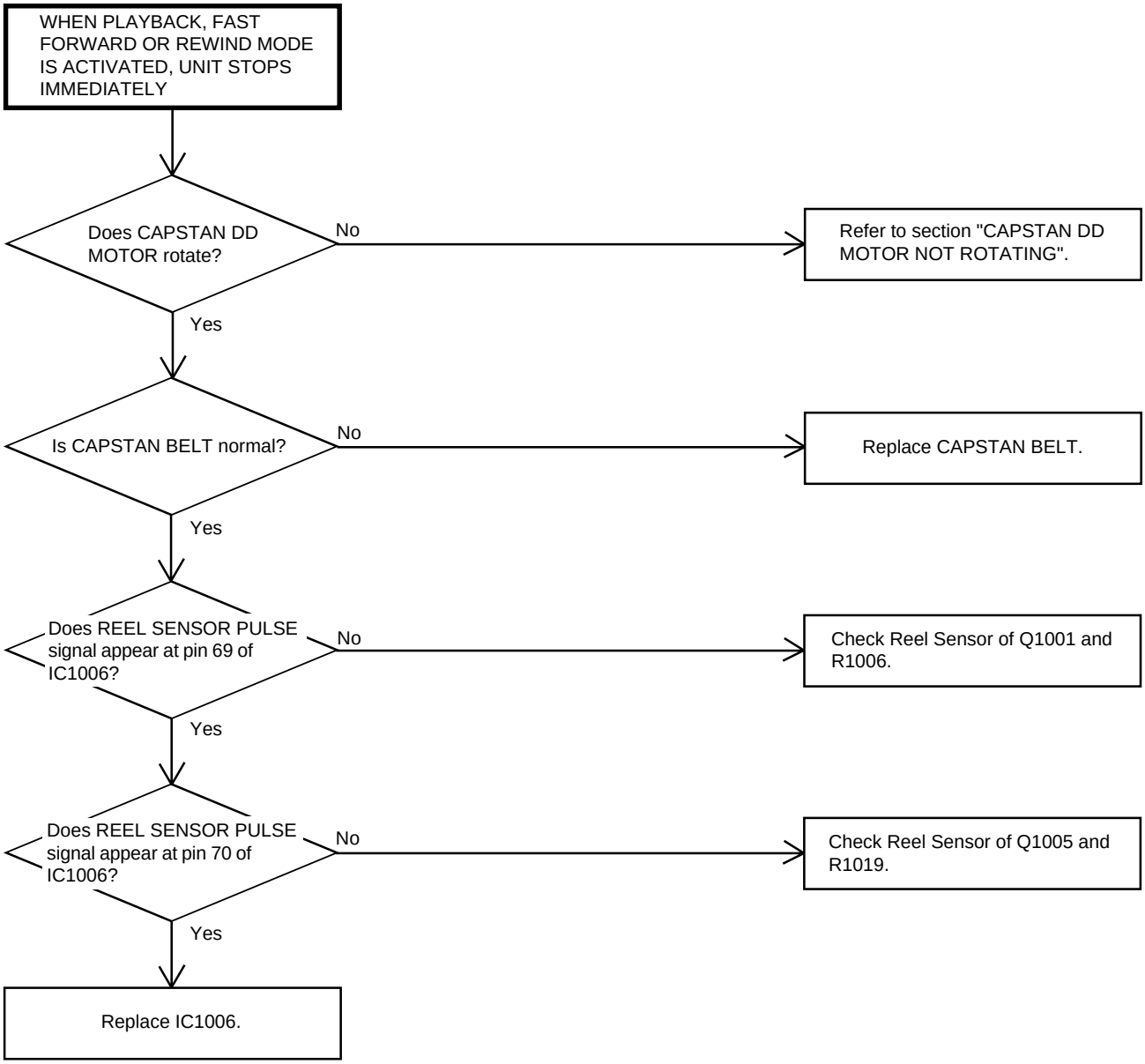

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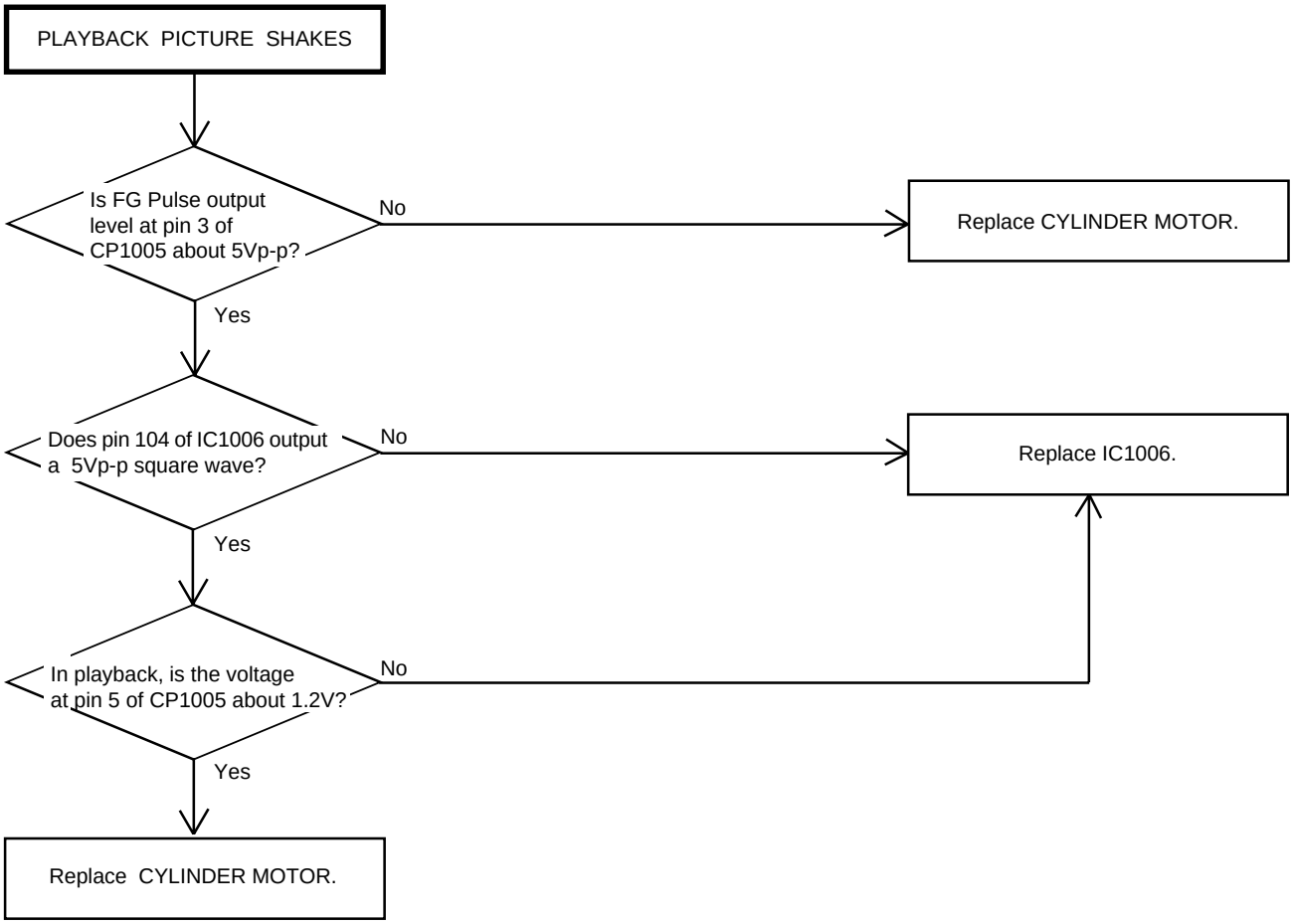


IC DESCRIPTIONS

OEC0093B (IC1006)

No.	PORT	PIN NAME	I/O	DESCRIPTION
1	SVSS	SVSS	—	Ground.
2	CTLREF	CTLREF	OUT	Output terminal for AMP REFERENCE.
3	CTL(+)	CTL(+)	I/O	Input and output terminal of Control Head.
4	CTL(-)	CTL(-)	I/O	Input terminal of Control Head.
5	CTLBIAS	CTLBIAS	IN	Input terminal for Control Bias.
6	CTLFB	CTLFB	IN	Input terminal for Control Feedback.
7	CTLAMP(O)	CTLAMP(O)	OUT	Output terminal for Control Amp Output.
8	CTLSMT(I)	CTLSMT(I)	IN	Input terminal for Control SMT Input.
9	CFG	CFG	IN	Input terminal for Capstan FG Input.
10	SVCC	SVCC	—	P.CON +5 V.
11	AFCPC	AFCPC	IN	Condenser connection for AFC PC.
12	AFCOSC	AFCOSC	IN	Condenser connection for AFC OSC.
13	AFCLPF	AFCLPF	IN	Condenser connection for AFC LPF.
14	H.SYNC	H.SYNC	IN	Input terminal for video H.SYNC signal.
15	V.SYNC	V.SYNC	IN	Input terminal for video V.SYNC signal.
16	CVIN2	CVIN2	IN	Not used.
17	CVIN1	CVIN1	IN	Not used.
18	OSDVCC	OSDVCC	—	AT +5 V.
19	CVOUT	CVOUT	OUT	Not used.
20	OSDVSS	OSDVSS	—	Ground.
21	4/2FSCOUT	4/2FSCOUT	OUT	Not used.
22	4/2FSCIN	4/2FSCIN	IN	2 FSC pulse.
23	AVSS	AVSS	—	Ground.
24	ANB	VIDEO_ENV	IN	Input terminal of Video RF envelope.
25	ANA	BOT	IN	Tape start sensor input signal.
26	AN9	EOT	IN	Tape end sensor input signal.
27	AN8	MSSEN_B	IN	Input terminal of mecha state sensor.
28	AN7	MSSEN_A	IN	
29	AN6	KEY_B	IN	Main unit key input.
30	AN5	KEY_A	IN	
31	AN4	-	IN	Not used.
32	AN3	MESECAM-M	IN	Input terminal of MESECAM or NOT.
33	AN2	AFT.S.CURVE	IN	AFT S.CURVE input for tuner.
34	AN1	DEW	IN	Input terminal of Dew sensor.
35	AN0	TUNER AGC	IN	Input terminal of Electric field strength for Auto setup.
36	AVCC	AVCC	—	AT +5 V.
37	P10/IRQ0	POWER_FAIL	IN	input terminal for power fail.
38	P11	DEGAUSS	OUT	Output terminal for DEGAUSS.
39	P12	SERVICE	IN	Input terminal for Service Mode.
40	P13	P13	IN	AT+5V.
41	P14	IIC_OFF	IN	Input signal to Communications of all the terminals are cut(for Factory adjustment)
42	P15	-	OUT	Not used.
43	P16/IC	REMOCON IN	IN	Receive the remote control signal input.

IC DESCRIPTIONS

OEC0093B (IC1006)

No.	PORT	PIN NAME	I/O	DESCRIPTION
44	P17	32KHz_MONITOR	OUT	Not used.
45	P67	T-REC_LED	OUT	Output terminal control for T-REC-LED voltage drive.
46	P66	REC/OTR_LED	OUT	Output terminal control for REC-LED voltage drive.
47	P65	ON_TIMER_LED	OUT	Output terminal control for ON TIMER-LED voltage drive.
48	P64	PLAY_LED	OUT	Output terminal control for PLAY-LED voltage drive.
49	P63	OTPB_LED	OUT	Output terminal control for OTPB-LED voltage drive.
50	P62	TV POWER_ON-H	OUT	For control of the user TV-power switch ON/OFF.
51	P61	VCR POWER_ON-H	OUT	For control of the user VCR-power switch ON/OFF.
52	P60	CENT_LED	OUT	Output terminal for center LED control.
53	P37	TAB_SW	IN	Input terminal for judge the tape if it has TAB or not.
54	P36	CTL_MONITOR	OUT	Not used.
55	P35	MS_SENS_CTL	OUT	Output terminal to drive sensor control.
56	VCC	VCC	—	AT +5V.
57	VSS	VSS	—	Ground.
58	P27	TRICK_PB-H	OUT	Special effect playback.(CUE/REVIEW/STILL/SLOW etc)
59	SCL0	IIC_CLK_0	OUT	Output Clock terminal for I2CBUS communication.
60	SDA0	IIC_DATA_0	OUT	Output Data terminal for I2CBUS communication.
61	P24	TEXT RESET	OUT	Output terminal of reset for TEXT_IC.
62	P23	SECAM-H	OUT	Output signal of SECAM or NOT.
63	SCK1	AFC OFF-H	OUT	Output terminal of CHROMA AFC cut or NOT.
64	SO1	SO1	OUT	output terminal of FZTAT signal.
65	SI1	SI1	IN	input terminal of FZTAT signal.
66	P47	T'TEXT-H	OUT	Output terminal of TEXT/MIX mode or TV mode.
67	P46	LDM_FWD	OUT	Output signal to control the rotation direction of the loading motor.
68	P45	LDM_RVS	OUT	
69	P44	REEL-S	IN	Input terminal of reel sensor SUPPLY.
70	P43	REEL-T	IN	Input terminal of reel sensor TAKE UP.
71	P42	CAP_FWD-L	OUT	Capstan forward and backward command.
72	P41	CAP_FULL	OUT	Output the HIGH during the acceleration force of Capstan Motor at SLOW mode.
73	P40	VV-H	OUT	Output terminal for select Playback/Recording at the circuit of sound.
74	FWE	FWE	IN	Input terminal of FZTAT signal(L: low signal input).
75	X2	X2	OUT	Subclock pulse (32.768KHz).
76	X1	X1	IN	Subclock pulse (32.768KHz).
77	/RES	/RES	IN	RESET will be done when the voltage goes to HIGH after the restart signal.
78	OSC1	OSC1	IN	Connect the main crystal (10MHz).
79	VSS	VSS	—	Ground.
80	OSC2	OSC2	OUT	Connect the main crystal (10MHz).
81	VCL	VCL	IN	Condenser connection for VCC.
82	MD0	MD0	IN	Input terminal of FZTAT signal.
83	PWM2	CAP_LIMIT	OUT	Switch the maximum out put current of the CAPSTAN Motor.
84	P33	EXT_IN-L	IN	Input terminal for Compulsion outside input.
85	P32	-	OUT	Not used.
86	SV2	STAND_BY-H	OUT	Output terminal control for STAND BY-LED.

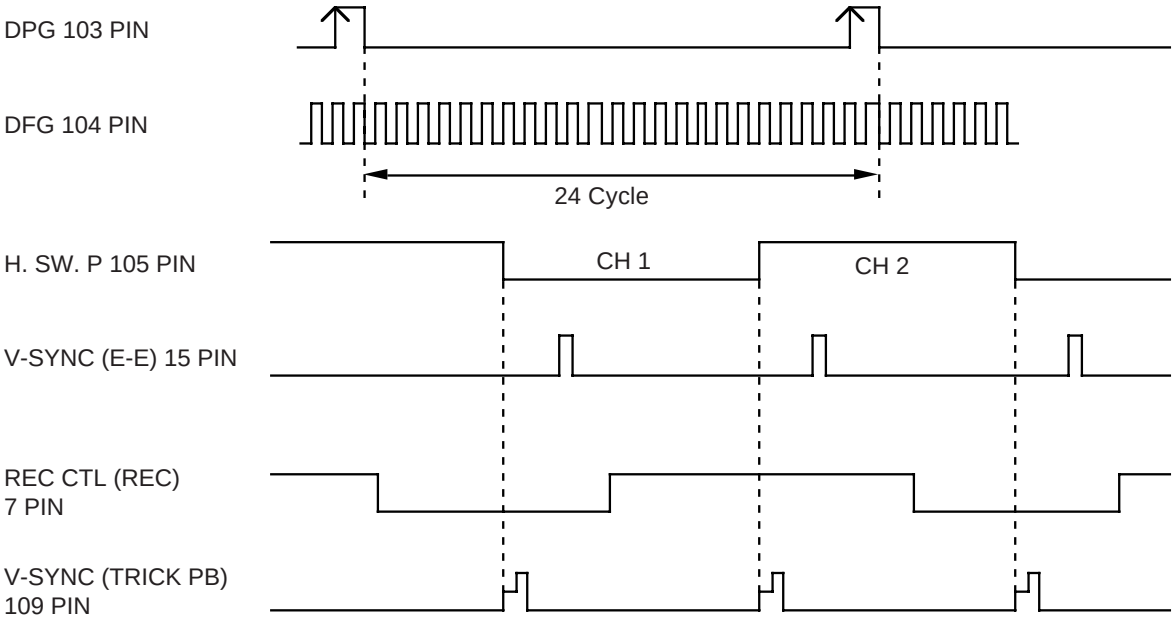
IC DESCRIPTIONS

OEC0093B (IC1006)

No.	PORT	PIN NAME	I/O	DESCRIPTION
87	SV1	SV1	OUT	Not used.
88	P70	TV MUTE-H	OUT	Mute signal of TV mute.
89	P71	VCR MUTE-H	OUT	Mute signal of VCR mute.
90	P72	V.REC.START-H	OUT	Output terminal for REC signal when record.
91	P73	TUNER MUTE-H	OUT	Mute signal of audio mute for tuner.
92	P74	-	OUT	Not used.
93	P75	SOUND B	IN	Input terminal of SOUND IF(4.5MHz,5.5MHz,6.0MHz,6.5MHz).
94	P76	SOUND A	IN	
95	P77	FF/REW-L	OUT	Output terminal for FF/REW or NOT.
96	P80	YCO	OUT	Output signal for OSD Y.
97	P81	BB-L	OUT	Output terminal for Blue Back or NOT.
98	P82	DA RGB SW	OUT	Output signal to cut of RGB sync.
99	C.ROT	R	OUT	Output signal for OSD R.
100	H.AMP.SW	G	OUT	Output signal for OSD G.
101	COMP	B	OUT	Output signal for OSD B.
102	P85	CYL_SPEED_UP	OUT	Output terminal for correct cylinder during SLOW.
103	DPG	DPG	IN	Input terminal for DRUM PG signal.
104	DFG	DFG	IN	Input terminal for DRUM FG signal.
105	VIDEO FF	VIDEO_H.SW	OUT	Output terminal of signal Video head switching.
106	AUDIO FF	-	OUT	Not used.
107	DRUM PWM	DRUM_PWM	OUT	Output terminal for PWM of Drum Motor.
108	CAP PWM	CAP_PWM	OUT	Output terminal for PWM of Capstan Motor.
109	VPULSE	DUMMY.V.SYNC	OUT	Output terminal of Video Pulse signal.
110	VSS	VSS	—	Ground.
111	C.SYNC	C.SYNC	IN	Input terminal for composite C SYNC.
112	VCC	VCC	—	AT +5V.

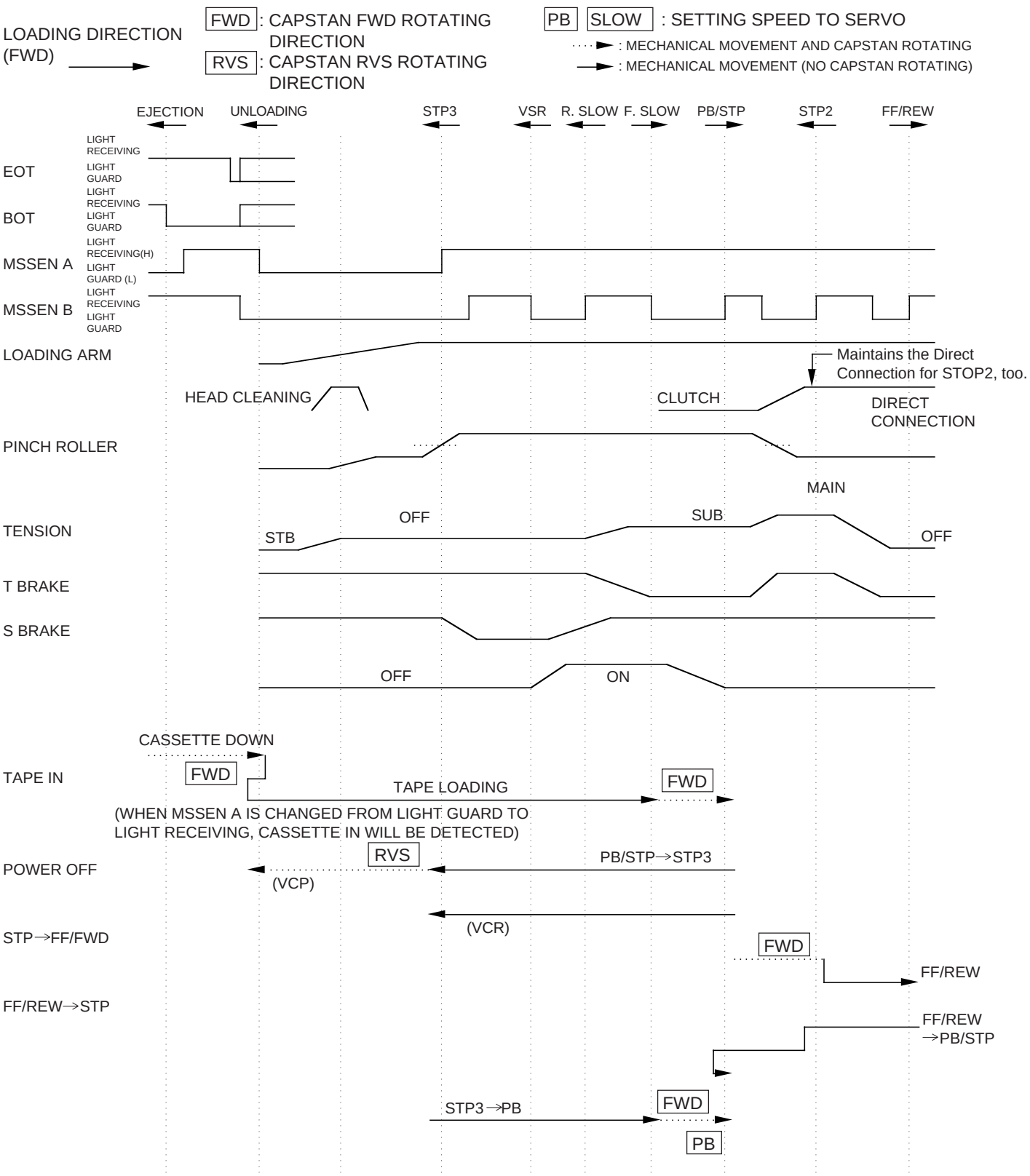
SERVO TIMING CHART

IC1006 (OEC0093B)



• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

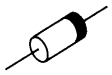
SYSTEM SWITCH MODE



SEMICONDUCTOR BASE CONNECTIONS

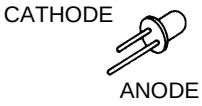
DIODE

1SS133T-77
MTZJ33B T-77
MTZJ5.6B T-77
RB721QT-77
SB10-03A3

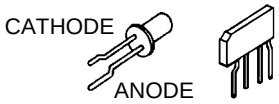


11E1-EIC
11EQS04N-TA1B2
11ES1N-TA1B2
1N4005E-6580-G23
RD12FB-T7
RU2YX-V1

10ELS2N-TA1B2
21DQ09N-TA2B1
EG-01C
EG01Z-V0
RMPG06J-G3
RU2AM V1



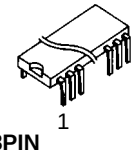
SID1050CM



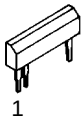
EM-553-F1T
EQ-552-F1T

GBL06L-6177

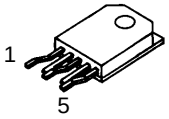
IC



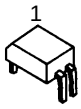
28PIN
ET106
20PIN
ET317
54PIN
LA76812



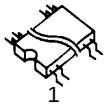
8PIN
BA6955N



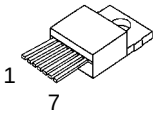
5PIN
STR-F6707



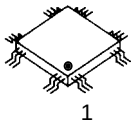
4PIN
TLP621(GR)



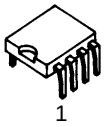
16PIN
TC74HC4053AF



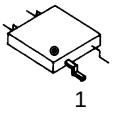
7PIN
LA78040



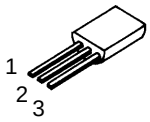
100PIN
HA118217F
112PIN
OEC0093B



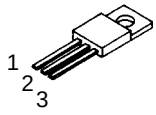
8PIN
S-24C08ADPA-01



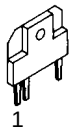
24PIN
LC74793/JM



3PIN
RE5VS31A



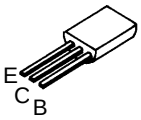
3PIN
KIA7805API
KIA7809API



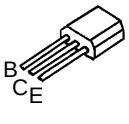
9PIN
AN7523

SEMICONDUCTOR BASE CONNECTIONS

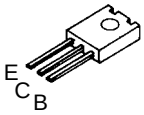
TRANSISTOR



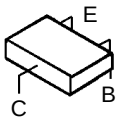
2SA1371(D,E)-AE
2SB892(S,T)-AE
2SC1815Y(TPE2)
2SC2271(D,E)-AE
2SC2909(S,T)-AA
2SC3000-AA
2SC3331(S,T,U)-A
2SC945(C)-T(P,Q)
2SD734(E,F)-AA



2SA933STP(R,S)
DTC114TSTP
DTC114ESTP

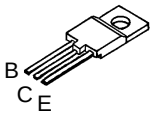


2SC4217(D,E)-RAC

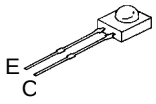


2SA1037AKT146R,S
2SC2412KT146 R,S
DTA124EKAT146
DTC114EKAT146
DTC114EKT147
DTC114TKAT146
DTC124EKAT146

RPI-352Q01R



2SD2499



PNA2604M010R

RPI-301

TV BLOCK DIAGRAM

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

SOUND AMP.
IC352 AN7523

SP351
SPEAKER

J351
HEAD PHONE

T'TEXT

Y/C/AUDIO/
HEAD AMP/
21PIN/IN/OUT

MICON/
OPERATION

CHROMA/IF
IC601
LA76812

X601
4.433619MHz

V. OUTPUT IC401 LA78040
THERMAL PROTECTION
PUMP UP

Q405 H. DRIVE
Q406 H. OUTPUT
DY
FB401
J801
V801
CRT

Q804 RED AMP
Q805 GREEN AMP
Q806 BLUE AMP

B_OUT
G_OUT
R_OUT
AFT_M
VD
HD
TEXT_Y
TEXT_B
TEXT_G
TEXT_R

MICON/
OPERATION

T'TEXT

TU601
SAW FILTER
CF601
Q601 AMP
L608

TH501
DEGAUSS ELEMENT
L503
DEGAUSS COIL
RY501 RELAY
D501 RECTIFIER
F501
AC IN
F502

Q501, Q502 SW.
Q503, Q505 SW.
Q508, Q509 SW.

5V REG.
IC1005 KIA7805API
Q1010 P.CON SW.
P.CON+5V_B

5V REG.
IC1004 KIA7805API
Q1007, Q1019 P.CON SW.
P.CON+5V

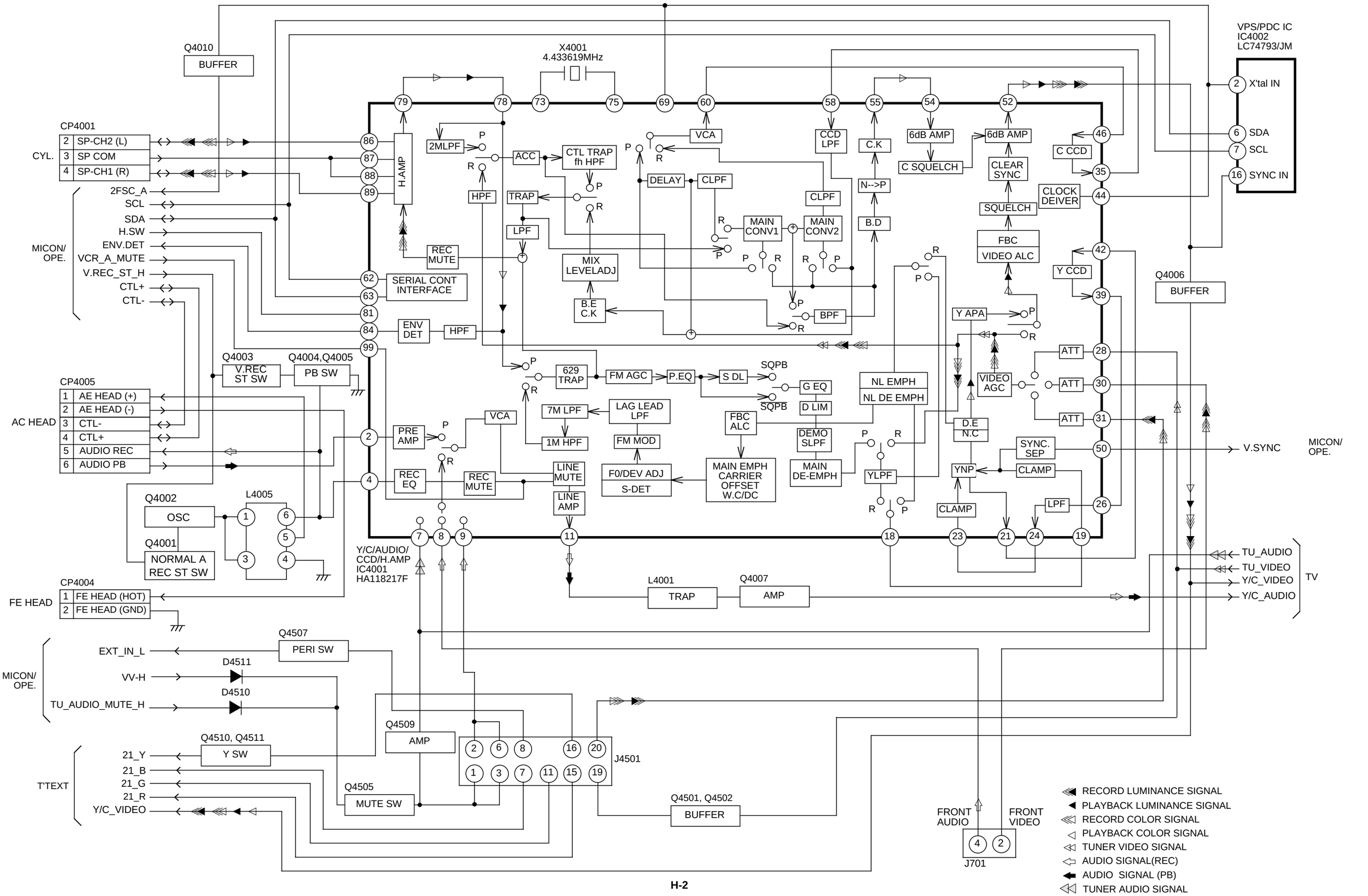
9V REG.
IC1003 KIA7809API
Q1008, Q1018 P.CON SW.
P.CON+9V

CP810
CD810
AT+30V
AT+12V

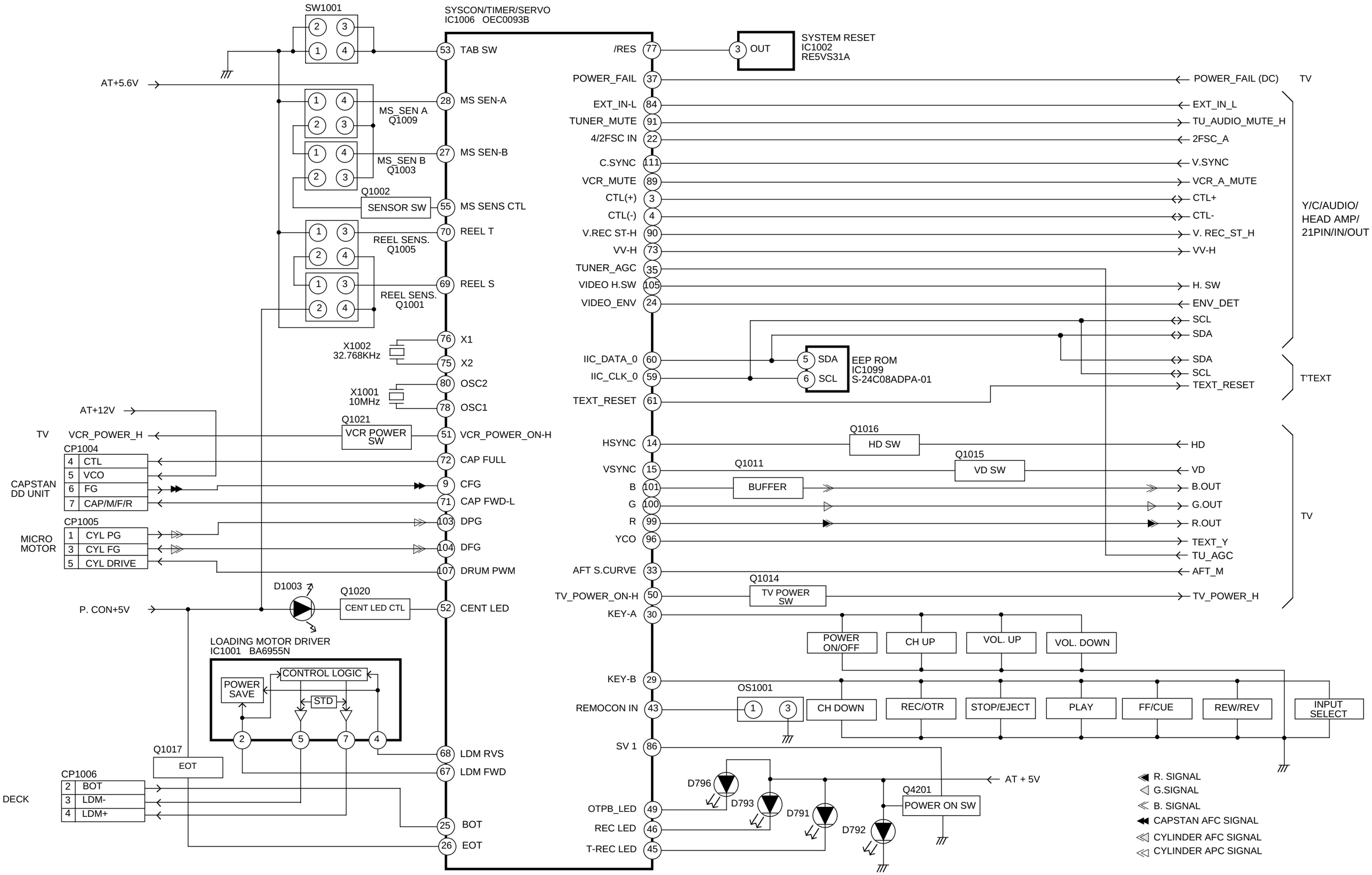
IC506 TLP621
FEED BACK SW.
FEED BACK
Q507
Q506 5V SW.
Q513 5V SW.
VR502
+B ADJ.
POWER REG.
IC501
STR-F6707
Q504 RELAY DRIVE
T501

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

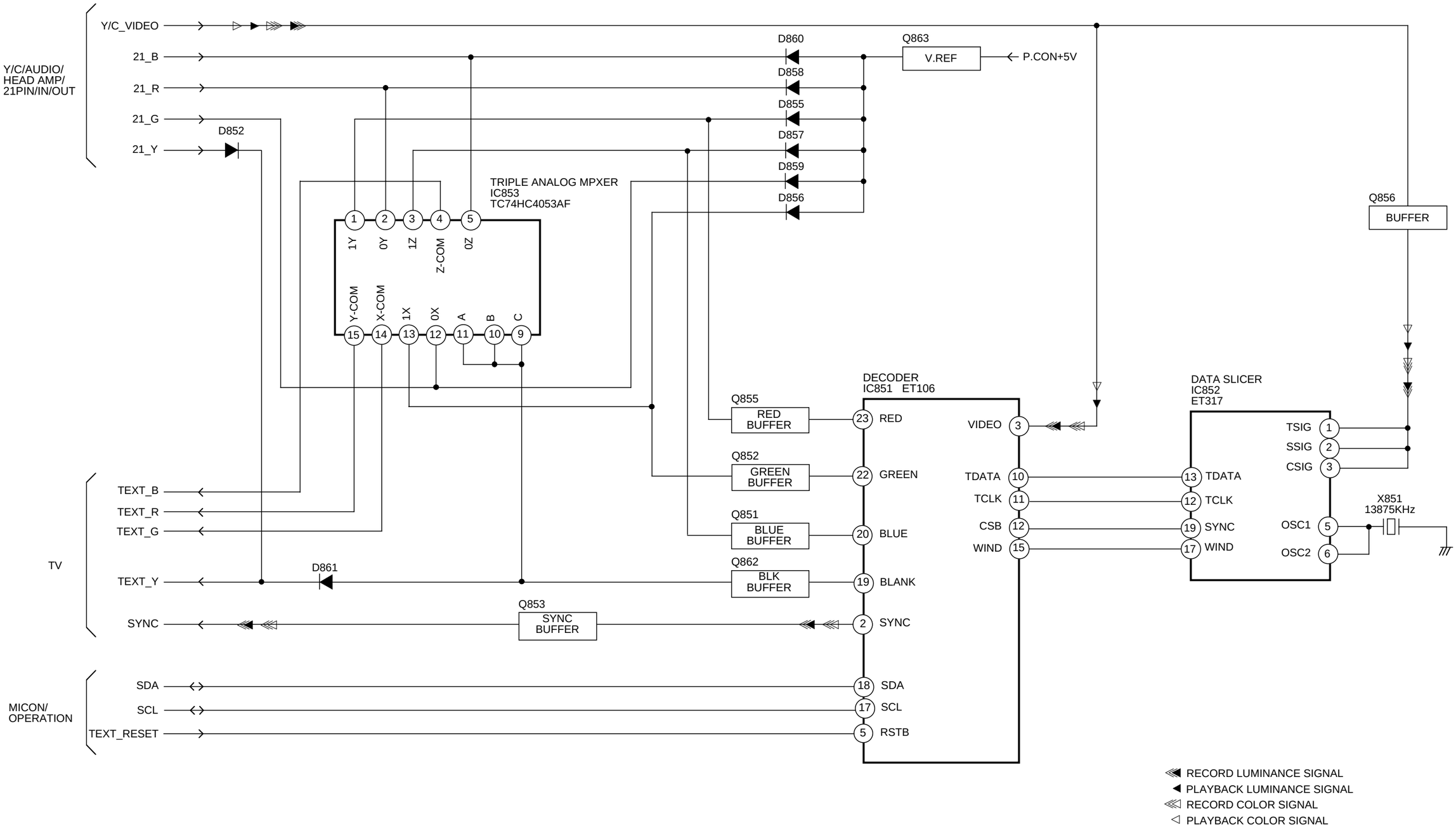
Y/C/AUDIO/HEAD AMP/21PIN/IN/OUT BLOCK DIAGRAM



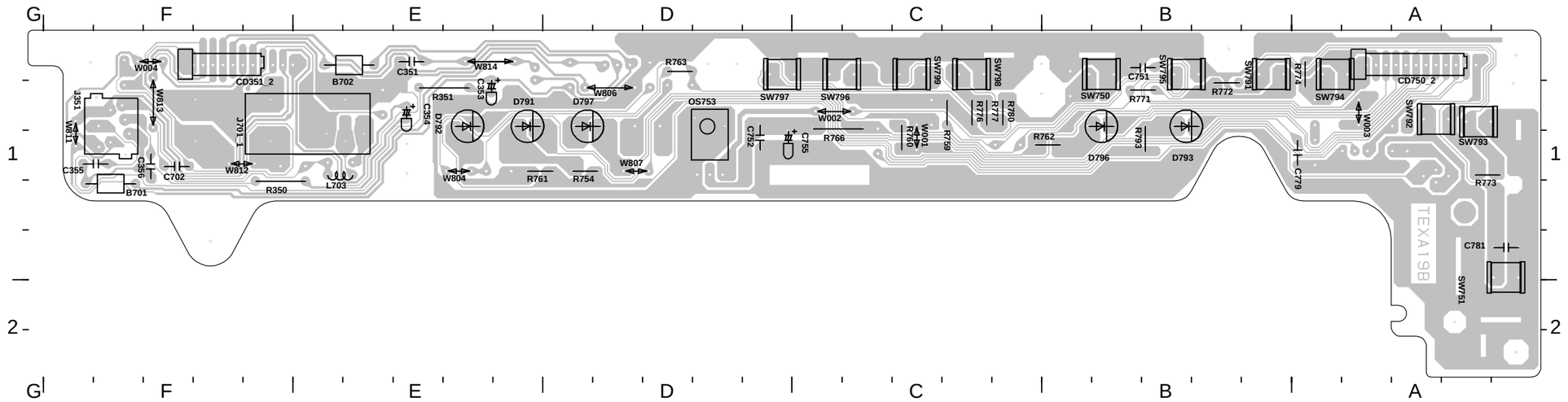
MICON/OPERATION BLOCK DIAGRAM



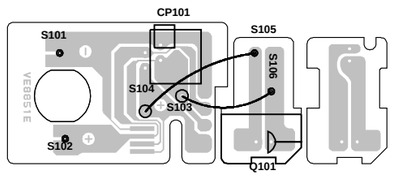
T'TEXT BLOCK DIAGRAM



OPERATION
SOLDER SIDE



DECK
SOLDER SIDE



OPERATION SCHEMATIC DIAGRAM

(OPERATION PWB)

FROM/TO 21PIN I/O
CD750_2(CP757)
CH2A014A

1	REMOCON OUT
2	GND
3	AT+5V
4	POWER ON L
5	OTPB LED
6	KEY A
7	T-REC LED
8	REC LED
9	KEY B
10	ON TIMER LED

L005
HF57T18.5*10*10

C781 0.001 B
POWER ON/OFF
SW751 SKHVBED010
R759 820 1/4W
R760 820 1/4W
REC/OTR
SW795 SKHVBED010
R771 1K 1/4W
STOP/EJECT
SW701 SKHVBED010
R772 1.5K 1/4W
PLAY
SW792 SKHVBED010
R773 2.7K 1/4W
FF/CUE
SW793 SKHVBED010
R774 5.6K 1/4W
REW/REV
SW794 SKHVBED010

C779 0.001 B
CH DOWN
SW799 SKHVBED010
CH UP
SW798 SKHVBED010
R776 1K 1/4W
VOL UP
SW796 SKHVBED010
R777 1.5K 1/4W
VOL DOWN
SW797 SKHVBED010
R780 2.7K 1/4W
PLAY BACK
SW750 SKHVBED010

R766 100 1/2W
C755 6.3V 220KA
C752 0.1 F
C751 100P B
OS753 PIC-28143TH5
GND
B+
Vout

REC/OTR
D793 EQ-552-F1T
R793 270 1/4W
T-REC
D791 EQ-552-F1T
R754 270 1/4W
R761 270 1/4W
R762 270 1/4W
POWER LED
D792 EQ-552-F1T
W804
OTPB LED
D796 EM-553-F1T
R763 270 1/4W
ON TIMER LED
D797 EQ-552-F1T
W807

J351 HTJ-035-28A
NC
W811
C354 16V47 KA
R350 220 1/2W
C353 16V47KA
R351 220 1/2W

B702 BL01RN1-A63
B701 BL01RN1-A63
W814
C355 0.0047 X
C356 0.0047 X

C351 470P B
L703 10uH
W812
W813
W806
C702 0.0022 B
VIDEO
AUDIO L
J701_1 JPJ3811-01-430

L004
HF57T18.5*10*10

FROM/TO 21PIN I/O
CD351_2(CP351)
CH27087A

1	FRONT VIDEO IN
2	GND
3	FRONT AUDIO IN
4	SOUND GND
5	SOUND OUT
6	SP OUT
7	GND

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

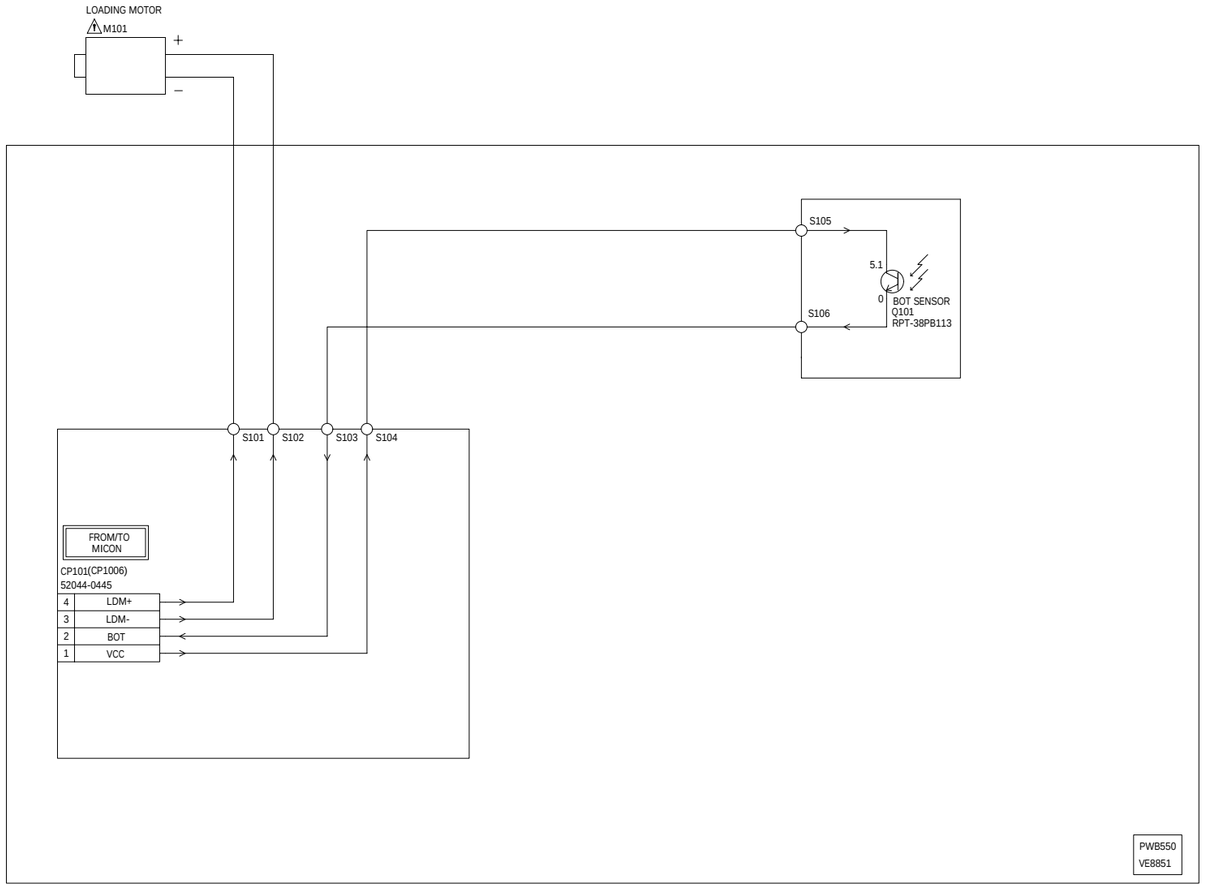
PWB030
TEXA19

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.

DECK SCHEMATIC DIAGRAM

(DECK PWB)



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

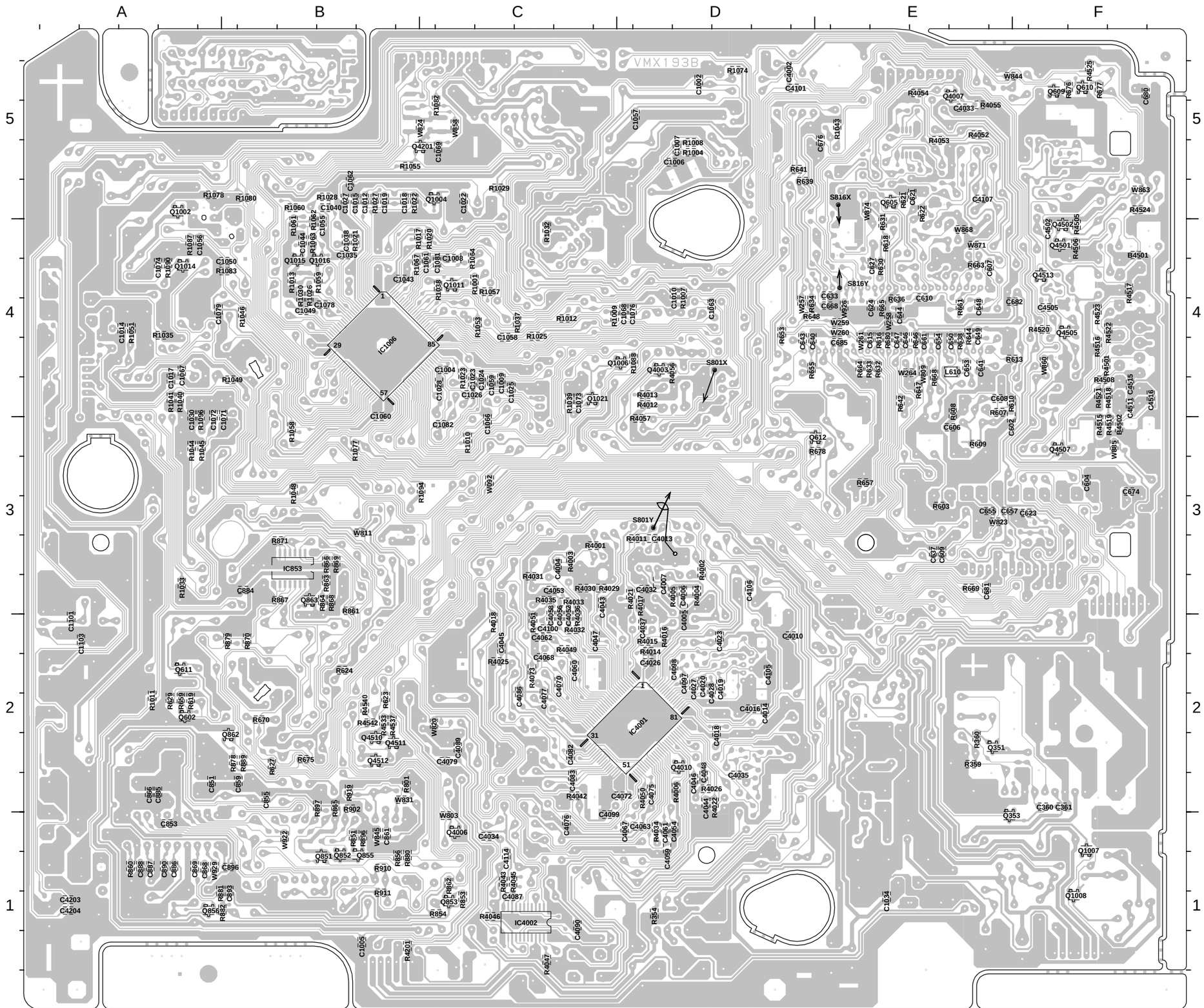
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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 。

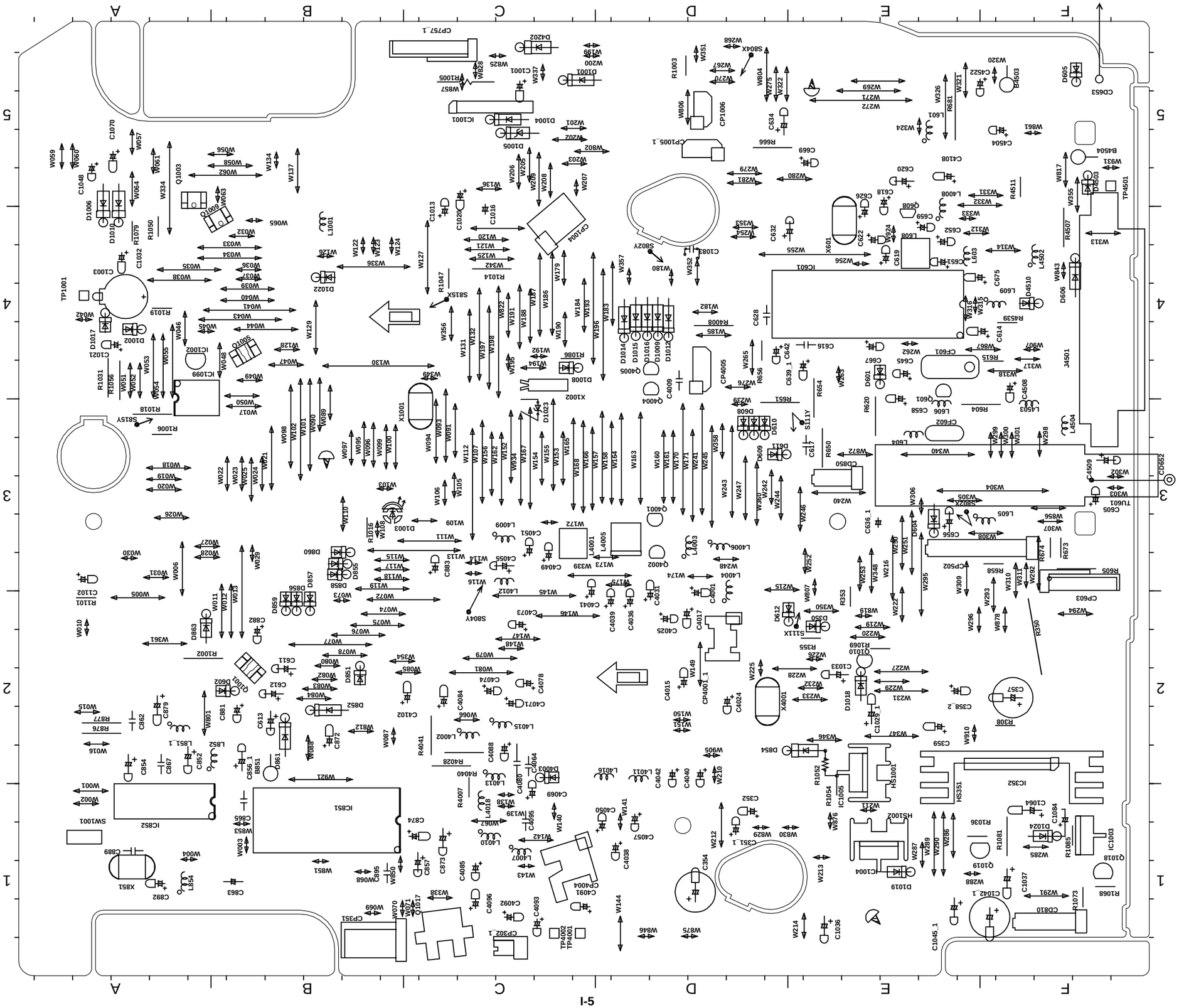
PRINTED WIRING BOARDS

SYSCON



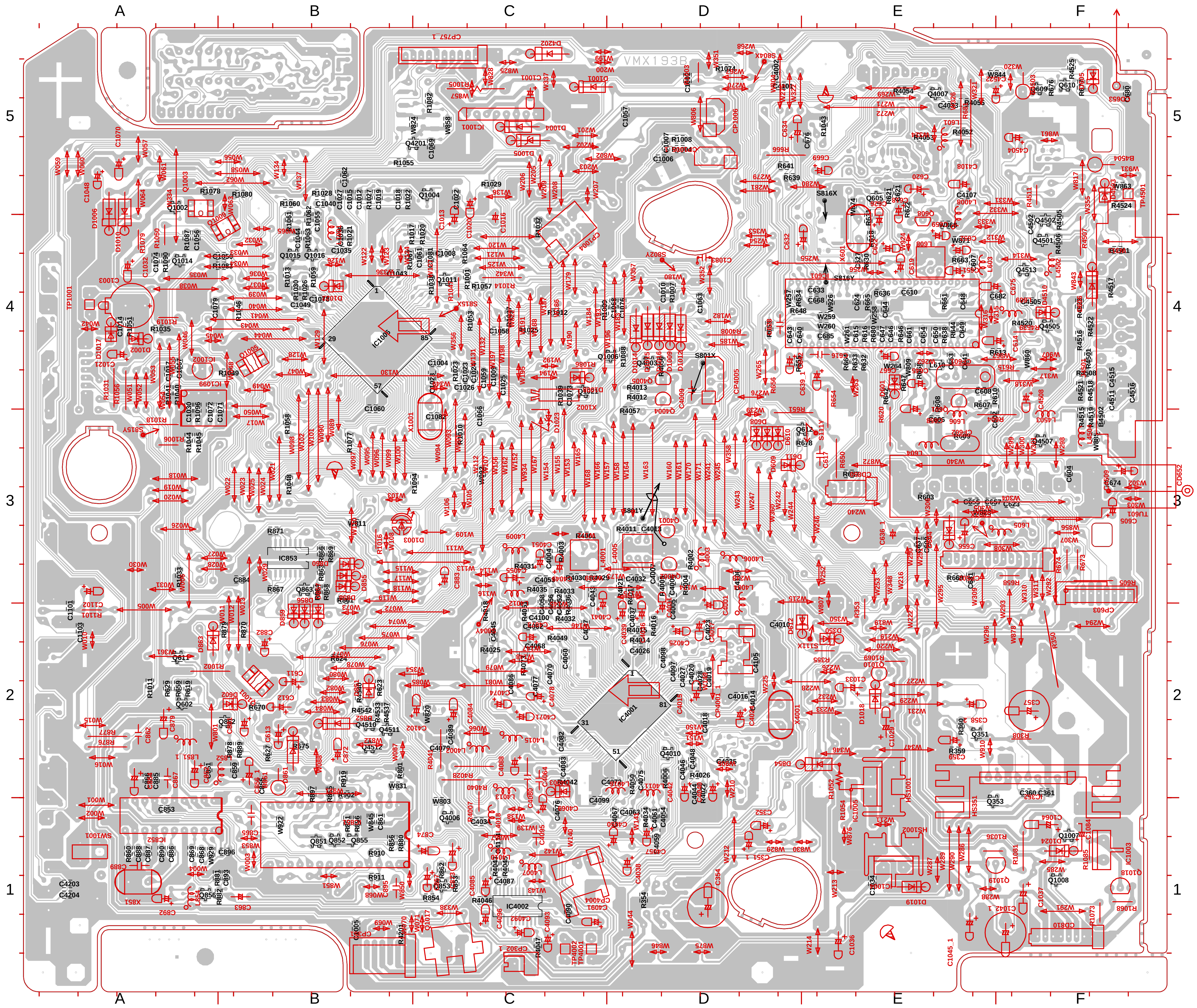
PRINTED WIRING BOARDS

SYSCON



PRINTED WIRING BOARDS

SYSCON

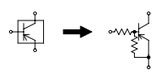


Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PWB)

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

CAUTION: DIGITAL TRANSISTOR



FROM/TO POWER

FROM/TO CYL

CP4001_1
TOC-C04X-B1

4	SP-CH1 (R)
3	SP COM
2	SP-CH2 (L)
1	NC

FROM/TO HEAD AUDIO CONTROL

CP4005
IMSA-9604S-06Z14

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

FROM/TO FULL ERASE HEAD

CP4004
TMC-T02X-E1

2	FE HEAD(GND)
1	FE HEAD(HOT)

FROM/TO CHROMA/IF
TU_VIDEO
TU_AUDIO
Y/C_VIDEO
Y/C_AUDIO

FROM/TO 21PIN I/O
FRONT_VIDEO
REAR_VIDEO
FRONT_AUDIO
REAR_AUDIO
Y/C_VIDEO
Y/C_AUDIO

FROM/TO T'TEXT
Y/C_VIDEO

FROM/TO MICON
VCR_A_MUTE
H.SW
V.SYNC
SCL
SDA
2FSC_A
MESECAM_M
D.V_SYNC
V.REC_ST_H
ENV_DET
CTL+
CTL-

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。

PWB010
VMX193

MICON SCHEMATIC DIAGRAM (SYSCON PWB)

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 。

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

FROM/TO POWER

AT+5.6V
GND
VCR_POWER_H
P.CON+5V
AT+12V
MOTOR_GND (LDM)

D1006 SB10-03A3
D1010 SB10-03A3

LOADING MOTOR DRIVER IC
⚠ IC1001 BA6955N

CONTROL LOGIC
TSD
POWER SAVE

FROM/TO DECK

CP1006 IMSA-9604S-04Z14 (CP101)

1	VCC
2	BOT
3	LDM-
4	LDM+

FROM/TO MICRO MOTOR

CP1005_1(CD2001) IMSA-9604S-05Z14

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)

SYSCON/TIMER/SERVO IC
IC1006
OEC0093B

FROM/TO Y/C/A/H.AMP

VCR_A_MUTE
H.SW
V.SYNC
SCL
SDA
2FSC_A
MESECAM_M
D.V_SYNC
V.REC_ST_H
ENV_DET
CTL+
CTL-

FROM/TO 21PIN I/O

ON_TIM_LED
KEY_B
REC_LED
T-REC_LED
KEY_A
OTPB_LED
REMOCON_IN
STANDBY_H
TUNERON/OFF-A
VV-H
EXT_IN_L
TU_AUDIO_MUTE_H
AT+5.6V_A

FROM/TO CHROMA/IF

T_TEXT-H
SD-L/AFC-OFF-H
VV-H
VCR_POWER_H
TV_POWER_H
HD
VD
R.OUT
G.OUT
B.OUT
TEXT_Y
SDA
SCL
IIC_OFF
AFT_M
TUNER_AGC
POWER_FAIL[DC]
DEGAUSS_H

FROM/TO T'TEXT

AT+5.6V_A
TUNERON/OFF-A
SCL
SDA
TEXT_RESET

FROM/TO SOUND AMP

M.POWEROFFMUTE_H
TV_POWER_H
TV_A_MUTE

MAIN POWER OFF MUTE SW Q1006 DTA124EKA
VCR POWER SW Q1021 2SC2412K
TV POWER SW Q1014 2SC2412K
SERVICE TP1001 JWF-50K-1
HD SW Q1016 2SC2412K
VD SW Q1015 2SC2412K
BUFFER Q1011 2SC2412K
EEP ROM IC IC1099 S-24C08AFJPA-01
SENSOR SW Q1002 2SC2412K
REEL SENSOR Q1001 RPI-301
REEL SENSOR Q1005 RPI-301
MS_SEN A Q1009 RPI-352Q01R
MS_SEN B Q1003 RPI-352Q01R
SYSTEM RESET IC IC1002 RE5VS31A
EOT Q1017 PNA2604M010R
FF/REW SW Q1004 DTC124EKA
TAB SW SW1001 SPVF130100

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 。

CAUTION: DIGITAL TRANSISTOR

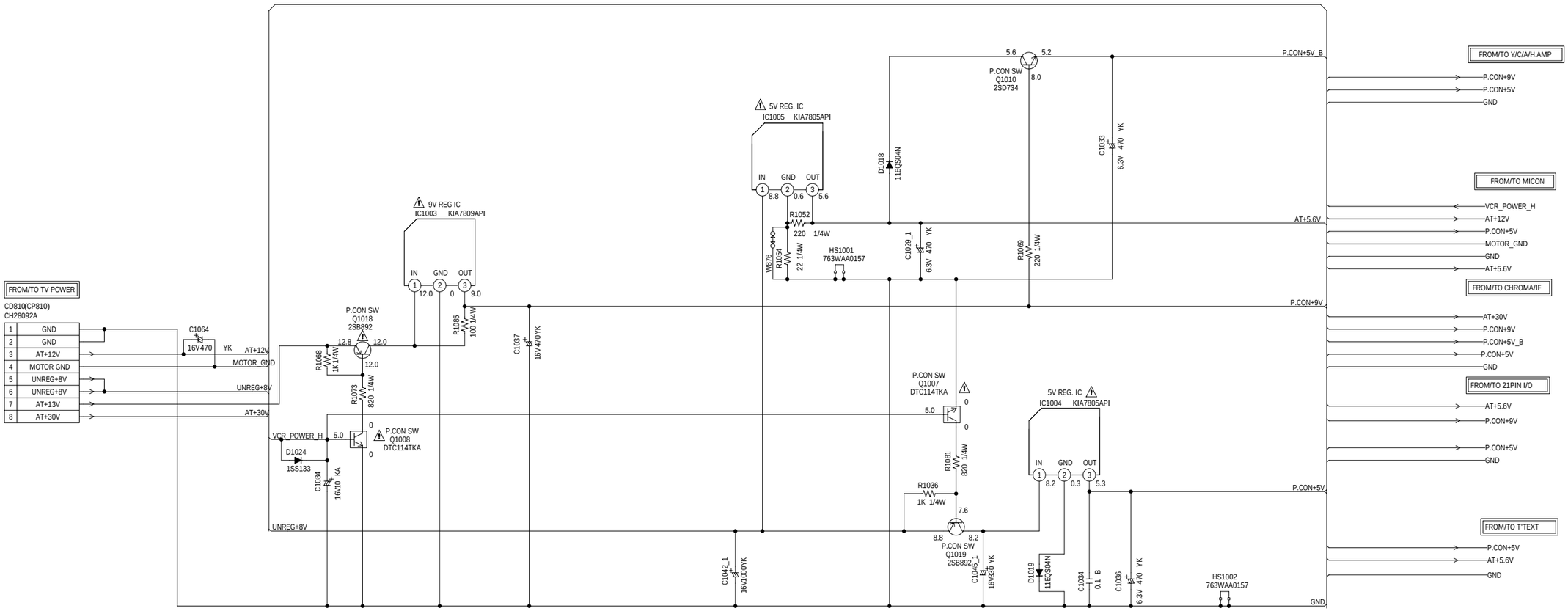
CAUTION: DIGITAL TRANSISTOR

◀ R.SIGNAL
◀ G.SIGNAL
◀ B.SIGNAL
◀◀ CAPSTAN AFC SIGNAL
◀◀ CYLINDER AFC SIGNAL
◀◀ CYLINDER APC SIGNAL

PWB010
VMX193

POWER SCHEMATIC DIAGRAM

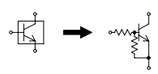
(SYSCON PWB)



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: DIGITAL TRANSISTOR



PWB010
VMX193

21PIN/IN/OUT SCHEMATIC DIAGRAM

(SYSCON PWB)

FROM/TO MICON

ON_TIM_LED
KEY_B
REC_LED
T-REC_LED
KEY_A
OTPB_LED
REMOCON_IN
STANDBY_H
TUNERON/OFF-A
VV-H
EXT_IN_L
TU_AUDIO_MUTE_H
AT+5.6V_A

FROM/TO OPERATION
CP757_1 (CD750)
8283_1012_00_000

10	9	8	7	6	5	4	3	2	1
ON TIMER LED	KEY B	REC LED	T-REC LED	KEY A	OTPB LED	POWER ON L	AT+5V	GND	REMOCON OUT

FROM/TO OPERATION
CP35X(CD351)
173975-7

7	6	5	4	3	2	1
GND	SP OUT L	SOUND OUT L	SOUND GND	FRONT A.IN L	GND	FRONT VIDEO IN

FROM/TO SOUND AMP
SOUND_GND_A
SOUND+
SP_OUT

FROM/TO POWER
AT+5.6V
P.CON+5V
GND
P.CON+9V

FROM/TO CHROMA/IF
EXT_H
SHIELD_GND

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

FROM/TO T'TEXT
21_Y
21_R
21_G
21_B

W822 W824 W825 W828 W858 W857
C1103 100P CH
C4204 0.1 B
C4203 0.1 B
POWER ON SW Q4201 DTC114EK
D4202 11ES1N
R4201 75
C1101 0.1 B
C1102 6.3V 100 KA
R1101 100 1/4W
21_R 21_G 21_B
V.OUT TP4501 JWF-50K-1
31
R4524 68
W885 C4509 16V 10 KA W860 W907
W821 W863
B4501 BLM21A601SPT
R4523 75 R4522 75 R4521 75
L4504 100H
32
J4501 035_0_9985_05
R4533 10K R4537 10K
21_Y
Y SW Q4510 2SC2412K
Y SW Q4511 2SC2412K
R4540 1K R4516 75 R4517 75
W812
EXT_H
TUNERON/OFF-A R4542 10K
TUNER SW Q4512 2SC2412K
C4515 470PCH C4516 470PCH C4511 470P CH
R4501 56K R4518 5.6K R4519 5.6K
L4503 10uH C4508 50V 1 KA
R4508 6.8K
B4502 BLM21A601SPT
R4515 120K
R4520 1K
VV-H SW Q4513 2SC2412K 4.3
MUTE SW Q4505 2SC2412K
D4510 1SS133
R4511 4.7K 1/4W
R4539 4.7K 1/4W
W844 W804 W817
C4522 16V 10 KA
C4504 16V 10 KA
W861
P.CON+5V
P.CON+9V
R4507 150 1/2W
L4502 100uH W843
R4506 22K
BUFFER Q4501 2SC2412K
BUFFER Q4502 2SA1037AK
R4525 100
C4502 1 B
C4505 0.018 B
R4505 12K D4503 1SS133
PERI SW Q4507 2SC2412K
B4503 LFP3A-M3R2TA
B4504 LFP3A-M3R2TA

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: DIGITAL TRANSISTOR

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)
⋙ TUNER AUDIO SIGNAL
≪ TUNER VIDEO SIGNAL

◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL
⋘ RECORD LUMINANCE SIGNAL
⋘ RECORD COLOR SIGNAL

PWB010
VMX193

CHROMA/IF SCHEMATIC DIAGRAM

(SYSCON PWB)

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

FROM/TO MICON
T_TEXT-H
SD-L/AFC-OFF-H
VV-H
TEXT_Y
VCR_POWER-H
TV_POWER-H
HD
VD
R.OUT
G.OUT
B.OUT
POWER_FAIL[DC]
DEGAUSS_H
TUNER_AGC
SDA
SCL
IIC_OFF
AFT_M
TEST POINT
CP603 8283_0912_00_000
9 P.CON+9V
8 AUDIO_OUT
7 VIDEO_OUT
6 AFT
5 AGC
4 IIC_OFF
3 SDA
2 SCL
1 GND
P.CON+5V_B
P.CON+9V
Y/C_AUDIO
Y/C_VIDEO
AUDIO_OUT
TU_AUDIO
SAW FILTER
CF601
SAF39.5MZL220ZL
CD652
CH1408A
W872
TU601
NJM3023M/218
AGC
NC
NC
SCL
SDA
NC
+5V
NC
+30V
NC
IF
L605
100uH 0607
P.CON+5V_B
R603
75
FILTER
CERAMIC TRAP
CF602
MKT41.5MA110P
L604
0.22uH
W823
S802X
S802Y
L002
ESD-R-30SD
C602
0.01 B
R607
6.8K
R609
150
L606
2.2nH
C608
0.001 B
C606
0.022 B
AMP
Q601
2SC3000
R604
4.7K
100 1/2W
R608
2.2K
R610
47
Y/C_AUDIO
FROM/TO POWER
C655
0.1 F
AT+30V
P.CON+9V
P.CON+5V_B
GND
P.CON+5V
FROM/TO T'TEXT
TEXT_B
TEXT_G
TEXT_R
TEXT_Y
SYNC
CHROMA/IF IC
LA76812
IC601
VOL DC
RF AGC
IF AGC
VIF
SW
DET FM
AMP LIM
BPF
SPLL
DET VIDEO
TRAP
AMP VIDEO
PLL A2C
AFT
IDENT IF
CORING PEAKING
STRETCH BLACK
LINE DELAY
SEP SYNC
TRAP
SW VIDEO
ACC
DEMD
SW PAL
BAF
SW
APC1
TINT
VCO
APC2
KILLER CW
CLMP
DC ADS.
1H DELAY
CLAMP COLOR
ALC LPF
1/256
VCO HDR
FBP
AFC1
C/D HDR
AFC2
SHIFTER PHASE
SW OSD
C/D VER
SEP VER
CONTRAST OSD
BRIGHT CONTRAST
MATRIX RGB
BUS
ABL
CLAMP
DRIVE/OUT-OFF
B.AKB
RAMP VER
VCC HDR
OUT HDR
SW Q611 DTC114TKA
V.REF Q602 2SC2412K
D602 1SS133
D601 1SS133
SD SW Q609 2SC2412K
SD SW Q610 2SC2412K
D604 11ES1N
D605 1SS133
D606 1SS133
D608 1SS133
D609 1SS133
D610 1SS133
D611 1SS133
D612 1SS133
M.POWEROFFMUTE_H
SPOT SW Q612
DTC114TKA
BUFFER Q608 2SA933S
BUFFER Q605 2SC2412K
X601 4.433619MHz
L608 COIL,VIDEO IFT 360K043
L609 100uH 0607
L610 2.2uH
L603 15uH
L601 100uH 0607
FROM/TO SOUND AMP
AUDIO_OUT
SOUND_GND
SOUND+B
FROM/TO DEFLECTION
CP502 (CP820)
CH2D068A
SOUND +B 1
SOUND GND 2
H.OUT 3
GND 4
P.CON+5V 5
V.OUT 6
ACL 7
H.PULSE 8
TV POWER H 9
V.PULSE 11
VCR POWER H 12
DEGAUSS H 13
TO CRT
CD850 (CP850)
CH25080A
GND 5
CUT OFF 4
G.OUT 3
R.OUT 2
B.OUT 1
L600
ESD-R-30SD
CD653
CH01408A
FROM/TO Y/C/A/H.AMP
TU_VIDEO
TU_AUDIO
Y/C_VIDEO
Y/C_AUDIO
FROM/TO 21PIN I/O
SHIELD_GND
EXT_H
PWB010
VMX193

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

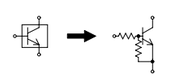
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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.

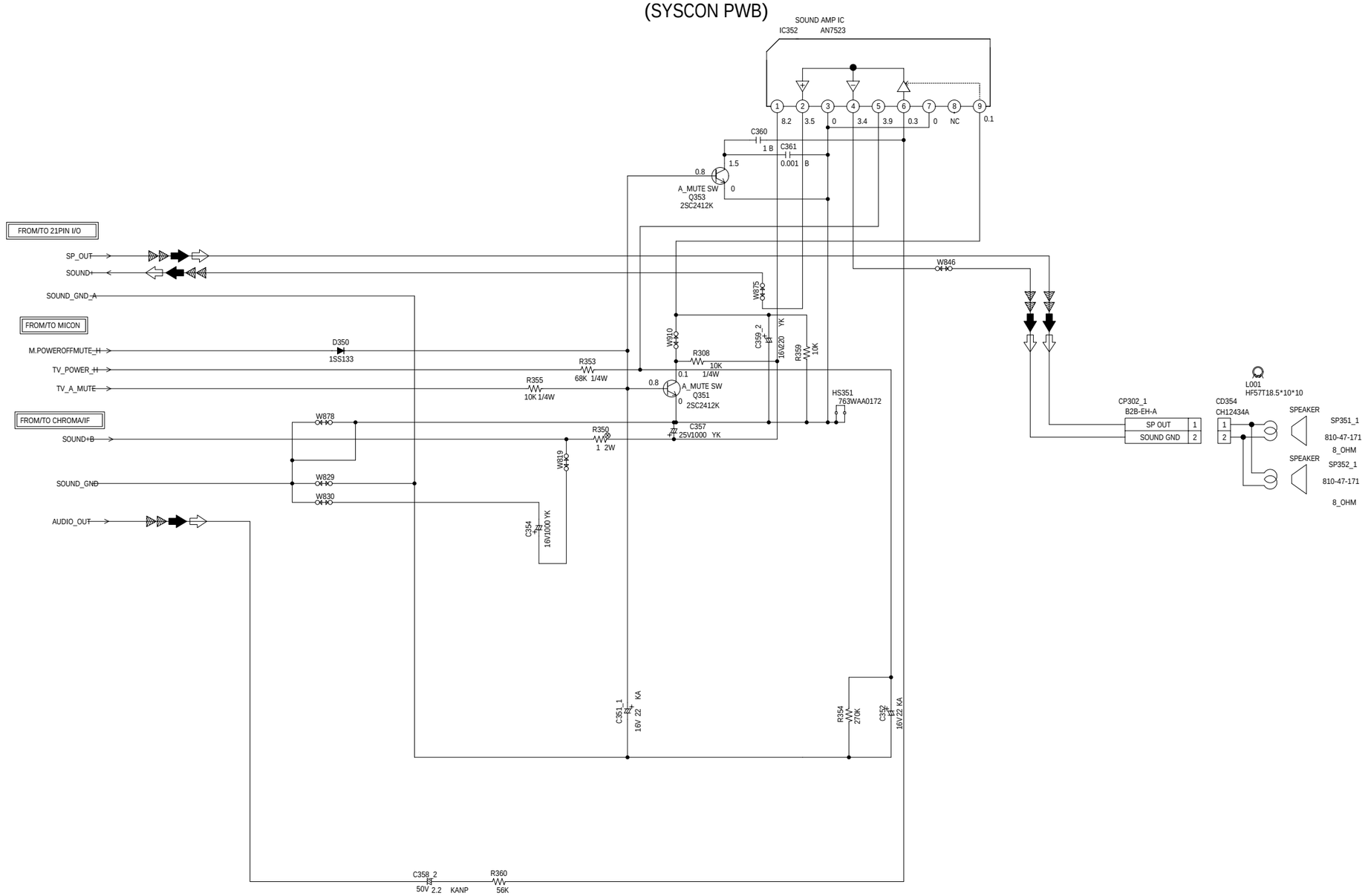
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR



SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PWB)



PWB010
VMX193

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。

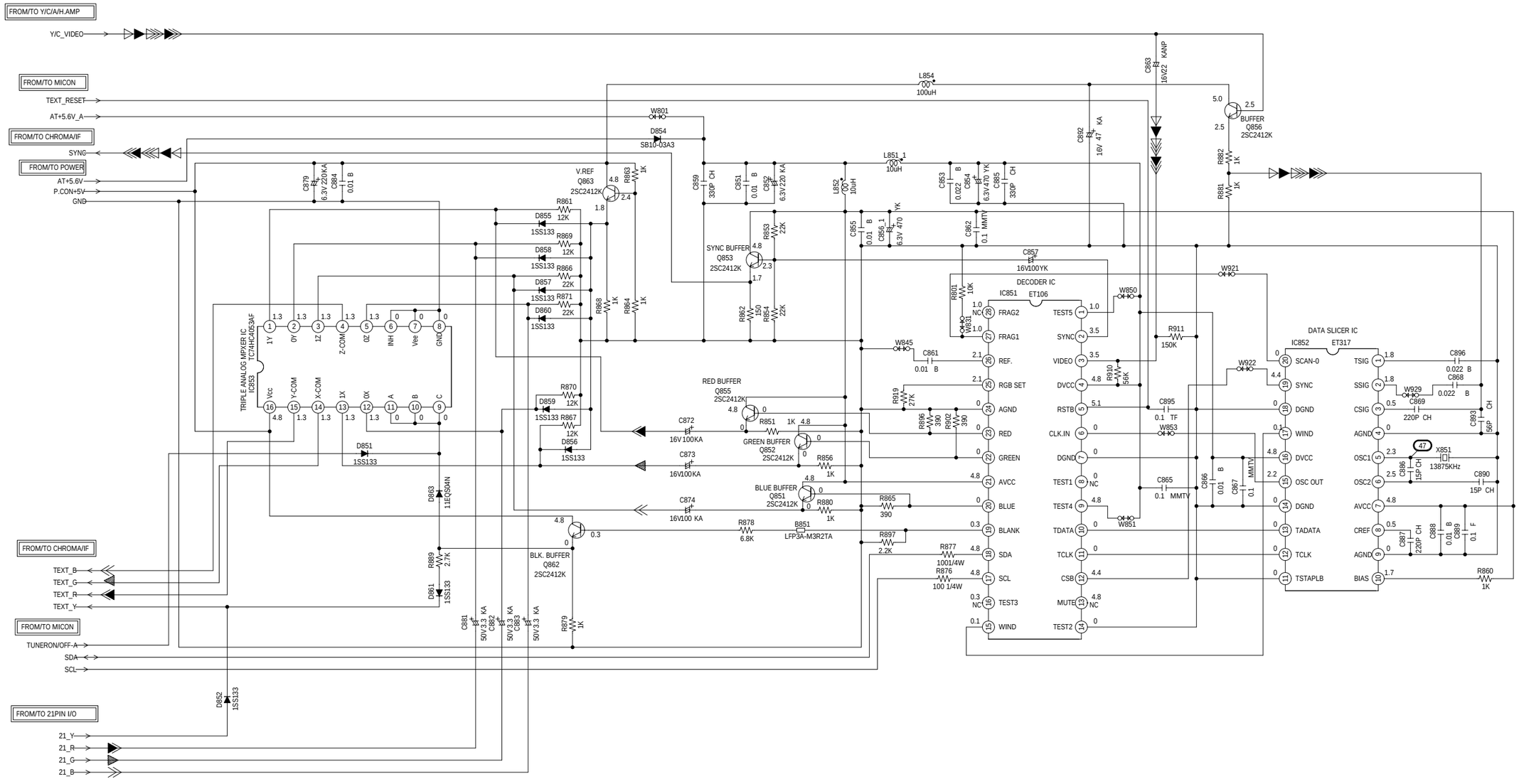
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
TUNER AUDIO SIGNAL

T'TEXT SCHEMATIC DIAGRAM

(SYSCON PWB)

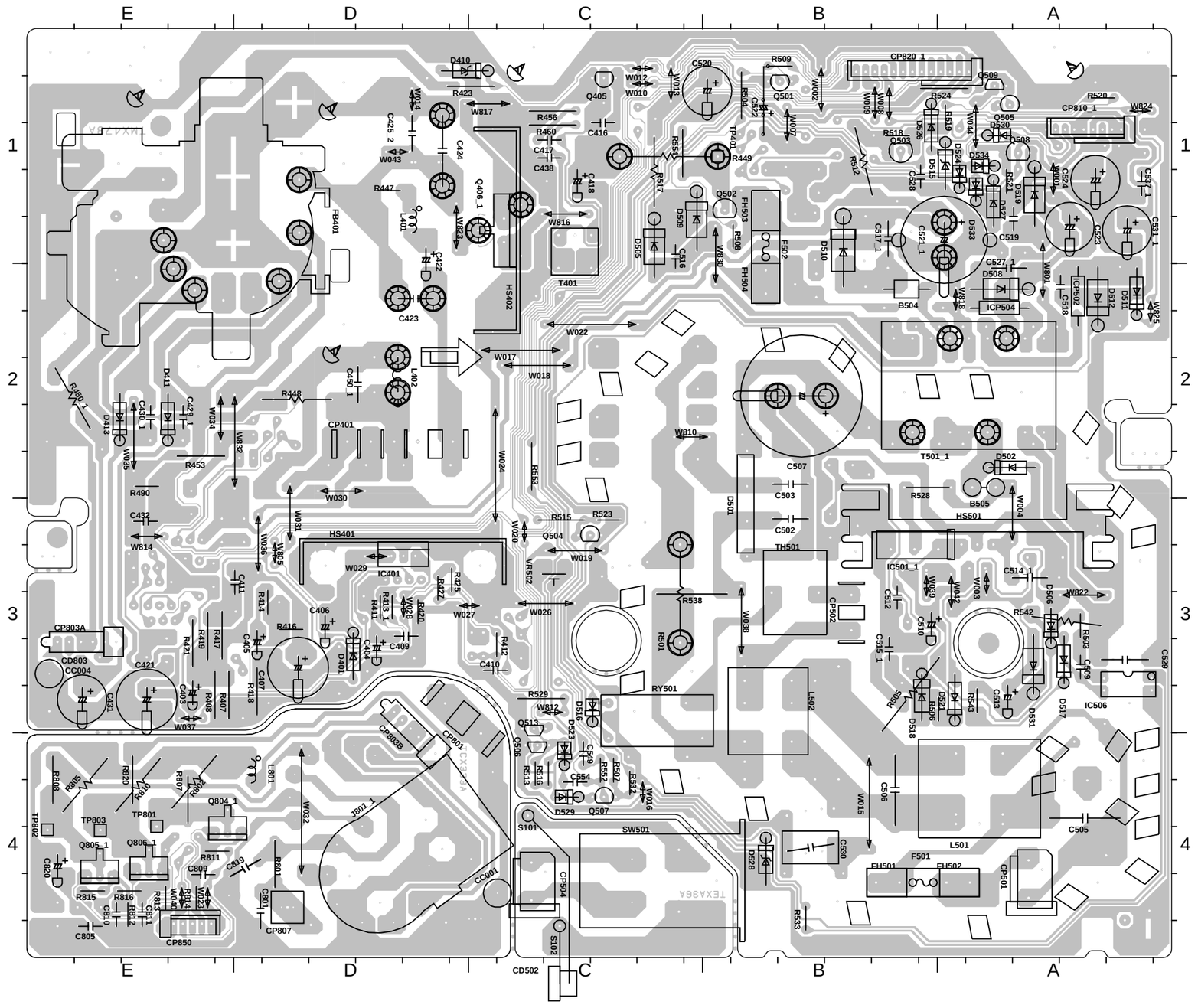


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

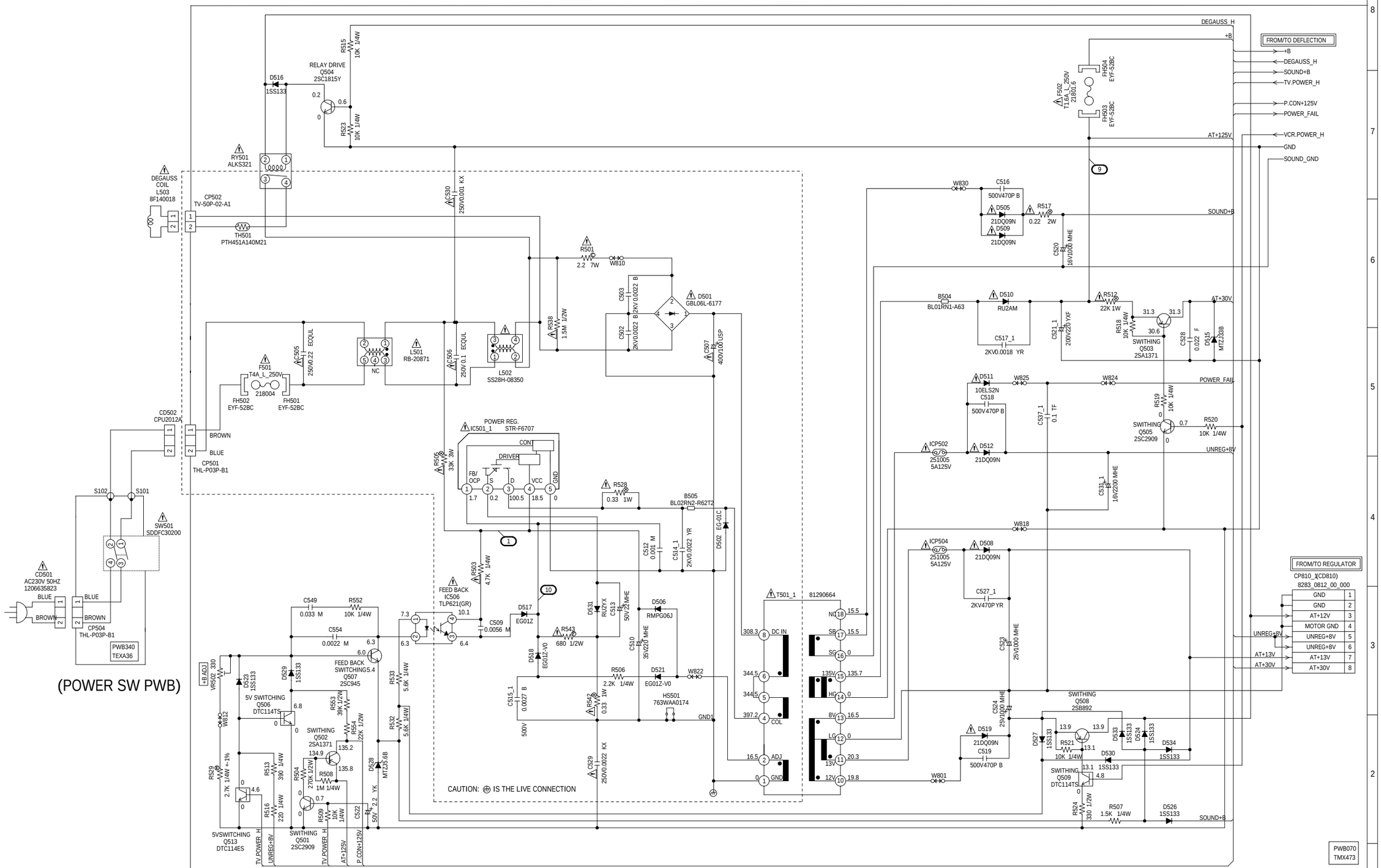
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

PRINTED WIRING BOARDS

MAIN/CRT/POWER SW
SOLDER SIDE



TV POWER SCHEMATIC DIAGRAM (MAIN PWB)



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

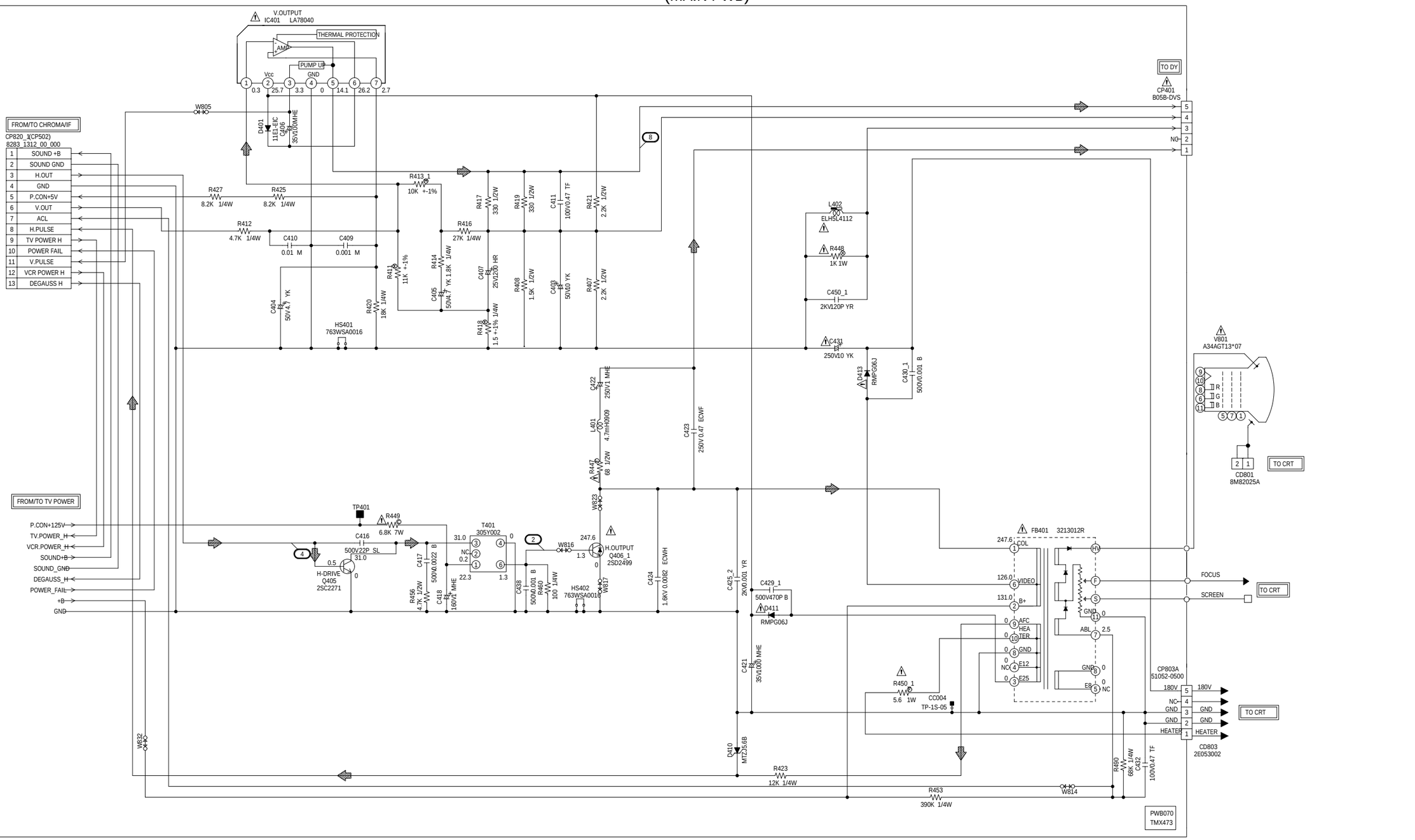
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N¹UTILISER 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 。

DEFLECTION SCHEMATIC DIAGRAM
(MAIN PWB)



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.

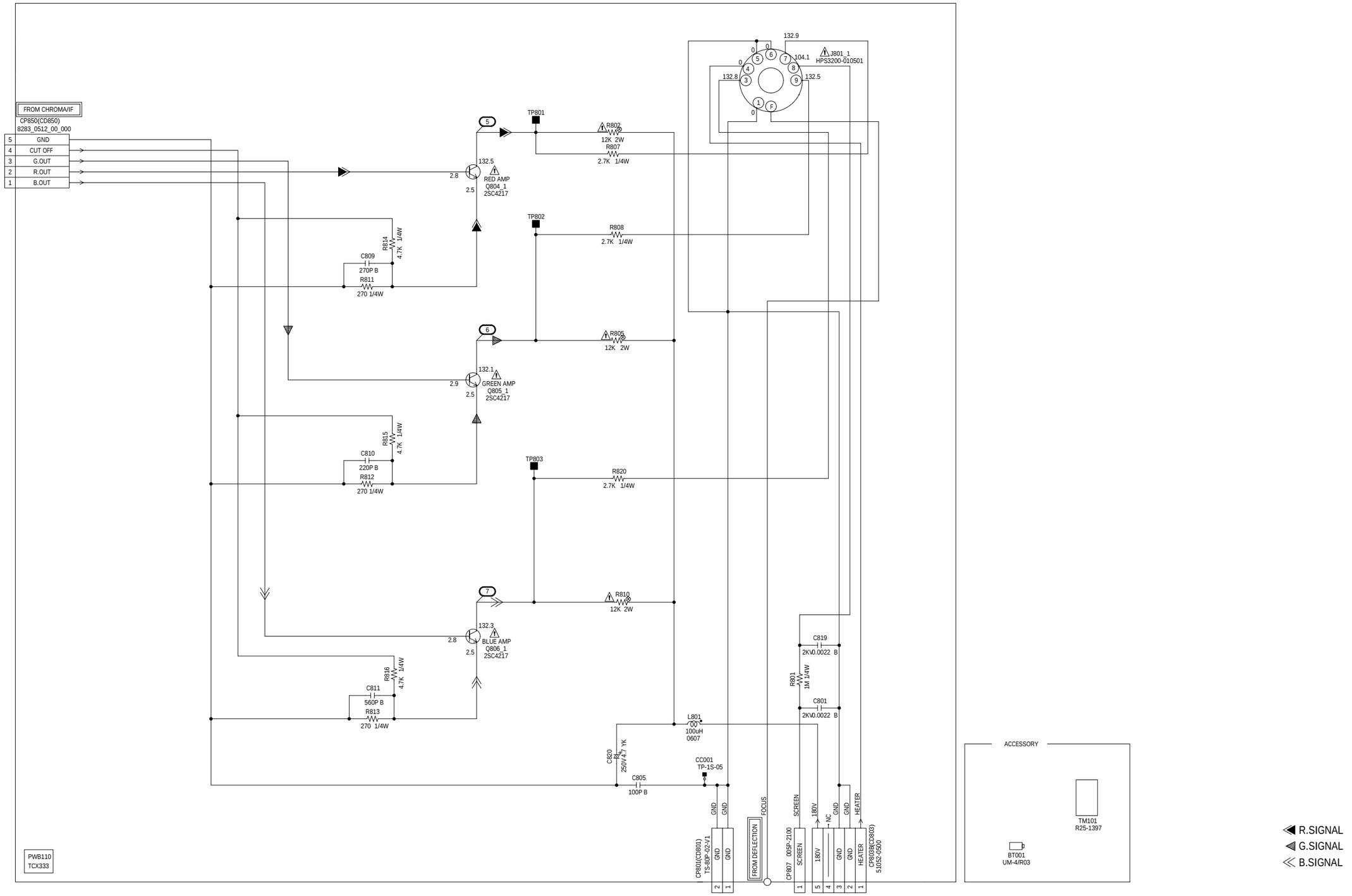
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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 。

CRT SCHEMATIC DIAGRAM

(CRT PWB)



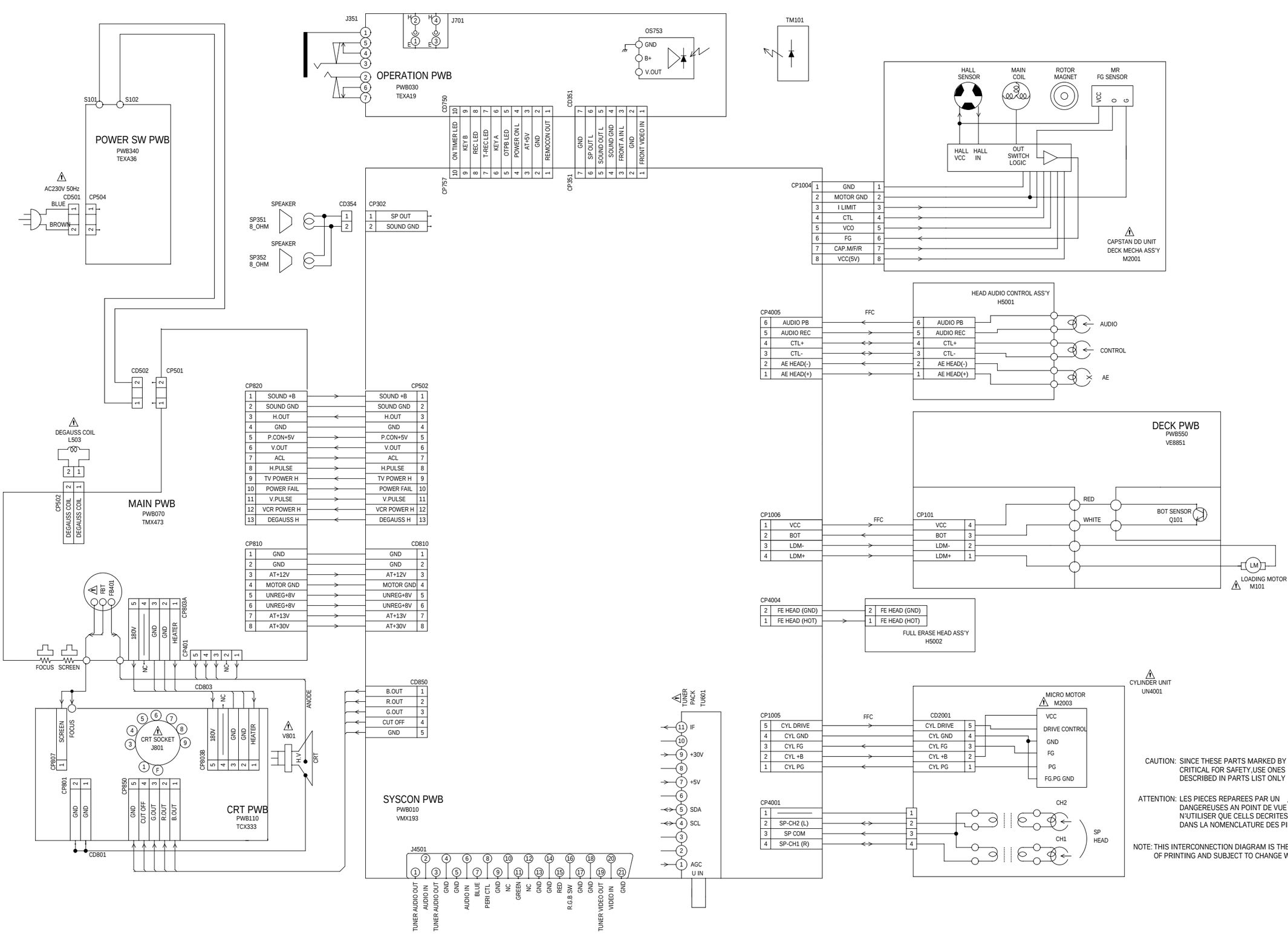
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N¹UTILISER 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



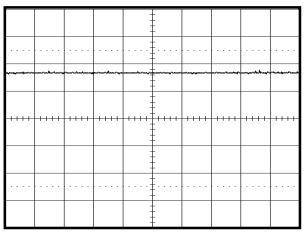
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

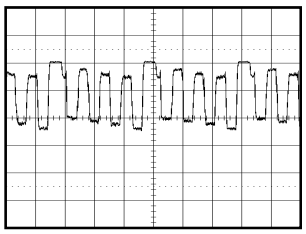
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

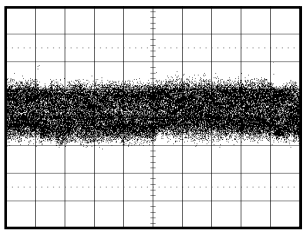
TV POWER



① 5V 0.1ms/div

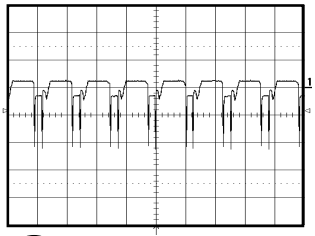


⑦ 20V 20µs/div



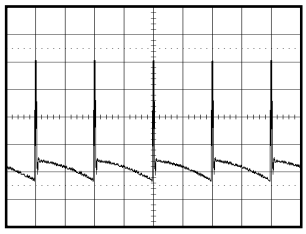
⑫ PB
10mV 5ms/div

DEFLECTION

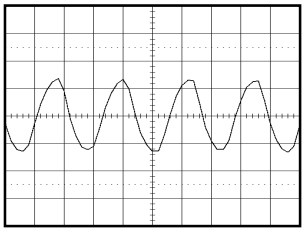


② 5V 50µs/div

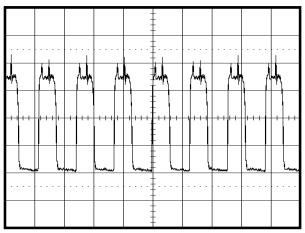
DEFLECTION



⑧ 10V 10ms/div

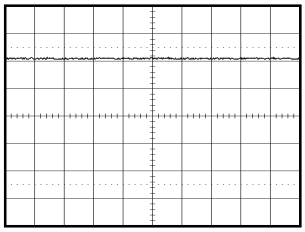


⑬ POWER ON
200mV 50ns/div

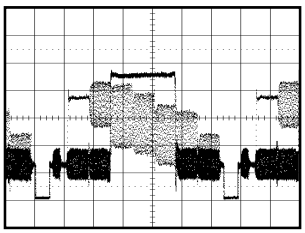


④ 200mV 50µs/div

TV POWER

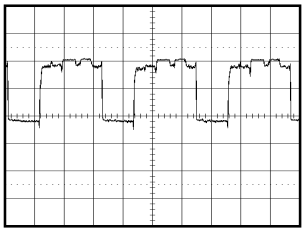


⑨ 20V 10ms/div

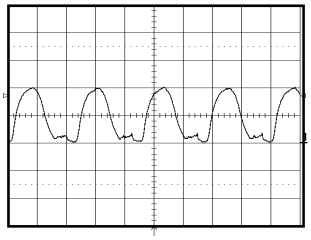


⑭ POWER ON
0.5V 10µs/div

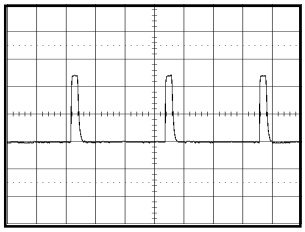
CRT



⑤ 2V 20µs/div

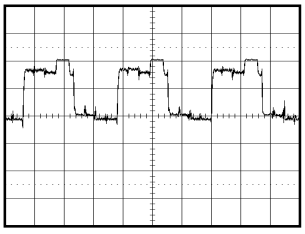


⑩ 2V 5µs/div

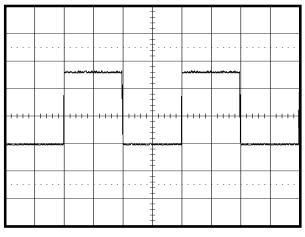


⑮ POWER ON
2V 20µs/div

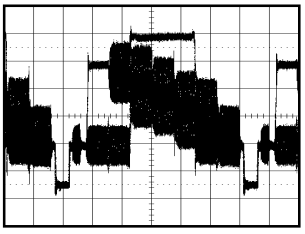
Y/C/AUDIO/HEAD AMP



⑥ 20V 20µs/div



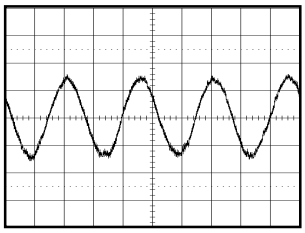
⑪ PB
2V 10ms/div



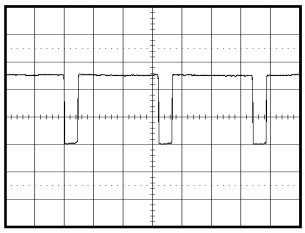
⑯ POWER ON
200mV 10µs/div

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

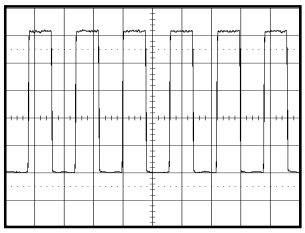
WAVEFORMS



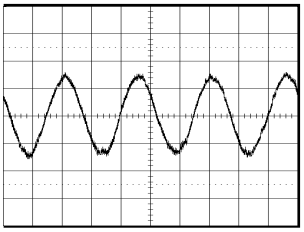
⑰ POWER ON
50mV 1ms/div



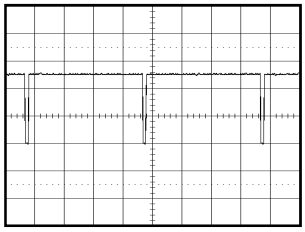
㉒ POWER ON
1V 20µs/div



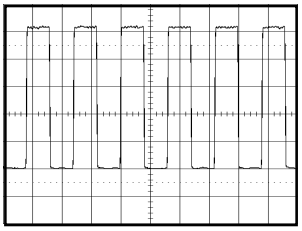
㉗ PB
1V 0.5µs/div



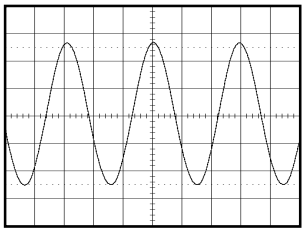
⑱ POWER ON
50mV 1ms/div



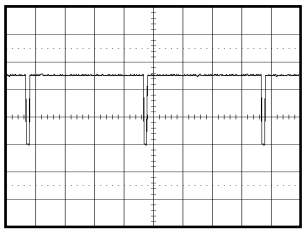
㉓ POWER ON
2V 20µs/div



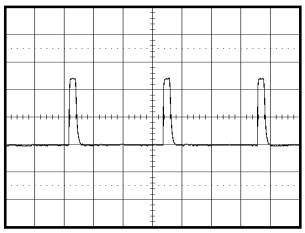
㉘ PB
1V 0.5µs/div



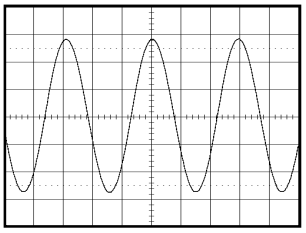
⑲ REC
10V 5µs/div



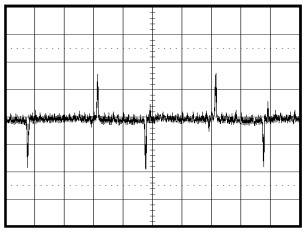
㉔ POWER ON
2V 5ms/div



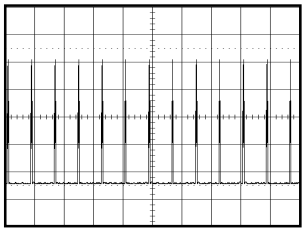
㉙ PB
2V 20µs/div



⑳ REC
10V 5µs/div

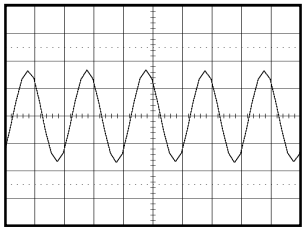


㉕ PB
50mV 10ms/div

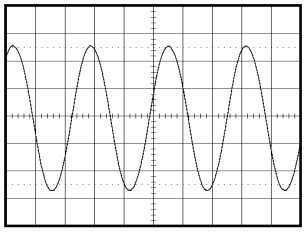


㉚ PB
1V 50ms/div

MICON

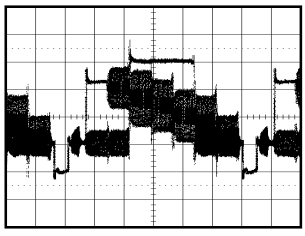


㉑ POWER ON
1V 50ns/div



㉖ PB
50mV 0.5ms/div

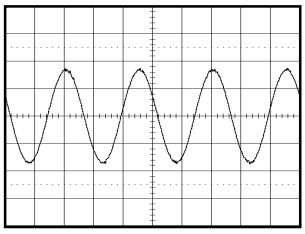
21PIN/IN/OUT



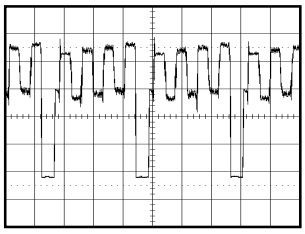
㉛ POWER ON
0.5V 10µs/div

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

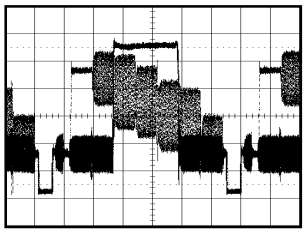
WAVEFORMS



(32) POWER ON
20mV 1ms/div

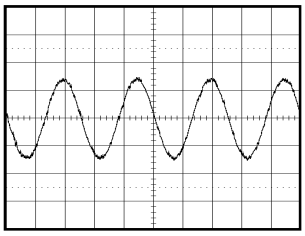


(37) POWER ON
0.5V 20µs/div

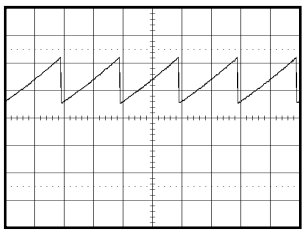


(42) POWER ON
200mV 10µs/div

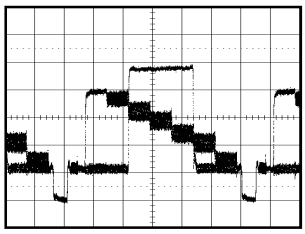
CHROMA/IF



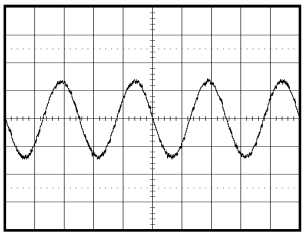
(33) POWER ON
5mV 1ms/div



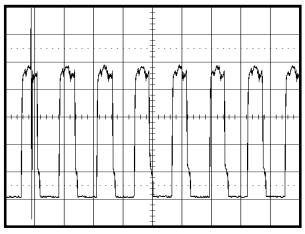
(38) POWER ON
0.5V 10ms/div



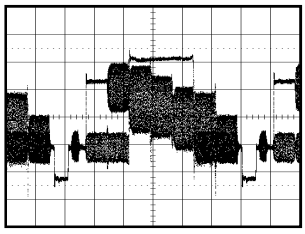
(43) POWER ON
10mV 10µs/div



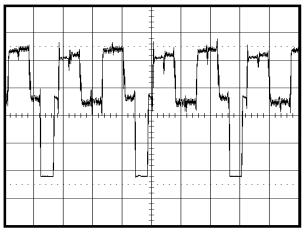
(34) POWER ON
5mV 1ms/div



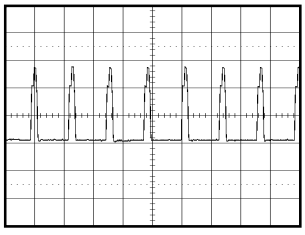
(39) POWER ON
200mV 50µs/div



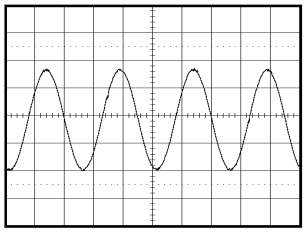
(44) POWER ON
0.5V 10µs/div



(35) POWER ON
0.5V 20µs/div

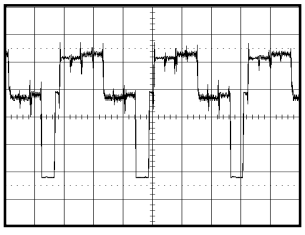


(40) POWER ON
2V 50µs/div

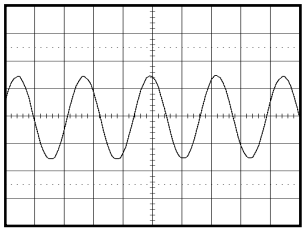


(45) POWER ON
200mV 1ms/div

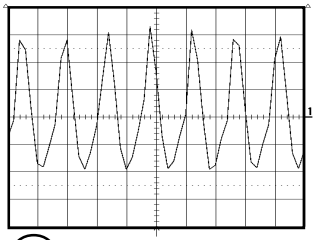
T'TEXT



(36) POWER ON
0.5V 20µs/div



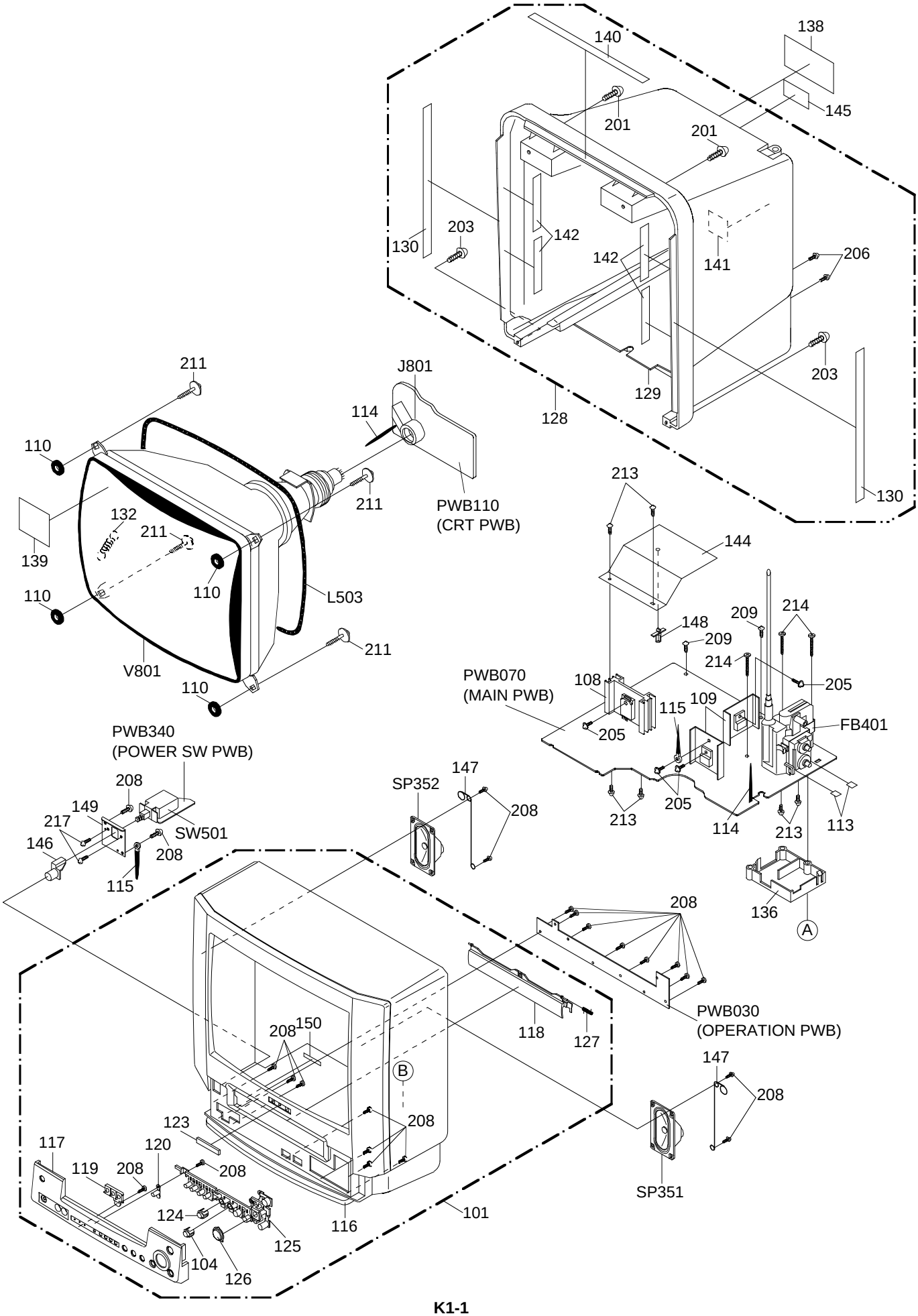
(41) POWER ON
200mV 0.1µs/div



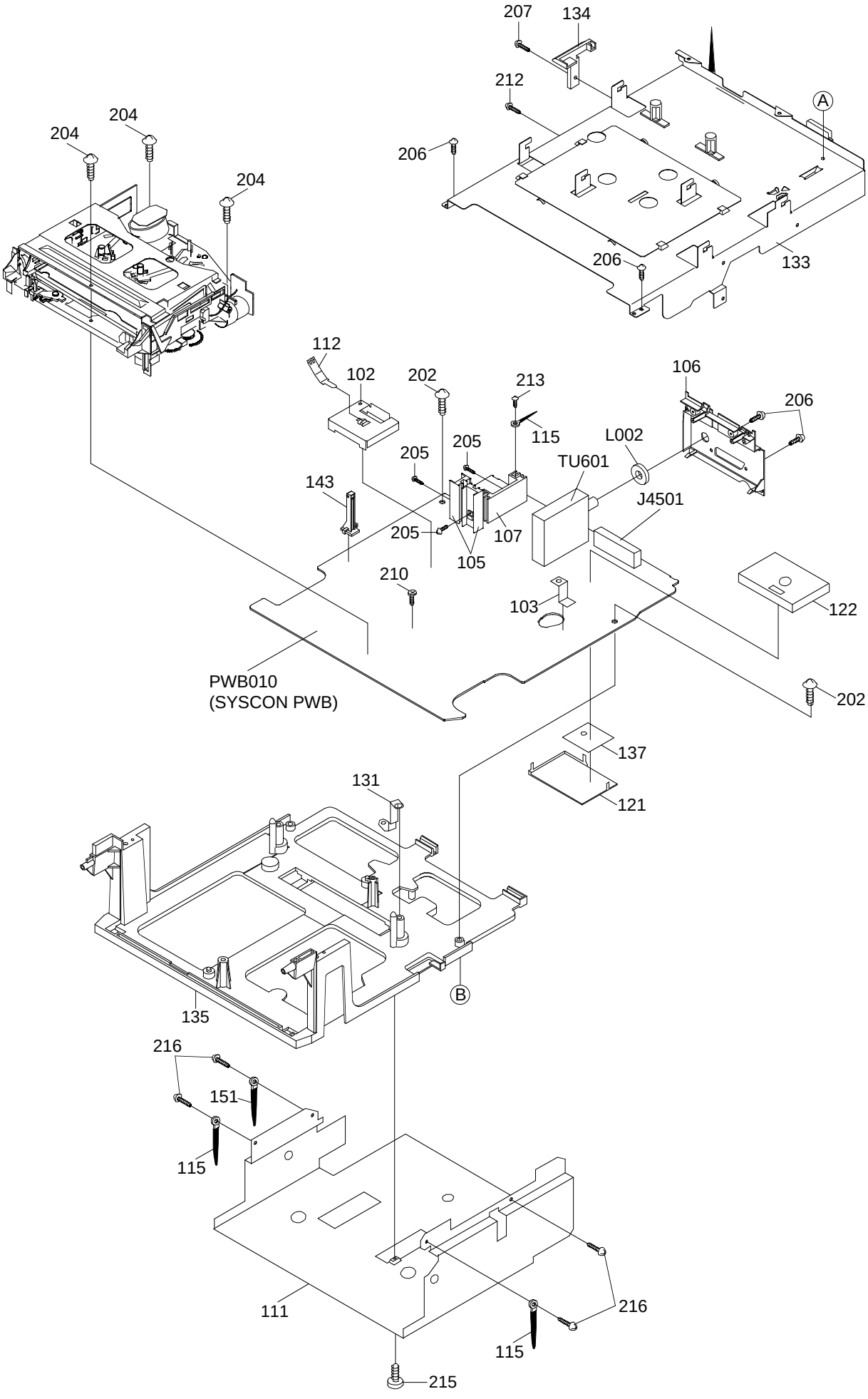
(47) POWER ON
200mV 50ns/div

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

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



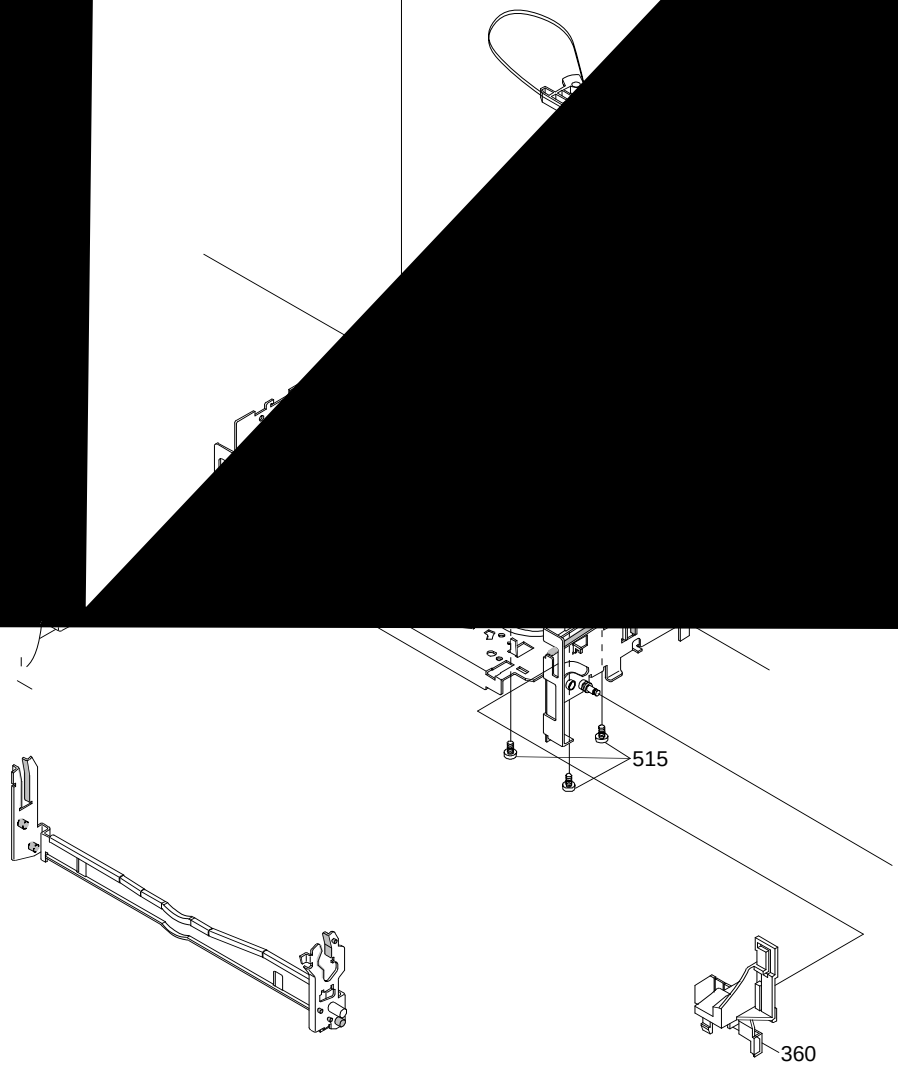
MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
101	S5-708-3G7-200	CABI,FRONT ASS'Y	1
102	----	SHIELD,CASE HEAD AMP	1
103	----	PLATE,EARTH-SYSCON	1
104	S3-5WP-D06-800	BUTTON,REC	1
105	----	HEAT SINK	2
106	S7-1WP-A02-430	PLATE,JACK	1
107	----	HEAT SINK	1
108	----	HEAT SINK	1
109	----	HEAT SINK	2
110	----	SHEET,CRT SUPPORT(A)	4
111	----	PLATE,SHIELD BOTTOM	1
112	S5-3WU-AA0-060	SPR,EARTH HEAD AMP	1
113	----	RUBBER,SILCON	2
114	----	COATING CLIP	2
115	----	CORD CLIP UL CO.	5
116	----	CABI,FRONT	1
117	S0-1WP-J09-100	PLATE,FRONT	1
118	S1-2WP-J06-650	FLAP	1
119	S1-3WP-A01-110	GLASS,LED	1
120	S1-3WP-A01-100	GUIDE,REMOCON	1
121	----	SHIELD,COVER	1
122	----	SHIELD,CASE	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-D06-780	BUTTON,PLAY	1
127	S4-3WK-A00-320	SPR,FLAP	1
128	S5-708-3G7-400	CABI,BACK ASS'Y	1
129	----	CABI,BACK	1
130	----	FELT SHEET	2
131	S5-3WS-A01-200	PLATE,BOTTOM-EARTH	1
132	S4-1WU-A00-240	SPRING,EARTH	1
133	----	PLATE,DECK SHIELD ASS'Y	1
134	S6-1WP-A01-510	HOLDER,M/PWB	1
135	S6-1WP-AA0-230	HOLDER,DECK	1
136	S6-1WP-A01-450	HOLDER,FBT	1
137	----	SHEET,PVC	1
138	----	SHEET,RATING	1
139	----	LABEL,POP	1
140	----	FELT SHEET	1
141	----	FELT SHEET	1
142	----	FELT SHEET	4
143	S5-OP7-000-360	HOLDER,EOT SENSOR	1
144	S5-1WS-A00-160	COVER,TRANS	1
145	----	LABEL,ANTI-THEFT	1
146	S3-5WP-B00-440	BUTTON,POWER	1
147	----	WIRE,SPEAKER	2
148	S9-0PS-120-100	PUSH SPACER	1
149	S5-2WS-A01-990	PLATE,POWER SW	1
150	----	FELT SHEET	1
151	----	WIRING CLIP	1
201	S1-172-40C-540	SCREW,TAPPING(B0) BIND 4x35	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	S1-09I-30A-040	SCREW,TAP TITE(B) 3-10	7
206	S1-106-30A-240	SCREW,TAP(P)3-12	6
207	S1-076-308-040	SCREW,TAP	1
208	S1-106-30A-040	UIT+3-10	23
209	S1-079-306-040	SCREW,CUP(S) 3X6	2
210	87-741-095-410	SCREW,TAP TITE(P) FLAT 3-8	1
211	S1-21J-50B-540	SCREW,TAP GW20 5-28	4
212	87-743-073-010	VT2+2.6-6	1
213	87-753-095-410	SCREW,TAP 3-8	7
214	S1-0A1-30B-040	SCREW,WASHER(A)M3-20	3
215	S1-106-306-040	UIT+3-6	1
216	S1-076-306-040	BVTT+3-6	4
217	S1-0A1-305-040	SCREW,WASHER(A) M3-5	2

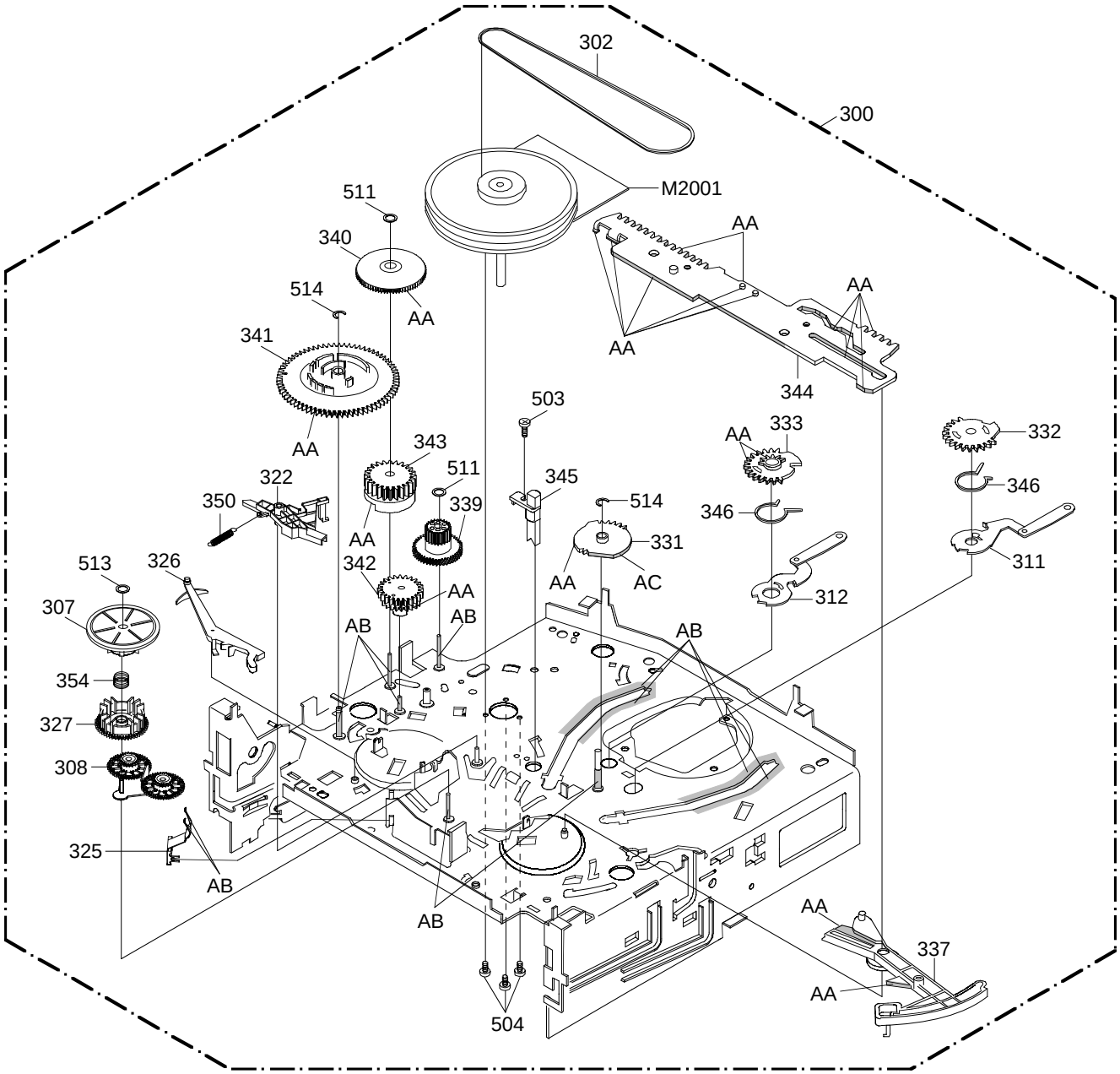
ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S7-6R0-DF0-200	TRANSMITTER R25-1397	1
2	S5-708-3G9-750	INSTRUCTION BOOK KIT	1
3	S5-708-301-000	IB,VX-T149K	1

CHASSIS EXPLODED VIEW (TOP VIEW)



CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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

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

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
300	----	DECK ASSY A57054A420A	1
301	S5-OA5-000-220	AHC ASS'Y	1
302	S5-OP2-002-900	BELT,CAPSTAN (S)	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-OA0-003-670	MAIN CHASSIS ASS'Y (S-Z)	1
307	S5-OA2-000-820	CLUTCH ASS'Y(S2)	1
308	S5-OA2-000-800	ARM,IDLER ASS'Y (S)	1
309	S5-OP6-005-560	ARM,SS BRAKE (S)	1
310	S5-OP2-002-920	REEL,T (S)	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-OA4-002-100	GUIDE 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-OA4-001-990	P5-3 ARM ASS'Y(S)	1
317	S5-OA4-002-050	PINCH ROLLER BLOCK	1
318	S5-OA4-001-750	TENSION ARM ASS'Y	1
319	S5-OA4-001-840	TENSION BAND ASS'Y (S)	1
320	S5-OA4-001-780	PINCH ROLLER LEVER ASS'Y	1
321	S5-OA6-001-960	BRAKE T ASSY(S)	1
322	S5-OA6-001-910	CAP BRAKE ASS'Y(S)	1
323	S5-OA9-002-130	LINK ASS'Y	1
324	S5-OA9-002-160	LINK LEVER ASS'Y	1
325	S5-OP2-002-840	LEVER,CLUTCH (S)	1
326	S5-OP2-002-850	ACTUATOR,CLUTCH	1
327	S5-OP2-002-980	GEAR,COUPLING(S2)	1
328	S5-OP2-002-910	REEL,S (S)	1
329	S5-OP6-005-410	WORM	1
330	S5-OP6-005-630	BRACKET,MOTOR	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-OP3-001-870	HOLDER,LOADING GEAR (S-Z)	1
335	S5-OP4-004-720	ADJUST,TENSION	1
336	S5-OP4-004-920	HOLDER,TENSION	1
337	S5-OP4-004-900	LEVER,TENSION	1
338	S5-OP4-004-750	COVER,P4	1
339	S5-OP6-005-430	GEAR,JOINT	1
340	S5-OP6-005-440	GEAR,MIDDLE	1
341	S5-OP6-005-540	CAM,MAIN (S)	1
342	S5-OP6-005-460	CAM,P5	1
343	S5-OP6-005-650	CAM,PINCH ROLLER	1
344	S5-OP6-005-610	ROD,MAIN(S)	1
345	S5-OP7-000-350	REFLECTOR,LED	1
346	S5-OP8-003-180	SPR,LOADING GEAR	2
347	S5-OP8-003-340	SPR,P5 (S)	1
348	S5-OP8-003-350	SPR,BRAKE T (S)	1
349	S5-OP8-003-220	SPR,TENSION	1
350	S5-OP8-003-360	SPR,CAP BRAKE (S)	1
351	S5-OP8-003-420	SPRING,LOCKER(S)	1
352	S5-OP8-003-260	SPR,LINK	1
353	S5-OP8-003-280	SPR,DAMPER	1
354	S5-OP8-003-300	SPR,RING	1
355	S5-OP8-003-370	SPR,SS BRAKE (S)	1
356	S5-OP9-006-800	OPENER,CASS	1
357	S5-OP9-007-310	CASS SIDE L	1
358	S5-OP9-007-320	CASS SIDE R	1
359	S5-OP9-007-280	TAPE GUIDE L(P,R)	1
360	S5-OP9-007-290	TAPE GUIDE R	1
361	S5-OP9-007-140	COVER,SENSOR L3	1
362	S5-OP9-006-880	LEVER,FLAP	1
363	S5-OP9-006-900	CASS HOLDER	1
364	S5-OP6-005-400	DRIVER,WORM	1
365	S5-OP9-007-130	LOCKER,R2	1
366	S5-OP9-006-940	SPR,PACK	2
367	S5-OP9-006-950	BRACKET,TOP	1
368	----	SPR,CASS EARTH	1
369	S5-OP8-003-410	SPRING,P/R ARM	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	1
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	S1-0A1-235-040	SEMS A M2.3-5	2
511	S2-P26-600-5N0	PW(CUT)2.6-6-0.5	3
512	S2-Q26-47C-5N0	POLY,WASHER 2.6-4.7	2
513	S2-P18-450-5N0	PW(CUT)1.8-4.5-0.5	1
514	S3-ETW-300-000	E-RING 3	2
515	S1-0A1-265-040	SCREW,WASHER(A) M2.6-5	3
CP101	----	CONN,PWB SIDE 52044-0445	1
H5001	S5-23D-910-340	HEAD,AC HVMXA1072A	1
H5002	S5-43D-020-130	HEAD,FE	1
⚠ M101	S5-96P-780-010	MOTOR(LOADING)	1
⚠ M2001	S5-94J-980-090	CAPSTAN DD UNIT EP15BD	1
M2003	S5-89V-110-070	MICRO MOTOR	1
PWB550	----	DECK PWB ASS'Y VE8851	1
Q101	S0-007-003-200	PHOTO,TR RPT-38PB113	1
⚠ UN4001	S4-D12-0B5-000	CYLINDER UNIT ASSY A4D120B500	1

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION
		SYSCON PWB ASS'Y
		*** RESISTORS ***
R620	87-025-362-080	RES,M 390-1/6W
⚠ R1005	S6-150-12R-7J0	RES,FUSE 2.7-1W
		*** CAPACITORS ***
C351	87-016-053-080	CAP,E 22-16V
C352	87-016-053-080	CAP,E 22-16V
C354	87-010-271-080	CAP,E 1000-16V
C357	87-010-388-090	CAP,E 1000-25V
C358	87-015-696-080	CAP,E 2.2-50
C359	S0-2LU-222-1M0	CAP,E 220-16V
C605	87-010-402-080	CAP,E 2.2-50V
C611	87-010-378-080	CAP,E 10-16V
C612	87-010-378-080	CAP,E 10-16V
C613	87-010-378-080	CAP,E 10-16V
C614	87-010-112-080	CAP,E 100-16V
C618	87-015-695-080	CAP,E 1-50V
C619	87-015-695-080	CAP,E 1-50V
C620	87-010-374-080	CAP,E 47-6.3V
C622	87-015-695-080	CAP,E 1-50V
C626	87-010-400-080	CAP,E 0.47-50V
C632	87-010-560-010	CAP,E 10-50V
C634	87-010-404-080	CAP,E 4.7-50V
C636	S0-0NU-322-0M0	CAP,E 22-25V
C639	87-015-075-040	CAP,E 10-16V
C642	87-010-403-080	CAP,E 3.3-50V
C645	87-015-695-080	CAP,E 1-50V
C651	87-015-075-040	CAP,E 10-16V
C652	87-015-693-080	CAP,E 0.33-50V
C656	87-A10-189-040	CAP,E 220-10V
C658	87-015-677-010	CAP,E 100-6.3
C659	87-010-400-080	CAP,E 0.47-50V
C667	87-010-067-010	CAP,E 0.1-50V
C669	87-015-075-040	CAP,E 10-16V
C675	87-010-112-080	CAP,E 100-16V
C852	87-015-975-080	CAP,E 220-6.3V
C854	87-010-371-080	CAP,E 470-6.3V
C856	87-010-371-080	CAP,E 470-6.3V
C857	87-010-112-080	CAP,E 100-16V
C863	87-010-379-080	CAP,E 22-16V
C872	87-010-112-080	CAP,E 100-16V
C873	87-010-112-080	CAP,E 100-16V
C874	87-010-112-080	CAP,E 100-16V
C879	87-015-975-080	CAP,E 220-6.3V
C881	87-010-403-080	CAP,E 3.3-50V
C882	87-010-403-080	CAP,E 3.3-50V
C883	87-010-403-080	CAP,E 3.3-50V
C892	87-010-380-080	CAP,E 47-16V
C1001	87-010-112-080	CAP,E 100-16V
C1003	S5-1A0-P10-4Z0	CAP,E 0.1F-5.5V
C1013	87-010-076-040	CAP,E 22UF-6.3V
C1016	S0-0NU-047-0M0	CAP,E 47-6.3V
C1020	87-010-404-080	CAP,E 4.7-50V
C1021	87-015-683-080	CAP,E 33-16V
C1029	87-010-371-080	CAP,E 470-6.3V
C1032	87-016-088-040	CAP,E 220-6.3V
C1033	87-010-371-080	CAP,E 470-6.3V
C1036	87-010-371-080	CAP,E 470-6.3V
C1037	87-010-235-080	CAP,E 470-16V
C1042	87-010-271-080	CAP,E 1000-16V
C1045	87-010-685-080	CAP,E 330-16V
C1048	87-010-404-080	CAP,E 4.7-50V
C1064	87-010-235-080	CAP,E 470-16V
C1070	S0-2LU-022-1M0	CAP,E 220-6.3V
C1102	87-015-677-010	CAP,E 100-6.3
C4001	87-015-683-080	CAP,E 33-16V
C4015	87-016-088-040	CAP,E 220-6.3V
C4017	87-015-677-010	CAP,E 100-6.3
C4024	87-010-403-080	CAP,E 3.3-50V
C4025	87-010-404-080	CAP,E 4.7-50V
C4031	S5-0HU-54R-7M0	CAP,E 4.7-50V
C4036	87-010-404-080	CAP,E 4.7-50V
C4038	87-015-695-080	CAP,E 1-50V
C4039	87-010-404-080	CAP,E 4.7-50V
C4040	87-010-402-080	CAP,E 2.2-50V
C4041	87-010-404-080	CAP,E 4.7-50V
C4042	87-010-400-080	CAP,E 0.47-50V
C4049	87-010-076-040	CAP,E 22UF-6.3V
C4050	87-010-404-080	CAP,E 4.7-50V
C4051	87-015-075-040	CAP,E 10-16V
C4055	87-010-374-080	CAP,E 47-6.3V
C4057	87-010-404-080	CAP,E 4.7-50V
C4069	87-010-549-010	CAP,E 47-6.3V
C4071	87-015-075-040	CAP,E 10-16V
C4073	87-010-403-080	CAP,E 3.3-50V
C4074	87-015-075-040	CAP,E 10-16V
C4078	87-010-402-080	CAP,E 2.2-50V
C4084	87-016-088-040	CAP,E 220-6.3V
C4085	87-010-404-080	CAP,E 4.7-50V
C4088	87-010-549-010	CAP,E 47-6.3V
C4091	87-010-380-080	CAP,E 47-16V
C4092	87-010-380-080	CAP,E 47-16V
C4093	87-015-695-080	CAP,E 1-50V
C4096	87-010-380-080	CAP,E 47-16V
C4102	87-016-088-040	CAP,E 220-6.3V
C4108	87-010-112-080	CAP,E 100-16V
C4504	87-015-075-040	CAP,E 10-16V
C4508	87-015-695-080	CAP,E 1-50V
C4509	87-010-378-080	CAP,E 10-16V
C4522	87-015-075-040	CAP,E 10-16V
		*** DIODES ***
D350	87-020-465-010	DIODE,1SS133T
D601	87-020-465-010	DIODE,1SS133T
D602	87-020-465-010	DIODE,1SS133T
D604	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
D605	87-020-465-010	DIODE,1SS133T
D606	87-020-465-010	DIODE,1SS133T
D608	87-020-465-010	DIODE,1SS133T
D609	87-020-465-010	DIODE,1SS133T
D610	87-020-465-010	DIODE,1SS133T
D611	87-020-465-010	DIODE,1SS133T
D612	87-020-465-010	DIODE,1SS133T
D851	87-020-465-010	DIODE,1SS133T
D852	87-020-465-010	DIODE,1SS133T
D854	S2-3U1-003-A30	DIODE,SB10-03A3
D855	87-020-465-010	DIODE,1SS133T
D856	87-020-465-010	DIODE,1SS133T
D857	87-020-465-010	DIODE,1SS133T
D858	87-020-465-010	DIODE,1SS133T
D859	87-020-465-010	DIODE,1SS133T
D860	87-020-465-010	DIODE,1SS133T
D861	87-020-465-010	DIODE,1SS133T
D863	S2-8TE-QS0-400	DIODE,11EQS04N-TA
D1001	S2-LXE-658-000	DIODE,1N4005E-G23
D1002	87-020-465-010	DIODE,1SS133T
D1003	S0-106-000-600	LED,SID1050CM
D1004	S2-LXE-658-000	DIODE,1N4005E-G23
D1005	S9-2T1-120-B00	ZENER,RD12FB-T7
D1006	S2-3U1-003-A30	DIODE,SB10-03A3
D1008	87-017-931-010	ZENER,MTZJ5.6B
D1009	87-020-465-010	DIODE,1SS133T
D1010	S2-3U1-003-A30	DIODE,SB10-03A3
D1012	87-020-465-010	DIODE,1SS133T
D1014	87-020-465-010	DIODE,1SS133T
D1015	87-020-465-010	DIODE,1SS133T

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION
D1016	87-020-465-010	DIODE,1SS133T
D1017	87-020-465-010	DIODE,1SS133T
D1018	S2-8TE-QS0-400	DIODE,11EQS04N-TA
D1019	S2-8TE-QS0-400	DIODE,11EQS04N-TA
D1022	87-020-465-010	DIODE,1SS133T
D1023	87-017-931-010	ZENER,MTZJ5.6B
D4003	S0-400-721-010	DIODE,RB721Q
D4202	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
D4503	87-020-465-010	DIODE,1SS133T
D4510	87-020-465-010	DIODE,1SS133T
		*** ICS ***
IC352	S0-FSP-752-300	IC,AN7523
IC601	S0-3DE-681-200	IC,LA76812
IC851	SC-KD0-010-600	IC,ET106
IC852	SC-KD0-031-700	IC,ET317
IC853	S5-5JM-405-3A0	IC,TC74HC4053AF
⚠ IC1001	S0-7SQ-695-500	IC,BA6955N
IC1002	SE-1J0-S31-AH0	IC,RE5VS31A
⚠ IC1003	S1-KA9-780-9A0	IC,KIA7809API
⚠ IC1004	S1-KA9-780-5A0	IC,KIA7805API
⚠ IC1005	S1-KA9-780-5A0	IC,KIA7805API
IC1006	S5-4F5-009-3B0	IC,OEC0093B
IC1099	S5-708-3G0-150	IC,S-24C08ADPA-01
IC4001	S0-4F3-821-7F0	IC,HA118217F
IC4002	S0-3F6-479-300	IC,LC74793/JM
		*** TRANSISTORS ***
Q351	89-324-122-080	TR,2SC2412KT
Q353	89-324-122-080	TR,2SC2412KT
Q601	SC-3T0-300-000	TR,2SC3000
Q602	89-324-122-080	TR,2SC2412KT
Q605	89-324-122-080	TR,2SC2412KT
Q608	89-109-330-010	TR,2SA933STP
Q609	89-324-122-080	TR,2SC2412KT
Q610	89-324-122-080	TR,2SC2412KT
Q611	87-026-239-080	DTC114TKAT14
Q612	87-026-239-080	DTC114TKAT14
Q851	89-324-122-080	TR,2SC2412KT
Q852	89-324-122-080	TR,2SC2412KT
Q853	89-324-122-080	TR,2SC2412KT
Q855	89-324-122-080	TR,2SC2412KT
Q856	89-324-122-080	TR,2SC2412KT
Q862	89-324-122-080	TR,2SC2412KT
Q863	89-324-122-080	TR,2SC2412KT
Q1001	S0-027-005-900	PHOTO COUPLER RPI-301
Q1002	89-324-122-080	TR,2SC2412KT
Q1003	S0-027-005-300	PHOTO,COUPLER RPI-352Q01
Q1004	87-026-236-080	TR,DTC124EK
Q1005	S0-027-005-900	PHOTO COUPLER RPI-301
Q1006	87-026-228-080	TR,DTA124EK
⚠ Q1007	87-026-239-080	DTC114TKAT14
Q1008	87-026-239-080	DTC114TKAT14
Q1009	S0-027-005-300	PHOTO,COUPLER RPI-352Q01
Q1010	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q1011	89-324-122-080	TR,2SC2412KT
Q1014	89-324-122-080	TR,2SC2412KT
Q1015	89-324-122-080	TR,2SC2412KT
Q1016	89-324-122-080	TR,2SC2412KT
Q1017	S0-001-003-800	PHOTO TR,PNA2604M010R
⚠ Q1018	SB-3T0-089-200	TR,2SB892
Q1019	SB-3T0-089-200	TR,2SB892
Q1021	89-324-122-080	TR,2SC2412KT
Q4001	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q4002	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q4003	87-026-228-080	TR,DTA124EK
Q4004	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
Q4005	SC-3T0-333-100	TR,2SC3331(S,T,U)-A
Q4006	89-110-372-080	TR,2SA1037AK
Q4007	89-324-122-080	TR,2SC2412KT
Q4010	89-324-122-080	TR,2SC2412KT
Q4201	SN-YTB-050-010	TR,DTC114E
Q4501	89-324-122-080	TR,2SC2412KT
Q4502	89-110-372-080	TR,2SA1037AK
Q4505	89-324-122-080	TR,2SC2412KT
Q4507	89-324-122-080	TR,2SC2412KT
Q4510	89-324-122-080	TR,2SC2412KT
Q4511	89-324-122-080	TR,2SC2412KT
Q4512	89-324-122-080	TR,2SC2412KT
Q4513	89-324-122-080	TR,2SC2412KT
		*** COILS ***
B851	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
B4501	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
B4502	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
B4503	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
B4504	S2-4DT-035-810	CORE,BEADS LFP3A-M3R2TA
L600	S2-AXB-9A9-710	CORE FERRITE ESD-R-30SD
L601	S2-AXB-9A9-710	CORE FERRITE ESD-R-30SD
L601	S2-167-D10-1K0	COIL,100UH
L603	87-003-146-010	COIL,15UH
L604	S2-1LA-6R2-2M0	COIL,0.22 LAP02TAR22M
L605	S2-167-D10-1K0	COIL,100UH
L606	87-A50-040-010	COIL,2.2UH
L608	S3-360-K04-380	COIL,V IFT 360K043
L609	S2-167-D10-1K0	COIL,100UH
L610	S2-16S-12R-2J0	COIL,2.2UH
L851	87-003-102-010	COIL,10UH
L852	87-003-102-010	COIL,10UH
L854	87-003-152-010	COIL,100UH
L1001	87-003-282-010	COIL,12UH
L4001	S3-262-300-380	COIL,TRAP 2623003
L4002	S2-167-D10-1K0	COIL,100UH
L4003	S2-167-D10-1K0	COIL,100UH
L4004	S2-167-F10-1J0	COIL,100UH
L4005	S3-162-600-880	COIL,BIAS OSC 1626008
L4006	87-003-112-010	COIL,1MH
L4007	S2-167-D10-1K0	COIL,100UH
L4008	87-003-112-010	COIL,1MH
L4009	S2-167-D10-1K0	COIL,100UH
L4010	S2-167-D10-1K0	COIL,100UH
L4011	87-003-282-010	COIL,12UH
L4012	87-003-154-080	COIL,220UH
L4013	S2-167-D10-1K0	COIL,100UH
L4015	S2-167-D10-1K0	COIL,100UH
L4016	87-003-285-010	COIL,39UH
L4018	87-003-147-010	COIL,22UH
L4502	87-003-152-010	COIL,100UH
L4503	87-003-102-010	COIL,10UH
L4504	87-003-102-010	COIL,10UH
		*** JACKS ***
J4501	S6-3G1-000-370	SOCKET,21PIN 035_0_9985_0
		*** SWITCHES ***
SW1001	S5-082-210-010	SW,LEAF SPVF130100
		*** CONNECTORS ***
CP603	S6-9E2-901-290	CONN,PWB SIDE
CP757	S6-9E2-A01-290	CONN,PWB SIDE
CP1004	S6-972-805-900	CONN PWB SIDE TMC-J08P-B1
CP1005	S6-9J7-500-290	CONN,IMSA-9604S-05Z14
CP1006	S6-9J7-400-290	CONN,PWB SIDE IMSA-9604S-04Z14
CP4001	S6-972-406-000	CONN,PWB SIDE TOC-C04X-B1
CP4004	S6-971-203-200	CONN,TMC-TD2X-E1

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION
CP4005	S6-9J7-600-290	CONN,IMSA-9604S-06Z14
		*** FILTERS ***
CF601	S0-22V-39R-520	FILTER,SAW SAF39.5MZL220ZL
CF602	S0-12T-041-010	CER,FLTR MKT41.5MA110
		*** CRYSTAL & CERAMIC OSCILLATORS ***
X601	S0-0CT-4R4-060	X'TAL HC-94/U
X851	S0-0CT-013-020	X'TAL HC-49/U-S
X1001	S0-0CT-010-020	X'TAL,HC-49/U
X1002	S0-0D3-2R8-010	X'TAL,32.768K
X4001	S0-0CT-4R4-070	X'TAL HC-49/U
		*** TUNER ***
⚠ TU601	S1-44W-070-230	TUNER,UHF
		*** OTHERS ***
CD652	S6-CH0-140-8A0	CORD EIS CONN CH01408A
CD653	S6-CH0-140-8A0	CORD,CONN CH01408A
CD810	S6-CH2-809-2A0	CORD CONN CH28092A
CD850	S6-CH2-508-0A0	CORD CONN CH25080A
CP502	S6-CH2-D06-8A0	CORD CONN CH2D068A
		OPERATION PWB 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
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
B702	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
L004	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
L005	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
L703	87-003-102-010	COIL,10UH
		*** JACKS ***
J351	S6-0G1-310-140	RCA JACK HTJ-035-28A
J701	S6-021-010-200	JACK,RCA
		*** SWITCHES ***
SW750	S5-042-01T-310	SW,TACT SKHVBED010
SW751	S5-042-01T-310	SW,TACT SKHVBED010
SW791	S5-042-01T-310	SW,TACT SKHVBED010
SW792	S5-042-01T-310	SW,TACT SKHVBED010
SW793	S5-042-01T-310	SW,TACT SKHVBED010
SW794	S5-042-01T-310	SW,TACT SKHVBED010
SW795	S5-042-01T-310	SW,TACT SKHVBED010
SW796	S5-042-01T-310	SW,TACT SKHVBED010
SW797	S5-042-01T-310	SW,TACT SKHVBED010
SW798	S5-042-01T-310	SW,TACT SKHVBED010
SW799	S5-042-01T-310	SW,TACT SKHVBED010

REF.NO	PART NO.	DESCRIPTION
		*** OTHERS ***
CD351	S6-CH2-708-7A0	CORD CONN CH27087A
CD750	S6-CH2-A01-4A0	CORD,CONN CH2A014A
OS753	S7-7Q0-000-170	REMOTE RECEIV
		MAIN PWB ASS'Y
		*** RESISTORS ***
R411	87-022-629-080	RES,M/F 11K-1/6W
R413	87-025-424-080	RES,MF 10K-1/6W
R418	S4-X5T-41R-5F0	RES,M 1.5-1/4W
⚠ R447	S6-35U-268-0J0	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	S6-558-15R-6J0	RES,FUSE 5.6-1W
⚠ R501	S5-K2C-E2R-2J0	RES,CEM 2.2-7W
⚠ R505	S3-X28-B33-3J0	RES,M 33K-3W
⚠ R512	S3-X18-122-3J0	RES,MO 22K-1W
⚠ R517	S3-X28-AR2-2J0	RES,M 0.22-2W
R528	S3-X18-1R3-3J0	RES,M 0.33-1W
R529	87-025-277-010	RES,M 2.7K-1/4W
⚠ R542	S3-X18-1R3-3J0	RES,MO 0.33-1W
⚠ R543	S6-35U-268-1J0	RES,FUSE 680-1/2W
		*** CAPACITORS ***
C403	87-010-560-080	CAP,E 10-50V
C404	87-016-636-080	CAP,E 4.7-50V
C405	87-016-636-080	CAP,E 4.7-50V
C406	S5-EZT-410-1M0	CAP,E 100-35V
C407	S6-2I0-312-2M0	CAP,E 1200-25V
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-347-4J0	CAP,MPP 0.47-250V
C424	SA-LR8-22J-010	CAP,MPP 0.0082-1.6KV
C425	S0-JLY-R71-3K0	CAP,001-2KV
C429	87-012-376-010	CAP,CER 470PF-500V
⚠ C431	87-016-373-080	CAP,E 10-250V
C450	S0-JLY-R7B-2K0	CAP,120P-2KV
⚠ C505	S2-122-B22-4M0	CAP,0.22-250V E
⚠ C506	S2-122-B10-4M0	CAP,MP 0.1-250V
⚠ C507	S1-9A0-C01-040	CAP,E 100-400V
C510	S5-EZT-422-1M0	CAP,E 220-35V
C513	S5-EZT-522-0M0	CAP,E 22-50V
C514	S0-JLY-R7H-3K0	CAP,0.0022-2KV
C516	87-012-376-010	CAP,CER 470PF-500V
C517	S0-JLY-R7G-3K0	CAP,0.0018-2KV
C518	87-012-376-010	CAP,CER 470PF-500V
C519	87-012-376-010	CAP,CER 470PF-500V
C520	87-010-271-080	CAP,E 1000-16V
C521	S6-2NF-C22-1M0	CAP,E 220-200V
C522	S0-2LT-52R-2M0	CAP,E 2.2-50V
C523	S5-EZF-310-2M0	CAP,E 1000-25V
C524	S5-EZF-310-2M0	CAP,E 1000-25V
C527	S0-JLY-R7Q-2K0	CAP,470P-2KV
⚠ C530	SB-393-0M1-3M0	CAP,CER 0.001-250V
C531	87-010-618-010	CAP,E 2200-16V
		*** DIODES ***
D401	S2-WT0-11E-100	DIODE,11E1-EIC
D410	87-017-931-010	ZENER,MTZJ5.6B
⚠ D411	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D413	S2-LTP-G06-J00	DIODE,RMPG06J
⚠ D501	S4-LZB-L06-L00	DIODE,GBL06L-6177
D502	S2-BT0-EG0-1C0	DIODE,EG-01C
⚠ D505	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO	PART NO.	DESCRIPTION
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
⚠ D511	S2-8T1-0EL-S20	DIODE,10ELS2N-TA1
⚠ D512	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
D515	87-002-743-080	ZENER,MTZJ33B T77
D516	87-020-465-010	DIODE,1SS133T
D517	87-A40-172-080	DIODE,EG01Z-V0
D518	S2-BT0-EG0-1Z0	DIODE,EG01Z-V0
⚠ D519	S2-8T2-1DQ-N90	DIODE,21DQ09N-TA2B
D521	S2-BT0-EG0-1Z0	DIODE,EG01Z-V0
D523	87-020-465-010	DIODE,1SS133T
D524	87-020-465-010	DIODE,1SS133T
D526	87-020-465-010	DIODE,1SS133T
D527	87-020-465-010	DIODE,1SS133T
D528	87-017-931-010	ZENER,MTZJ5.6B
D529	87-020-465-010	DIODE,1SS133T
D530	87-020-465-010	DIODE,1SS133T
D531	S2-BTR-U2Y-X00	DIODE,RU2YX-V1
D533	87-020-465-010	DIODE,1SS133T
D534	87-020-465-010	DIODE,1SS133T
⚠ IC506	S0-025-004-500	PHOTO,COUPLER TLP621(GR)
TH501	S8-R0A-140-M00	DEGAUSS ELEMENT PTH451A140M21
		*** ICS ***
⚠ IC401	S0-3TD-804-000	IC,LA78040
⚠ IC501	S2-BT0-670-700	IC,STR-F6707
		*** 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	SA-3T1-371-A00	TR,2SA1371
Q504	89-318-154-080	TR,2SC1815Y
Q505	SC-3T0-290-900	TR,2SC2909
Q506	87-026-464-080	TR,DTC114TS
Q507	89-309-458-010	TR,2SC945(C)
Q508	SB-3T0-089-200	TR,2SB892
Q509	87-026-464-080	TR,DTC114TS
Q513	SN-YTB-030-010	TR,DTC114E
		*** COILS ***
B504	S2-4AT-036-550	CORE,BEADS BL01RN1-A63T6
B505	S2-4A8-407-C30	CORE,BL02RN2-R62T2
L401	87-003-143-010	COIL,4.7MH
L402	S2-210-000-130	COIL,LINEA ELH5L4112
⚠ L501	S2-9K0-000-010	FILTER,RB-20871
⚠ L502	S2-9X0-000-840	COIL,LINE FILTER SS28H-08350
T401	S3-305-Y00-2S0	TRANS,H DRIVE 305Y002S
		*** TRANSFORMERS ***
⚠ FB401	S4-321-301-2R0	TRANS,FLYBACK 3213012R
⚠ T501	S4-812-906-640	TRANSFORMER,SW 81290664
		*** VARIABLE RESISTORS ***
VR502	S1-163-L2B-TC0	VOL,EVNCYAA03BY2
		*** CONNECTORS ***

REF.NO	PART NO.	DESCRIPTION
CP401	S6-9X4-500-290	CONN PWB SIDE B05B-DVS
CP501	S6-973-200-390	CORD UX CONNECTOR
CP820	S6-9E2-D01-290	CONN,8283_1312_00_000
		*** FUSES ***
CP803A	S6-7R1-050-190	HOLDER,WIRE 51052-0500
⚠ F501	S8-0PT-040-020	FUSE,4A-250V T
⚠ F502	S8-08T-1R6-020	FUSE,
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
		*** RELAYS ***
⚠ RY501	S5-60V-201-150	RELAY,ALKS321
		*** OTHERS ***
EL002	S2-412-030-1A0	EYE LET XRY20X30BD
⚠ ICP502	S8-3PC-050-020	MICRO FUSE,251005
⚠ ICP504	S8-3PC-050-020	MICRO FUSE,251005
		CRT PWB 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 ***
C820	S0-ELT-D4R-7M0	CAP,E 4.7-250V 250YK4R7MTA
		*** 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)
		*** COILS ***
L801	S2-167-D10-1K0	COIL,100UH
		*** CONNECTORS ***
CP850	S6-9E2-501-290	CONN,PWB SIDE
		*** FUSES ***
CP803B	S6-7R1-050-190	HOLDER,WIRE 51052-0500
		*** CRT SOCKET ***
⚠ J801	S6-6X1-200-140	SOCKET,CRT HPS320
		POWER SW PWB ASS'Y
		*** SWITCHES ***
⚠ SW501	S5-302-050-010	SW,PLUS SDDFC3056A
		*** CONNECTORS ***
CP504	S6-973-200-390	CORD UX CONNECTOR
		*** AC CORD ***

ELECTRICAL REPLACEMENT PARTS LIST

	REF.NO	PART NO.	DESCRIPTION
⚠	CD501	S2-066-358-230	CORD AC 1206635823
			*** OTHERS ***
	CD502	S6-CPU-201-2A0	CORD CONN CPU2012A
			AND OTHERS
			*** OTHERS ***
	CD801	S6-CU8-203-9A0	CORD CONN SM1098-009-1A
			*** CONNECTORS ***
	CD1006	S2-2S0-408-040	CORD,1.25-4-83-C
	CD4005	S2-2S0-614-010	CORD,1.25-6-138-C
			*** COILS ***
	L001	S2-A6A-8A0-A10	CORE,FERRITE HF57T18.5*10*10
⚠	L503	S2-8F1-400-180	COIL,DEGAUSS 8F140018
			*** OTHERS ***
	CD354	S6-CH1-243-4A0	CORD CONN CH12434A
	SP351	S7-0C5-330-080	SPEAKER,810-47-171
	SP352	S7-0C5-330-080	SPEAKER,810-47-171
⚠	V801	S9-8Q1-404-960	CRT W/DY A34AGT13*07

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