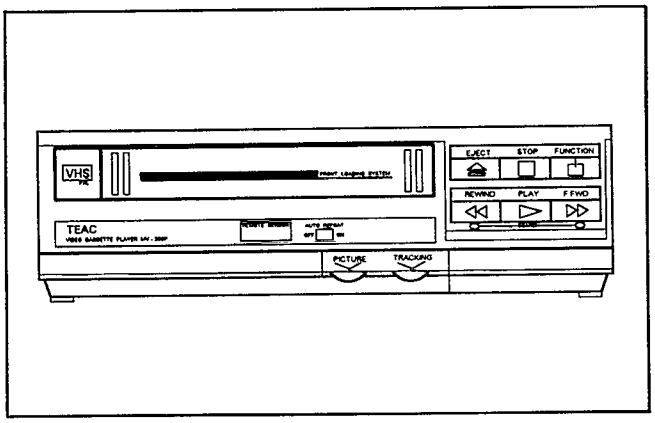


TEAC®

VHS
PAL

MV-330P

VIDEO CASSETTE PLAYER

SERVICE MANUAL

CONTENTS

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

3. Clearance distance
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

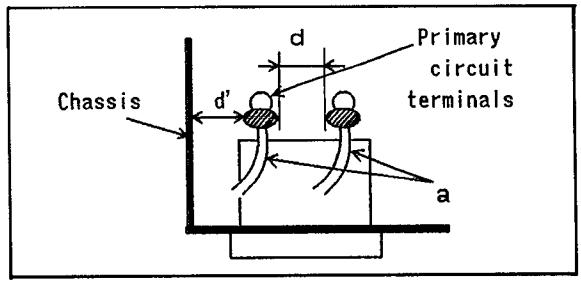


Table 1 : Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance (d) (d')
110 to 130 V	USA & Canada	———	900 V 1minute	≧3.2 mm
* 110 to 130 V	Europe	≧10 MΩ	3 kV 1minute	≧4 mm (d)
200 to 240 V	Australia	/500 V DC		≧6 mm (d')

* Class II model only.

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage current test

Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)
Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts.
Use an AC voltmeter to measure across both terminals of load Z.
See figure and following table.

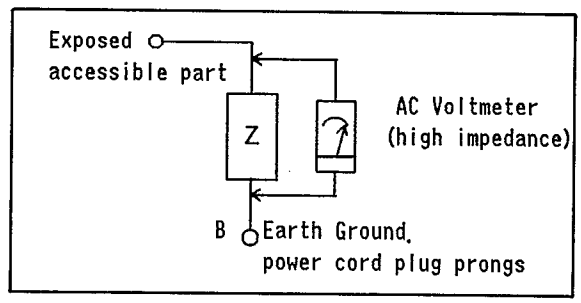


Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA & Canada	0.15 F, 1.5 k	1≦0.5 mA rms	Exposed accessible parts
110 to 130 V 200 to 240 V	Europe Australia	2 kΩ	1≦0.7 mA peak 1≦2 mA dc	Antenna terminals
		50 kΩ	1≦0.7 mA peak 1≦2 mA dc	Other terminals

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected to conform the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

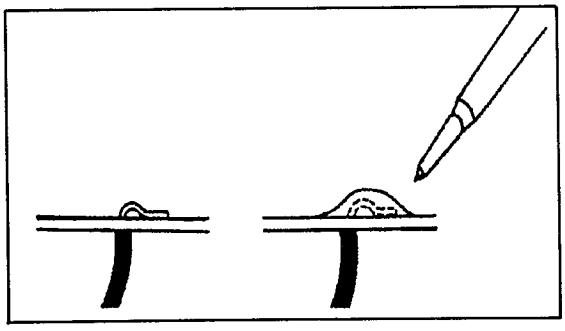
● Precautions during Servicing

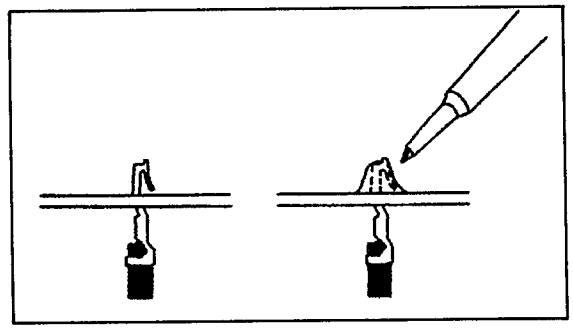
1. Locations requiring special caution are denoted by labels and inscribed on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

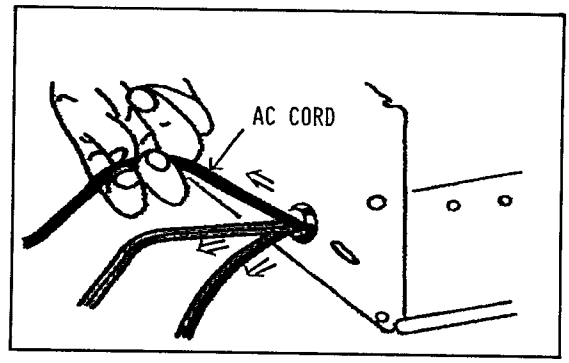
2. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with specified part numbers.

3. Use specified internal wiring. Note especially :
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially :
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors







5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely around the terminals before soldering.

6. Observe that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

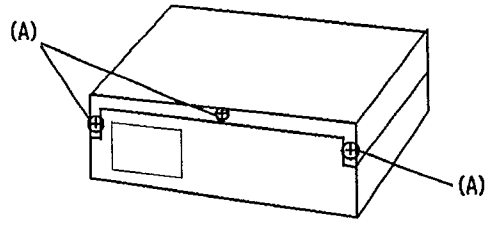
8. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

9. Also check areas surrounding repaired locations.

1. DISASSEMBLY INSTRUCTIONS (SET)

1-1 Top Cabinet Removal (Fig. 1-1)

- Remove 3 screws (A).



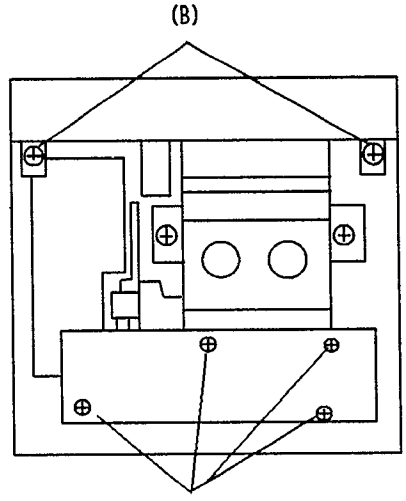
(Fig. 1-1 Rear)

1-2 Front Ass'y Removal (Fig. 1-2)

- Remove 2 screws (B).

1-3 Main PCB Removal (Fig. 1-2)

- Remove 4 screws (C).



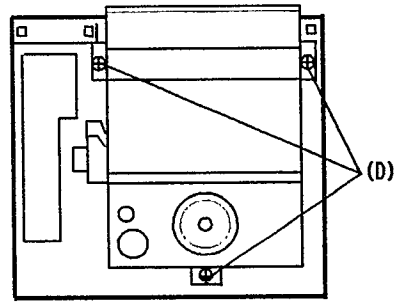
(Fig. 1-2 Top View)

1-4 Deck Ass'y Removal (Fig. 1-3)

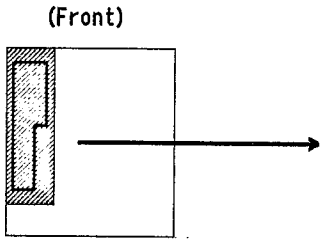
- Remove 3 screws (D).

1-5 Power Supply PCB Removal
(Figs. 1-4 and 1-5)

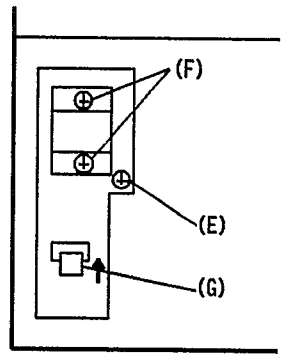
- Remove 1 screw (E). (Power Supply PCB)
- Remove 2 screws (F). (Power Trans)
- Unfasten 1 hook (G) from cabinet.



(Fig. 1-3 Top View)



(Fig. 1-4 Top View)

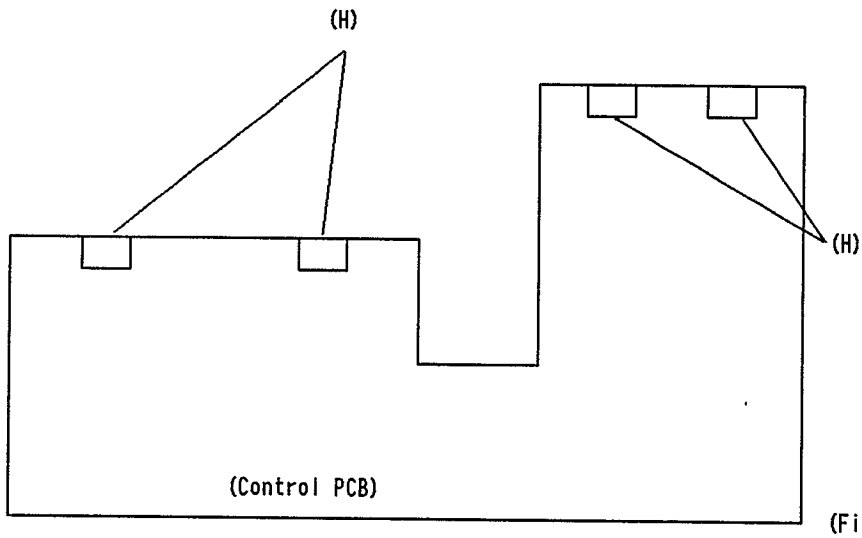


(Power Supply PCB)

(Fig. 1-5 Top View)

1-6 Control PCB Removal (Fig. 1-6)

- Release 4 hooks (H) from Main Cabinet.



(Fig. 1-6 Front)

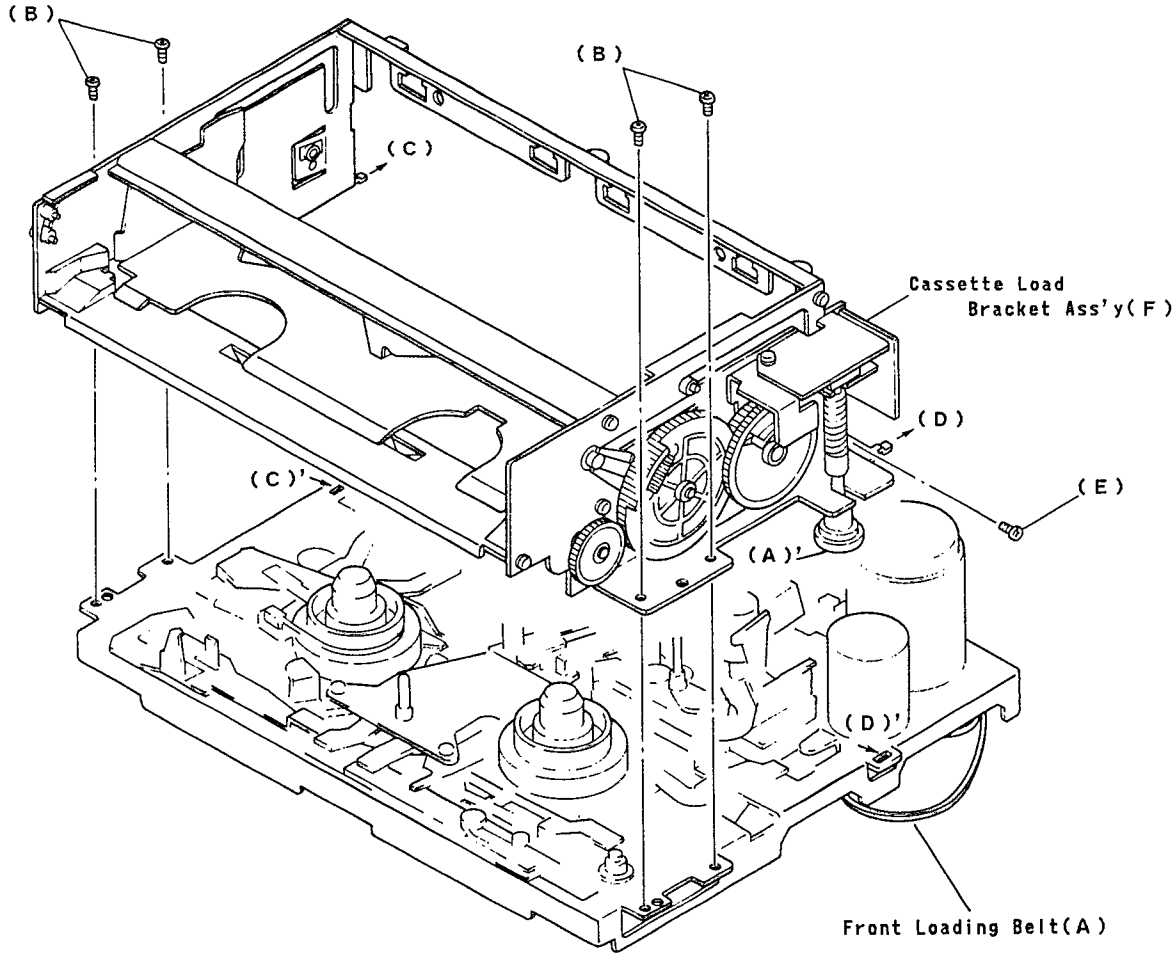
2. DISASSEMBLY INSTRUCTIONS (DECK)

(1) FRONT LOADING UNIT

1. Remove Front Loading Belt (A).
   (Hook the Front Loading Belt (A) to (A)'.)
2. Remove 4 screws (B).
3. Take off Left side hook (C) and Right side hook (D).
   (To unfasten the hook, hold the front loading unit and lift up and down to this side to take off the hook (C). Similarly to the above, take off hook (D) and hook (C).)

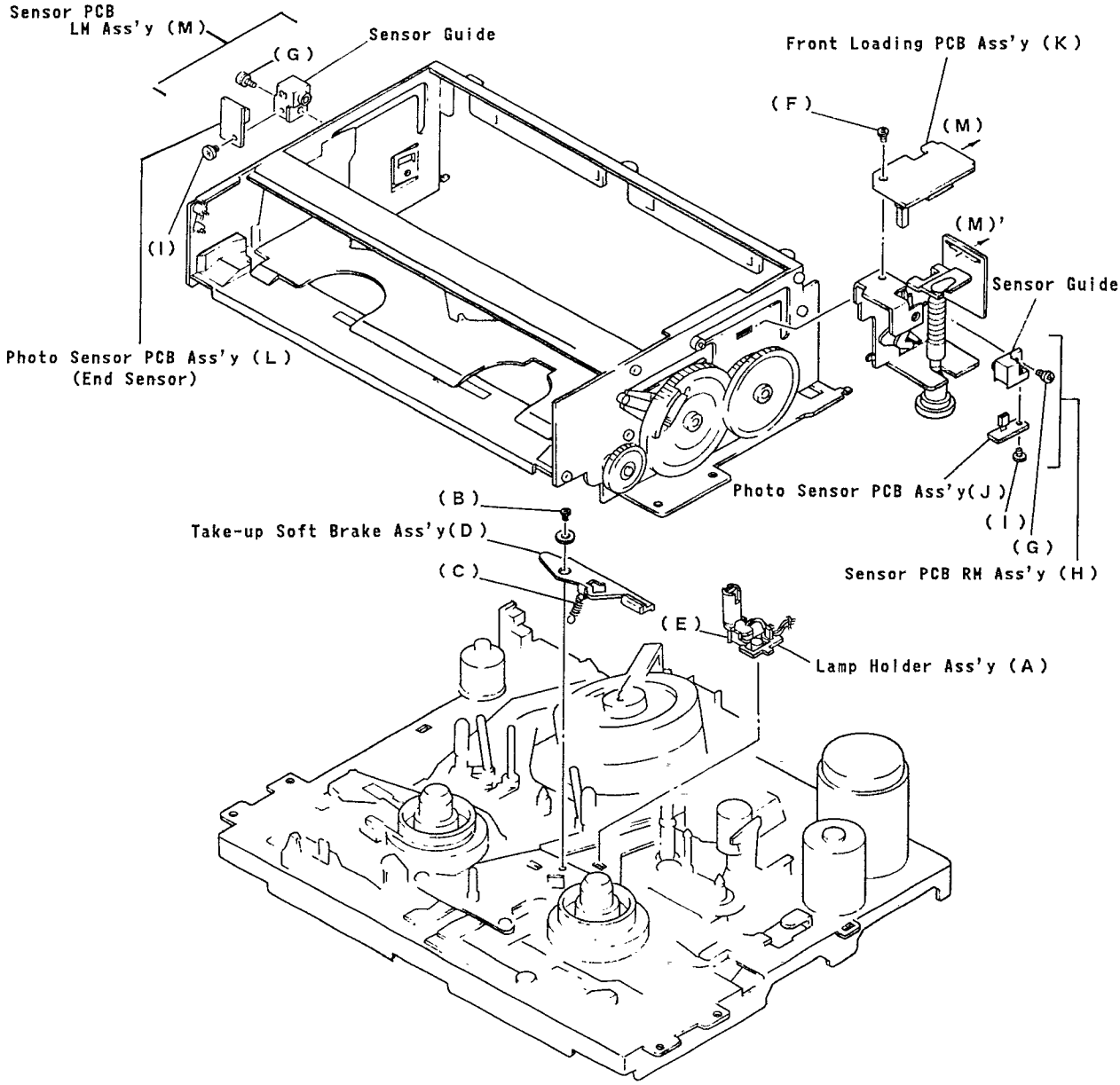
(2) CASSETTE LOAD BRACKET ASS'Y

1. Remove 1 screw (E).
2. Take off the Cassette Load Bracket Ass'y (F).



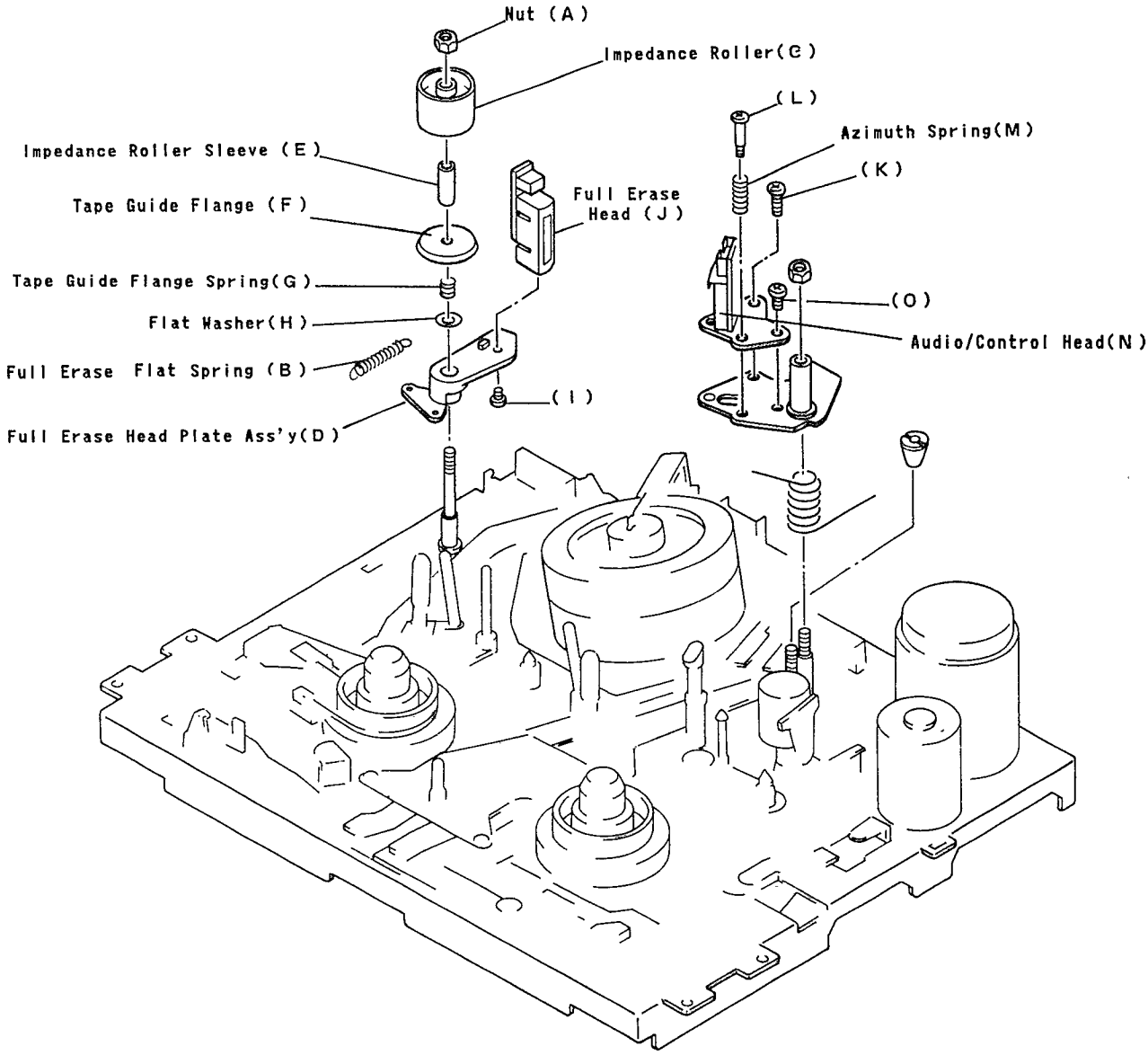
(3) PHOTO SENSOR

1. Replacement of Lamp Holder Ass'y (A).
   (1) Remove 1 screw (B), and take off the Take-up Soft Brake Ass'y (D).
   (At this time, never take off the spring (C).)
   (2) Hold Lamp Holder Ass'y (A) and pull up to remove the hook (E) from the chassis.
   (3) Turn the Lamp Holder Ass'y (A) counterclockwise and take out the Lamp Holder Ass'y (A).
2. Replacement of Photo (Start) Sensor.
   (1) Remove 1 screw (F) and take off the Front Loading PCB Ass'y (K).
   (2) Remove 1 screw (G) and take off the Sensor PCB RM Ass'y (H).
   (3) Remove 1 screw (I) and take off the Photo Sensor PCB Ass'y (J).
3. Replacement of Photo (End) Sensor (L).
   (1) Remove 1 screw (G) and take off the Sensor PCB LM Ass'y (M).
   (2) Remove 1 screw (I) and take off the Photo Sensor PCB Ass'y (L).



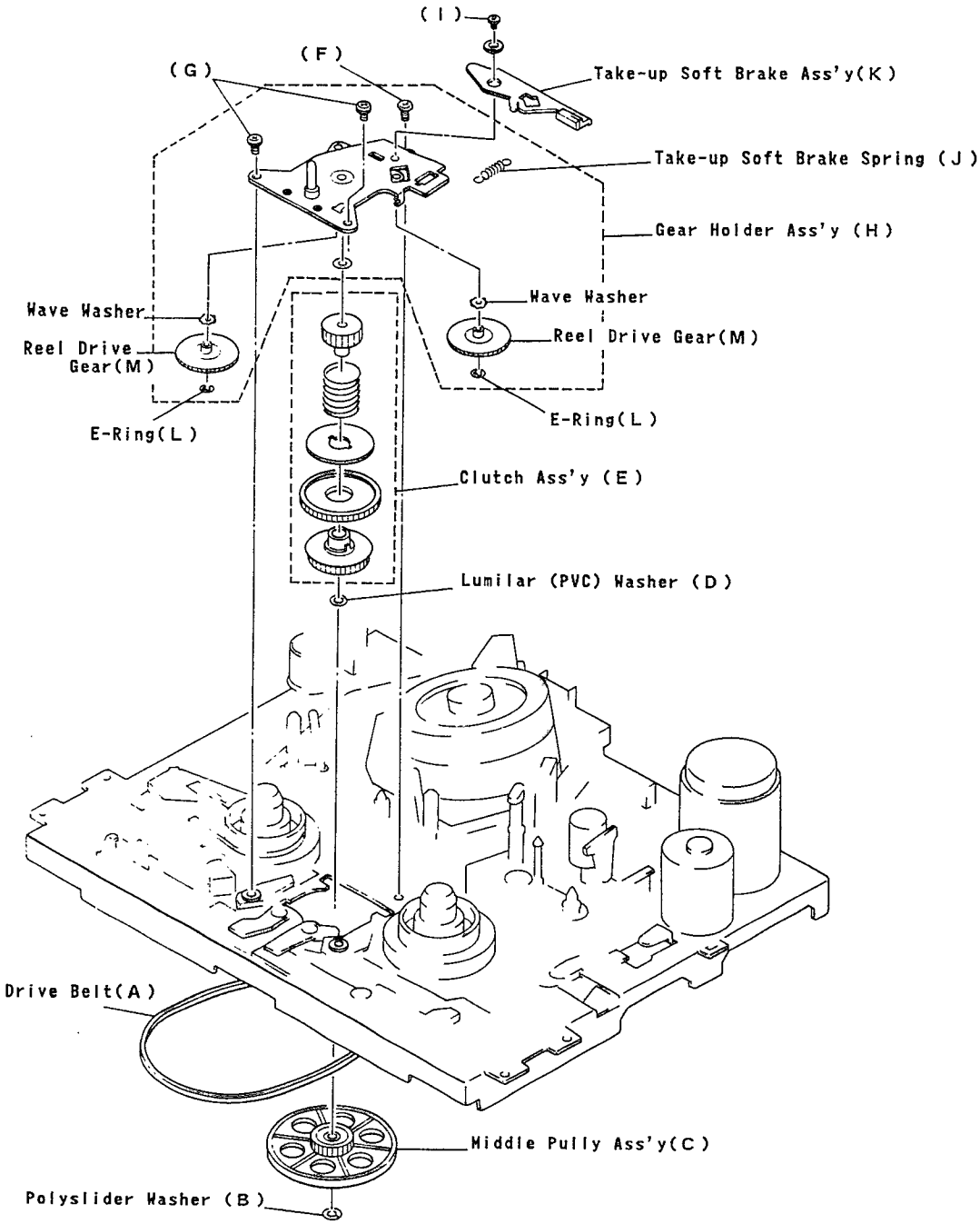
(4) FULL ERASE HEAD / AUDIO CONTROL HEAD

1. Erase Head (except Play Only Model)
   (1) Remove Nut (A).
   (2) Remove Spring (B).
   (3) Take out the Imdepedance Roller (C), and pull up the Full Erase Head Plate Ass'y (D).
   (Take care not to lose parts (E) (F) (G) (H) at the time of the Full Erase plate removal.)
   (4) Remove 1 screw (I) and take off the Full Erase Head (J).
2. Audio / Control Head
   (1) Remove 1 screw (K), 1 screw (L) 1 screw (O) and Azimuth Spring (M).
   (2) Remove Audio/Control Head (N).



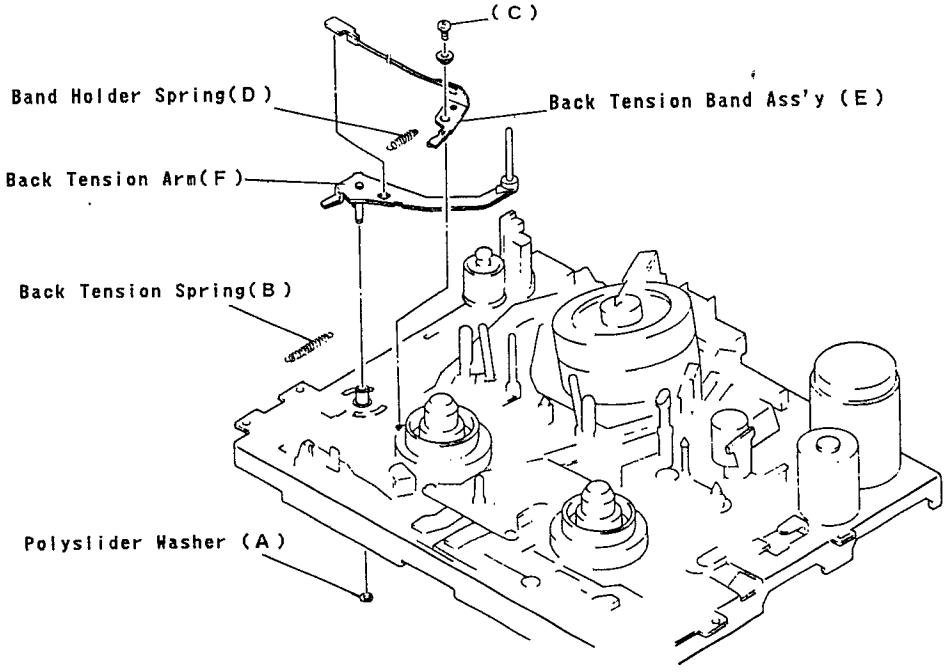
(5) GEAR HOLDER ASS'Y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove Drive Belt (A).
3. Remove Polyslider Washer (B) and middle Pulley Ass'y (C).
4. Remove Lumilar (PVC) Washer (D) and take off the Clutch Ass'y (E).
5. Remove 1 screw (F) and 2 screws (G) and take off the Gear Holder Ass'y (H).
6. Remove 1 screw (I) and take off the Take-up Soft Brake Spring (J).
7. Take off the Take-up Soft Brake Ass'y(K).
8. Remove 2 E-Rings (L) and take off the 2 Reel Drive Gears (M).



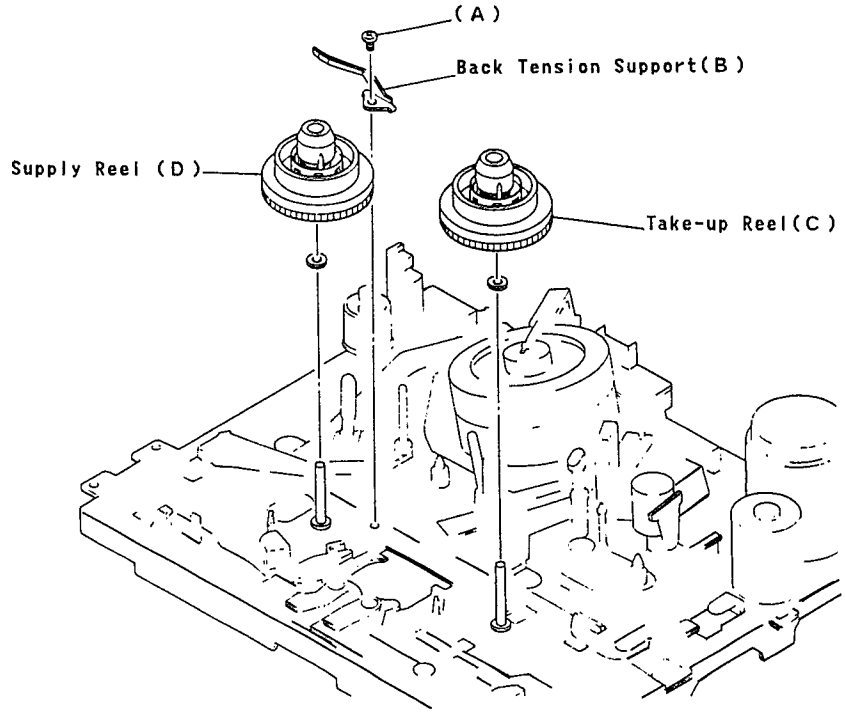
(6) TENSION ARM ASS'Y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove Polyslider Washer (A) and Back Tension Spring (B) from the Back Tension Arm (F).
3. Remove 1 screw (C) and Band Holder Spring (D).
4. Take off the Back Tension Band Ass'y (E) from the Bakc Tension Arm (F).



(7) REEL (TAKE-UP AND SUPPLY)

1. Remove the Front Loading Unit, Gear Holder Ass'y and Back Tension Band Ass'y.
2. Remove 1 screw (A) and the Back Tension Support (B).
3. Remove the Take-up Reel (C) and the Supply Reel (D).

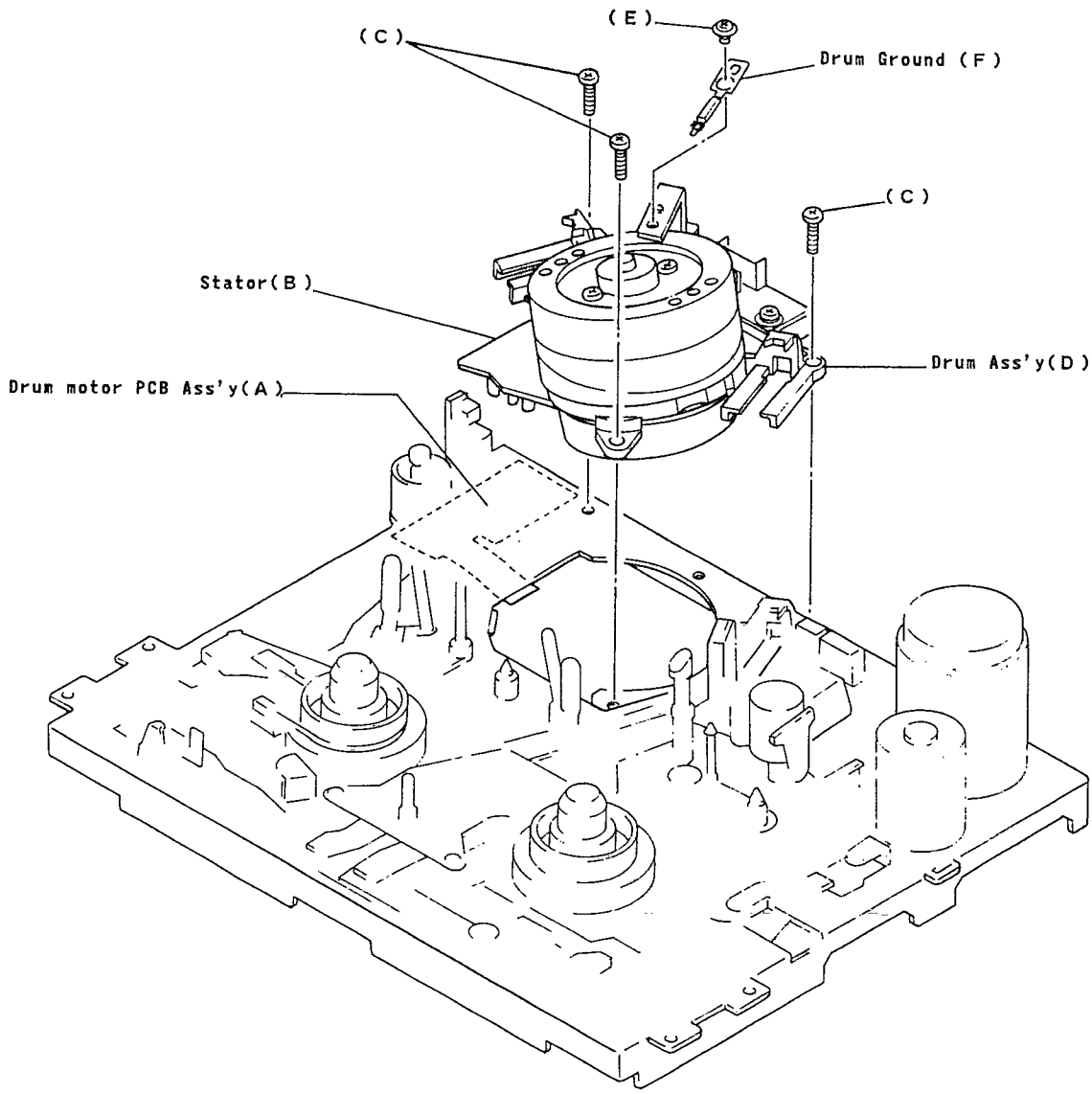


(8) DRUM ASS'Y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Pull out the Drum Motor PCB Ass'y (A) from the Stator (B).
3. Remove 1 screw (E) and take off the Drum Ground (F).
4. Remove 3 screws (C) and take off the Drum Ass'y (D).

≡Remark≡

Take off the Drum Ass'y (D) carefully without any damage.

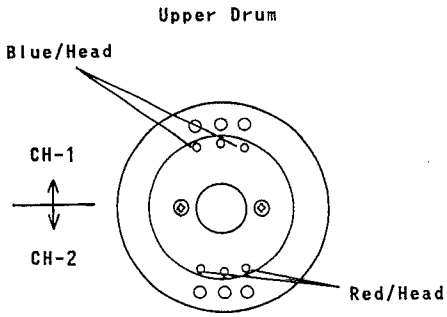


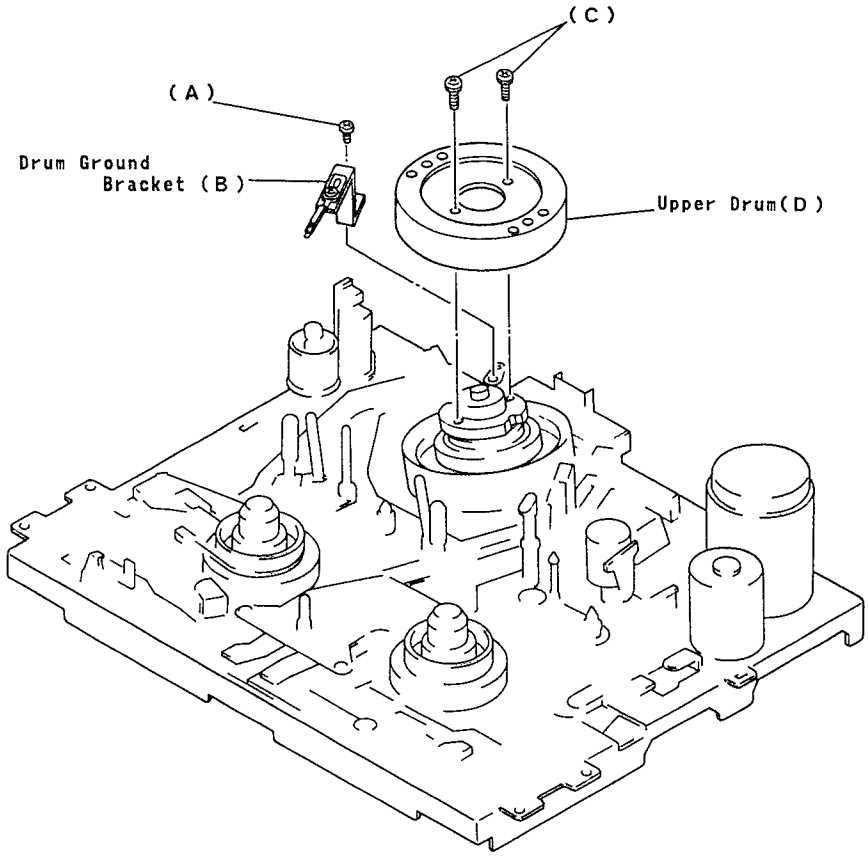
(9) UPPER DRUM

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove 1 screw (A) and take off the Drum Ground Bracket (B).
3. Remove 2 screws (C) and take off the Upper Drum (D).

≡Remark≡

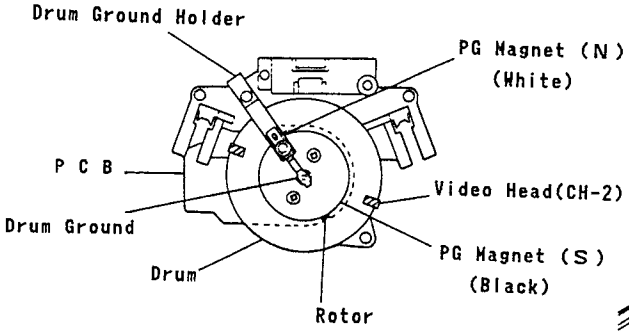
1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video Head is defective, replace the complete upper drum with the Head.

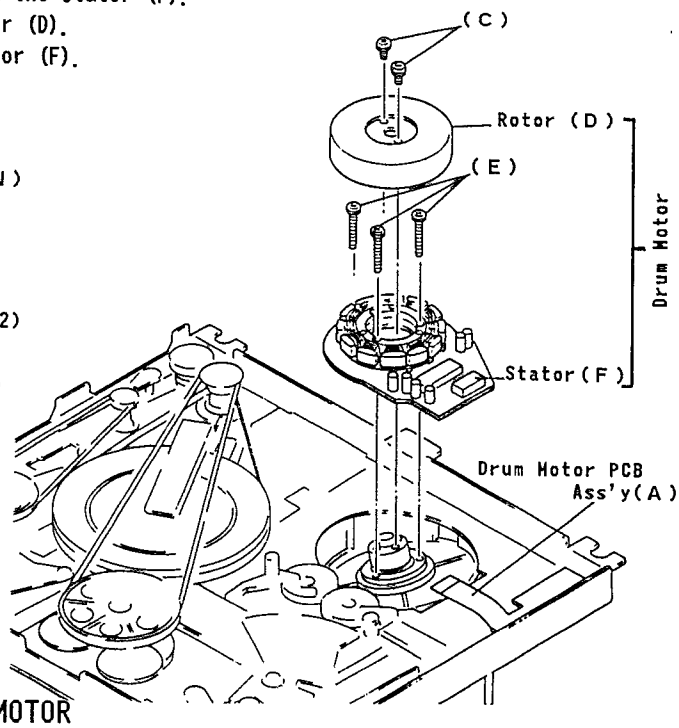




(10) DRUM MOTOR

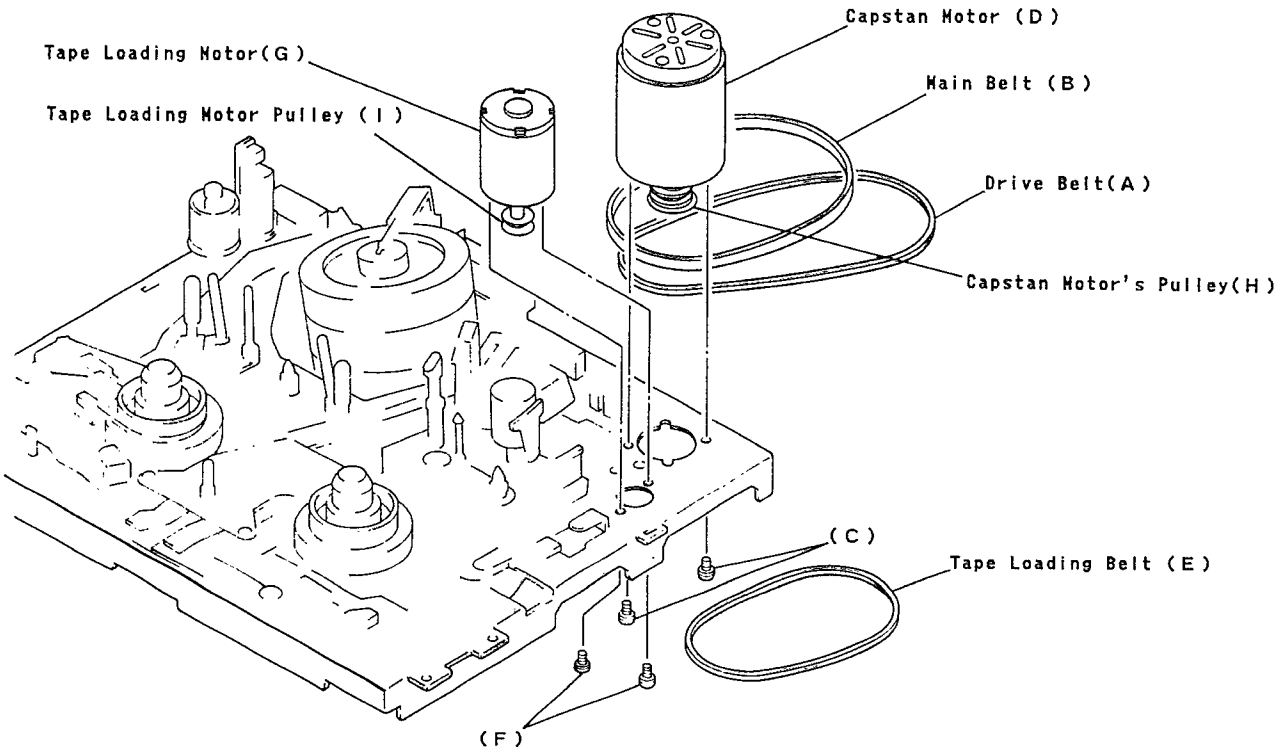
1. Pull out the Drum Motor PCB Ass'y (A) from the Stator (F).
2. Remove 2 screws (C), and take off the Rotor (D).
3. Remove 3 screws (E), and take off the Stator (F).





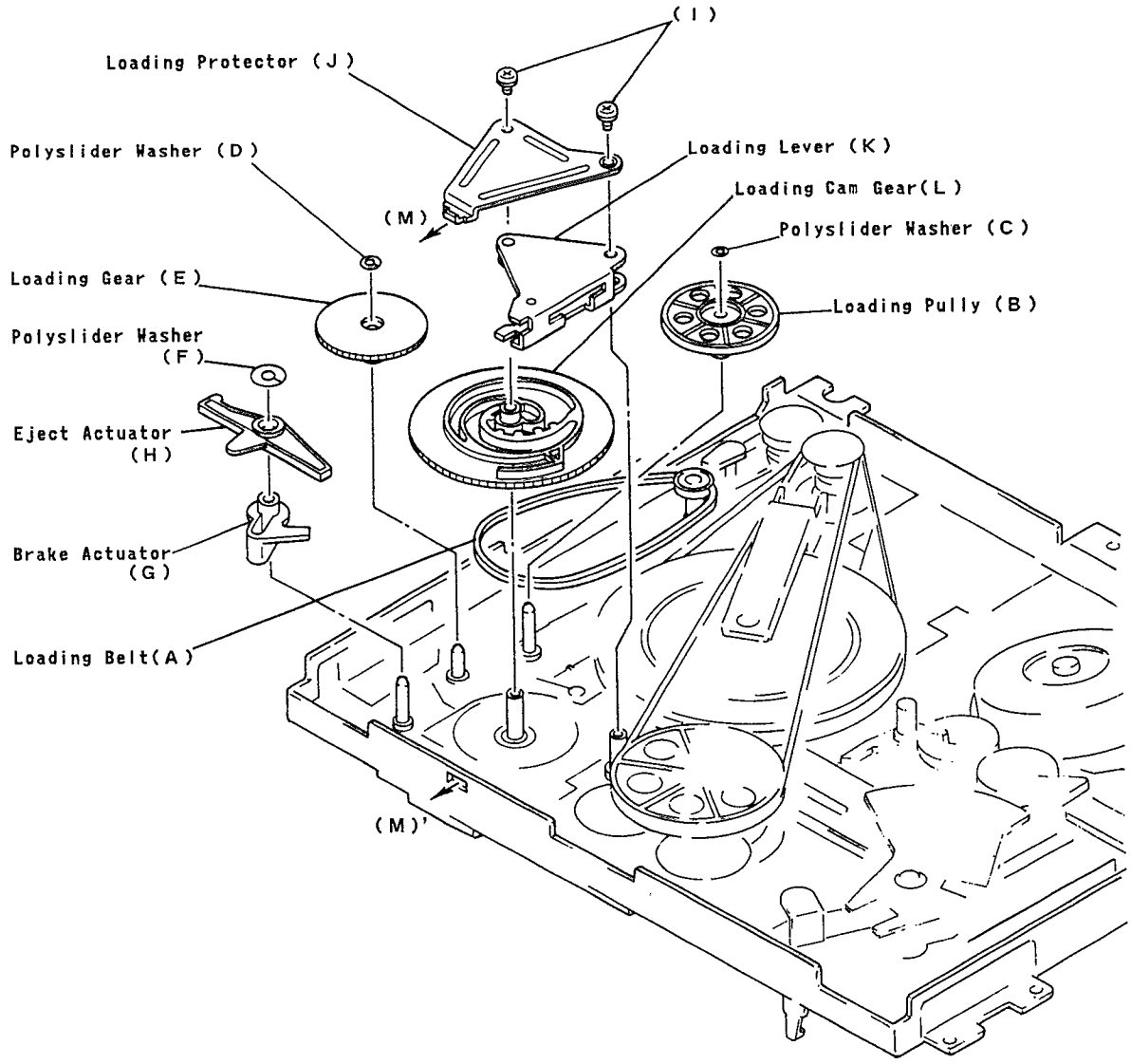
(11) CAPSTAN MOTOR / TAPE LOADING MOTOR

1. CAPSTAN MOTOR
   (1) Take off the Drive Belt (A) and Main Belt (B) from the Capstan Motor's Pulley (H).
   (2) Remove 2 screws (C), and take off the Capstan Motor (D).
2. TAPE LOADING MOTOR
   (1) Take off the Tape Loading Belt (E) from the Tape Loading Motor's Pulley (I).
   (2) Remove 2 screws (F), and take off the Tape Loading Motor (G).



(12) LOADING CAM GEAR

1. Take off the Loading Belt (A) from the Loading Pulley (B).
2. Remove Polyslider Washer (C), and take off the Loading Pulley (B).
3. Remove Polyslider Washer (D), and take off the Loading Gear (E).
4. Remove Polyslider Washer (F), and take off the Eject Actuator (H) and the Brake Actuator (G).
5. Remove 2 screws (I), and take off the Loading Protector (J) and the Loading Lever (K).
6. Take off the Loading Cam Gear (L).

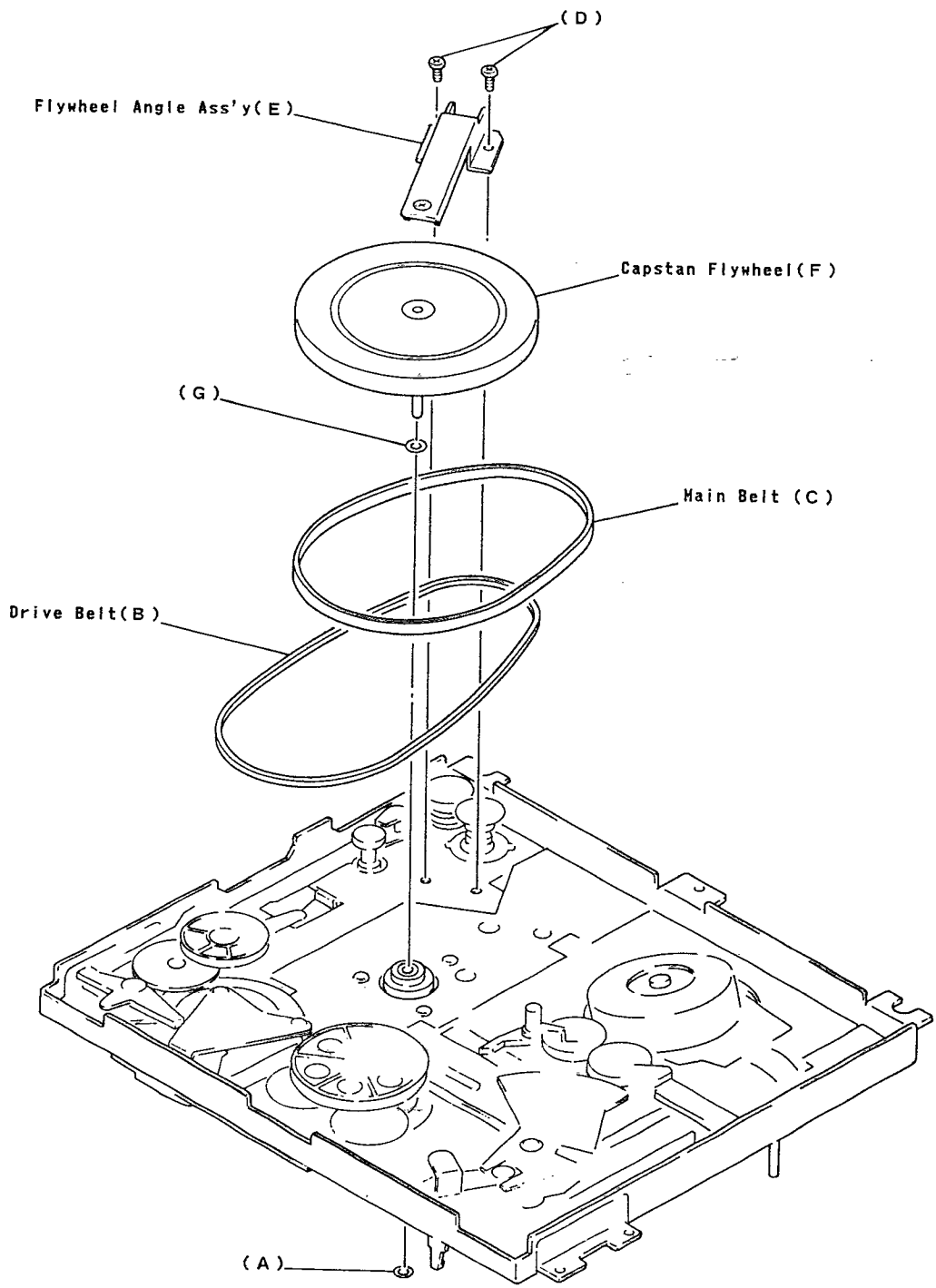


(13) CAPSTAN FLYWHEEL

1. Remove the Washer (A).
2. Take off the Drive Belt (B) and Main Belt (C).
3. Remove 2 screws (D), and Take off the Flywheel Angle Ass'y (E).
4. Take off the Capstan Flywheel (F).

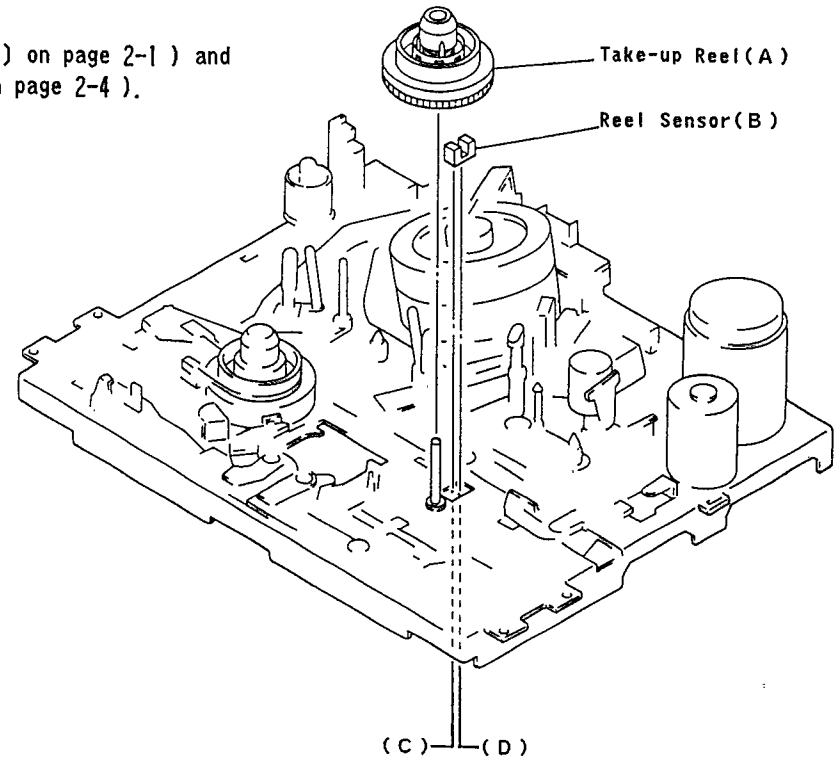
≡Remark≡

Do not miss the Washer (A) and (G) when pulling out the Capstan Flywheel.



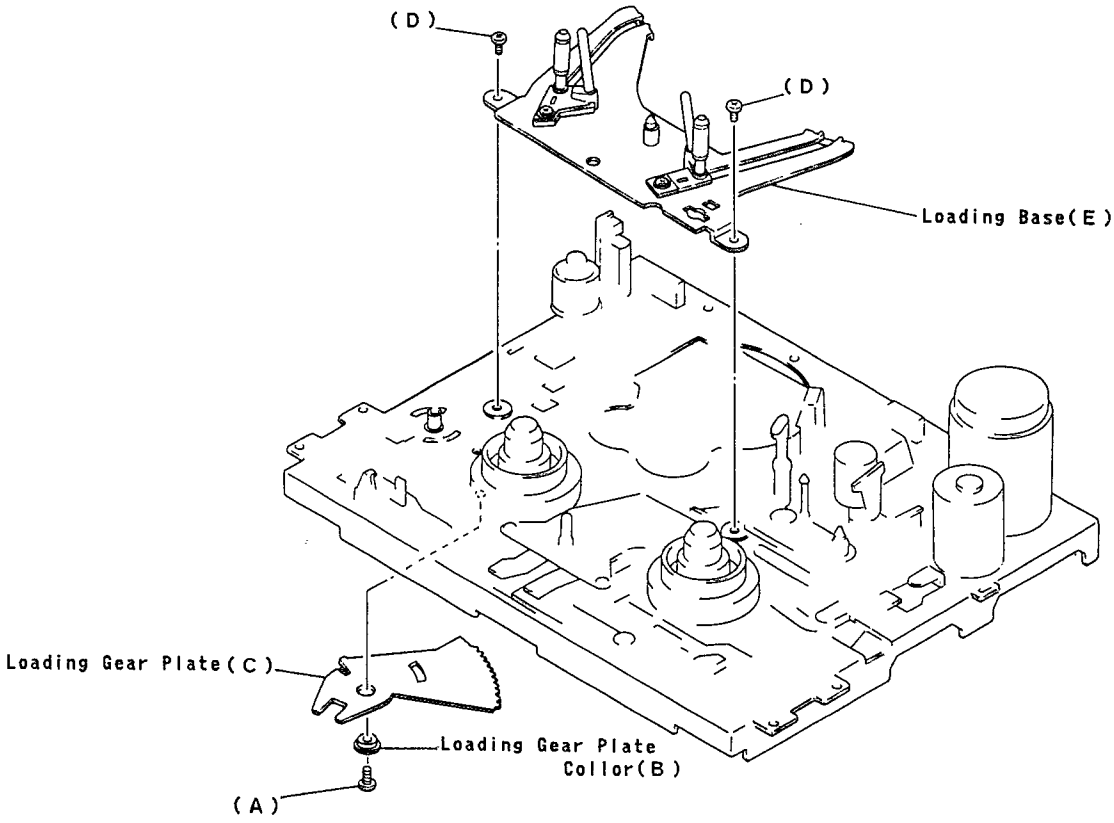
(14) REEL SENSOR

1. Remove Front Loading Unit (2. (1) on page 2-1) and the Gear Holder Ass'y (2. (5) on page 2-4).
2. Remove Take-up Reel (A).
3. Remove Reel Sensor (B).
   (Unsolder (C), (D) for bottom.)



(15) LOADING BASE

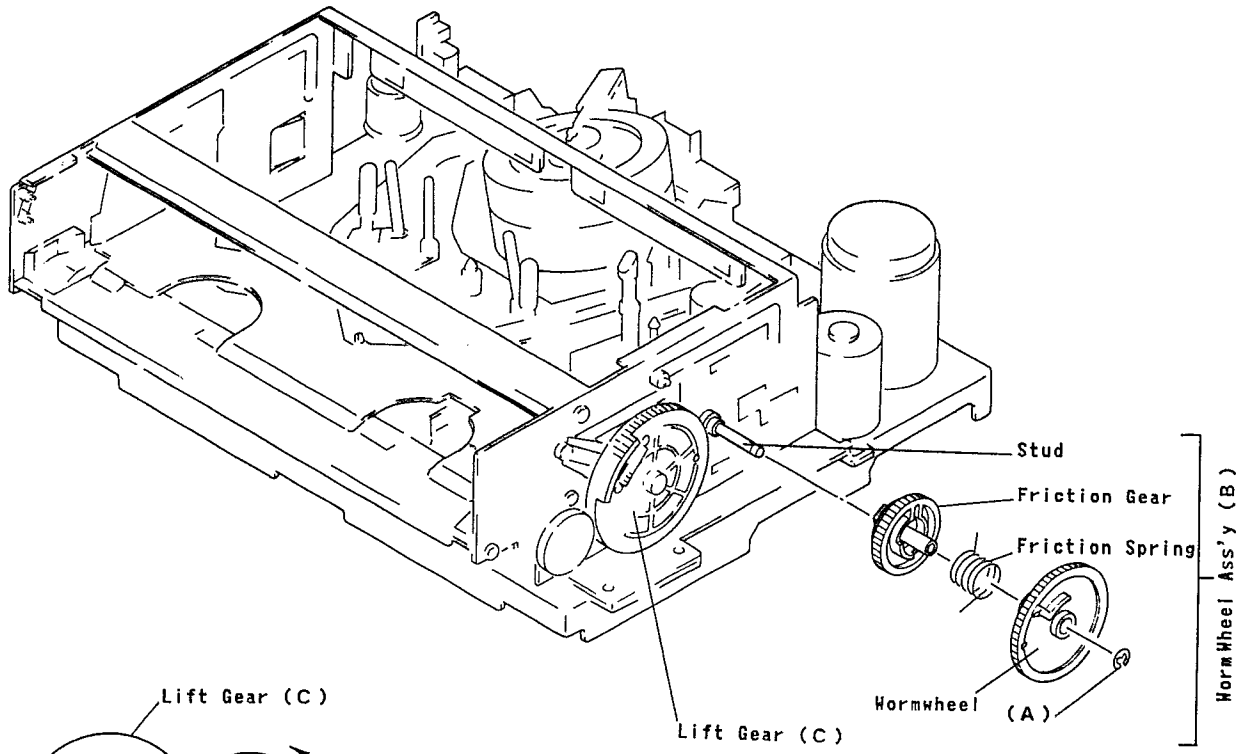
1. Remove Drum Ass'y, Tension Arm Ass'y and Photo Sensor. (Sensor Lamp)
2. Remove 1 screw (A) and Loading Gear Plate Coller (B), Loading Gear Plate (C).
3. Remove 2 screws (D).
4. Take off the Loading Base (E).

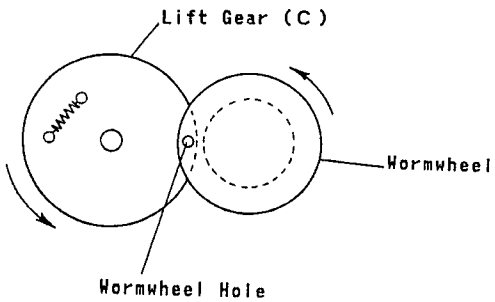


(16) FRONT LOADING WORMWHEEL UNIT

1. DISASSEMBLY
   (1) Remove Front Loading Belt and Bracket Ass'y.
   (2) Remove E-Ring (A).
   (3) Remove Wormwheel Ass'y (B). (Wormwheel, Friction Spring, Friction Gear)
2. ASSEMBLY
   (1) Turn the Lift Gear (C) fully counterclockwise.
   (2) Restore Wormwheel Ass'y (B) to the stud.

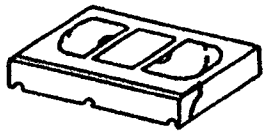
≡Remark≡
Match Lift Gear (C) to the wormwheel hole as illustrated.



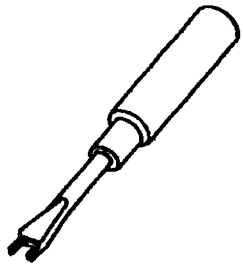


3. SERVICE JIG AND TOOLS

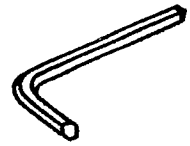
Ref No.	Jig Item	Part No.	Adjustment
J－1	Torque Meter	FSJ-VHT-063	Back Tension
J－2	Driver (Special)	FSJ-0001	Control Head / Tape Guide Height
J－3	Wrench M2 Hexagon (0.9 mm)	FSJ-0002	Guide Roller Setting
J－4	Wrench M3 Hexagon (1.5 mm)	FSJ-0003	A/C Head Tilt
J－5	Mirror	FSJ-0004	Tape Transportation Check
J－6	Box Driver M3	FSJ-0005	Guide Pole / A/C Head Height
J－7	Alignment Tape	F6-N	FM Output Level / Azimuth Adjustment
J－8	Alignment Tape	F6-A	Audio Output Adjustment



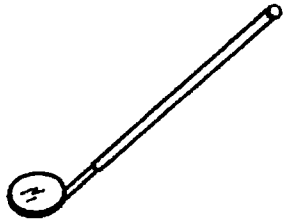
J－1



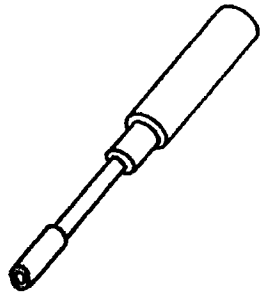
J－2



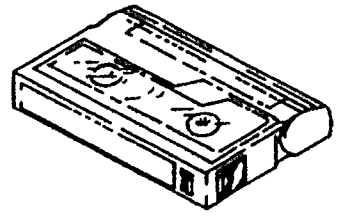
J－3, J－4



J－5



J－6



J－7, J－8

4. STANDARD MAINTENANCE

4-1 SERVICE SCHEDULE OF COMPONENT

○:Check ●:Change

Deck		Periodic Service Schedule			
Ref. No.	Parts Name	1000 h	2000 h	3000 h	4000 h
2	Upper Drum	○	●	○	●
134	Pinch Roller(A)		●		●
171	Capstan Motor Assembly		●		●
229	Clutch Assembly		●		●
281	LM Assembly			●	
173	Main Belt		●		●
196	Back Tension Band		●		●
233	Drive Belt		●		●
251	Brake Shoe		●		●
285	Loading Belt		●		●
373	Front Loading Belt		●		●
14	Drum Ground			●	
82	ACE Head			●	
121	Reel Assembly			●	

Note:

1. Clean all parts for the tape transport.
   Upper Drum with video head / Pinch Roller
   Audio Control Head

2. After cleaning up the parts, perform all DECK ADJUSTMENTS.

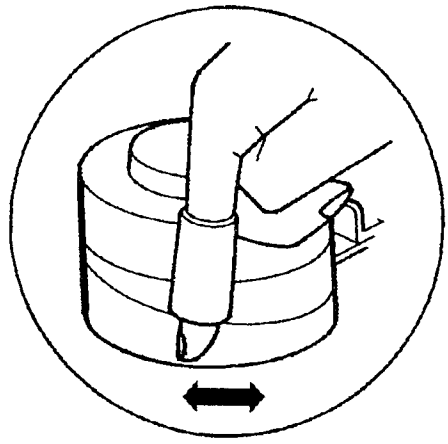
4-2 CLEANING

1. CLEANING OF VIDEO HEAD

Head cleaning by using a chamois skin.

— Procedure —

(1) Remove the top cabinet.
(2) Put on a glove(thin type) to avoid touching the upper drum and lower drum with bare hand.
(3) Put a few drops of alcohol on the Chamois skin, and by slightly placing it against the head tip, allow the upper drum to turn the right and left.

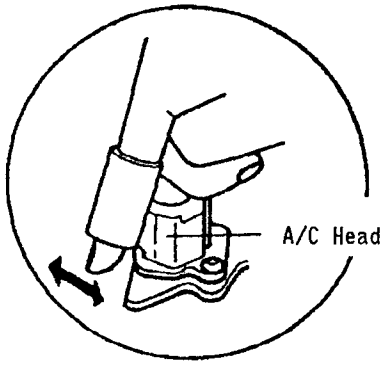


— Remark —

(1) The video head is of very hard material, but since it is very thin, avoid cleaning it vertically.
(2) Wait for the cleaned part to dry out, before operating the unit.
(3) Do not reuse the stained chamois skin.

2. CLEANING OF AUDIO CONTROL HEAD

Head cleaning by using a chamois skin.



— Procedure —

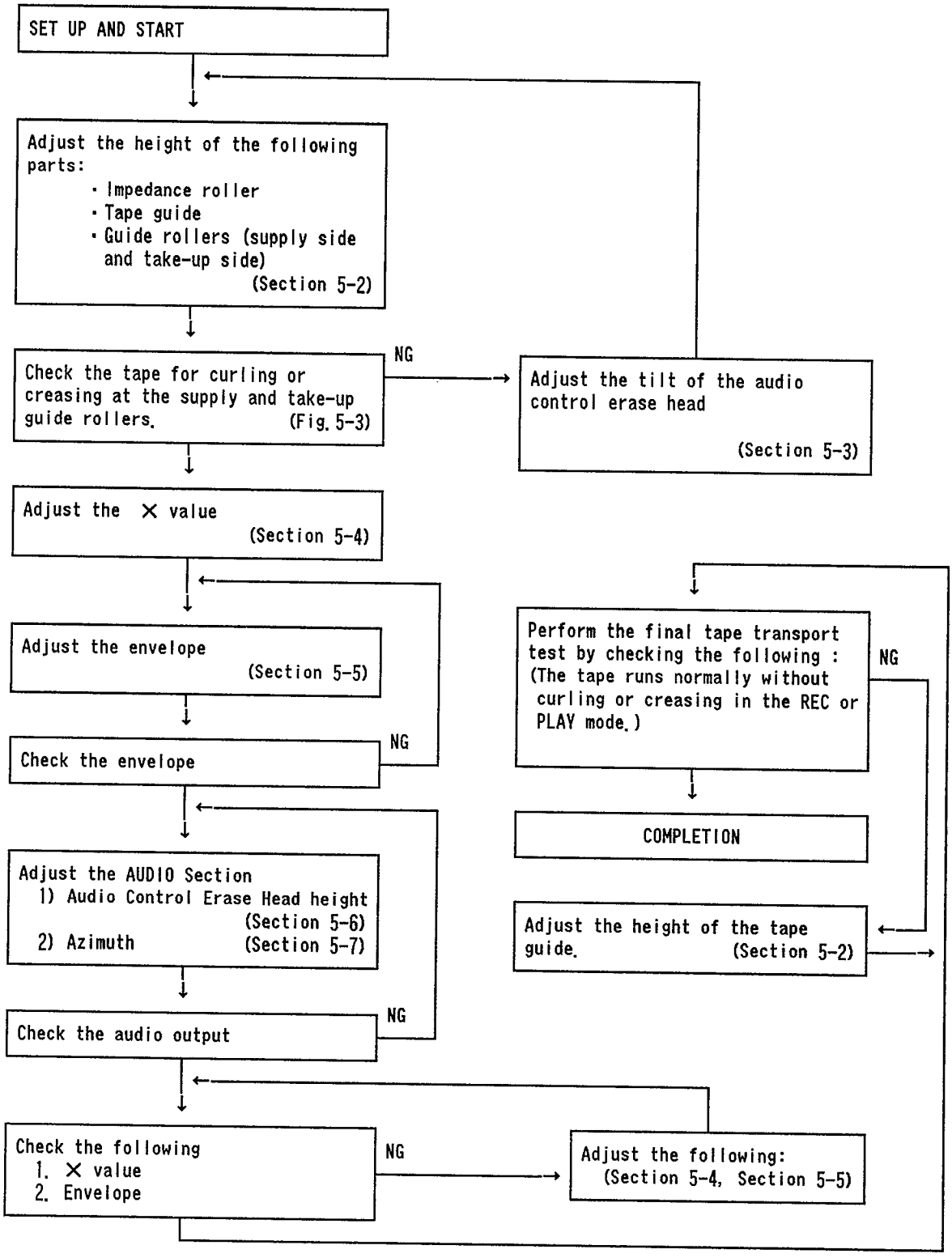
(1) Remove the Top Cabinet.
(2) Put a few drops of alcohol on the chamois skin, Clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

— Remark —

(1) Avoid cleaning audio control head vertically.
(2) Wait for the cleaned part to dry well, before operating the unit.

5. MECHANICAL ADJUSTMENT

5-1 TAPE TRANSPORT ADJUSTMENT FLOW CHART



5-2 TAPE RUNNING POSITION ADJUSTMENT (GUIDE ROLLER/TAPE GUIDE/IMPEDANCE ROLLER)

1. Perform the height adjustment for the following items to obtain the proper tape running position.
   ① Impedance Roller
   ② Guide Roller (Supply side)
   ③ Guide Roller (Take-up side)
   ④ Tape Guide

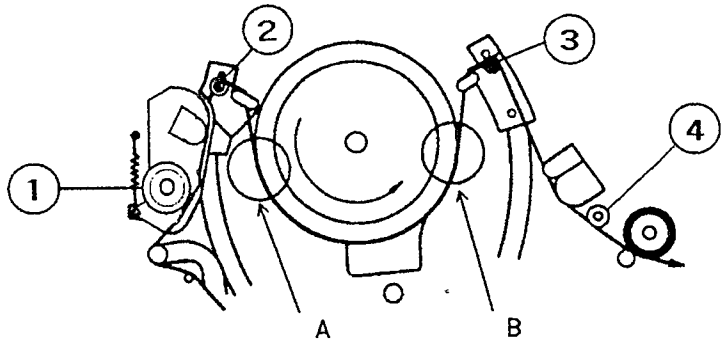


Fig. 5-1

2. Load a blank tape and set the VCR to the PLAY mode. Check the tape transport at points "A" and "B" as shown in Fig. 5-1.

3. Operate the VCR between the PLAY and STOP modes several times.

4. Observe the tape transport at the lead surface of the cylinder during the PLAY mode, and confirm that the tape runs smoothly along the lead surface of the cylinder without slipping downward or upward. (Refer to Fig. 5-2.)

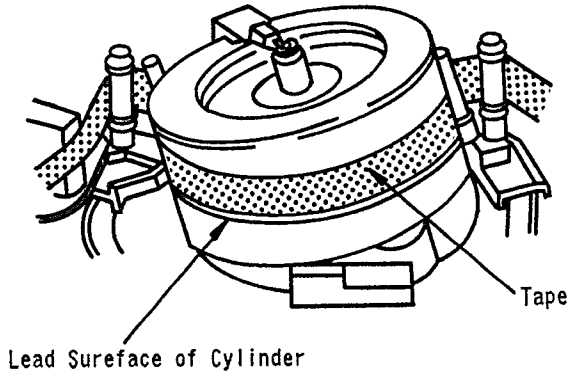


Fig. 5-2

5. During loading, play and unloading, observe the tape at the supply and take-up guide rollers, tape guide and impedance roller. Confirm that there is no curling or creasing etc., as shown in Fig. 5-3.

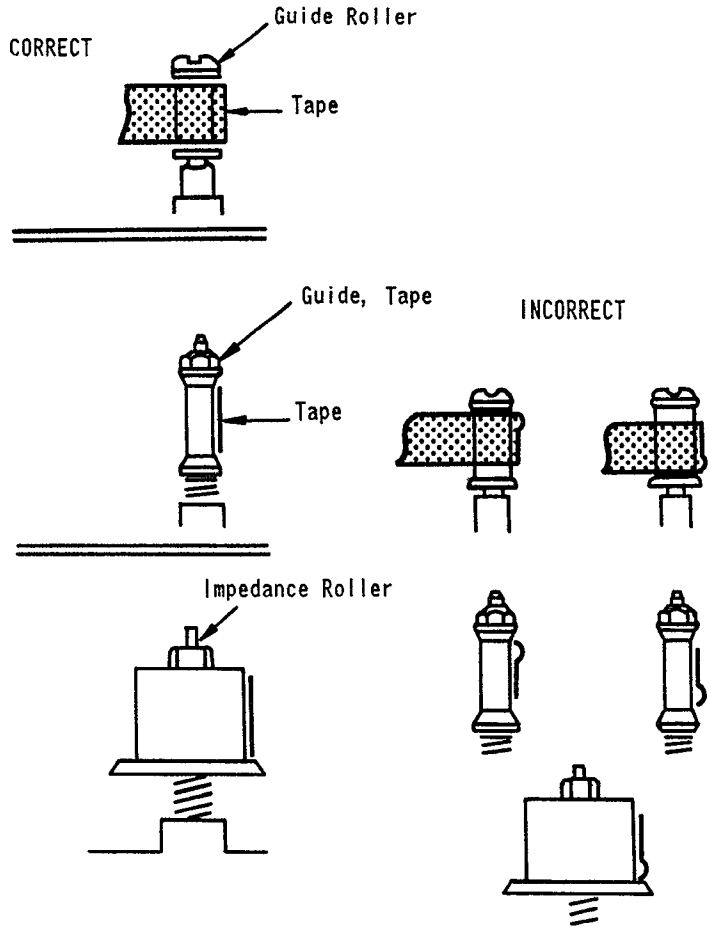


Fig. 5-3

Fig. 5-3

6. If any curling or creasing is noted, adjust tape guide roller and impedance roller first. In this case, adjust the impedance roller in both PLAY and REV modes so that tape runs as shown in Fig. 5-4.

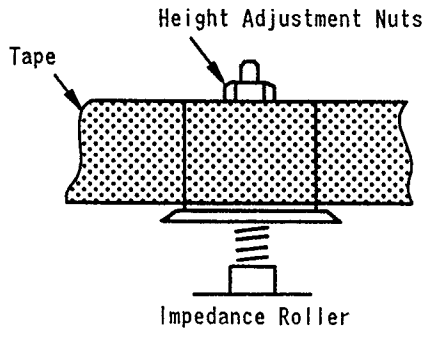


Fig. 5-4.

7. Next, adjust the guide roller height. Insert the adjustment driver (FSJ-0001) into the guide roller top. (Refer to Fig. 5-5.)
Adjust the height by turning the driver slightly so that the tape runs on the guide roller as shown in Fig. 5-3, and the lower edge of the tape runs along the lead surface of the cylinder.

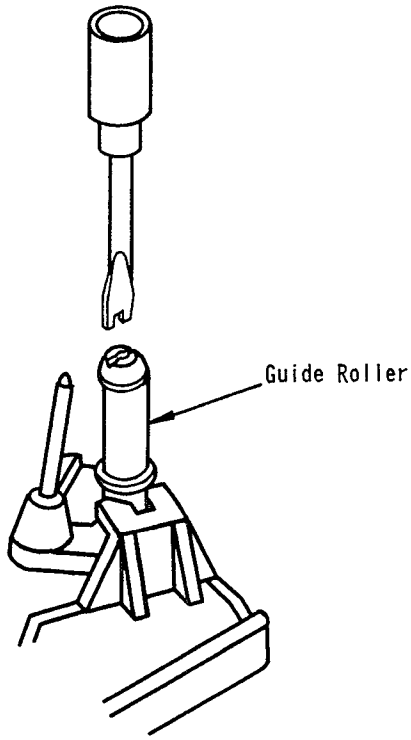


Fig. 5-5

8. After completion of the supply side guide roller adjustments, adjust tape guide so that tape runs as shown in Fig. 5-6, and adjust the take-up side guide roller by using the same procedures as for the supply side adjustments.
In this case, adjust the guide roller height first.

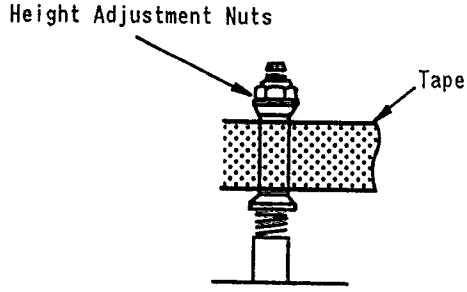


Fig. 5-6

9. Confirm that there is no curling or creasing at the impedance roller. (Both PLAY and REV modes.)
If there is any curling or creasing at the impedance roller, adjust the same procedures of Fig. 5-6.

10. Finally, confirm that there is no curling or creasing at the take-up side guide roller and tape guide. If there is any curling or creasing between the take-up side guide roller and the audio control erase head, adjust the audio control erase head.

5-3 AUDIO CONTROL ERASE HEAD ADJUSTMENT

1. Load a recorded tape and set the VCR to PLAY mode.

2. Adjust the height of the edge of the audio track on the audio control head by using the height adjustment nut Ⓐ and the tilt adjustment screw Ⓒ so that the tape transport is smooth at the take-up guide pole. Align the audio control head height. (Refer to Fig. 5-7.)

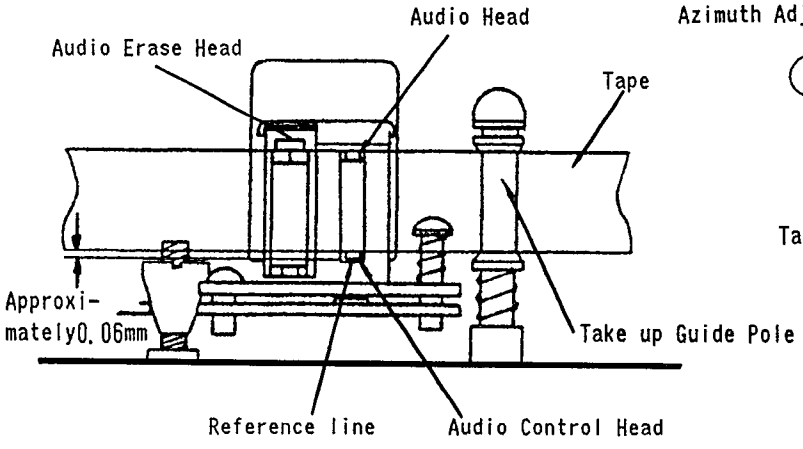
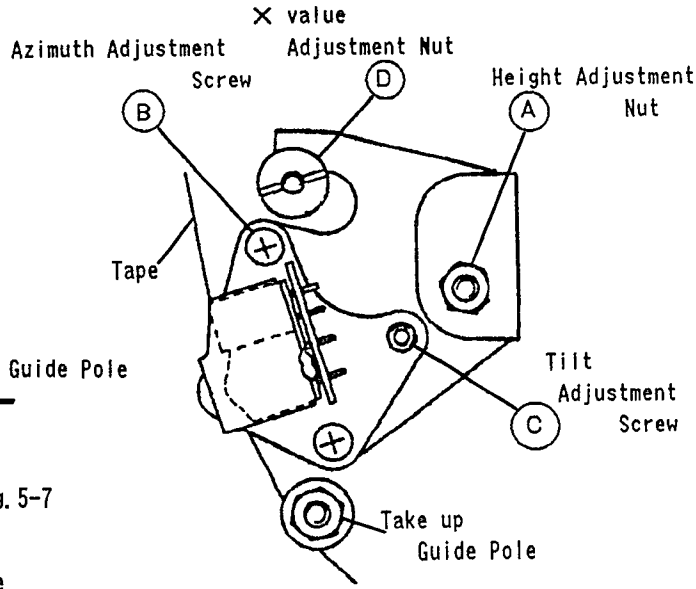


Fig. 5-7



3. The fine adjustment is not required at this time.
   The following conditions are sufficient :
   (a) Proper tape transport between the audio control head and the take-up guide pole.
   (b) Stable SERVO system operation. (proper pickup of tape's recorded control signal.)

5-4 X VALUE ADJUSTMENT (PB FM PEAK ADJUSTMENT)

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 1 (PB FM) GND TP 6 (SW PULSE)	Oscilloscope	PLAY (SP) MODE Test tape F6-N
ADJ. Location	ADJ. Value	
X value adjustment nut	Maximum level (CH1 PB FM Signal)	

Test Equipment Connecting Diagrams

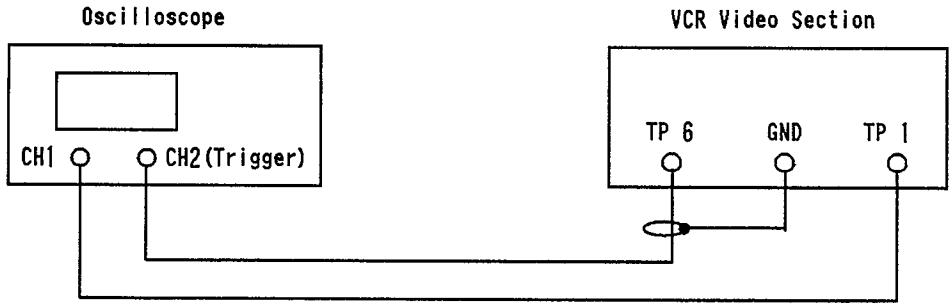


Fig. 5-8

1. Connect the equipment as shown in Fig. 5-8.
2. Adjust VR701(Tracking Volume) to its center position.
3. Adjust the X valve adjustment nut Ⓓ for maximum PB FM signal for CH1 by using F6-N test tape (Refer to Fig. 5-9).
4. After adjusting the X value, check that the output level of the PB FM signal for CH1 changes symmetrically by rotating VR701 (Tracking Volume).

Note : 1. X value adjustment above should be alone so that the noise can be kept out on the TV screen with VR701(Tracking Volume) set to its center.

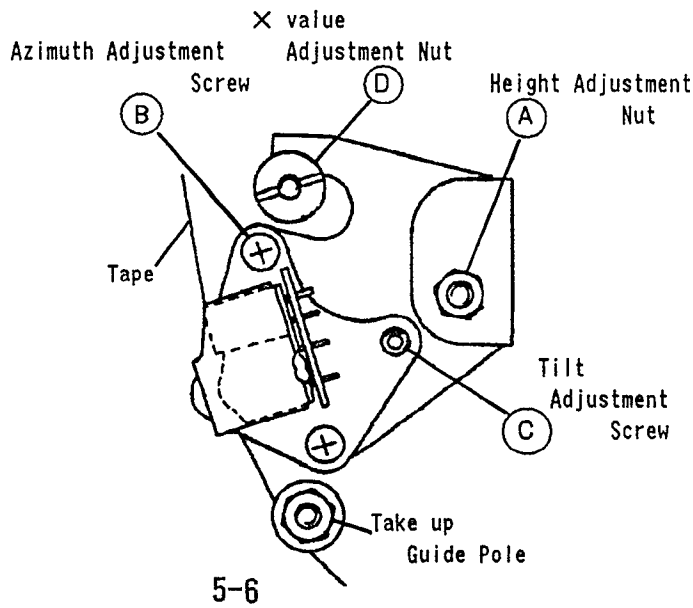


Fig. 5-9

5-5 ENVELOPE WAVEFORM ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 1 (PB FM) GND TP 6 (SW PULSE)	Oscilloscope	PLAY (SP) MODE Test tape F6-N

ADJ. Location	ADJ. Value
Guide rollers	Maximum level and correct waveform (PB FM Signal)

Test Equipment Connecting Diagrams

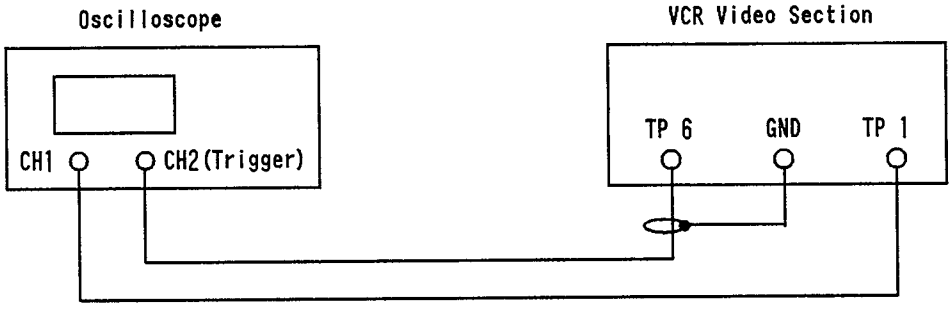


Fig. 5-10

1. Connect equipment as shown in Fig. 5-10.
2. Playback the test tape F6-N.
3. The envelope waveform can be performed by adjusting the height of both the supply side and take-up side guide rollers.
   Finely adjust the height of guide rollers so that the envelope waveform is as flat as possible.
4. Set VR701 (Tracking Volume) to its center position and confirm that a nearly maximum level is obtained.
   Then rotate the VR701 (Tracking Volume) in both directions while adjusting the height of guide rollers, in order to obtain the envelope waveform which is as flat as possible.
   If the tape is above or lower the helical tape position, the envelope waveforms will take the shape as shown in Fig. 5-11 and Fig. 5-12.
5. Adjust for maximum flatness of the envelope waveform according to the Fig. 5-11 and Fig. 5-12.
6. After adjustment, rotate VR701 (Tracking Volume) counterclockwise and clockwise, and check that the waveform changes symmetrically.
7. Check the tape curl. (Refer to Section 5-2.)

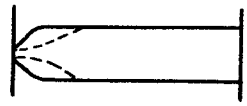
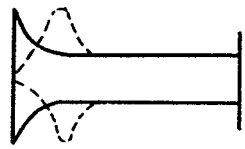
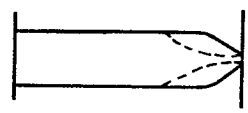
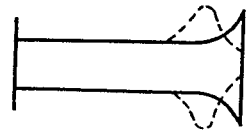
	Tape is too high	
	Supply side	Take-up side
When the tracking volume is rotated counterclockwise and clockwise directions.	 	 
Adjustment	Supply side guide roller rotated clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated clockwise direction (lowers guide roller) to flatten envelope.

Fig. 5-11

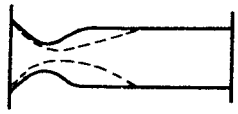
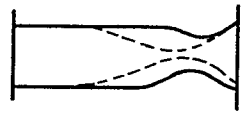
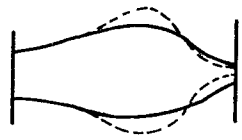
	Tape is too low	
	Supply side	Take-up side
When the tracking volume is rotated counterclockwise and clockwise directions.	 	 
Adjustment	Supply side guide roller rotated counterclockwise direction (raises guide roller) to flatten envelope.	Take-up side guide roller rotated counterclockwise direction (raises guide roller) to flatten envelope.

Fig. 5-12

5-6 AUDIO CONTROL ERASE HEAD HEIGHT/ AUDIO CONTROL ERASE HEAD TILT ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
Audio Output	Oscilloscope AC voltmeter	PLAY (SP) MODE Test tape F6-A

ADJ. Location	ADJ. Value
Height adjustment nut Azimuth adjustment screw	Maximum level (AC voltmeter)
Tilt adjustment screw	

Test Equipment Connecting Diagrams

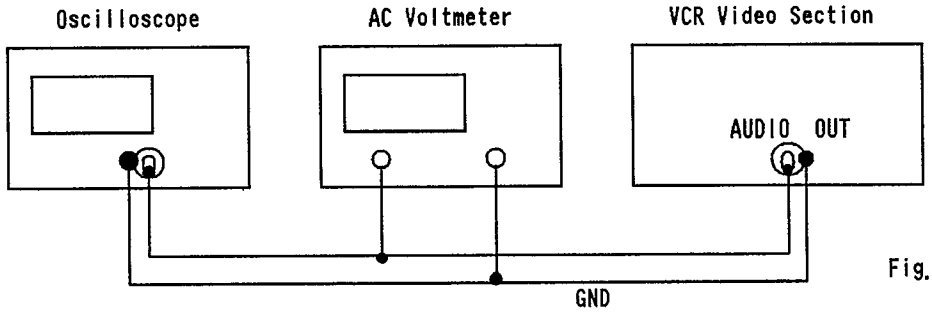


Fig. 5-13

1. Connect equipment as shown in Fig. 5-13.

2. Confirm that the tape running between the take-up guide roller and the audio control erase head has no slack. If the tape has slack, take it up by turning the tilt adjustment screw ©. (Refer to Fig. 5-7.) Then readjust GUIDE ROLLER HEIGHT in section 5-2 and the × value in section 5-4.

3. After confirming on the oscilloscope that a 1 kHz audio signal is being output by playing back F6-A tast tape, adjust the height adjustment nut Ⓐ so that the AC voltmenter's reading is brought to its maximum level. (Refer to Fig. 5-14.)

4. Adjust the azimuth adjustment screw Ⓑ so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 5-14.)

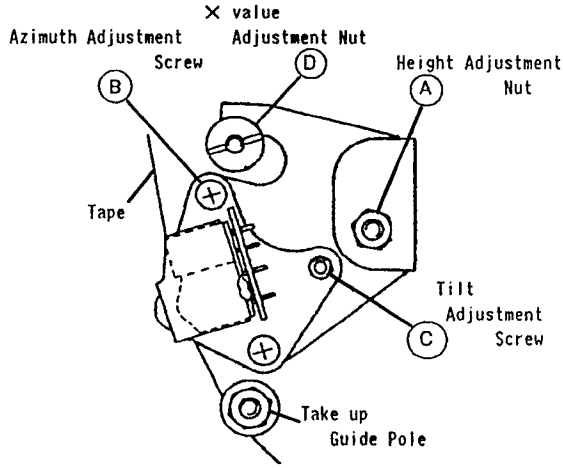


Fig. 5-14

5-7 AUDIO CONTROL ERASE HEAD AZIMUTH ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
Audio Output	Oscilloscope AC voltmeter	PLAY (SP) MODE Test tape F6-N

ADJ. Location	ADJ. Value
Azimuth adjustment nut	Maximum level (AC voltmeter)

Test Equipment Connecting Diagrams

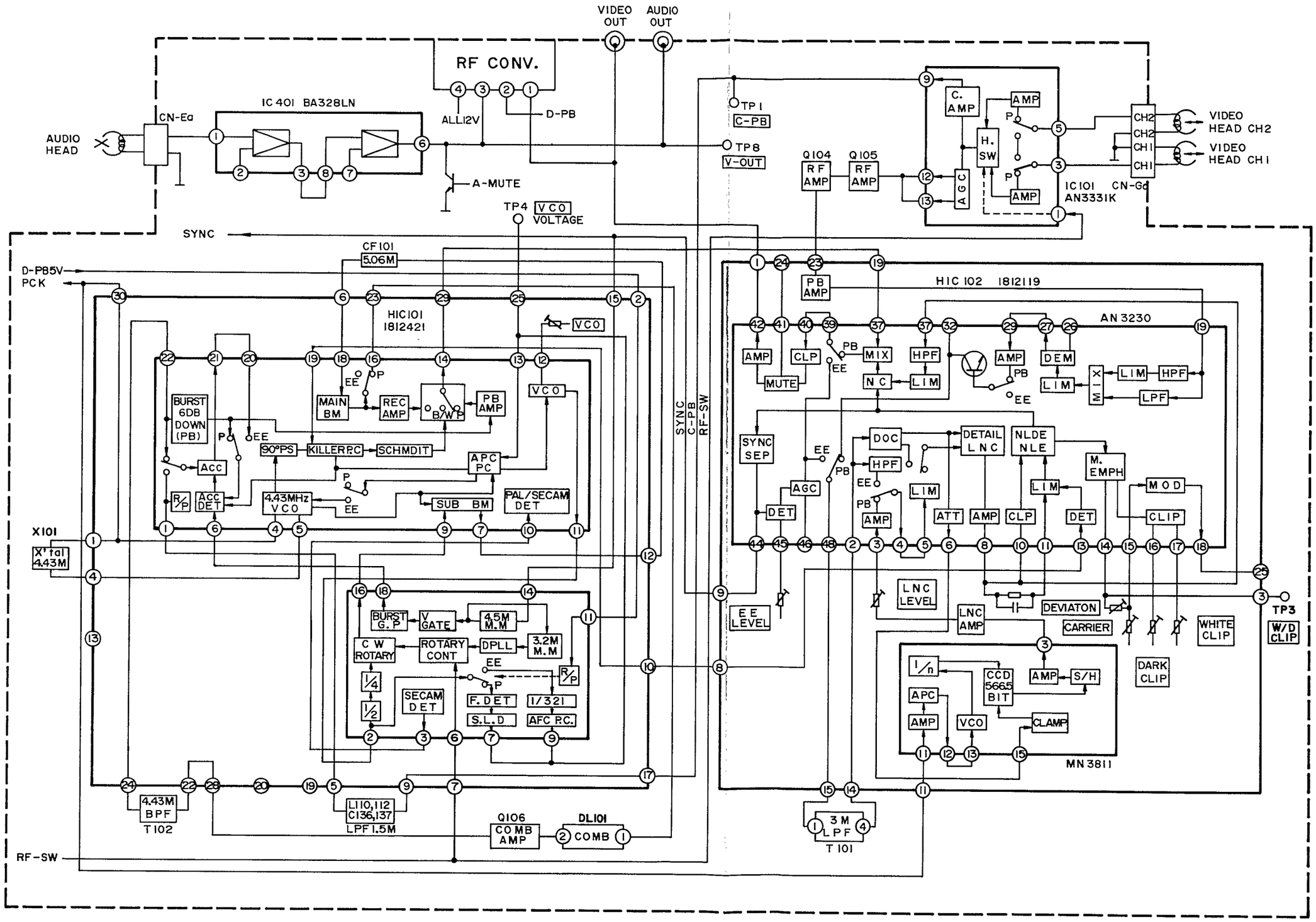
Refer to Fig. 5-13

1. After confirming on the oscilloscope that a 6 kHz audio signal is being output by playing back F8-N test tape, adjust the azimuth adjustment screw Ⓑ so that the AC voltmeter's reading or osilloscope waveform is brought to its maximum lebel (Refer to Fig. 5-14).

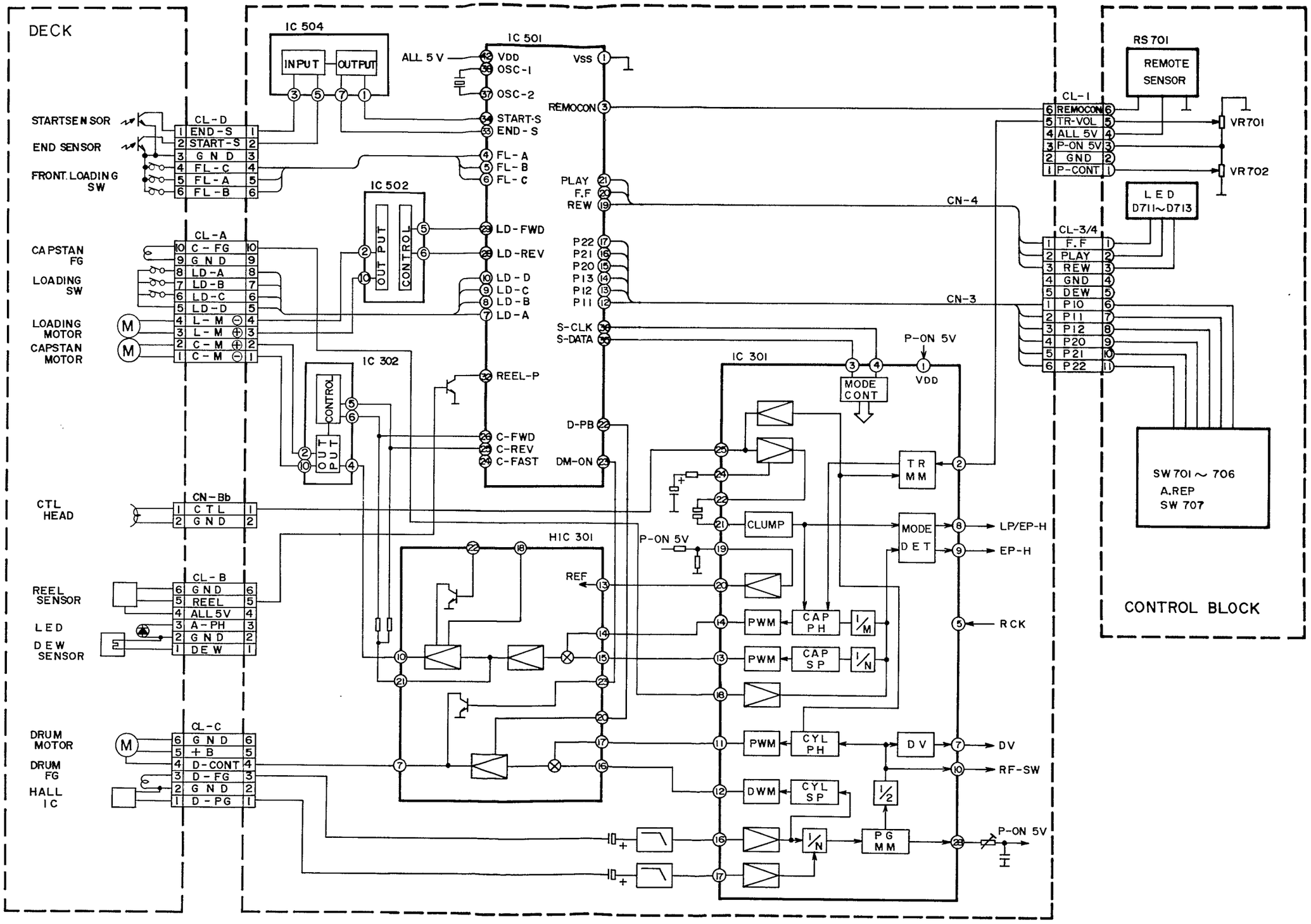
Note: Fix the screw Ⓑ and Ⓒ with lock paint after readjustment.

6. BLOCK DIAGRAM

6-1 VIDEO/AUDIO



6-2 SYSTEM CONTROL/SERVO/TIMER



7. IC PIN FUNCTION DESCRIPTION

14DN363 (IC402, SERVO IC)

Pin No	IN/OUT	Signal name	Function
1	IN	V_{DD}	POWER TERMINAL "H" INPUT (5V) DEGITAL SEC
2	IN	TRMM	TRACKING MONO-MULT CONTROL (25Hz)
3	IN	SDAT	MODE TRANSFER (DATA SIGNAL)
4	IN	SCLK	MODE TRANSFER (CLOCK SIGNAL)
5	IN	RCK	CLOCK BASE (4.43MHz)
6	IN	TEST	TEST INPUT
7	OUT	VLP	DUMMY V (50Hz)
8	OUT	MOD 0	REC MODE
9	OUT	MOD 1	REC MODE
10	OUT	HSW	VIDEO HEAD SWITCH (25Hz)
11	OUT	PWM 2	CYLINDER SERVO PHASE ERROR (34.5kHz)
12	OUT	PWM 1	CYLINDER SERVO SPEED ERROR (69.4kHz)
13	OUT	PWM 3	CAPSTAN SERVO SPEED ERROR (34.5kHz)
14	OUT	PWM 4	CAPSTAN SERVO PHASE ERROR (34.5kHz)
15	IN	Vss	POWER TERMINAL "L" INPUT (GND) DIGITAL SEC
16	IN	YFG	CYLINDER FG AMP (600Hz)
17	IN	YPG	SYLINDER PG AMP (25Hz)
18	IN	FGI	CAPSTAN FG AMP (504Hz)
19	IN	RI	REFERENCE AMP
20	OUT	VRO	REFERENCE AMP
21	IN	C I	CONTROL PEAK CLAMP
22	OUT	C O	CONTROL F/R AMP (25Hz)
23	IN	CTLG	CONTROL GND
24	IN	CTLA	PLAY CONTROL HEAD AMP (NEGATIVE INPUT)
25	IN/OUT	CTLH	PLAY CONTROL HEAD AMP POSITIVE INPUT, REC CONTROL OUTPUT
26	IN	AV	POWER TERMINAL "H" INPUT (5V) ANALOG SEC
27	IN	V-SYNC	V-SYNC SIGNAL (50Hz)
28	IN	PGMM	PG MONO-MULT CONTROL

14DN348 (IC501, SYSCON IC)

Pin No	IN/OUT	Signal name	Function
1	IN	Vss	GND
2	IN	SAFT	POWER ABNORMAL DETECTOR
3	—	—	
4	—	—	
5	IN	R-SAFT	ERASURE PREVENTION SWITCH
6	IN	LD-A	TAPE LOADING POSITION DETECTOR
7	IN	LD-B	TAPE LOADING POSITION DETECTOR
8	IN	LD-C	TAPE LOADING POSITION DETECTOR
9	IN	LD-D	TAPE LOADING POSITION DETECTOR
10	—	—	
11	—	—	
12	—	—	
13	IN/OUT	SBT	SERIAL TRANSFER TIMING CLOCK IN/OUT (BETWEEN CLOCK)
14	IN/OUT	SBD	SERIAL TRANSFER DATA IN/OUT (BETWEEN CLOCK)
15	—	—	
16	IN	RST	RESET
17	IN	V-REF	COMPARATOR INPUT REFERENCE VOLTAGE
18	IN	ST-S	TAPE START POSITION DETECTOR
19	IN	END-S	TAPE END POSITION DETECTOR
20	IN	RF-SW	SWITCHING PULSE
21	IN	REEL-P	COUNTER INPUT PULSE
22	IN	V-REF	COMPARATOR OUTPUT REFERENCE VOLTAGE
23	IN	LP/EP-H	TAPE SPEED
24	IN	EP-HWN	TAPE SPEED
25	—	—	
26	IN	FL-B	CASSETTE OUT DETECTOR
27	IN	FL-A	CASSETTE IN START DETECTOR
28	IN	FL-C	CASSETTE DOWN DETECTOR
29	IN	DEW	DEW SENSOR
30	OUT	S-CLK	SERVO IC TIMING CLOCK
31	OUT	S-DATA	SERVO IC DATA
32	—	—	
33	—	—	
34	—	—	

Pin No	IN/OUT	Signal name	Function
35	—	—	
36	—	—	
37	—	—	
38	—	—	
39	—	—	
40	—	—	
41	—	—	
42	—	—	
43	—	—	
44	—	—	
45	—	—	
46	OUT	TV/VCR	TV/VCR CONTROL
47	OUT	A-MUTE	SOUND MUTE OUTPUT
48	OUT	PAUSE	PAUSE CONTROL
49	OUT	DM-ON	DRUM ROTATION OUTPUT
50	OUT	C-FAST	CAPSTAN MOTOR HIGH SPEED
51	OUT	C-REV	CAPSTAN MOTOR REVERSE
52	OUT	C-FWD	CAPSTAN MOTOR FORWARD
53	—	—	
54	—	—	
55	—	—	
56	OUT	LD-REV	TAPE LOADING/CASSETTE LOADING MOTOR CONTROL
57	OUT	LD-FWD	TAPE LOADING/CASSETTE LOADING MOTOR CONTROL
58	—	—	
59	OUT	D-REC	RECORD CONTROL
60	OUT	D-PB	PLAY CONTROL
61	OUT	P-ON	POWER ON CONTROL
62	OUT	OSC-2	CLOCK OSCILLATION
63	IN	OSC-1	CLOCK OSCILLATION
64	IN	V_{DD}	POWER + 5V

8. ALIGNMENT INSTRUCTIONS

Preparation

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Required Test Equipment

1. Oscilloscope : Dual-trace with 10:1 prove.
2. Color Monitor
3. Alignment Tape F5-A (Color bar)

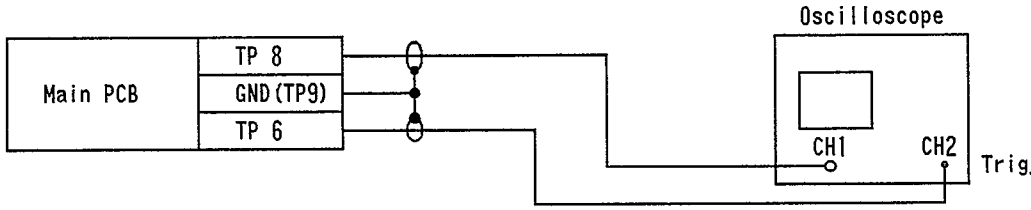
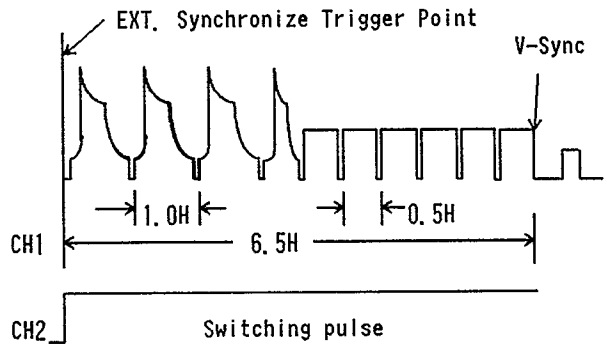


Fig. 8-1

No.	Item	Test Point	Adjustment point	Method	Connection Figure
8-1	Switching point Adjustment Test Tape (F6-A)	TP 8 TP 6 TP 9 (GND)	VR302	1. Connect CH1 to TP8 of VIDEO-OUT and CH2 to TP6 and set EXT. Trigger mode (+) Trigger. 2. Playback the tape and adjust VR302 so that the V-sync front edge of CH1 video output waveform comes the position where 6.5H is delayed from the rising of CH2 Head Switching Pulse waveform.  	Fig. 8-1

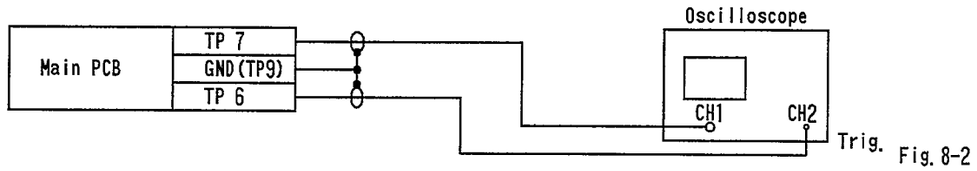
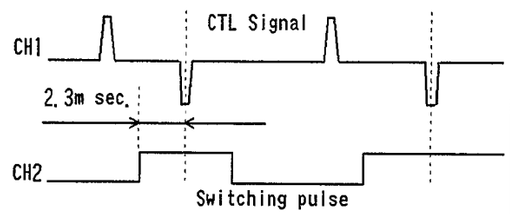


Fig. 8-2

No.	Item	Test Point	Adjustment point	Method	Connection Figure
8-2	CTL Preset Adjustment (P.B. Mode) Test tape F6-A	TP 7 TP 6 TP 9 (GND)	VR301	1. Connect CH1 of oscilloscope across TP7 and Ground. 2. Connect CH2 of oscilloscope across TP6 and Ground. 3. Set oscilloscope mode to EXT. Trigger(+) Trigger. 4. Playback the tape by setting tracking volume at center click position. 5. Adjust VR301 to make a position of CTL signal where delated 2.3msec. from switching pulse starting position. 	Fig. 8-2

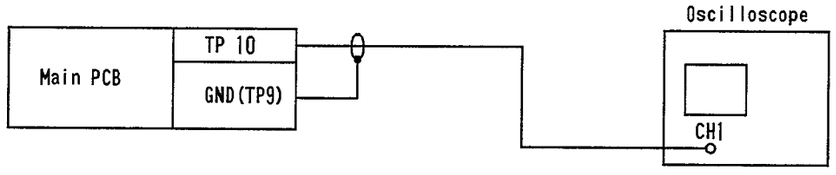
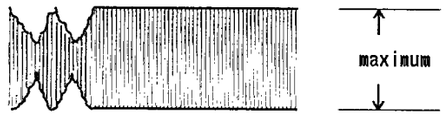


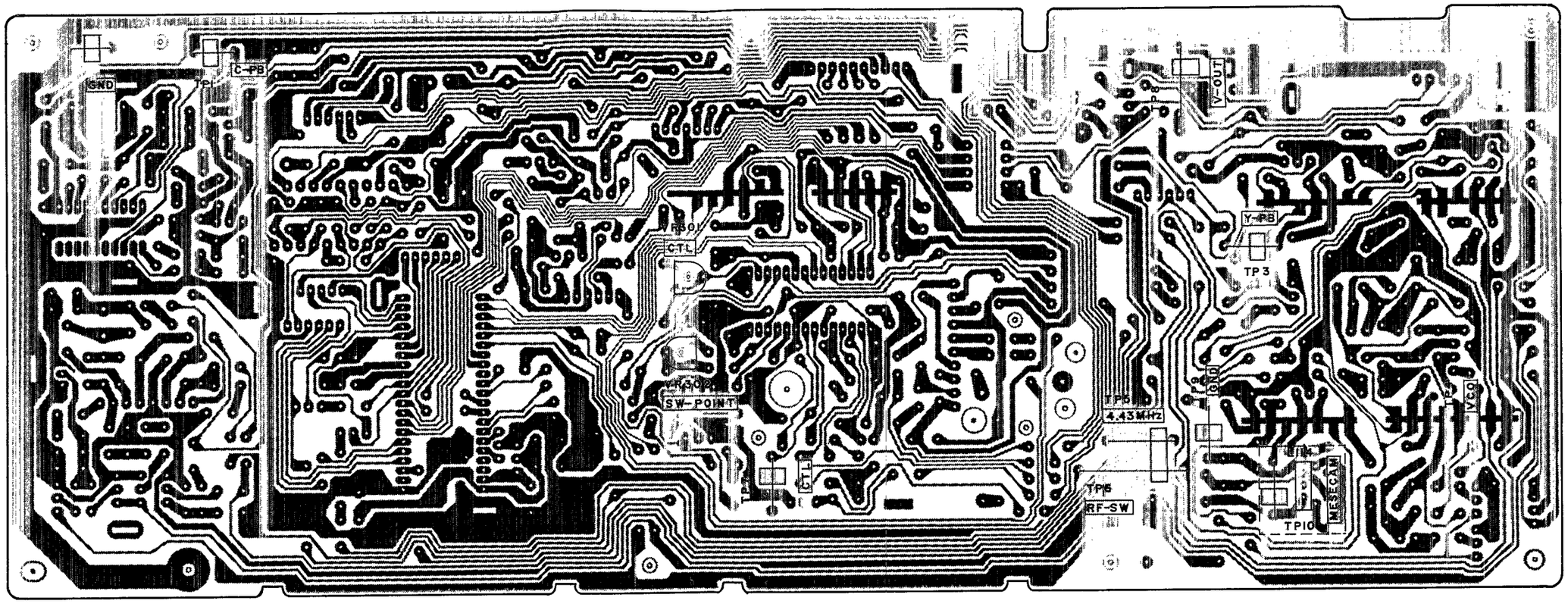
Fig. 8-3

No.	Item	Test Point	Adjustment point	Method	Connection Figure
8-3	SECAM 1/2fH Tune Adjustment (P.B. Mode) Test tape F5-A	TP 10 TP 9 (GND)	L114	1. Connect the equipment as shown in Fig. 8-3. 2. Playback test tape F5-A. 3. Adjust L114 to make mazimum output level. 	Fig. 8-3

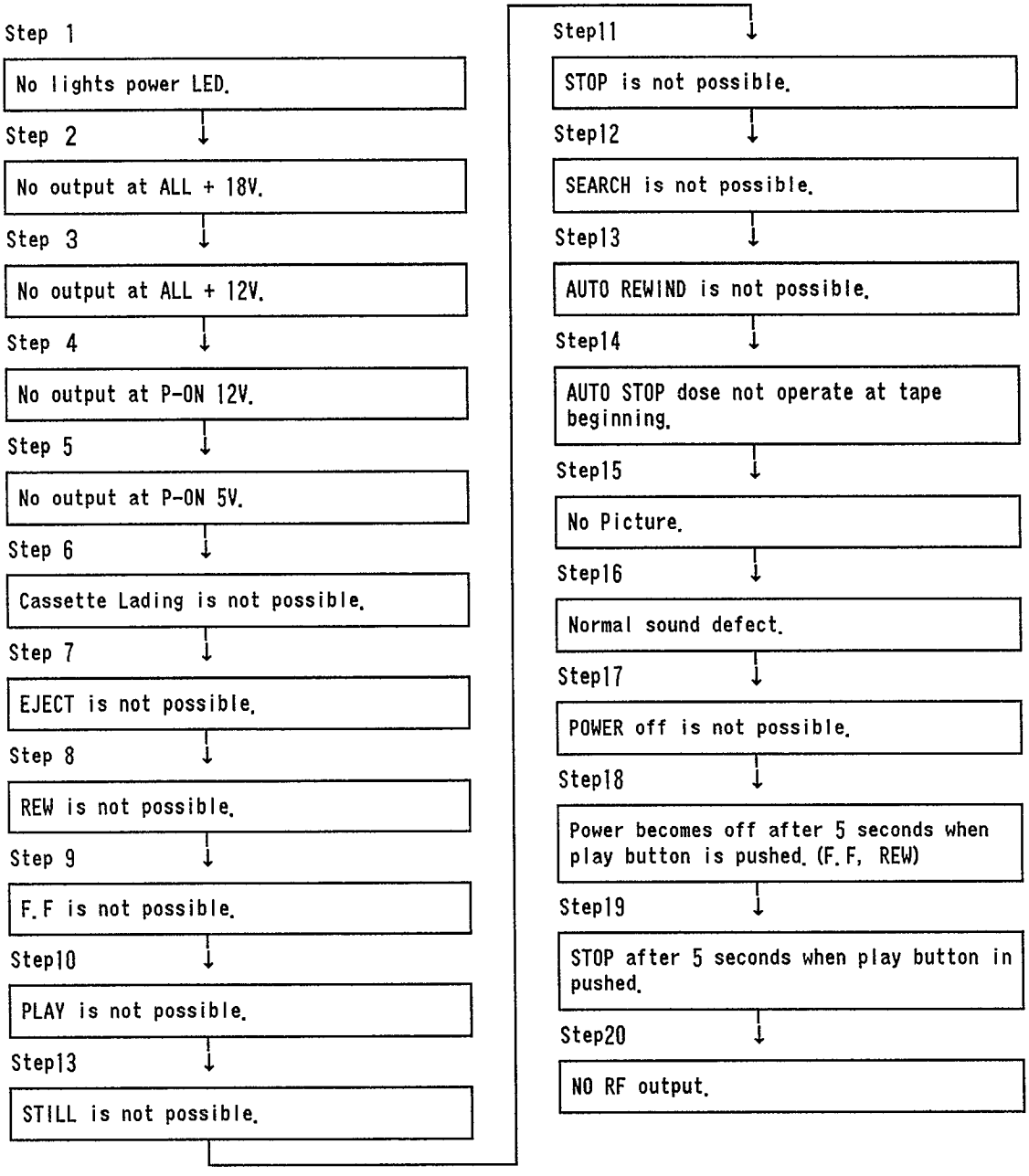
* MESECAM Model only

9. TEST POINT

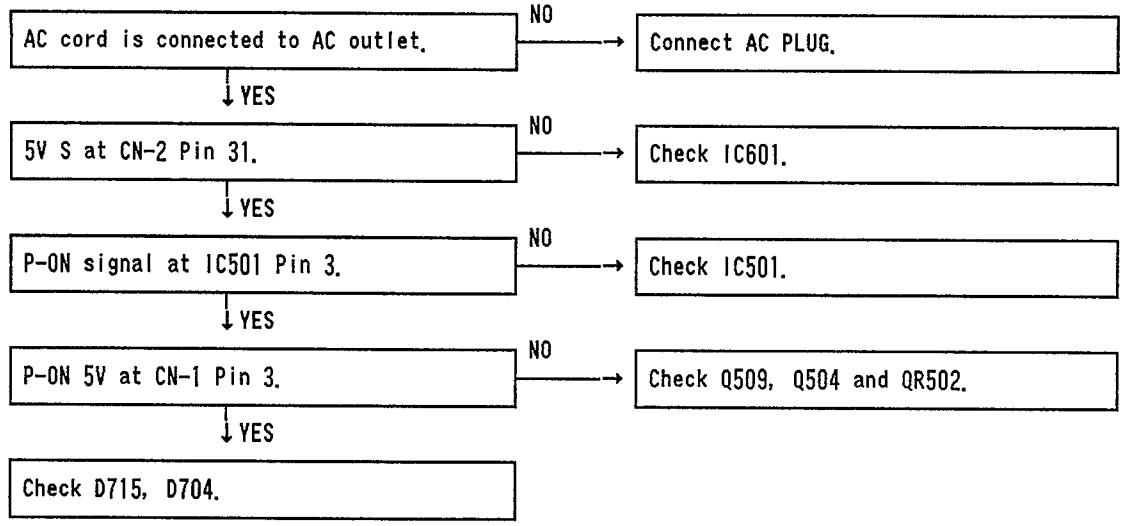
9-1 MAIN P.C.BOARD



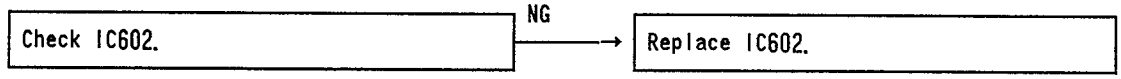
10. TROUBLESHOOTING GUIDES



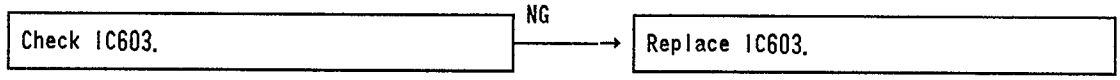
Step 1 (No lights power LED)



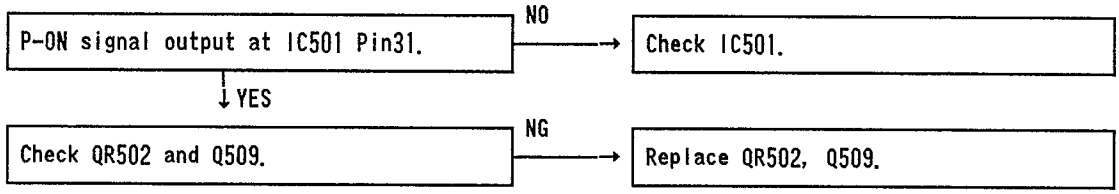
Step 2 (No output at ALL + 18V)



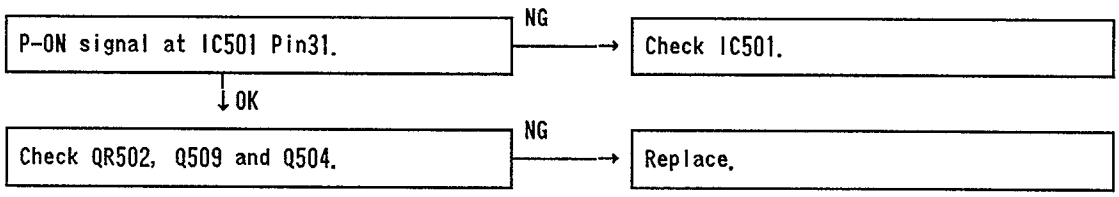
Step 3 (No output at ALL + 12V)



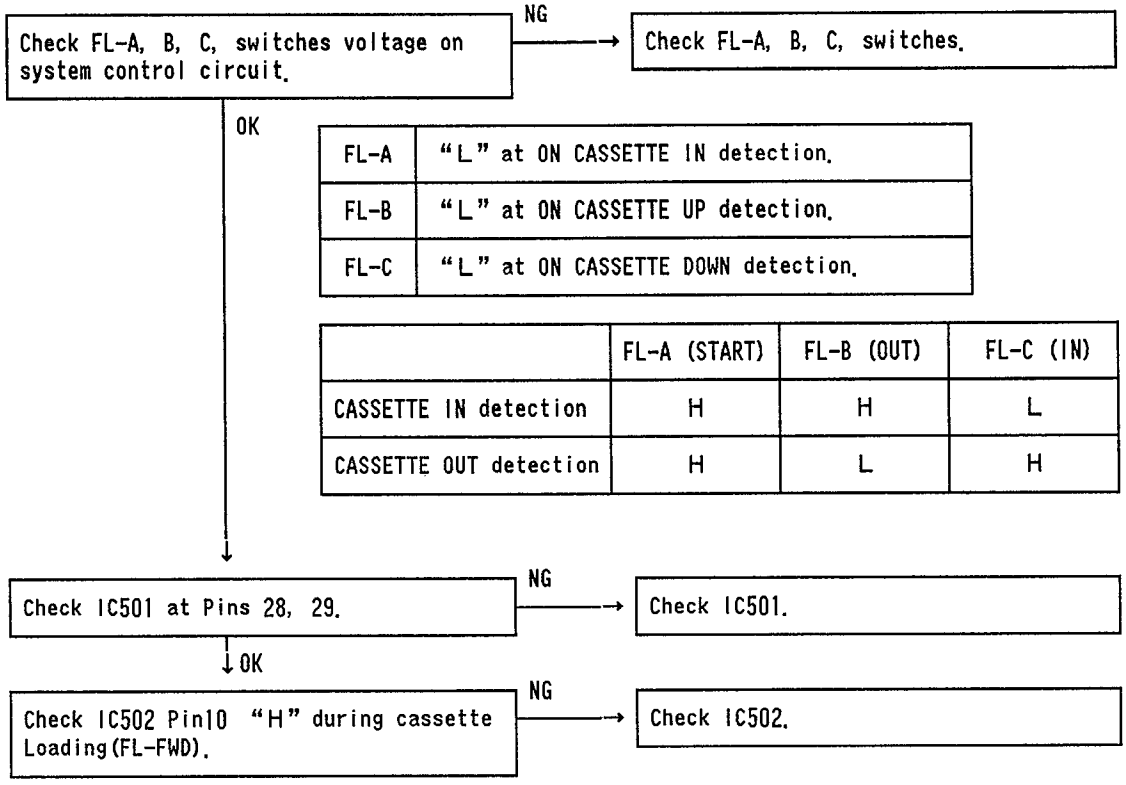
Step 4 (No output at P-ON 12V)



Step 5 (No output at P-ON 5V)



Step 6 (Cassette lading is not possible)

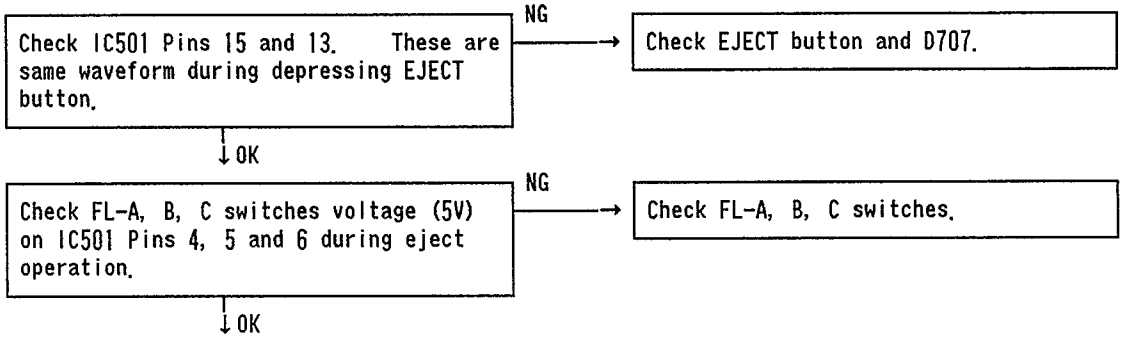


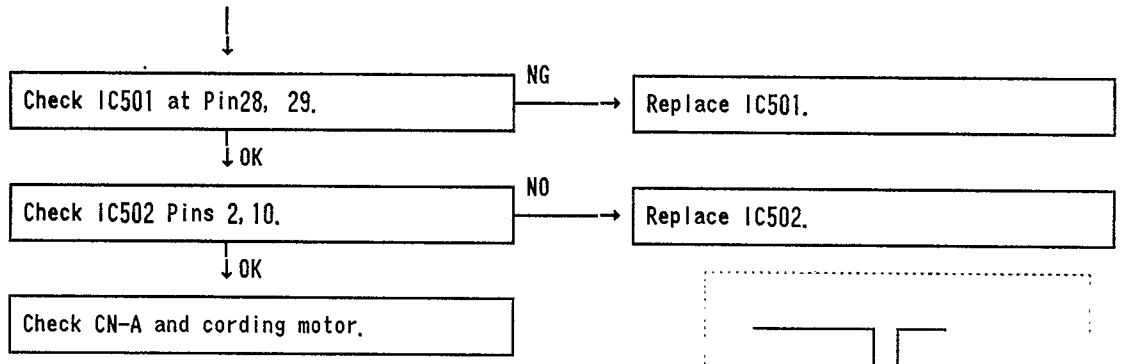
FL-A	"L" at ON CASSETTE IN detection.
FL-B	"L" at ON CASSETTE UP detection.
FL-C	"L" at ON CASSETTE DOWN detection.

	FL-A (START)	FL-B (OUT)	FL-C (IN)
CASSETTE IN detection	H	H	L
CASSETTE OUT detection	H	L	H

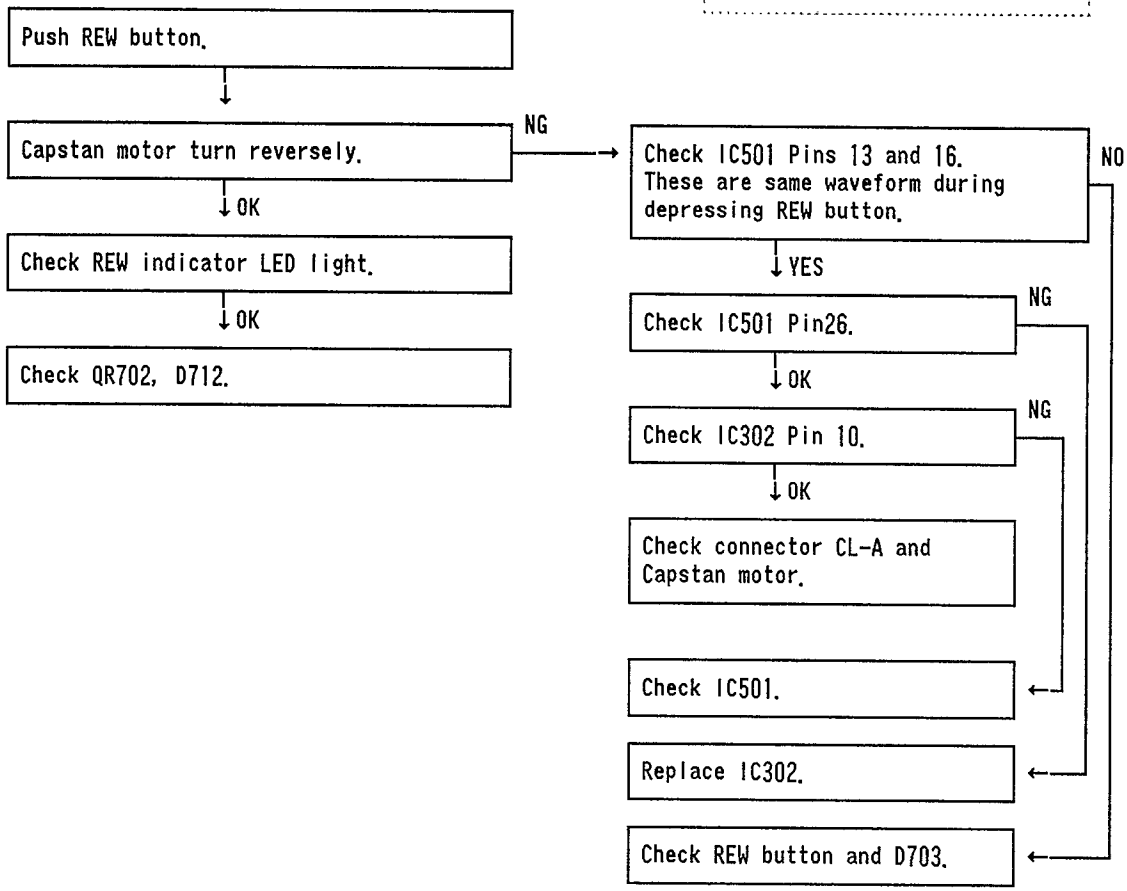
CAP-FWD	CAP-REV	MOTOR	REMARK
L	L	STOP (Idle rotation)	Stopped Brake is not applied.
H	L	Reverse rotation	Capstan reel normal rotation direction.
L	H	Normal rotation	Capstan reel reverse rotation direction.
H	H	Brake	Immediate stopping.

Step 7 (EJECT is not possible)

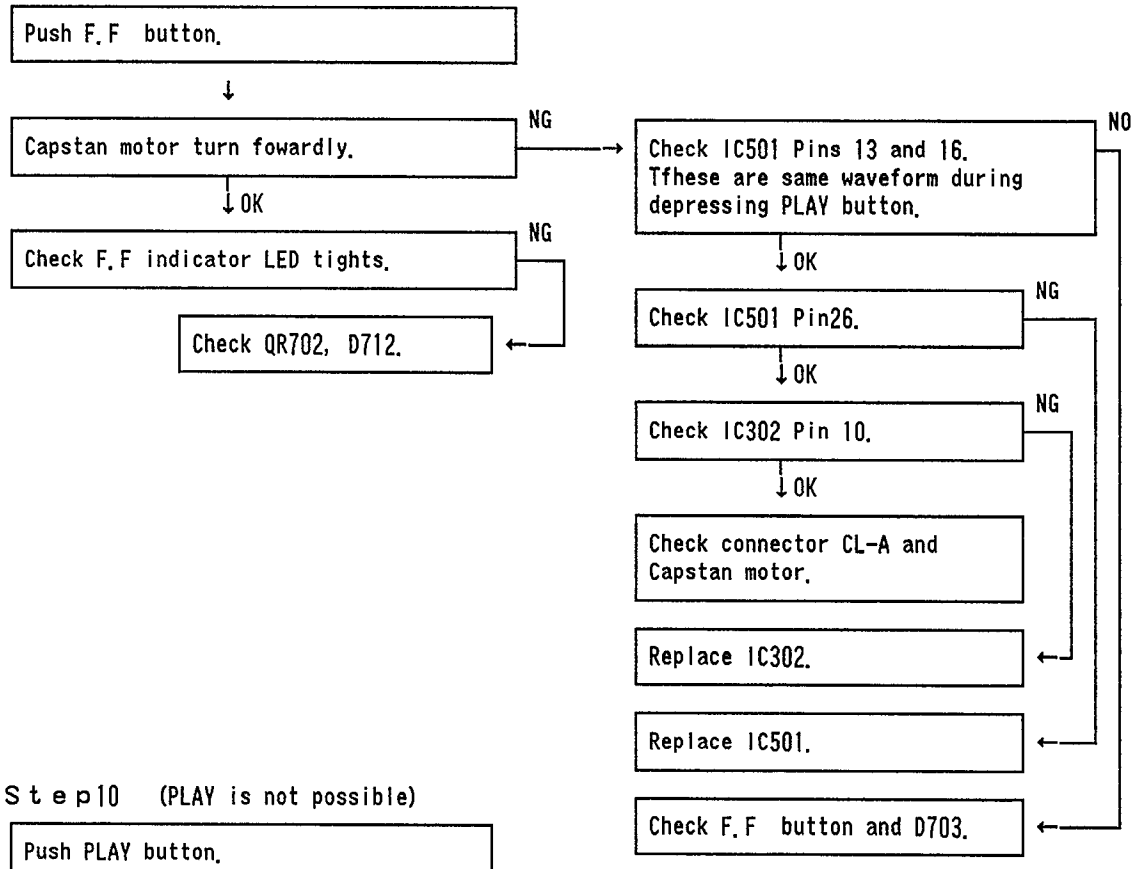




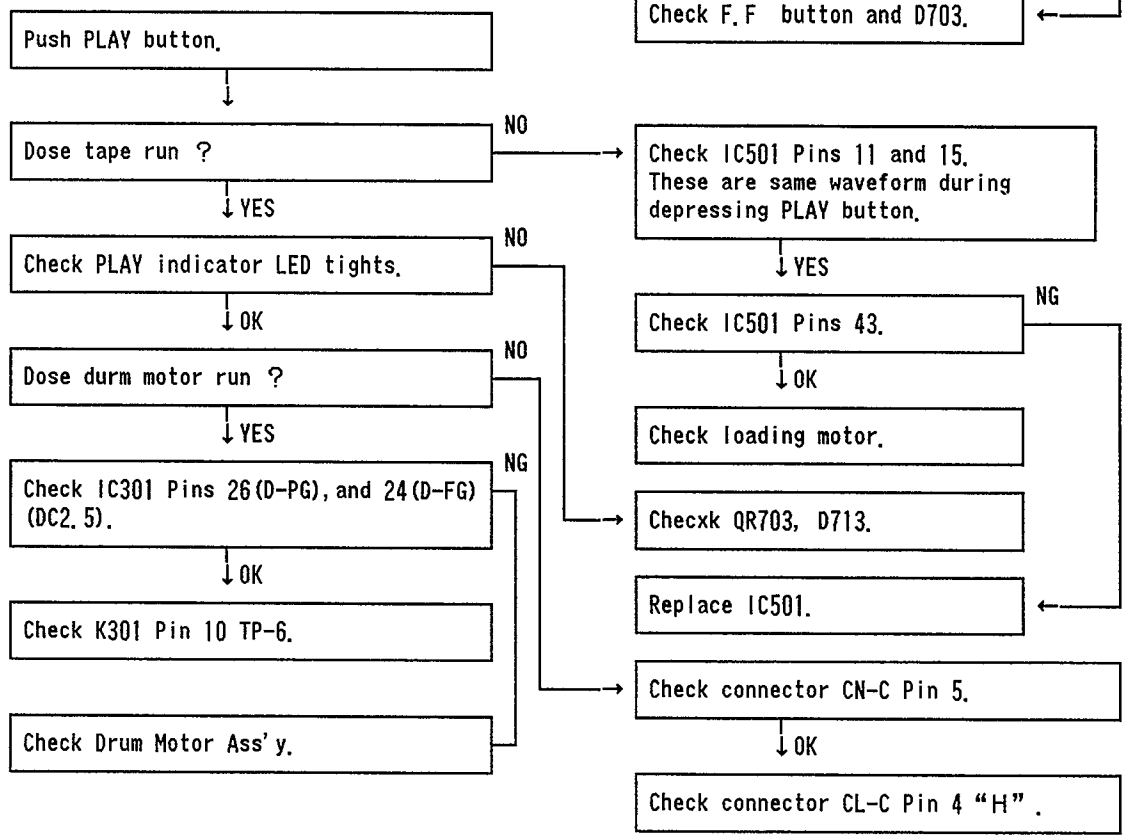
Step 8 (REW is not possible)



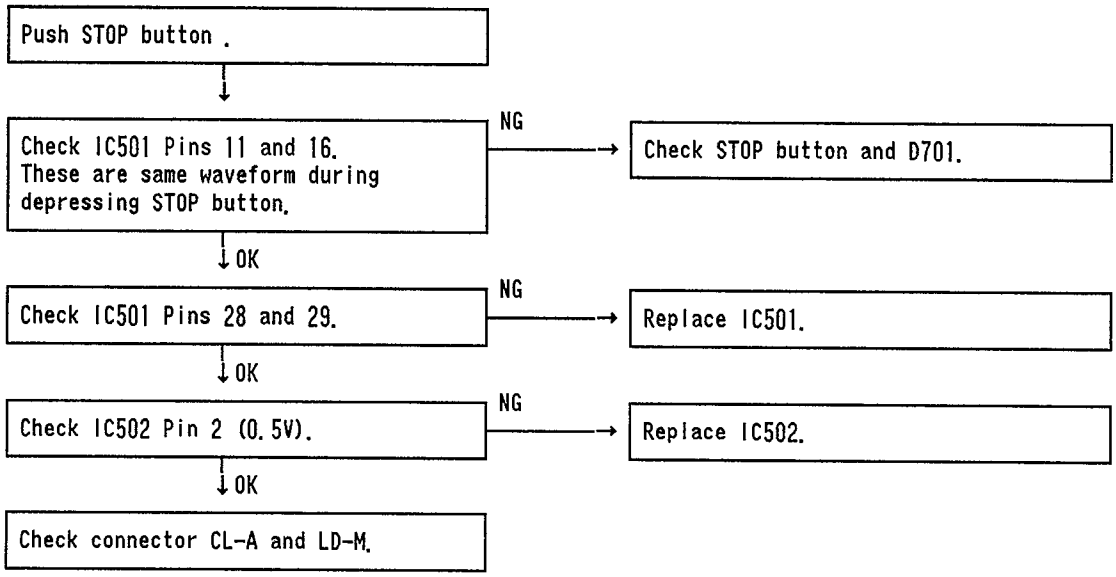
Step 9 (F.F is not possible)



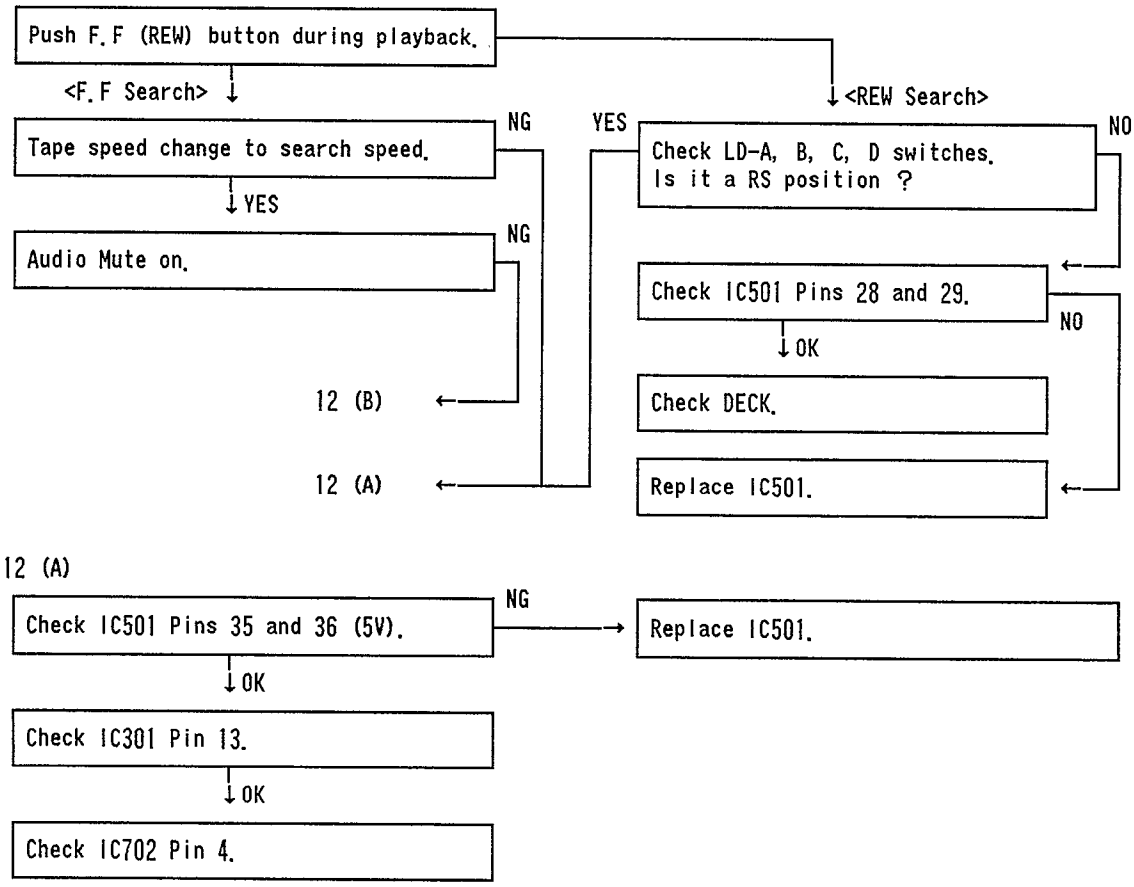
Step10 (PLAY is not possible)



Step11 (STOP is not possible)

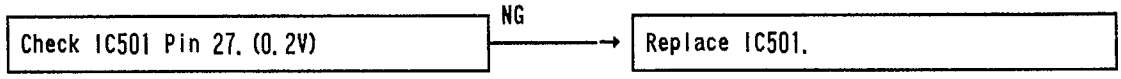


Step12 (Search is not possible)

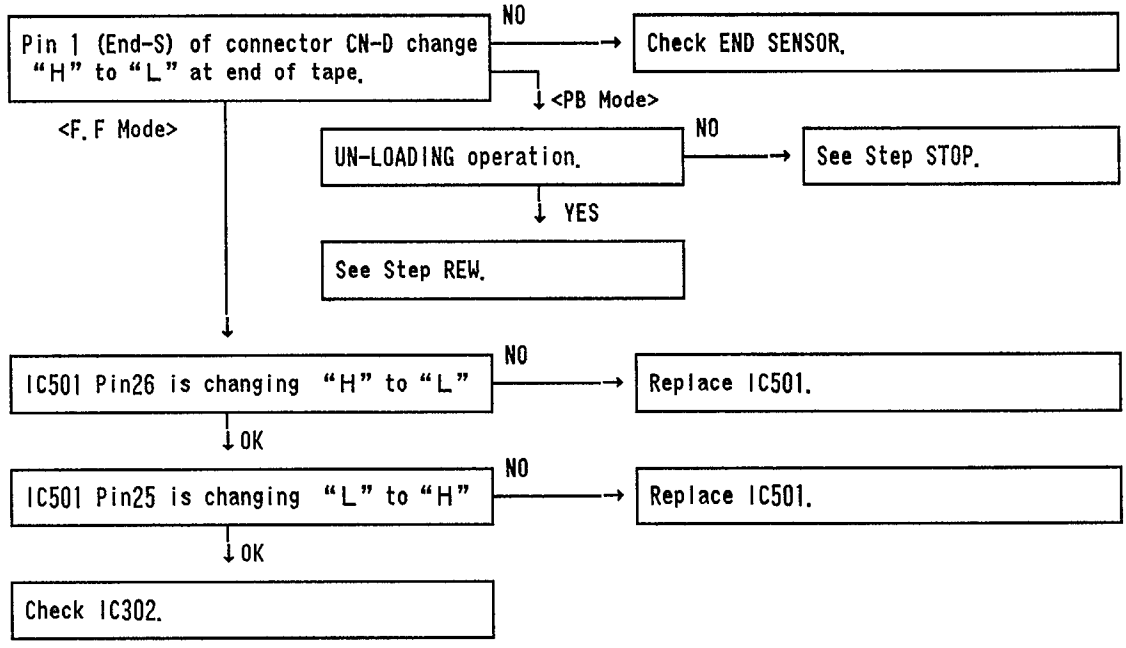


12 (A)

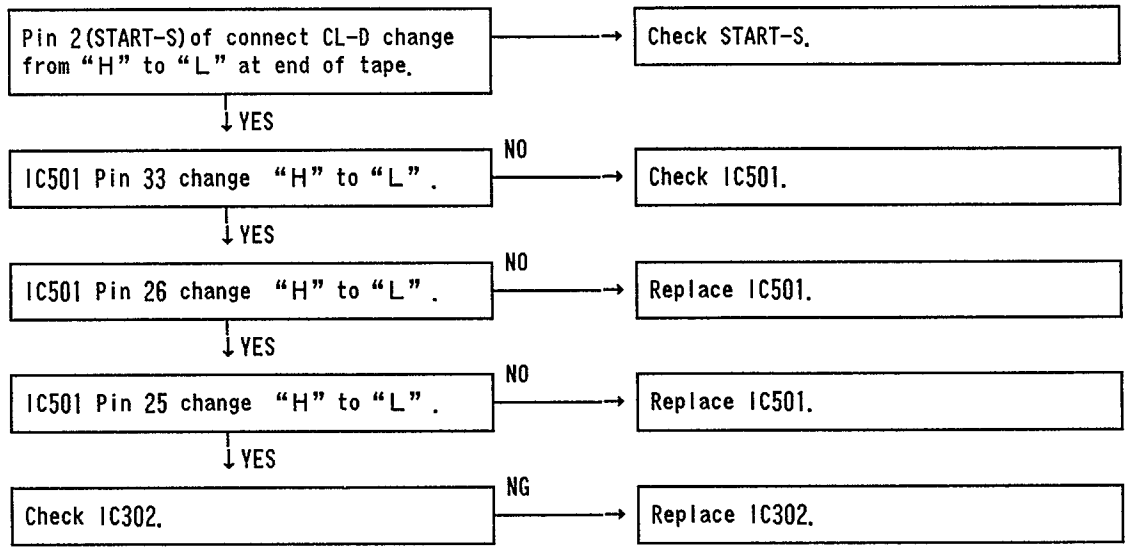
12 (B)



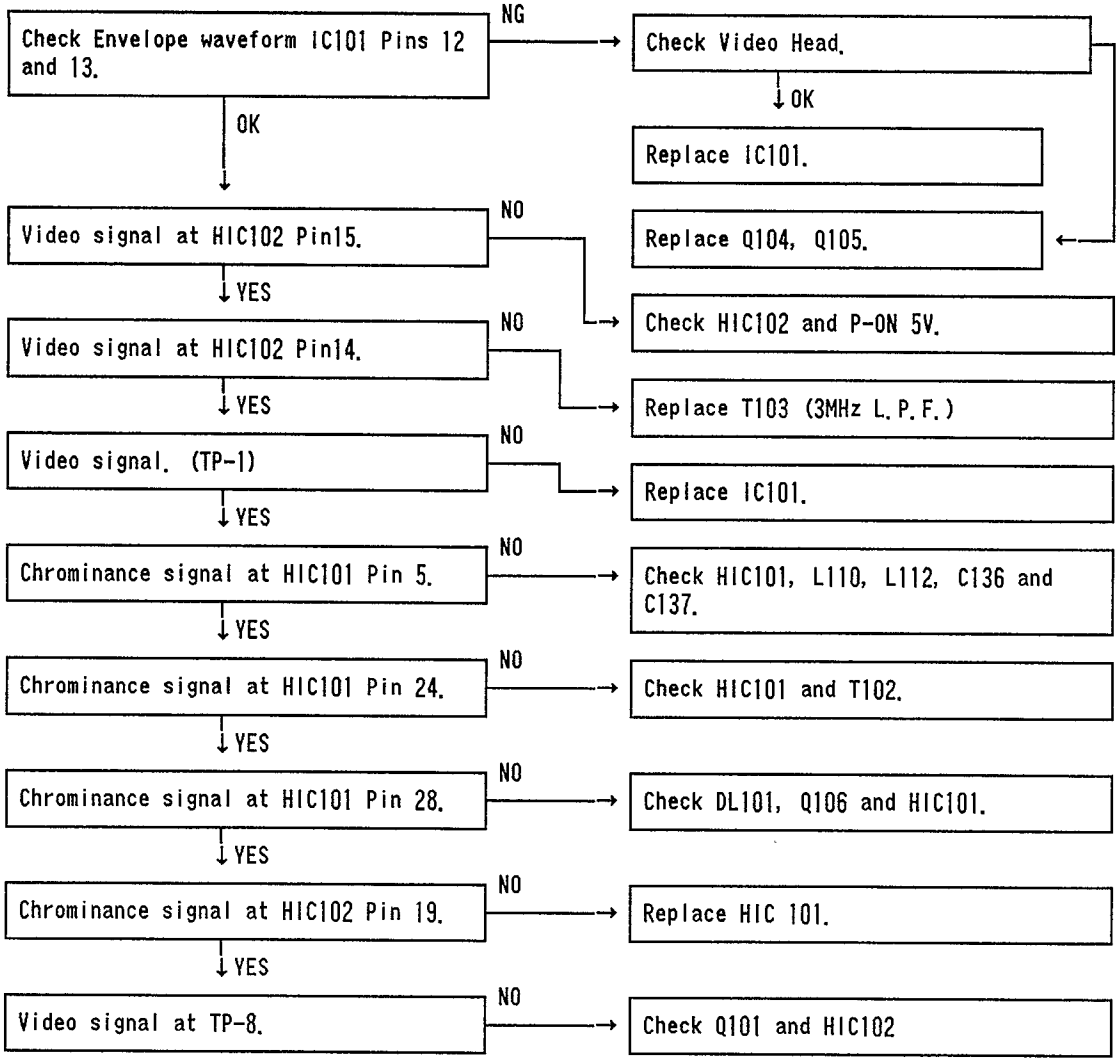
Step13 (AUTO REWIND is not possible)



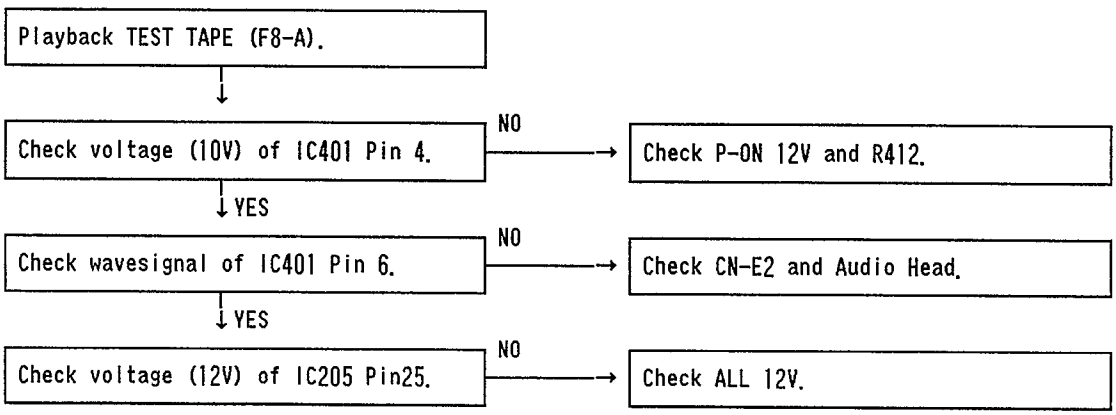
Step14 (AUTO STOP dose not operate at tape beginning)



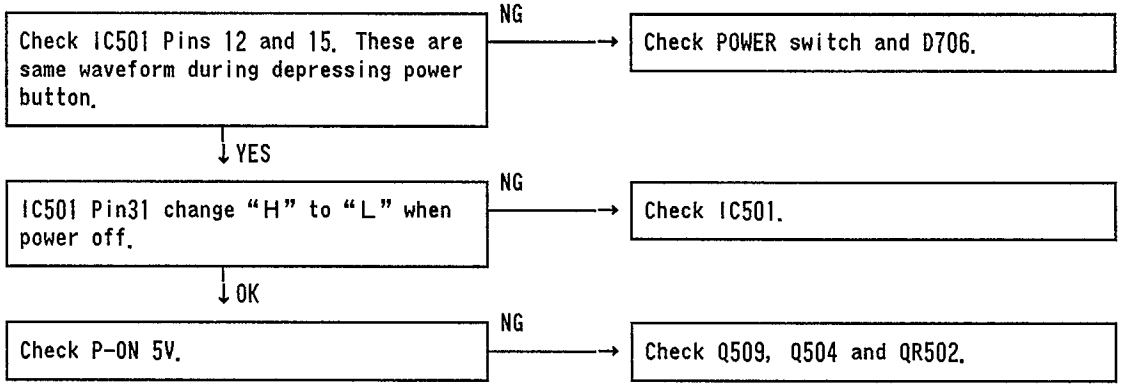
Step 15 (No Picture)



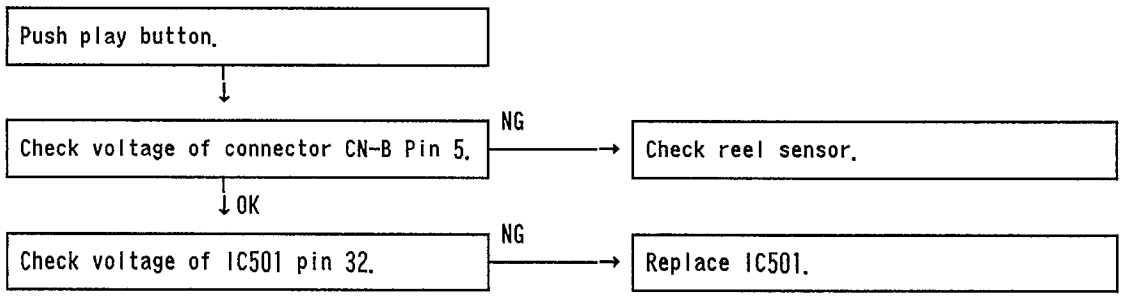
Step16 (Normal sound defect)



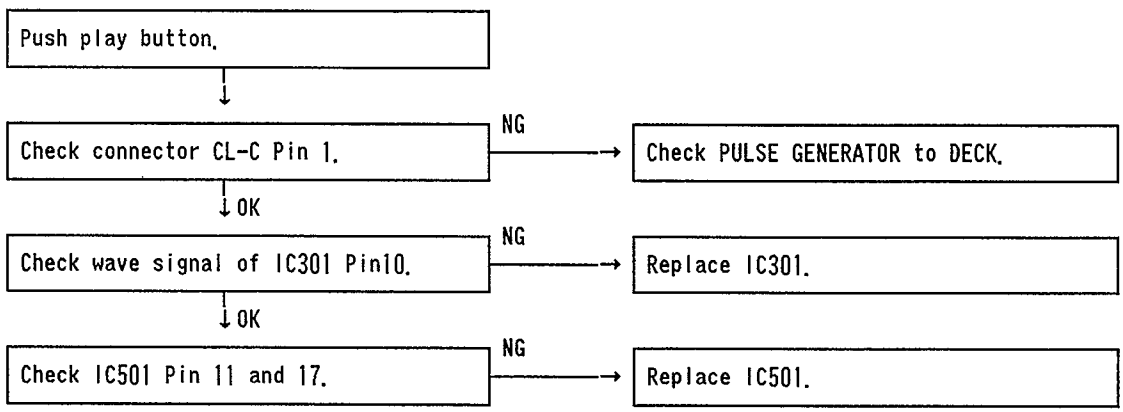
Step17 (Power off is not possible)

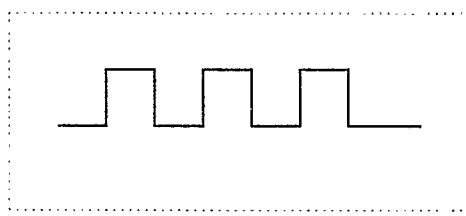


Step18 (Power becomes off after 5 seconds when play button is pushed)

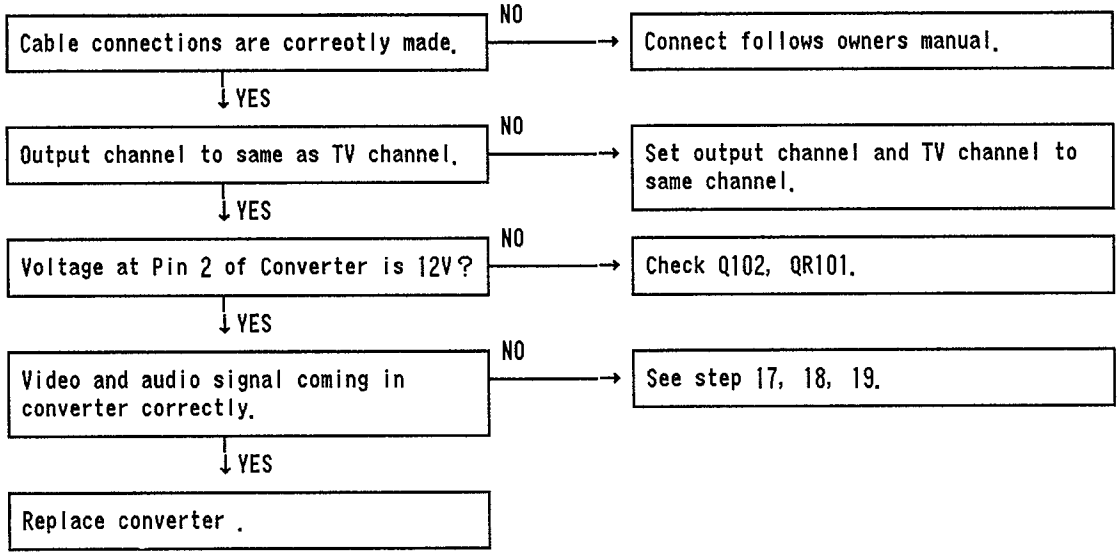


Step19 (STOP after 5 seconds when play button in pushed)

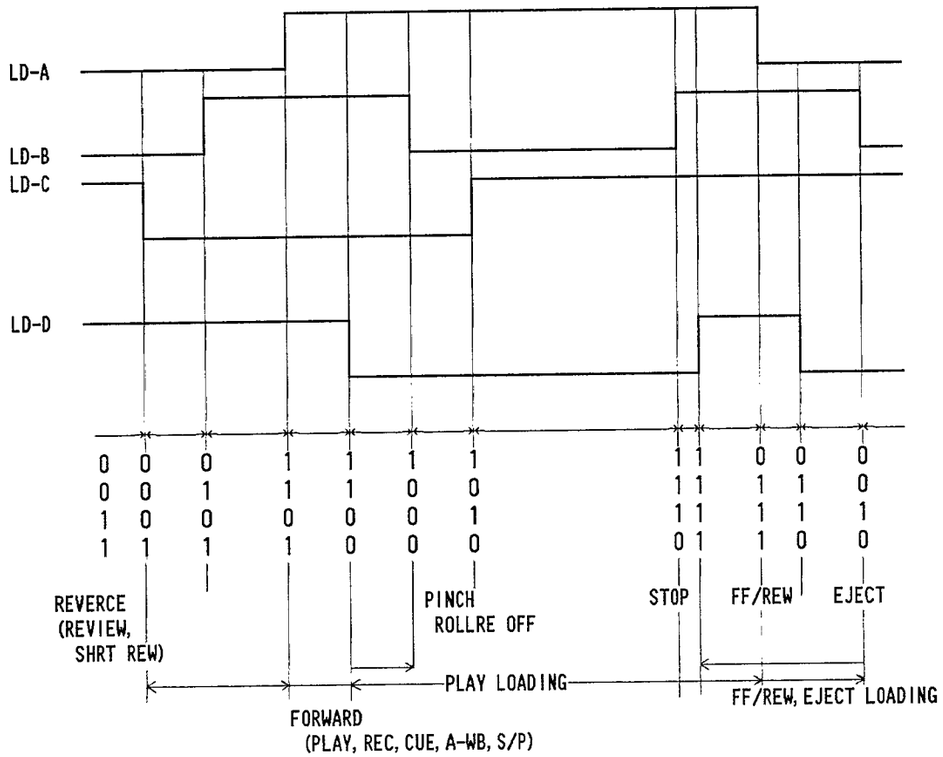




Step20 (No RF OUTPUT)



* When SYSTEM CONTROL IC has locked up SYSTEM CONTROL IC will not accept any mode. At this time, disconnect AC cord to reset the SYSTEM CONTROL IC.



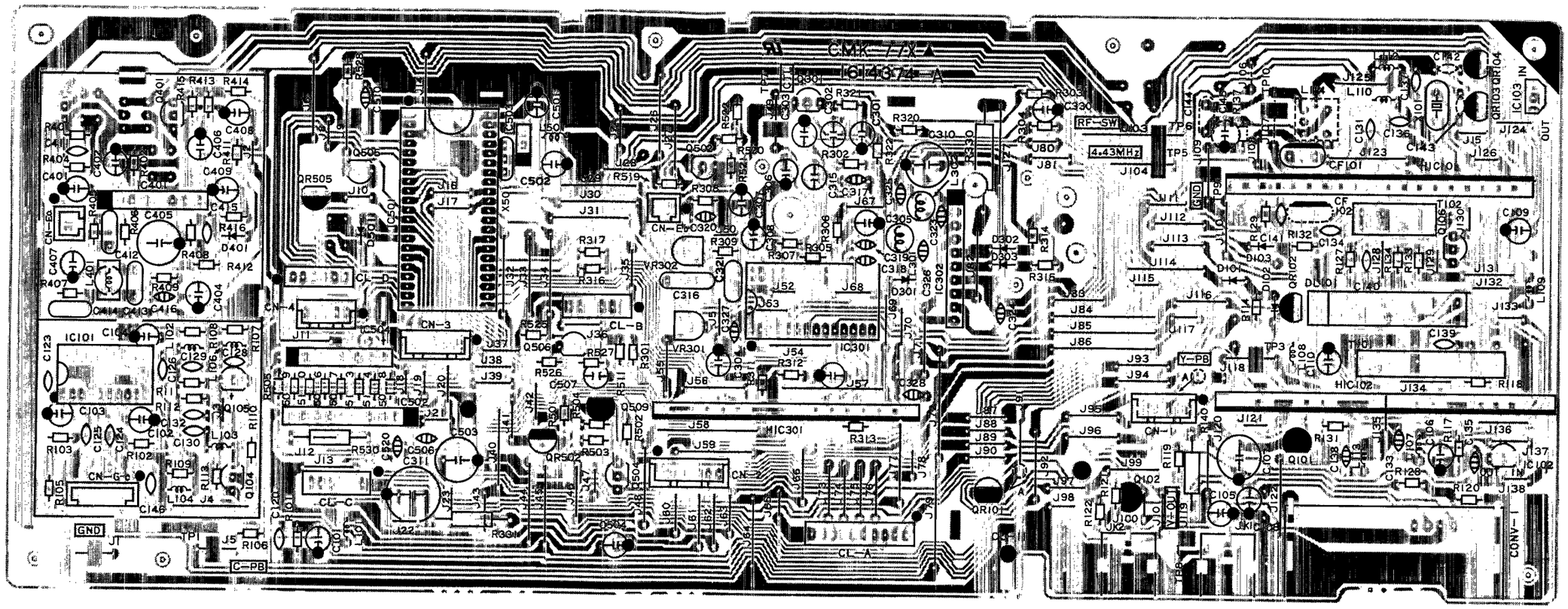
LD-SW				Symbol	Position
A	B	C	D		
L	L	H	L	EJ	Front loading, Eject
L	H	H	L	EU	Intermediate
L	H	H	H	FR	FF, REW
H	H	H	H	FU	Intermediate
H	H	H	L	UN	Stop
H	L	H	L	LU	Tape Loading
H	L	L	L	PA	Gear Change
H	H	L	L	AU	Intermediate
H	H	L	H	AL	Play (Pause)
L	H	L	H	FS	Intermediate
L	L	L	H	RU	Intermediate
L	L	H	H	RS	Review

(H = "1", L = "0")

Table 1

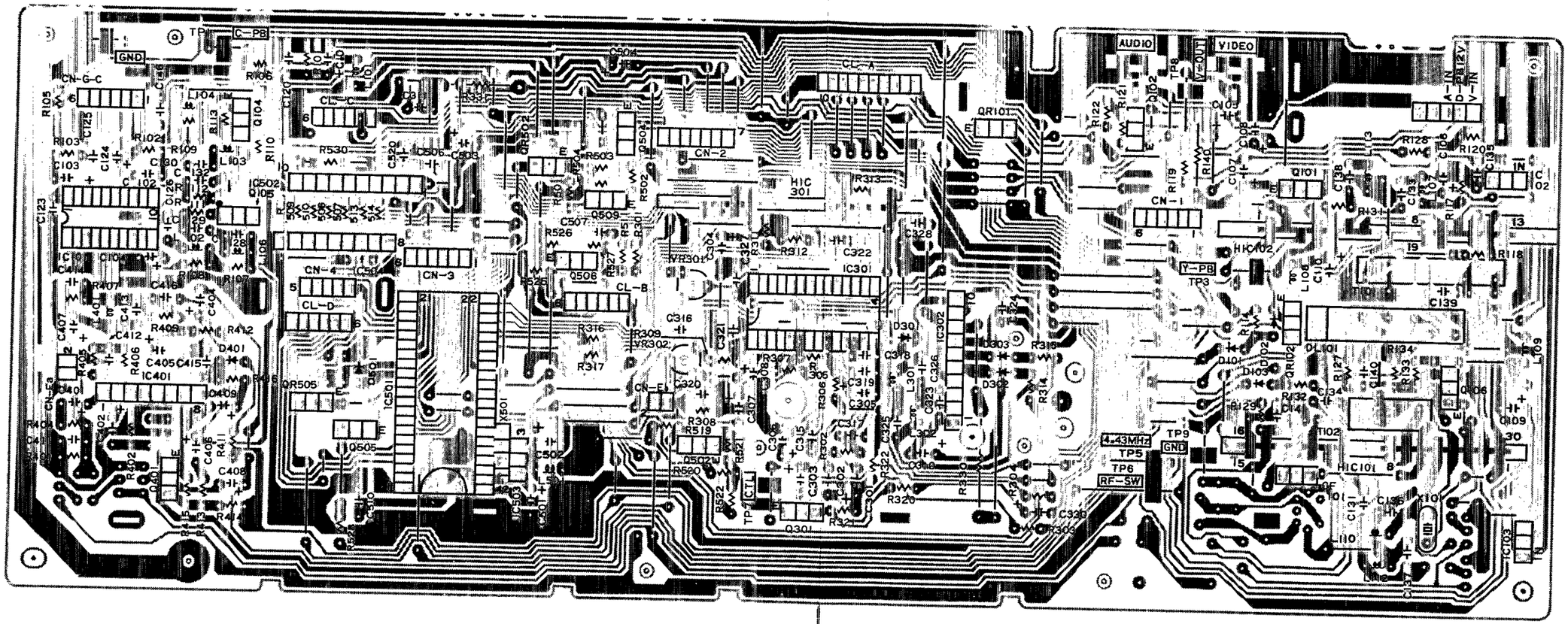
11. P.C.BOARD TOP AND BOTTOM VIEWS

11-1-1 MAIN P.C.BOARD TOP VIEW



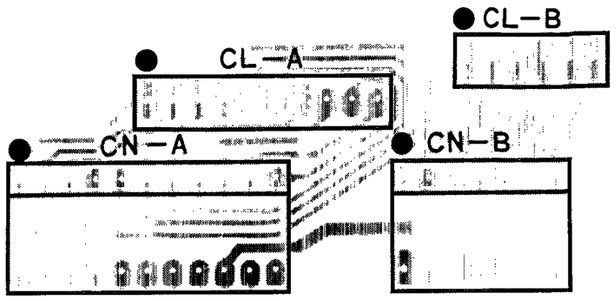
374A

11-1-2 MAIN P.C.BOARD BOTTOM VIEW



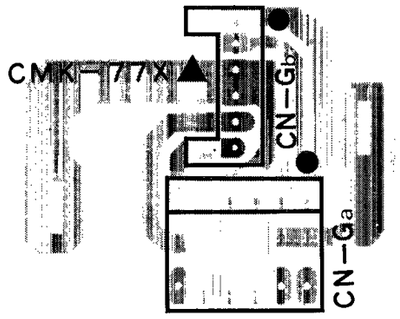
374A

11-2-1 CONNECTOR A P.C.BOARD TOP VIEW



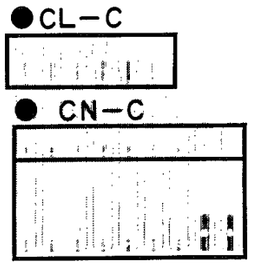
374B

11-3-1 CONNECTOR B P.C.BOARD TOP VIEW



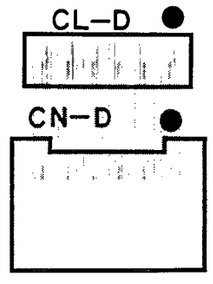
374C

11-4-1 CONNECTOR C P.C.BOARD TOP VIEW



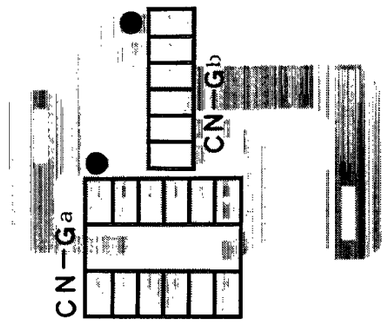
374D

11-5-1 CONNECTOR D P.C.BOARD TOP VIEW



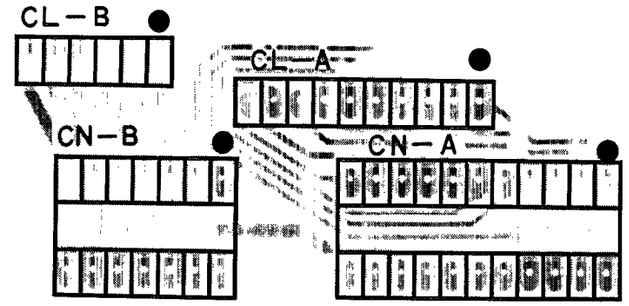
374E

11-3-2 CONNECTOR B P.C.BOARD TOP VIEW



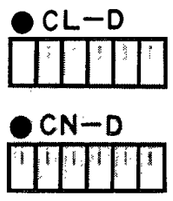
374C

11-2-2 CONNECTOR A P.C.BOARD BOTTOM VIEW



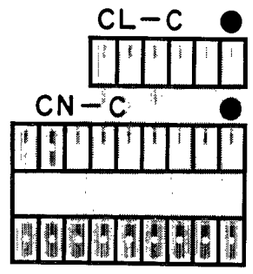
374B

11-5-2 CONNECTOR D P.C.BOARD BOTTOM VIEW



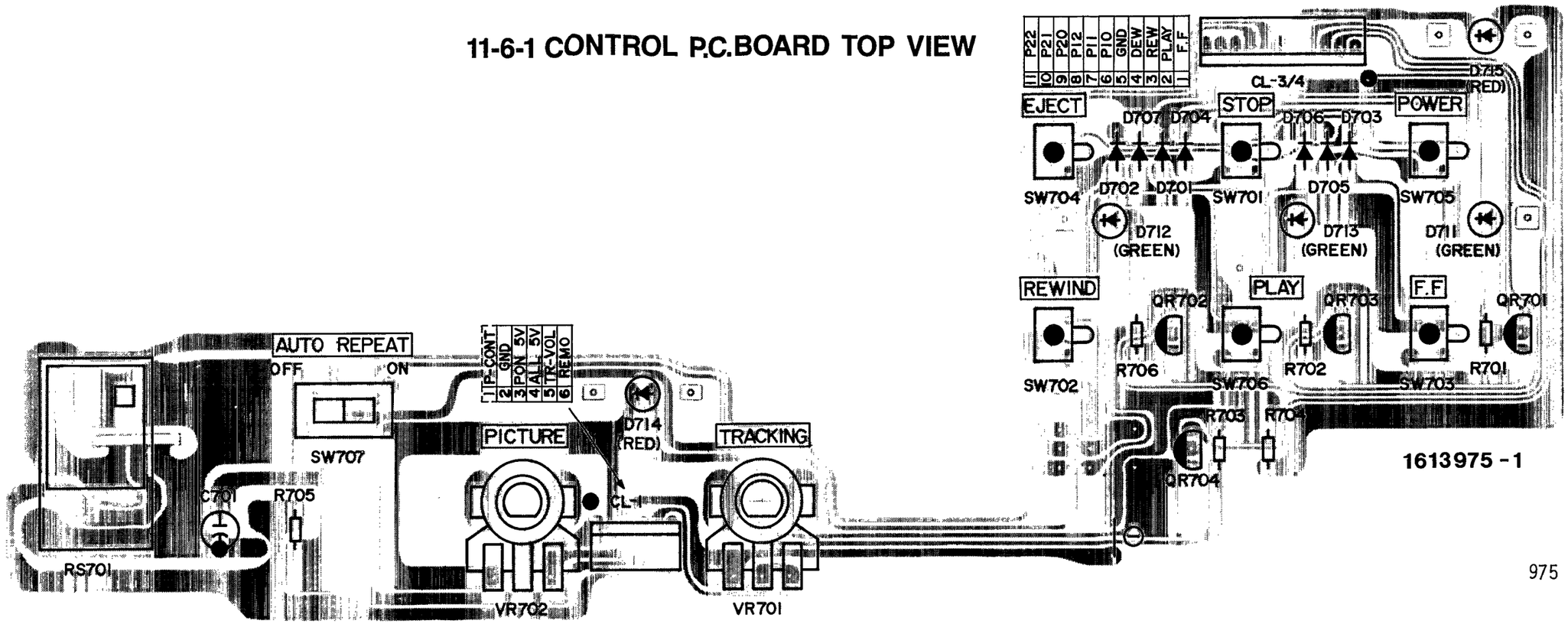
374E

11-4-2 CONNECTOR C P.C.BOARD BOTTOM VIEW



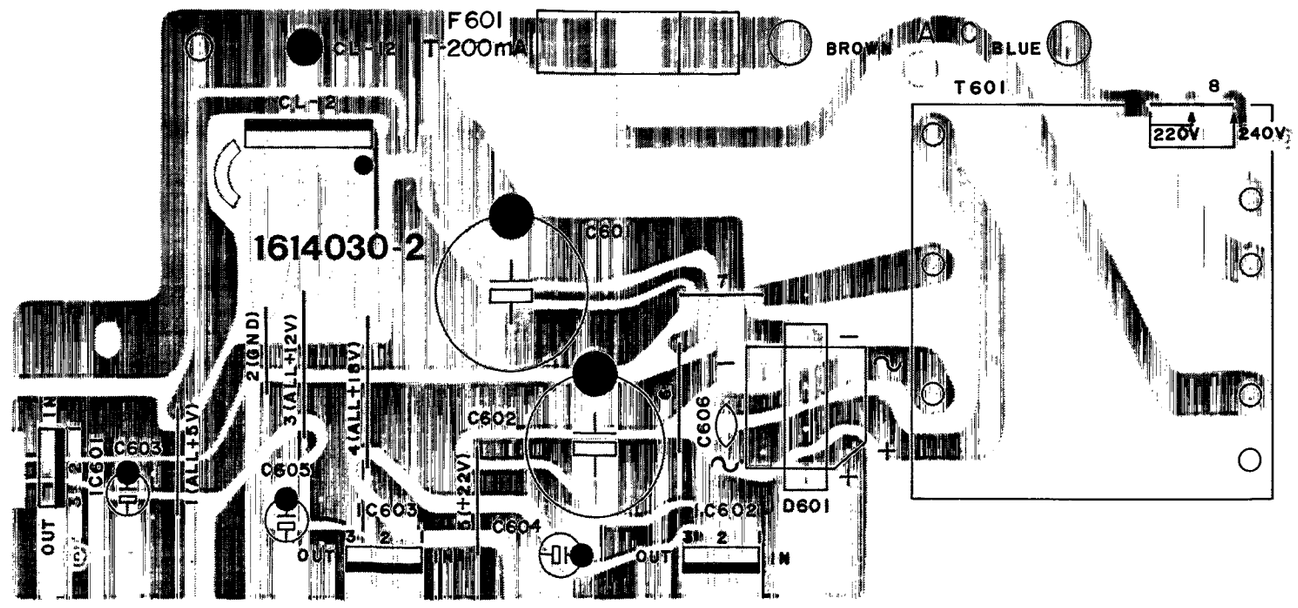
374D

11-6-1 CONTROL P.C.BOARD TOP VIEW



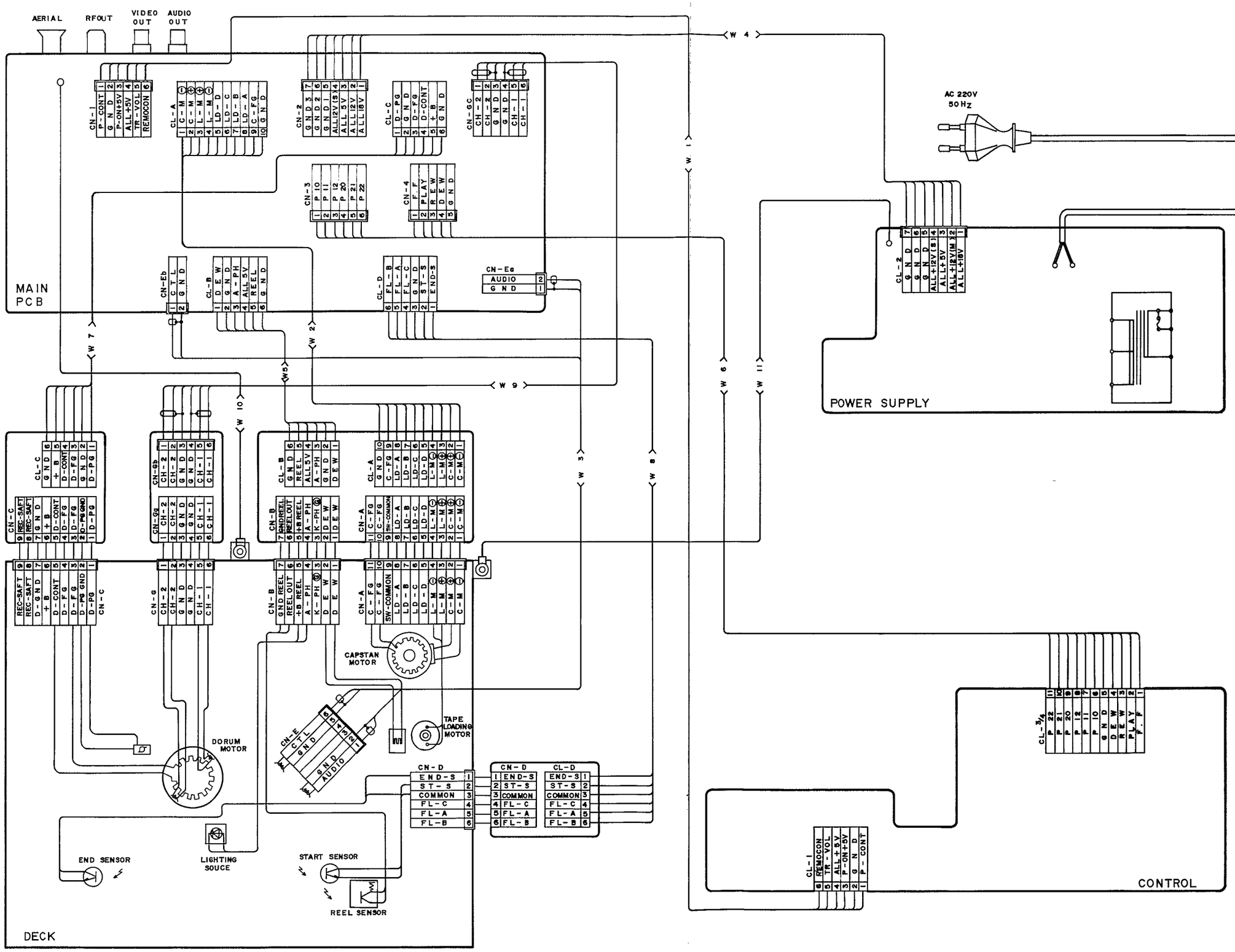
975

11-7-1 POWER SUPPLY P.C.BOARD TOP VIEW



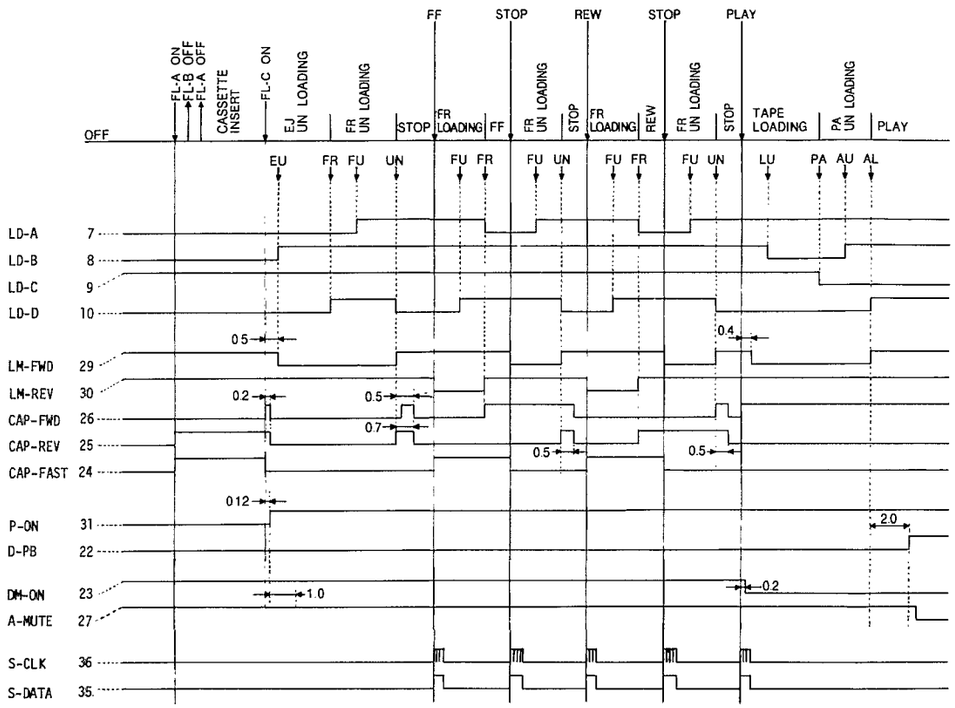
030

12. WIRING DIAGRAM

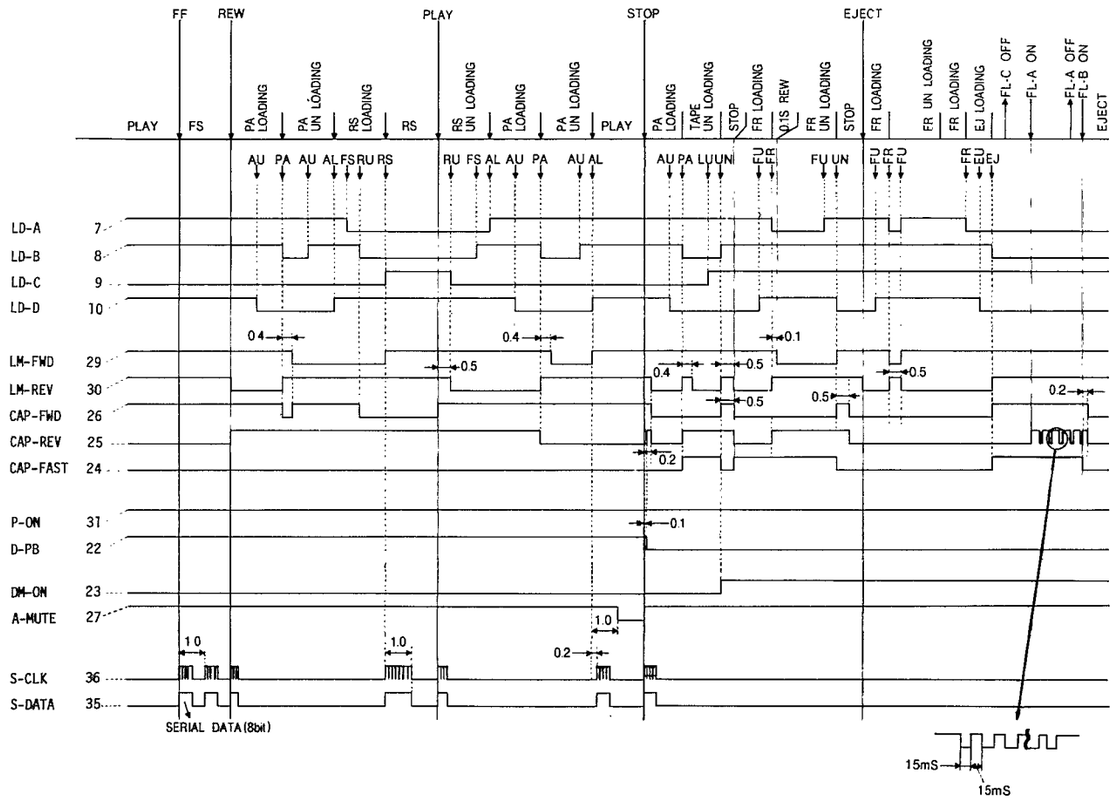


13. SYSTEM CONTROL TIMING CHART

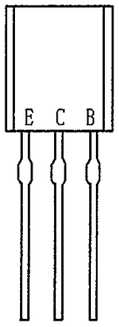
1. OFF → CASSETTE INSERT → F.F. → STOP → REW → STOP → PLAY



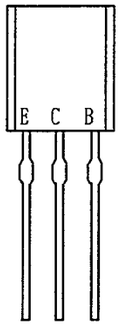
2. PLAY → F.F. → REW(RS) → PLAY → STOP → EJECT



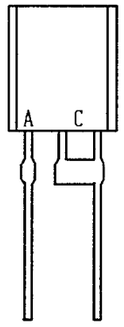
14. LEAD IDENTIFICATIONS



2SA933
2SC1740
2SA608SP
2SC536SP
2SD1450



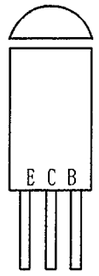
DTA124
DTC124
DTA144WS
2SC3400
2SA1346



L5631
μPC574J

A:Anode
C:Cathode

AN7812F
NJM7812FA
AN7818F
AN78M05F
NJM7818FA
NJM78M05FA



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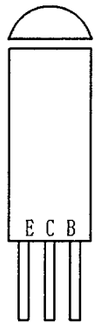

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2SD1384
2SB892
2SD1207

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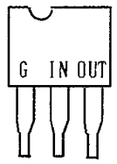
NJM78L05A

AN78N05



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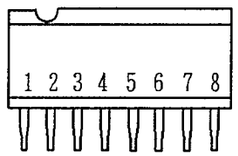

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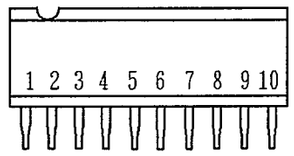

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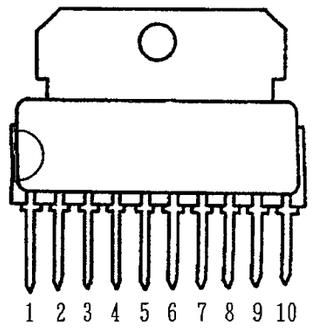

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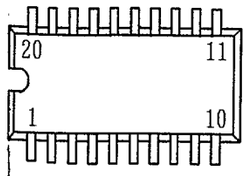

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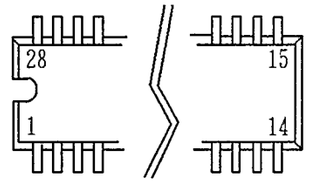

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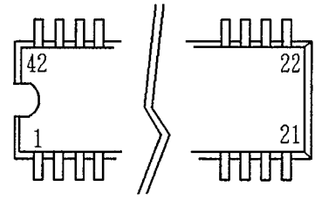


14DN486

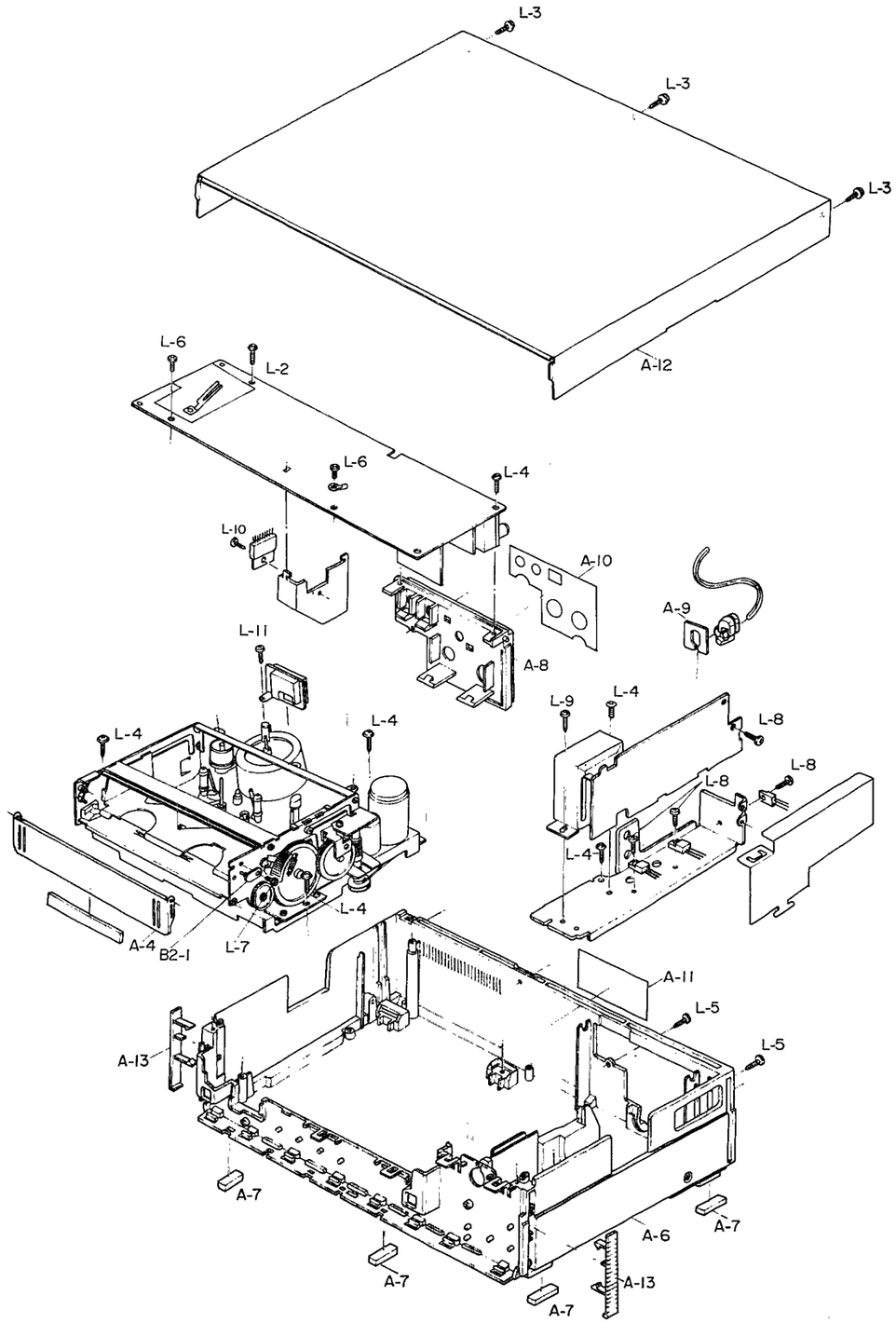
1812240
(SERVO)
HIC 301

1812119
(VIDEO-Y)
HIC 102

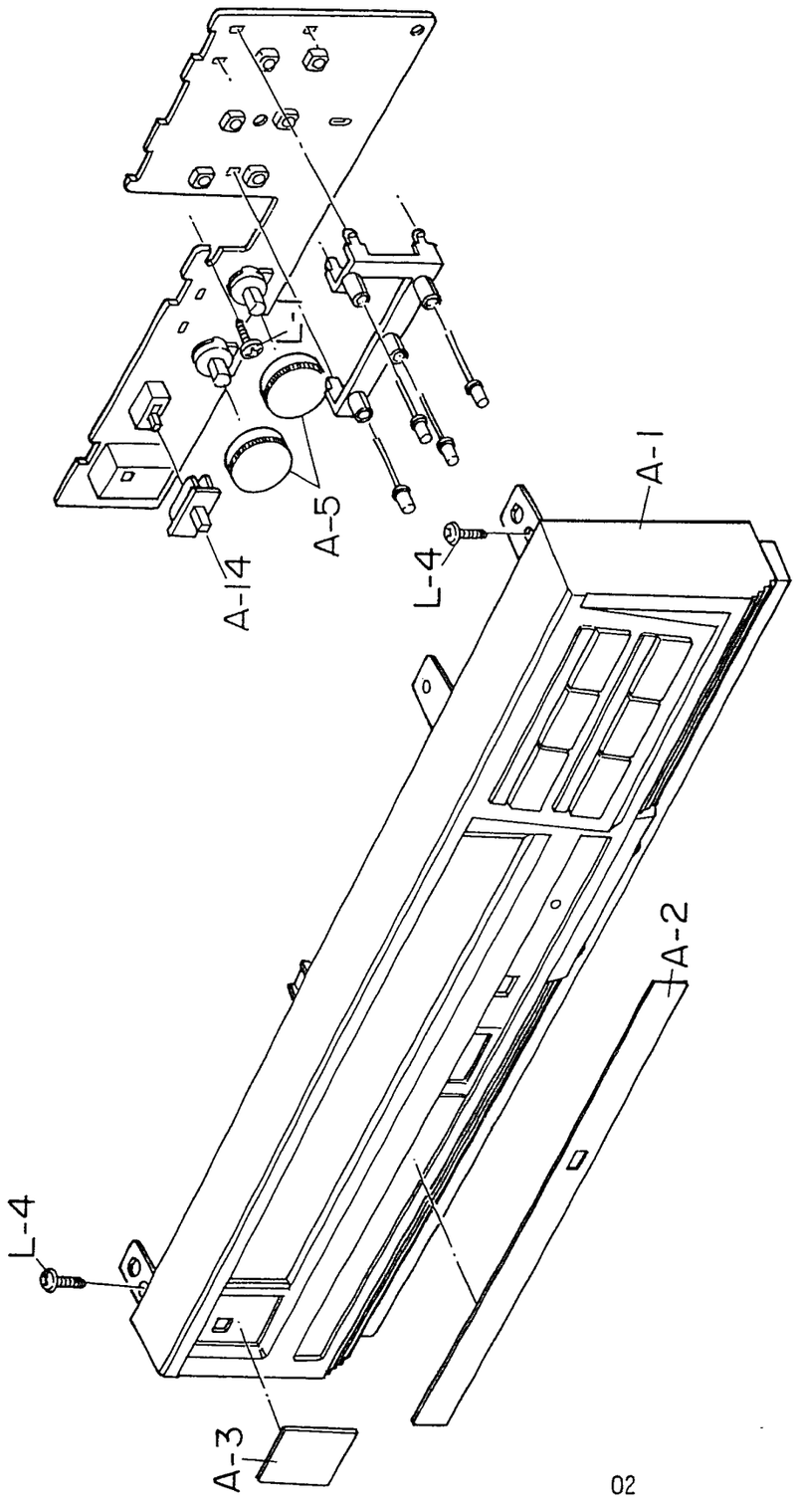
1812422
(VIDEO-C)
HIC 101

15. EXPLODED VIEW/MECHANICAL PARTS LIST

15-1 EXPLODED VIEW (CABINET)



15-2 EXPLODED VIEW (FRONT)



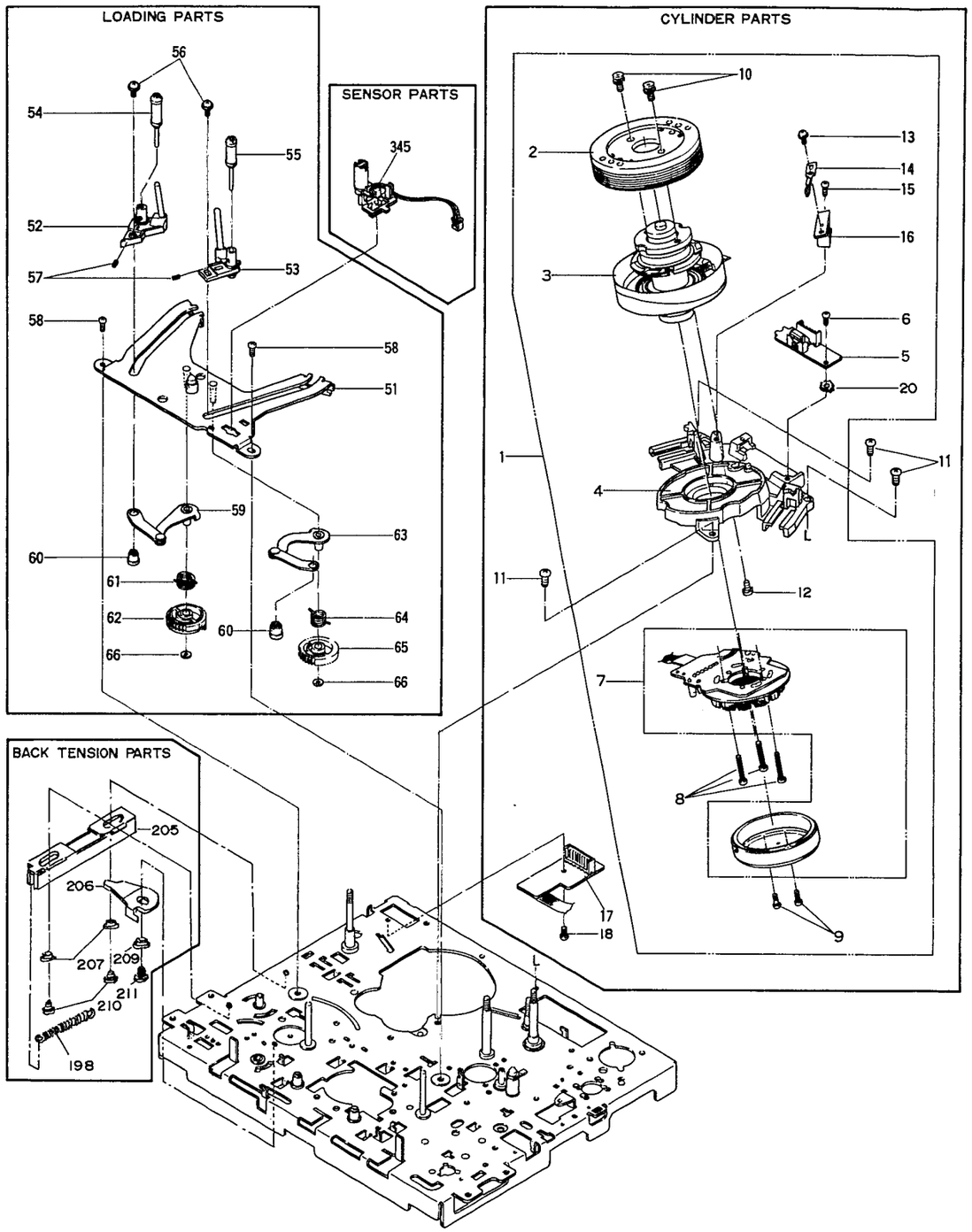
02

15-3 MECHANICAL PARTS LIST

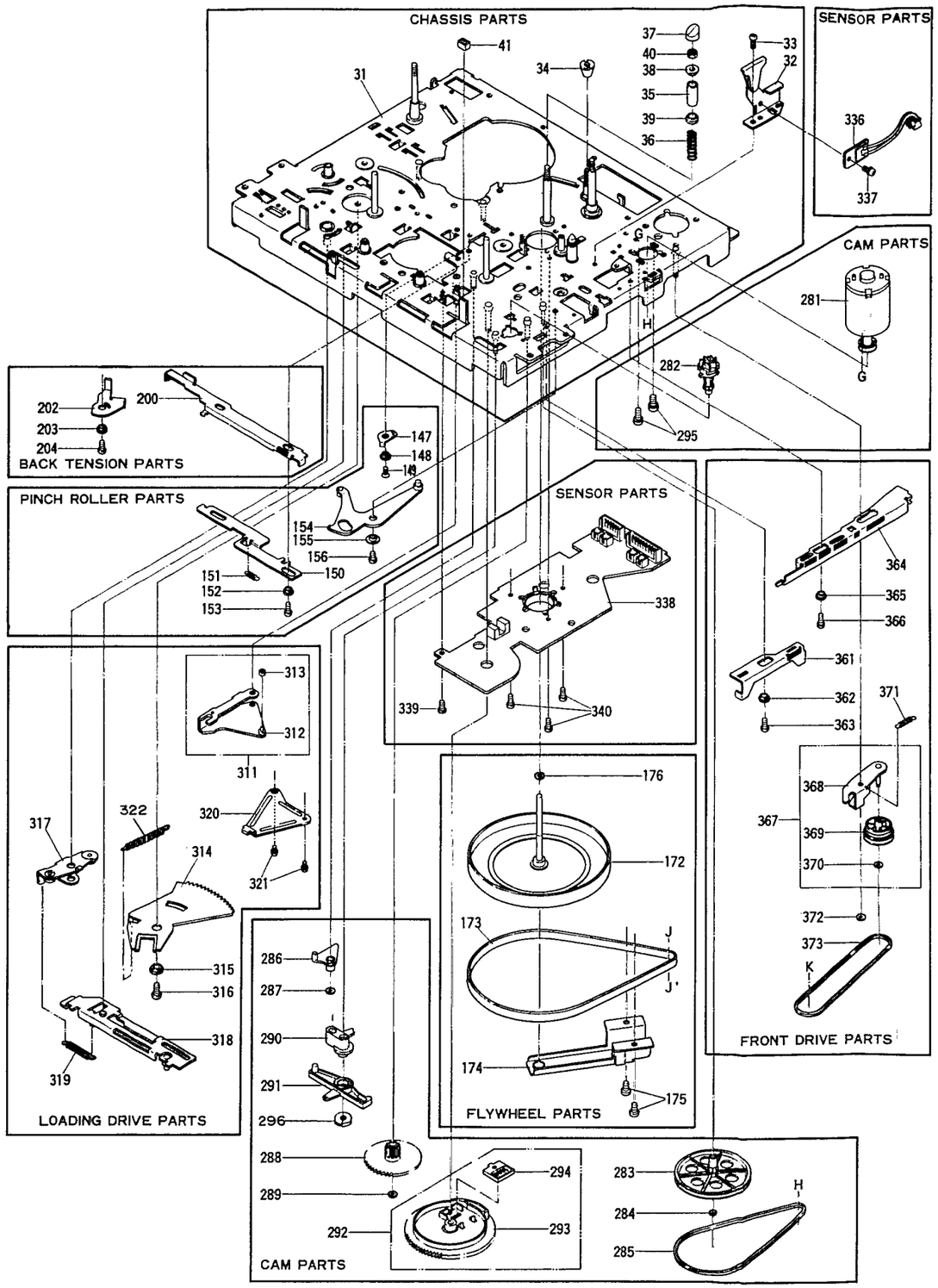
	Description	Ref. No.	Parts No.
	Front Ass'y	A-1X	6A50852
	(consists of follwing)		
	Front Panel Ass'y	A-1	6A50852X
	(Non-repairable)		
	Front		
	Button, Mode(A)		
	(EJECT, STOP, FUNCTION)		
	Button, Mode(B)		
	(REWIND, PLAY, F.FWD)		
	Lens, LED		
	(FUNCTION, REWIND, PLAY, F.FWD)		
	Plate, Front	A-2	6E51876
	Plate, VHS	A-3	6E50911
	Door, Cassette	A-4	6A50325
	Knob, Tracking (TRACKING, PICTUER)	A-5	6D50301
	Cabinet, Main	A-6	6C50381
	Foot	A-7	6E50339
	Jack Board	A-8	6C50184
	Holder, Stopper	A-9	6S50286
	Panel, Jack	A-10	6E50961
⚠	Label, Type	A-11	6E51877
	Case, Top	A-12	6G50069
	Panel, Chassis	A-13	6D50887
	Knob, Auto Repeat	A-14	6D50953
	Deck Ass'y (See Deck List)	B1-1	TM5900 P2SPN106
	Holder, Cassette Door	B2-1	6L50062
	Screw, P-Tight, Bind Head M3×8 (for Control PCB---1pc.)	L-1	GBMP308
	Screw, P-Tight, Bind Head M3×10 (for Main PCB---1pc.)	L-2	GBMP310
	Screw, P-Tight, Brazier Head, Flange M3×12 (for Deck Ass'y---3pcs.) (for Holder, Transformer---2pcs.) (for Jack Board---1pcs.)	L-4	GCMP312
	Screw, P-Tight, Brazier Head, Flange M3×12 (for Jack Board---2pcs.)	L-5	GCKP312
	Screw, S-Tight, Bind Head M3×6 (for Main PCB---2pcs.)	L-6	GBMS306
	Screw, Sems, Pan Head M3×5 (for Holder, Cassette Door---1pc.)	L-7	CPM3305
	Screw, Tapping, Bind Head M3×10 (for Transistors---3pcs.) (for Power Supply PCB---1pc.)	L-8	DBMI310
	Screw, CE-Tight M4×8 (for Transformer---1pc.)	L-9	GZMC408
	Screw, Tapping, Bind Head M3×6 (for IC---1pc.)	L-10	DBMI306
	Screw, S-Tight, Bind Head M2.6×6 (for Shield, Head---1pc.)	L-11	GBMS906

	Description	Ref. No.	Parts No.
	***Hardware Kits ***		
	Screw, P-Tight, Bind Head M3×10 (for Case, Top---3pcs.)	L-3	GBKP310
	Screw, P-Tight, Brazier Head, Flange M3×12 (for Front Ass'y---2pcs.)	L-4	GCMP312
	Accessory		
	RF Cord		1750762 or 5750109
	Remote Control Box		1812368
⚠	Owner's Manual		7E51027

15-4 DECK PARTS LIST



CYLINDER PARTS			
Ref No.	Description	MFR' No.	Q'ty
1	Cylinder Assembly (Consists of 2-10, 12-16, 20)	8059-01-310	1
2	Drum, Upper	8059-01-19	1
3	Drum Assembly, Lower	8059-01-304	1
4	Mount, Cylinder	8059-01-01	1
5	P.C.B. Assembly, Video Out	8059-01-305	1
6	Screw, W Sems, M2.6 ×6	9973-00-00	1
7	Motor TM82	6004-09-01	1
8	Screw, Sems, M2.6 ×20	9050-00-00	3
9	Screw, Sems, M2.6 ×6	9098-00-00	2
10	Screw, Bind Sems, M3×8	9972-00-00	2
12	Screw (For Camera) M2 ×5	9552-00-00	1
13	Screw, Cap, M2.6×3	9665-00-00	1
14	Ground, Durm	8059-01-23	1
15	Screw, C Tapping, M2.6×5	9192-00-00	1
16	Bracket, Drum Ground	8059-01-02	1
20	Washer, Toothed Lock, M2.6	9715-00-00	1
11	Screw, C Tapping, M3×10	9205-00-00	3
17	P.C.B. Assembly, DM	8059-01-303	1
18	Screw, C Tapping, M2.6×5	9192-00-00	1
LOADING PARTS			
51	Loading Base	8059-03-501	1
52	Block (L), Loading	8059-03-04	1
53	Block (R), Loading	8059-03-05	1
54	SIS, Roller Post	8000-03-33	1
55	ST, Roller Post	8000-03-37	1
56	Screw, Cup, M2.6×3	9665-00-00	2
57	Screw, Set, M2.0×3 (Plane Type)	9952-00-00	2
58	Screw, C Tapping, M2.6×5	9192-00-00	2
59	Plate (L), Loading	8059-03-502	1
60	Boss, Loading	8059-03-14	2
61	Spring (L), Loading Gear	8059-03-08	1
62	Gear (L), T Loading	8059-03-06	1
63	Plate (R), Loading	8059-03-503	1
64	Spring (R), Loading Gear	8059-03-09	1
65	Gear (R), T Loading	8059-03-07	1
66	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	9884-00-00	2
BACK TENSION PARTS			
198	Spring, Back Tension	8059-08-13	1
205	Plate, BT Actuate	8059-08-19	1
206	Lever, BT Actuate	8059-08-18	1
207	Collar, BT Actuate Plate	8059-08-21	2
209	Collar	8059-06-18	1
210	Screw, S Tapping (For Camera) M2.6×3.5	9840-00-00	2
211	Screw, C Tapping M2.6 ×5	9192-00-00	1
SENSOR PARTS			
345	Lamp Holder Assembly	8059-13-303	1



CHASSIS PARTS

Ref No.	Description	MFR' No.	Q'ty
31	Chassis	8059-02-501	1
32	Angle Assembly, Open	8059-02-301	1
33	Screw, C Tapping, M2.6×4	9191-00-00	1
34	Adjuster, Tracking	8000-03-16	1
35	Guide, Tape	8000-03-14	1
36	Spring, Tape Guide	8059-02-26	1
37	Cap, Guide	8000-03-19	1
38	Flange (C), Tape Guide	8059-03-28	1
39	Flange (F), Tape Guide	8059-02-25	1
40	Nut M3.0	9453-00-00	1
41	Rubber, Damper	8059-02-23	1

PINCH ROLLER PARTS

147	Crank, P	8059-06-12	1
148	Collar, P Crank	8059-06-13	1
149	Screw, C Tapping FH (For Camera), M2.6×4	9999-18-10	1
150	Slider, P	8059-06-10	1
151	Spring, P Slider	8059-06-23	1
152	Collar, P Slider	8059-06-11	1
153	Screw, C-Tapping, M2.6×5	9192-00-00	1
154	Leber, P Cam	8059-06-502	1
155	Collar, P Cam Lever	8059-06-17	1
156	Screw, C Tapping, M2.6×5	9192-00-00	1

FLYWHEEL PARTS

172	Capstan, Flywheel	8059-07-14	1
173	Belt, Main	8059-07-10	1
174	Angle Assembly, Flywheel	8059-07-303	1
175	Screw, C Tapping, M3×5	9202-00-00	2
176	Washer, φ3.1 ×φ6 ×t0.5	9912-00-00	1

BACK TENSION PARTS

200	Plate, BT Change	8059-08-10	1
202	Lever, BT Return	8059-08-23	1
203	Collar	8059-06-18	1
204	Screw, C Tapping, M2.6×5	9192-00-00	1

CAM PARTS

281	LM Assembly	8059-11-301	1
282	Bearing Assembly, Trigger	8059-11-302	1
283	Pulley, Loading	8059-11-03	1
284	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	9743-00-00	1
285	Belt, Loading	8059-11-06	1
286	Arm (B), Search	8059-11-12	1
287	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	9884-00-00	1
288	Gear, Loading	8059-11-04	1
289	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	9876-00-00	1
290	Arm, Brake Actuate	8059-11-13	1
291	Arm, Eject Actuate	8059-11-14	1
292	Cam Assembly, Loading (Consists of 293-294)	8059-11-303	1
293	Cam, Loading	8059-11-01	1
294	Brush, S	8059-11-02	1
295	Screw, C Tapping, M3×4	9105-00-00	2
296	Washer, Polyslider, φ 2.6×φ8 ×t 0.5	9999-03-10	1

LOADING DRIVE PARTS

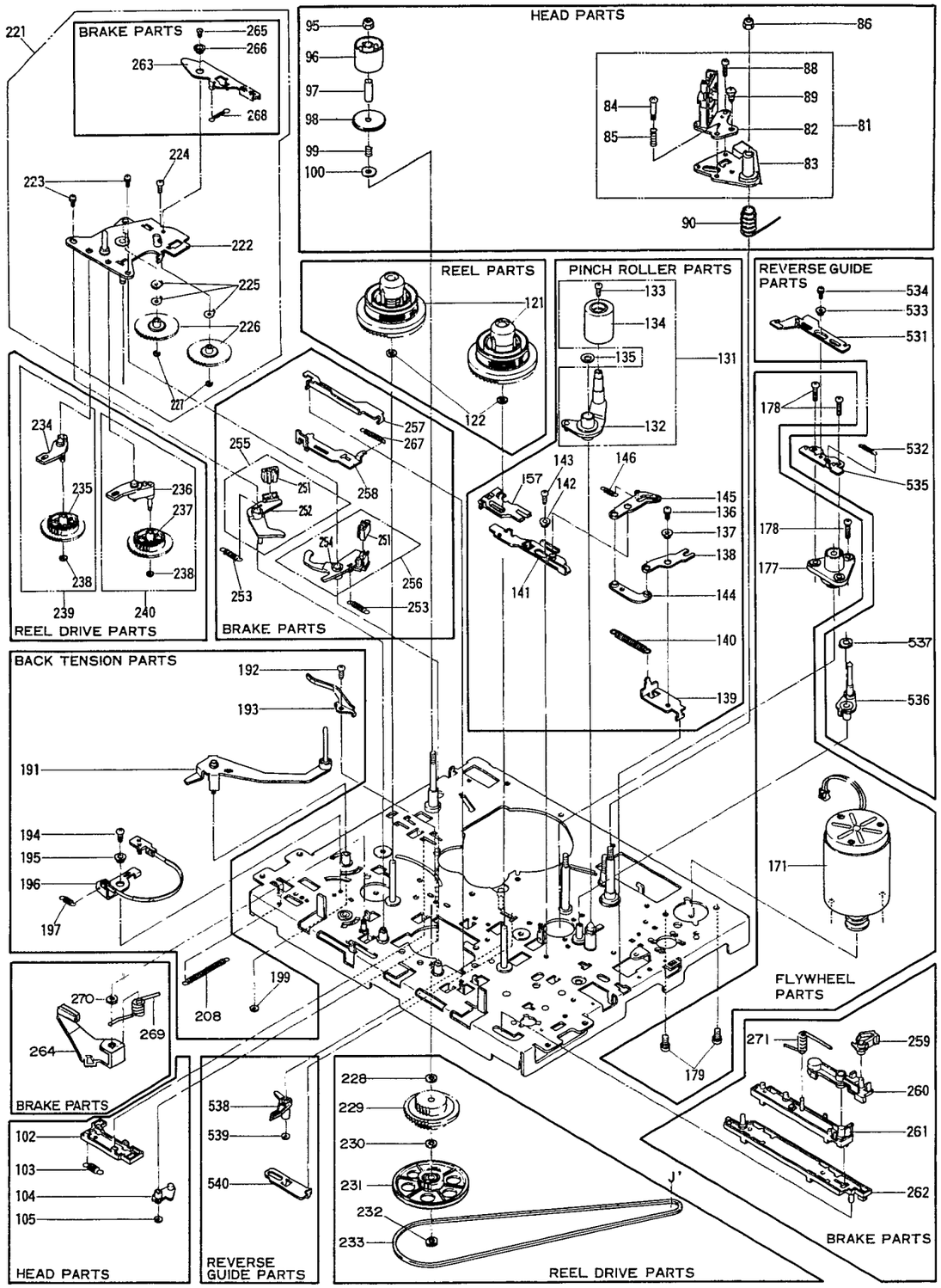
Ref No.	Description	MFR' No.	Q'ty
311	Lever Assembly, Loading (Consists of 312-313)	8059-12-301	1
312	Lever Semi Assembly, Loading	8059-12-501	1
313	Roller, Cam	8059-12-13	1
314	Plate, Loading Gear	8059-12-09	1
315	Collar, Loading Gear Plate	8059-12-10	1
316	Screw, C Tapping, M3×6	9203-00-00	1
317	Lever Semi Assembly, Loading Actuate	8059-12-502	1
318	Plate, Semi Assembly, Loading Actuate	8059-12-503	1
319	Spring, Loading Actuate	8059-12-05	1
320	Plate, Loading Lever Reinforce	8059-12-11	1
321	Screw, Sems, M2 ×4	9077-00-00	2
322	Spring, L Gear Plate	8059-12-12	1

SENSOR PARTS

336	Sensor, DEW	6808-08-04	1
337	Screw, Sems, M2.6 ×4	9096-00-00	1
338	Plate, Base	8059-13-302	1
339	Screw, S Tapping (For Camera), M2.6×5	9691-00-00	1
340	Screw, C Tapping, M2.6×6	9193-00-00	3

FRONT DRIVE PARTS

361	Actuator, Eject	8059-15-08	1
362	Collar	8059-06-18	1
363	Screw, C Tapping, M2.6×5	9192-00-00	1
364	Plate, L Brake	8059-15-07	1
365	Collar	8059-06-18	1
366	Screw, C Tapping, M2.6×5	9192-00-00	1
367	Arm Assembly, E Idler (Consists of 368-370)	8059-15-303	1
368	Arm Semi Assembly, E Idler	8059-15-502	1
369	Pulley, Eject	8059-15-15	1
370	Washer, Polyslider, φ2.1 ×φ6 ×t0.5	9876-00-00	1
371	Spring, Idler Arm	8059-15-11	1
372	Washer, Polyslider, φ2.1 ×φ6 ×t0.5	9876-00-00	1
373	Belt, Front Loading	8059-15-06	1



HEAD PARTS

Ref No.	Description	MFR' No.	Q'ty
81	Head Base Assembly (Consists of 82-85, 88-89)	8059-04-303	1
82	Head, ACE	6204-15-06	1
83	Base, Head	8059-04-501	1
84	Screw, Azimuth Spring	8000-06-26	1
85	Spring, Azimuth	8000-06-04	1
88	Screw, M2.6 ×7	9041-00-00	1
89	Screw, Set, M3×6	9999-20-25	1
86	Nut, Nylon M3	9953-00-00	1
87	Not used		
90	Spring, Head	8059-04-15	1
95	Nut, Nylon M3	9953-00-00	1
96	Roller, Impedance	8059-04-05	1
97	Sleeve, Impedance Roller	8059-04-06	1
98	Flange (A), Tape Guide	8059-04-07	1
99	Spring, Tape Guide Flange	8059-04-09	1
100	Washer, Plane φ3 ×φ8 ×t0.5	9337-00-00	1

REEL PARTS

121	Reel Assembly	8059-05-301	2
122	Washer, φ3.1 ×φ6 ×t0.5	9912-00-00	2

PINCH ROLLER PARTS

131	Arm Assembly, Pinch Roller (Consists of 132-134)	8059-06-301	1
132	Arm Pinch Roller	8059-06-501	1
133	Screw, M2.6 ×4	9038-00-00	1
134	Roller (A), Pinch	8000-09-22	1
135	Washer, Polyslider, φ5 ×φ8 ×t0.5	9999-03-11	1
136	Screw, Sems, M2.6 ×4	9096-00-00	1
137	Collar	8059-06-18	1
138	Angle, P Actuate	8059-06-05	1
139	Holder, P Angle	8059-06-19	1
140	Spring, P Roller	8059-06-20	1
141	Plate (A), P Slide	8059-06-24	1
142	Collar	8059-06-18	1
143	Screw, C Tapping, M2.6×5	9192-00-00	1
144	Joint Plate	8059-06-06	1
145	Arm, P Actuate	8059-06-04	1
146	Spring, P Actuate Arm	8059-06-09	1
157	Plate (B), P Slide	8059-06-25	1

FLYWHEEL PARTS

171	Motor Assembly, Capstan	8059-07-302	1
177	Housing Assembly, Metal	8059-07-301	1
178	Screw, C Tapping, M2.6×8	9195-00-00	3
179	Screw, Sems, M3 ×4	9105-00-00	2

BACK TENSION PARTS

191	Arm, Back Tension	8059-08-501	1
192	Screw, C Tapping, M2.6×4	9191-00-00	1
193	Support, Back Tension	8059-08-09	1
194	Screw, C Tapping, M2.6×4	9191-00-00	1
195	Collar, Band Holder	8059-08-15	1
196	Band, BT	8059-08-302	1
197	Spring, Band Holder	8059-08-17	1
199	Washer, Polyslider, φ2.1 ×φ4 ×t0.5	9999-03-15	1
208	Spring, BT Actuate Plate	8059-08-20	1

BRAKE PARTS

Ref No.	Description	MFR' No.	Q'ty
221	Plate Assembly (Consists of 222-227, 263, 265-266, 268)	8059-09-307	1
222	Plate Semi Assembly	8059-09-501	1
223	Screw, Sems, M2 ×4	9077-00-00	2
224	Screw, C Tapping, M2.6×4	9191-00-00	1
225	Washer, Wave	8000-10-25	3
226	Gear, Reel Drive	8059-09-06	2
227	E Ring S 1.5	9500-00-00	2
263	Brake, Take-up soft	8059-10-303	1
265	Screw, SL FH (For Camera), M2 ×3	9974-00-00	1
266	Collar, Take-up Soft Brake Arm	8059-10-07	1
268	Spring, Take-up Soft Brake Arm	8059-10-06	1

REEL DRIVE PARTS

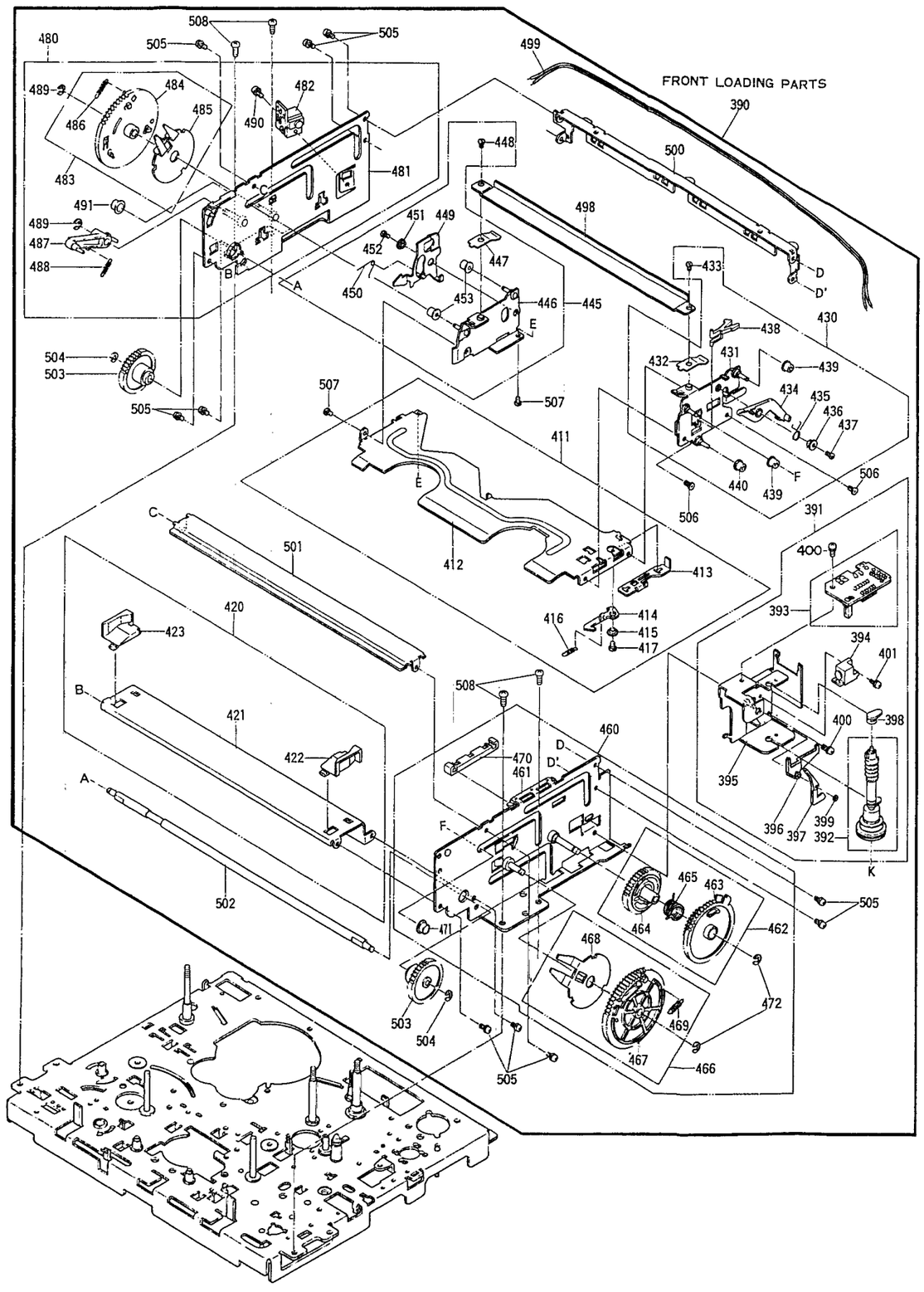
228	Washer, Nylon, φ3.1 ×φ6 ×t0.3	9853-00-00	1
229	Clutch Assembly	8059-09-302	1
230	Washer, Nylon, φ2.98×φ6 ×t0.3	9999-06-04	1
231	Pulley Assembly, Middle	8059-09-301	1
232	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	9884-00-00	1
233	Belt, Drive	8059-09-17	1
239	Gear Assembly, P (Consists of 234-235, 238)	8059-09-305	1
234	Arm Assembly, P Gear	8059-09-303	1
235	Gear, Play	8059-09-20	1
238	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	9743-00-00	1
240	Gear Assembly, RF (Consists of 236-237, 238)	8059-09-306	1
236	Arm Assembly, RF Gear	8059-09-304	1
237	Gear, FF	8059-09-22	1
238	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	9743-00-00	1

BRAKE PARTS

253	Spring, Brake Arm	8059-10-02	2
255	Arm Assembly, S Brake (Consists of 251-252)	8059-10-301	1
251	Shoe, Brake	8059-10-19	1
252	Arm, S Brake	8059-10-01	1
256	Arm Assembly, T Brake (Consists of 251, 254)	8059-10-302	1
251	Shoe, Brake	8059-10-19	1
254	Arm, T Brake	8059-10-03	1
257	Lifter, Brake	8059-10-16	1
258	Actuator, L Brake	8059-10-17	1
259	Hook, Trigger	8059-10-14	1
260	Lever, Trigger	8059-10-13	1
261	Plate, Brake	8059-10-11	1
262	Brake Actuate, Base	8059-10-09	1
264	Brake, S Soft	8059-10-304	1
267	Spring, L Brake Actuator	8059-10-18	1
269	Spring, S Soft Brake	8059-10-22	1
270	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	9876-00-00	1
271	Spring, Trigger Lever	8059-10-23	1

REVERSE GUIDE PARTS

531	Plate, RG Slide	8059-17-03	1
532	Spring, RG Slide	8059-17-11	1
533	Collar, RG Slide Plate	8059-17-10	1
534	Screw, Sems, M2 ×4	9077-00-00	1
535	Base, RG Slide	8059-17-09	1
536	Arm Semi Assembly, RG	8059-17-501	1
537	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	9884-00-00	1
538	Arm, RG Actuate	8059-17-01	1
539	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	9876-00-00	1
540	RG Actuator	8059-17-02	1



FRONT LOADING PARTS			
Ref No.	Description	MFR' No.	Q'ty
390	Loading Assembly, Front (Consists of 391, 411, 420, 430, 455, 460, 480, 498-508)	8059-16-317	1
391	Bracket Assembly, Cassette Load (Consists of 392-401)	8059-16-318	1
392	Clutch Assembly, Front Loading	8059-16-319	1
393	P.C.B. Assembly, Front Loading	8059-16-320	1
394	Sensor, P.C.B. (RM)	8059-16-316	1
395	Bracket Semi Assembly, Cassette Load	8059-16-506	1
396	Lever, IN SW	8059-16-34	1
397	Lever, S SW	8059-16-33	1
398	Bearing (A), F Worm	8059-16-06	1
399	Washer, Polyslider, ϕ1.6 $\times$ ϕ3.8 $\times$ t0.3	9743-00-00	1
400	Screw, Sems, M2.6 $\times$4	9096-00-00	2
401	Screw, Sems, M2 $\times$5	9078-00-00	1

FRONT LOADING PARTS			
411	Holder Assembly, Cassette (Consists of 412-417)	8059-16-306	1
412	Holder, Cassette	8000-22-03	1
413	Plate, Slide	8000-22-13	1
414	Plate (A), C Lock	8000-22-12	1
415	Collar	8059-06-18	1
416	Spring, Lock	8059-16-29	1
417	Screw, SL (For Camera), M2.6 $\times$3	9968-00-00	1

FRONT LOADING PARTS			
430	Plate (R) Assembly, Side (Consists of 431-440)	8059-16-308	1
431	Plate (R), Side	8059-16-502	1
432	Plate, Cassette Push	8059-16-28	1
433	Screw (For Camera), M2.3$\times$2	9833-00-00	1
434	Lever, Open	8000-22-25	1
435	Spring, Open Lever	8000-22-44	1
436	Lever Collar, Open	8000-22-42	1
437	Screw, SL (For Camera), M2$\times$4	9967-00-00	1
438	Lever, Lock Release	8000-22-16	1
439	Roller, Guide	8000-22-75	2
440	Roller, Guide	8000-22-23	1

FRONT LOADING PARTS			
445	Plate (L) Assembly, Side (Consists of 446-453)	8059-16-309	1
446	Plate (L), Side	8059-16-503	1
447	Plate, Cassette Push	8059-16-28	1
448	Screw (For Camera), M2.3$\times$2	9833-00-00	1
449	Plate (L), C Lock	8000-22-66	1
450	Spring (L), Lock Plate	8059-16-30	1
451	Collar, Lock Plate	8000-19-63	1
452	Screw (For Camera), M2$\times$2.5	9966-00-00	1
453	Roller, Guide	8000-22-75	2

FRONT LOADING PARTS			
Ref No.	Description	MFR' No.	Q'ty
460	Frame (R) Assembly (Consists of 461-462, 466, 470-472)	8059-16-322	1
461	Frame (R)	8059-16-504	1
462	Wheel Assembly, Worm (Consists of 463-465)	8059-16-321	1
463	Wheel, Worm	8059-16-36	1
464	Gear, Friction	8059-16-45	1
465	Spring, Friction	8059-16-31	1
466	Gear (R) Assembly, Lift (Consists of 467-469)	8059-16-312	1
467	Gear (R), Lift	8059-16-21	1
468	Arm, Lift	8000-22-11	1
469	Spring, LP	8000-22-45	1
470	Guide, Open Lever	8000-22-26	1
471	Sleeve, Guide	8000-22-24	1
472	E Ring S 2.5	9504-00-00	2

FRONT LOADING PARTS			
480	Frame (L) Assembly (Consists of 481-483, 487-491)	8059-16-313	1
481	Frame (L)	8059-16-505	1
482	Sensor, P.C.B. (LM)	8059-16-301	1
483	Gear (L) Assembly, Lift (Consists of 484-486)	8059-16-314	1
484	Gear, Lift	8059-16-22	1
485	Arm, Lift	8000-22-11	1
486	Spring, LP	8000-22-45	1
487	Lever, Lift	8000-22-76	1
488	Spring, Lift Lever	8000-22-47	1
489	E Ring S 2.5	9504-00-00	2
490	Screw, Sems, M2.6 $\times$7	9099-00-00	1
491	Sleeve, Guide	8000-22-24	1

FRONT LOADING PARTS			
498	Stay, Top	8000-22-65	1
499	Wire, End Sensor	8059-16-19	1
500	Angle, Rear	8059-16-09	1
501	Plate, Upper	8000-22-07	1
502	Shaft, Synchronize	8000-22-46	1
503	Gear (A), Synchronize	8059-16-17	2
504	E Ring S 2.5	9504-00-00	2
505	Screw, Sems, M2.6 $\times$4	9096-00-00	10
506	Screw (For Camera), M2.6$\times$3	9556-00-00	2
507	Screw (For Camera), M2.3$\times$2.5	9991-00-00	2
508	Screw, C Tapping, M2.6$\times$5	9192-00-00	4

FRONT LOADING PARTS			
420	Angle Assembly, Front (Consists of 421-423)	8059-16-307	1
421	Angle, Front	8059-16-18	1
422	Guide (R), Tape	8059-16-25	1
423	Guide (L), Tape	8059-16-24	1

16. ELECTRICAL PARTS LIST

DESCRIPTION	REF. NO.	MFR. PART NO
PCB Ass'y, Main		1614374A (MCV216) AX
Cap, Ceramic 22 pF /50V ±5 % SL	C128, C129, C146	3S41220
Cap, Ceramic 39 pF /50V ±5 % SL	C126	3S41390
Cap, Ceramic 47 pF /50V ±5 % SL	C138	3S41470
Cap, Ceramic 56 pF /50V ±5 % SL	C132	3S41560
Cap, Ceramic 68 pF /50V ±5 % SL	C141	3S41680
Cap, Ceramic 120 pF /50V ±5 %	C136	3B41121
Cap, Ceramic 150 pF /50V ±5 %	C133, C137, C415	3B41151
Cap, Ceramic 220 pF /50V ±5 %	C139	3B41221
Cap, Ceramic 390 pF /50V ±5 %	C130	3B41391
Cap, Ceramic 0.01μF /16V ±20%	C120, C134, C140	3Y4D103
Cap, Ceramic 0.001μF /50V ±10%	C123	12B3102
Cap, Ceramic 0.0012μF /50V ±10%	C131	12B3122
Cap, Ceramic 0.033μF /50V +80/ −20%	C124, C125	1220887
Cap, Semi-Conductive 0.01μF /25V ±10%	C320	12Y2103
Cap, Semi-Conductive 0.001μF /25V ±10%	C411	12Y2102
Cap, Semi-Conductive 0.047μF /25V ±10%	C318, C416	12Y2473
Cap, Semi-Conductive 0.022μF /25V ±10%	C135, C317	12Y2223
Cap, Semi-Conductive 0.047μF /16V +80/ −20%	C319, C327, C328	1220523
Cap, Semi-Conductive 0.1μF /25V +80/ −20%	C323, C324, C325, C326, C506, C510, C520	1220461 or 1220520
Cap, Electrolytic 0.22μF /50V ±20%	C322	126F224
Cap, Electrolytic 1μF /50V ±20%	C102, C103, C104 C301, C303, C330	126F105
Cap, Electrolytic 1μF /50V ±20% (NP)	C302	126X105
Cap, Electrolytic 2.2μF /50V ±20%	C501	526W225
Cap, Electrolytic 2.2μF /50V ±20%	C406	126F225
Cap, Electrolytic 2.2μF /50V ±20% (NP)	C315	126X225
Cap, Electrolytic 4.7μF /25V ±20%	C404, C407	126D475
Cap, Electrolytic 8.2μF /16V ±20%	C306	126C825
Cap, Electrolytic 10μF /16V ±20%	C304, C305, C401	126C106
Cap, Electrolytic 10 μF /16V ±20%	C108	526T106
Cap, Electrolytic 10μF /16V ±20% (NP)	C507	126U106
Cap, Electrolytic 33μF /10V ±20%	C402	126B336
Cap, Electrolytic 47μF /6.3V ±20%	C101, C106, C109, C307, C308, C409	126A476
Cap, Electrolytic 47μF /6.3V ±20%	C502	526R476
Cap, Electrolytic 100μF /6.3V ±20%	C408	126A107
Cap, Electrolytic 100μF /16V ±20%	C105, C503, C504	126C107
Cap, Electrolytic 100μF /25V ±20%	C310	126D107
Cap, Electrolytic 220μF /16V ±20%	C405	126C227
Cap, Electrolytic 330μF /6.3V ±20%	C110	126A337
Cap, Electrolytic 1000μF /6.3V ±20%	C107	626A108
Cap, Electrolytic 1000μF /16V ±20%	C311	626C108
Cap, Polyester Film 0.022μF /50V ±10%	C413	1250223
Cap, Polyester Film 0.027μF /50V ±10%	C414	1250273
Cap, Polyester Film 0.033μF /50V ±5 %	C321, C412	1254333
Cap, Polyester Film 0.15μF /50V ±5 %	C316	1254154
Coil, Microinductor 18μH	L106	2165180
Coil, Microinductor 22μH	L113	2165220
Coil, Microinductor 33μH	L104	2165330
Coil, Microinductor 39μH	L107	2165390
Coil, Microinductor 47μH	L102	2165470
Coil, Microinductor 100μH	L101, L108, L109 L501	2162101
Coil, Microinductor 180μH	L103	2165181
Coil, Choke 200μH	L301, L302	117J441 or 117B441
Coil, Microinductor 330μH	L110, L112	2162331
Coil, Microinductor 4.7 mH	L401	117M570 or 117M483

DESCRIPTION	REF. NO.	MFR. PART NO
Diode, 1SS254 or US1040M or GMB01B	D101, D102, D103 D301, D302, D303 D401, D501	1SS254 or US1040M or GMB01B
Filter, LPF 3MHz	T101	1810805 or 1810994
Filter, BPF 4.43MHz	T102	1810804 or 1810770
Filter, Comb	DL101	1812112 or 1812215
Filter, Ceramic SFS 5.0GMB	CF101	1810497
IC AN3331K (Liner) (Head AMP)	IC101	14LN235
IC MN15542 FVBG (Mos /Microprocessor) (System control)	IC501	14DN486
IC BA6993N (Liner) (COMPARATER IC)	IC504	14LF330
IC MN6748 FVAP (Mos /other) (Servo)	IC301	14DN363
IC BA6209 (Linear) (Motor Drive)	IC502	14L0106
IC BA6219B (Linear) (Capstan Drive)	IC302	14LF232
IC BA328LN (Liner) (Audio)	IC401	BA328LN
IC AN78L05 or NJM78L05A (Linear) (3 terminal Voltage Regulator)	IC102	AN78L05 or NJM78L05A
IC AN78N05 (Linear) (3 terminal Voltage Regulator)	IC103	AN78N05
IC MN1280-R (Mos /other) (Reset)	IC503	14DN160
Hybrid C (Color HIC) (Other)	HIC101	1812421
Hybrid Y (Luminance) (Other)	HIC102	1812119
Hybrid Servo (Servo) (Other)	HIC301	1812240
Res, Carbon 68 ohm 1 /5W ±5 %	R119	1324680
Res, Carbon 100 ohm 1 /5W ±5 %	R128, R307, R404	1324101
Res, Carbon 120 ohm 1 /5W ±5 %	R120, R402	1324121
Res, Carbon 180 ohm 1 /5W ±5 %	R511	1324181
Res, Carbon 220 ohm 1 /5W ±5 %	R131, R412	1324221
Res, Carbon 270 ohm 1 /5W ±5 %	R112, R127	1324271
Res, Carbon 560 ohm 1 /5W ±5 %	R103, R407	1324561
Res, Carbon 820 ohm 1 /5W ±5 %	R108	1324821
Res, Carbon 1k ohm 1 /5W ±5 %	R102, R110, R111 R117, R118 R301, R303, R409	1324102
Res, Carbon 1.2k ohm 1 /5W ±5 %	R129, R501, R503	1324122
Res, Carbon 1.5k ohm 1 /5W ±5 %	R106, R109, R313	1324152
Res, Carbon 1.8k ohm 1 /5W ±5 %	R134	1324182
Res, Carbon 2.2k ohm 1 /5W ±5 %	R101, R107, R113 R302, R308, R322	1324222
Res, Carbon 2.7k ohm 1 /5W ±5 %	R314, R315	1324272
Res, Carbon 3.3k ohm 1 /5W ±5 %	R416	1324332
Res, Carbon 3.9k ohm 1 /5W ±5 %	R406	1324392
Res, Carbon 4.7k ohm 1 /5W ±5 %	R114, R122, R304, R312	1324472
Res, Carbon 5.6k ohm 1 /5W ±5 %	R133, R413, R414	1324562
Res, Carbon 6.8k ohm 1 /5W ±5 %	R513, R514	1324682
Res, Carbon 10k ohm 1 /5W ±5 %	R105, R311, R509 R510, R528	1324103
Res, Carbon 10k ohm 1 /5W ±2 %	R305, R306	1354103
Res, Carbon 18k ohm 1 /5W ±5 %	R309	1324183
Res, Carbon 33k ohm 1 /5W ±5 %	R411	1324333
Res, Carbon 39k ohm 1 /5W ±5 %	R316, R317	1324393
Res, Carbon 47k ohm 1 /5W ±5 %	R121, R320, R401 R525	1324473
Res, Carbon 56k ohm 1 /5W ±5 %	R132	1324563
Res, Carbon 100k ohm 1 /5W ±5 %	R526, R527, R405 R415, R502, R504	1324104
Res, Carbon 110k ohm 1 /5W ±5 %	R408	1324114
Res, Carbon 470k ohm 1 /5W ±5 %	R321, R506, R507	1324474

	DESCRIPTION	REF. NO.	MFR. PART NO
⚠	Res. Oxide Film 1.5 ohm 1W ±5 %	R331	1330391 or 1330317
⚠	Res. Oxide Film 3.3 ohm 1W ±5 %	R530	1330395 or 1330320
⚠	Res. Oxide Film 3.3 ohm 2W ±5 %	R330	1330460 or 1330318
⚠	Res. Oxide Film 330 ohm 1W ±5 %	R140	1330419 or 1330363
	Res. Semi-Fixed 200k ohm (B)	VR301	138J786 or 138N786
	Res. Semi-Fixed 200k ohm (B) (Metal)	VR302	1380832 or 238J017
	Transistor, 2SA933QR or 2SA608SPEF	Q101, Q102	A933QR or A608SEF
	Transistor, 2SB892ST or 2SB1010QR	Q509	B892ST or B1010QR
	Transistor, 2SC536SPEF 2SC1740QR	Q104, Q106, Q301 Q505, Q506	C536SEF or C1740QR
	Transistor, 2SD1207ST or 2SD1384QR	Q504	D1207ST or D1384QR
	Transistor, 2SC2839EF or 2SC2058PQ	Q105	C2839EF or C2058PQ
	Transistor, 2SD1450S or 2SD1450T	Q401	D1450S or D1450T
	Digital Transistor, DTA124ES or 2SA1346	QR102	A124ES or A1346
	Digital Transistor, DTC124ES or 2SC3400	QR101, QR502	C124ES or C3400
	Connector Base 2P (Top)	CN-Ea, CN-Eb	1740764
	Connector Base 5P (Top)	CN-4	1770261
	Connector Base 6P (Top)	CN-Gc	1740768
	Connector Base 6P (Top)	CN-1, CN-3	1770262
	Connector Base 7P (Top)	CN-2	1770263
	RCA JACK (Yellow)	JK1	1780079
	RCA JACK (White)	JK2	1780078
	X'tal 4.433619MHz	X101	1811259
	Resonator, Ceramic 3.58MHz	X501	1812206
	RF CONV.	CONV-1	1812356 or 1812200
	Heat Sink		GS50441
	Shield Case A		GS50331
	Shield Case B		GS50332
	Shield Case C		GS50333
	Head Shield A		GS50442
	Head Shield B		GS50443
	IC Shield Case		GS50340

	DESCRIPTION	REF. NO.	MFR. PART NO
	PCB Ass'y, Connector A		1614374B (MCV216) BX
	Connector Housing 11P	CN-A	1770606
	Connector Housing 7P	CN-B	1770602
	PCB Ass'y, Connector B		1614374C (MCV216) CX
	Connector Housing 6P	CN-Ga	1770601
	Connector Base 6P (Side)	CN-Gb	1740780
	PCB Ass'y, Connector C		1614374D (MCV216) DX
	Connector Housing 9P	CN-C	1770604
	PCB Ass'y, Connector D		1614374E (MCV216) EX
	Connector Base 6P (Side)	CN-D	1770617

	Description	Ref. No	Parts No.
⚠	PCB Ass'y, Trans		1614030X (R3508DE)
	Cap. Ceramic 0.022 μF /50V +80/ −20%	C606	12F3223
	Cap. Electrolytic 4.7 μF /25V ±20%	C603, C604	126D475
	Cap. Electrolytic 47 μF /16V ±20%	C605	126C476
	Cap. Electrolytic 2200 μF /35V ±20%	C602	626E228
	Cap. Electrolytic 4700 μF /16V ±20%	C601	626C478
⚠	Diode, Rectifire	D601	S4VB20 or KBL02L or RS403L
	IC NJM78M05FA or AN78M05F (Linear) (3terminl Voltage Regulator)	IC601	14L0238 or AN78M05F
	IC NJM7818FA or AN7818F (Linear) (3terminal Voltage Regulator)	IC602	14L0253 or AN7818F
	IC NJM7812FA or AN7812F (Linear) (3terminal Voltage Regulator)	IC603	14L0251 or AN7812F
⚠	Power Trans	T601	1150566
	Trans Holder		6S50330
⚠	Fuse T-200mA	F601	1790474
⚠	AC Cord		5750008
⚠	Cord Stopper	SR-4N4	1790173
	Sheet, Insulation		6P50132
	Fuse Holder		1790424
⚠	PCB A'ssy, Control		1613975X (R3508DE)
	Cap. Electrolytic 47 μF /6.3V ±20%	C701	526R476
	Diode, 1SS254 or US1040M or GMB01B	D701, D702, D703 D704, D705, D706 D707	1SS254 or US1040M or GMB01B
	Diode, SLR-34MG5 LED (GREEN)	D711, D712, D713	1401231
	Diode, SLR-34VR5 LED (RED)	D715	1401230
	Switche, Push SW	SW701, SW702 SW703, SW704 SW705, SW706	1622743 or 1622970 or 1622922
	Switche, Slide SW 1C-2P	SW707	1621664
	Res. Carbon 680 ohm 1 /5W ±5 %	R701, R702, R706	1324681
	Res. Carbon 1k ohm 1 /5W ±5 %	R703, R704	1324102
	Res. Carbon 10k ohm 1 /5W ±5 %	R705	1324103
	Res. P-VOL 20k ohm B	VR702	539N724
	Res. TR-VOL 250k ohm B	VR701	539N682
	Digital Transistor, 2SA1346 or DTA124ES	QR701, QR702, QR703, QR704	2SA1346 or DTA124ES
	LED Holder A		6N51107
	Remote Sensor	RS701	1812012 or 1812075

MV-330P

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17. SCHEMATIC DIAGRAM

17-1 VIDEO/AUDIO/SERVO/SYSTEM CONTROL/POWER SUPPLY/CONTROL