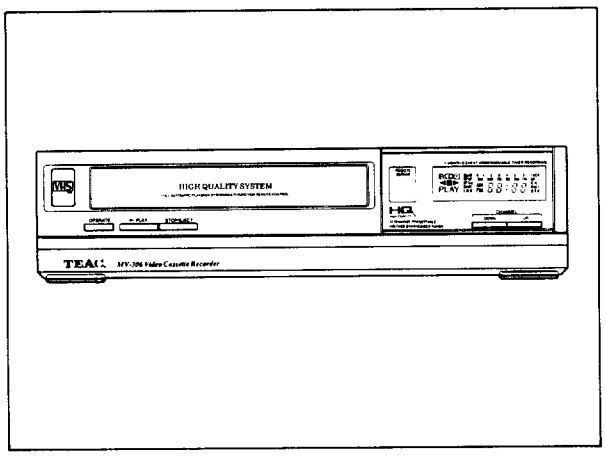
TEAC



SERVICE MANUAL

MV-306

Video Cassette Recorder

VHS HQ High Quality VHS

CAUTION

⚠ Parts marked with this sign are safety critical components. They must always be replaced with identical components- refer to the appropriate parts list and ensure exact replacement.

Effective ; October 1990

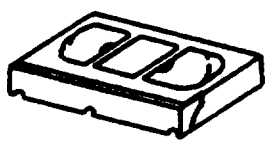
57040490-00

CONTENTS

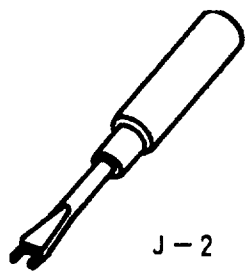
IN SUPPLEMENTARY & PARTS LIST

1. SERVICE JIG AND TOOLS

Fig. No.	Jig Item	Part No.	Adjustment
J – 1	Alignment Tape	F6-N or F6-NS	X Value / Envelope Waveform / Audio Control Erase Head Azimuth F6-NS : 2 Head LP Model
	Alignment Tape	F6-A F6-S2	Audio Control Erase Head Height and Tilt (Normal Audio Model) Audio Control Erase Head Height Adjustment (Linear Stereo Model)
	Alignment Tape	F6-HI	Audio Output Adjustment (Hi-Fi Stereo Model)
	Alignment Tape	F6-VF	Half Loading Arm Height Adjustment (Index Model)
J – 2	Driver Large (Special)	VT-G-002	X Value
	Driver Small (Special)	VT-G-003	Guide Roller
J – 3	Mirror	VFX-0169	Tape Transportation Check
J – 4	Box Driver M3	Marketing goods	Guide Pole / Audio Control Erase Head Height
	Box Driver M2	Marketing goods	Half Loading Arm Height (Index Model)



J – 1



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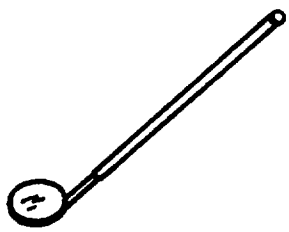
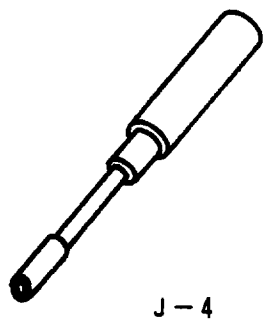


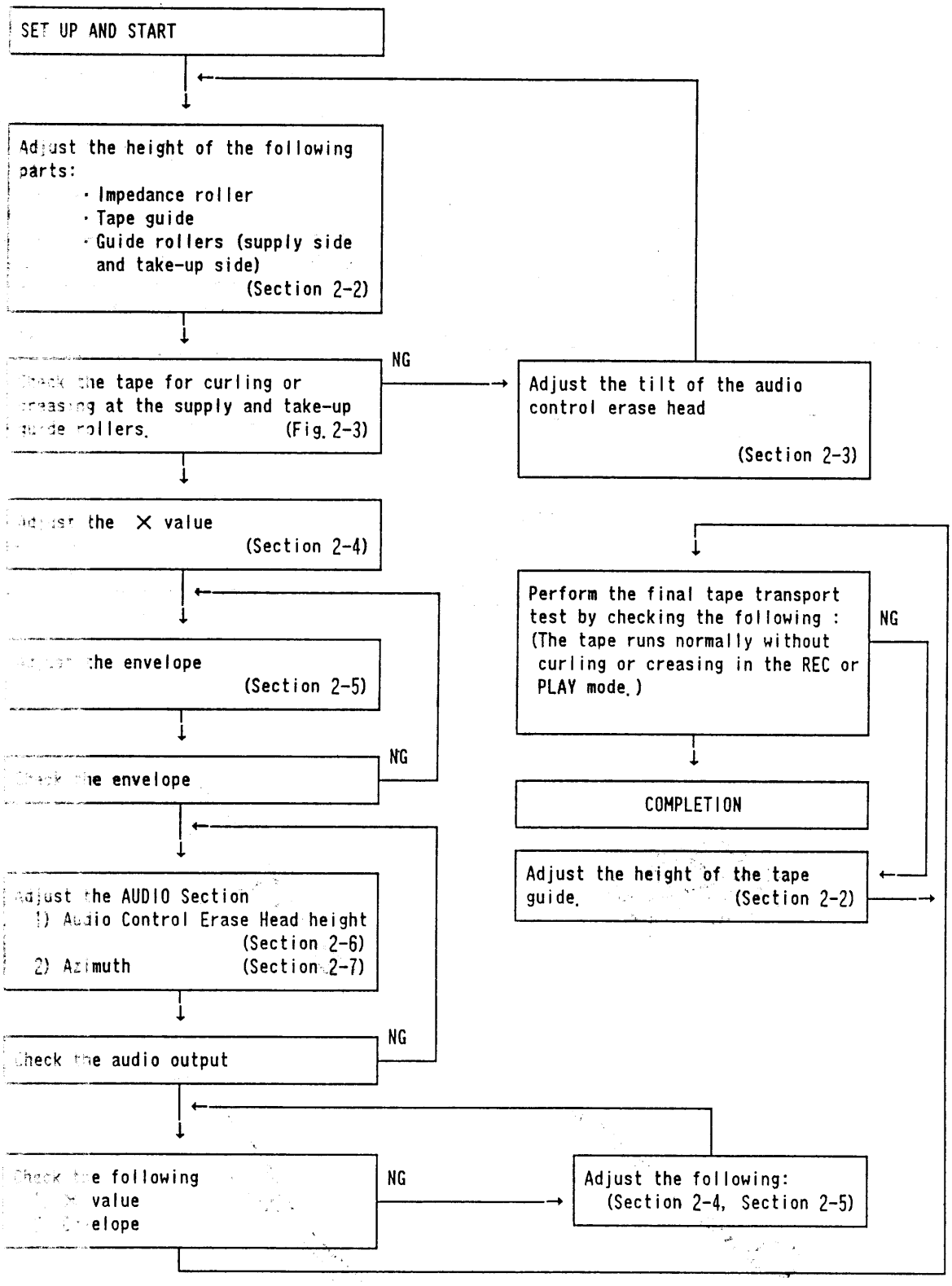
J – 3



J – 4

2. MECHANICAL ADJUSTMENT

2-1 TAPE TRANSPORT ADJUSTMENT FLOW CHART



2-2 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

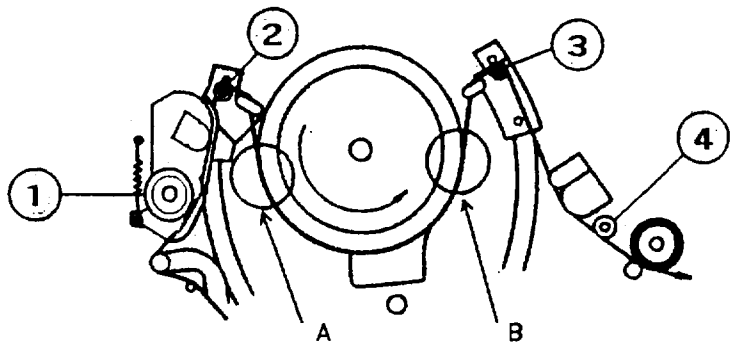


Fig. 2-1

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. 2-1.

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. 2-2.)

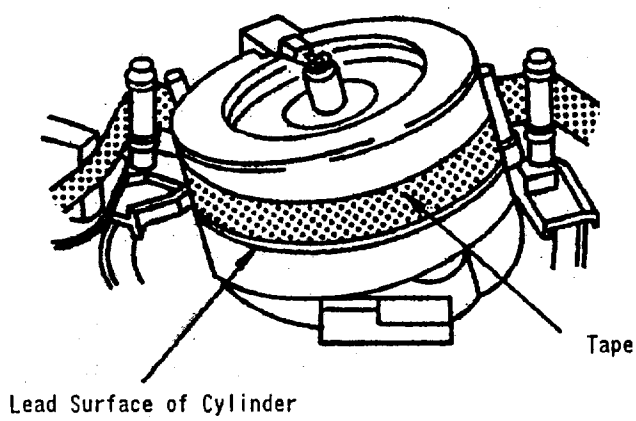


Fig. 2-2

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. 2-3.

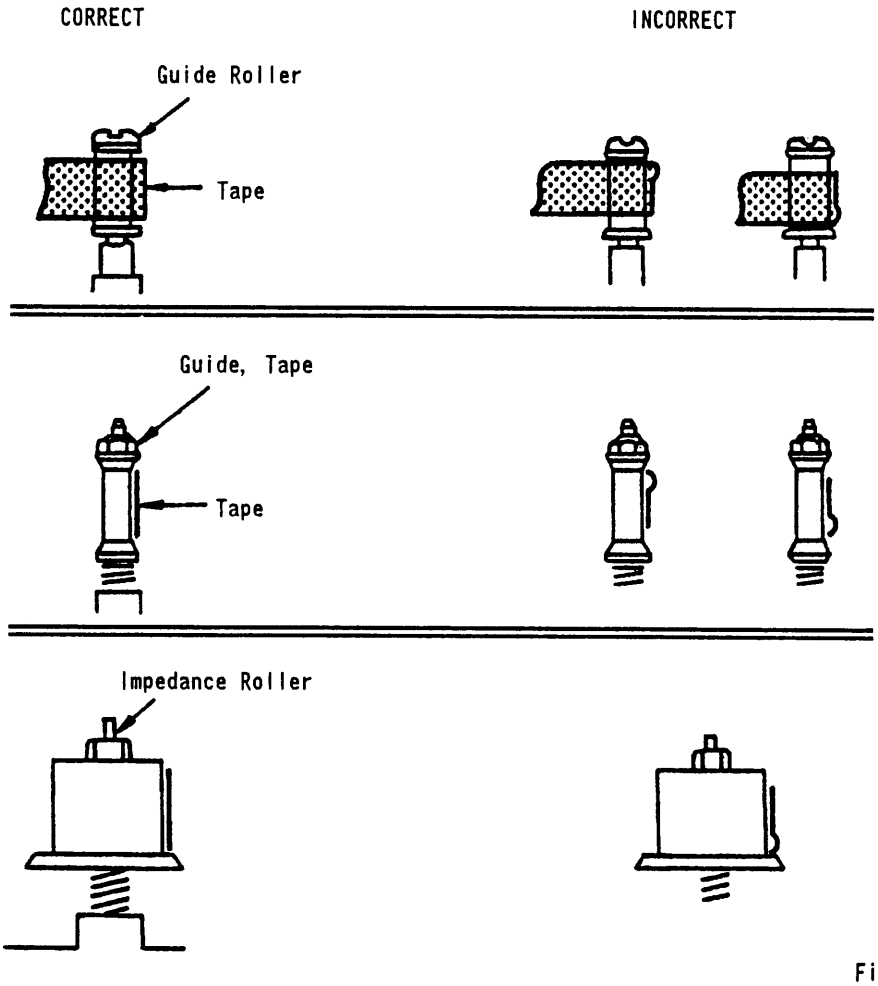


Fig. 2-3

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. 2-4.

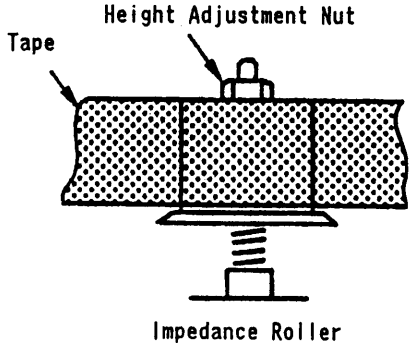


Fig. 2-4.

7. Next, adjust the guide roller height. Insert the adjustment driver into the guide roller top. (Refer to Fig. 2-5.)
Adjust the height by turning the driver slightly so that the tape runs on the guide roller as shown in Fig. 2-3, and the lower edge of the tape runs along the lead surface of the cylinder.

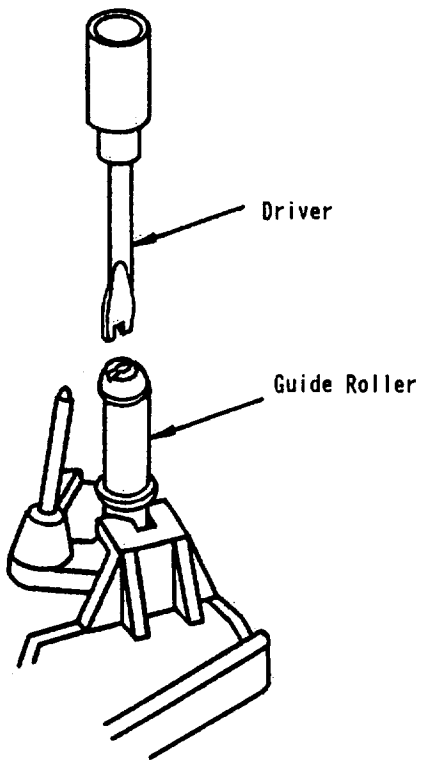
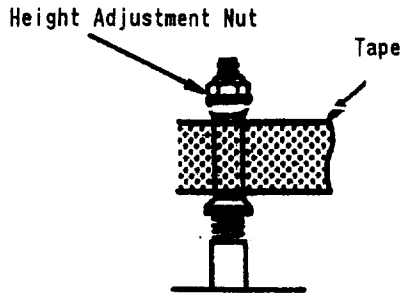


Fig. 2-5



Guide, Tape

Fig. 2-6

8. After completion of the supply side guide roller adjustments, adjust tape guide so that tape runs as shown in Fig. 2-6, 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.

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. 2-6.

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.

2-3 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. 2-7.)

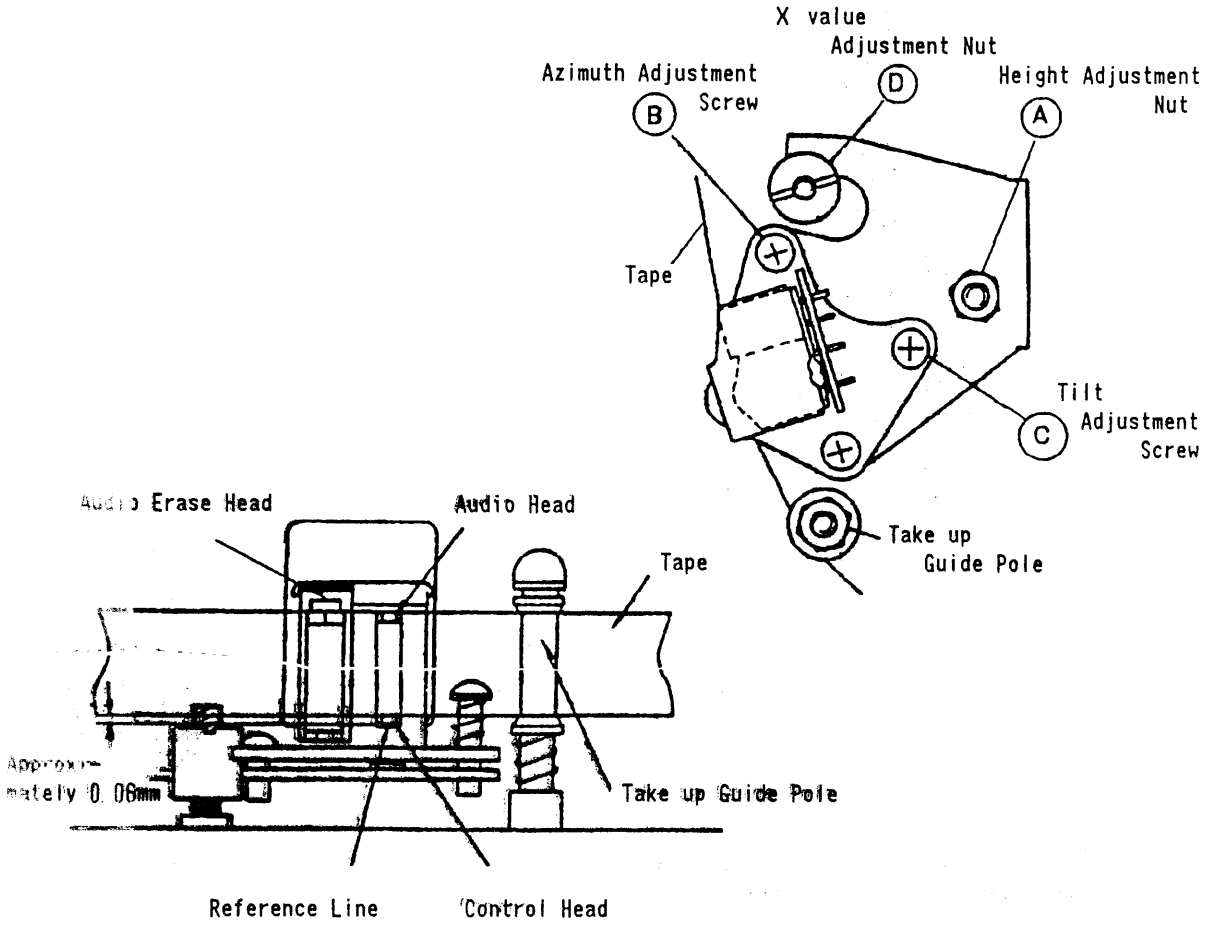


Fig. 2-7

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.)

2-4 X VALUE ADJUSTMENT (PB FM PEAK ADJUSTMENT)

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 3 (C-PB) GND TP 4 (RF-SW)	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

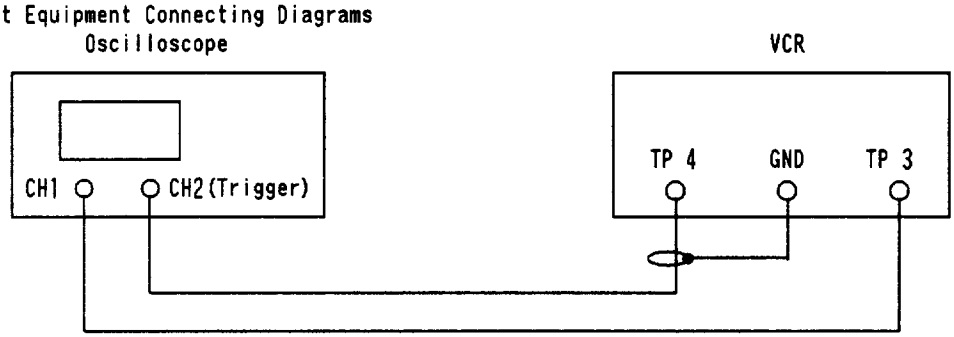


Fig. 2-8

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

Note:
1. X value adjustment above should be done so that the noise can be kept out on the TV screen with Tracking Volume set to its center.
2. Confirm that Electrical Adjustment (Video Head Switching Point and CTL Preset) has been done before Deck Adjustment.

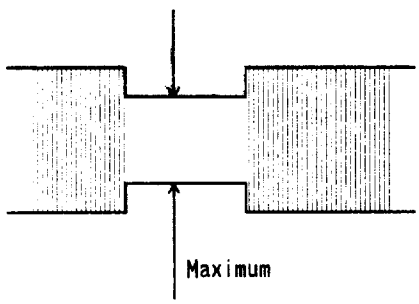


Fig. 2-9

2-5 ENVELOPE WAVEFORM ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 3 (C-PB) GND TP 4 (RF-SW)	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

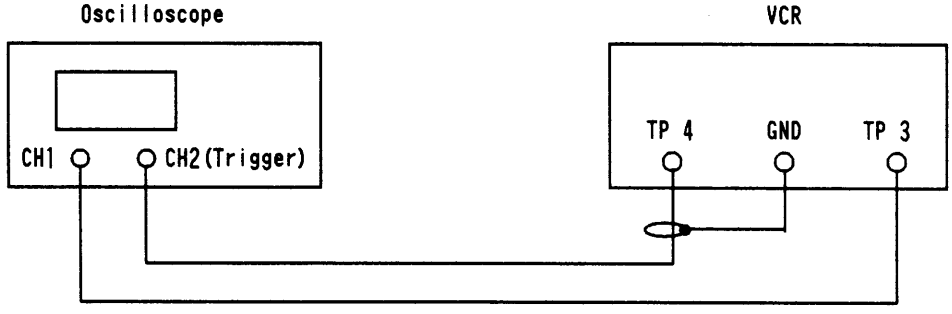


Fig. 2-10

1. Connect equipment as shown in Fig. 2-10.
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 Tracking Volume to its center position and confirm that a nearly maximum level is obtained. Then rotate the 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 than helical tape position, the envelope waveforms will take the shape as shown in Fig. 2-11 and Fig. 2-12.
5. Adjust for maximum flatness of the envelope waveform according to the Fig. 2-11 and Fig. 2-12.
6. After adjustment, rotate Tracking Volume counterclockwise and clockwise, and check that the waveform changes symmetrically.
7. Check the tape curl. (Refer to Section 2-2.)

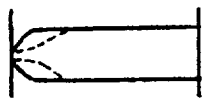
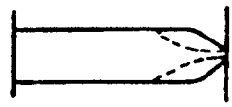
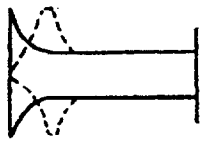
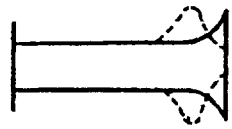
	Tape is too high	
	Supply side	Take-up side
When the tracking volume is rotated counterclockwise and clockwise directions.		
		
Adjustment	Supply side guide roller rotated clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated clockwise direction (lowers guide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

Fig. 2-11

	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. 2-12

2-6 AUDIO CONTROL ERASE HEAD HEIGHT/ AUDIO CONTROL ERASE HEAD TILT ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP201 GND	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

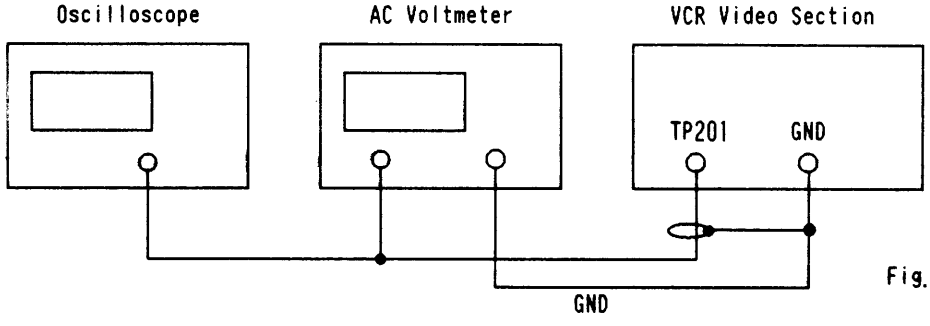


Fig. 2-13

1. Connect equipment as shown in Fig. 2-13.
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. 2-7.) Then readjust GUIDE ROLLER HEIGHT in section 2-2 and the ✕ value in section 2-4.
3. After confirming on the oscilloscope that a 1 kHz audio signal is being output by playing back F6-A test tape, adjust the height adjustment nut Ⓐ so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 2-7.)
4. Adjust the azimuth adjustment screw Ⓑ so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 2-7.)

2-7 AUDIO CONTROL ERASE HEAD AZIMUTH ADJUSTMENT

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP201	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. 2-13

1. After confirming on the oscilloscope that an audio signal is being output by playing back F6-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. 2-7).

Note: Fix the screw Ⓒ with lock paint after readjustment (Refer to Fig. 2-7).

3. ALIGNMENT INSTRUCTIONS

NOTE :

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.

TEST EQUIPMEMT REQUIRED

1. Oscilloscope : Dual-trace with 10:1 probe.
2. TV Monitor
3. Pattern Generator (Color bar with 100% white)
4. AC Voltmeter (RMS)
5. Test Tape F6-A
6. Spectrum Analyzer
7. Frequency Counter

3-1 SWITCHING POINT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 771 (V-OUT) TP 4 (RF-SW) GND	VR401 (Switching Point) (SVV P. C. Board)	PLAY	F6-A	Fig. 3-1

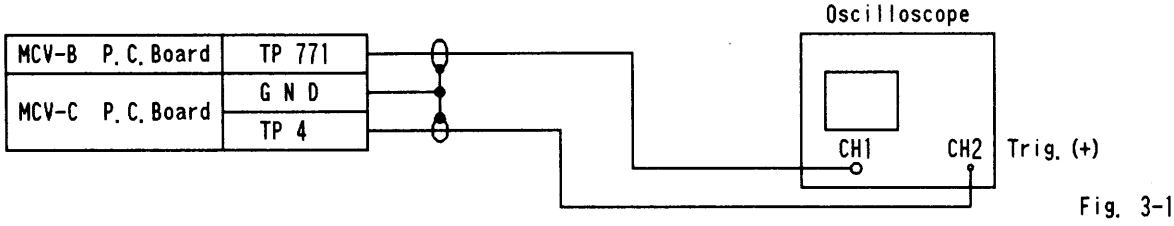
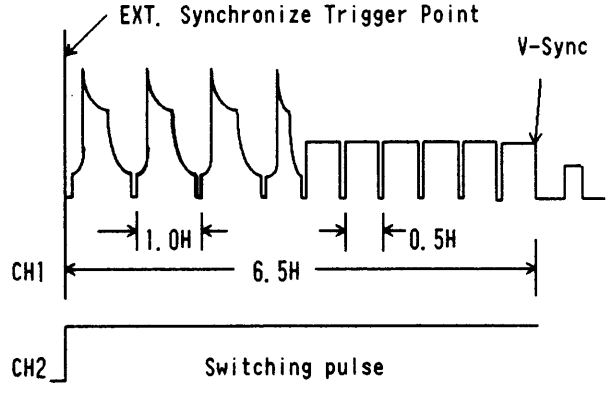


Fig. 3-1

1. Connect the equipment as shown in Fig. 3-1.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Tracking VR is center click position.
4. Playback the tape and adjust VR401 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H(416μs) from the rising of CH2 Head Switching pulse waveform.



3-2 CTL PRESET ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 402 (CTL) TP 4 (RF SW) GND	VR400 (CTL) (MCV-A P. C. Board)	PLAY	F6-A	Fig. 3-2

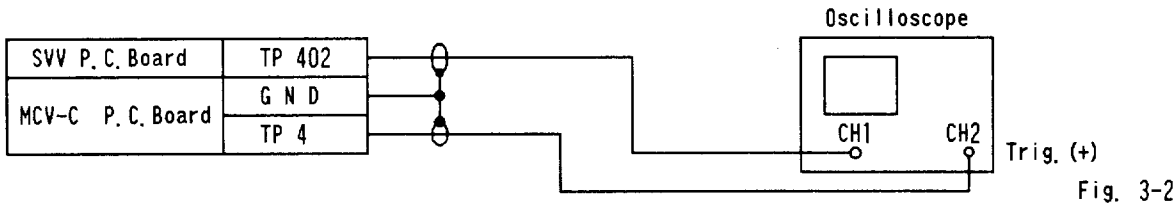
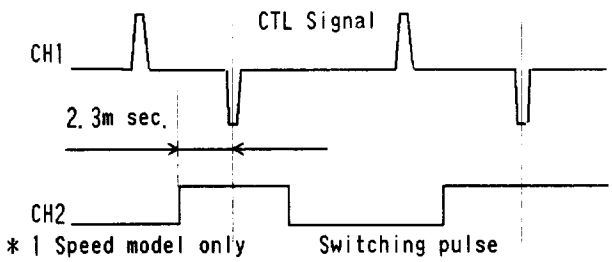


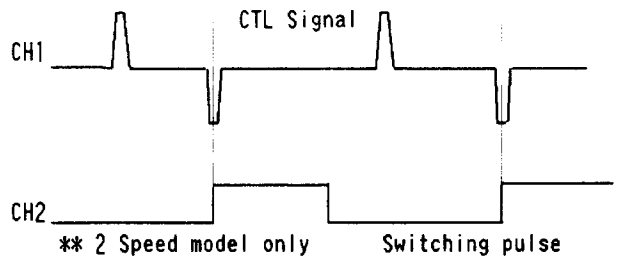
Fig. 3-2

1. Connect the equipment as shown in Fig. 3-2.
2. Set the input trigger mode to CH2 and set trigger slope to (-).
3. Set the tracking volume to the center click position.

*4. Playback the tape and adjust VR400 so that the falling point of CH1 CTL signal where delated 2.3msec. from rising point of CH2 RF Switching pulse.

**4. Playback the tape and adjust VR400 so that the falling point of CTL waveform of CH1 becomes same position with rising point of switching pulse of CH2.





3-3 E-E LEVEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 54 (E-E) GND	VR 55 (E-E) (MSV P. C. Board)	E-E	——	Fig. 3-3

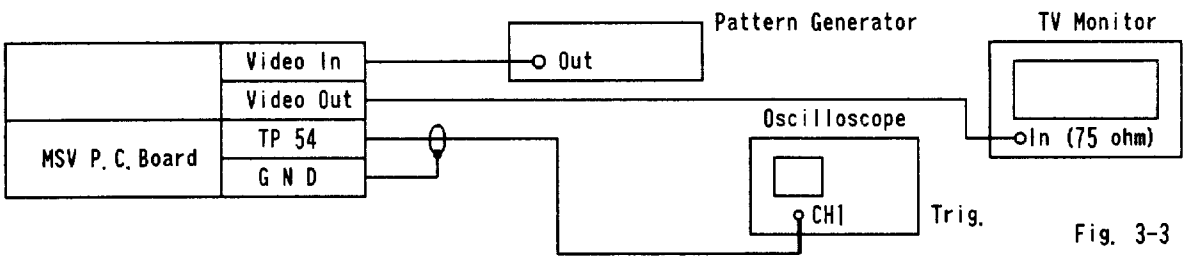
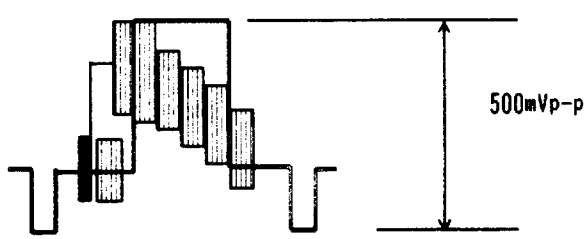


Fig. 3-3

1. Connect the equipment as shown in Fig. 3-3.
2. Input Color Bar signal with 100% white to Video Input.
3. Adjust VR55 so that the video level becomes 500mVp-p ±0.05V.



3-4 NOISE CANCEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 52 (N. C) TP 53 (N. C) GND	VR 54 (N. C) (MSV P. C. Board)	PLAY	F6-A	Fig. 3-4

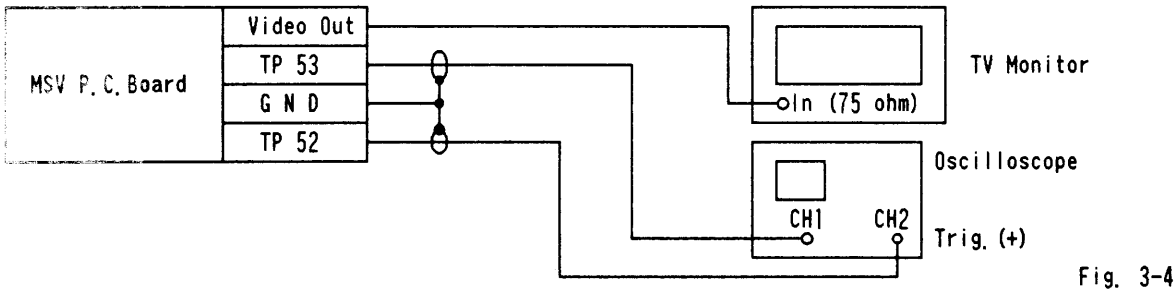


Fig. 3-4

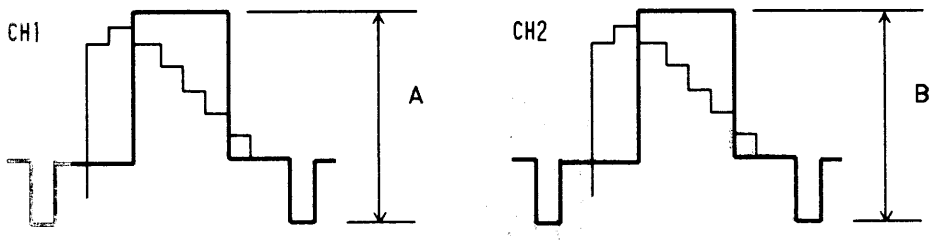
Note : Adjust the Noise Cancel for choise (1) or (2).

(1)

1. Connect the equipment as shown in Fig. 3-4.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Invert CH2 signal(TP53) and select ADD mode.
4. Playback the tape and adjust VR54 so that the level becomes minimum.

(2)

1. Connect the equipment as shown in Fig. 3-4.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Playback the tape and adjust VR54 so that the output levels(A, B) of both channels become the same.



3-5 P. B. OUTPUT LEVEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 771 GND	VR 53 (P. B.) (MSV P. C. Board)	PLAY	F6-A	Fig. 3-5

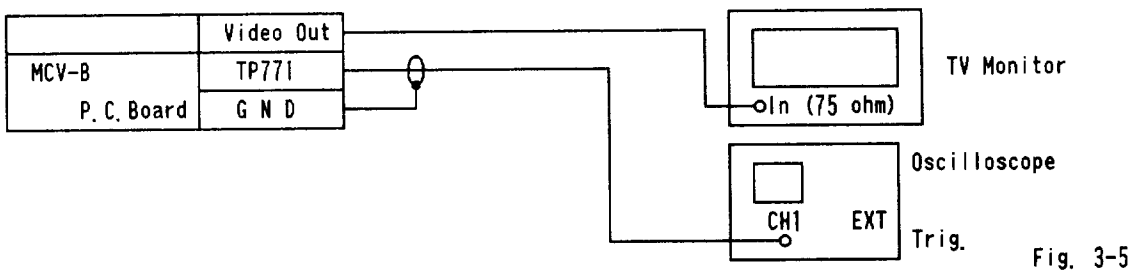
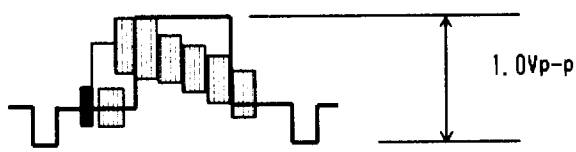


Fig. 3-5

1. Connect the equipment as shown in Fig. 3-5.
2. Adjust VR53 so that the video level becomes 1.0Vp-p±0.02 V.



3-6 REC. CURRENT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 1 (REC Level) TP 4 (RF SW) GND	VR 1 (Y-REC) (MCV-C P. C. Board) VR 2 (C-REC) (MCV-C P. C. Board)	REC.	Blank tape	Fig. 3-6

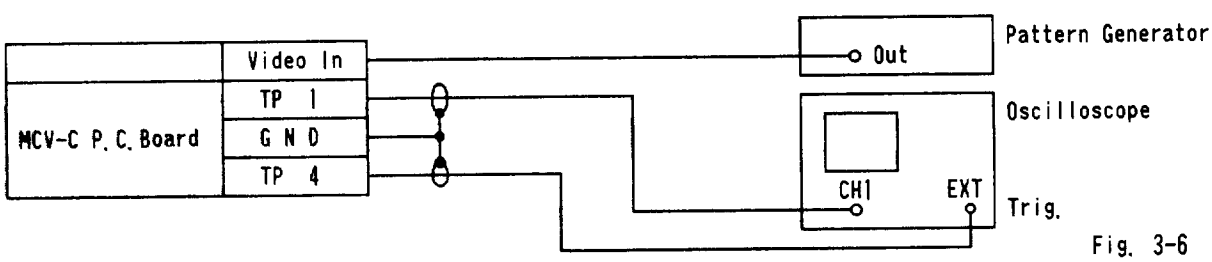
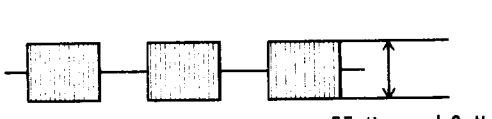
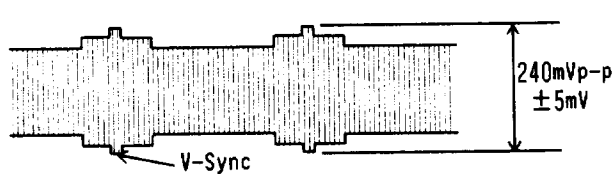


Fig. 3-6

1. Connect CH1 of oscilloscope across TP1 and Ground.
2. Connect EXT. Trigger of oscilloscope across TP 4 and Ground.
3. Input color bar signal with 100% white to VIDEO INPUT.
4. Tuner VR 1 fully clockwise.
5. Adjust VR 2 so that chroma level becomes 55mVp-p ±3mV.
6. Input white only signal with 100% to VIDEO INPUT.
7. Adjust VR 1 so that V-Sync level becomes 240mVp-p±5mV.





3-7 REC. BIAS CURRENT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP202 (BIAS ⊕) TP203 (BIAS ⊖)	VR231 (BIAS) (MCV-C P. C. Board)	REC. (SP)	Blank tape	Fig. 3-7

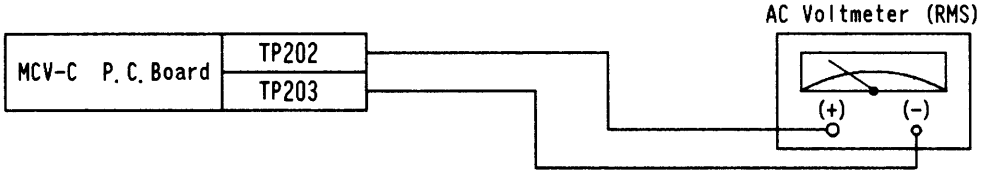


Fig. 3-7

1. Connect the equipment as shown in Fig. 3-7.
2. Insert a blank tape and set the VCR to REC mode.
   (Do not set to PAUSE. In PAUSE mode, the bias oscillation is stopped.)
3. Adjust VR231 so that the voltage becomes 22mV.

3-8 FM CARRIER DEVIATION ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 55 (CRR/DEV) TP 4 (RF-SW) GND	VR51 (CCR) VR52 (DEV) (MSV P. C. Board)	REC. (SP)	Blank tape	Fig. 3-8

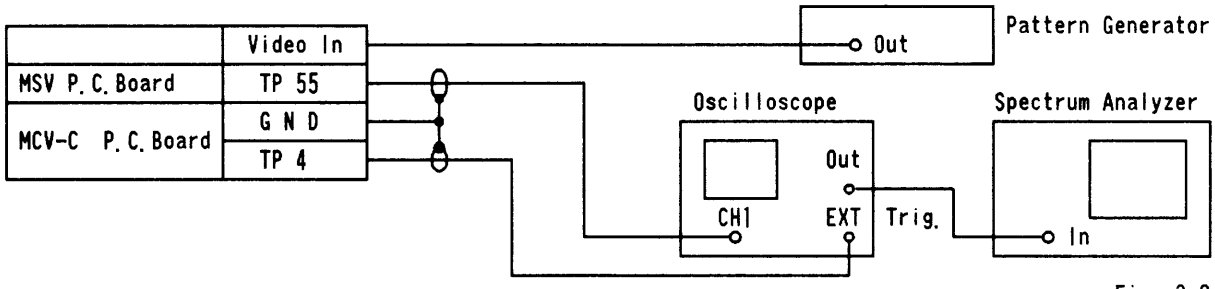
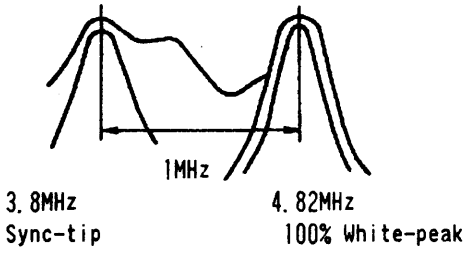


Fig. 3-8

1. Connect the equipment as shown in Fig. 3-8.
2. Input white only signal with 100% white to Video Input.
3. Adjust Sync-tip to 3.8MHz±20kHz by VR 52, White-peak to 4.82MHz ±20kHz by VR51.



3-9 SECAM 1/2f TUNE ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP181 (SECAM, CH1) TP 4 (RF-SW)	L181 (MESECAM) (MSV P. C. Board)	REC.	Blank Tape	Fig. 3-9

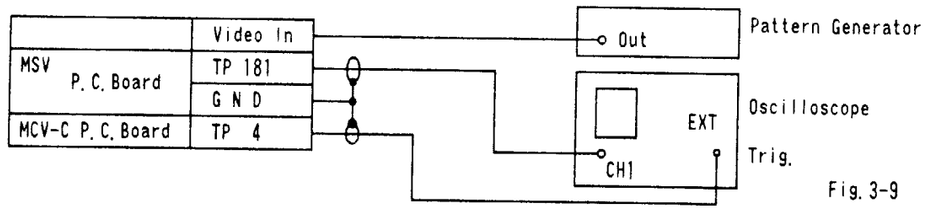
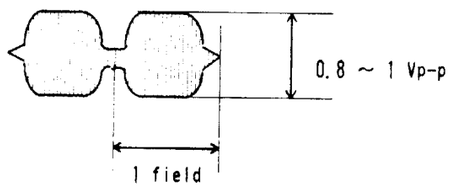


Fig. 3-9

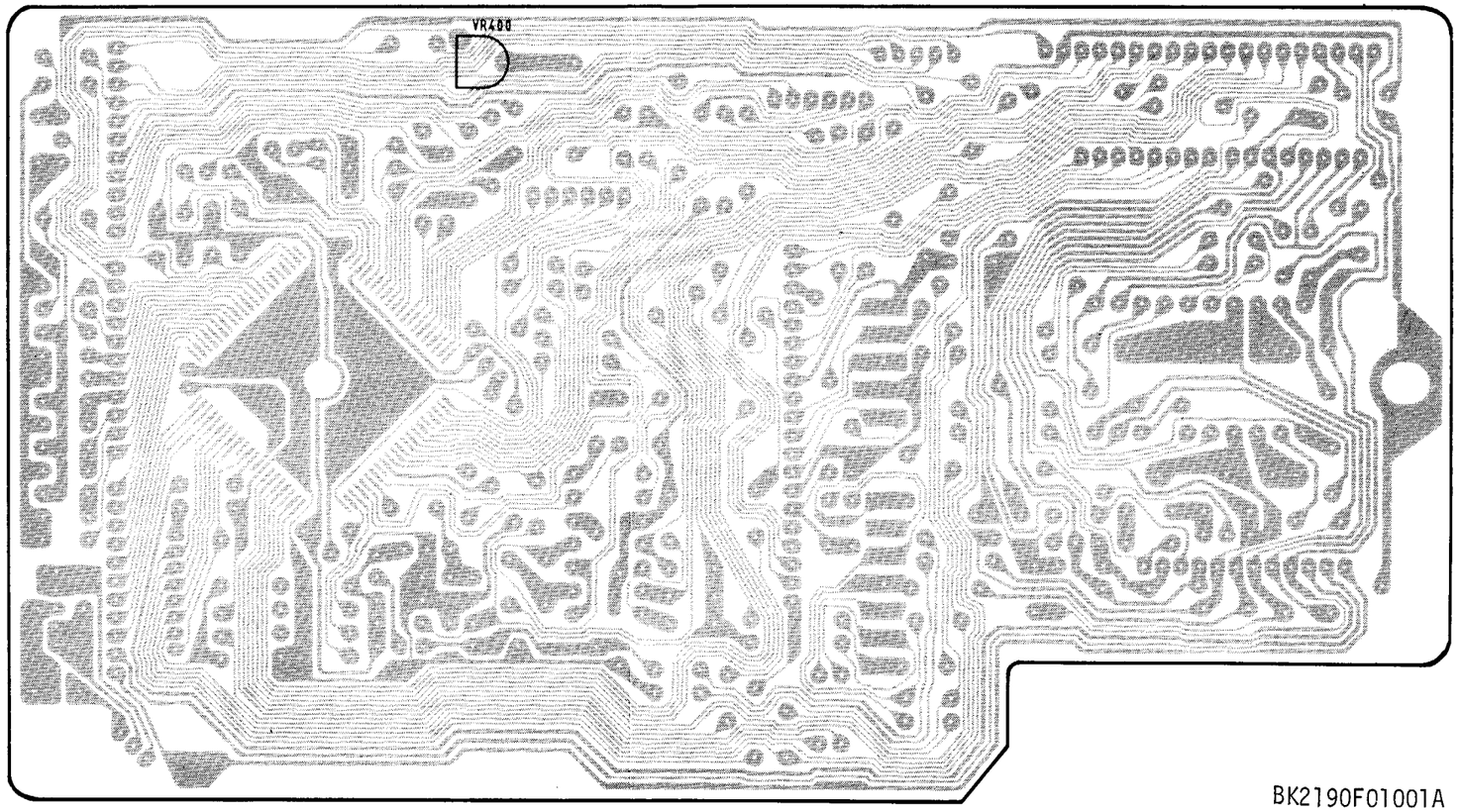
1. Connect CH1 of oscilloscope across TP181 and Ground.
2. Connect EXT. Trigger of oscilloscope across TP 4 and Ground.
3. Input SECAM color bar signal VIDEO IN.
4. Adjust by L181 so that ouput level becomes maximum.



* Note : Require this adjustment for MESECAM model only.

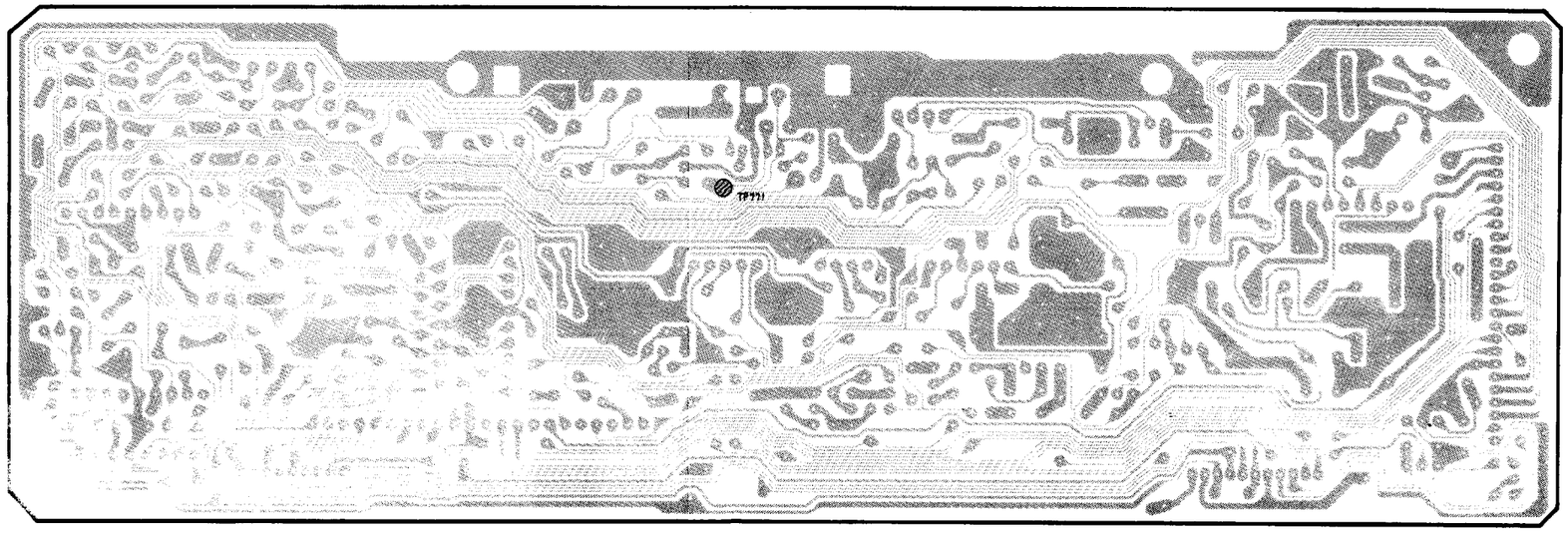
4. TEST POINTS

4-1. MCV-A PCB



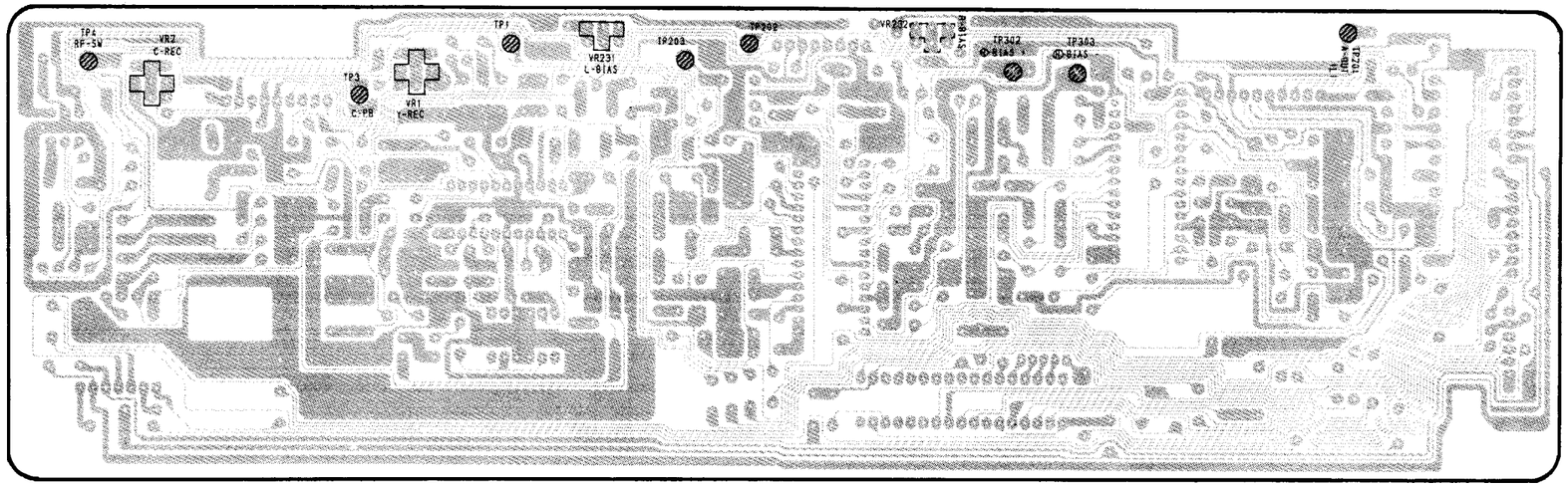
BK2190F01001A

4-2. MCV-B PCB



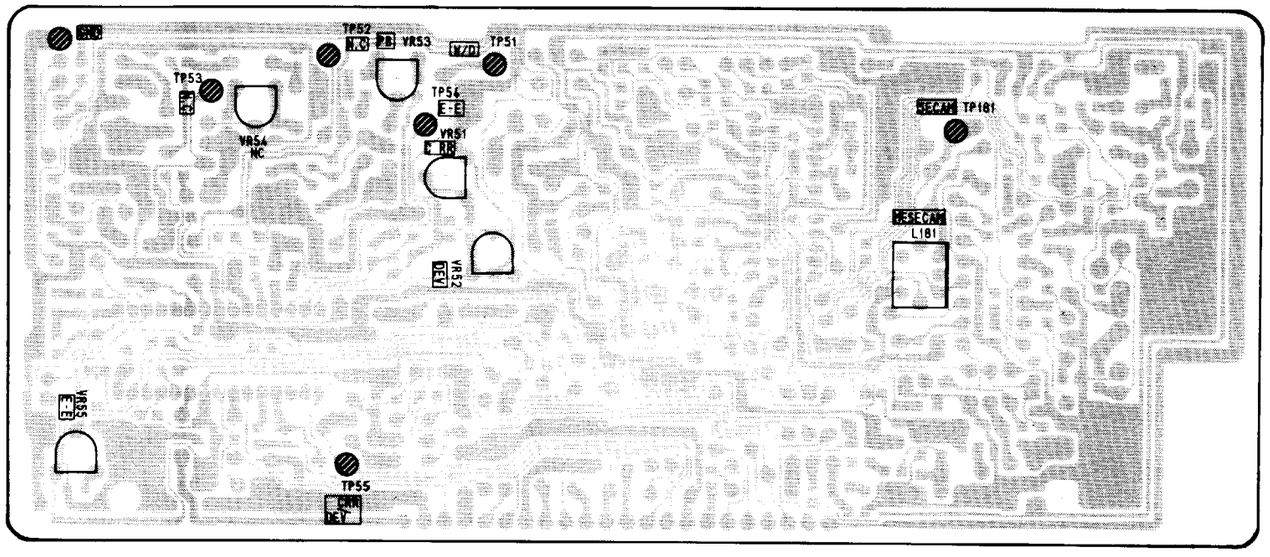
BK2190F01001B

4-3. MCV-C PCB



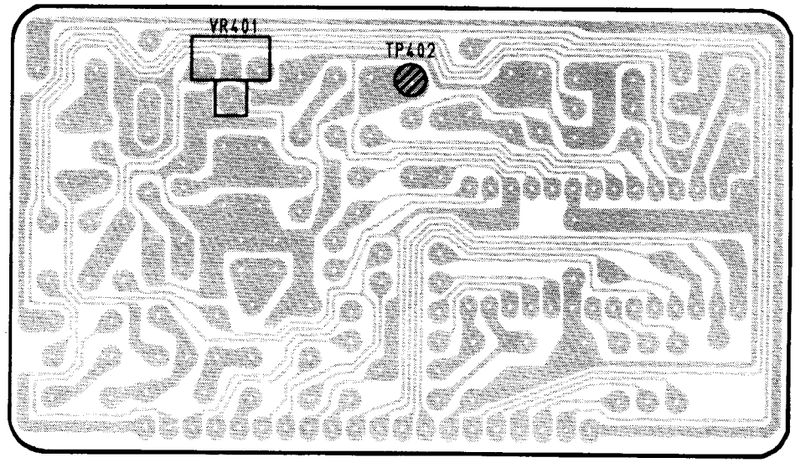
BK2190F01001C

4-4. MSV PCB



927

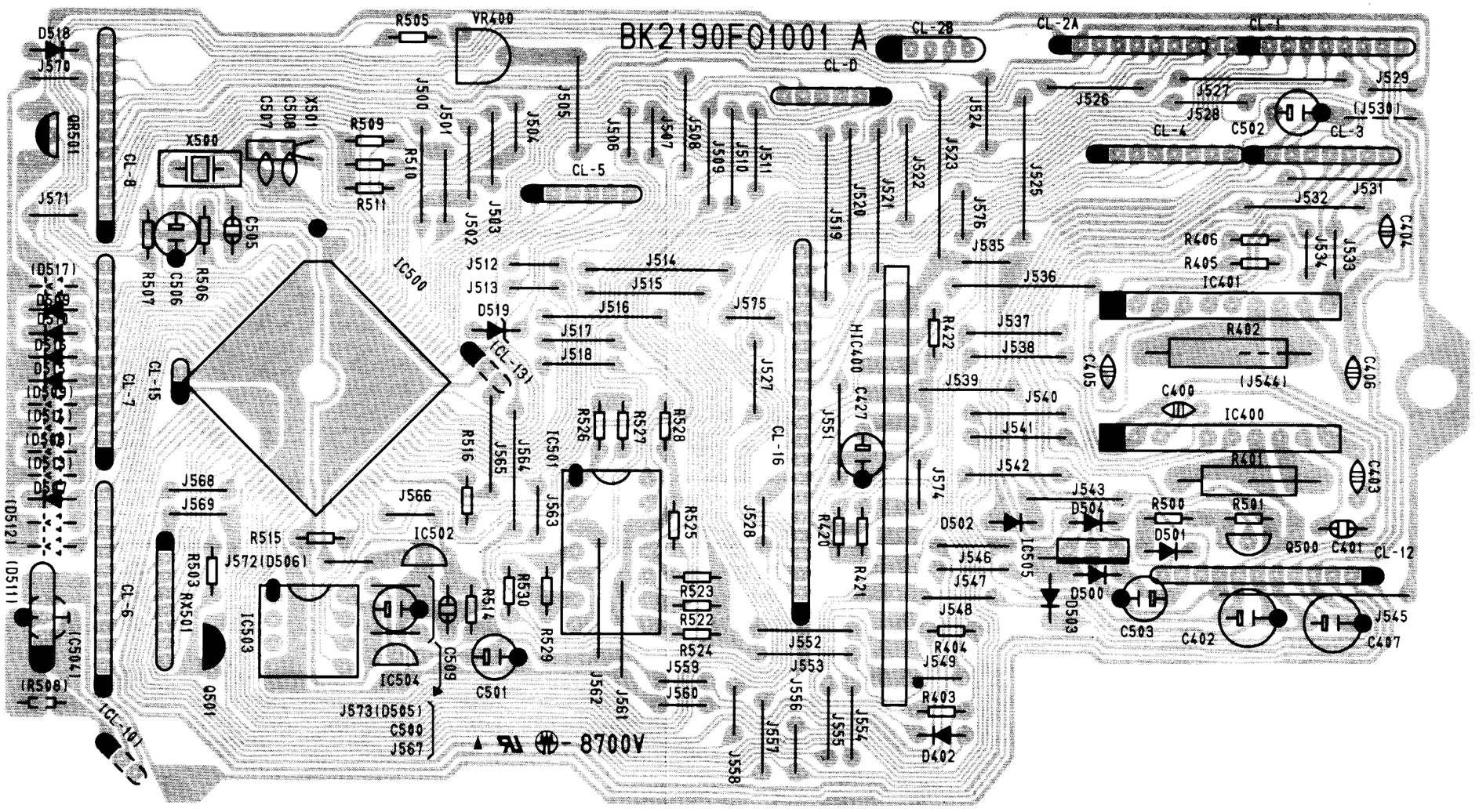
4-5. SVV PCB



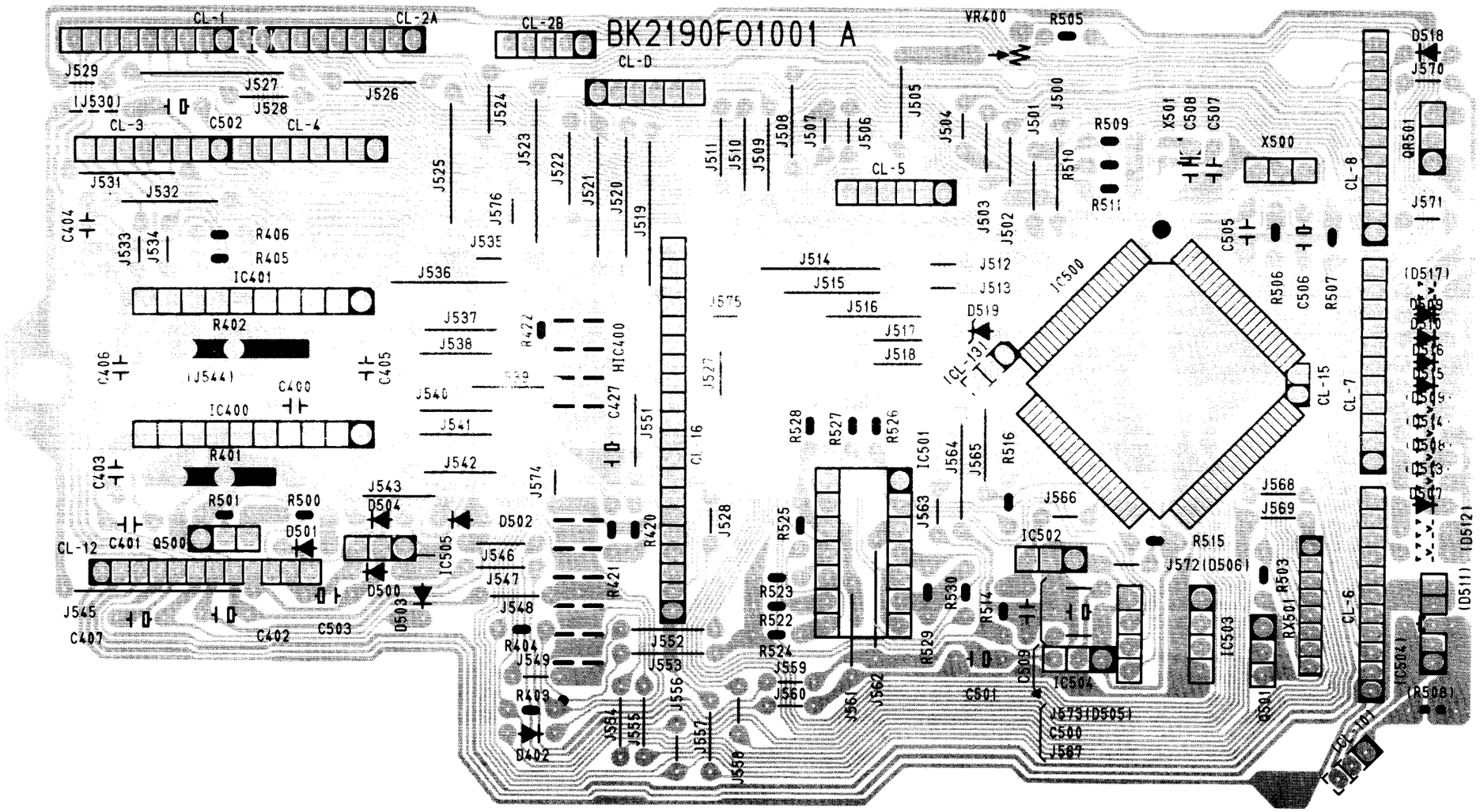
BK2190F01003

5. P.C.BOARD TOP AND BOTTOM VIEWS

5-1. MCV-A PCB TOP VIEW

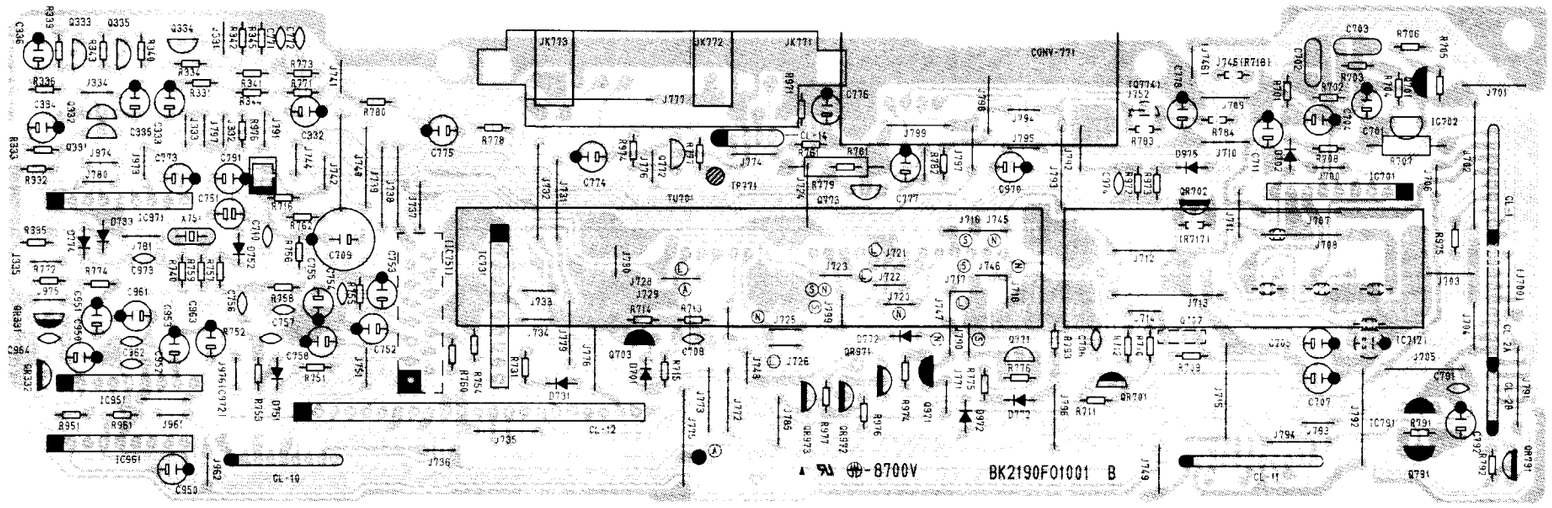


MCV-A PCB BOTTOM VIEW



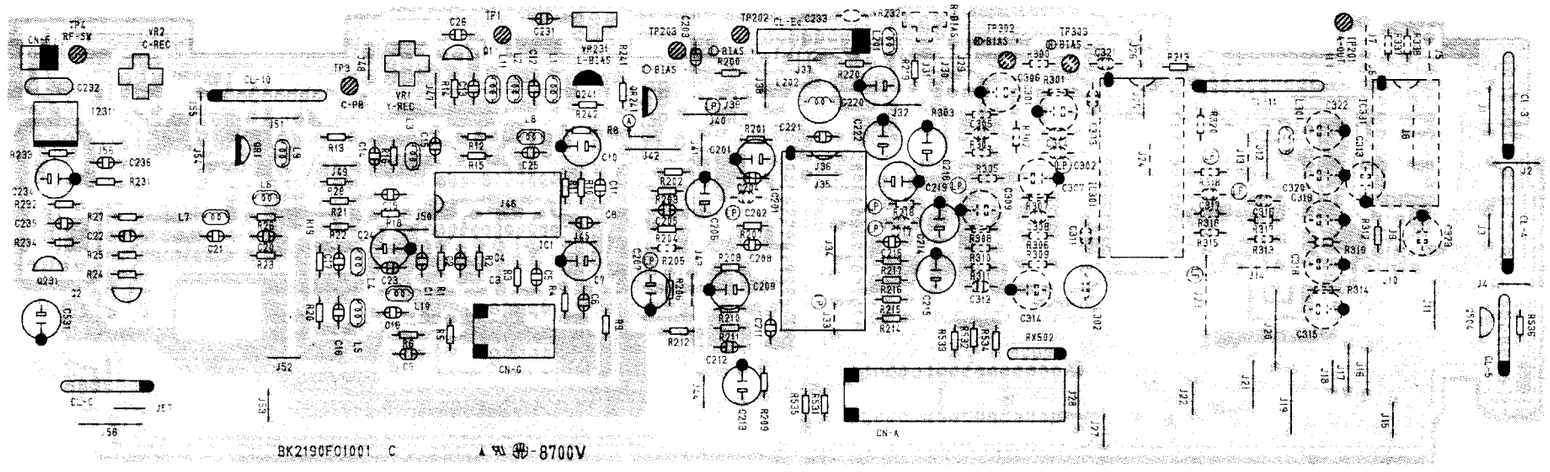
BK2190F01001A

5-2. MCV-B PCB TOP VIEW



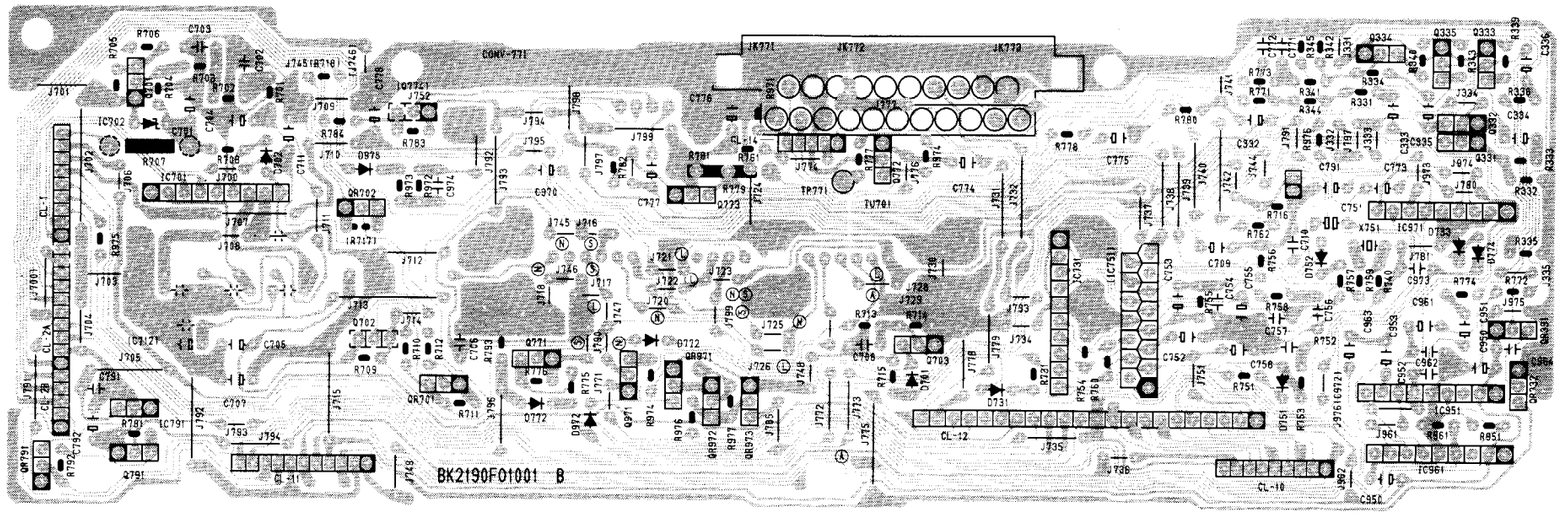
BK2190F01001B

5-3. MCV-C PCB TOP VIEW



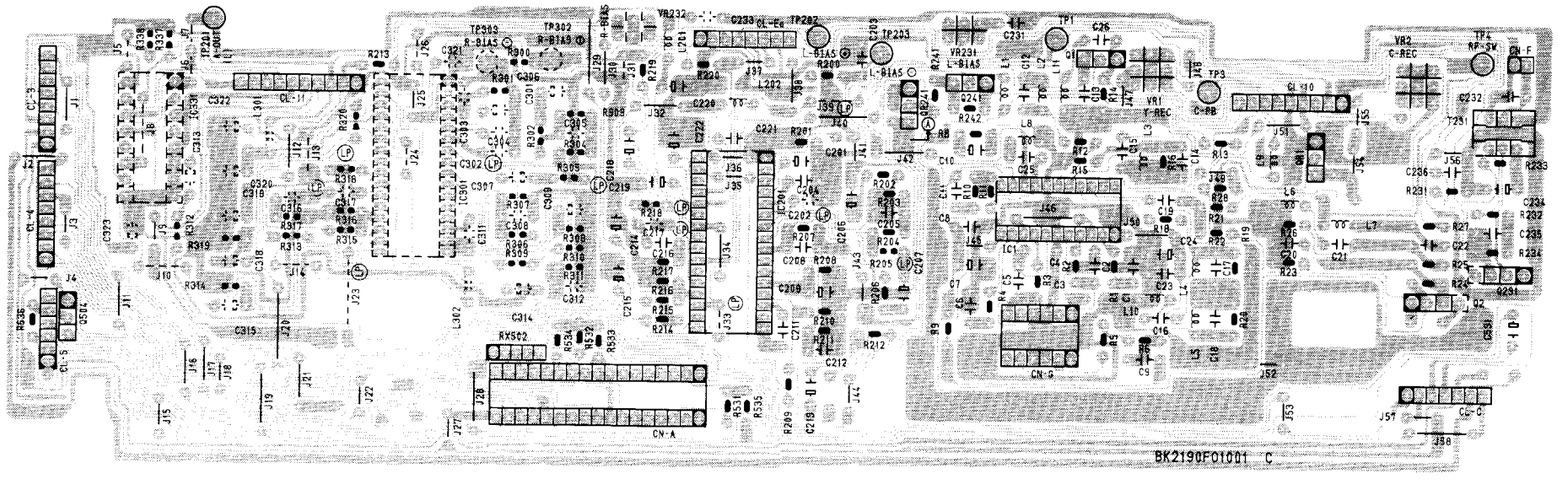
BK2190F01001C

MCV-B PCB BOTTOM VIEW



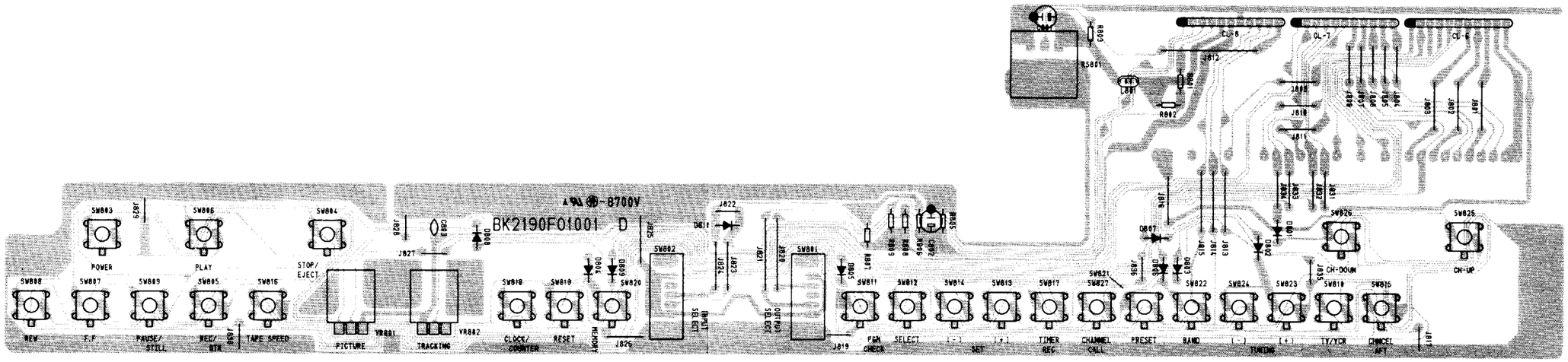
BK2190F01001B

MCV-C PCB BOTTOM VIEW



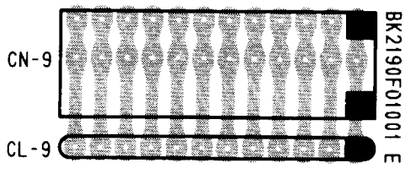
BK2190F01001C

5-4. MCV-D PCB TOP VIEW



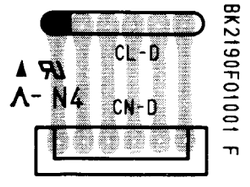
BK2190F01001D

5-5. MCV-E PCB TOP VIEW



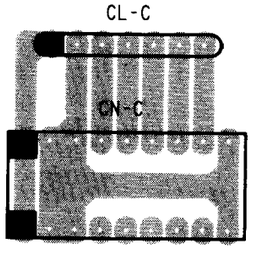
BK2190F01001E

5-6. MCV-F PCB TOP VIEW



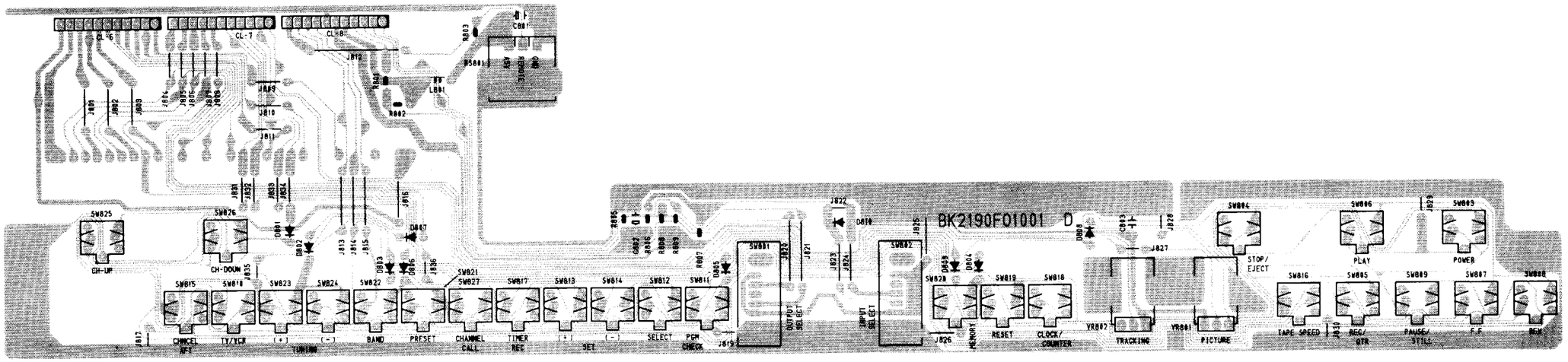
BK2190F01001F

5-7. MCV-H PCB TOP VIEW



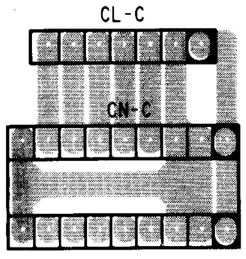
BK2190F01001H

MCV-D PCB BOTTOM VIEW



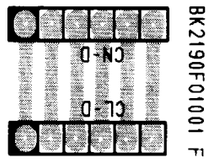
BK2190F01001D

MCV-H PCB BOTTOM VIEW



BK2190F01001H

MCV-F PCB BOTTOM VIEW

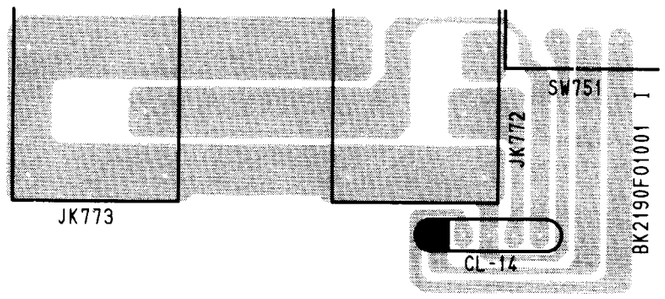


BK2190F01001F

MCV-E PCB BOTTOM VIEW

BK2190F01001E

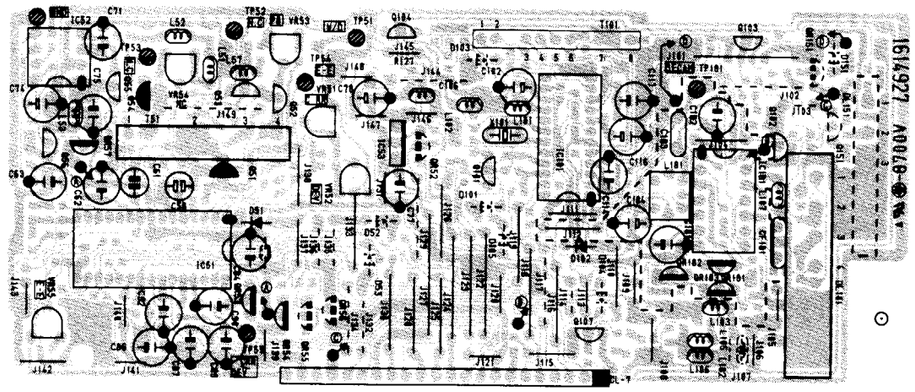
5-8. MCV-I PCB TOP VIEW



***With BNC Jack Model Only.**

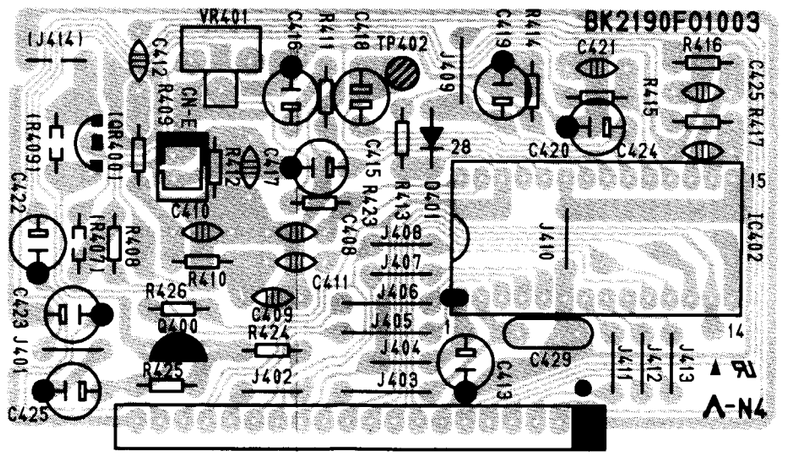
BK2190F01001I

5-9. MSV PCB TOP VIEW



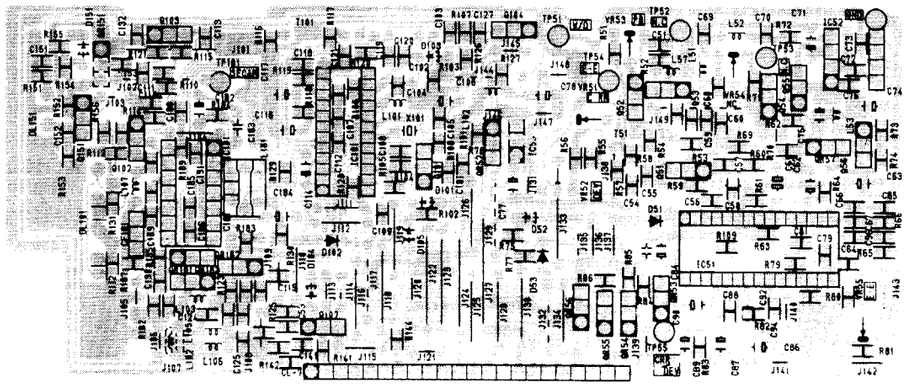
927

5-10. SVV PCB TOP VIEW



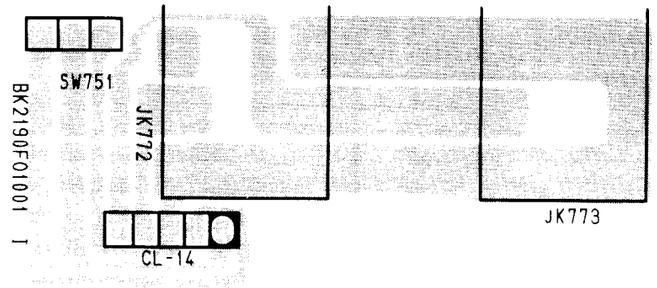
BK2190F01003

MSV PCB BOTTOM VIEW



927

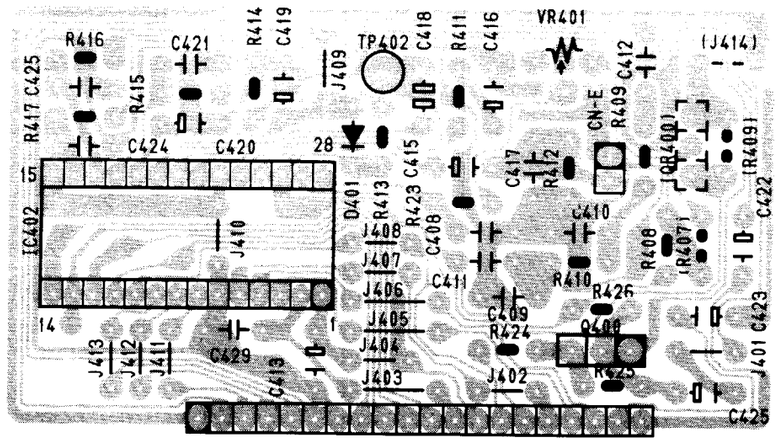
MCV-I PCB BOTTOM VIEW



*With BNC Jack Model Only.

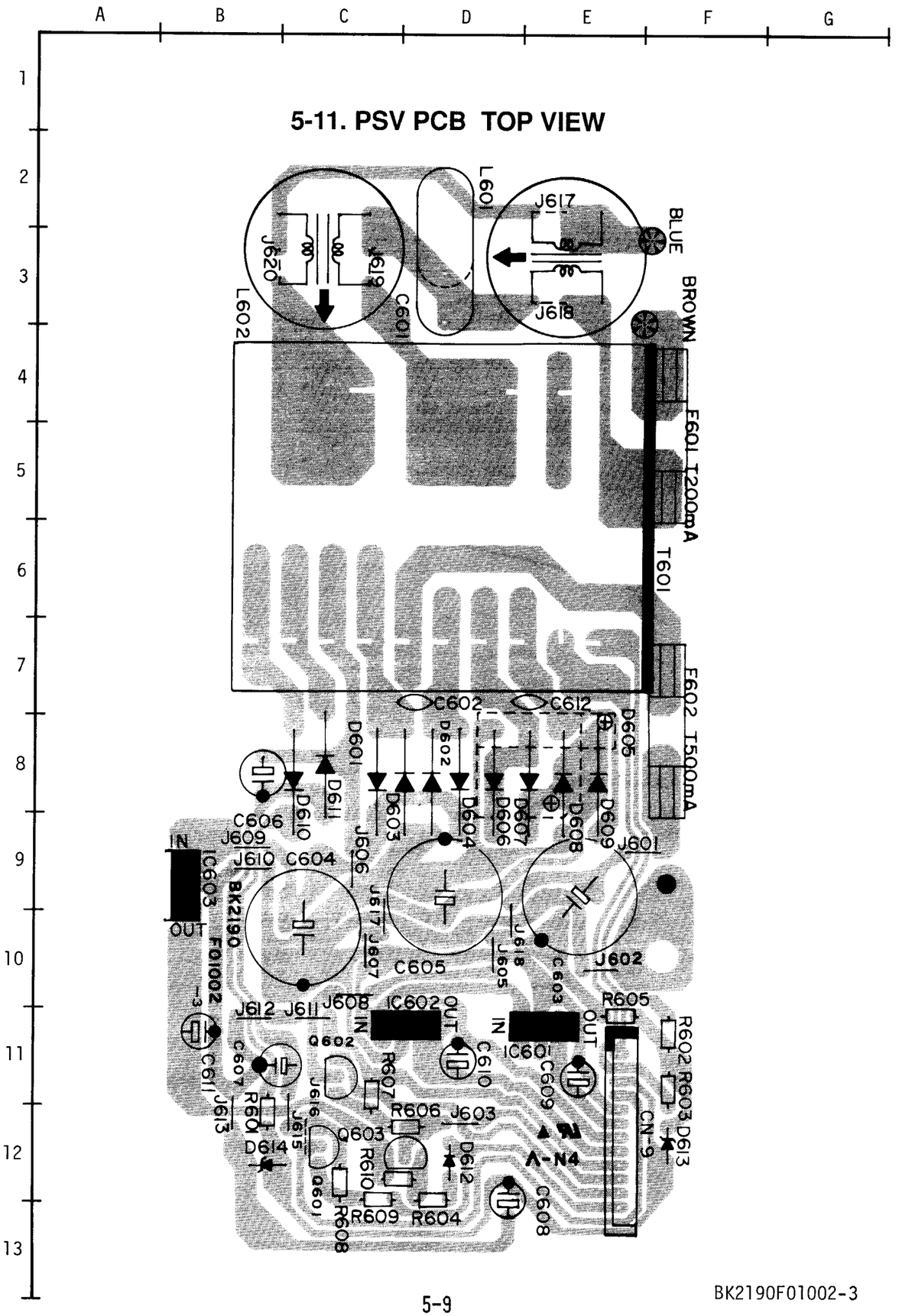
BK2190F01001I

SVV PCB BOTTOM VIEW



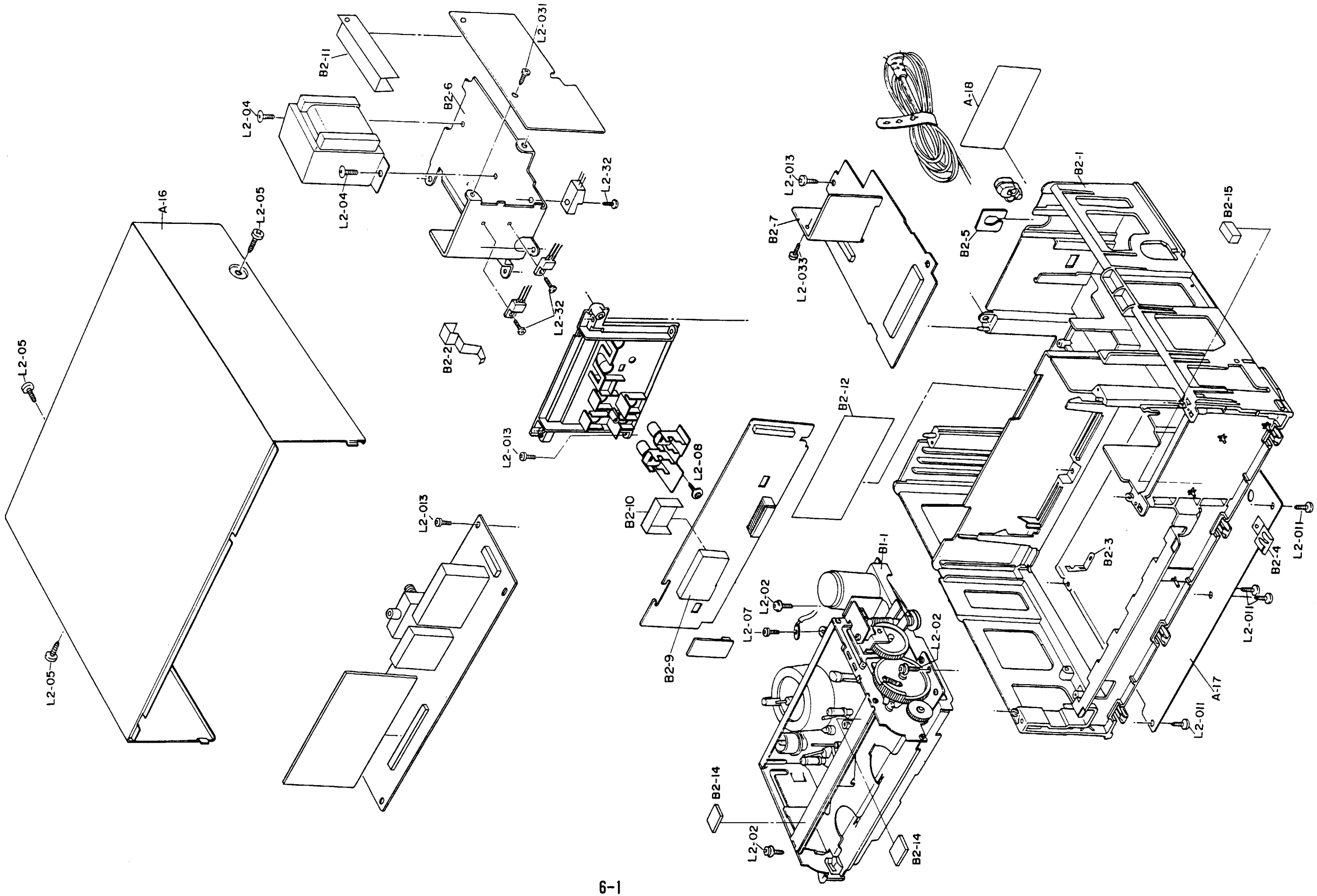
BK2190F01003

5-11. PSV PCB TOP VIEW

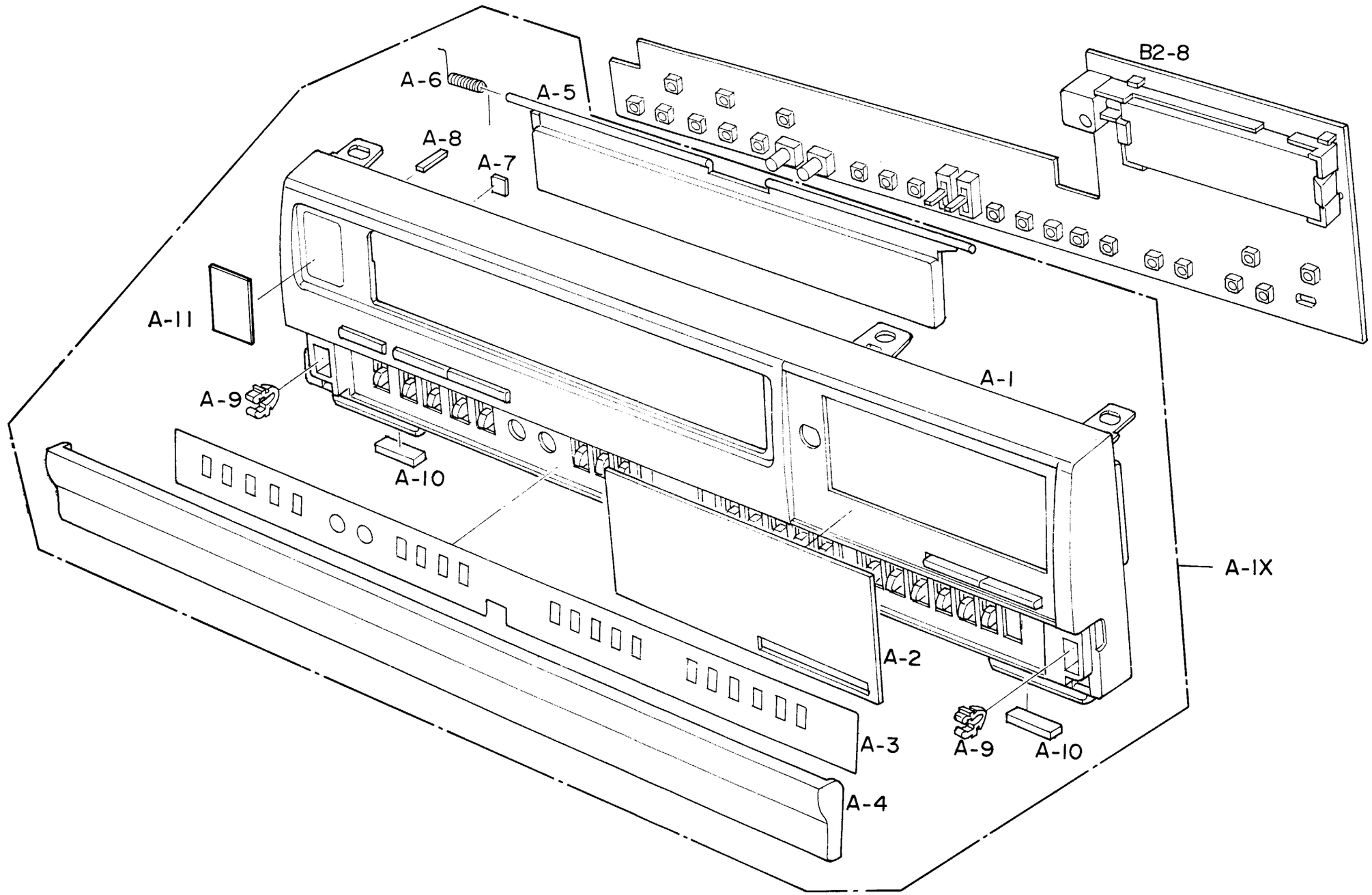


6. EXPLODED VIEWS

6-1. EXPLODED VIEW (CABINET)

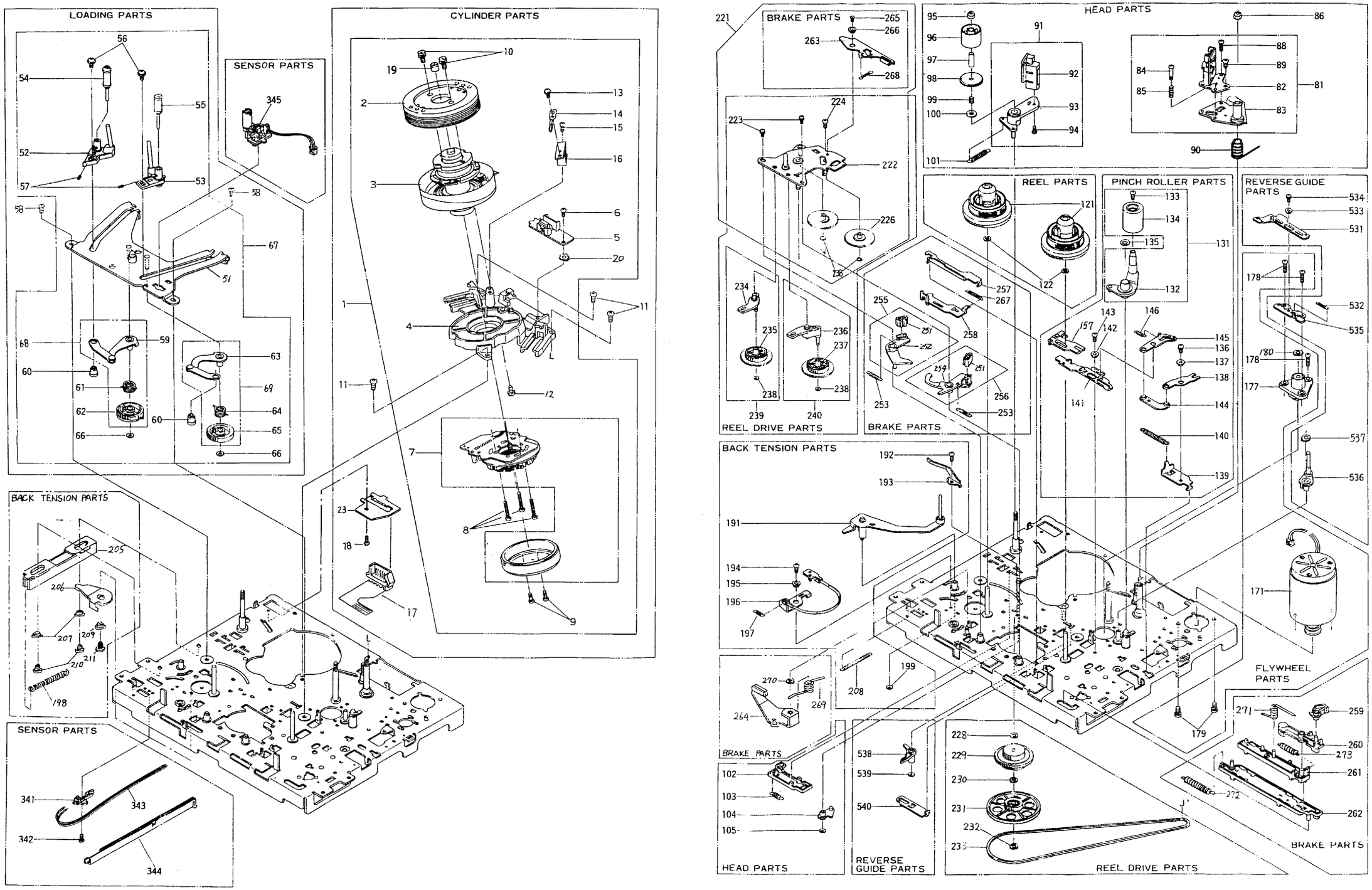


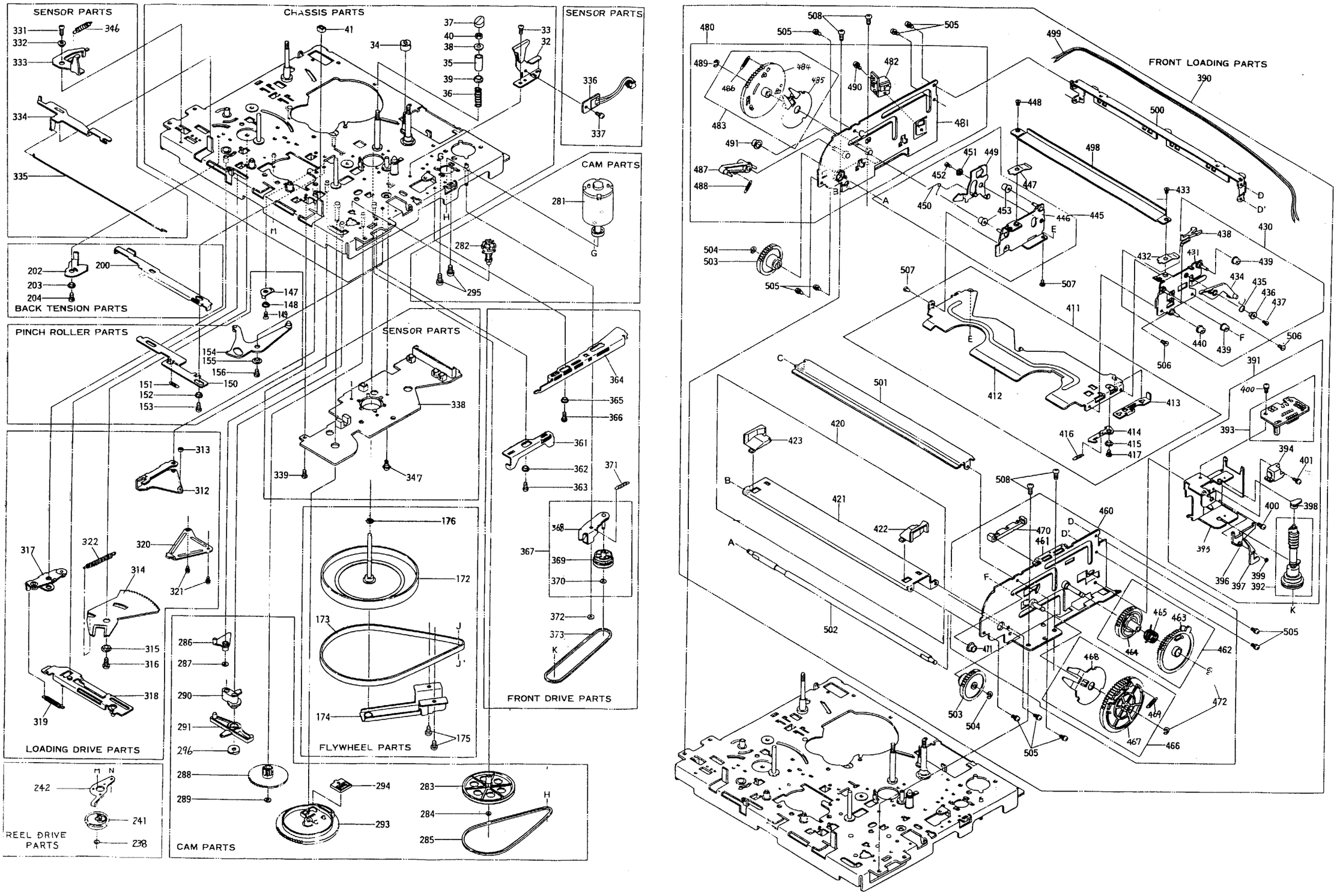
6-2. EXPLODED VIEW (FRONT)



K2172

6-3. EXPLODED VIEW (DECK)

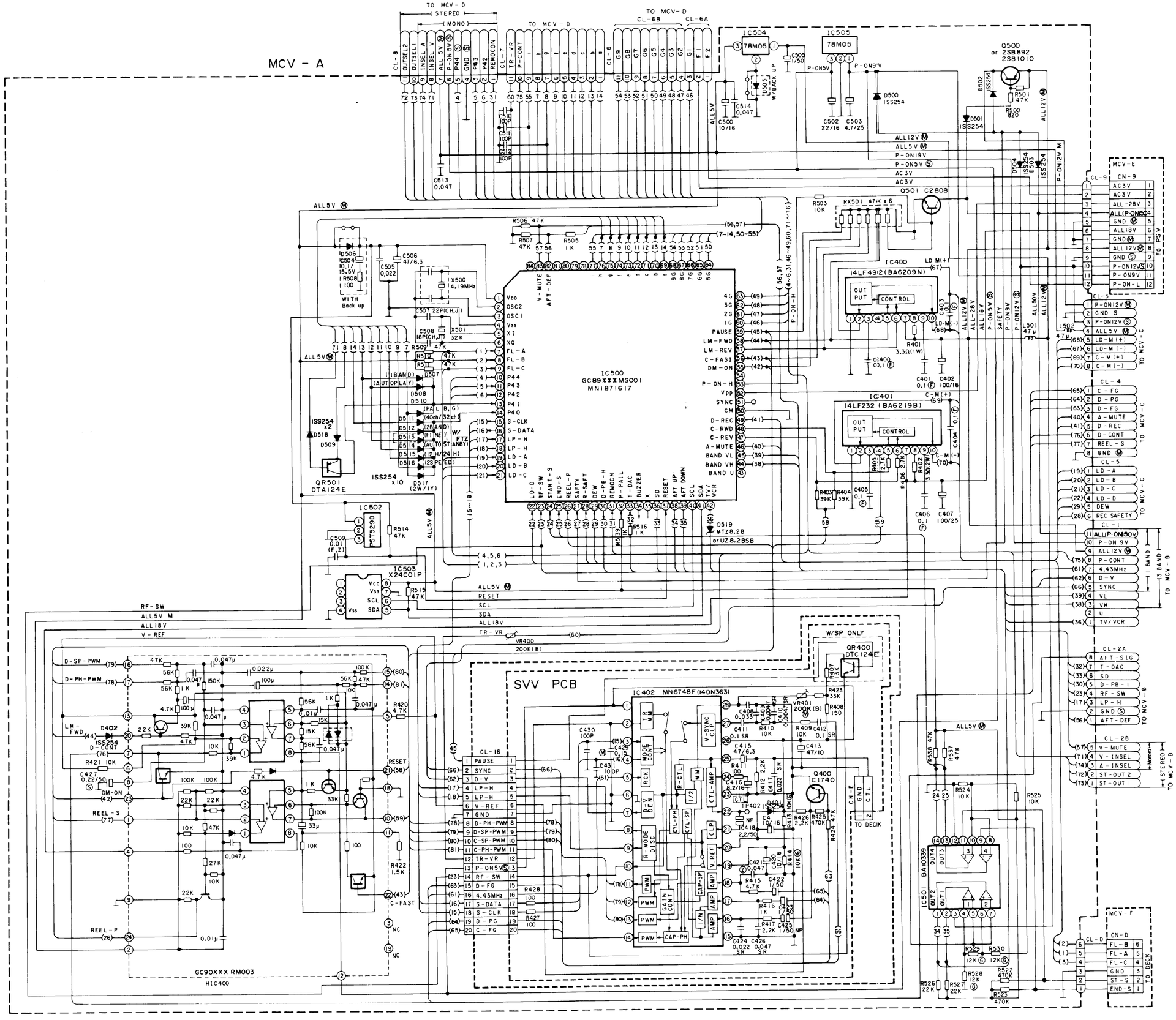



SENSOR PARTS
CHASSIS PARTS
SENSOR PARTS
CAM PARTS
BACK TENSION PARTS
PINCH ROLLER PARTS
SENSOR PARTS
FRONT DRIVE PARTS
LOADING DRIVE PARTS
FLYWHEEL PARTS
REEL DRIVE PARTS
CAM PARTS
FRONT LOADING PARTS

N2NRM506

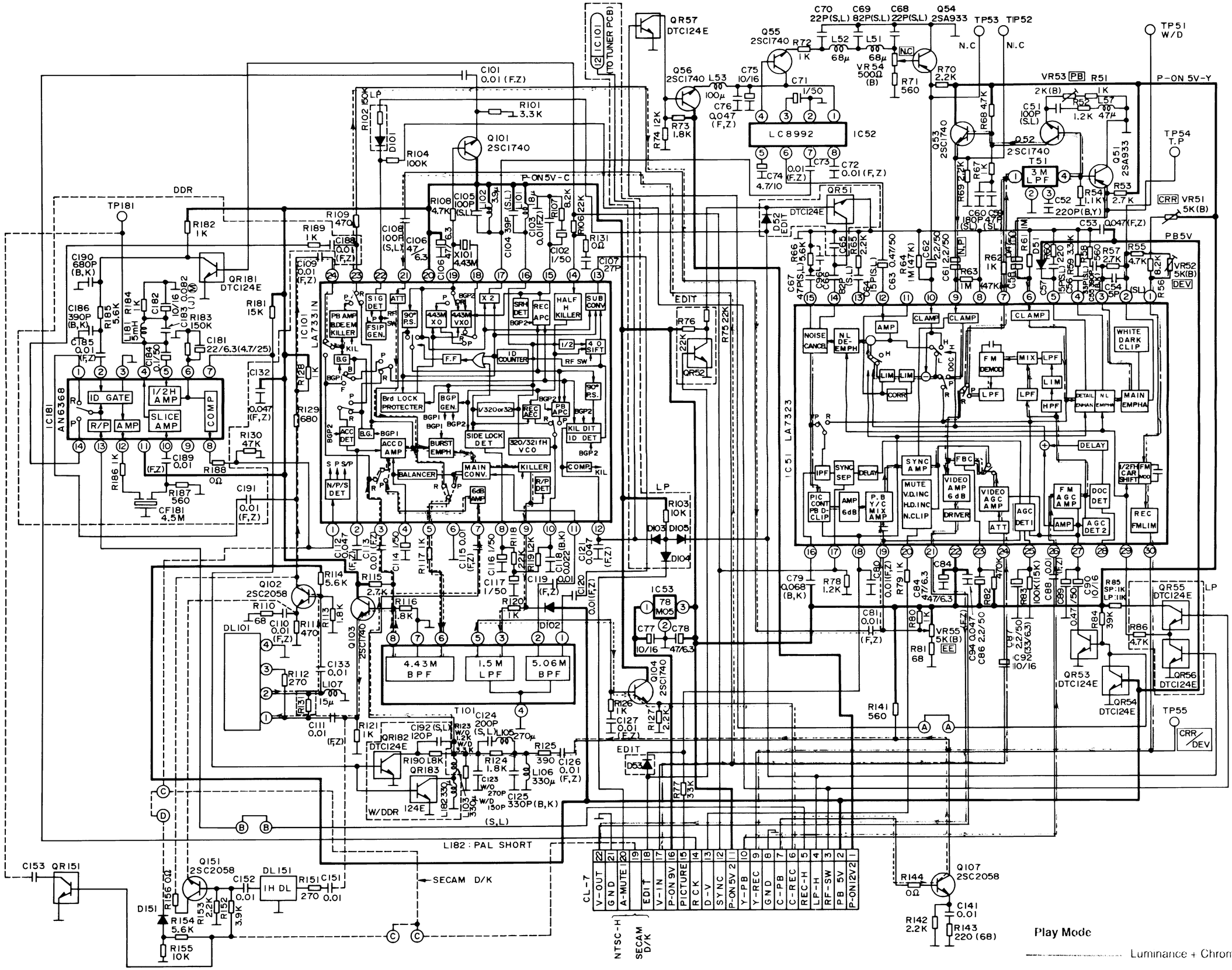
SCHEMATIC DIAGRAM

7-1. SYSTEM CONTROL/SERVO

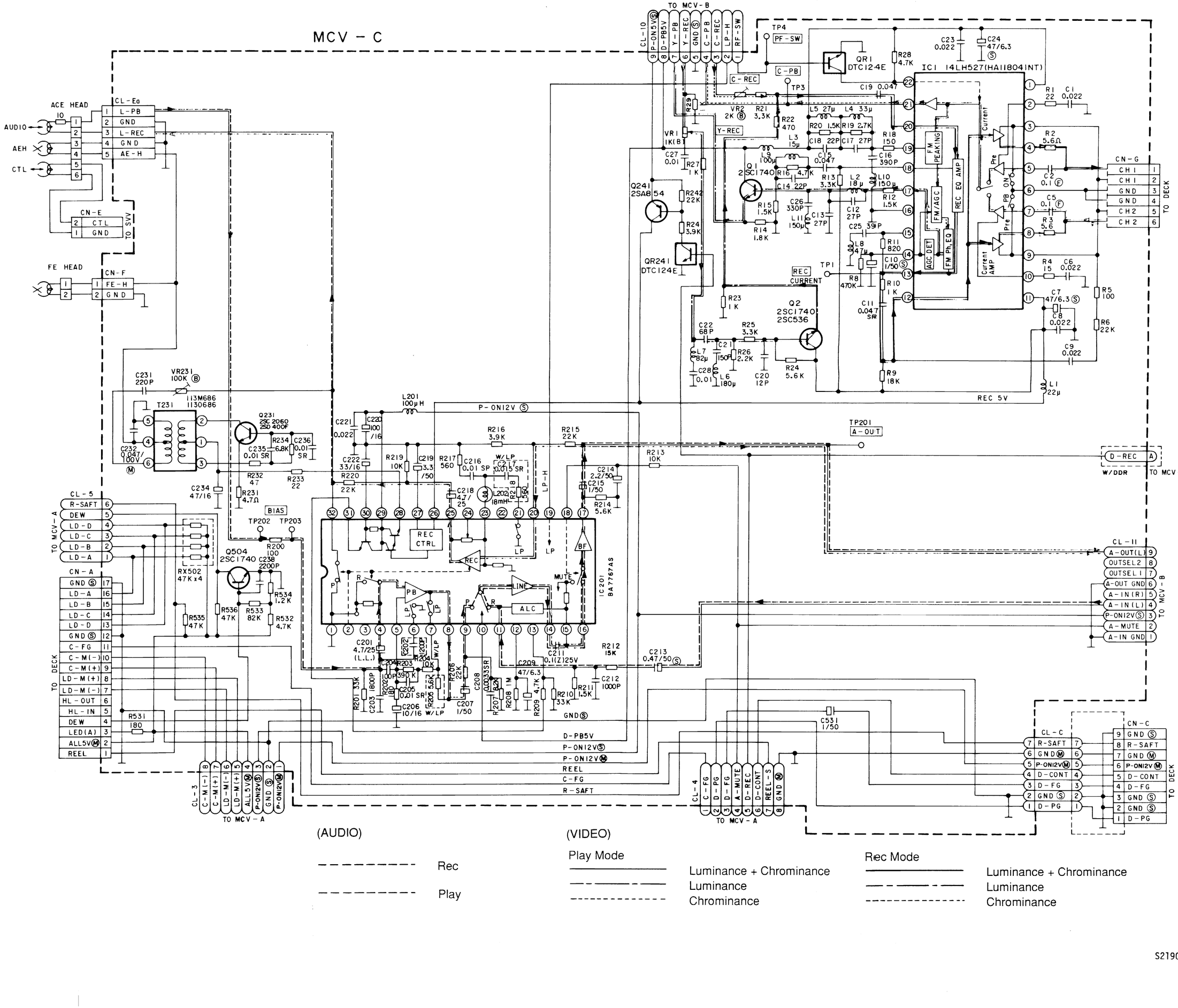


S2190-S

7-2. VIDEO

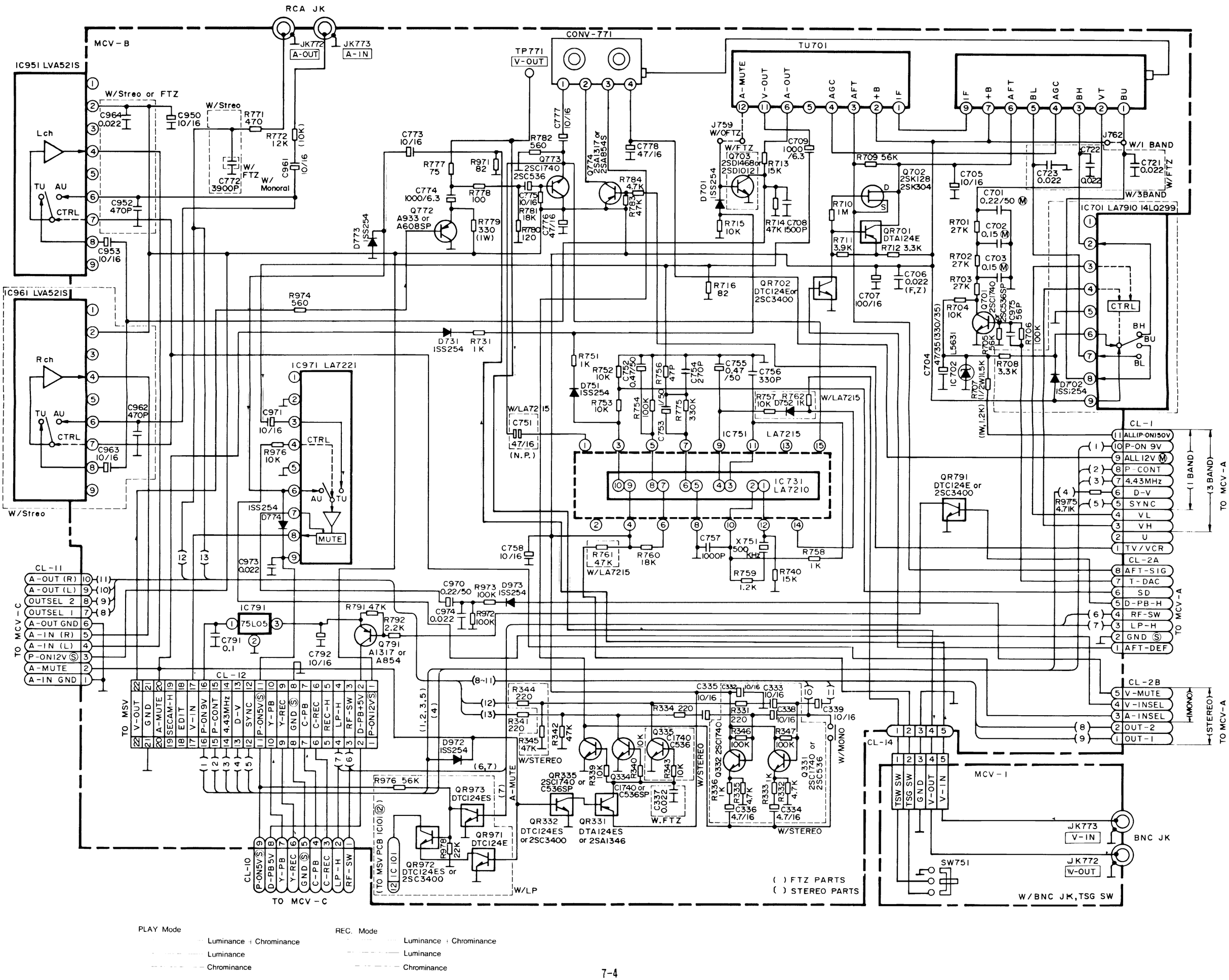

NTSC-H: NTSC-H Model Only
SECAM D/K: SECAM D/K Model Only
EDIT: EDIT Model Only
LP: LP Model Only
DDR: ME SECAM Model Only
Play Mode
Luminance + Chrominance
Luminance
Chrominance
Rec. Mode
Luminance + Chrominance
Luminance
Chrominance
K2600-V

7-3. HEAD AMP

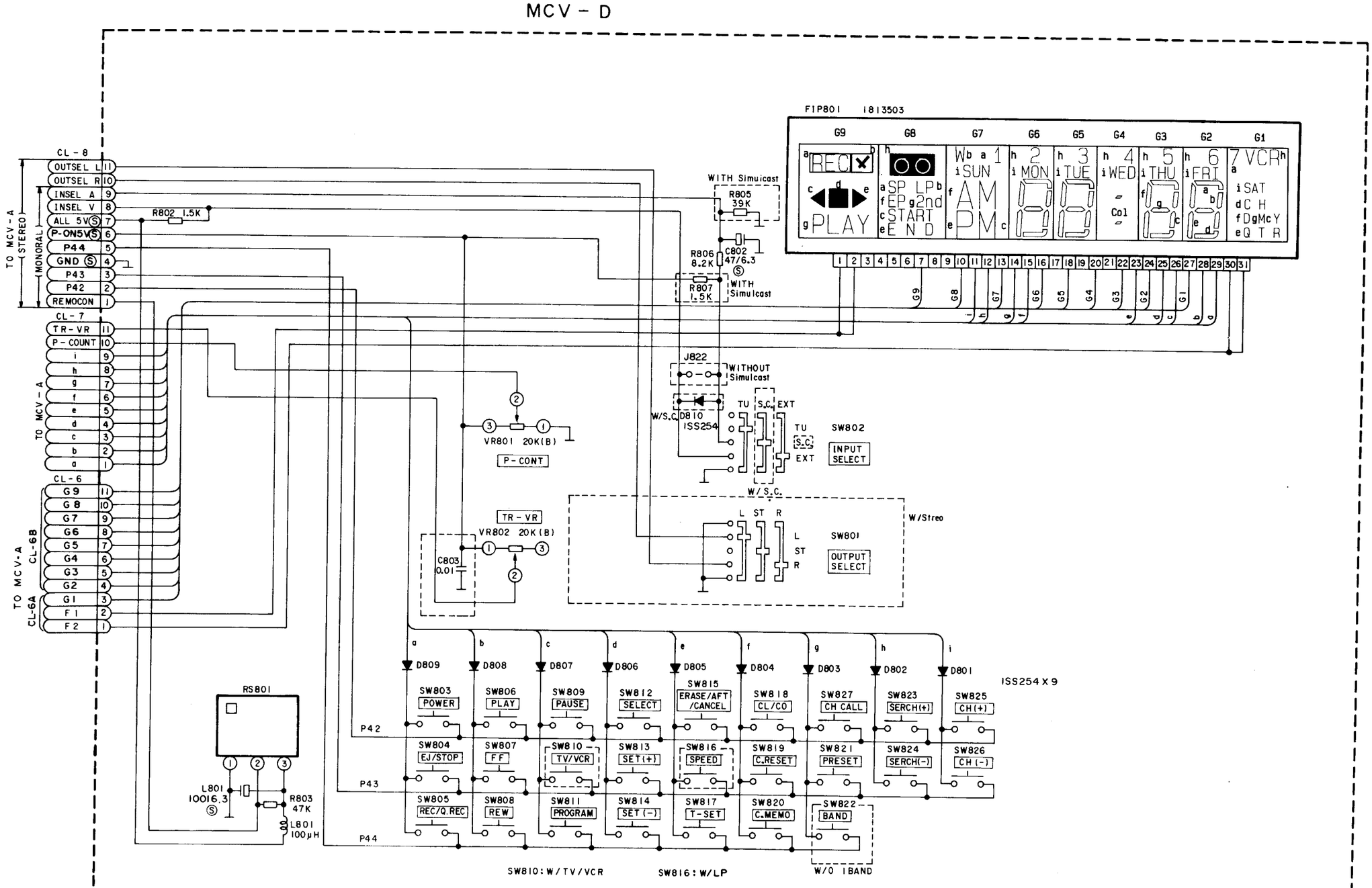


S2190-H

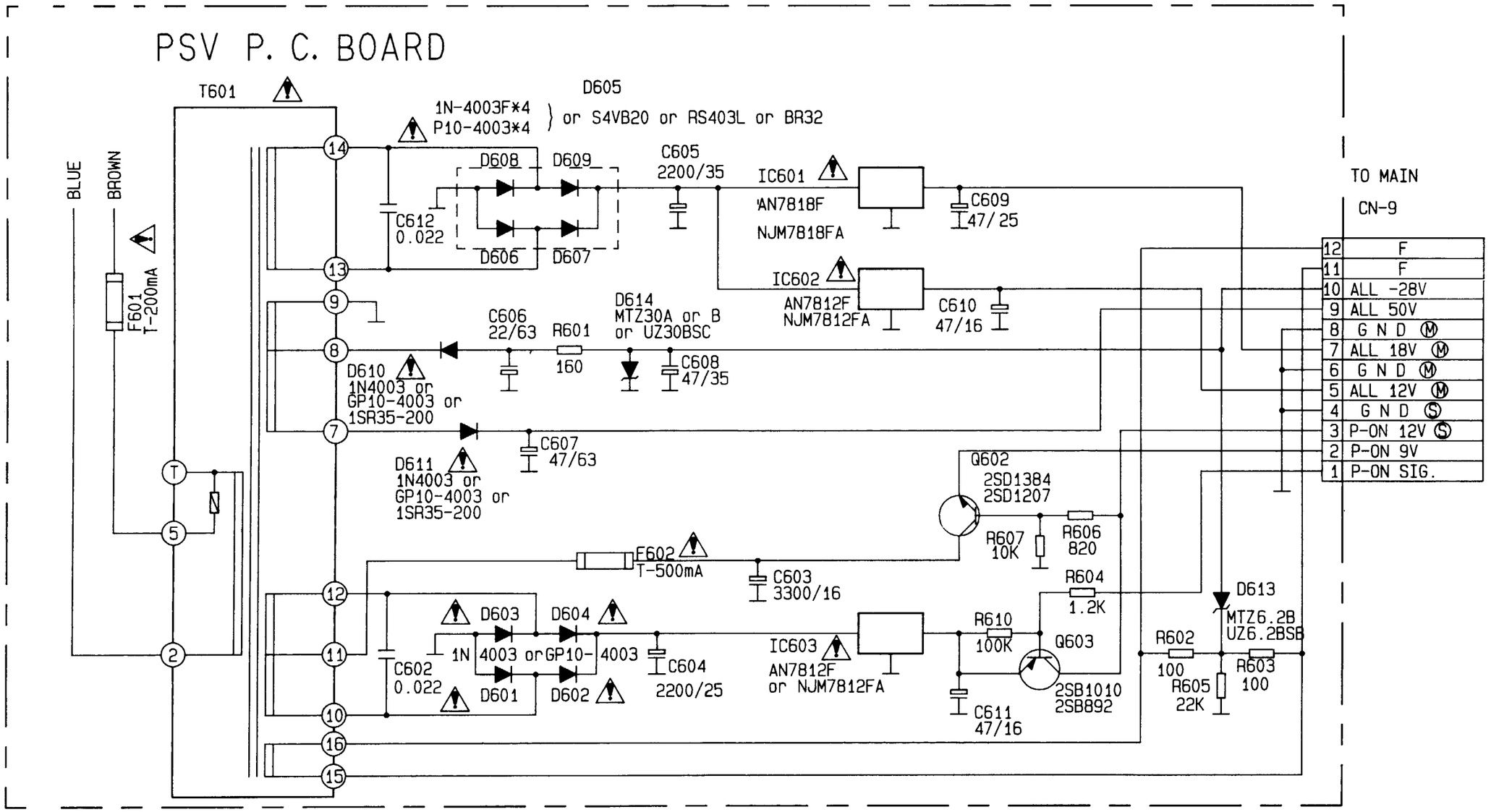
7-4 TUNER/JACK



7-5. TIMER/CONTROL



7-6. PSV P.C.BOARD



For D606, D607, D608 and D609, type IN4003 or GP10-4003 is used.

S2190-P

7-7 STANDARD NOTES

Temperature character of mark

Mark	Capacity change rate	Standard temperature	Use temperature of extent
Ⓑ	± 10 %	20 ℃	-25 ~ +85℃
Ⓕ	+30−80%	20 ℃	-25 ~ +85℃
(SR)	± 15 %	20 ℃	-25 ~ +85℃
(Z)	+30−80%	20 ℃	-10 ~ +70℃

WARNING

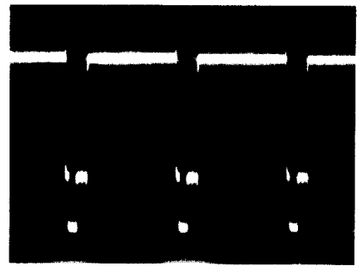
Replacement parts which special safety characteristics are identified by ⚠ showing on this schematic diagram. Replace these critical components with recommended replacement parts. Don't degrade the safety of this set through improper servicing. Service personnel to make leakage current or resistance measurement to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTES

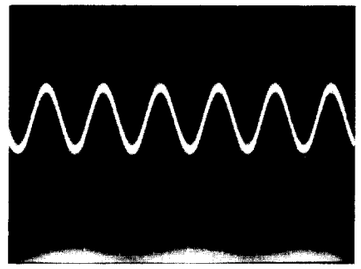
① Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
② All resistance values are indicated in ohm ($K=10^3$, $M=10^6$).
③ Resister wattage without mentioned are 1/5W.
④ All capacitance values are indicated in μF ($P=10^{-6}\mu F$).

8. WAVE FORMS

TP771 (V-OUT) MODE:P.B
20mVX10/div 10usec/div
(MCV-B P.C.B)

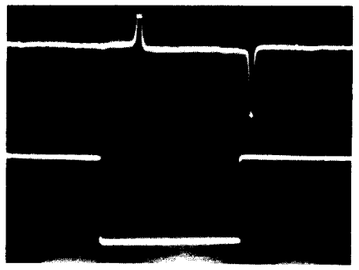


TP54 (E-E) MODE:E-E
10mVX10/div 20usec/div
(MSV P.C.B)



TP202-TP203 MODE:REC
10mVX10/divX5 5usec/div
(MCV-C P.C.B)

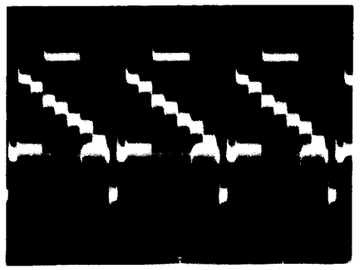
TP1 (REC LEVEL) MODE:REC
10mVX10/div 2msec/div
(MCV-C P.C.B)



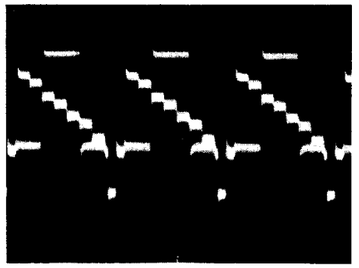
TP402 (CTL) MODE:P.B
0.2VX10/div 5msec/div
(SVV P.C.B)

TP4 (RF-SW) MODE:P.B
0.1VX10/div 5msec/div
(MCV-C P.C.B)

TP181 (SECAM) MODE:REC
5mVX10/div 5msec/div
(MSV P.C.B)



TP52 (NC) MODE:P.B
10mVX10/div 20usec/div
(MSV P.C.B)



TP53 (NC) MODE:P.B
10mVX10/div
(MSV P.C.B)

SUPPLEMENTARY

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.

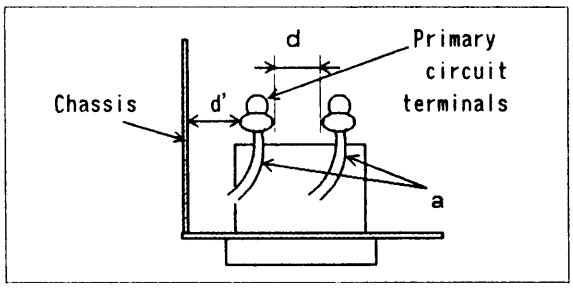


Table 1. : Ratings for selected areas

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 /500 V DC	3 kV 1minute	≧4 mm (d)
200 to 240 V	Australia			≧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.

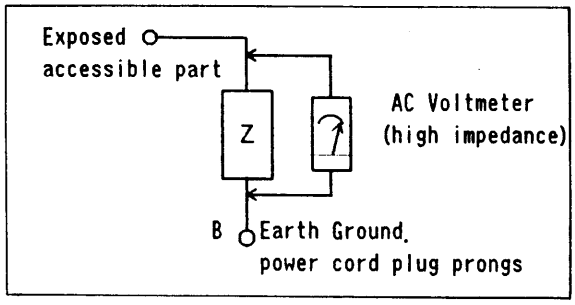


Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA & Canada	0.15 μF, 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.

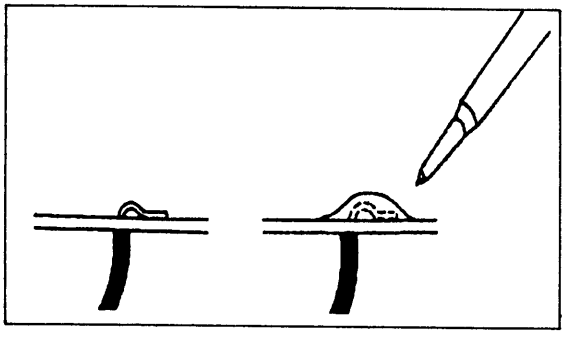
● Precautions during Servicing

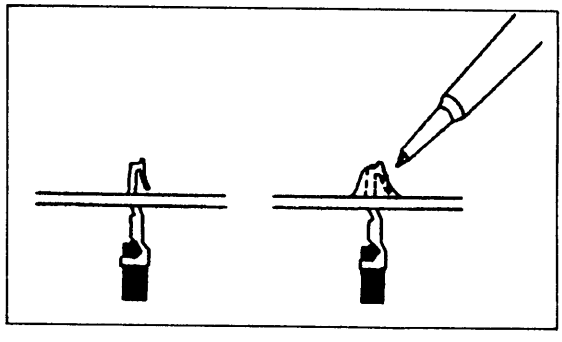
1. Locations requiring special caution are denoted by labels and inscribed on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

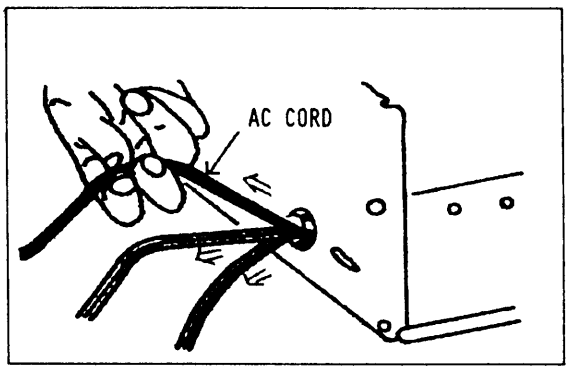
2. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with specified part numbers.

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.

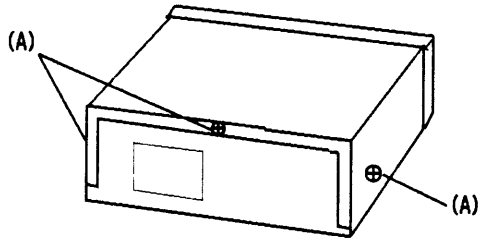
8. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

9. Also check areas surrounding repaired locations.

1. DISASSEMBLY INSTRUCTIONS (SET)

1-1 Top Case Removal

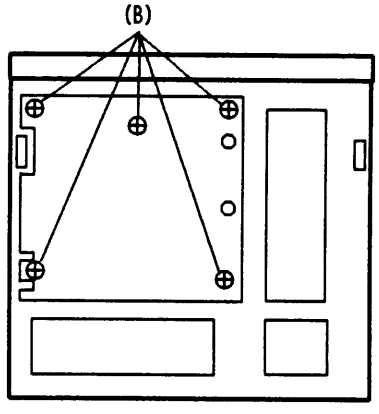
- Remove 3 screws (A).
  (Fig. 1-1)



(Fig. 1-1 Rear View)

1-2 Bottom Panel Removal

- Remove 5 screws (B).
  (Fig. 1-2)

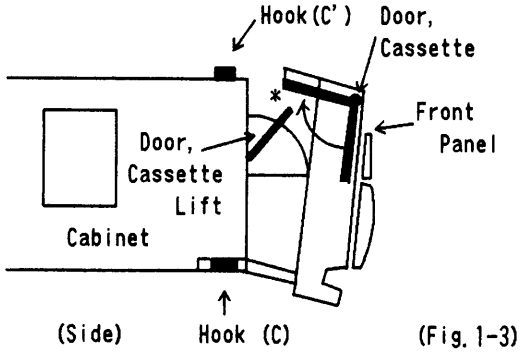


(Fig. 1-2 Bottom View)

1-3 Front Ass'y Removal

- Unfasten 6 hooks (C) and (C') from Cabinet top and bottom.
  (Fig. 1-4, 1-5)

〓 Remark 〓
When you fasten the front panel back in place. Carefully not brake any parts. Fasten the hook (C)s, hold-up the cassette door to point(*) and then fasten the hook (C')s.
(Fig. 1-3)



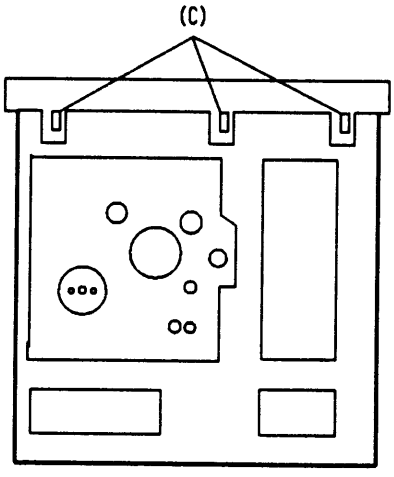
(Fig. 1-3)

1-4 MCV-B(Video/Tuner) P. C. Board, MCV-A(System Control) P. C. Board Removal

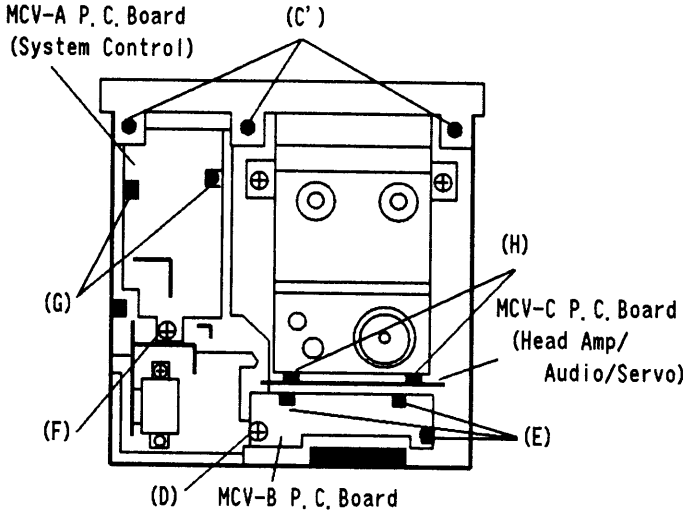
- Remove 2 screws (D) and (F).
- Release 3 hooks (E) from Cabinet.
- Release 2 hooks (G) from Cabinet.
  (Fig. 1-5)

1-5 MCV-C(Head Amp/Audio/Servo) P. C. Board Removal

- Disconnect all connectors from MCV-C P. C. Board.
- Release 2 hooks (H) and pull the P. C. Board out. (Fig. 1-5)



(Fig. 1-4 Bottom View)



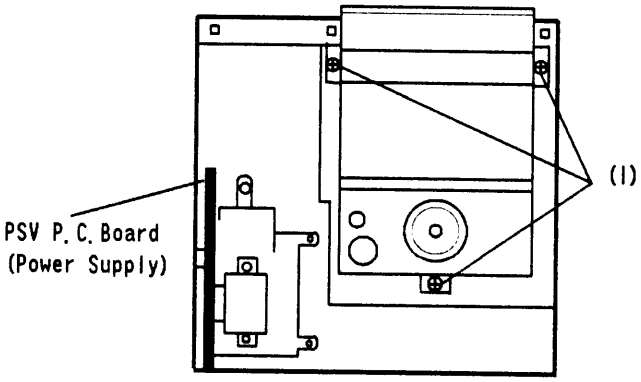
(Fig. 1-5 Top View)

1-6 PSV(Power Suplly) P. C. Board Removal

- Take off Power supply Ass'y. (Fig. 1-6)

1-7 Deck Ass'y Removal

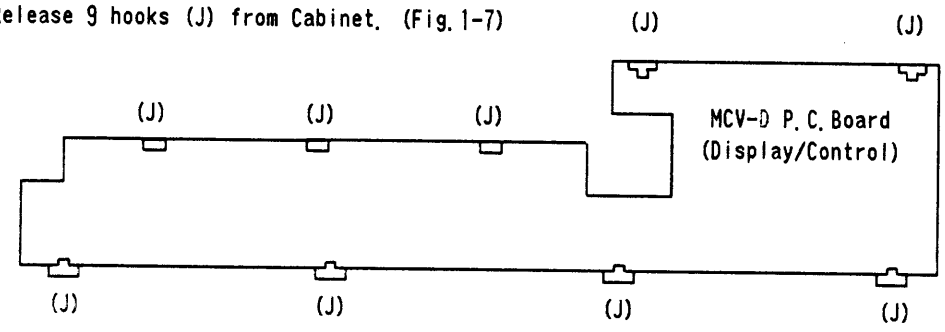
- Remove 3 screws (I). (Fig. 1-6)



(Fig. 1-6 Top View)

1-8 MCV-D(Display/Control) P. C. Board Removal

- Release 9 hooks (J) from Cabinet. (Fig. 1-7)



(Fig. 1-7 Front View)

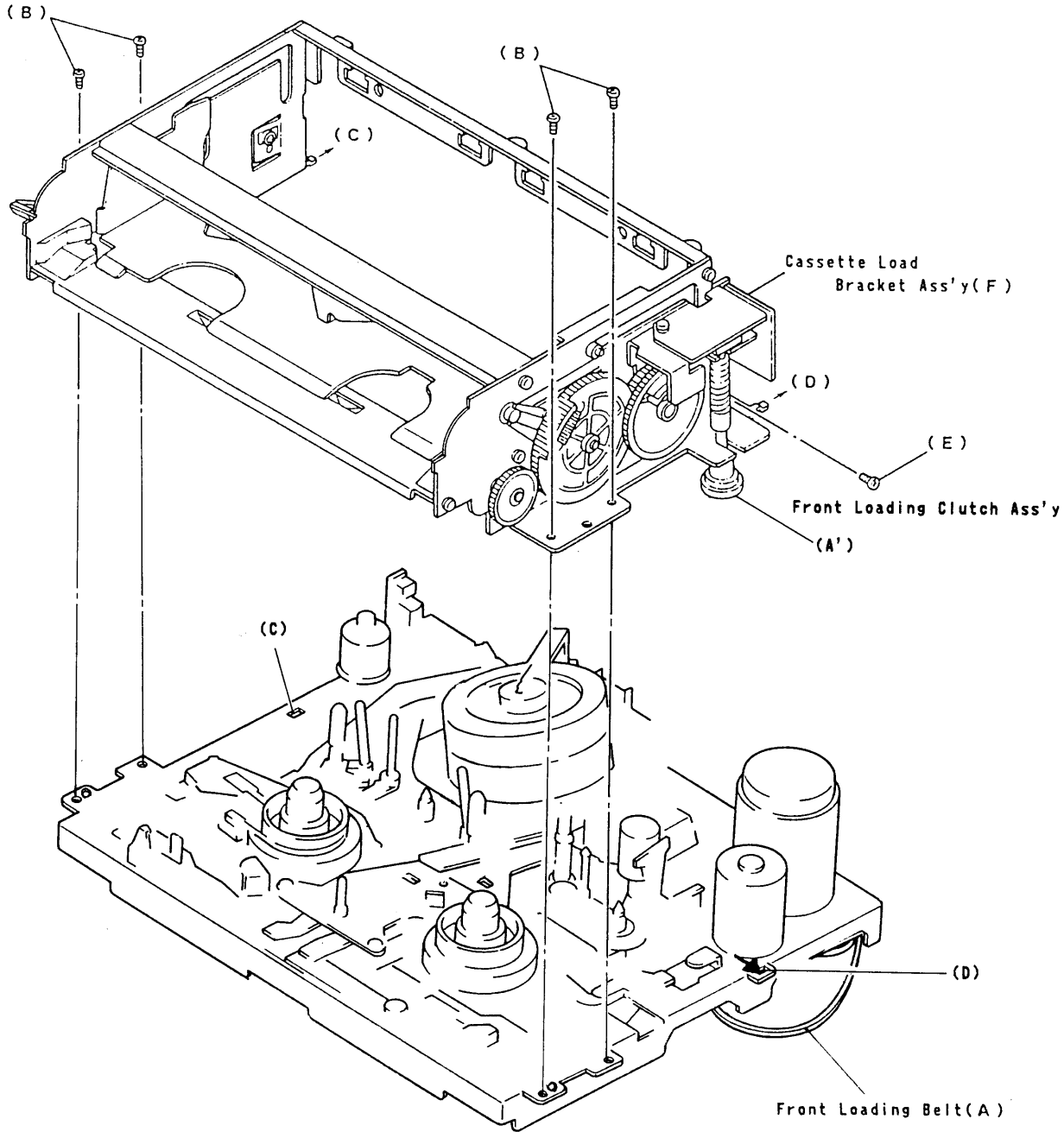
2. DISASSEMBLY INSTRUCTIONS, DECK

(1) Front Loading Unit (Fig. 2-1)

1. Remove Front Loading Belt (A) from Front Loading Clutch Ass'y (A').
2. Remove 4 screws (B).
3. Take off Left side hook (C) and Right side hook (D).
   (To unfasten the hook, lift up front edge of the Front Loading Unit and take it forward.)

(2) Cassette Load Bracket Ass'y (Fig. 2-1)

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



(3) Photo Sensor (Fig. 2-2)

1. Replacement of Lamp Holder Ass'y (A).
   (1) Remove screw (B), move away the Take-up Soft Brake Ass'y (D).
       (At this time, do not 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. Start Sensor replacement of sensor PCB PM Ass'y (H).
   (1) Remove screw (F) and take off the Front Loading PCB Ass'y (I).
   (2) Remove screw (G) and take off the Sensor PCB RM Ass'y (H).
3. End Sensor replacement of sensor PCB LM Ass'y (J).
   (1) Remove screw (G) and take off the Sensor PCB LM Ass'y (J).

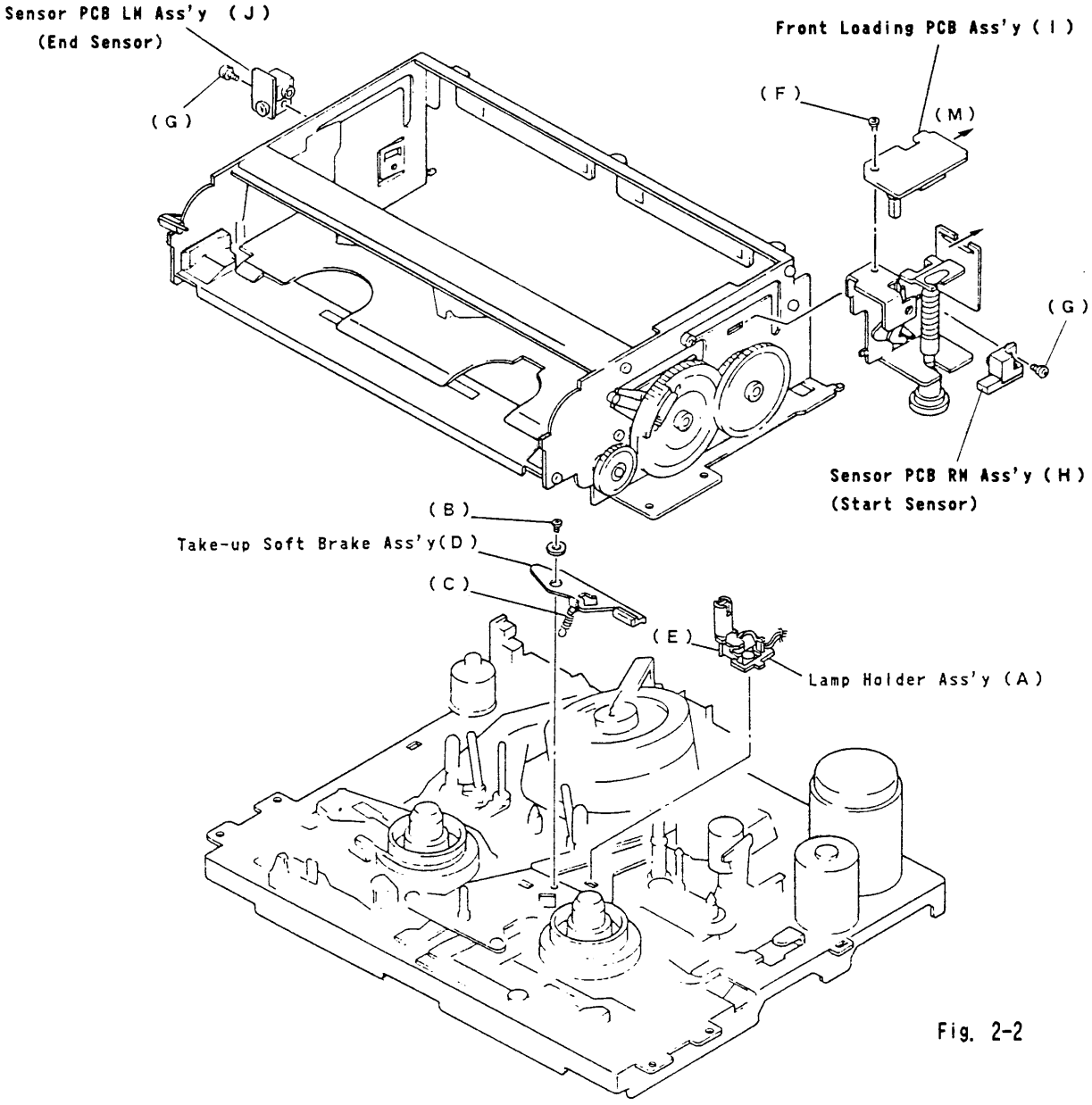


Fig. 2-2

(4) Full Erase Head / Audio Control Head (Fig. 2-3)

1. Erase Head
   (1) Remove Nut (A).
   (2) Remove Spring (B).
   (3) Take out the Impedance 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 screw (I) and take off the Full Erase Head (J).
2. Audio / Control Head
   (1) Remove screw (K), (L) and Azimuth Spring (M).
   (2) Remove Audio/Control Head (N).

Note: When reinstalling the Full Erase Head/Audio Control Head Unit, mechanical adjustments should be performed for proper operation. (Fig. 2-3)

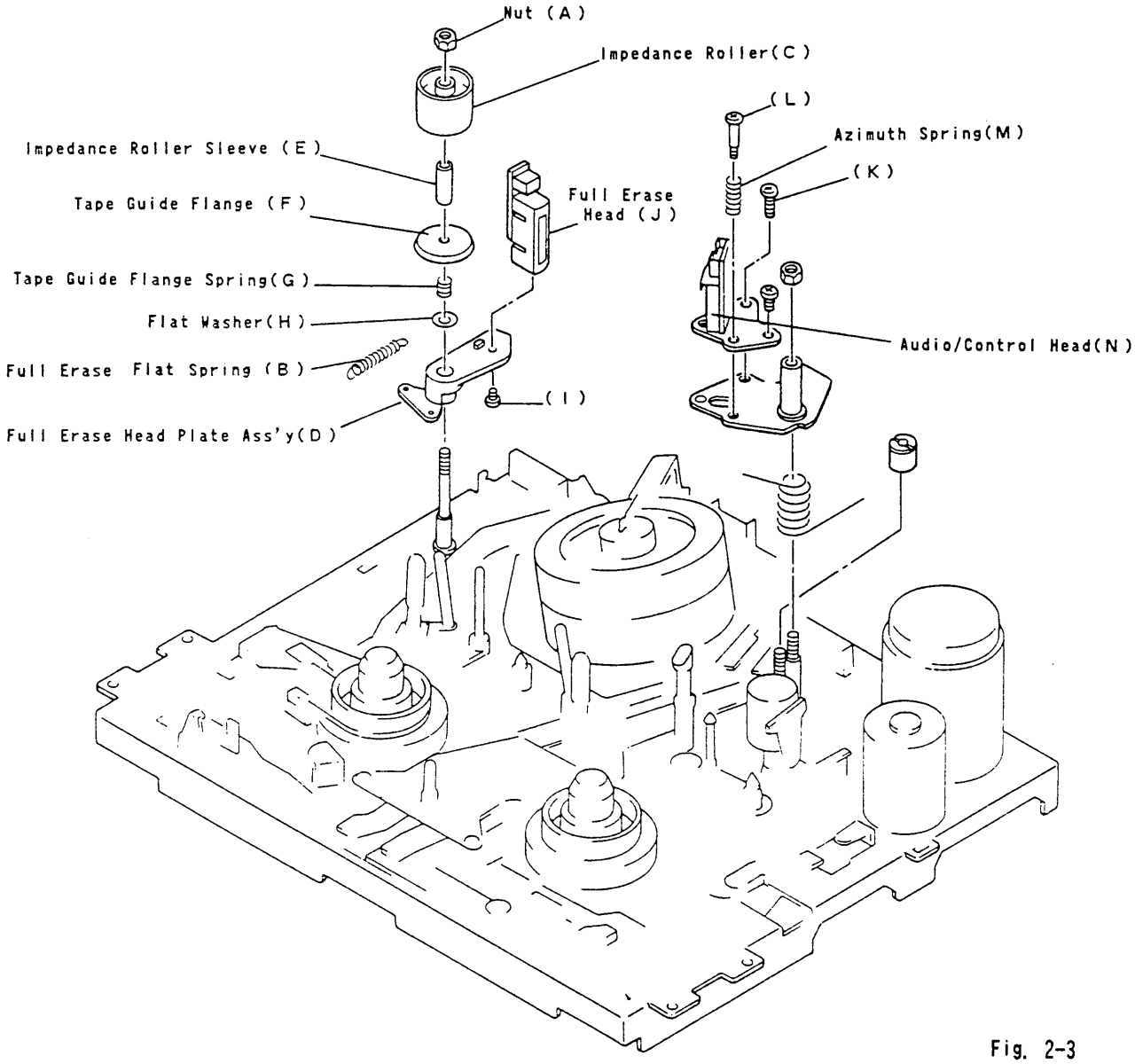


Fig. 2-3

(5) Gear Holder Ass'y (Fig. 2-4)

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 screw (F) and 2 screws (G) and take off the Gear Holder Ass'y (H).
6. Remove 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).

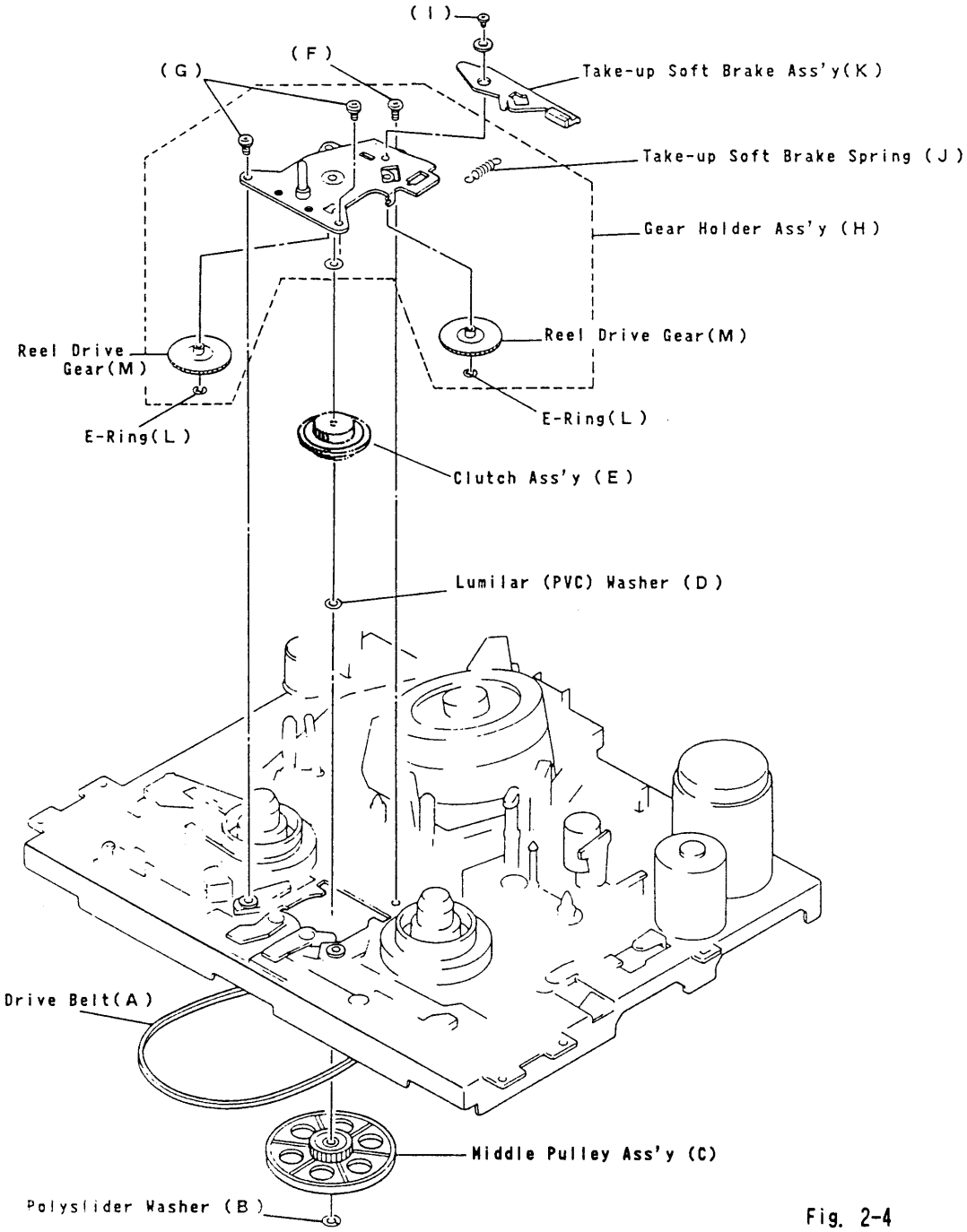


Fig. 2-4

(6) Tension Arm Ass'y (Fig. 2-5)

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 screw (C) and Band Holder Spring (D).
4. Take off the Back Tension Band Ass'y (E) from the Back Tension Arm (F).

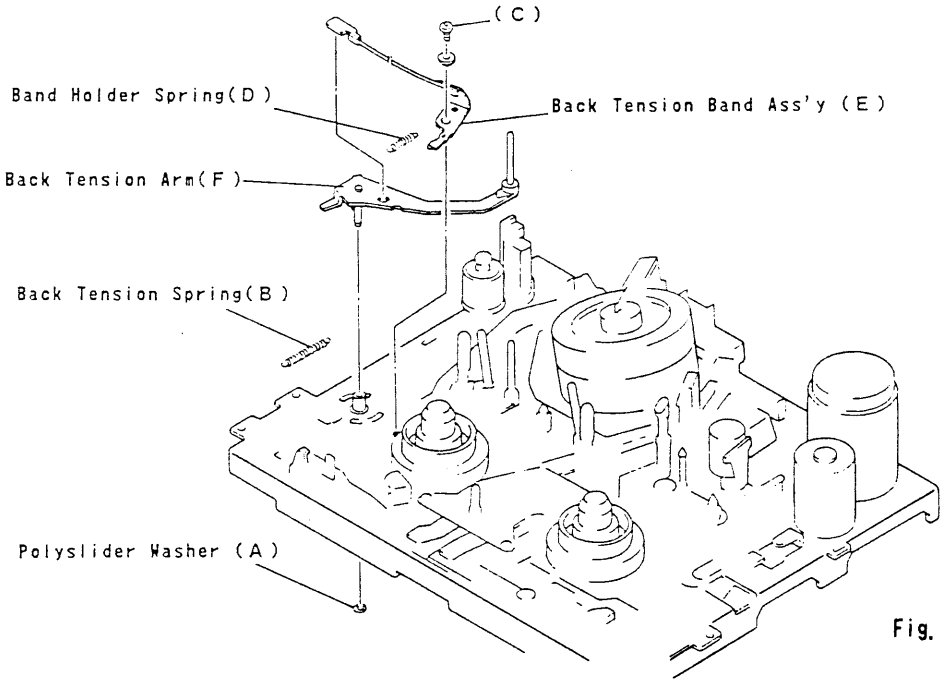


Fig. 2-5

(7) Reel (Take-up and Supply) (Fig. 2-6)

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

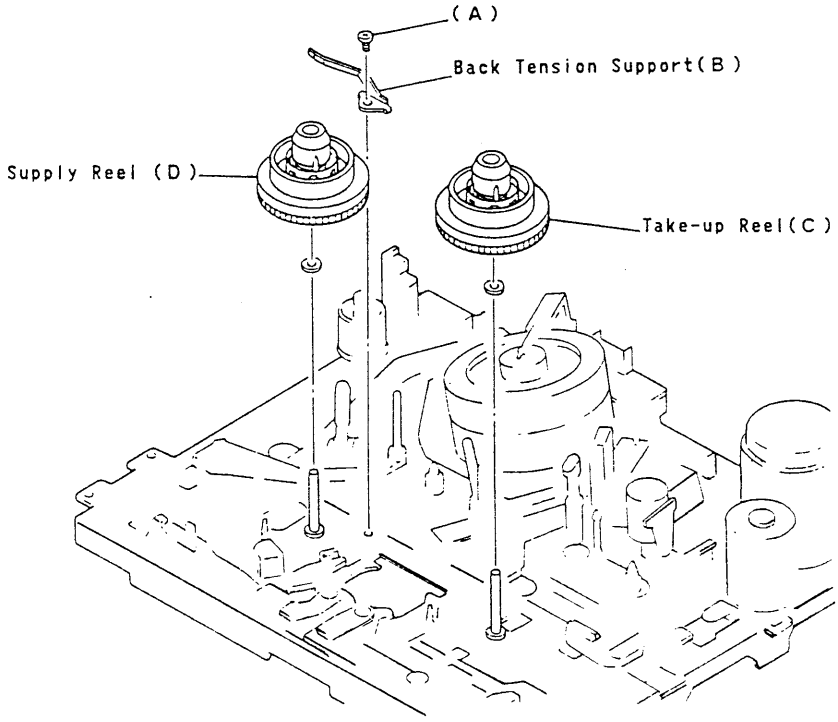


Fig. 2-6

(8) Drum Ass'y (Fig. 2-7)

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

Note:

Take off the Drum Ass'y (D) carefully so as not to scratch or damage. (Fig. 2-7)

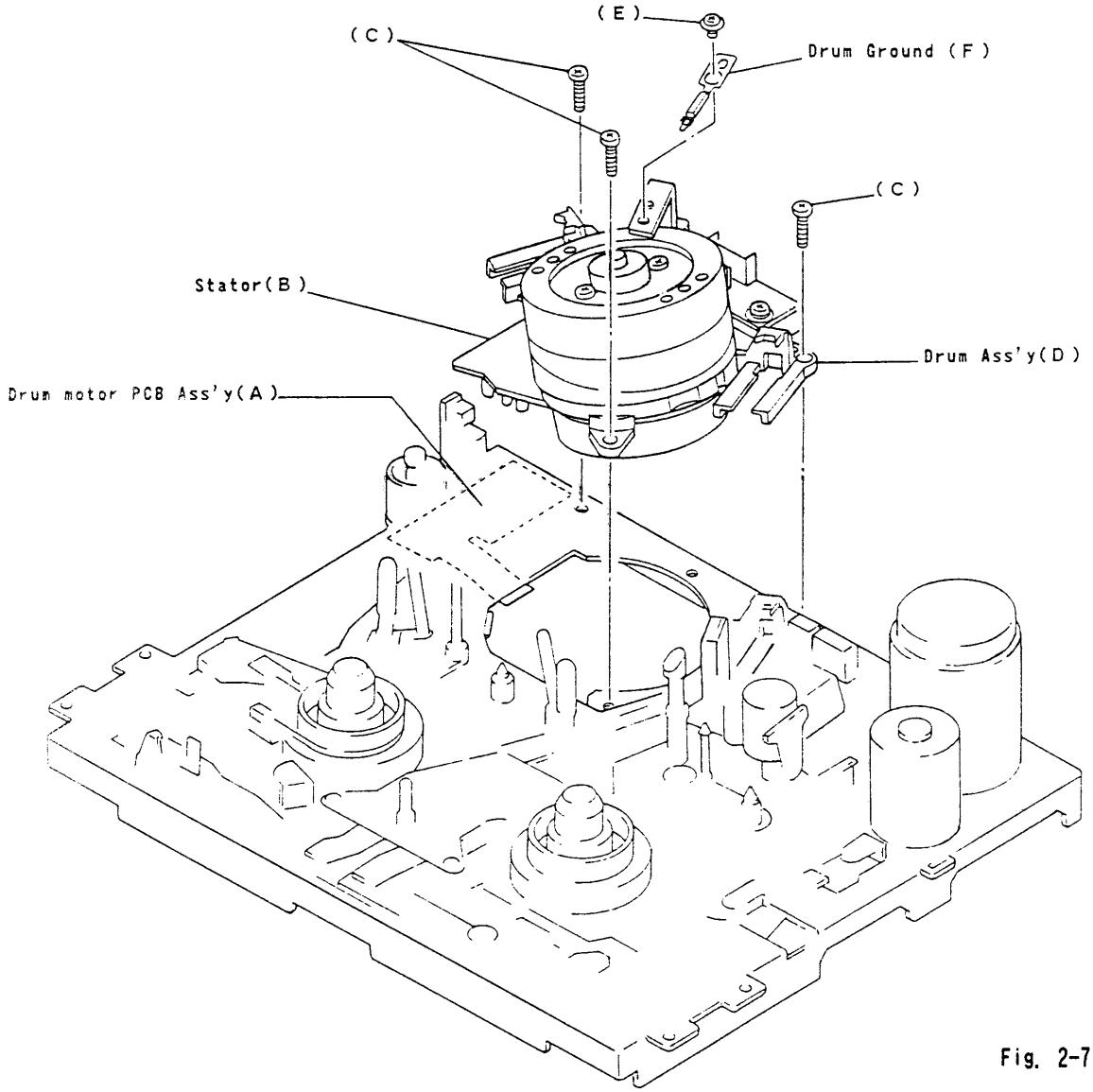


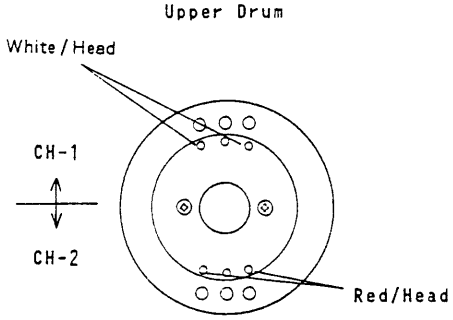
Fig. 2-7

(9) Upper Drum / Reinstallation Upper, Lower Drums and Rotor (Fig. 2-8)

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

Note:

1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video Head is defective, replace the upper drum along with the Head. (Fig. 2-8)



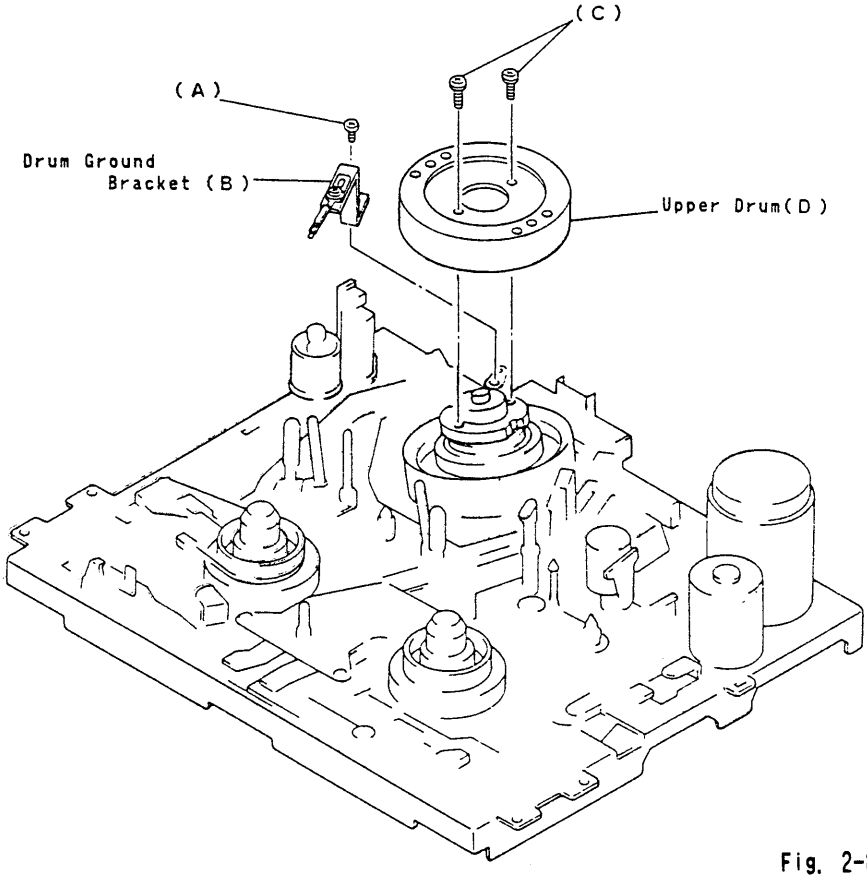
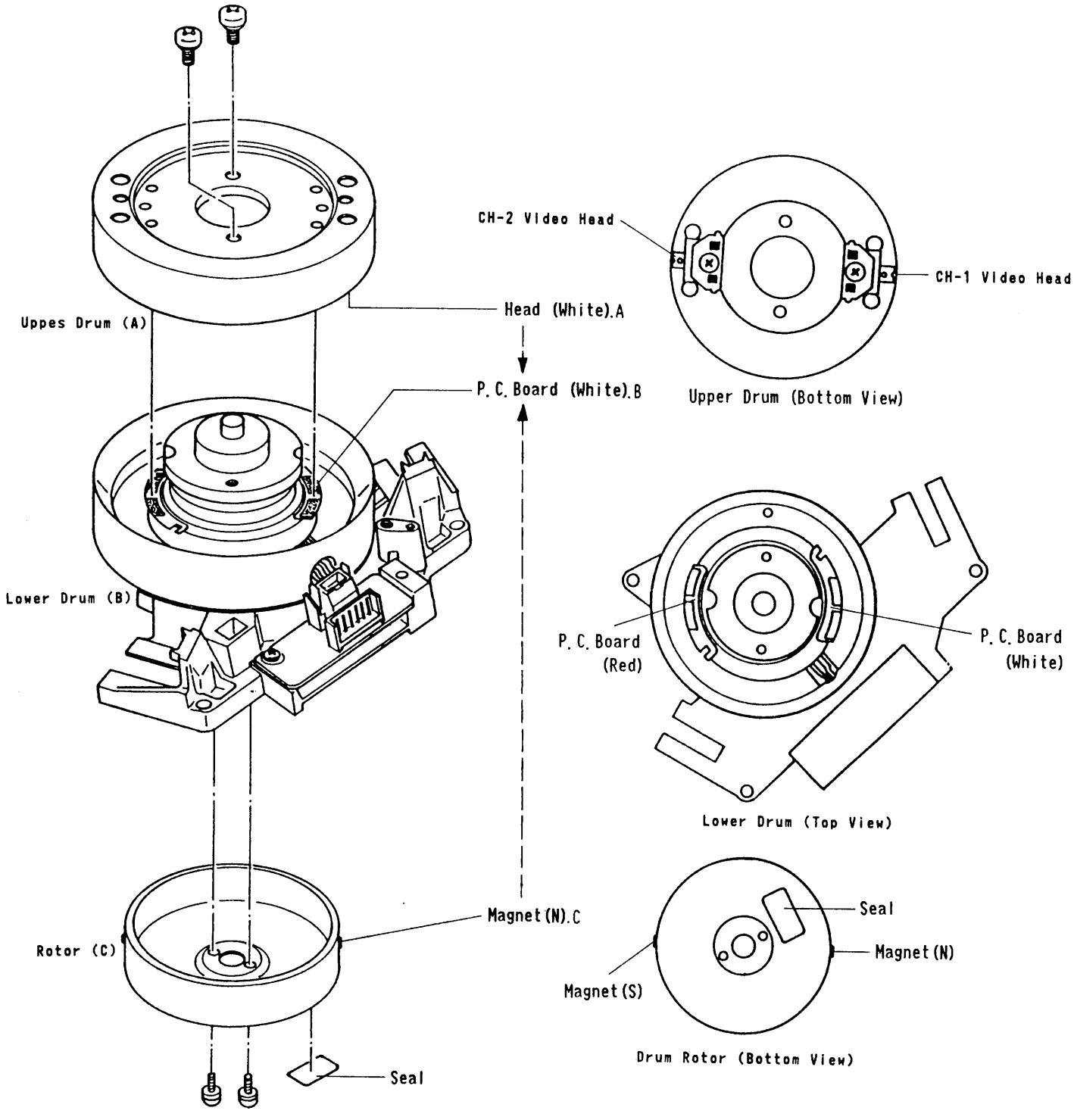


Fig. 2-8



Note :

For Upper Drum point-A, Lower Drum point-B and Rotor point-C, these points A, B, C must line up each other.
If not so, the problem may cause.

(10) Drum Motor (Fig. 2-10)

1. Disconnect 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).

Note:

When you reinstall the Roter. You must align the Rotor magnet (N) with the white CH-1 video head. (See Page 2-8.)

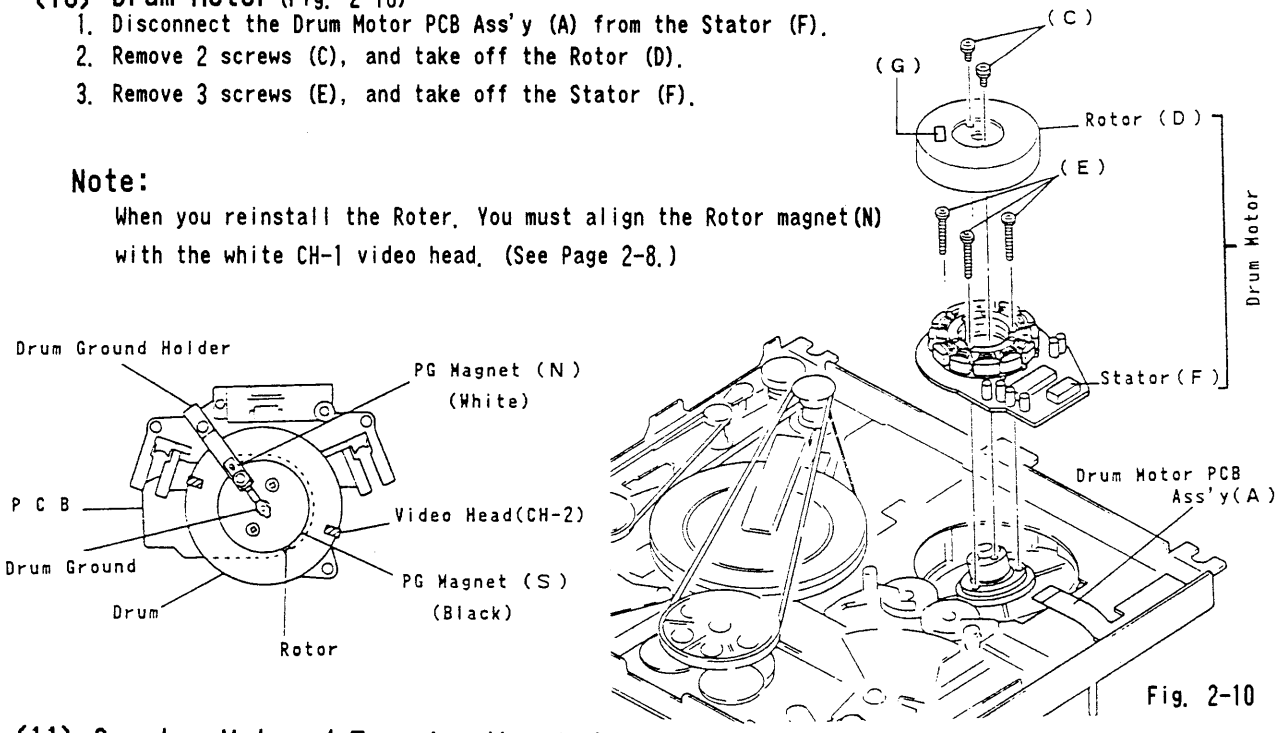


Fig. 2-10

(11) Capstan Motor / Tape Loading Motor (Fig. 2-11)

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).

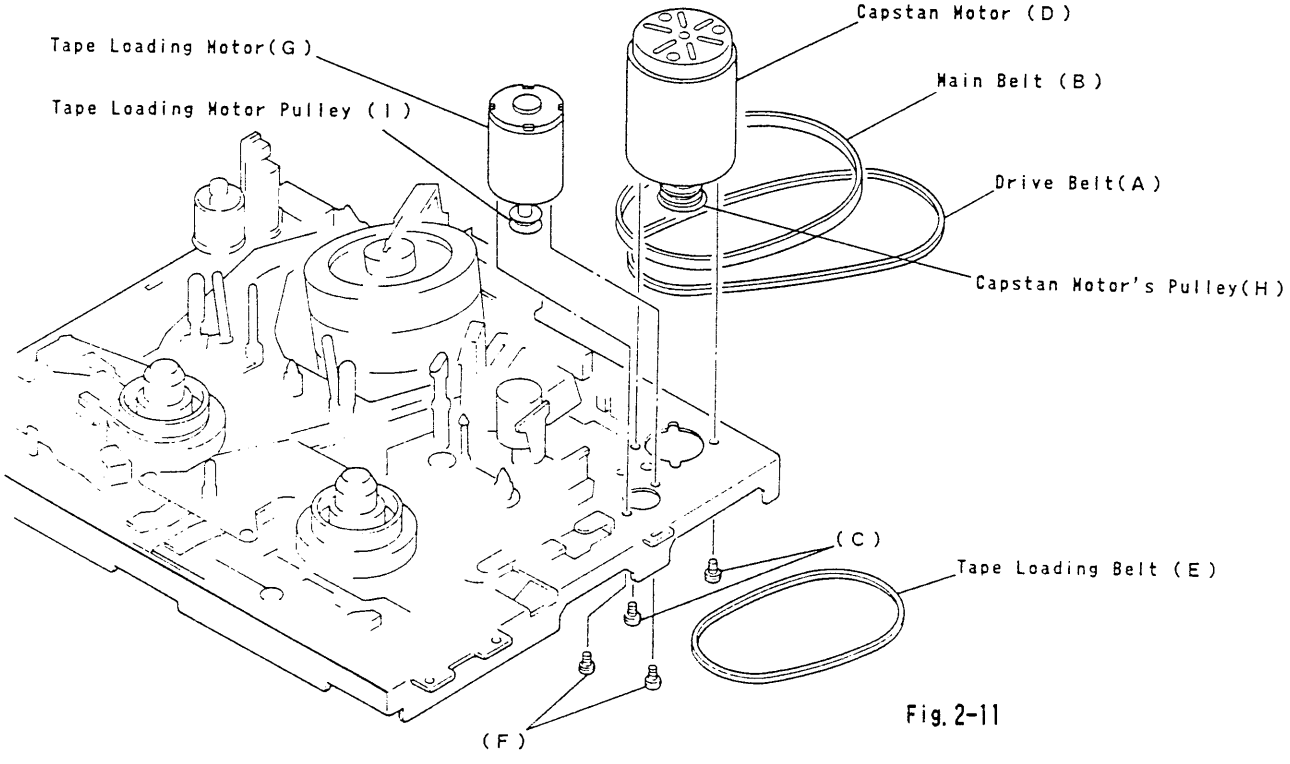


Fig. 2-11

(12) Loading Cam Gear (Fig. 2-12)

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).

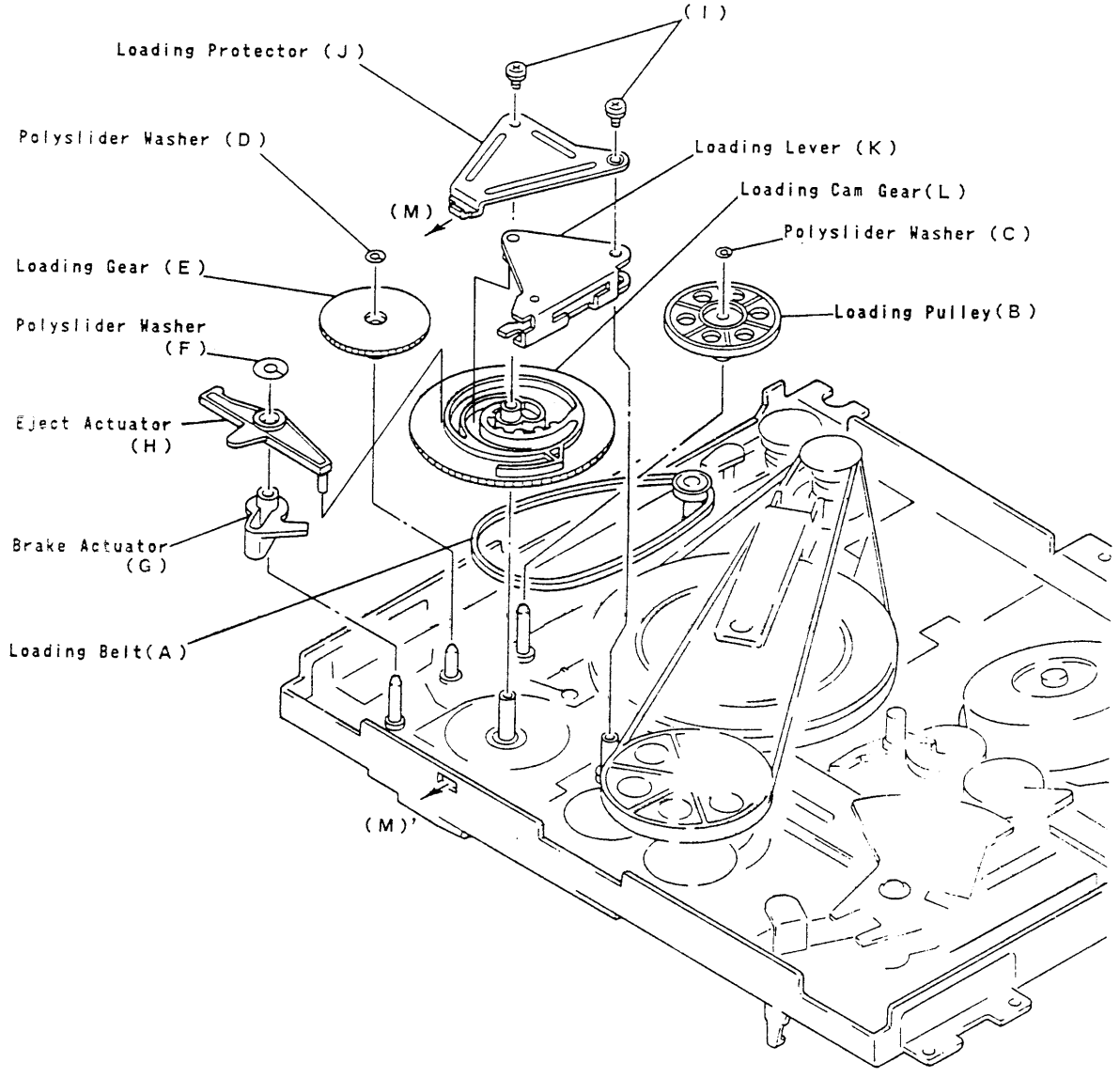


Fig. 2-12

(13) Capstan Flywheel / Return Arm (Fig. 2-13)

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).
5. Remove Polyslider Washer (H).
6. Take off the Middle Pulley Ass'y (I).
7. Remove Polyslider Washer (J).
8. Take off the Return Gear (K) and Return Arm (L).

Note:

Do not lose the Washer (A) and (G) when pulling out the Capstan Flywheel. (Fig. 2-13)

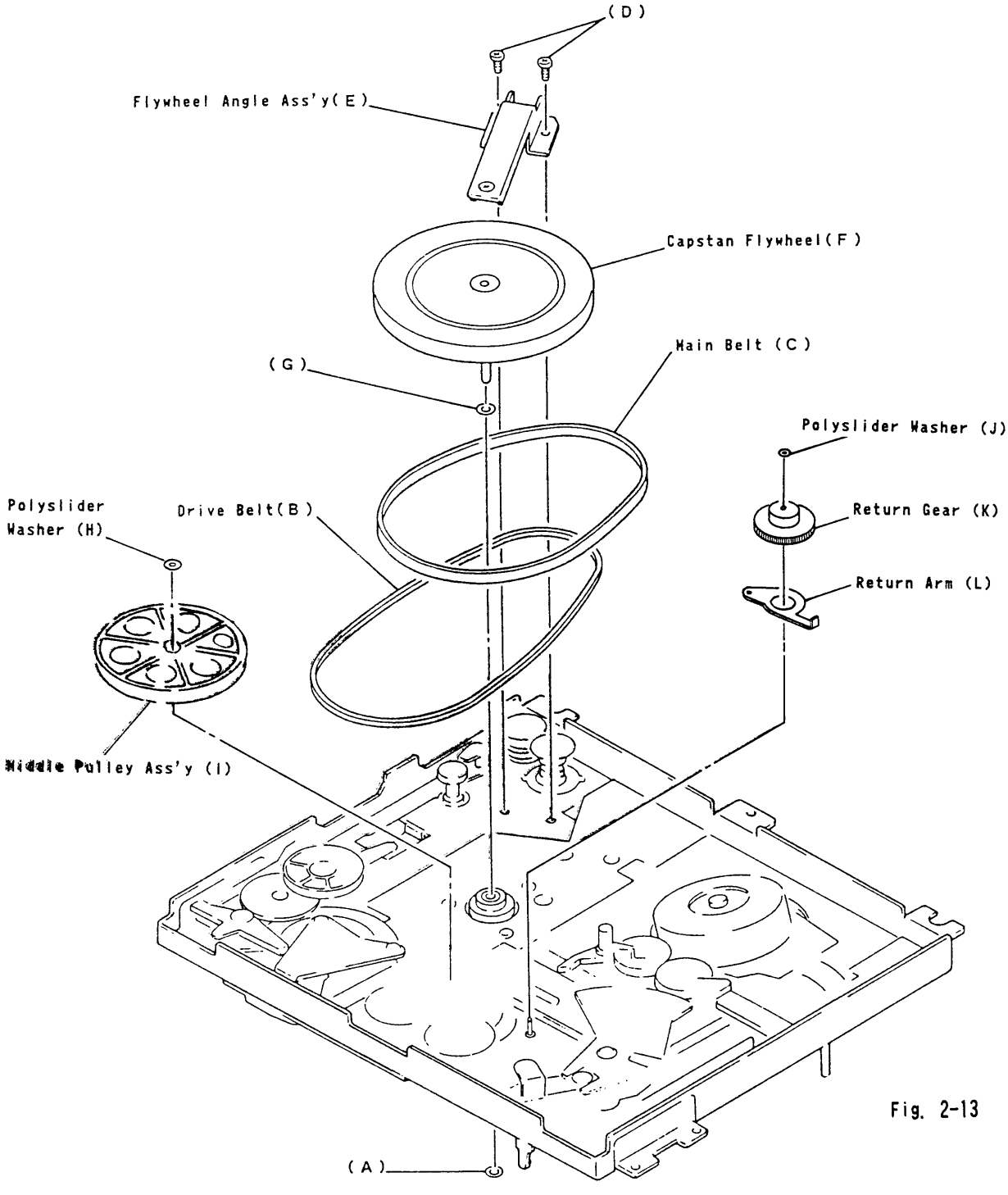


Fig. 2-13

(14) Reel Sensor (Fig. 2-14)

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) from bottom.)

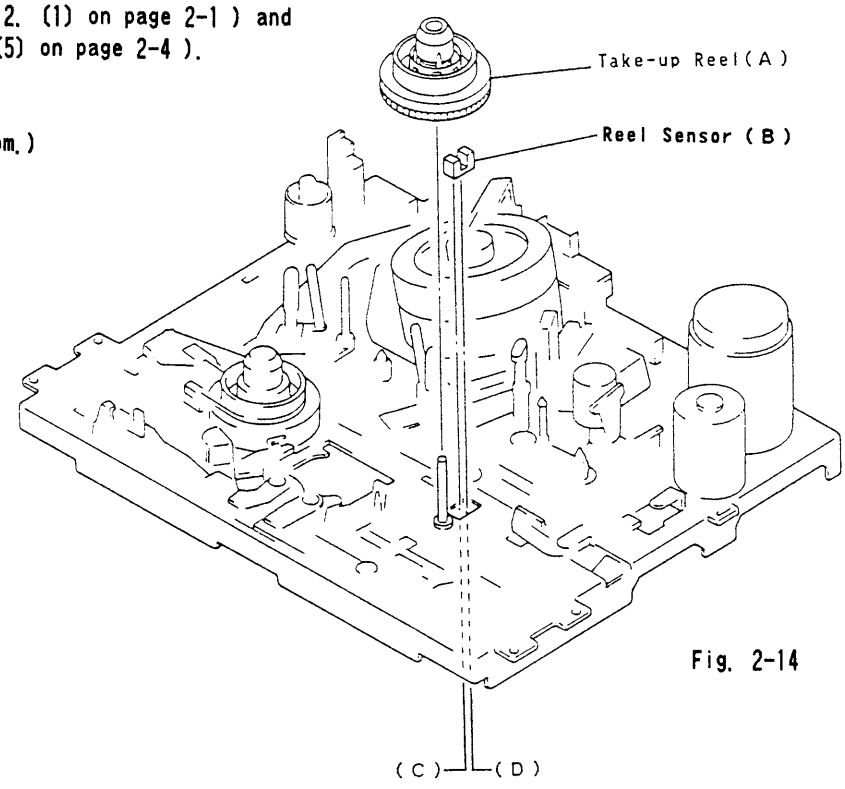


Fig. 2-14

(15) Loading Base (Fig. 2-15)

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

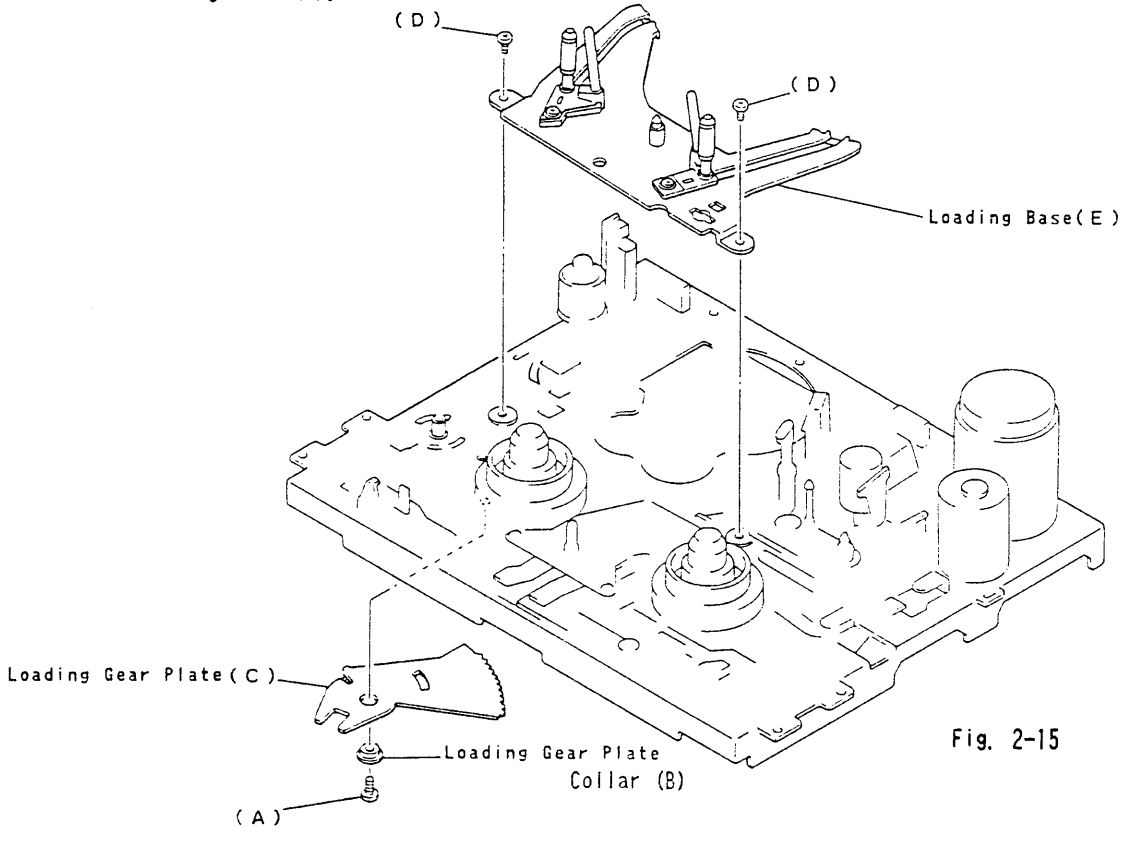


Fig. 2-15

(16) Front Loading Wormwheel Unit (Fig. 2-16)

1. Disassembly
   (1) Remove Front Loading Belt and Bracket Ass'y. (See the Page 2-1 (2))
   (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.

Note:

Align the Lift Gear (C) Hole with Wormwheel Hole as illustrated. (Fig. 2-17)

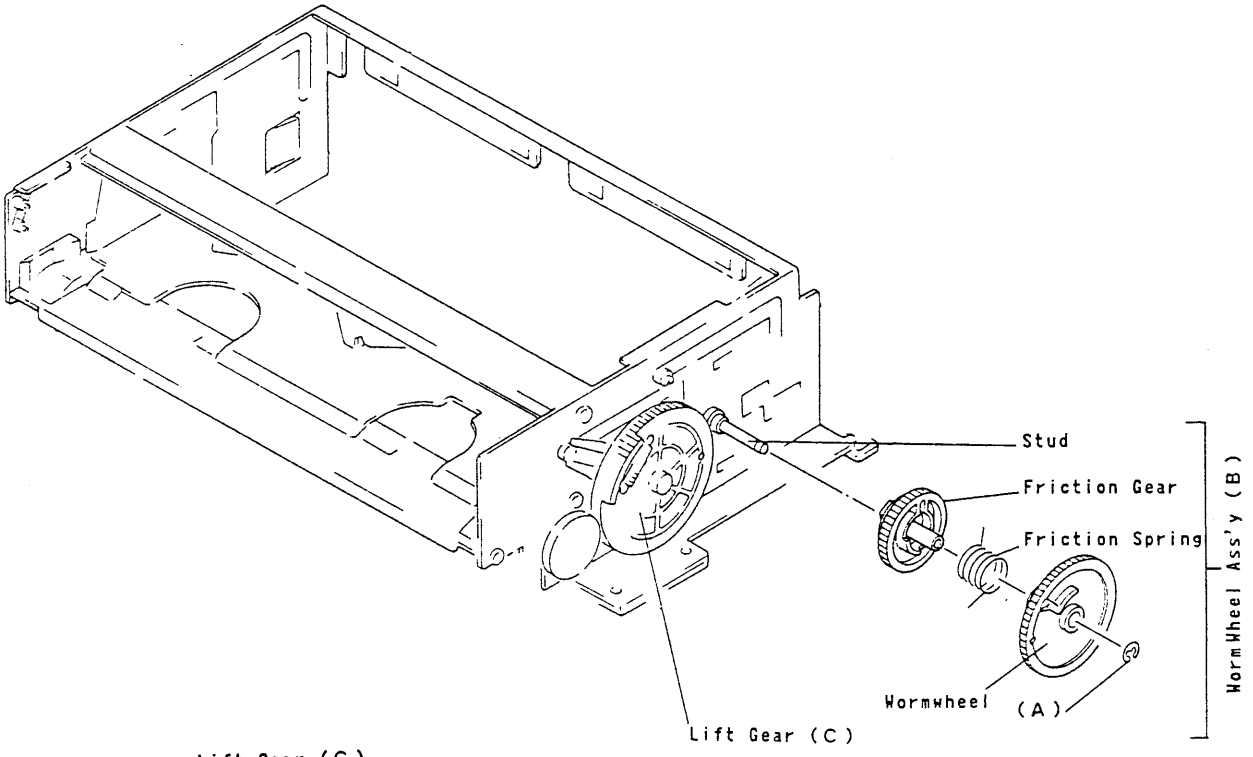


Fig. 2-16

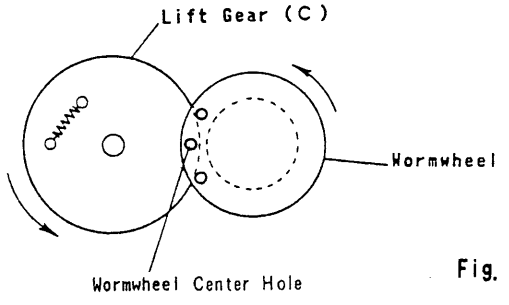


Fig. 2-17

3. STANDARD MAINTENANCE

3-1 Service schedule of components

○: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			●	
92	Full Erase Head (except Play Only Model)			●	
121	Reel Assembly			●	

Note:

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

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

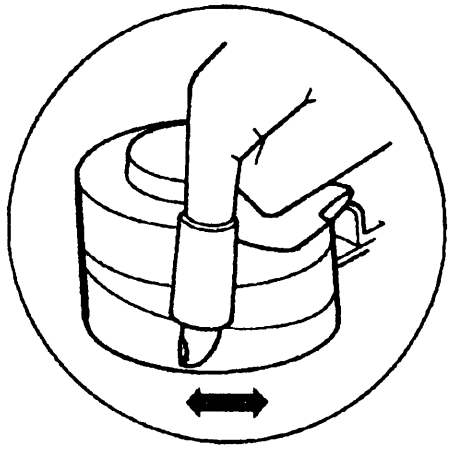
3-2 Cleaning

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.

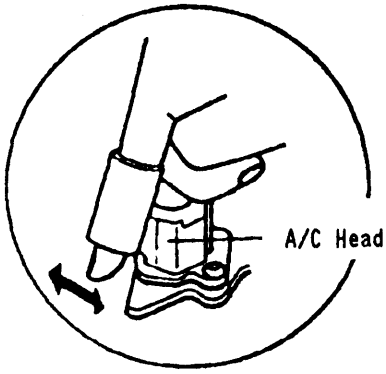


— Remark —

(1) The video head is 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 —

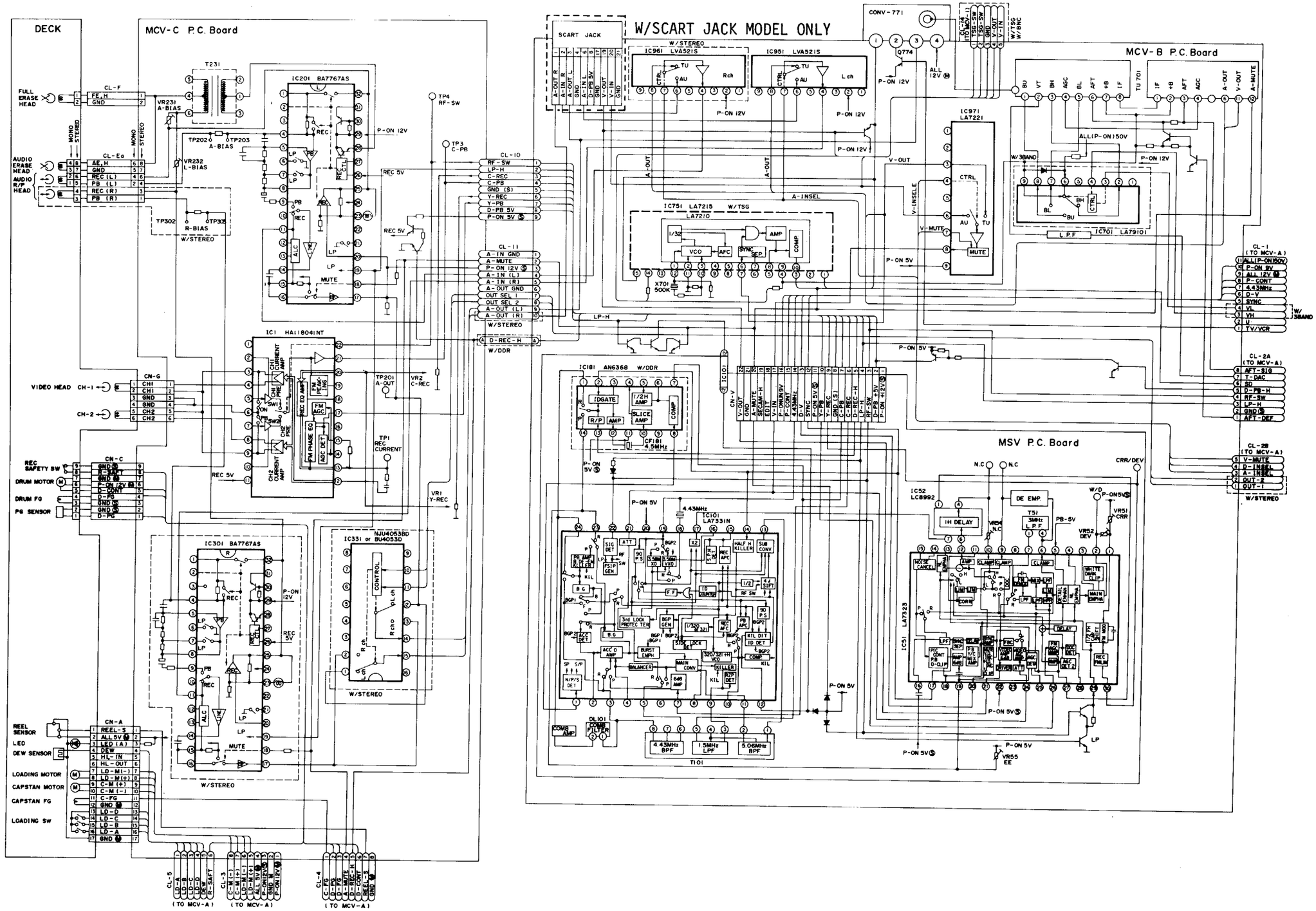
(1) Remove the Top Cabinet.
(2) Put a few drops of alcohol on the chamois skin, Clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

— Remark —

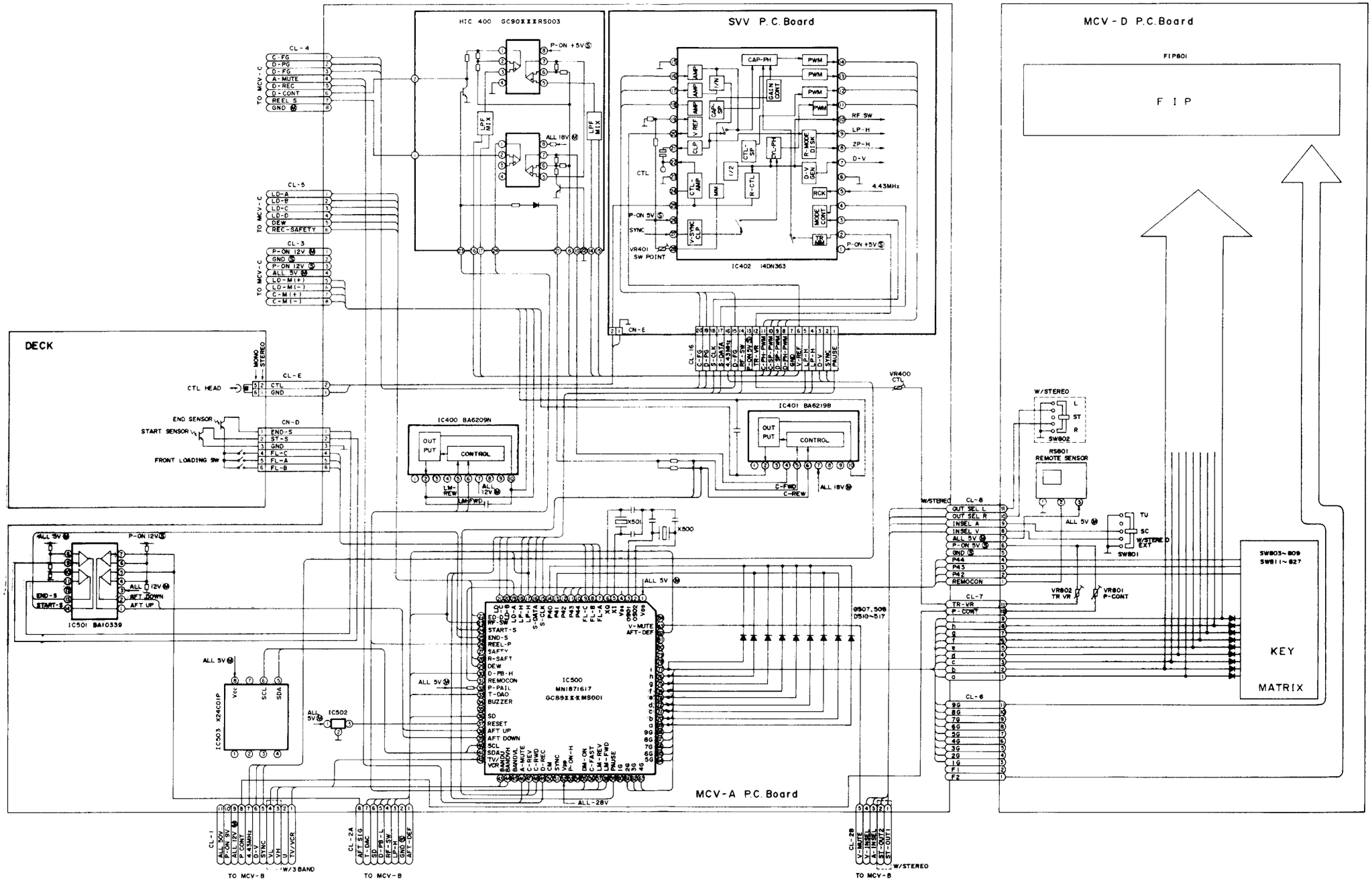
(1) Avoid cleaning audio control head vertically.
(2) Wait for the cleaned part to dry well, before operating the unit.

10. BLOCK DIAGRAM

10-1. VIDEO/AUDIO



10-2. SERVO/SYSTEM CONTROL/TIMER



5. IC PIN FUNCTION DESCRIPTION

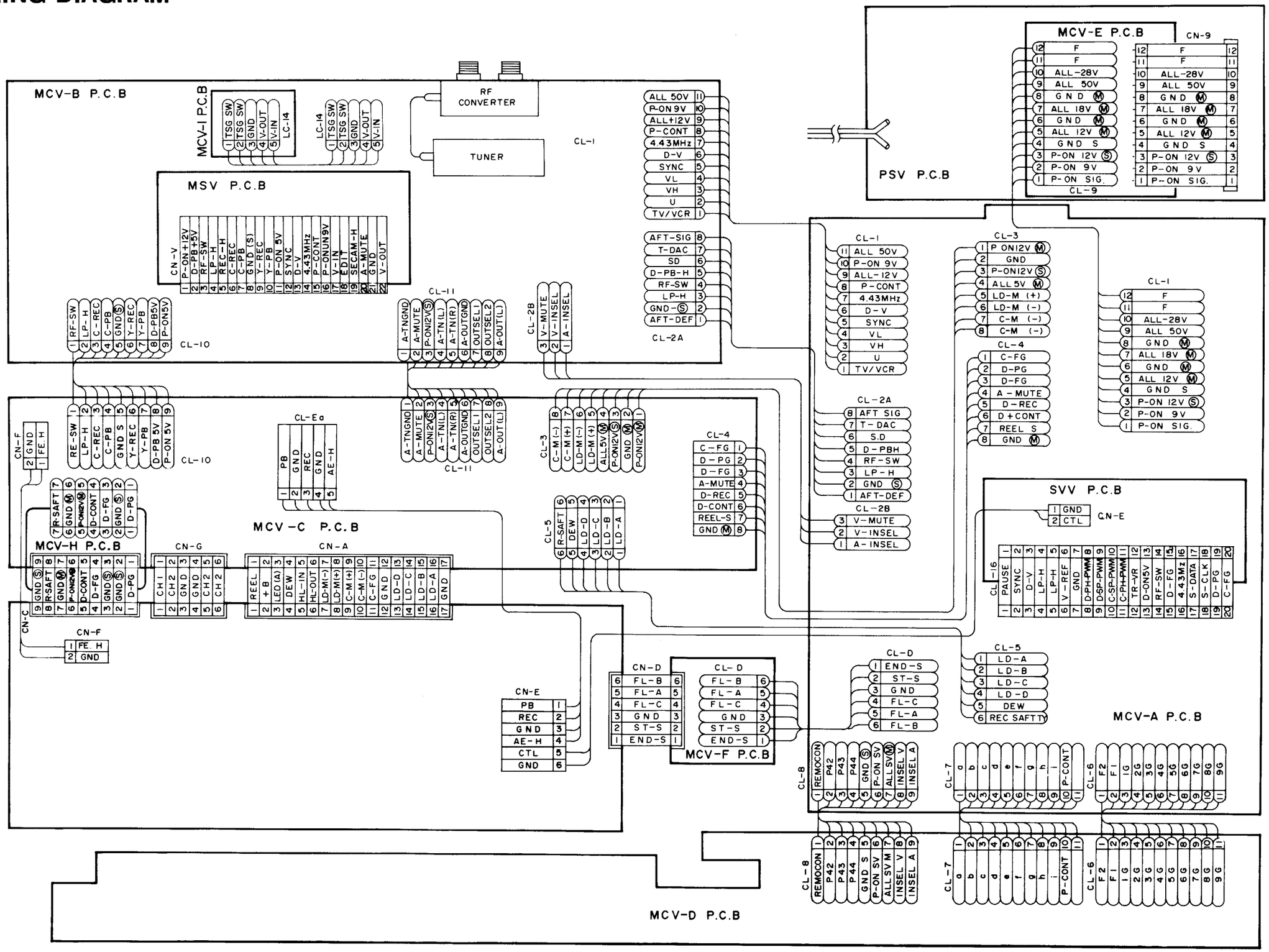
MN1871617FVCR (System Control IC)

Pin No	IN/OUT	Signal name	Function	Active Level
1	IN	VDD	+5V	5V
2	OUT	OSC-2	Crystal Oscillator	~
3	IN	OSC-1	Crystal Oscillator	~
4	——	VSS	GND	0V
5	IN	X1	System Clock	~
6	OUT	X0	System Clock	~
7	IN	FL-A	Cassette in Start Detector	L
8	IN	FL-B	Cassette out Detector	L
9	IN	FL-C	Cassette down Detector	L
10	IN	KEY-DATA1	Key Scan Signal Input	H
11	IN	KEY-DATA2	Key Scan Signal Input	H
12	IN	KEY-DATA3	Key Scan Signal Input	H
13	IN	KEY-DATA4	Key Scan Signal Input	H
14	IN	KEY-DATA5	Key Scan Signal Input	H
15	OUT	S-CLK	Servo IC Timing Clock	L→H
16	OUT	S-DATA	Servo IC Date	H or L
17	IN	LP/EP-H	Tape Speed	H
18	IN	EP-H	Tape Speed	H
19	IN	LD-A	Tape Loading Position Detector	L
20	IN	LD-B	Tape Loading Position Detector	L
21	IN	LD-C	Tape Loading Position Detector	L
22	IN	LD-D	Tape Loading Position Detector	L
23	IN	RF-SW	Switching Pulse	~
24	IN	ST-S	Tape Start Position Detector	H
25	IN	END-S	Tape End Postion Detector	H
26	IN	REEL-P	Reel Pulse Signal Input	~
27	IN	POW-SAFT	Power Abnormal Detector	L
28	IN	REC-SAFT	Record Saftey Switch	H
29	IN	DEW	Dew Sensor	H
30	OUT	D-PB	Play Control	H
31	IN	REMOCON	Remote Control Serial Signal	H or L
32	IN	P-DOWN	Power down Input Signal	L
33	OUT	T-DAC	Tuner Tuning Voltage Control Signal	H or L
34	OUT	BUZZER	Buzzer Control Output	H
35	——	————	————————————	—

Pin No	IN/OUT	Signal name	Function	Active Level
36	IN	SD	Tuner Video Signal SYNC Signal Input, "L" at SYNC Signal	L
37	IN	RESET	System Intialize Signal	L
38	IN	AFT UP	Tuner AFT Voltage Input, "H" at over 8V of AFT Voltage	H or L
39	IN	AFT DOWN	Tuner AFT Voltage Input, "H" at under 4V of AFT Voltage	H or L
40	OUT	SCL	Memory IC Timing Clock	L→H
41	IN/OUT	SDA	Memory IC Data	H or L
42	OUT	TV/VCR	TV/VCR Control	H or L
43	OUT	U	Tuner Band Set Signal	L
44	OUT	VH	Tuner Band Set Signal	L
45	OUT	VL	Tuner Band Set Signal	L
46	OUT	A-MUTE	Sound Mute Output	H
47	OUT	C-REV	Capstan Motor Reverse	H
48	OUT	C-FWD	Capstan Motor Forward	H
49	OUT	D-REC	Delayed Record Control	H
50	—	—	—	—
51	OUT	SYNC	Synchronaized Pulse	~
52	IN	VPP	Power Supply	-28V
53	IN	P-ON	Power on	H
54	—	—	—	—
55	OUT	DM-ON	Drum Rotation Output	L
56	OUT	CAP-FAST	Capstan Motor High Speed	H
57	OUT	LM-REV	Loading Motor Forward	H
58	OUT	LM-FWD	Loading Motor Reverse	H
59	OUT	PAUSE	Pause Control	H
60	OUT	P77(G1)	Display Digit Output	H
61	OUT	P80(G2)	Display Digit Output	H
62	OUT	P81(G3)	Display Digit Output	H
63	OUT	P82(G4)	Display Digit Output	H
64	OUT	P83(G5)	Display Digit Output	H
65	OUT	P84(G6)	Display Digit Output	H
66	OUT	P85(G7)	Display Digit Output	H
67	OUT	P86(G8)	Display Digit Output	H
68	OUT	P87(G9)	Display Digit Output	H
69	OUT	P50(a)	Display Segment Output / Key Scan Signal Output	H

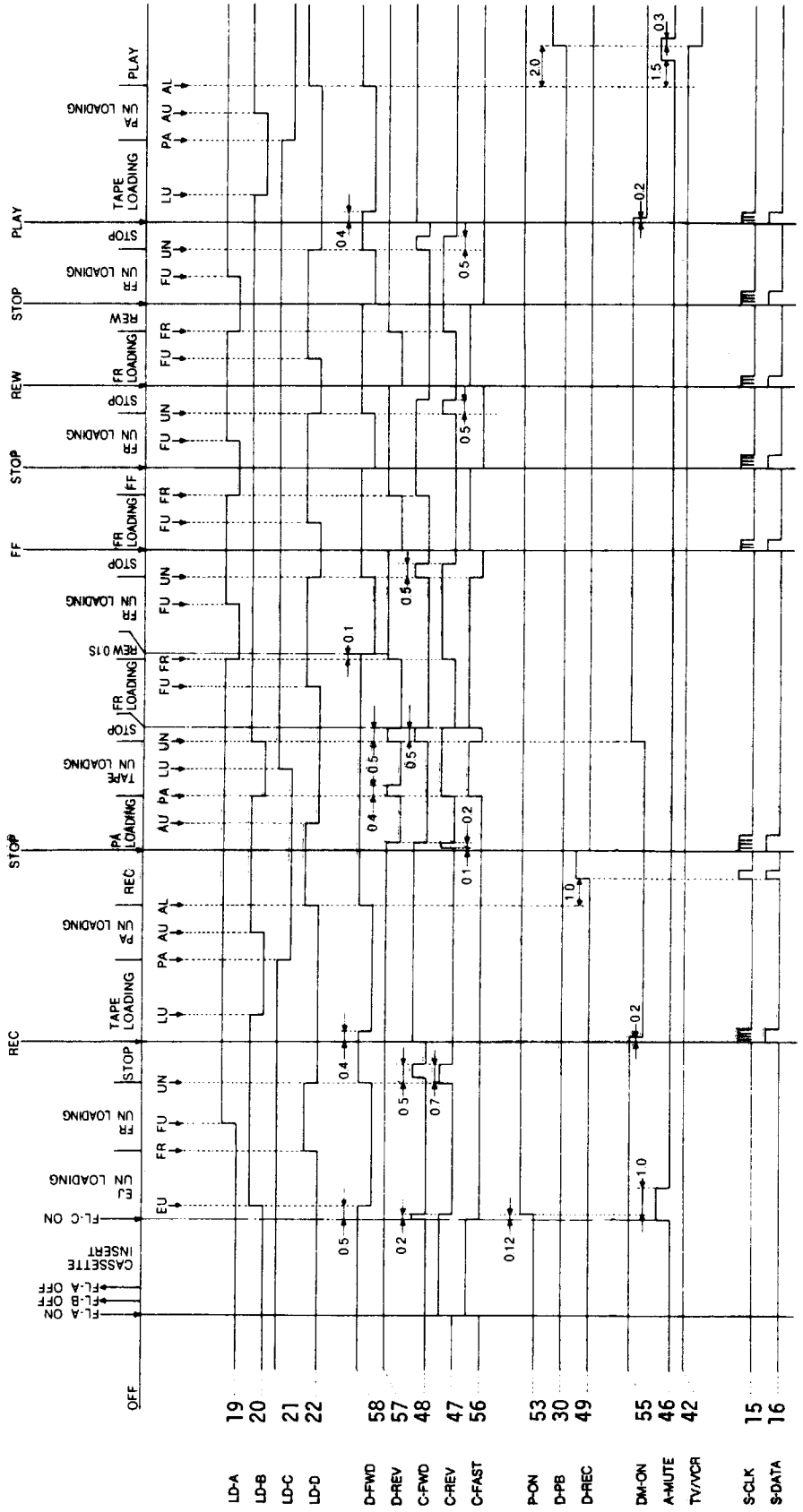
Pin No	IN/OUT	Signal name	Function	Active Level
70	OUT	P51(b)	Display Segment Output / Key Scan Signal Output	H
71	OUT	P52(c)	Display Segment Output / Key Scan Signal Output	H
72	OUT	P53(d)	Display Segment Output / Key Scan Signal Output	H
73	OUT	P54(e)	Display Segment Output / Key Scan Signal Output	H
74	OUT	P55(f)	Display Segment Output / Key Scan Signal Output	H
75	OUT	P56(g)	Display Segment Output / Key Scan Signal Output	H
76	OUT	P57(h)	Display Segment Output / Key Scan Signal Output	H
77	OUT	P60(i)	Display Segment Output / Key Scan Signal Output	H
78	—	———	———	—
79	—	———	———	—
80	—	———	———	—
81	—	———	———	—
82	OUT	AFT-DEF	AFT Defect Signal	H
83	OUT	V-MUTE	Video Signal Mute Signal	H
84	—	———	———	—

WIRING DIAGRAM

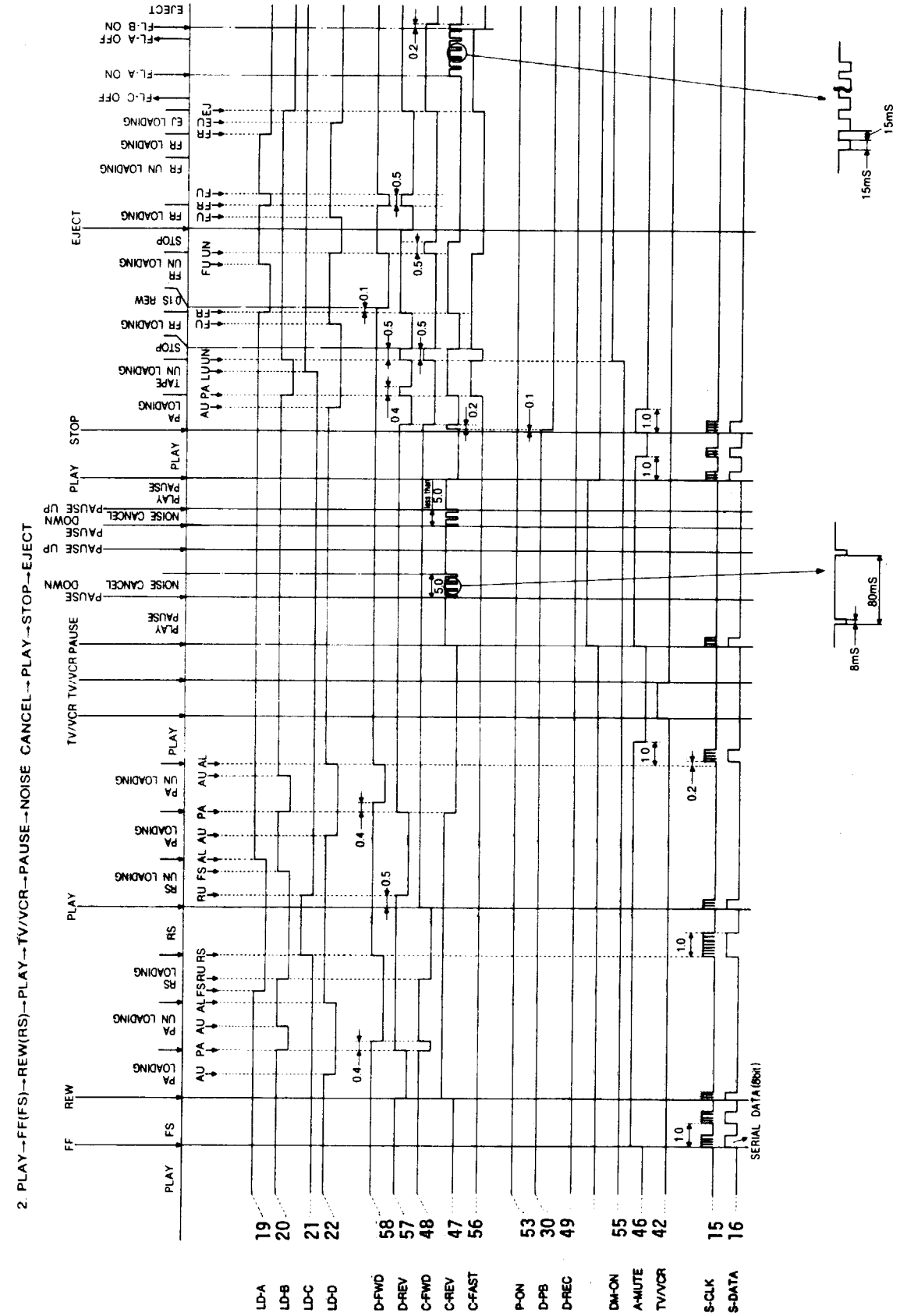


SYSTEM CONTROL TIMING CHARTS

1. OFF→CASSETTE INSERT→REC→STOP→FF→STOP→REW→STOP→PLAY



2. PLAY→FF(FS)→REW(RS)→PLAY→TV/VCR→PAUSE→NOISE CANCEL→PLAY→STOP→EJECT



PARTS LIST

1. PARTS LIST

PRODUCT SAFETY NOTE

Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice of the Service Manual. Don't degrade the safety of the product through improper servicing.

CABINET & FRONT PANEL PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
A- 1X	9A02513000	FRONT ASSY (CONSISTS OF FOLLOWING)	
A- 1	9A02513100	FRONT PANEL ASSY	
A- 2	9A02513200	PLATE, COUNTER	
A- 3	9A02513300	PLATE, TIMER	
A- 4	9A02513400	DOOR, TIMER	
A- 5	9A02513500	DOOR, CASSETTE	
A- 6	9A02513600	SPRING, DOOR	
A- 7	9A02513700	CUSHION, DOOR	
A- 8	9A02513800	SPACER	
A- 9	9A01106200	LATCH,	
A-10	9A00474600	FOOT	
A-11	9A02513900	PLATE, DECOLATION	
A-16	9A02514000	CASE, TOP	
A-17	9A02514100	PANEL, BOTTOM	
A-18	9A02514200	LABEL, TYPE	
A-19	9A02514300	JACK BOARD	
B1- 1	9A02514400	DECK ASSY (See Deck Parts List)	
B2- 1	9A02514500	CABINET, MAIN	
B2- 2	9A02514600	GROUND PLATE, CONV.	
B2- 3	9A01107000	GROUND PLATE, MAIN	
B2- 4	9A01107100	GROUND PLATE, PCB	
B2- 5	9A00476000	STOPPER HOLDER, AC CORD	
B2- 6	9A02514700	HOLDER,TRANS	
B2- 7	9A02514800	HEAT SINK	
B2- 8	9A02514900	HOLDER, FIP	
B2- 9	9A01897700	SHIELD, TOP	
B2-10	9A02515000	SHIELD PLATE,BOTTOM	
B2-11	9A02515100	SHEET, INSULATOR	
B2-12	9A02515200	SHEET,PREV.OF STATIC ECEC	
L2- 2	9A02515400	SCR.P-TIG.BRAZ.FLANGE3X10	
L2- 4	9A00736100	SCREW, CE-TIGHT M4X8	
L2- 5	9A02515800	SCR,LAMI-TIG.A,BI.HE.4X12	
L2- 7	9A02515500	SCREW,SEMS,PAN HEAD, M3X5	
L2- 8	9A00046400	SCREW, P-T. FRANGED M3X8	
L2-11	9A02515600	SCREW,P-TI.BIND HEAD,3X10	
L2-13	9A02515600	SCREW,P-TI.BIND HEAD,3X10	
L2-14	9A02515600	SCREW,P-TI.BIND HEAD,3X10	
L2-31	9A00477000	SCREW, TAP. B HEAD M3X10	
L2-32	9A00477000	SCREW, TAP. B HEAD M3X10	
L2-33	9A02515700	SCREW,TAPP.BIND HEAD 3X10	

INCLUDED ACCESSORY

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A01425500	RF CORD	
	9A02515900	RF CABLE	
	9A02349000	RF CORD 1.5M	
	9A01888300	REMOTE CONTROL BOX	
	9A02516000	OWNER'S MANUAL	
	9A02533600	ACCESSO.BAG230X370X0.025T	
	9A02533700	TOTAL CARE CARD	
	9A02350900	WARRANTY CARD	
	9A01027100	BATTERY, AA (R6) SIZE	
	9A02533800	DRY BATTERY	

DECK ASSY PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
01	9A02304200	CYLINDER ASSY	
02	9A01426100	DRUM, UPPER	
03	9A01108400	LOWER DRUM ASSY	
04	9A01108500	MOUNT, CYLINDER	
05	9A01108600	VIDEO OUT PCB ASSY	
06	9A01108700	SCREW, W SEMS, M2.6X6	
07	9A02306900	MOTOR TM84	
08	9A02307000	SCRE.C-T.M2.6X20	
09	9A00442000	SCREW, SEMS, M2.6X6	
10	9A01109000	SCREW, BIND SEMS, M3X8	
11	9A01109600	SCREW, C TAPPING, M3X10	
12	9A01736000	SCREW, B-TIGHT, M2X6	
13	9A01109200	SCREW, CAP, M2.6X3	
14	9A02307100	FLAT SPRING,DR.G.	
15	9A00444900	SCREW, C-TIGHT M2.6X5	
16	9A01109400	BRACKET, DRUM GROUND	
17	9A02307200	PCB ASSY, DM	
18	9A00444900	SCREW, C-TIGHT M2.6X5	
19	9A01109300	GROUND, DURM	
20	9A01109500	WASHER, TOOTHED LOCK,M2.6	
23	9A02304300	CONNECTO.BRACKET	
32	9A01112200	OPEN ANGLE ASSY	
33	9A01112300	SCREW, C-TIGHT M2.6X4	
34	9A02304700	ADJUSTER,TRACKIN.	
35	9A00446800	GUIDE, TAPE	
36	9A01112400	SPRING, TAPE GUIDE	
37	9A00459300	CAP, GUIDE	
38	9A00447700	FLANGE (C), TAPE GUIDE	
39	9A00447800	FLANGE (D), TAPE GUIDE	
40	9A00447200	NUT, M3	
41	9A01112700	RUBBER, DAMPER	
51	9A01109800	LOADING BASE	
52	9A01109900	BLOCK (L), LOADING	
53	9A01110000	BLOCK (R), LOADING	
54	9A01110100	ROLLER POST, ST	
55	9A01110100	ROLLER POST, ST	
56	9A01109200	SCREW, CAP, M2.6X3	
57	9A00452800	SCREW, CANERA, M2X3	
58	9A00444900	SCREW, C-TIGHT M2.6X5	
59	9A01110200	PLATE (L), LOADING	
60	9A01110300	BOSS, LOADING	
61	9A01110400	SPRING (L), LOADING GEAR	
62	9A01110500	GEAR (L), T LOADING	
63	9A01110600	PLATE (R), LOADING	
64	9A01110700	SPRING (R), LOADING GEAR	
65	9A01110800	GEAR (R), T LOADING	
66	9A00458600	WASHER, POLY 2.6X6X0.5	
67	9A02304400	LOADING BASE ASY	
68	9A02304500	LOADI.GEAR(L)ASY	
69	9A02304600	LOADI.GEAR(R)ASY	
81	9A02304800	HEAD BASE ASSY	
82	9A01117900	HEAD, ACE	
83	9A02304900	BASE, HEAD	
84	9A00737200	SCREW, AZIMUTH SP.M2.6X12	
85	9A00451100	SPRING, AZIMUTH	
86	9A00447900	NUT, NYLON, M3	
88	9A02305000	SCREW, M2.6X7	
89	9A01118100	SCREW, SET, M3X6	
90	9A01118200	SPRING, HEAD	
91	9A01118300	FULL ERASE PLATE ASSY	
92	9A00452500	HEAD,FULL ERASE	

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
93	9A01118500	PLATE, FULL ERASE	
94	9A01118600	SCREW, FLANGE BIND, M2X3	
95	9A00447900	NUT, NYLON, M3	
96	9A01118700	ROLLER, IMPEDANCE	
97	9A01118800	SLEEVE, IMPEDANCE ROLLER	
98	9A01118900	FLANGE (A), TAPE GUIDE	
99	9A01119000	SPRING, TAPE GUIDE FLANGE	
100	9A01119100	WASHER, PLANE 3X8X0.5	
101	9A01119200	SPRING, FE PLATE	
102	9A01119300	PLATE, FE SLIDE	
103	9A01119400	SPRING, FE ACTUATE	
104	9A01119500	LEVER, FE ACTUATE	
105	9A00459200	WASHER, POLY 2.1X5X0.5	
121	9A01119600	REEL ASSY,	
122	9A00456500	WASHER, 3.1X6X0.5	
131	9A01119700	PINCH ROLLER ARM ASSY	
132	9A01119800	ARM PINCH ROLLER	
133	9A00450200	SCREW, SMALL M2.6X4	
134	9A00454100	PINCH ROLLER,A	
135	9A01119900	WASHER, POLY. 5X8X0.5	
136	9A00472500	SCREW, SEMS, M2.6X4	
137	9A01111300	COLLAR	
138	9A01120000	ANGLE, P ACTUATE	
139	9A01120100	HOLDER, P ANGLE	
140	9A01120200	SPRING, P ROLLER	
141	9A01120300	PLATE (A), P SLIDE	
142	9A01111300	COLLAR	
143	9A00444900	SCREW, C-TIGHT M2.6X5	
144	9A01120400	JOINT PLATE	
145	9A01120500	ARM, P ACTUATE	
146	9A01120600	SPRING, P ACTUATE ARM	
147	9A01112800	CRANK, P	
148	9A01112900	COLLAR, P CRANK	
149	9A01113000	SCREW, C-TIGHT FH M2.6X4	
150	9A01113100	SLIDER, P	
151	9A01113200	SPRING, P SLIDER	
152	9A01113300	COLLAR, P SLIDER	
153	9A00444900	SCREW, C-TIGHT M2.6X5	
154	9A01113400	LEBER, P CAM	
155	9A01113500	COLLAR, P CAM LEVER	
156	9A00444900	SCREW, C-TIGHT M2.6X5	
157	9A01120700	PLATE (B), P SLIDE	
171	9A01120800	CAPSTAN MOTOR ASSY	
172	9A01113600	CAPSTAN, FLYWHEEL	
173	9A01113700	BELT, MAIN	
174	9A01113800	FLYWHEEL ANGLE ASSY	
176	9A00456500	WASHER, 3.1X6X0.5	
177	9A01120900	METAL HOUSING ASSY	
178	9A01121000	SCREW, C-TIGHT M2.6X8	
179	9A00465900	SCREW, SEMS M3X4	
180	9A02305100	NY.WA.2.92X5X0.5	
191	9A01121100	ARM, BACK TENSION	
192	9A01112300	SCREW, C-TIGHT M2.6X4	
193	9A01121200	SUPPORT, BACK TENSION	
194	9A01112300	SCREW, C-TIGHT M2.6X4	
195	9A01121300	COLLAR, BAND HOLDER	
196	9A01121400	BAND, BT	
197	9A01121500	SPRING, BAND HOLDER	
198	9A01110900	SPRING, BACK TENSION	
199	9A01121600	WASHER, POLY. 2.1X4X0.5	
200	9A01116400	PLATE, BT CHANGE	
175	9A00443800	SCREW, C-TIGHT M3X5	

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
202	9A01116500	LEVER, BT RETURN	
203	9A01111300	COLLAR	
204	9A00444900	SCREW, C-TIGHT M2.6X5	
205	9A01111000	PLATE, BT ACTUATE	
206	9A01111100	LEVER, BT ACTUATE	
207	9A01111200	COLLAR, BT ACTUATE PLATE	
208	9A01121700	SPRING, BT ACTUATE PLATE	
209	9A01111300	COLLAR	
210	9A00445300	SCREW, S-TIGHT M2.6X3.5	
211	9A00444900	SCREW, C-TIGHT M2.6X5	
221	9A02305200	PLATE ASSY	
222	9A02305300	PLATE SEMI ASSY	
223	9A00462400	SCREW, SEMS M2X4	
224	9A00444900	SCREW, C-TIGHT M2.6X5	
226	9A02305400	GEAR,REEL DRIVE	
228	9A01122500	WASHER, NYLON, 3.1X6X0.3	
229	9A02305500	CLUTCH ASSY	
230	9A01122700	WASHER, NYLON, 2.98X6X0.3	
231	9A01122800	MIDDLE PULLEY ASSY	
232	9A00458600	WASHER, POLY 2.6X6X0.5	
233	9A01122900	BELT, DRIVE	
234	9A01123100	P GEAR ARM ASSY	
235	9A02305600	GEAR, PLAY	
236	9A01123400	RF GEAR ARM ASSY	
237	9A02305700	GEAR, FF	
238	9A00452300	WASHER, POLY 1.6X3.8X0.3	
239	9A02305800	GEAR, ASSY, P	
240	9A02305900	GEAR ASSY, RF	
241	9A02306000	RETURN GEAR ASSY	
242	9A02306100	RETRUN ARM	
251	9A01123800	SHOE, BRAKE	
251	9A01123800	SHOE, BRAKE	
252	9A01123900	ARM, S BRAKE	
253	9A01123600	SPRING, BRAKE ARM	
254	9A01124100	ARM, T BRAKE	
255	9A01123700	S BRAKE ARM ASSY	
256	9A01124000	T BRAKE ARM ASSY	
257	9A01124200	LIFTER, BRAKE	
258	9A01124300	ACTUATOR, L BRAKE	
259	9A01124400	HOOK, TRIGGER	
260	9A01124500	LEVER, TRIGGER	
261	9A01124600	PLATE, BRAKE	
262	9A01124700	BRAKE ACTUATE, BASE	
263	9A01122100	BRAKE,TAKE-UP SOFT	
264	9A01124800	BRAKE, S SOFT	
265	9A01122200	SCREW, SL FH M2X3	
266	9A01122300	COLLAR,T-U SOFT BRAKE ARM	
267	9A01124900	SPRING, L BRAKE ACTUATOR	
268	9A01122400	SPRING,T-U SOFT BRAKE ARM	
269	9A01125000	SPRING, S SOFT BRAKE	
270	9A00459200	WASHER, POLY 2.1X5X0.5	
271	9A01125100	SPRING, TRIGGER LEVER	
272	9A02306200	BRAKE ACTUAT.B.S.	
273	9A02306300	BRAKE PLATE SPRI.	
281	9A01116600	LM ASSY	
282	9A01116700	TRIGGER BEARING ASSY	
283	9A01116800	PULLEY, LOADING	
284	9A00452300	WASHER, POLY 1.6X3.8X0.3	
285	9A01116900	BELT, LOADING	
286	9A01117000	ARM (B), SEARCH	
287	9A00458600	WASHER, POLY 2.6X6X0.5	
288	9A01117100	GEAR, LOADING	

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
289	9A00459200	WASHER, POLY 2.1X5X0.5	
290	9A01117200	ARM,BRACKE ACTUATE	
291	9A01117300	ARM,EJECT ACTUATER	
293	9A01117500	CAM, LOADING	
294	9A01117600	BRUSH, S	
295	9A00465900	SCREW, SEMS M3X4	
296	9A01117700	WASHER, POLY. 2.6X8X0.5	
312	9A01114700	LOADING LEVER SEMI ASSY	
313	9A01114800	ROLLER, CAM	
314	9A01114900	PLATE, LOADING GEAR	
315	9A01115000	COLLAR,LOADING GEAR PLATE	
316	9A01115100	SCREW, C-TIGHT M3X6	
317	9A01115200	LEVER SEMI ASSY	
318	9A01115300	PLATE, SEMI ASSY	
319	9A01115400	SPRING, LOADING ACTUATE	
320	9A01115500	PLATE,LOADING LEVER RELN.	
321	9A00444100	SCREW, SEMS, M2X5	
322	9A01115600	SPRING, L GEAR PLATE	
331	9A00444900	SCREW, C-TIGHT M2.6X5	
332	9A01111300	COLLAR	
333	9A01115700	LEVER, REC	
334	9A01115800	ACTUATOR, REC	
335	9A01115900	SPOKE, REC ACTUATE	
336	9A01116000	SENSOR, DEW	
337	9A00472500	SCREW, SEMS, M2.6X4	
338	9A02306400	PLATE, BASE	
339	9A01116200	SCREW, S-TIGHT M2.6X5	
341	9A01111400	SWITCH, LEAF	
342	9A00444900	SCREW, C-TIGHT M2.6X5	
343	9A01111500	WIRE	
344	9A01111600	HOLDER, WIRE	
345	9A02306500	LAMP HOLDER ASSY	
346	9A01736400	SPRING, REC LEVER	
347	9A02306700	COLLER, SCREW	
361	9A01113900	ACTUATOR, EJECT	
362	9A01111300	COLLAR	
363	9A00444900	SCREW, C-TIGHT M2.6X5	
364	9A01114000	PLATE, L BRAKE	
365	9A01111300	COLLAR	
366	9A00444900	SCREW, C-TIGHT M2.6X5	
367	9A01114100	E IDLER ARM ASSY	
368	9A01114200	E IDLER ARM SEMI ASSY	
369	9A01114300	PULLEY, EJECT	
370	9A00452300	WASHER, POLY 1.6X3.8X0.3	
371	9A01114400	SPRING, IDLER ARM	
372	9A00459200	WASHER, POLY 2.1X5X0.5	
373	9A01114500	BELT, FRONT LOADING	
390	9A02306600	LOADI.ASSY,FRONT	
391	9A01126000	CASSET. LOAD BRACKET ASSY	
392	9A01126100	FRONT LOADING CLUTCH ASSY	
393	9A01126200	FRONT LOADING PCB ASSY	
394	9A01126300	SENSOR, PCB (RM)	
395	9A01126400	C. LOAD BRACKET SEMI ASSY	
396	9A01126500	LEVER, IN SW	
397	9A01126600	LEVER, S SW	
398	9A01126700	BEARING (A), F WORM	
399	9A00452300	WASHER, POLY 1.6X3.8X0.3	
400	9A00472500	SCREW, SEMS, M2.6X4	
401	9A00444100	SCREW, SEMS, M2X5	
411	9A01126800	CASSETTE HOLDER ASSY	
412	9A00467600	HOLDER, CASSETTE	
413	9A00467700	PLATE, SLIDE	

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
414	9A00467800	LOCK PLATE (R)	
415	9A01111300	COLLAR	
416	9A01126900	SPRING, LOCK	
417	9A00998800	SCREW, CAMERA M2.6X3	
420	9A01129500	FRONT ANGLE ASSY	
421	9A01129600	ANGLE, FRONT	
422	9A01129700	GUIDE (R), TAPE	
423	9A01129800	GUIDE (L), TAPE	
430	9A01127000	SIDE PLATE (R) ASSY	
431	9A01127100	PLATE (R), SIDE	
432	9A01127200	PLATE, CASSETTE PUSH	
433	9A00468800	SCREW, CAMERA M2.3X2	
434	9A00468900	LEVER, OPEN	
435	9A00469000	SPRING, OPEN LEVER	
436	9A00469100	COLLAR, OPEN LEVER	
437	9A00522100	SCREW, CAMERA M2X4	
438	9A00469300	LEVER, LOCK RELEA.	
439	9A01127300	ROLLER, GUIDE	
440	9A00469400	ROLLER, GUIDE	
445	9A01127400	SIDE PLATE (L) ASSY	
446	9A01127500	PLATE (L), SIDE	
447	9A01127200	PLATE, CASSETTE PUSH	
448	9A00468800	SCREW, CAMERA M2.3X2	
449	9A00738200	LOCK PLATE (L)	
450	9A01127600	SPRING, (L), LOCK PLATE	
451	9A00470000	COLLAR, LOCK PLATE	
452	9A00470100	SCREW, CAMERA M2.6X2.5	
453	9A01127300	ROLLER, GUIDE	
460	9A02307300	FRAME (R) ASSY	
461	9A02307400	FRAME (R)	
462	9A01127900	WORM WHEEL ASSY	
463	9A01128000	WHEEL, WORM	
464	9A01128100	GEAR, FRICTION	
465	9A01128200	SPRING, FRICTION	
466	9A01128300	LIFT GEAR (R) ASSY	
467	9A00470900	GEAR (R), LIFT	
468	9A00471000	ARM, LIFT	
469	9A00471100	SPRING, LIFT GEAR	
470	9A00471200	GUIDE, OPEN LEVER	
471	9A00471300	SLEEVE, GUIDE	
472	9A00450500	E-RING, 2.5	
480	9A02307500	FRAME (L) ASSY	
481	9A02307600	FRAME (L)	
482	9A01128700	SENSOR, PCB (LM)	
483	9A01128800	GEAR (L) ASSY, LIFT	
484	9A00471800	GEAR (L), LIFT	
485	9A00471000	ARM, LIFT	
486	9A00471100	SPRING, LIFT GEAR	
487	9A02307700	LEVER, LIFT	
488	9A02307800	SPRING,LIFT LEVE.	
489	9A00450500	E-RING, 2.5	
490	9A01129100	SCREW, SEMS, M2.6X7	
491	9A00471300	SLEEVE, GUIDE	
498	9A00469500	STAY, TOP	
499	9A01129200	WIRE, END SENSOR	
500	9A01129300	ANGLE, REAR	
501	9A02307900	PLATE, UPPER	
502	9A01736600	SHAFT, SYNCHRONIZE	
503	9A01129400	GEAR (A), SYNCHRONIZE	
504	9A00450500	E-RING, 2.5	
505	9A00472500	SCREW, SEMS, M2.6X4	
506	9A00468000	SCREW, CAMERA M2.6X3	

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
507	9A00472600	SCREW, CAMERA M2.3X2.5	
508	9A00444900	SCREW, C-TIGHT M2.6X5	
531	9A01125200	PLATE, RG SLIDE	
532	9A01125300	SPRING, RG SLIDE	
533	9A01125400	COLLAR, RG SLIDE PLATE	
534	9A00462400	SCREW, SEMS M2X4	
535	9A01125500	BASE, RG SLIDE	
536	9A02306800	ARM SEMI ASSY,RG	
537	9A00458600	WASHER, POLY 2.6X6X0.5	
538	9A01125700	ARM, RG ACTUATE	
539	9A00459200	WASHER, POLY 2.1X5X0.5	
540	9A01125800	RG ACTUATOR	

NOTE:
As regards the resisters and capacitors, refer to the circuit diagrams and the PCB assy drawings contained in this manual.

MCV PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A02516100	MCV PCB ASSY (Consists of MCV-A,B,C,D,E,F,H,I, MSV,SVV PCB ASSY)
	9A02516200	MCV PCB (Consists of MCV-A,B,C,D,E,F,H,I PCB)
	9A02516300	**MCV-A PCB ASSY**
CL-D	9A02517600	CONNECTOR ASSY 6P
CL-9	9A02517700	JUMPER WIRE 12P
D402,500	9A02382800	SWITCHING DIODE ISS254
D402,500	9A02366000	SWITCHING DIODE US1040M
D402,500	9A02361500	SWITCHING DIODE GMB01B
D501	9A02421500	DIODE ISS252
D501	9A02420500	DIODE US1090M
D501	9A02361500	SWITCHING DIODE GMB01B
D502-504	9A02382800	SWITCHING DIODE ISS254
D502-504	9A02366000	SWITCHING DIODE US1040M
D502-504	9A02361500	SWITCHING DIODE GMB01B
D509,510	9A02382800	SWITCHING DIODE ISS254
D509,510	9A02361500	SWITCHING DIODE GMB01B
D509,510	9A02366000	SWITCHING DIODE US1040M
D518	9A02382800	SWITCHING DIODE ISS254
D518	9A02366000	SWITCHING DIODE US1040M
D518	9A02361500	SWITCHING DIODE GMB01B
D519	9A02365300	ZENER DIODE MTZ8.2B
D519	9A02365800	ZENER DIODE UZ8.2BSB
HIC400	9A02517900	HIC/SERVO BX-7840
IC400	9A02310000	IC BA6209N
IC401	9A00741800	IC.,BA6219B
IC500	9A02517800	IC/I CHIP MN1871617
IC501	9A01738100	IC LA6339 (LINEAR)
IC501	9A01755200	IC NJM2901N
IC501	9A01738200	IC BA10339 (LINEAR)
IC502	9A02002900	IC PST529D-2
IC503	9A02518000	IC X24C01
IC504,505	9A00741500	IC.,AN78M05F
IC504,505	9A01791900	IC NJM78M05FA (LINEAR)
IC504,505	9A02314400	IC UPC78M05FA
L501	9A02389600	INDUCTOR LF-7R5 47UH-5FT
L528	9A00482100	COIL, MICROINDUCTOR 47UH
QR501	9A02518100	R.BUILT-IN TRANS.DTA124ES
QR501	9A00745200	D. TRANSISTOR 2SA1346
Q500	9A02356100	TRANSISTOR 2SB892(S)
Q500	9A02356200	TRANSISTOR 2SB892(T)
Q500	9A02356300	TRANSISTOR 2SB1010(Q)
Q500	9A02356400	TRANSISTOR 2SB1010(R)
Q501	9A02360300	TRANSISTOR 2SC2808(S)
Q501	9A02360200	TRANSISTOR 2SC2808(R)
R401	9A00743200	R. OXIDE FILM 3.3 1W
R401	9A00495200	R. OXIDE FILM 3.3 1W
R402	9A02518200	R.METAL OXIDE FILM 3.3 2W
R402	9A02518300	R.METAL OXIDE FILM 3.3 2W
RX501	9A02518400	R. NETWORK 7P 47K-6
RX501	9A01756300	R. NETWORK 473J
VR400	9A00519700	R. SEMI-FIXED 200K (B)
VR400	9A01429800	R. SEMI-FIXED 200K (B)
X500	9A01895300	RESONATOR,CERAMIC 4.19MHZ
X501	9A01895200	X'TAL, 32KHZ
X501	9A02518500	QUARTS CRYSTAL UNIT 32KHZ
	9A02516400	**MCV-B PCB ASSY**
CO-771	9A01893900	RF CONVERTER,
D701,702	9A02382800	SWITCHING DIODE ISS254
D701,702	9A02366000	SWITCHING DIODE US1040M
D701,702	9A02361500	SWITCHING DIODE GMB01B
D731,751	9A02382800	SWITCHING DIODE ISS254
D731,751	9A02366000	SWITCHING DIODE US1040M
D731,751	9A02361500	SWITCHING DIODE GMB01B
D773,774	9A02382800	SWITCHING DIODE ISS254
D773,774	9A02366000	SWITCHING DIODE US1040M
D773,774	9A02361500	SWITCHING DIODE GMB01B
D972,975	9A02382800	SWITCHING DIODE ISS254
D972,975	9A02366000	SWITCHING DIODE US1040M
D972,975	9A02361500	SWITCHING DIODE GMB01B
IC701	9A02519700	IC LA7910
IC702	9A00742300	IC.,L5631
IC702	9A00494900	IC.,UPC574J
IC731	9A00519300	IC.,LA7210 LINEAR
IC791	9A00749100	IC AN78L05
IC791	9A01142800	IC NJM78L05A
IC791	9A02519800	IC UPC78L05J
IC951	9A01890800	IC NJM2233AS
IC971	9A01890900	IC LA7221
IC971	9A01429300	IC BA7021 (LINEAR)
JK772,773	9A01432400	JACK, RCA
Q332	9A02363900	PCB JUMPER P5.0MM
Q333,334	9A02356800	TRANSISTOR 2SC1740(Q)
Q333,334	9A02359300	TRANSISTOR 2SC1740(R)
Q333,334	9A02356700	TRANSISTOR 2SC536SP(E)
Q333,334	9A02394100	TRANSISTOR 2SC536SP(F)
Q701	9A02356800	TRANSISTOR 2SC1740(Q)
Q701	9A02359300	TRANSISTOR 2SC1740(R)
Q701	9A02356700	TRANSISTOR 2SC536SP(E)
Q701	9A02394100	TRANSISTOR 2SC536SP(F)
Q702	9A02365100	FET 2SK128(P)
Q702	9A02365200	FET 2SK128(Q)
Q702	9A02364900	FET 2SK304(C)
Q702	9A02365000	FET 2SK304(D)
Q772	9A02352000	TRANSISTOR 2SA933(Q)
Q772	9A02352300	TRANSISTOR 2SA933(R)
Q772	9A02352500	TRANSISTOR 2SA608SP(E)
Q772	9A02419300	TRANSISTOR 2SA608SP(F)
Q773	9A02356800	TRANSISTOR 2SC1740(Q)
Q773	9A02359300	TRANSISTOR 2SC1740(R)
Q773	9A02356700	TRANSISTOR 2SC536SP(E)
Q773	9A02394100	TRANSISTOR 2SC536SP(F)
Q774,791	9A02351900	TRANSISTOR 2SA854S(Q)
Q774,791	9A02352200	TRANSISTOR 2SA854S(R)
Q774,791	9A02352900	TRANSISTOR 2SA1317(S)
Q774,791	9A02353000	TRANSISTOR 2SA1317(T)

REF. NO.	PARTS NO.	DESCRIPTION
QR331,701	9A02518100	R.BUILT-IN TRANS.DTA124ES
QR331,701	9A02418000	R.BUILT-IN TRANSI.2SA1346
QR332,702	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR332,702	9A02359400	R.BUILT-IN TRANSI.2SC3400
QR791	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR791	9A02359400	R.BUILT-IN TRANSI.2SC3400
R707	9A00746600	R. OXIDE FILM 1.2K 1W
R779	9A00486200	R. OXIDE FILM 330 1W
R779	9A01429600	R. OXIDE FILM 330 1W
TU701	9A01894000	TUNER UNIT
X751	9A01147700	CERAMIC RESONATOR 500KHZ
	9A01432300	RCA PLUG CORD

REF. NO.	PARTS NO.	DESCRIPTION
	9A02516500	**MCV-C PCB ASSY**
CL-3	9A02520600	CONNECTOR ASSY 15P
CN-A	9A02312000	CONNECT,SIDE 17P
CN-EA	9A02520900	CONNECTOR ASSY
CN-F	9A02521000	CONNECTOR ASSY 2P
CN-G	9A01143900	CONNECTOR HOUSING 6P
IC 1	9A02311300	IC HA11804INT
IC201	9A01144500	IC.,BA7767AS LINEAR
L 1	9A02388400	INDUCTOR LF-7R5 22UH-5FT
L 2	9A02388100	INDUCTOR 18UH
L 3	9A02521100	INDUCTOR 15UH K
L 4	9A02389100	INDUCTOR 33UH K
L 5	9A02388900	INDUCTOR 27UH
L 6	9A02388300	INDUCTOR 180UH K
L 7	9A02390100	INDUCTOR 82UH-AXT
L 8	9A02389700	INDUCTOR 47UH-K-AXT
L 9	9A02387700	INDUCTOR 100UH K
L 10, 11	9A02521200	INDUCTOR 150UH K
L201	9A02387700	INDUCTOR 100UH K
L202	9A01896900	COIL, MICROINDUCTOR 18MH
L202	9A00755500	COIL, MICROINDUCTOR 18MH
L202	9A01759700	COIL, MICROINDUCTOR 18MH
L202	9A00482700	COIL, MICROINDUCTOR 18MH
L202	9A02382700	INDUCTOR 18MH
Q 1, 2	9A02356800	TRANSISTOR 2SC1740(Q)
Q 1, 2	9A02359300	TRANSISTOR 2SC1740(R)
Q 1, 2	9A02356700	TRANSISTOR 2SC536SP(E)
Q 1, 2	9A02394100	TRANSISTOR 2SC536SP(F)
Q231	9A02356900	TRANSISTOR 2SC2060(Q)
Q231	9A02360600	TRANSISTOR 2SD400(F)
Q241	9A02351900	TRANSISTOR 2SA854S(Q)
Q241	9A02352200	TRANSISTOR 2SA854S(R)
Q241	9A02352900	TRANSISTOR 2SA1317(S)
Q241	9A02353000	TRANSISTOR 2SA1317(T)
Q504	9A02356800	TRANSISTOR 2SC1740(Q)
Q504	9A02359300	TRANSISTOR 2SC1740(R)
Q504	9A02356700	TRANSISTOR 2SC536SP(E)
Q504	9A02394100	TRANSISTOR 2SC536SP(F)
QR 1	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR 1	9A02359400	R.BUILT-IN TRANSI.2SC3400
QR241	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR241	9A02359400	R.BUILT-IN TRANSI.2SC3400
RX502	9A02521900	R. NETWORK 47K-4
RX502	9A02522000	R. NETWORK 5P 47K-4

REF. NO.	PARTS NO.	DESCRIPTION
T231	9A00740900	COIL, OSC, AUDIO
T231	9A01897100	COIL, OSC, AUDIO
T231	9A01897000	COIL, OSC, AUDIO
VR 1, 2	9A02522200	R. VARIABLE EVN-D2AA03B23
VR 1, 2	9A02522300	TRIMMER POTENTIOMETER 2K
VR 1, 2	9A02311700	R.SEMI-FI.2.2K(B)
VR231	9A02522400	R. VARIABLE EVN-D2AA03B15
VR231	9A01897300	R. SEMI-FIXED 100K (B)
VR231	9A01144600	R. SEMI-FIXED 100K (B)

REF. NO.	PARTS NO.	DESCRIPTION
	9A02516600	**MCV-D PCB ASSY**
D801,809	9A02382800	SWITCHING DIODE 1SS254
D801,809	9A02366000	SWITCHING DIODE US1040M
D801,809	9A02361500	SWITCHING DIODE GMB01B
FIP801	9A02522700	FIP FIP8DCM7
L801	9A02387800	INDUCTOR 100UH-K-AXT
RS801	9A01147200	REMOTE SENSOR
SW801	9A01138000	SWITCH, SLIDE 1C-2P
SW803,815	9A02522800	PUSH SWITCH
SW803,815	9A01894800	SWITCH, PUSH
SW803,815	9A02312200	SWITCH, PUSH
SW817,827	9A02522800	PUSH SWITCH
SW817,827	9A01894800	SWITCH, PUSH
SW817,827	9A02312200	SWITCH, PUSH
VR801	9A02522900	ROTARY POTENTIOMETER 20K
VR801	9A01147100	POTENTIOMETER 20K (B)
VR802	9A00747200	POTENTIOMETER 250K (B)
VR802	9A00499300	POTENTIOMETER 250K (B)

MCV-E PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
CN- 9	9A01757600	CONNECTOR,(TOP)12P

REF. NO.	PARTS NO.	DESCRIPTION
	9A02516800	**MCV-F PCB ASSY**
CN-D	9A01436000	CONNECTOR BASE 6P (TOP)

REF. NO.	PARTS NO.	DESCRIPTION
	9A02516900	**MCV-H PCB ASSY**
CN-C	9A01136600	CONNECTOR, (SIDE) 9P

REF. NO.	PARTS NO.	DESCRIPTION
	9A02517000	MCV-I PCB ASSY
CN-14	9A01436300	CONNECTOR, (TOP) 4P
JK772,773	9A01436200	JACK, BNC
L2- 8	9A00046400	SCREW, P-T. FRANGED M3X8

MSV PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A02308300	MSV PCB
CL-7	9A02524400	PIN HEADE.ANGLE,22P
D 51	9A02366000	SWITCHING DIODE US1040M
D 51	9A02382800	SWITCHING DIODE 1SS254
D 51	9A02361500	SWITCHING DIODE GMB01B
D102	9A02366000	SWITCHING DIODE US1040M
D102	9A02382800	SWITCHING DIODE 1SS254
D102	9A02361500	SWITCHING DIODE GMB01B
DL101	9A02314300	FILTER, COMB
DL101	9A01890700	FILTER COMB 4.43MHZ
IC 51	9A02524500	IC LA7323
IC 52	9A02314600	IC LC8992
IC 53	9A00741500	IC.,AN78M05F
IC 53	9A02314400	IC UPC78M05FA
IC 53	9A01791900	IC NJM78M05FA (LINEAR)
IC101	9A02314500	IC LA7331N
L 51,52	9A02389900	INDUCTOR 68UH K
L 53	9A02387800	INDUCTOR 100UH-K-AXT
L 57	9A02389700	INDUCTOR 47UH-K-AXT
L101	9A02388100	INDUCTOR 18UH
L102	9A02524600	INDUCTOR 3.9UH K
L103,106	9A02389300	INDUCTOR LF5R0 330UH-AXT
L105	9A02524700	INDUCTOR 270UH K
L107	9A02521100	INDUCTOR 15UH K
Q 51,54	9A02352000	TRANSISTOR 2SA933(Q)
Q 51,54	9A02352300	TRANSISTOR 2SA933(R)
Q 51,54	9A02419300	TRANSISTOR 2SA608SP(F)
Q 51,54	9A02352500	TRANSISTOR 2SA608SP(E)
Q 52,53	9A02356800	TRANSISTOR 2SC1740(Q)
Q 52,53	9A02359300	TRANSISTOR 2SC1740(R)
Q 52,53	9A02356700	TRANSISTOR 2SC536SP(E)
Q 52,53	9A02394100	TRANSISTOR 2SC536SP(F)
Q 55,56	9A02356800	TRANSISTOR 2SC1740(Q)
Q 55,56	9A02359300	TRANSISTOR 2SC1740(R)
Q 55,56	9A02356700	TRANSISTOR 2SC536SP(E)
Q 55,56	9A02394100	TRANSISTOR 2SC536SP(F)
Q101	9A02356800	TRANSISTOR 2SC1740(Q)
Q101	9A02359300	TRANSISTOR 2SC1740(R)
Q101	9A02356700	TRANSISTOR 2SC536SP(E)
Q101	9A02394100	TRANSISTOR 2SC536SP(F)
Q102,107	9A02360400	TRANSISTOR 2SC2839(E)
Q102,107	9A02360500	TRANSISTOR 2SC2839(F)
Q102,107	9A02360000	TRANSISTOR 2SC2058(Q)
Q102,107	9A02360100	TRANSISTOR 2SC2058(R)
Q103 104	9A02356800	TRANSISTOR 2SC1740(Q)
Q103,104	9A02359300	TRANSISTOR 2SC1740(R)
Q103,104	9A02356700	TRANSISTOR 2SC536SP(E)
Q103,104	9A02394100	TRANSISTOR 2SC536SP(F)
QR53,54	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR53,54	9A02359400	R.BUILT-IN TRANSI.2SC3400
QR57	9A02394000	R.BUILT-IN TRANS.DTC124ES
QR57	9A02359400	R.BUILT-IN TRANSI.2SC3400
T 51	9A01428300	FILTER LPF 3MHZ
T 51	9A00515900	FILTER LPF 3MHZ
T101	9A02314200	FILTER, LC
VR51,52	9A00522900	R. SEMI-FIXED 5K (B)
VR51,52	9A00488200	R. SEMI-FIXED 5K (B)
VR53	9A01738700	R. SEMI-FIXED 2K (B)
VR53	9A01738600	R. SEMI-FIXED 2K (B)
VR54	9A02002000	R. SEMI-FIXED 500(B)
VR54	9A01852500	R. SEMI-FIXED 500 (B)
VR54	9A02315100	R.SIMI-FIX.500(B)
VR55	9A00522900	R. SEMI-FIXED 5K (B)
VR55	9A00488200	R. SEMI-FIXED 5K (B)
X101	9A02315200	X'TAL4.433619MHZ
X101	9A02315300	X'TAL4.433619MHZ

SSV PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A02525000	SVV PCB
CL16	9A02525100	PIN HEAD.,ANGLE,20P
CN-E	9A00490100	CONNECTOR, (TOP) 2P
D401	9A02382800	SWITCHING DIODE 1SS254
D401	9A02366000	SWITCHING DIODE US1040M
D401	9A02361500	SWITCHING DIODE GMB01B
IC402	9A01428600	IC MN6748 FVAP
Q400	9A02356800	TRANSISTOR 2SC1740(Q)
Q400	9A02359300	TRANSISTOR 2SC1740(R)
Q400	9A02356700	TRANSISTOR 2SC536SP(E)
Q400	9A02394100	TRANSISTOR 2SC536SP(F)
QR400	9A00489200	D. TRANSISTOR DTC124ES
QR400	9A00744900	D. TRANSISTOR 2SC3400
VR401	9A01764300	R. SEMI-FIXED 200K (B)

PSV PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	9A02523100	PSV PCB
CN-9	9A01768500	CONNECTOR,(TOP)12P
D601-604	9A01438900	DIODE 1N4003
D601-604	9A01438600	DIODE GP10-4003
D605	9A01145600	DIODE BRIDGE S4VB20
D605	9A00500100	DIODE,KBL02
D605	9A01145500	DIODE BRIDGE RS403L
D605	9A02523200	BRIDG.DIODE BR32J01
D606-611	9A01438900	DIODE 1N4003
D606-611	9A01438600	DIODE GP10-4003
D612	9A02363900	PCB JUMPER P5.0MM
D613	9A02420000	ZENER DIODE MTZ6.2B
D613	9A02523300	ZENE.DIODE UZ6.2BSB
D614	9A02420100	ZENER DIODE MTZ30A
D614	9A02523400	ZENER DIODE UZ30BSA
F601	9A00520900	FUSE T-200MA/250V
F601	9A02005400	FUSE T200MA
F602	9A00418800	FUSE 500M/MA/250V
F602	9A02005500	FUSE T500MA

REF. NO.	PARTS NO.	DESCRIPTION
IC601	9A00504100	IC.,AN7818F LINEAR
IC601	9A01145700	IC NJM7818FA (LINEAR)
IC602,603	9A00746500	IC AN7812F
IC602,603	9A01145900	IC NJM7812FA (LINEAR)
Q602	9A02361100	TRANSISTOR 2SD1207(S)
Q602	9A02361200	TRANSISTOR 2SD1207(T)
Q602	9A02360900	TRANSISTOR 2SD1384(Q)
Q602	9A02361000	TRANSISTOR 2SD1384(R)
Q603	9A02356300	TRANSISTOR 2SB1010(Q)
Q603	9A02356400	TRANSISTOR 2SB1010(R)
Q603	9A02356100	TRANSISTOR 2SB892(S)
Q603	9A02356200	TRANSISTOR 2SB892(T)
T601	9A02523700	POW.TRANS 240V/50HZ
	9A00063500	STOPPER, AC CORD
	9A00521100	FUSE HOLDER
	9A00521400	AC CORD
	9A01439500	AC CORD

MV-306

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TEAC CORPORATION	Musashino Center Bldg., 1-19-18, Nakacho, Musashino-shi, Tokyo 180, Japan Phone: (0422) 52-5081
TEAC AMERICA, INC.	7733 Telegraph Road, Montebello, California 90640 Phone: (213) 726-0303
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