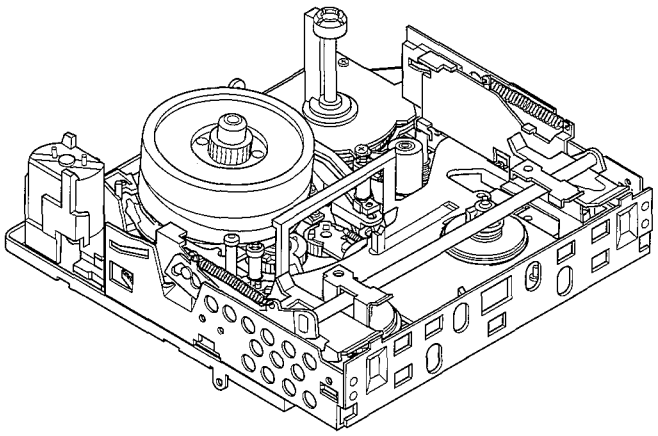
HITACHI

SERVICE MANUAL

TK | No.6811E

UH MECHANISM

V21602



Disassembly & Adjustment

Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

June 1998 Image & Information Media Systems Division, Tokai

CONTENTS

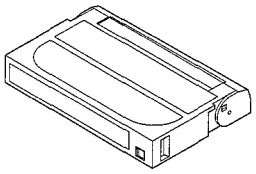
List of Component Identifications

Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. The following table lists abbreviations for formal (general) names.

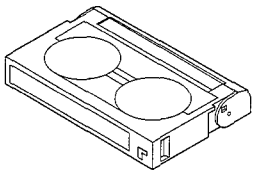
Abbreviations	Formal (general) names	Abbreviations	Formal (general) names
B-Base	Tension Band Base	Guide Roller (I)	Supply Guide Roller
Brake	Supply Sub Brake	Guide Roller (O)	Take-up Guide Roller
Brake Gear	Take-up Brake Gear	Link (L)	Supply Link Gear
Brush	Cylinder Brush	Link (R)	Take-up Link Gear
CM Base	Capstan Motor Base	LM Gear	Loading Motor Gear
Drive Arm	Loading Drive Arm	Mode Switch	Mechanism State Switch
Drive Lever	Pressure Roller Drive Lever	OHD Arm	Pull Out Arm
ED Arm	Eject Drive Arm	Pressure Arm	Pressure Roller Arm
Guide Rail (I)	Supply Guide Roller Rail	Operation Plate	Tension Operation Plate
Guide Rail (O)	Take-up Guide Roller Rail		

Jigs And Tapes For Adjutstment

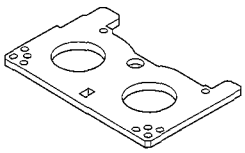
1. ALIGNMENT TAPE
Color Bar/400Hz
For NTSC
20HSC-2: No. 7099231
For PAL
20HSC-3: No. 7099232



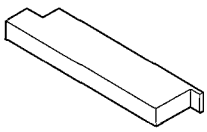
2. CASSETTE TORQUE METER
For NTSC
SRK-8T-132: No. 7099235
SRK-8T-112: No. 7099385
For PAL
SRK-8T-232: No. 7099236
SRK-8T-212: No. 7099402



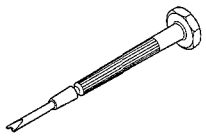
3. MASTER PLANE
No. 7099237



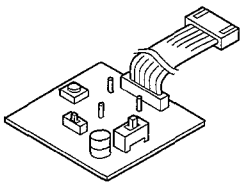
4. REEL DISK HEIGHT JIG
No. 7099238



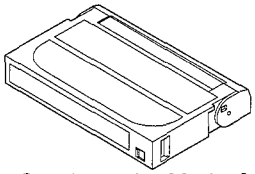
5. SPECIAL DRIVER
No. 7099239



6. ATF-R JIG (*1, *2)
No. 7069461



7. BLANK TAPE
For NTSC: P6-120
For PAL: P5-90



[Goods on the Market]

*1. Always set SW3 on the ATF-R jig to ON.
*2. The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.

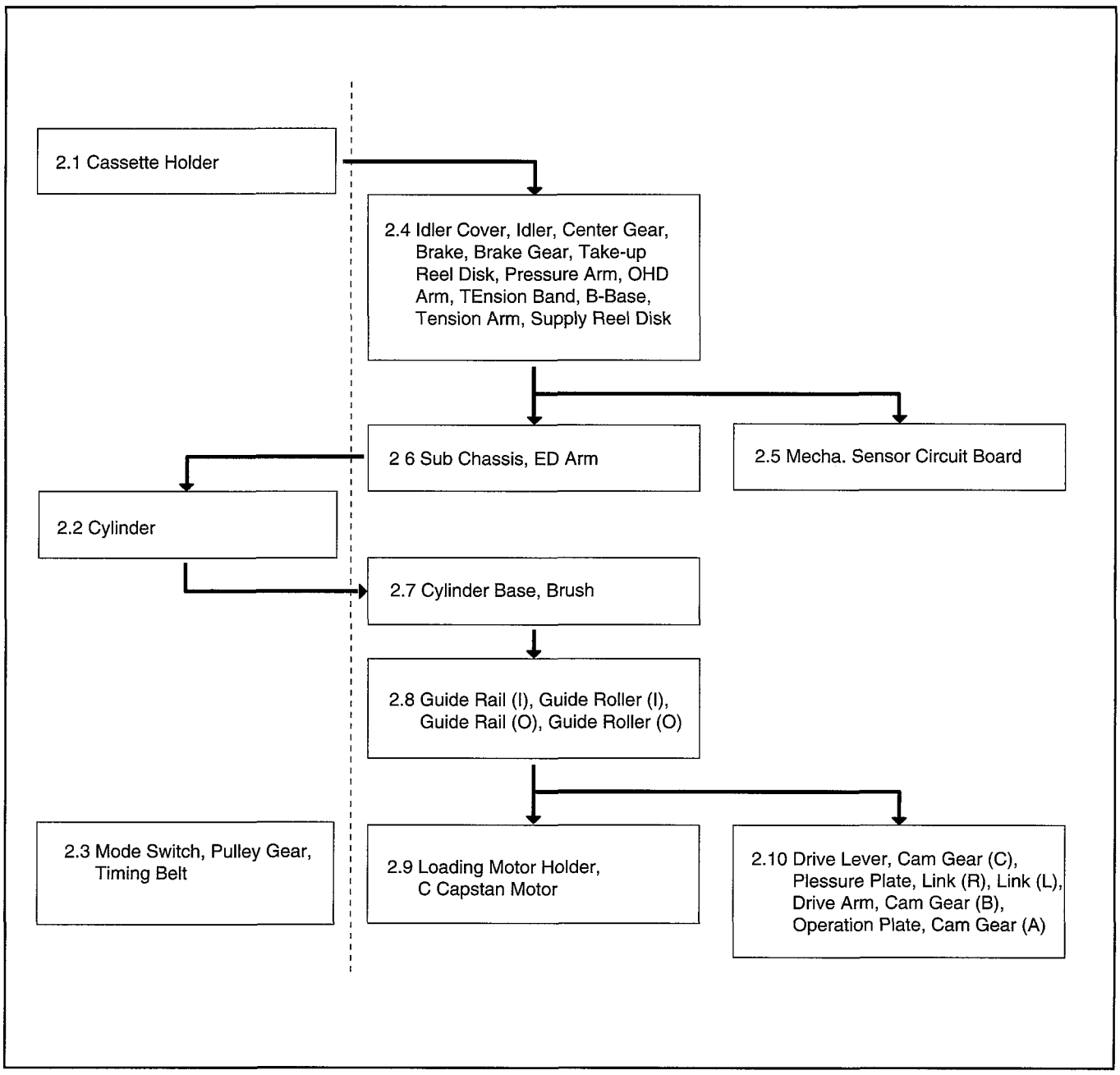
CHAPTER 1 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

(1) The UH mechanism must basically be dismantled in the unloading stop state.
To manually set the mechanism to the unloading stop state, refer to "3. Method for Manual Unloading".
(2) Dismantle each component according to "1.1 Disassembly procedure".
(3) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.
(4) Do not reuse removed washers.
(5) Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. For formal (general) names, refer to the table on the first page of this manual.

1.1 Disassembly Procedure

Note: Components on the left in broken lines can be removed independently.



1.2 Main Mechanical Conponents Identification

1.2.1 TopView

1. Cylinder
2. Capstan Motor
3. Guide Rail (O) [Take-up Guide Roller Rail]
4. Guide Roller (O) [Take-up Guide Roller]
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller Arm]
7. Take-up Reel Disk
8. Mecha. Sensor Circuit Board
9. Idler Cover
10. Idler
11. Sub Chassis
12. Supply Reel Disk
13. Link (R) [Take-up Link Gear]
14. Link (L) [Supply Link Gear]
15. Tension Band
16. Guide Roller (I) [Supply Guide Roller]
17. Tension Arm
18. Guide Rail (I) [Supply Guide Roller Rail]
19. Main Chassis
20. Loading Motor Holder
21. Cylinder Base

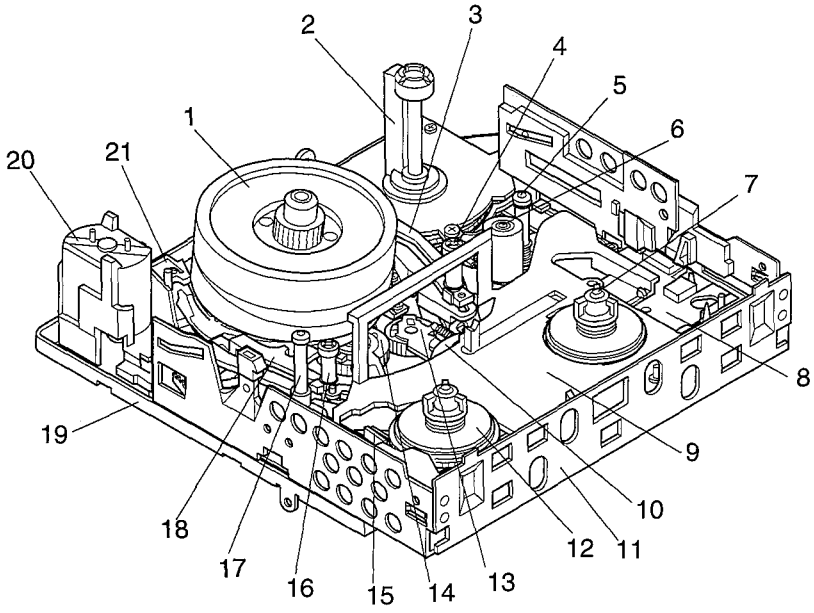


Fig. 1-1

1.2.2 Bottom View

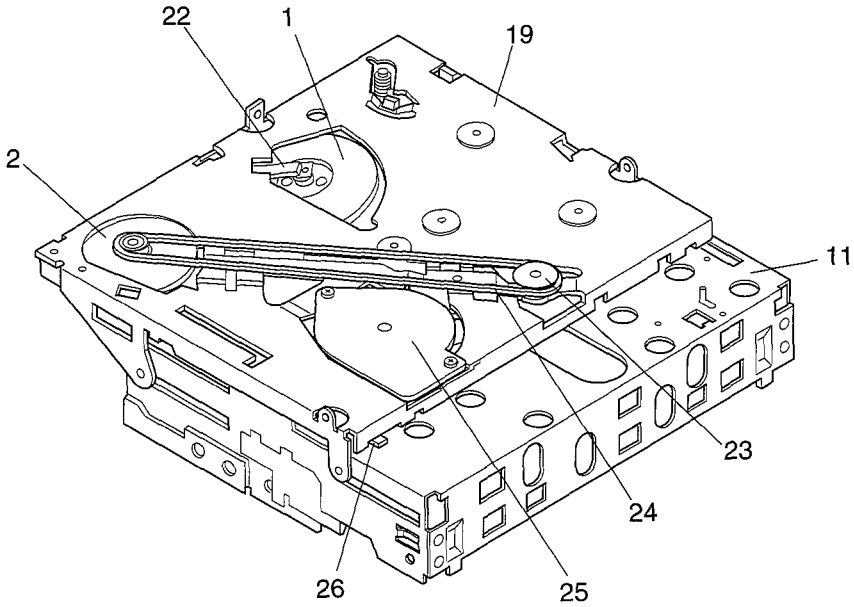


Fig. 1-2

1. Cylinder
2. Capstan Motor
11. Sub Chassis
19. Main Chassis
22. Brush [Cylinder Brush]
23. Pulley Gear
24. Timing Belt
25. Mode Switch [Mechanism State Switch]
26. ED Arm [Eject Drive Arm]

2. MECHANICAL COMPONENTS REMOVAL

2.1 Cassette Holder

Note: If the cassette holder does not raise, to move the EJECT LOCK of the holder to raise it. (See Fig. 2-1)

(1) Remove the E-rings holding the cassette holder on the left and right. (See Fig. 2-1)
(2) Use the linked sections of the holder front arms (L&R) with the sub chassis as pivots, to lift the rear arms (L&R) in the direction of the arrow.
(3) Release the front arms (L&R) from the sub chassis, and remove the cassette holder.

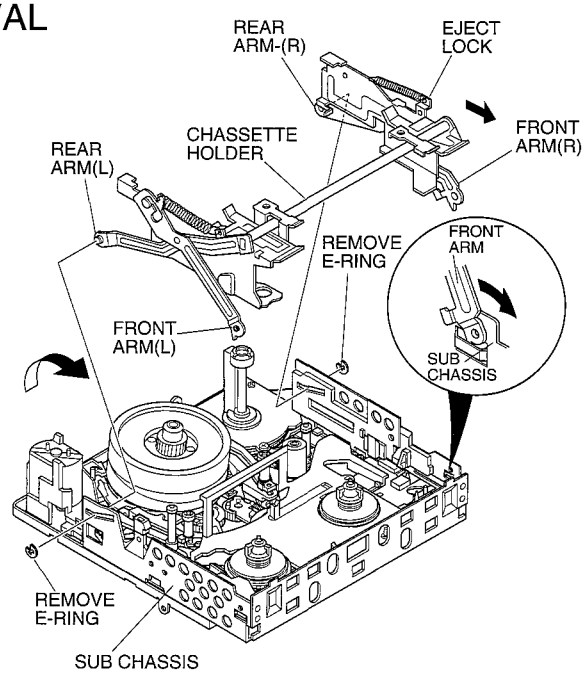


Fig.2-1

2.2 Cylinder

Note: Be sure not to touch video head tips with your fingers or tools, etc. during work.

(1) Remove 3 screws. (See Fig. 2-2)

Reinstallation procedure and caution:
1. After reinstalling the cylinder, be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HEIGHT ADJUSTMENT (ADJUSTMENT AFTER REPLACING THE CYLINDER)

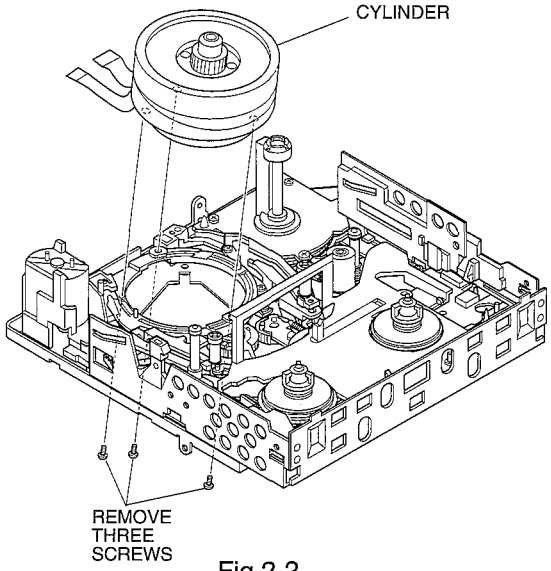


Fig.2-2

2.3 Mode Switch, Pulley Gear, Timing Belt

Note: Remove these components before removing the idler gear on the next item.

■ Mode Switch
(1) Remove 1 screw. (See Fig. 2-3)

Reinstallation procedure and caution:
1. Make sure of gear phase. (See Figs. 2-3(B), 2-14 and 2-15)

■ Pulley Gear, Timing Belt
(1) Remove 1 washer. (See Fig. 2-3 (A))
(2) Pull up the pulley gear and remove the timing belt.

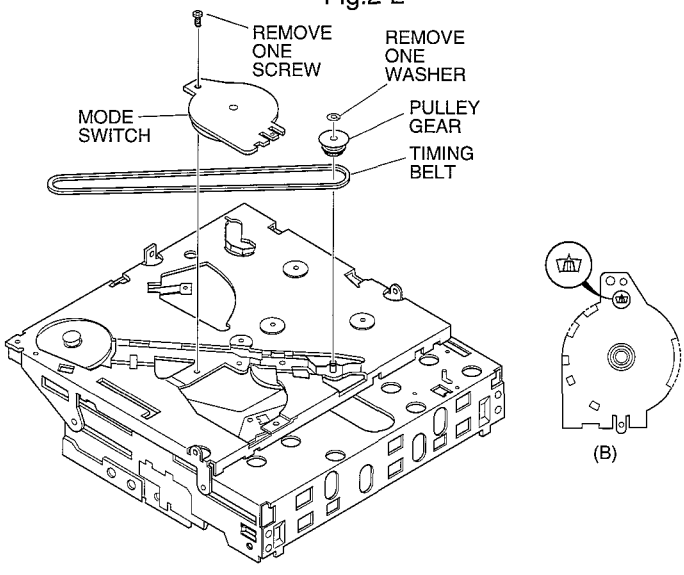


Fig.2-3

2.4 Idler Cover, Idler, Center Gear, Brake, Brake Gear, Take-up Reel Disk, Pressure Arm, OHD Arm, Tension Band, B-Base, Tension arm, Supply Reel Disk

Notes: 1. Do not turn over the sub chassis with the idler cover removed.
2. To separate the sub chassis from the main chassis, remove only components marked @ and proceed with removal of "2.6 Sub Chassis and ED Arm".

■ Idler Cover (@)

(1) Release the spring (a) between the brake and sub chassis. (See Fig. 2-4)
(2) Release the spring (b) between the pressure arm and idler cover.
(3) Release the spring (c) between the B-base and idler cover.
(4) Remove 4 screws.

■ Idler (@), Center Gear

(5) Remove the idler. (See Fig. 2-4)
(6) Pull up the center gear.

■ Brake (@)

(5) Remove the brake. (See Fig. 2-4)

■ Brake Gear

(5) Pull up the brake gear. (See Fig. 2-4)

■ Take-up Reel Disk

(5) Pull up the take-up reel disk. (See Fig. 2-4)

■ Pressure Arm, OHD Arm

(5) Pull up the pressure arm. (See Fig. 2-4)
(6) Release the spring (d) between the sub chassis and OHD arm.
(7) Pull out the OHD arm.

Reinstallation procedure and caution:

1. The pressure arm and OHD arm must be installed in the positions shown in Fig. 2-6(B).
2. After reinstalling the OHD arm, be sure to perform the following mechanical adjustment.
   OHD ARM HEIGHT ADJUSTMENT

■ Tension Band, B-Base, Tension Arm

(5) Release the tension spring. (See Fig. 2-4)
(6) Remove 1 screw holding the tension band and B-base.
(7) Remove the tension band with the tension arm.
(8) Remove the tension band from the tension arm in the direction of the arrow. (See Fig. 2-5)

Reinstallation procedure and caution:

1. The tension arm and must be installed in the positions shown in Fig. 2-6(A).
2. After reinstalling the tension band and tension spring, be sure to perform the following mechanical adjustment.
   TENSION ARM POSITION ADJUSTMENT
   TENSION TORQUE CHECK/ADJUSTMENT

■ Supply Reel Disk

(9) Pull up the supply reel disk. (See Fig. 2-4)

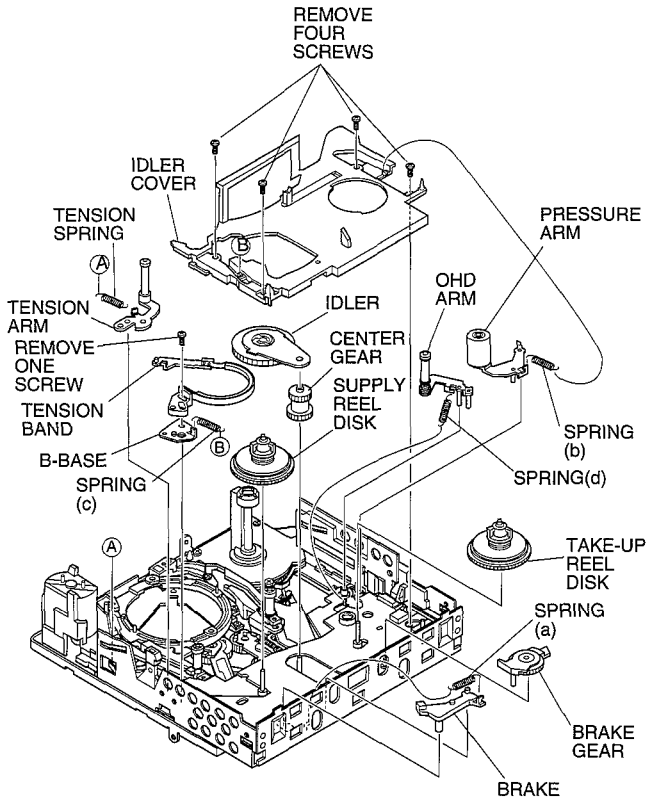


Fig.2-4

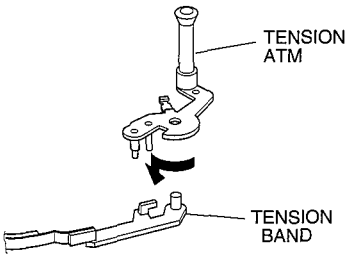


Fig.2-5

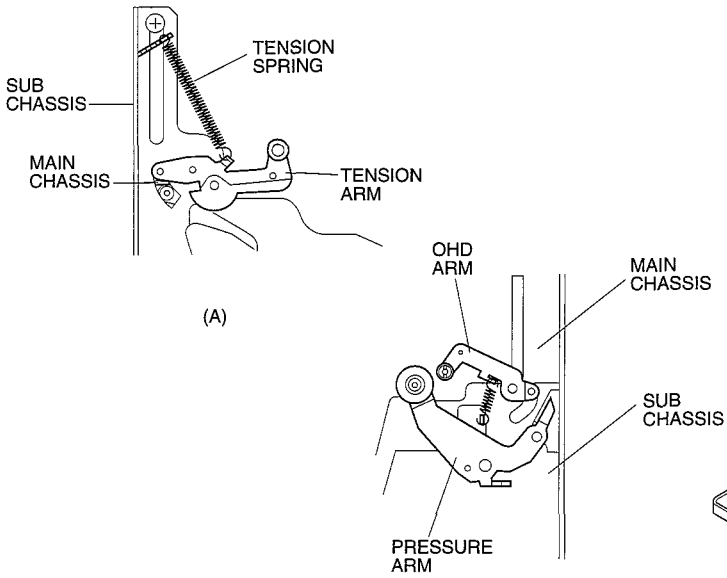


Fig.2-6

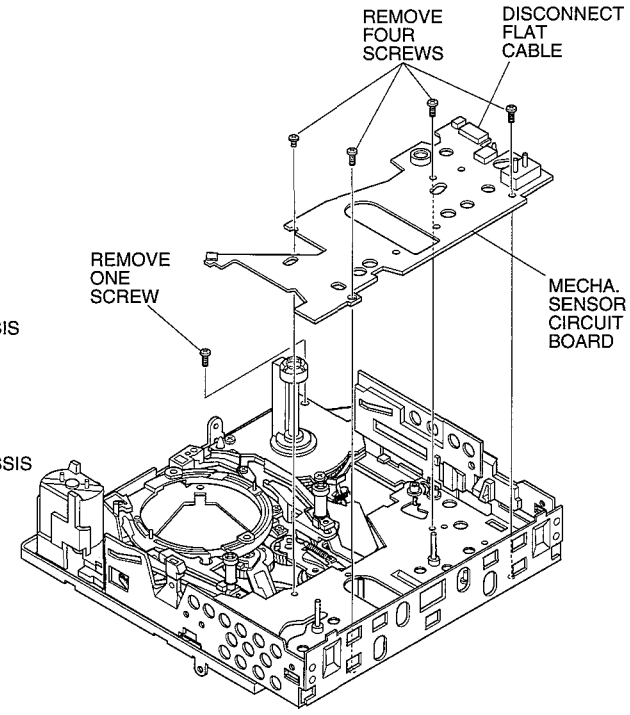


Fig.2-7

2.5 Mecha. Sensor Circuit Board

(1) Disconnect flat cable (See Fig. 2-7).
(2) Remove 4 screws.
(3) Remove 1 screws.

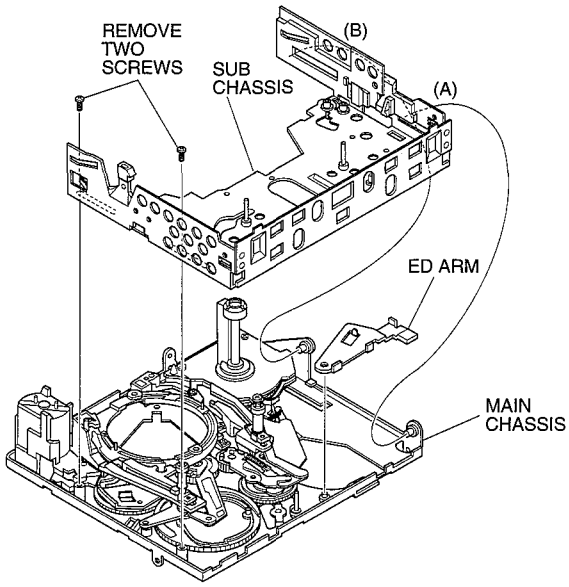


Fig.2-8

2.6 Sub Chassis, ED Arm

(1) Remove 2 screws. (See Fig. 2-8)
(2) Release linked sections (A) and (B) with the main chassis.
(3) Remove the ED Arm.

Reinstallation procedure and caution:

1. The ED arm must be installed in the position shown in Fig. 2-9(A).
2. Install the sub chassis so that sections (A) and (B) are linked with the main chassis. (See Fig. 2-8)
3. Install the sub chassis so that the projection of cam gear (B) and the screw are set to the positions shown in Fig. 2-9(B).

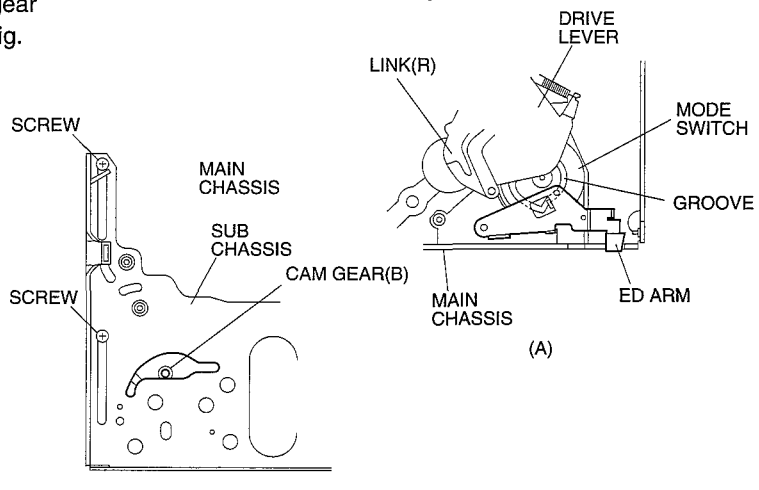


Fig.2-9

2.7 Cylinder Base, Brush

(1) Remove 3 screws. (See Fig. 2-10)
(2) Remove 1 screw.

Reinstallation procedure and caution:

1. After reinstalling the cylinder base, be sure to perform the following mechanical adjustment.
   CYLINDER BASE HEIGHT ADJUSTMENT
   GUIDE ROLLERS HEIGHT ADJUSTMENT

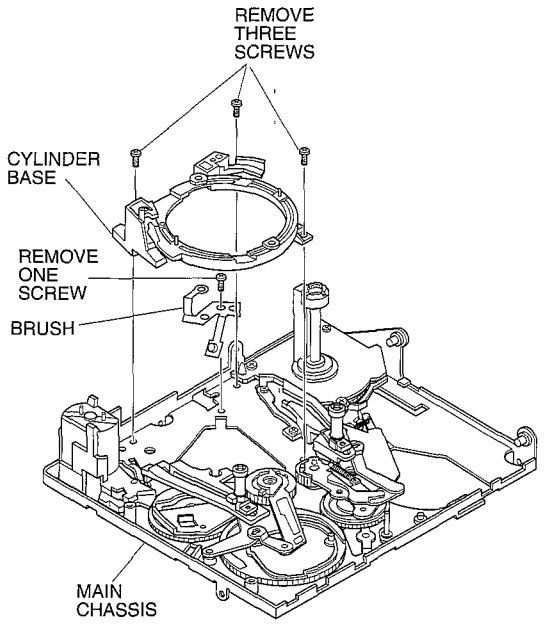


Fig.2-10

2.8 Guide Rail (I), Guide Roller (I), Guide Rail (O), Guide Roller (O)

Reinstallation procedure and caution:

1. After reinstalling the guide roller (I) or (o), be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HIGHT ROUGH ADJUSTMENT
   GUIDE ROLLERS HIGHT ADJUSTMENT

■ Guide Rail (I), Guide Roller (I)

(1) Remove 1 screw. (See Fig. 2-11)
(2) Turn guide rail (I) with guide roller (I) in the direction of the arrow (in parallel with the main chassis), to release guide roller (I) from link (L).
(3) Move guide roller (I) in the loading direction to remove it from guide rail (I).

■ Guide Rail (O), Guide Roller (O)

(1) Remove 2 screws. (See Fig. 2-11)
(2) Turn guide rail (O) with guide roller (O) in the direction of the arrow (in parallel with the main chassis), to release guide roller (O) from link (R).
(3) Move guide roller (O) in the loading direction to remove it from guide rail (O).

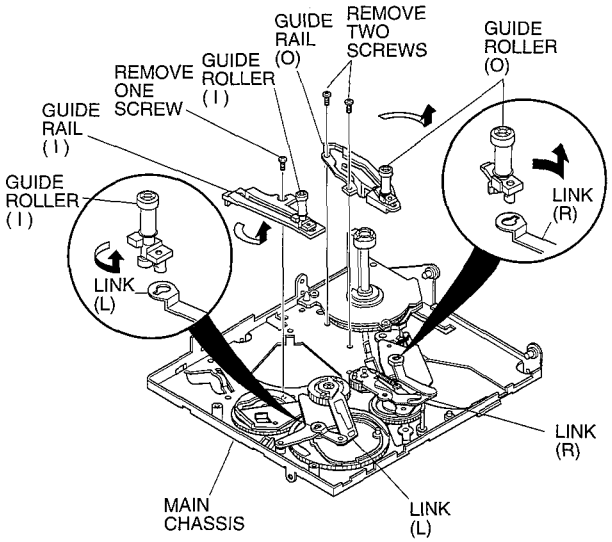


Fig.2-11

2.9 Loading Motor Holder (with Loading Motor), Capstan Motor

■ Loading Motor Holder

(1) Release 3 tabs. (See Fig. 2-12)

Reinstallation procedure and caution:

1. Make sure of gear phase. (See Figs. 2-14 and 2-15)
2. If guide rail (I) has been removed, install the loading motor holder before installing guide rail (I).

■ Capstan Motor

(1) Remove 2 screws. (See Fig. 2-12)
(2) Remove the timing belt

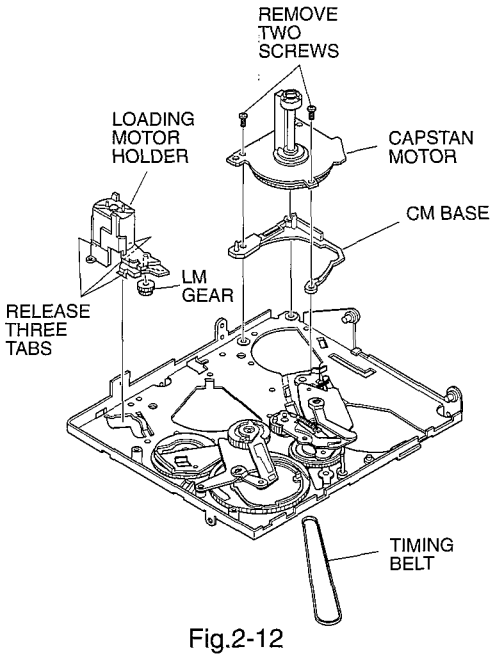


Fig.2-12

2.10 Link (R), Link (L), Drive Lever, Cam Gear (C), Pressure Plate, Drive Arm, Operation Plate, Cam Gear(B), Cam Gear (A)

Reinstallation procedure and caution:

1. When installing either of the following components, install the mode switch and make sure of phase matching of gears. (See Figs. 2-14 and 2-15)
2. If the loading motor holder has been removed, install it after making sure of phase matching of gears as shown above.

■ Link (R), Link (L)

(1) Remove 1 washer (a) and remove the link (R). (See Fig. 2-13)
(2) Remove 1 washer (b) and remove the link (L).

■ Drive Lever, Cam Gear (C), Pressure Plate

Note: The spring between the drive lever and pressure plate is strong. Remove and reinstall it by the following procedure:

(3) Remove 1 washer (c). (See Fig. 2-13)
(4) Removing the drive lever from the main chassis, release the spring between the drive lever and pressure plate.
(5) Remove 1 washer (d) and remove the pressure plate.
(6) Remove 1 washer (e) and remove the cam gear (C).

Procedure for reinstalling drive lever and caution:

1. The loading motor and mode switch must be installed and gear phases matched.
2. Before installing the drive lever in the regular position (as shown in Fig. 2-15), hook the spring between the drive lever and pressure plate.
3. Fixing the pressure plate near the regular position (as shown in Fig. 2-15) with tweezers, etc., install the drive lever in the regular position.

■ Drive Arm, Operation Plate, Cam Gear (B), Cam Gear (A)

(3) Remove 1 washer (f) and remove the drive arm. (See Fig. 2-13)
(4) Remove the operation plate.
(5) Remove 1 washer (g) and remove the cam gear (B).
(6) Remove 1 washer (h) and remove the cam gear (A).

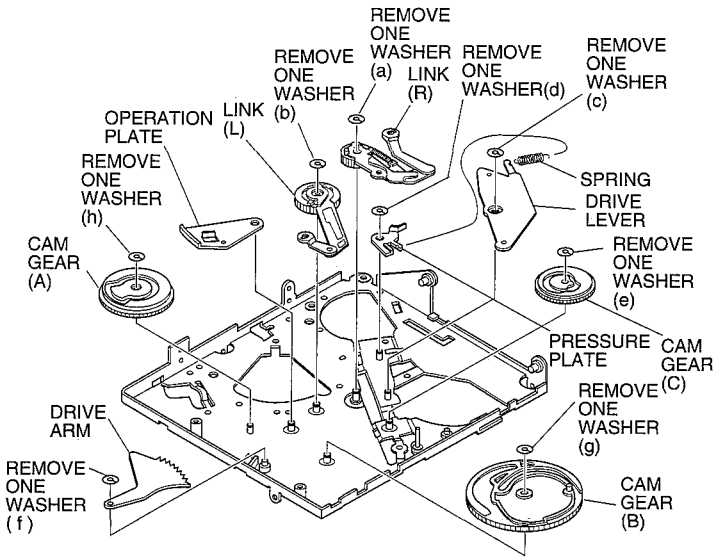


Fig.2-13

2.11 Gear Phase Matching Diagrams

The following diagrams show the phase matching of gears in the unloading stop state.

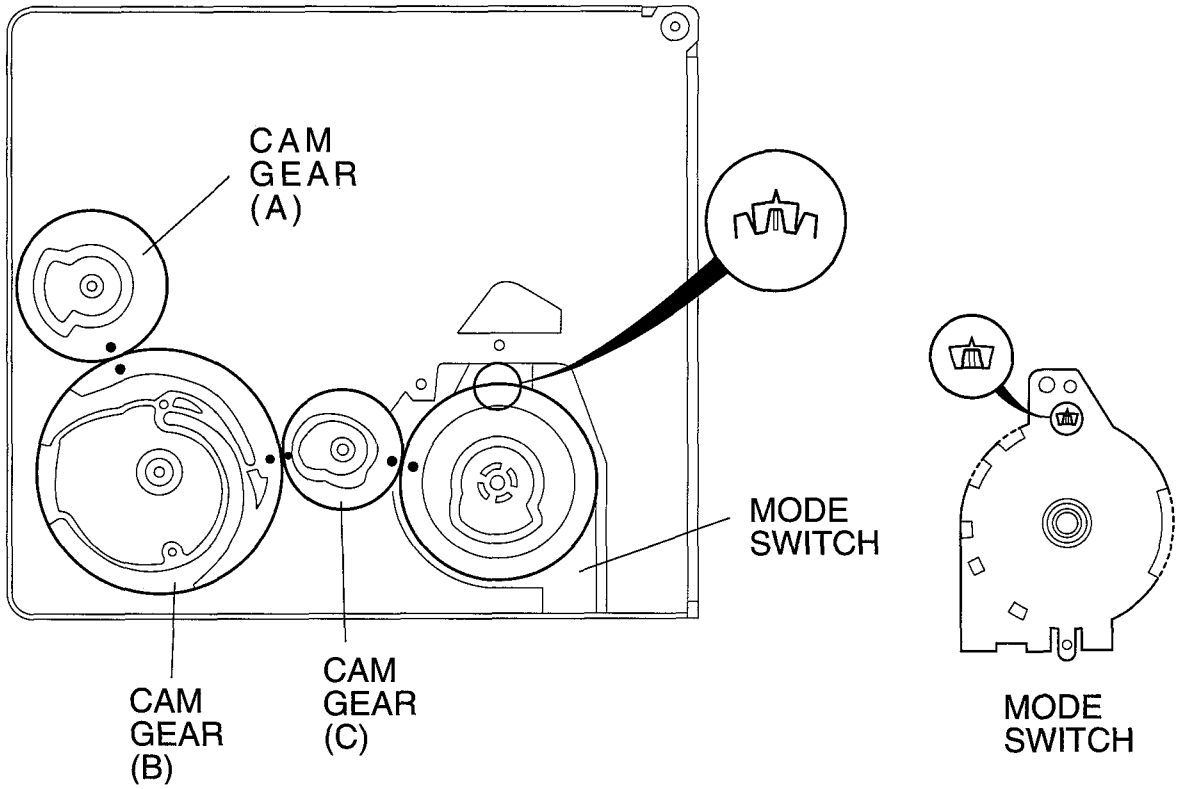


Fig.2-14

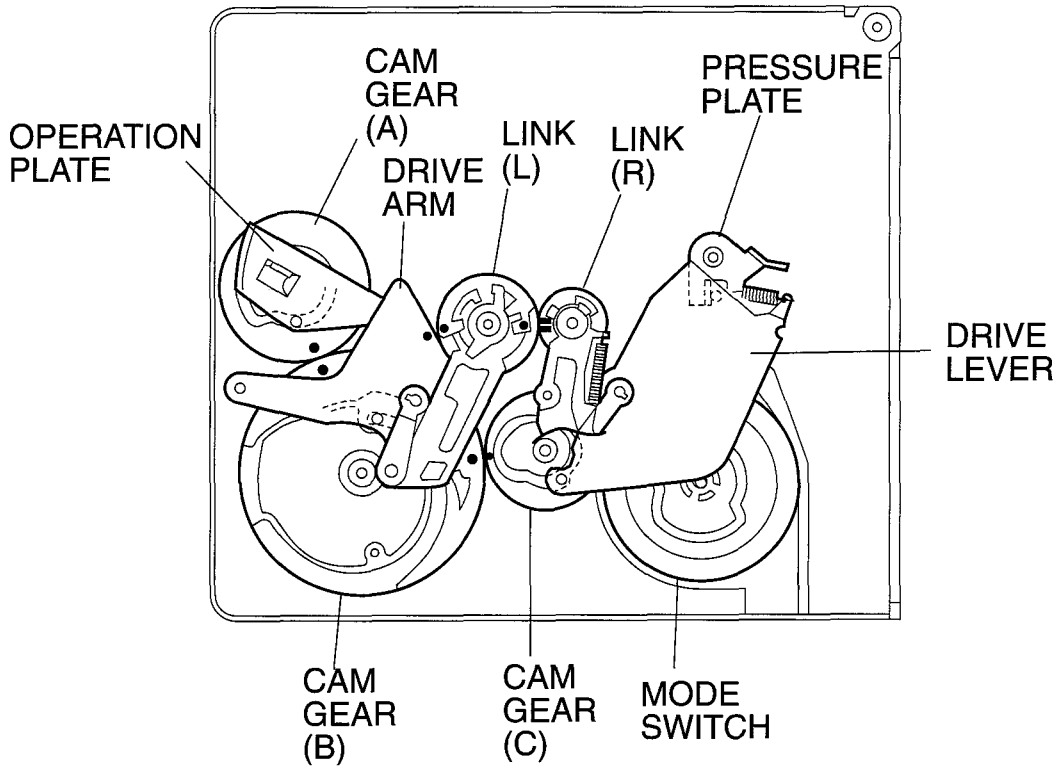


Fig.2-15

3. METHOD FOR MANUAL UNLOADING

CAUTION :

Perform this procedure for emergency only when normal unloading is not possible because the electrical circuits or loading motor is defective.

1) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-1)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

2) Turn over the mechanism.

Note: Do not turn over with the idler cover removed.

3) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or cam gear (B) in the directions of the arrows.

Notes: 1. Be careful not to damage the cam gears.
2. If tape is loaded, also turn the capstan motor manually to take up the tape.

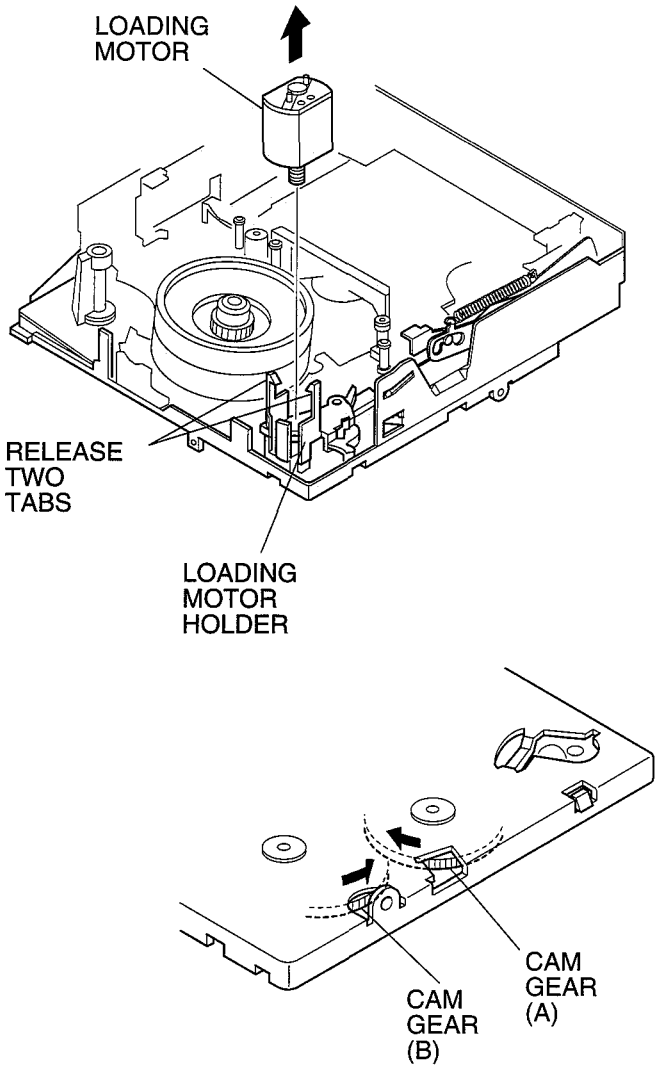
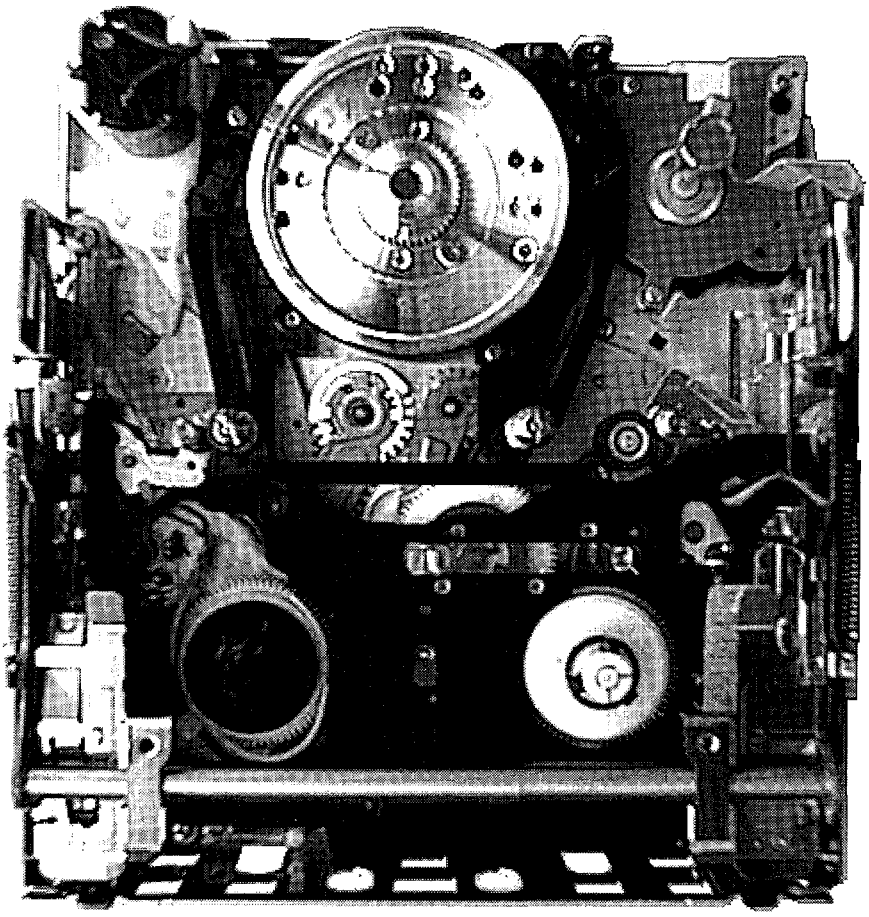


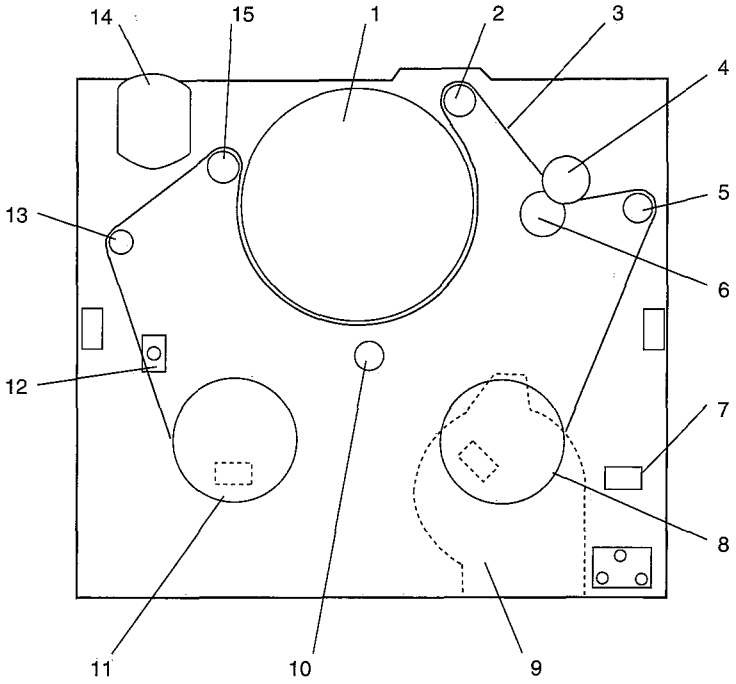
Fig.3-1

4. PHOTO OF THE MECHANISM



CHAPTER 2 MECHANICAL ADJUSTMENT

1. ADJUSTMENT POINTS ON THE MECHANISM



1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide Roller (I) [Supply Reel Disk]

Fig. 1-1

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
   1) Set the mechanism to the unloading stop or eject mode.
   2) Shade light from the end LEDs.
   3) Lower the cassette holder.
   4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
   1) Supply 4V DC to the terminals of loading motor:
   Red lead wire (+), brown lead wire (-): Loading
   Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.
2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position Adjustment (Fig. 3-1)

Note: Be sure to perform these adjustment after reinstalling the tension arm, tension band, tension spring.

■ **Adjustment Point**
Tension Band Holder

■ **Procedure**

(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Set to the playback mode without loading a cassette. (See Fig. 3-1)
(3) Loosen screw (A), and adjust the position of tension band holder so that the relation of position between the tension arm and square hole in the loading motor holder is as shown in Fig. 3-1.
(4) After unloading, perform loading and make sure that the square hole position has not drifted.

Note: After the adjustment is completed, be sure to perform "3.2 Tension Torque Check/Adjustment".

3.2 Tension Torque Check/Adjustment (Fig. 3-1)

Note: Be sure to perform these check/adjustment after adjusting the tension arm position adjustment.

■ **Test Equipment/Jig**
Cassette Torque Meter
(NTSC: SRK-8T-112, PAL: SRK-8T-212)

■ **State of VCR**
Load a cassette torque meter and set the playback mode.

■ **Adjustment Point**
Tension Spring

■ **Procedure**

(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Check the torque meter on the supply side to 7 to 11 g-cm.
If it is more than 11.1 g-cm:
Move the tension spring to position (c).
If it is less than 6.9 g-cm:
Move the tension spring to position (a).

Note: If the tension spring hooking position has been moved, be sure to perform "3.1 Tension Arm Position Adjustment".

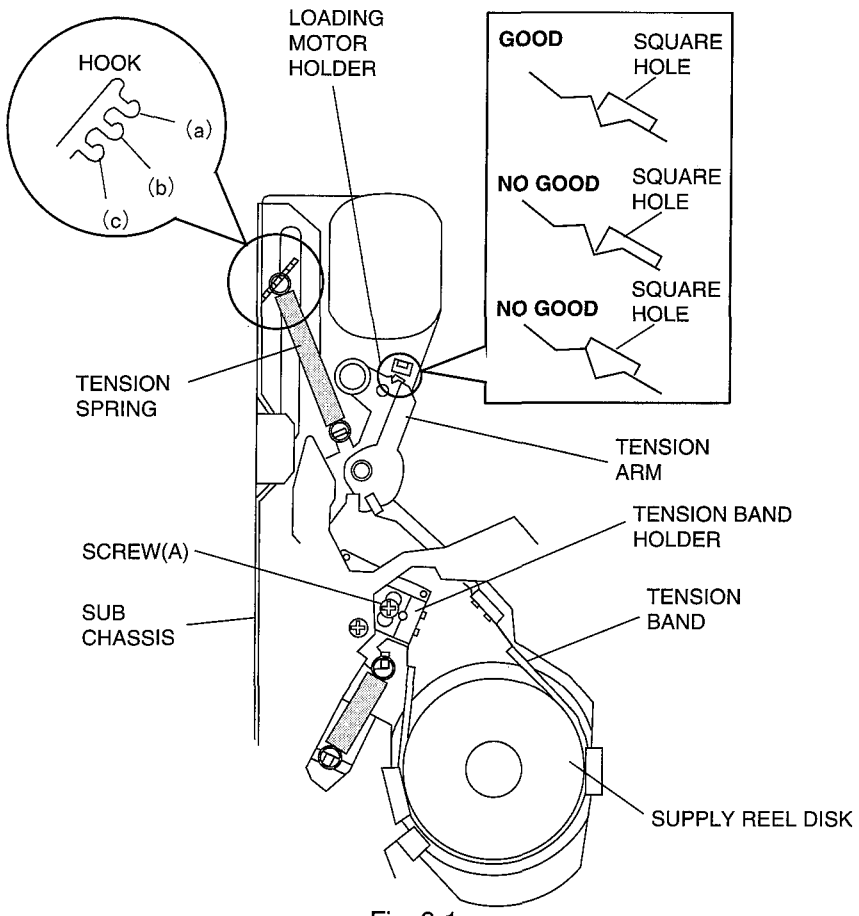


Fig. 3-1

3.3 Cylinder Base (Guide Roller Catchers) Height Adjustment (Fig. 3-2)

Note: Be sure to perform these adjustment after reinstalling the cylinder base.

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

■ **Adjustment Point**

Screws on the Cylinder Base

■ **Procedure**

(1) Turn the two screws on the cylinder base (guide roller catchers) so that the specified values can be obtained as shown. (See Fig. 3-2)

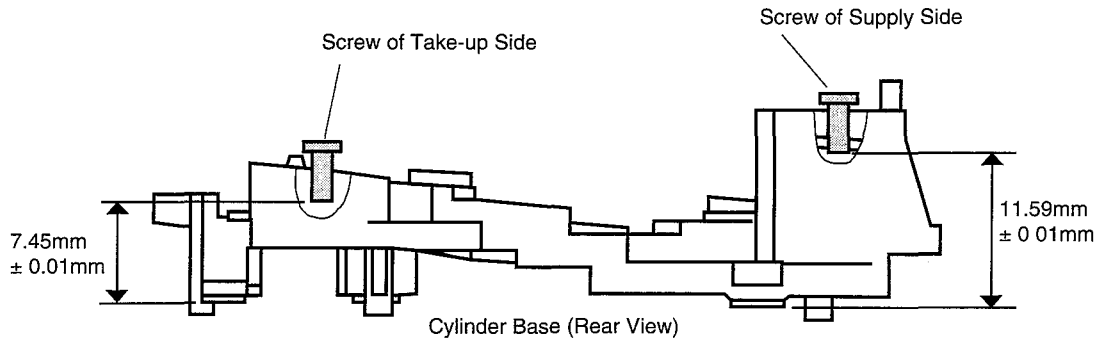


Fig. 3-2

3.4 Guide Rollers Height Rough Adjustment (Fig. 3-3)

Note: Be sure to perform these adjustment after reinstalling the guide rollers.

■ **Test Equipment/Jig**

Special Drive

■ **Adjustment Point**

Top of the Guide Roller (I)

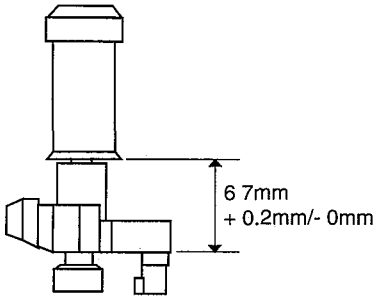
Top of the Guide Roller (O)

■ **Procedure**

(1) Turn the top of each guide roller so that the specified values can be obtained as shown. (See Fig. 3-3)

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

Guide Roller (I) [Supply Guide Roller]



Guide Roller (O) [Take-up Guide Roller]

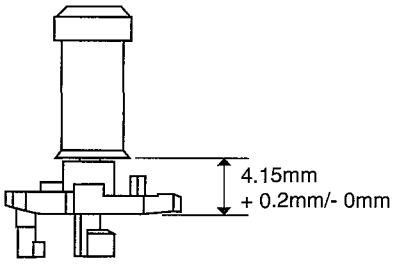


Fig. 3-3

3.5 Guide Rollers Height Adjustment (Adjustment After Replacing Cylinder) (Figs. 3-4, 3-5)

Notes: 1. Be sure to perform this adjustment after reinstalling the guide rollers and cylinder base. Also note that before proceeding with this adjustment, the adjustment on the previous item must be completed.
2. After the cylinder is replaced, electrical circuit adjustments will also be necessary. See the service manual of each model.
3. Before performing this adjustment, refer to Fig. 3-5 and modify the ATF-R Jig.

■ **Test Equipment/Jig**
Alignment Tape
ATF-R Jig
(SW1: OFF, SW3: ON, RT1: Mechanical Center)
Oscilloscope
Special Drive

■ **Test Point**
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

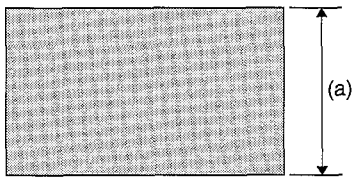
■ **Adjustment Point**
Top of the Guide Roller (I)
Top of the Guide Roller (O)

■ **Procedure**
(1) Loading an alignment tape that has been completely rewound.
(2) Set to the power off.
(3) Connect the ATF-R jig to the test terminal on the circuit board.
(4) Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
(5) Connect an oscilloscope to TP3.
(6) Synchronize the oscilloscope with TP1.
(7) Set the oscilloscope to (+) slope.

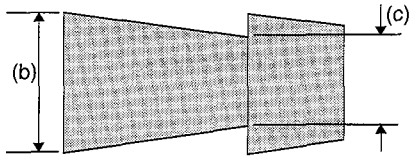
Guide Roller (I) (Fig. 3-4)
(8) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
(9) Adjust the height of the guide roller (I) so the waveform is flat.
(10) Adjust the voltage level control of the oscilloscope so that portion (a) of the waveform is set to 4 graduations.
(11) Set SW1 on the ATF-R jig to ON.
(12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (b) of the waveform is set to 3 graduations.
(13) Adjust the height of the guide roller (I) so the minimum amplitude (c) of the waveform is set to more than 2 graduations.

Guide Roller (O) (Fig. 3-4)
(14) Set SW1 to OFF and RT1 to mechanical center on the ATF-R jig.
(15) Set the oscilloscope to (-) slope.
(16) Perform the same procedure as for guide roller (I) hereafter. See steps (8) - (13).
(17) After completing adjustment of guide rollers (I) and (O), load the alignment tape again, and make sure that the content of this adjustment is satisfied.

Note: After adjustment is completed, be sure to disconnect the ATF-R jig from the test terminal and reverse the modification to ATF-R jig.

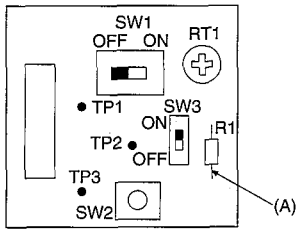


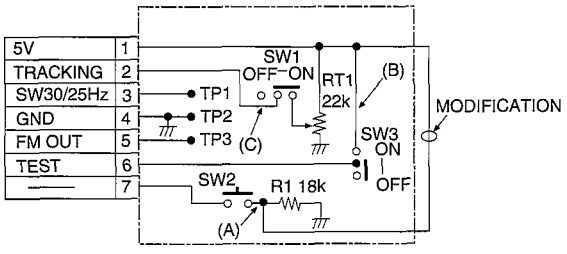
(a).4 graduations



(b):3 graduations
(c)· More than 2 graduations

Fig. 3-4





Modification: Connect terminal (A) of the resistor and pin 1 (5V Line)

Fig. 3-5

3.6 OHD Arm Height Adjustment (Fig. 3-6)

Notes: 1. Be sure to perform this adjustment after reinstalling the OHD arm.
2. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
3. It is not necessary to modify the ATF-R jig.

■ **Test Equipment/Jig**

Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Drive
Oscilloscope
Color Monitor TV

■ **Test Point**

Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ **State of VCR**

Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ **Adjustment Point**

Top of the OHD Arm

■ **Procedure**

(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-6.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) cannot be done, turn the screw on the take-up side of the cylinder base (see Fig. 3-2) counterclockwise by approx. 45°, and then perform this adjustment from the start, after doing "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

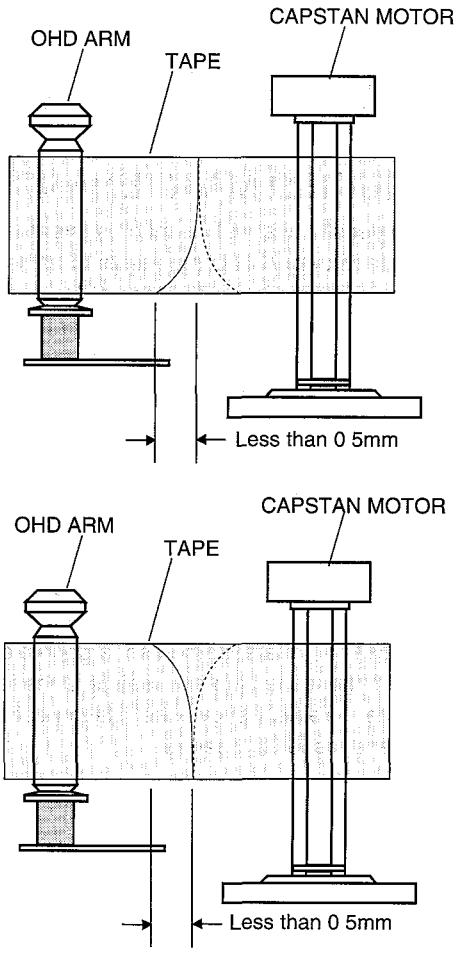


Fig. 3-6

4. CHECK THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR Mode	Measured Reel Disk	Torque Value	Torque Cassette Used
Take-up Torque	Playback	Take-up	10 ± 3 g-cm	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	31 ± 6 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232

CHAPTER 3 MAINTENANCE/INSPECTION PROCEDURE

1. REQUIRED MAINTENANCE

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. SCHEDULED MAINTENANCE

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

	When inspection is necessary		
Average hours used per day	About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour			
Two hours			
Three hours			

3. CHECK BEFORE STARTING REPAIRS

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. TOOLS NEEDED FOR INSPECTION AND MAINTENANCE

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape [Maxell 8M-CL MCA (dry type)]

Table 3 Locations for Greasing and Oiling

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. MAINTENANCE PROCEDURE

5.1 Cleaning

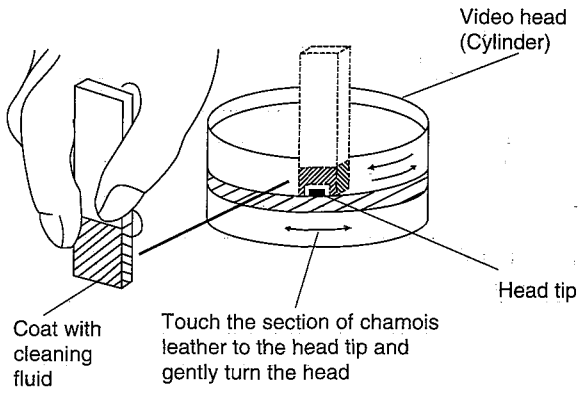
5.1.1 Cleaning Video Head

First use a cleaning tape Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

5.1.2 Cleaning the Tape Transport System and Drive System, etc.

Wipe with gauze moistened with alcohol.

Notes: 1. The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2. Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



5.2 Lubrication

5.2.1 Guide Lines for Lubricating with Oil

Use the oiler to apply one or two drop or Sonic Slidas oil. Make sure not to use too match oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with a alcohol.

5.2.2 Periodic Oil Lubrication

Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

5.3 Greasing

5.3.1 Greasing Guide Lines

Apply grease Froil or Molicoat, with a stick or brush.
Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

5.3.2 Periodic Greasing

Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

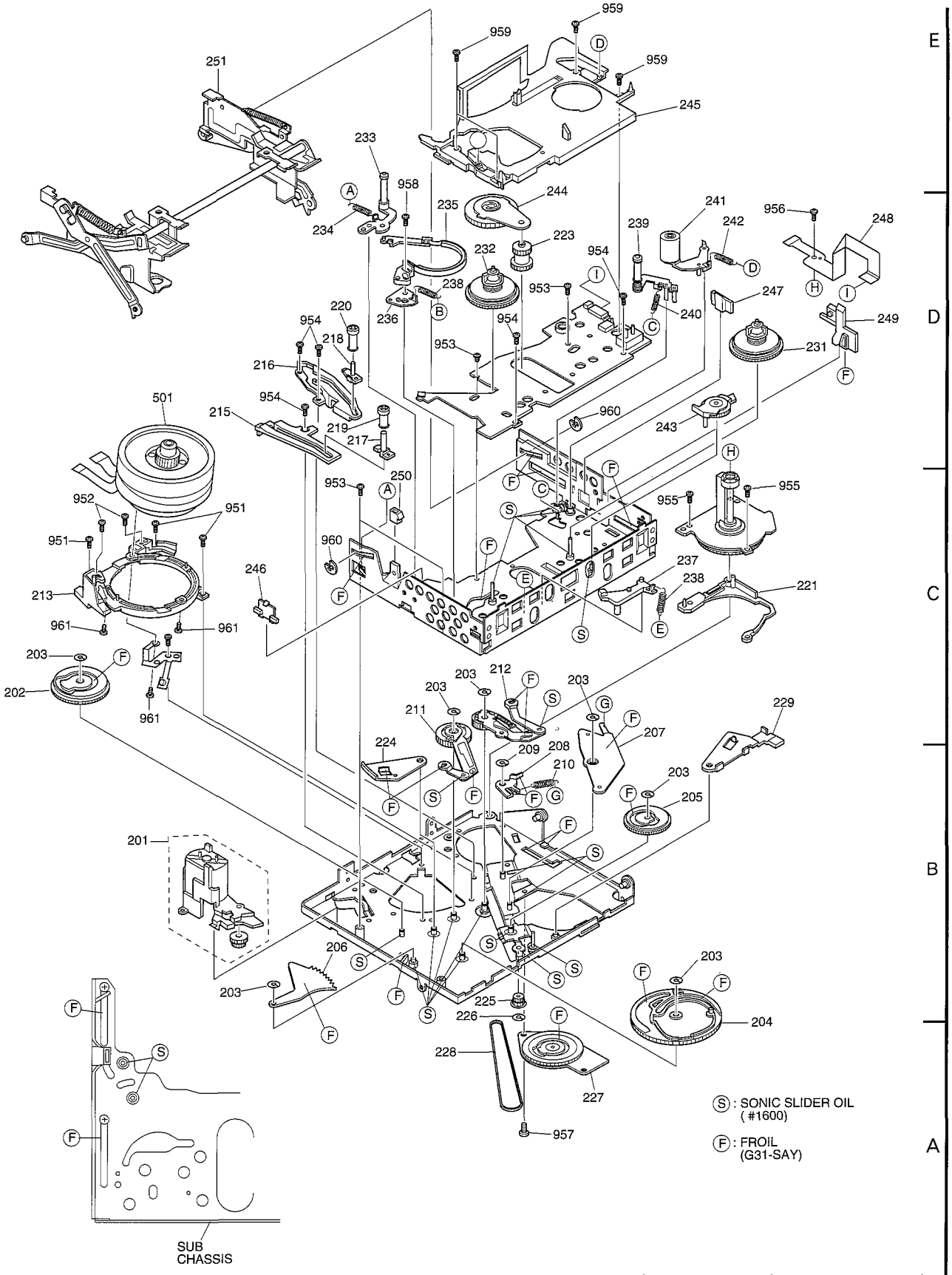
Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Hours / Component	500	1000	1500	2000	2500	3000
Cylinder (Video Head)	C	C／R	C	C／R	C	C／R
Guide Roller (I)	C	C	C	C	C	C
Guide Roller (O)	C	C	C	C	C	C
OHD Arm	C	C	C	C	C	C
Tension Arm	C	C	C	C	C	C
Tension Band		R		R		R
Supply Reel Disk	C	C	C	C／R	C	C
Take-up Reel Disk	C	C	C	C／R	C	C
Pressure Arm	C	C	C	C／R	C	C
Timing Belt				R		
Idler				R		
Capstan Motor (Shaft)	C	C	C	C／R	C	C
Loading Motor				R		

C : Cleaning
R : Parts Replacing

CHAPTER 4 EXPLODED VIEW

MECHANISM



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