



**DX-9R**

MECHANICAL MANUAL

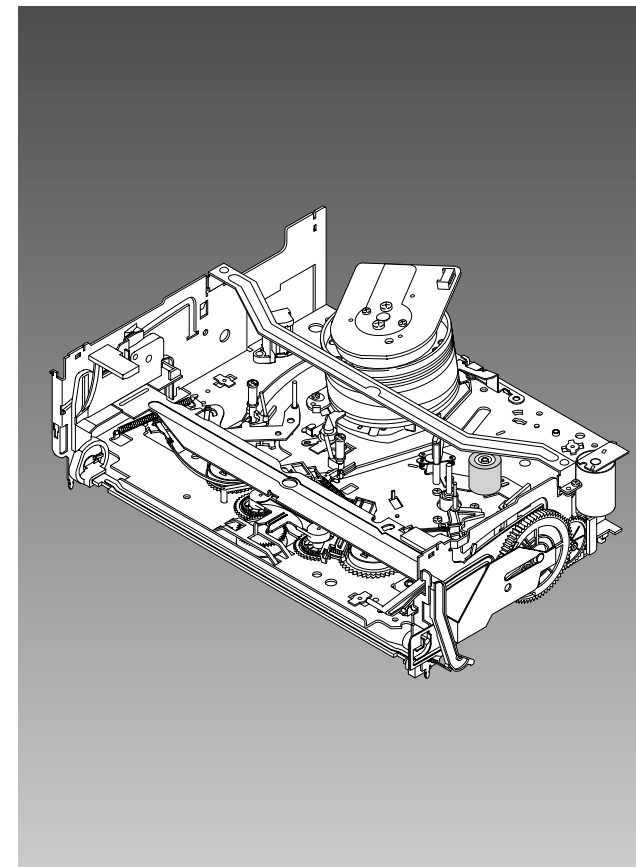
DX-9R

# MECHANICAL *Manual*

◆ File with the SERVICE MANUAL.



## VHS DECK



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1. Disassembly and Reassembly
2. Alignment and Adjustment

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# 1. Disassembly and Reassembly

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## 1-1 Deck Parts Locations

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### 1-1-1 Top View

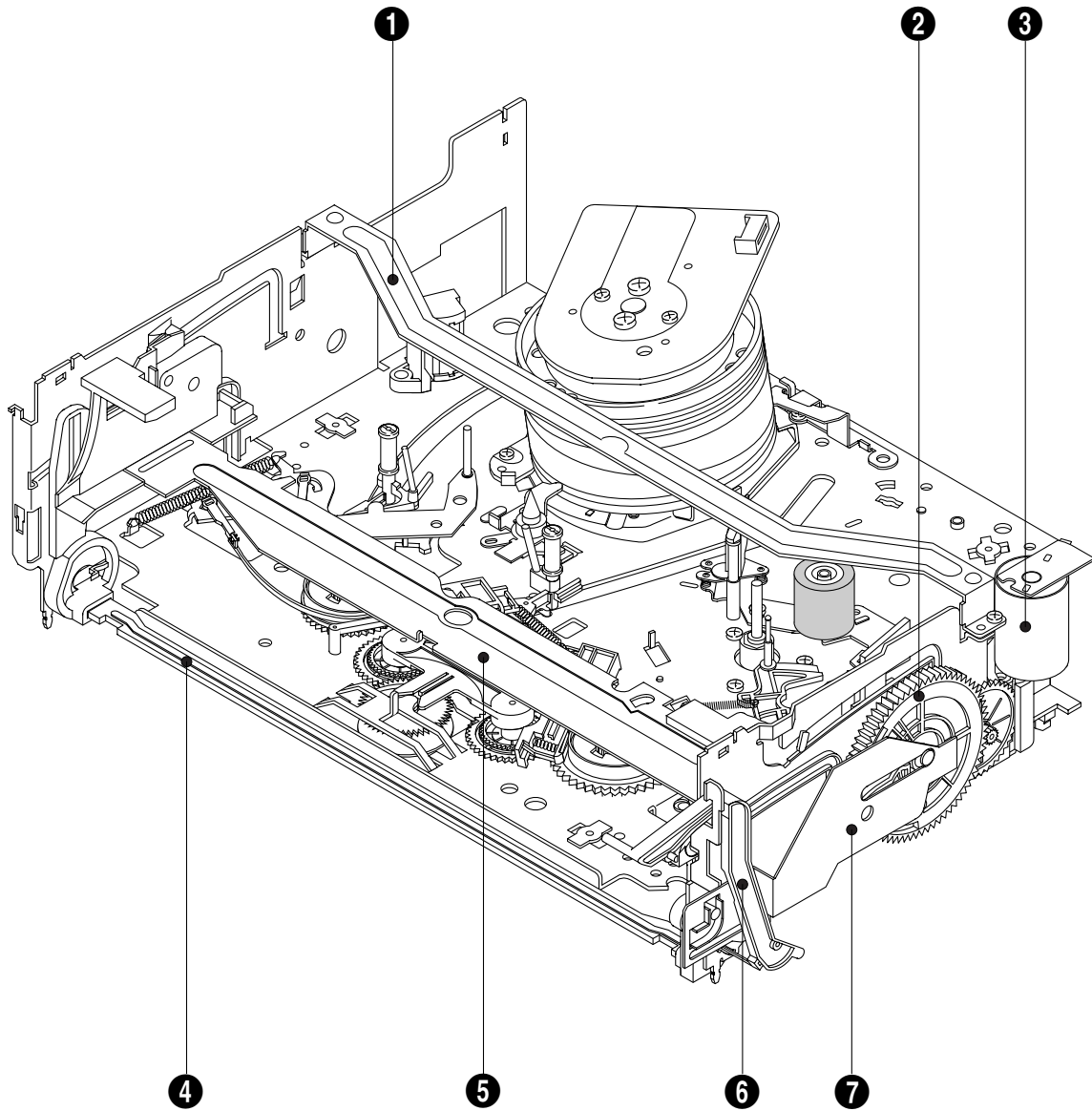


Fig. 1-1 Top parts Location-1

- ❶ BRACKET FL TOP
- ❷ GEAR FL CAM
- ❸ MOTOR LOADING ASS'Y
- ❹ LEVER FL ARM ASS'Y
- ❺ HOLDER FL CASSETTE ASS'Y
- ❻ LEVER FL DOOR
- ❼ SLIDER FL DRIVE

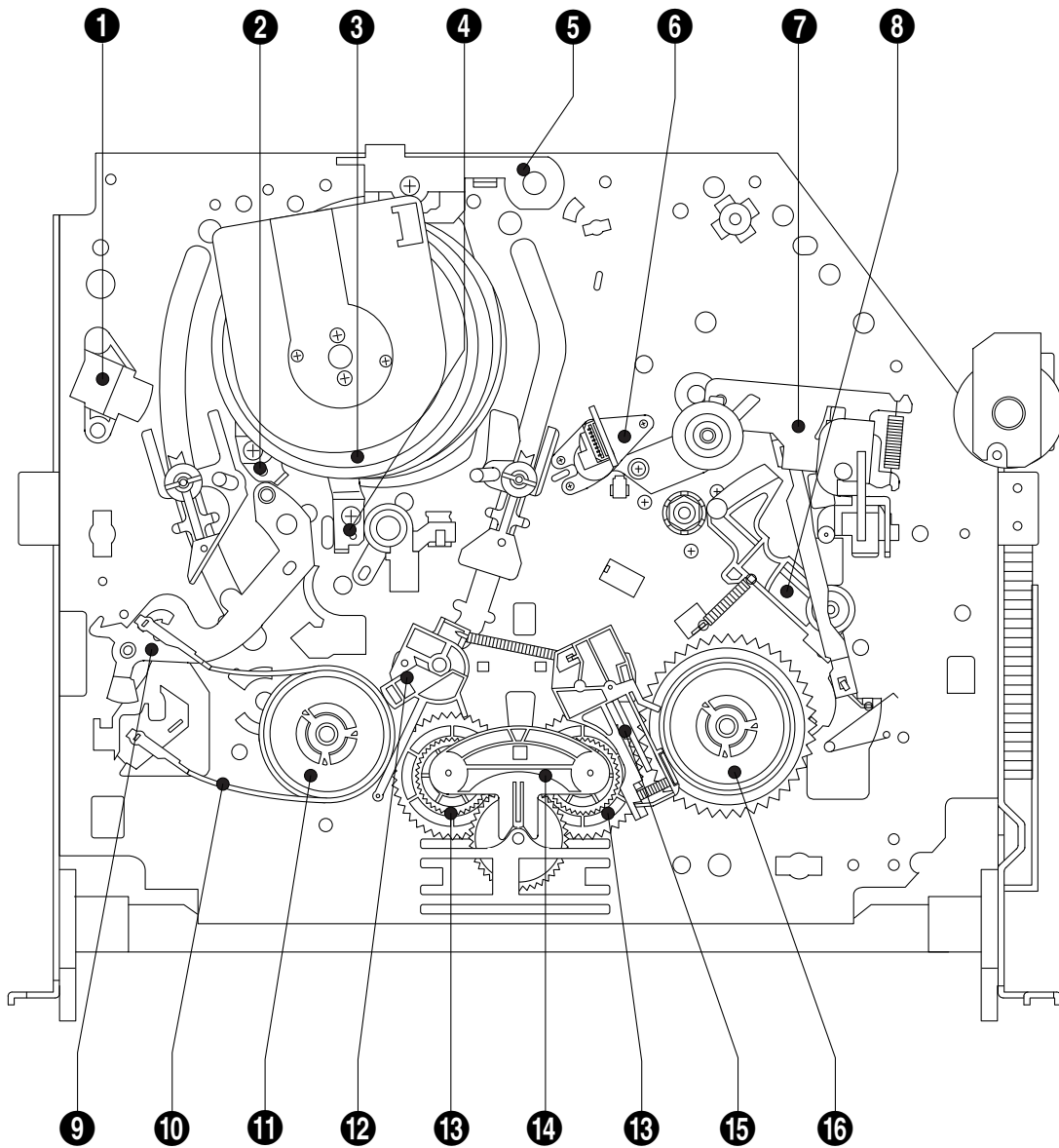


Fig. 1-2 Top Parts Location-2

- |                        |                       |
|------------------------|-----------------------|
| ① FE HEAD              | ⑩ BAND BRAKE ASS'Y    |
| ② PLATE CYLINDER C     | ⑪ DISK S REEL         |
| ③ CYLINDER ASS'Y       | ⑫ LEVER S BRAKE ASS'Y |
| ④ PLATE CYLINDER B     | ⑬ GEAR IDLE           |
| ⑤ PLATE CYLINDER A     | ⑭ LEVER IDLE          |
| ⑥ ACE HEAD ASS'Y       | ⑮ LEVER T BRAKE ASS'Y |
| ⑦ UNIT PINCH ASS'Y     | ⑯ DISK T REEL         |
| ⑧ LEVER #9 GUIDE ASS'Y |                       |
| ⑨ LEVER TENSION ASS'Y  |                       |

## 1-1-2 Bottom View

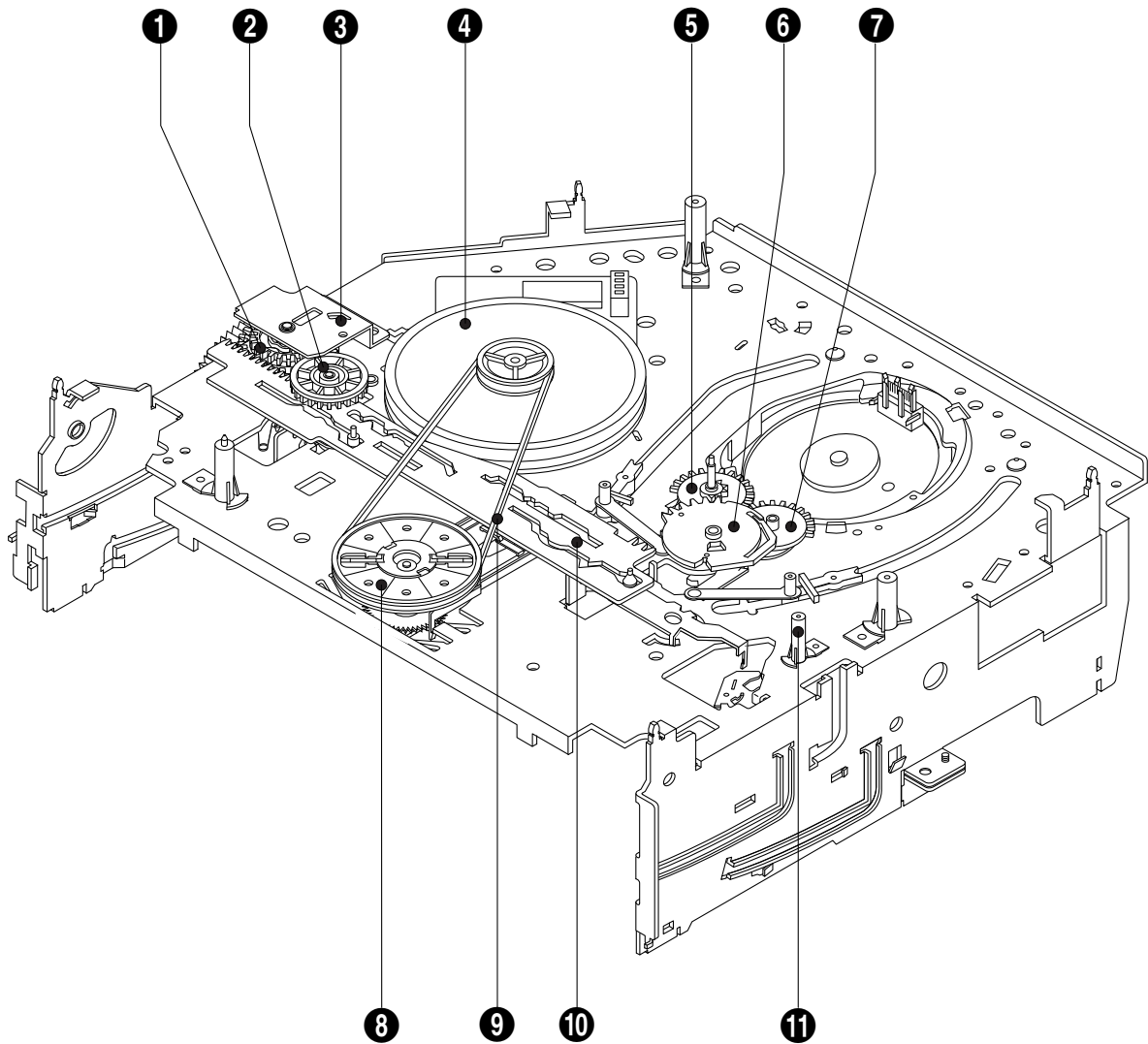


Fig. 1-3 Bottom Parts Location

- ❶ GEAR JOINT 1
- ❷ GEAR JOINT 2
- ❸ BRACKET GEAR
- ❹ MOTOR CAPSTAN ASS'Y
- ❺ LEVER T LOAD ASS'Y
- ❻ GEAR LOADING DRIVE
- ❼ LEVER S LOAD ASS'Y
- ❽ HOLDER CLUTCH ASS'Y
- ❾ BELT PULLEY
- ❿ SLIDER CAM
- ⓫ SLEEVE TENSION

## 1-2 Main Deck

### 1-2-1 Bracket FL Top Removal

- 1) Remove 2 screws ❶.
- 2) Remove the Bracket FL Top ❷.

**Note :** Take care not to change assembly direction.

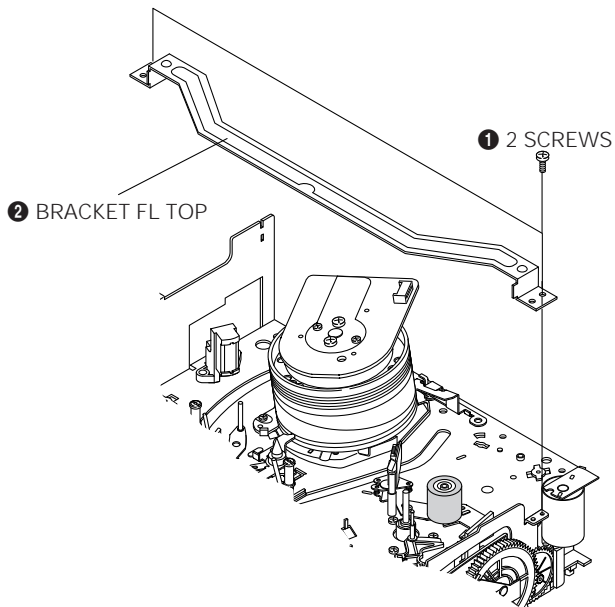


Fig. 1-4 Bracket FL Top Removal

### 1-2-2 Lever FL Door Removal

- 1) Rotate the Lever FL Door ❶ in the direction of arrow "A".
- 2) Release the Hook ❷, remove the Lever FL Door ❶ in the direction of arrow "B".

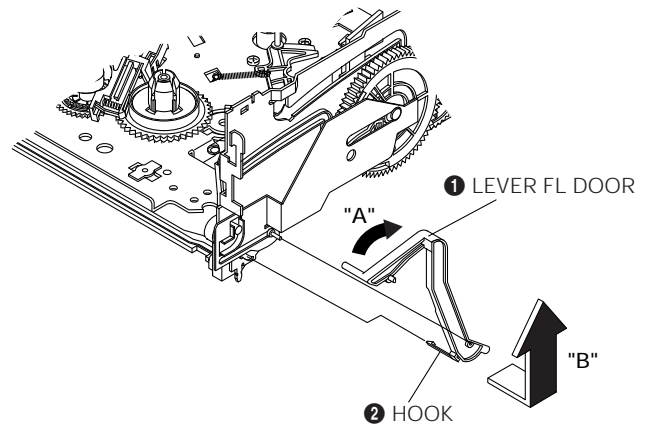


Fig. 1-5 Lever FL Door Removal

### 1-2-3 Holder FL Cassette Ass'y Removal

- 1) Remove the Lever FL Door. (Refer to Fig. 1-5)
- 2) Pull the Holder FL Cassette Ass'y ❶ to the eject position.
- 3) Pull the Holder FL Cassette Ass'y ❶ as grasping the Holder FL Cassette Ass'y ❶ and Lever FL Cassette-R ❷ in the same time to release hooking from Main Base until the Boss [A], [B] of Holder FL Cassette Ass'y ❶ is taken out from the Rail [C], [D].
- 4) Lift the Holder FL Cassette Ass'y ❶ in the direction of arrow "B" in this time, you have to grasp the Lever FL Cassette-R ❷ continuously until the Holder FL Cassette Ass'y ❶ is taken out completely.

**Note** : Be sure to insert Lever FL Cassette-R ❷ in the direction of "A" to prevent separation and breakage of the Lever FL Cassette-R ❷ at disassembling and reassembling.

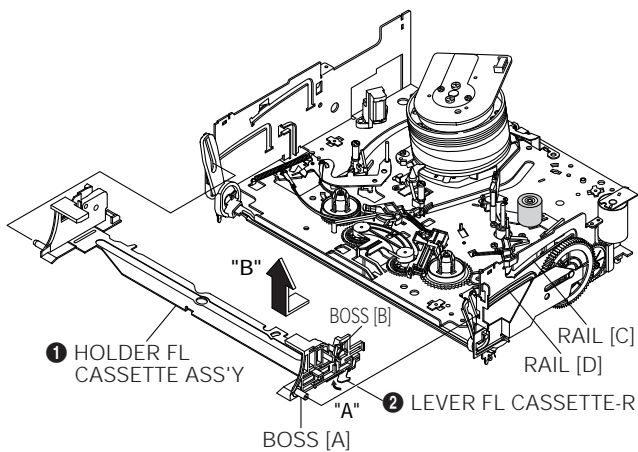


Fig. 1-6 Holder FL Cassette Ass'y Removal

### 1-2-4 Lever FL Arm Ass'y Removal

- 1) Remove the Lever FL Door. (Refer to Fig. 1-5)
- 2) Remove the Holder FL Cassette Ass'y. (Refer to Fig. 1-6)
- 3) Release the Hook ❶ in the direction of arrow "A", pull out the Lever FL Arm Ass'y ❷ from the Boss of Main Base.
- 4) Remove the Lever FL Arm Ass'y ❷ in the direction of arrow "B".

**Assembly** : When reinstalling, be sure to reassemble Lever FL Arm Ass'y ❷ after you insert the Boss ❷ in Groove [A] of Slider FL Drive ❸.

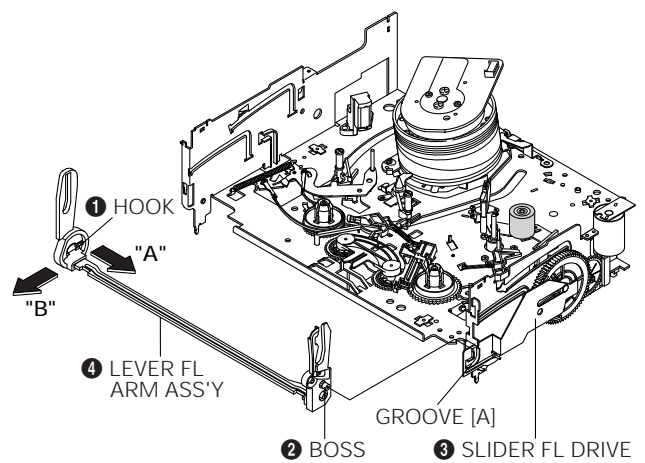


Fig. 1-7 Lever FL Arm Ass'y Removal

### 1-2-5 Slider FL Drive Removal

- 1) Pull the Slider FL Drive ❶ to the front direction.
- 2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 1-8)

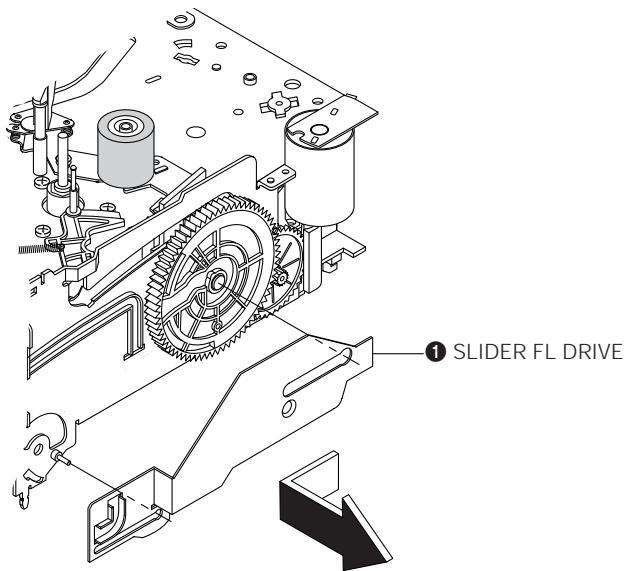


Fig. 1-8 Slider FL Drive Removal

### 1-2-6 Bracket Gear, Gear FL Cam, Gear Joint 1, 2 Removal

- 1) Remove screw ❶.
- 2) Lift the Bracket Gear ❷.
- 3) Remove the Gear FL Cam ❸.
- 4) Lift the Gear Joint 2 ❹, Gear Joint 1 ❺.

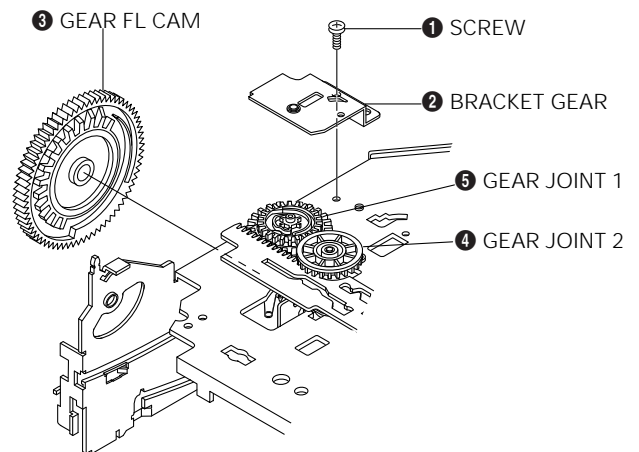


Fig. 1-9 Bracket Gear, Gear FL Cam, Gear Joint 1, 2 Removal

### 1-2-7 Assembly of Gear FL Cam, Gear Joint 1, 2

- 1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig. 1-10 (Refer to Timing Point 1), confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.
- 2) Align the Gear FL Cam ❹ with the Gear Worm Wheel Post as shown detail drawing. (Refer to Timing Point 3)

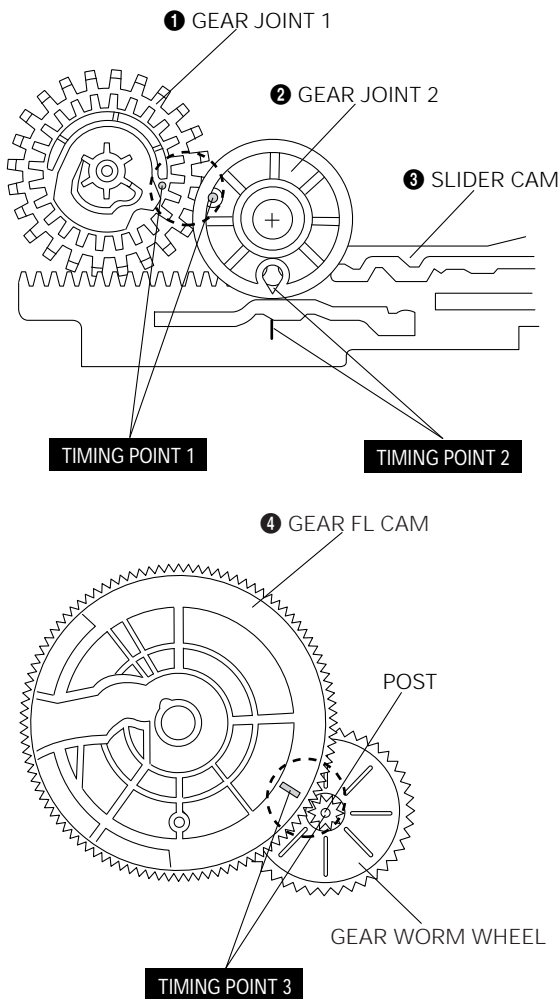


Fig. 1-10 Assembly of Gear FL Cam, Gear Joint 1,2

### 1-2-8 Holder Worm, Gear Worm, Gear Worm Wheel Removal

- 1) Release the Hook [A] in the direction of arrow and, remove the Holder Worm ❶.
- 2) Remove the Gear Worm ❷.
- 3) Remove the Gear Worm Wheel ❸. (After removing the Gear FL Cam as shown Fig. 1-9)

**Note :** Secure the Hook [A] after installing the Holder Worm ❶.

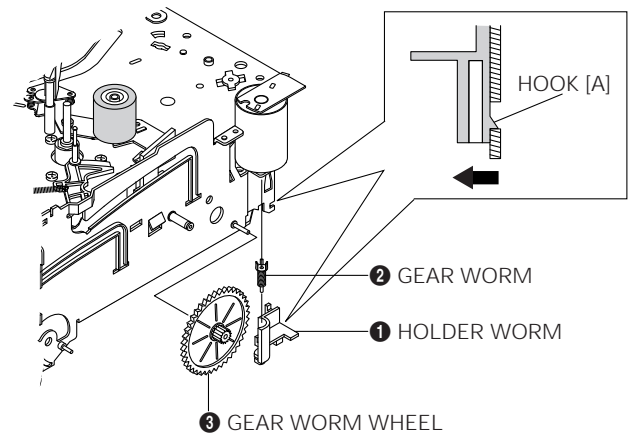


Fig. 1-11 Holder Worm, Gear Worm, Gear Worm Wheel Removal



### 1-2-9 Motor Loading Ass'y Removal

- 1) Remove the screw ❶.
- 2) Remove the Motor Loading Ass'y ❷.

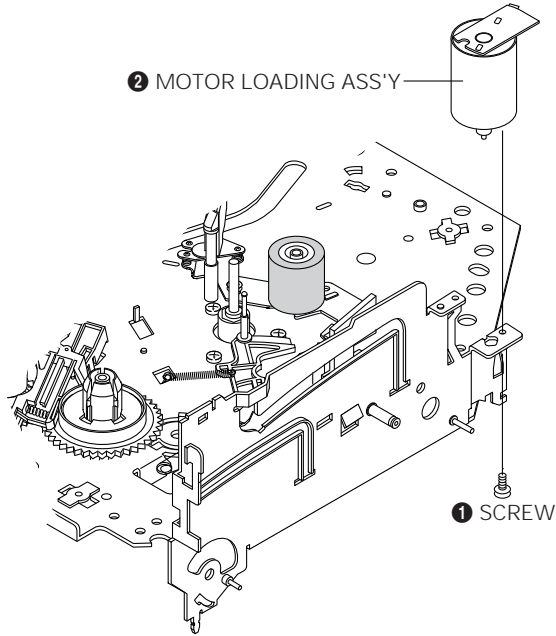


Fig. 1-12 Motor Loading Ass'y Removal

### 1-2-10 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

- 1) Remove the Belt Pulley. (Refer to Fig. 1-29)
- 2) Remove the Gear Loading Drive ❶ after releasing Hook [A] in the direction arrow as shown in detail drawing.
- 3) Remove the Slider Cam ❷.
- 4) Remove the Lever T, S Load Ass'y ❸, ❹.

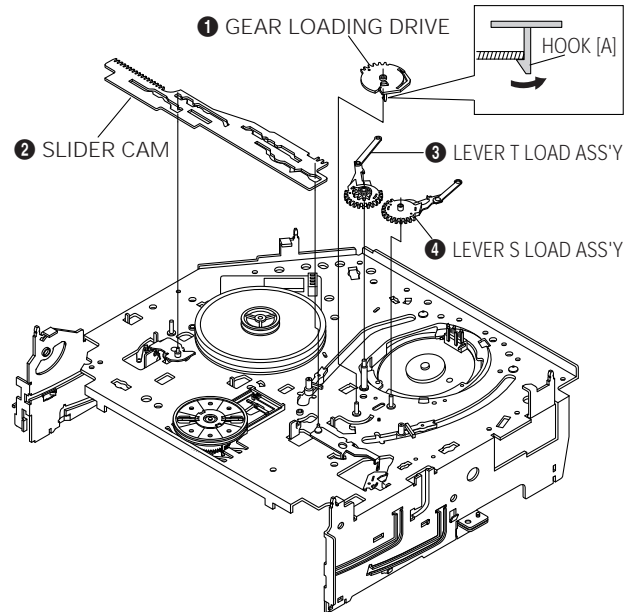


Fig. 1-13 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

### 1-2-11 Assembly of Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y

- 1) When reinstalling, be sure to align dot of Lever T Load Ass'y ❶ with dot of Lever S Load Ass'y ❷ as shown in drawing. (Refer to Timing Point 1)
- 2) Insert the Pin A, B, C, D into the Slider Cam ❸ hole.
- 3) Be sure to align dot of Lever T Load Ass'y and dot of Gear Loading Drive ❹. (Refer to Timing Point 2)
- 4) Align dot of Gear Loading Drive with mark of Slider Cam as shown in drawing. (Refer to Timing Point 3)

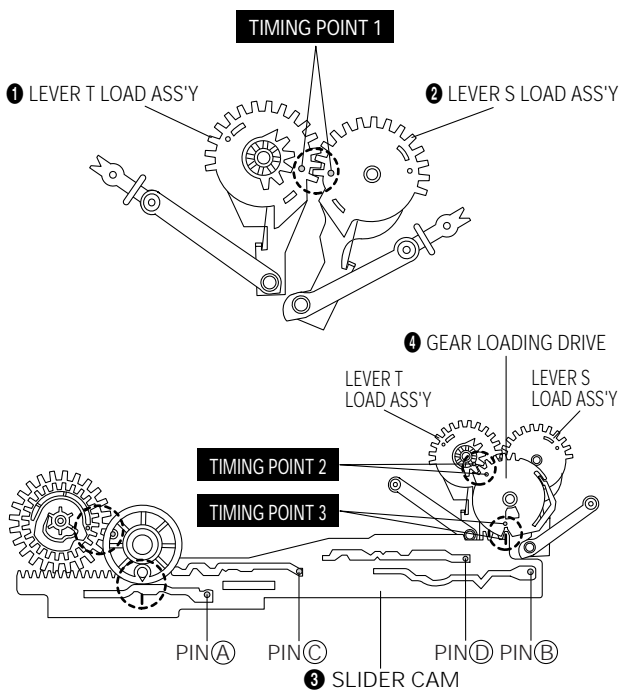


Fig. 1-14 Assembly of Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y

### 1-2-12 Lever Tension Ass'y, Band Brake Ass'y, Sleeve Tension Removal

- 1) Remove the Spring Tension ❶.
- 2) In bottom side of Deck, remove the Sleeve Tension ❷ after rotating it right or left as lifting locking edge of Sleeve Tension.
- 3) Remove the side "a" of the Band Brake Ass'y ❹ in the direction of arrow "A" from the Lever Tension Ass'y ❸.
- 4) Remove the side "b" of the Band Brake Ass'y ❹ in the direction of arrow "B" from the Main Base.

**Note :**

- 1) When replacing the Lever Tension Ass'y, be sure to apply oil in the Sleeve Tension.
- 2) Take care not to touch stain on the felt side, and not to be folded and broken Band Brake Ass'y.

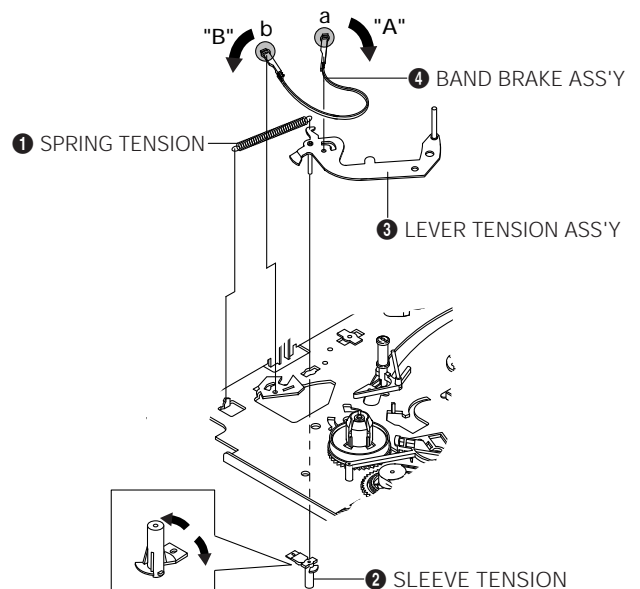


Fig. 1-15 Lever Tension Ass'y, Band Brake Ass'y, Sleeve Tension Removal

### 1-2-13 Lever S, T Brake Ass'y Removal

- 1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig. 1-16.
- 2) Lift the Lever S, T Brake Ass'y ❶, ❷ with Spring Brake ❸.

**Assembly :**

- 1) Assembly the Lever S Brake Ass'y ❶ on the Main Base.
- 2) Assembly the Lever T Brake Ass'y ❷ with Spring Brake ❸.

**Note :** Take extreme care not to be folded and transformed spring Brake at removing or reinstalling.

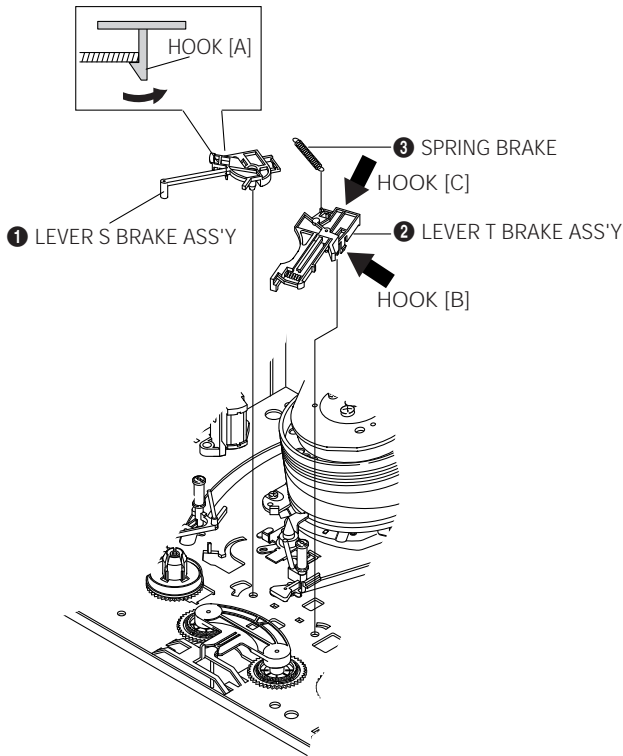


Fig. 1-16 Lever S, T Brake Ass'y Removal

### 1-2-14 Lever Idle Ass'y Removal

- 1) Push the Lever Idle ❶ in the direction of arrow "A", "B".
- 2) Lift the Lever Idle ❶.

**Assembly :**

- 1) Apply oil in two Bosses of Lever Idle ❶.
- 2) Assemble the Gear Idle ❷ with the Lever Idle ❶.

**Note :** When replacing the Gear Idle ❷, be sure to add oil in the boss of Lever Idle ❶.

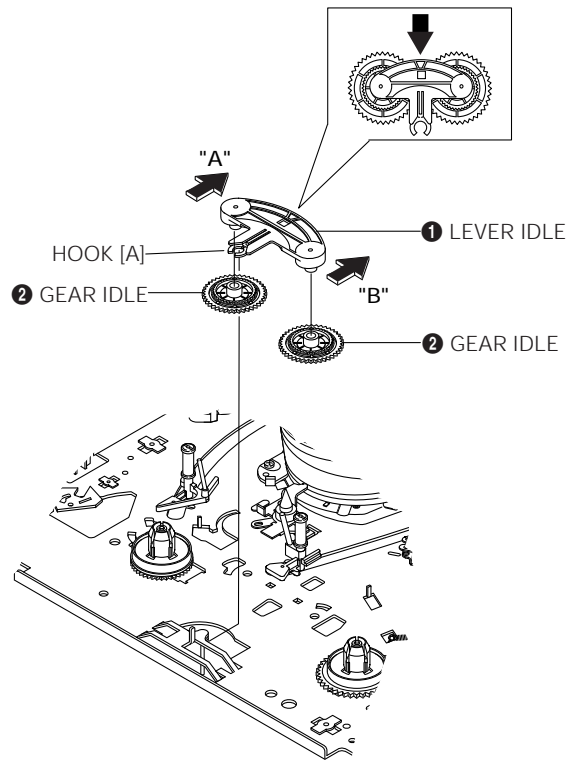


Fig. 1-17 Lever Idle Ass'y Removal

### 1-2-15 Disk S, T Reel Removal

- 1) Lift the Disk S, T Reel ❶, ❷.

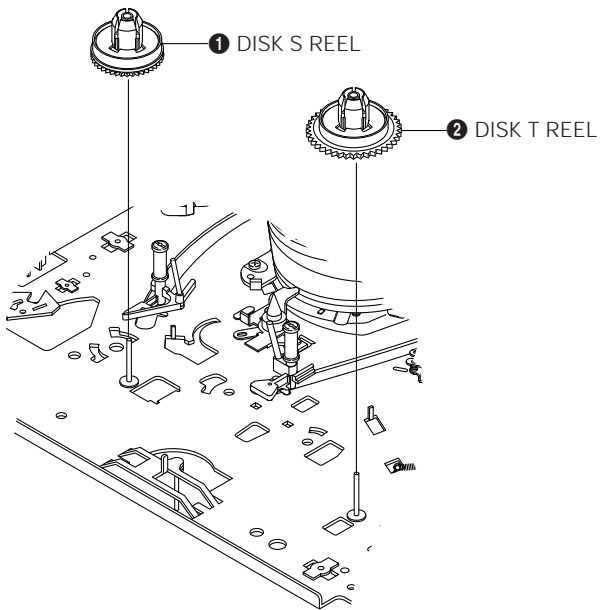


Fig. 1-18 Disk S, T Reel Removal

### 1-2-16 Holder Clutch Ass'y Removal

- 1) Remove the Washer Slit ❶.
- 2) Lift the Holder Clutch Ass'y ❷.

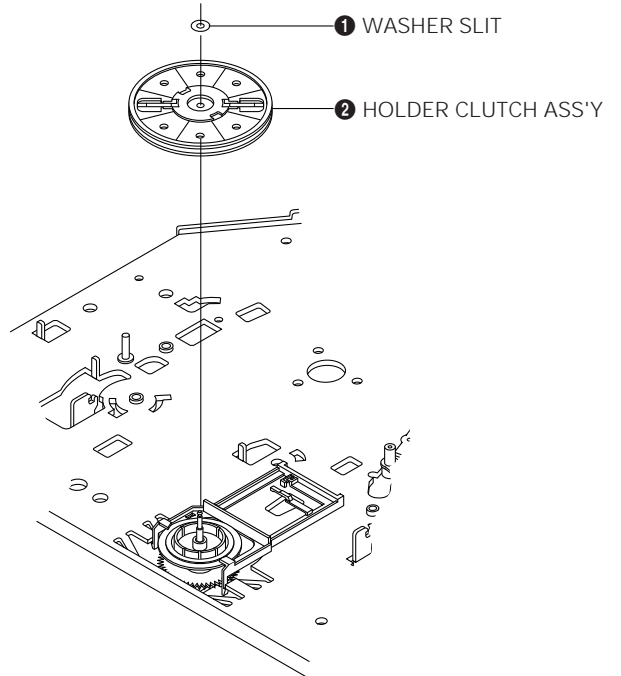


Fig. 1-19 Holder Clutch Ass'y Removal

### 1-2-17 Lever Up Down Ass'y, Gear Center Ass'y Removal

- 1) Remove the 2 hooks in the direction of arrow as shown Fig. 1-20 and lift the Lever Up Down Ass'y ①.
- 2) Lift the Gear Center Ass'y ②.

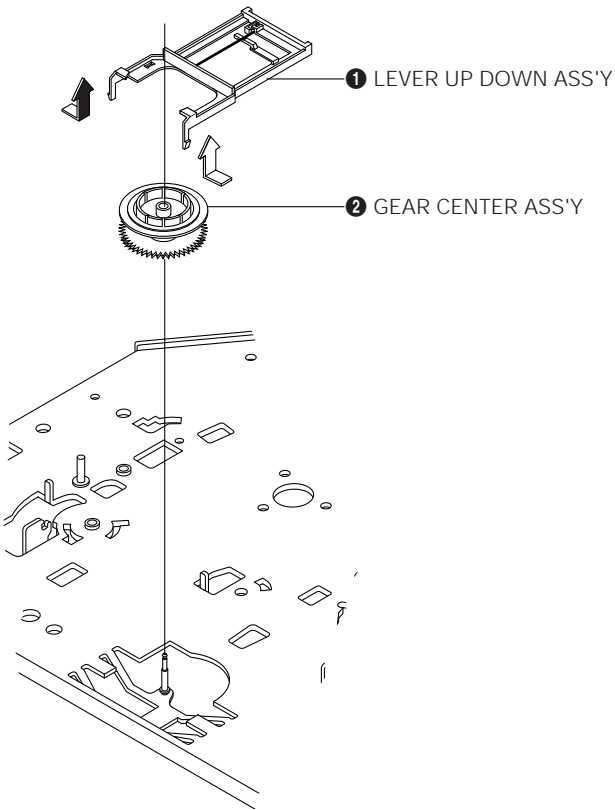


Fig. 1-20 Lever Up Down Ass'y, Gear Center Ass'y Removal

### 1-2-18 Assembly of Lever Up Down Ass'y, Gear Center Ass'y

- 1) Insert the Lever Up Down Ass'y ① in the 2 rectangular holes on Main Base.
- 2) Lift the Lever Up Down Ass'y ① about 35 degree. (Refer to Fig. 1-21)
- 3) Insert Ring ④ of the Gear Center Ass'y ② in the Guide ⑤ of the Lever Up Down Ass'y ①.
- 4) Insert the Gear Center Ass'y ② in the post ⑥ on Main Base.
- 5) Push down the Lever Up Down Ass'y ① for locking of the Hook ⑦.

**Note :**

- 1) Take care not to separate and loose the Spring Up Down.
- 2) When assembling the Gear Center Ass'y, don't push down too much.

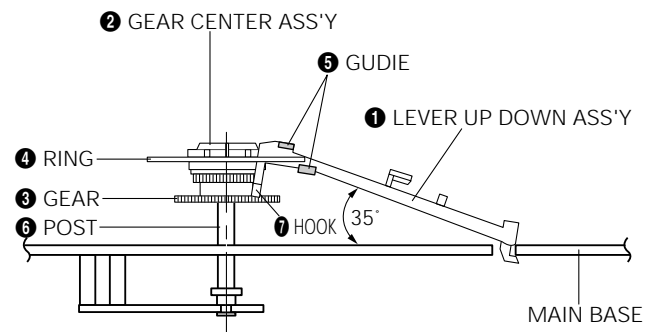


Fig. 1-21 Assembly of Lever Up Down Ass'y, Gear Center Ass'y

### 1-2-19 Guide Cassette Door Removal

- 1) Lift the Hook [A].
- 2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

**Note :** After reinstalling the Guide Cassette Door ❶ secure the Hook [A].

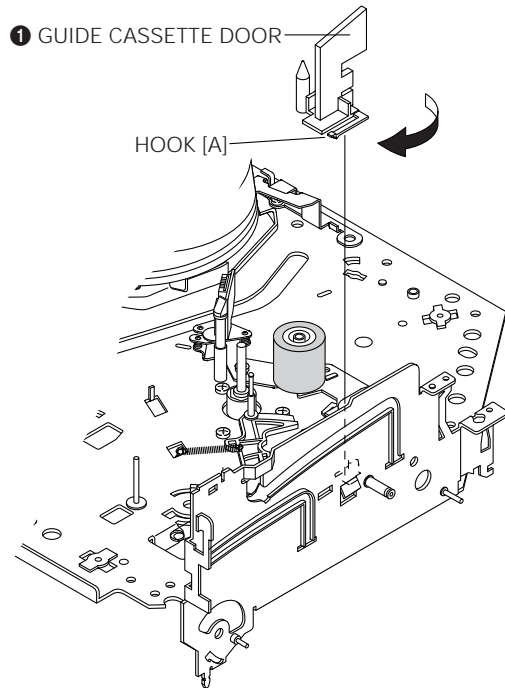


Fig. 1-22 Guide Cassette Door Removal

### 1-2-20 Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

- 1) Lift the Unit Pinch Ass'y ❶.
- 2) Remove the Plate Joint ❷ from Lever Pinch Drive.
- 3) Remove the Spring Pinch Drive ❸.

**Note :**

- 1) Take extreme care not to touch the grease on the Roller Pinch.
- 2) When reinstalling, be sure to apply grease on the post pinch roller.

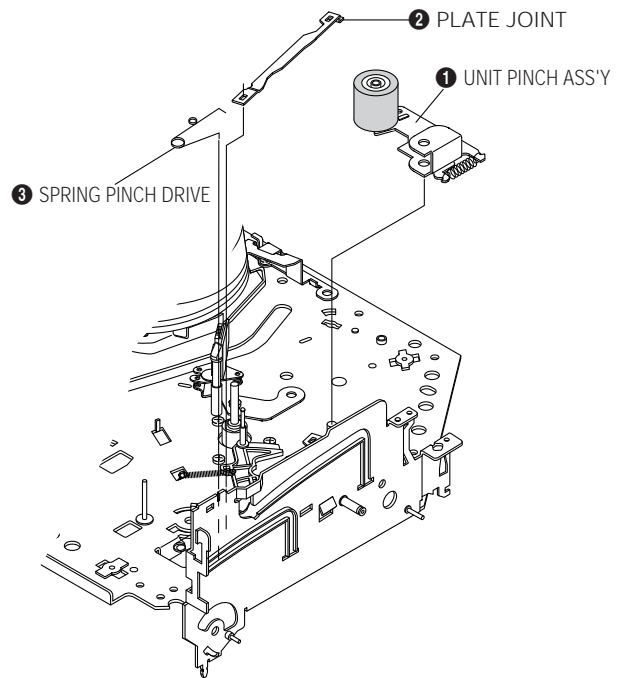


Fig. 1-23 Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

### 1-2-21 Lever #9 Guide Ass'y Removal

- 1) Remove the Spring #9 Guide ❶.
- 2) Lift the Lever #9 Guide Ass'y ❷ in the direction of arrow.

**Note :**

- 1) Take extreme care not to touch the grease on the tape Guide Post.
- 2) After reinstalling, check the bottom side of the Post #9 Guide to stick to the top side of Main Base.

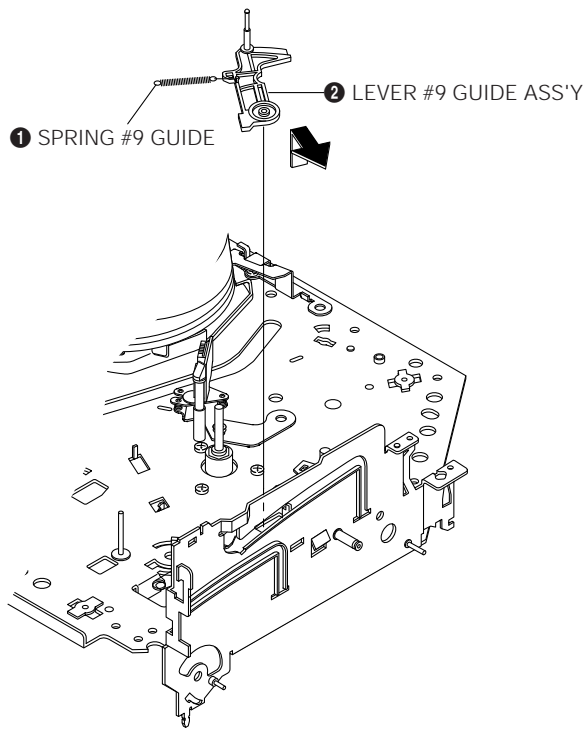


Fig. 1-24 Lever #9 Guide Ass'y Removal

### 1-2-22 FE Head Removal

- 1) Remove the screw ❶.
- 2) Lift the FE Head ❷.

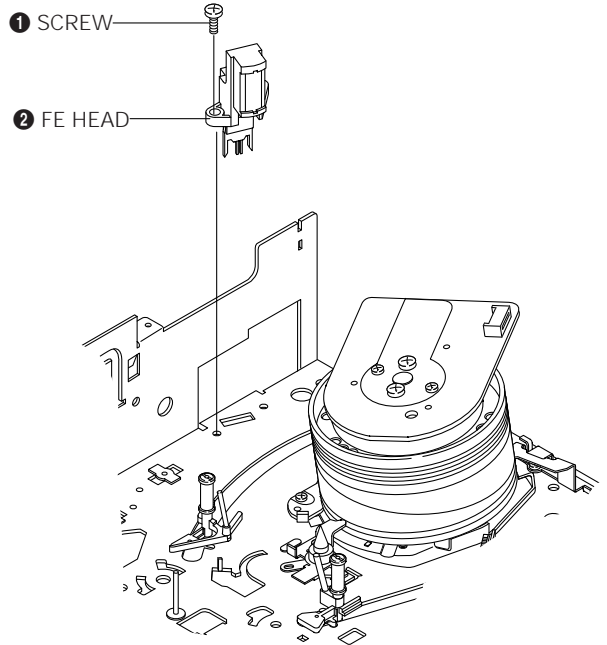


Fig. 1-25 FE Head Removal

### 1-2-23 ACE Head Removal

- 1) Pull out the FPC from connector of ACE Head Ass'y ②.
- 2) Remove the screw ①.
- 3) Lift the ACE Head Ass'y ②.

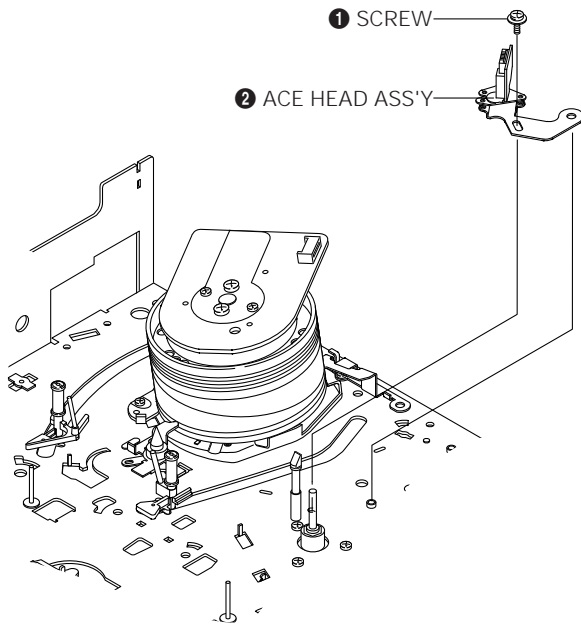


Fig. 1-26 ACE Head Removal

### 1-2-24 Slider S, T Ass'y Removal

- 1) Move the Slider S, T Ass'y ①, ② to slot, and then lift it to remove. (Refer to arrow)

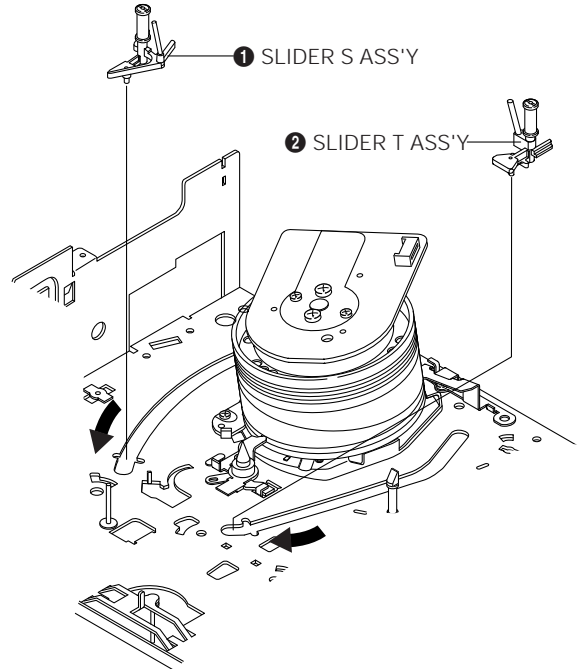


Fig. 1-27 Slider S, T Ass'y Removal



### 1-2-25 Cylinder Ass'y Removal

- 1) Remove the 3 Screws ❶, ❸, ❺.
- 2) Remove the Plate Cylinder A, B, C ❷, ❹, ❻ in the direction of arrow.
- 3) Lift the Cylinder Ass'y ❽.

**Note :**

- 1) When reinstalling, push the Plate Cylinder A, B ❹, ❻ in the reverse of arrow and then, tighten the 2 Screws ❸, ❺.
- 2) Take care not to touch the Cylinder Ass'y and the tape guide post at reinstalling Plate Cylinder C ❷.
- 3) Take care not to touch the Cylinder Ass'y with screw driver at reinstalling the Plate Cylinder C ❷.

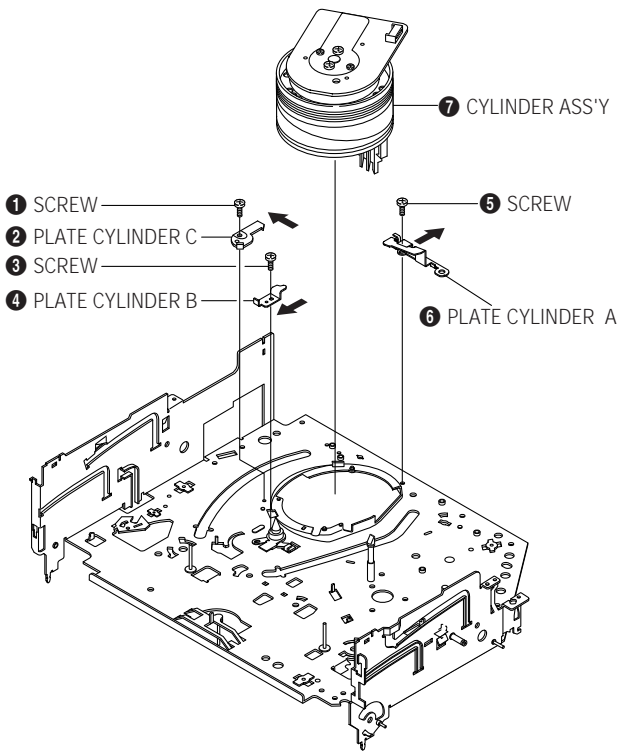


Fig. 1-28 Cylinder Ass'y Removal

### 1-2-26 Belt Pulley Removal

- 1) Remove the Belt Pulley ❶.

**Note :** Take extreme care not to touch the grease on Belt Pulley ❶ at assembling or reassembling.

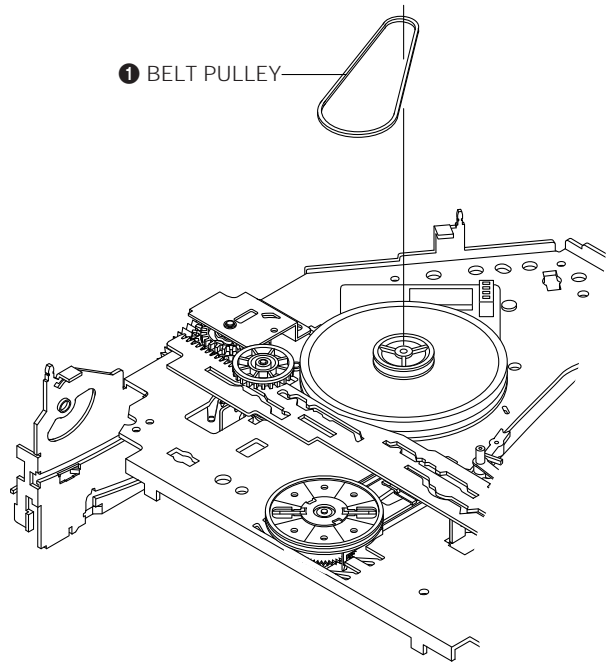


Fig. 1-29 Belt Pulley Removal

### 1-2-27 Lever Head Cleaner Ass'y Removal (Optional)

- 1) Release the Hook ❶.
- 2) Lift the Lever Head Cleaner Ass'y ❷.

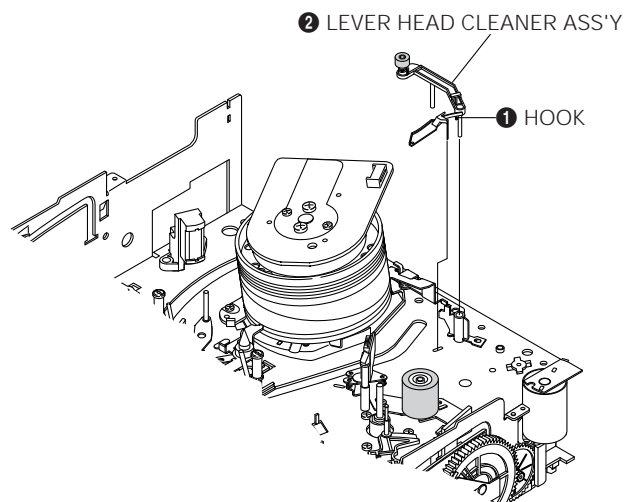


Fig. 1-30 Lever Head Cleaner Ass'y Removal

## 1-2-28 Motor Capstan Ass'y Removal

- 1) Remove the 3 Screws ❶.
- 2) Remove the Motor Capstan Ass'y ❷.

### Assembly :

- 1) Match the 3 holes of Motor Capstan Ass'y ❷ to the 3 holes of Main Base as attending not to drop or knock the Motor Capstan Ass'y.
- 2) Tighten the 3 Screws in the direction of arrow as shown detail drawing.

### Note :

- 1) Don't reuse the removed screws from Motor Capstan Ass'y.
- 2) After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base.
- 3) After reinstalling, adjusting the tape transport system again.

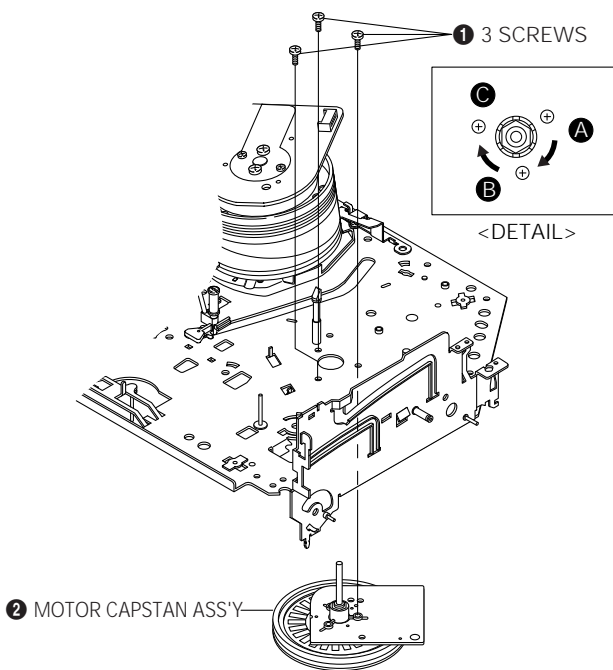


Fig. 1-31 Motor Capstan Ass'y Removal

## 1-2-29 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass'y)

- 1) Remove the Holder worm ❶ and the Gear Worm ❷.
- 2) Turn the Gear Worm Wheel ❸ counterclockwise with screw driver. (Refer to arrow)

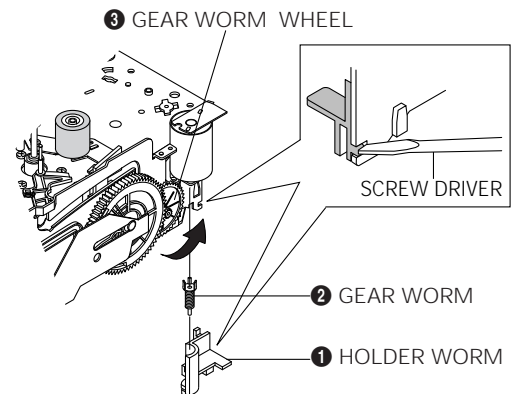


Fig. 1-32

- 3) When Slider S, T are approached in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwound tape. (Refer to Fig. 1-33)  
(If you rotate Gear Worm Wheel continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwound tape in the state of set horizontally.)
- 4) Rotate Gear Worm Wheel ❸ counterclockwise using screw driver again up to the state of eject mode and then pick out the tape. (Refer to Fig. 1-32)

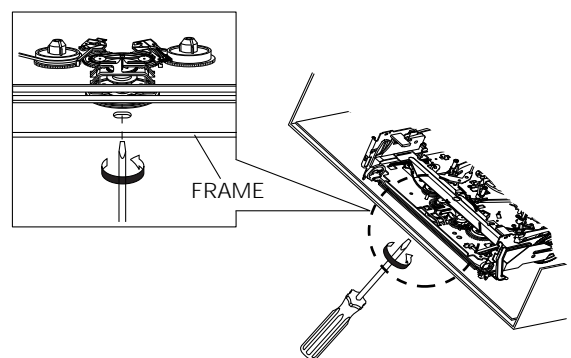


Fig. 1-33

### 1-3 The table of clearing, Lubrication and replacement time about principal parts

- 1) The replacement time of parts is not life of parts.
- 2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).  
The checking period may be changed owing to the condition of use, runtime and environmental conditions.
- 3) Life of the Cylinder Ass'y is depend on the condition of use.
- 4) See exploded view for location of each parts.

<Table 1-1>

*	Parts Name	Checking Period										Remark
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
T A P E  P A T H  S Y S T E M	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent).  - After cleaning, use the video tape after alcohol is gone away completely.  - We recommend to use oil [EP-56] or solvent.  - One or two drops of oil should be applied after cleaning with alcohol.  - Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	○	○	○	○	○	○	○	
	CYLINDER ASS'Y	Δ	○	○	○	○	○	○	○	○	○	
	FE HEAD	Δ	Δ	Δ	○	○	○	○	○	○	○	
	ACE HEAD	Δ	○	○	○	○	○	○	○	○	○	
	PINCH ROLLER	Δ	○	○	○	○	○	○	○	○	○	
	POST REEL S, T		◆		◆		◆		◆		◆	
	SLEEVE TENSION		◆		◆		◆		◆		◆	
	POST CENTER		◆		◆		◆		◆		◆	
LEVER IDLE BOSS (2Point)		◆		◆		◆		◆		◆		
D R I V I N G  S Y S T E M	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	○	○	○	○	○	
	BELT PULLEY				○	○	○	○	○	○	○	
	HOLDER CLUTCH ASS'Y	Δ	○	○	○	○	○	○	○	○	○	
	GEAR CENTER ASS'Y		○	○	○	○	○	○	○	○	○	
	GEAR IDLE (2Point)		○	○	○	○	○	○	○	○	○	
	LOADING MOTOR		○	○	○	○	○	○	○	○	○	
B R A K E  S Y S T E M	BAND BRAKE ASS'Y		○	○	○	○	○	○	○	○	○	
	BRAKE T ASS'Y		○	○	○	○	○	○	○	○	○	

Δ : Cleaning      ○ : Check and replacement in necessary      ◆ : Add Oil

## 2. Alignment and Adjustment

### 2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

- 1) Noise observed on the screen.
- 2) Tape damage.
- 3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.

To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

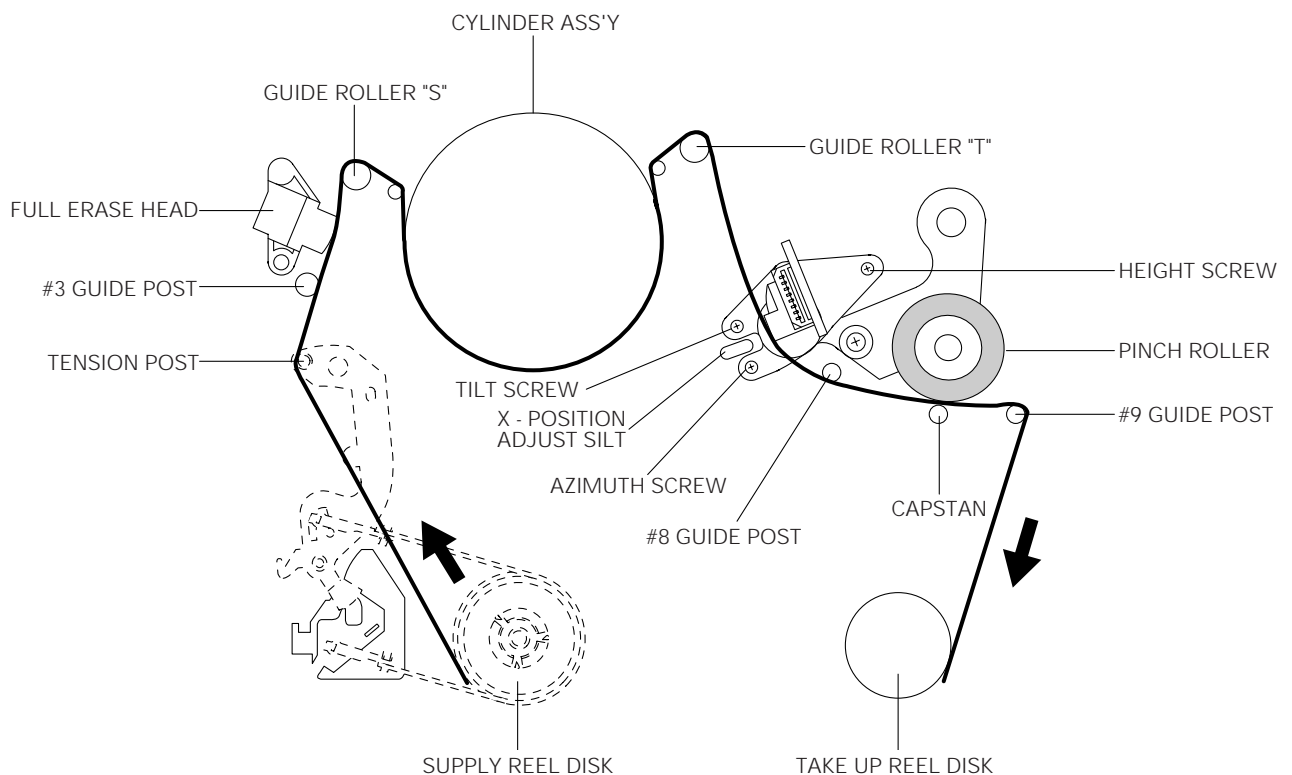


Fig. 2-1 Location of Tape Transport Adjustment

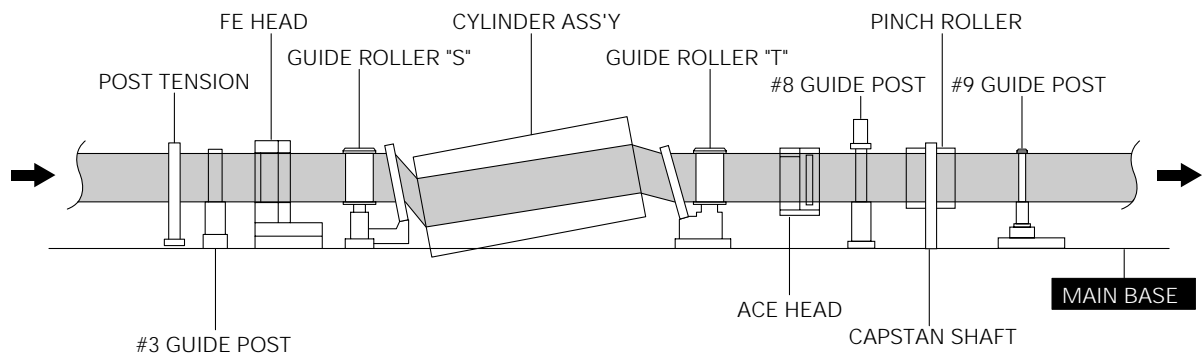


Fig. 2-2 Tape Travel Diagram

## 2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

- 1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
- 2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head. (See page 5-3 of the Service Manual for Test Point Locations.)

### 2-2-1 ACE Head Assembly Adjustment

#### 2-2-1(a) ACE HEAD HEIGHT ADJUSTMENT

- 1) Run the alignment tape (Color bar) in the playback mode.
- 2) Observe surface of the audio head using a dental mirror.
- 3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 2-3 and 2-4)

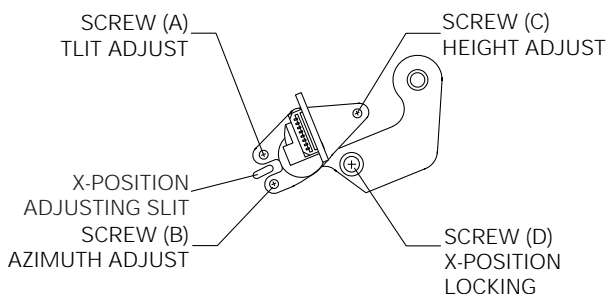


Fig. 2-3 Location of ACE Head Adjustment Screw

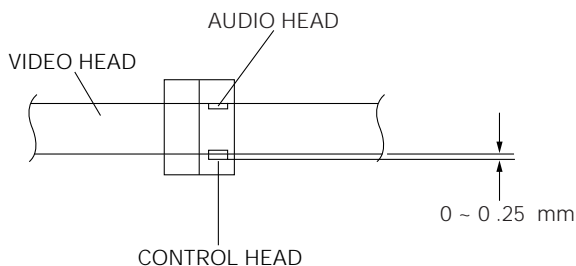


Fig. 2-4 ACE Head Height Adjustment

#### 2-2-1(b) ACE HEAD TILT ADJUSTMENT

- 1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
- 2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 2-5 (B).
- 3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
- 4) Reconfirm the ACE head height.

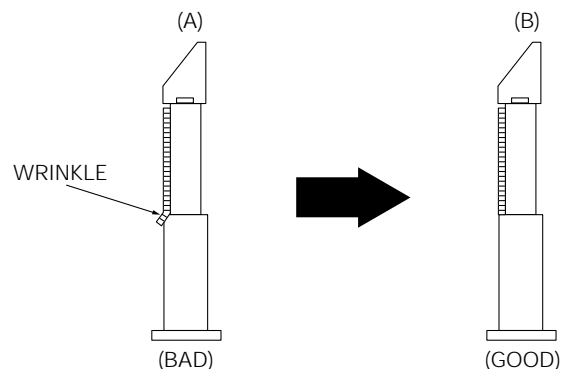


Fig. 2-5 Tape Guide Check

#### 2-2-1(c) AUDIO AZIMUTH ADJUSTMENT

- 1) Load alignment tape (Mono scope) and playback the NTSC : 7KHz (PAL : 6KHz) signal.
- 2) Connect channel-1 scope probe to audio output test point.
- 3) Adjust screw (B) to achieve maximum audio level. (See Fig. 2-3)

#### 2-2-1(d) ACE HEAD POSITION (X-POINT) ADJUSTMENT

- 1) See page 5-1 of the Service Manual for ACE Head position (X-Point) adjustment.


### 2-2-2 Linearity adjustment (Guide roller S, T adjustment)

- 1) Playback the Mono Scope alignment tape (SP mode).
- 2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
- 3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 2-6.  
If it does not, adjust as follows :

**Note :**

- a=Maximum output of the video RF envelope.
- b=Minimum output of the video RF envelope at the entrance side.
- c=Minimum output of the video RF envelope at the center point.
- d=Maximum output of the video RF envelope at the exit side.

- 4) If the section A in Fig. 2-7 does not meet the specification, adjust the guide roller S up or down.
- 5) If the section B in Fig. 2-7 does not meet the specification, adjust the guide roller T up or down.

- 6) Play back the Mono Scope alignment tape (SP mode).
- 7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H'D SW Pulse for triggering.
- 8) Turn the guide roller heads with a flat head (  ) driver to obtain a flat video RF envelope as shown in Fig. 2-8.

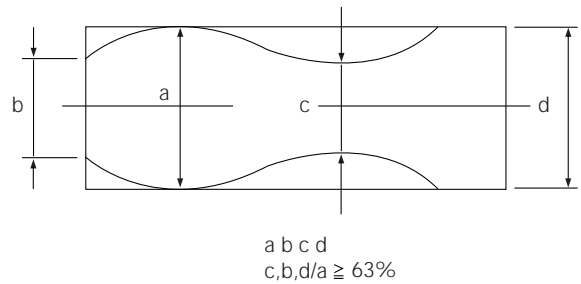


Fig. 2-6 Envelope Waveform Adjustment

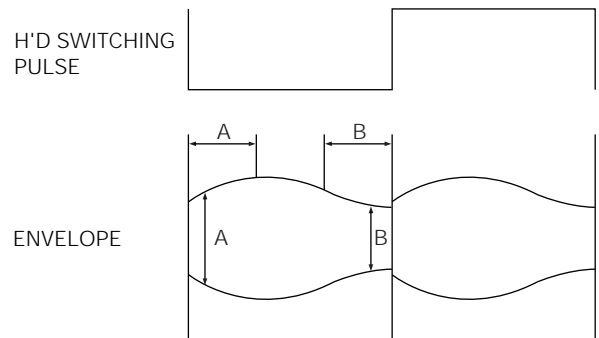


Fig. 2-7 Adjustment Points

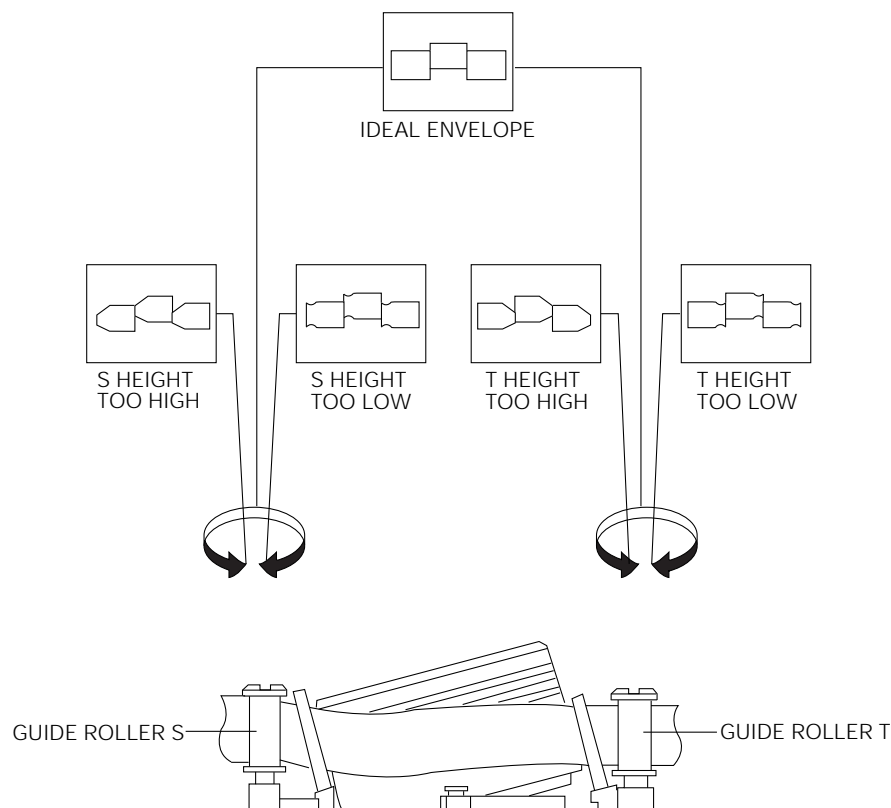


Fig. 2-8 Guide Roller S, T Height Adjustment

### 2-2-3 Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode :  
 Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 2-9).  
 If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

- 1) Make sure there is no gap between the supply roller lower flange and the tape.  
 If there is a gap, adjust the supply guide roller again.
- 2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

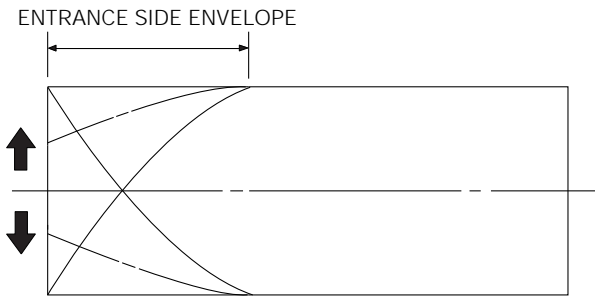


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

### 2-2-4 Envelope Check

- 1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.  
 Make sure the playback output envelope meets the specification as shown in Fig. 2-10.
- 2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120)).  
 The video envelope should meet the specification as shown in Fig. 2-10.  
 In SP mode, (A) should equal (B).  
 If the head gap is wide, upper cylinder should be checked.

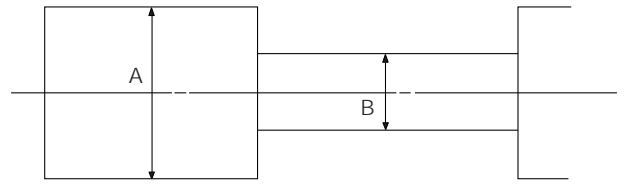


Fig. 2-10 Envelope Output and Output Level

### 2-2-5 Tape Wrinkle Check

- 1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
- 2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :
  - ◆ Tape wrinkle at the guide roller S, T section :  
 Linearity adjustment.
  - ◆ Tape wrinkle at tape guide flange :  
 ACE head assembly coarse adjustment.

## 2-3 Reel Torque

- 1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
- 2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
- 3) Brake is operated by slider cam at FF/REW mode.
- 4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

**Note :** If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

<Table 2-1>

MODE	TORQUE g/cm		GAUGE
PB	NTSC	82.5 ± 27.5	Cassette Torquemeter
	PAL	79 ± 27	
RPS	145 ± 30		Cassette Torquemeter

## 2-4 Location adjustment and Confirmation of Tension Post

- 1) Remove the holder cassette ass'y and then push the lever FL Arm-R to the direction of loading.
- 2) Push the lever tension drive ❶ in the direction of arrow. (See Fig. 2-11)
- 3) Turn the gear worm wheel ❷ clockwise so that "Timing Point" of the slider FL drive ❸ and gear FL cam ❹ can be aligned (See Fig. 2-12)

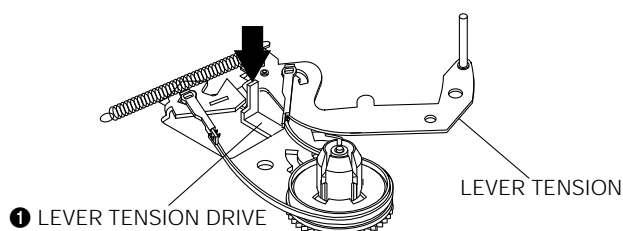


Fig. 2-11

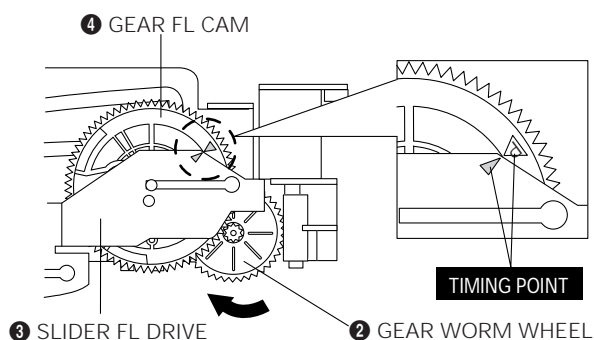


Fig. 2-12

- 4) As rotating Disk S Reel ❶ clockwise and the region of adjusting in the Main Base (in shape of slit) clockwise or counterclockwise after inserting screw driver in the slit on Main Base. Adjust the left end edge of Lever Tension Ass'y ❸ to  $1.3 \pm 1.5 / -0.5\text{mm}$  from the location of mark in the Main Base.
- 5) As rotating Disk S Reel ❶, double-check the location of the left end edge of Lever Tension Ass'y and the quantity of crossing from mark on Main Base. ( $+1.0 / -0.5\text{mm}$ )

**Counterclockwise** : Torque UP

**Clockwise** : Torque DOWN

Back Tension should be  $56 \pm 15\text{g.cm}$  at inspecting it with Back Tension Meter.

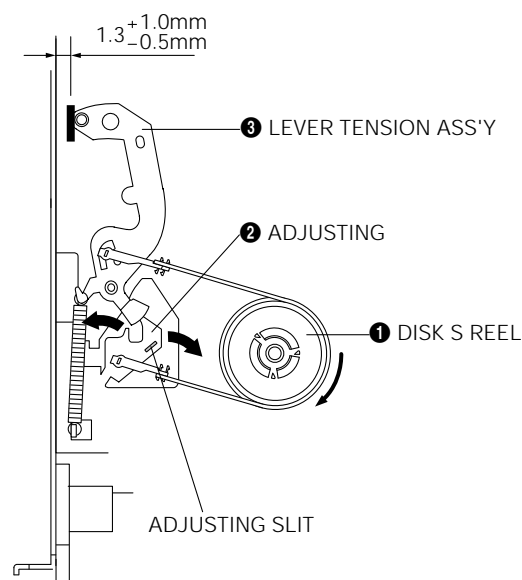


Fig. 2-13 Tension Pole and Back Tension Adjustment

### Note :

- 1) Mark on Main Base is located in about 1.3mm from inside of bending line.
- 2) Be careful not to deform the region of adjusting on Main Base up and down at adjusting.



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