

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.

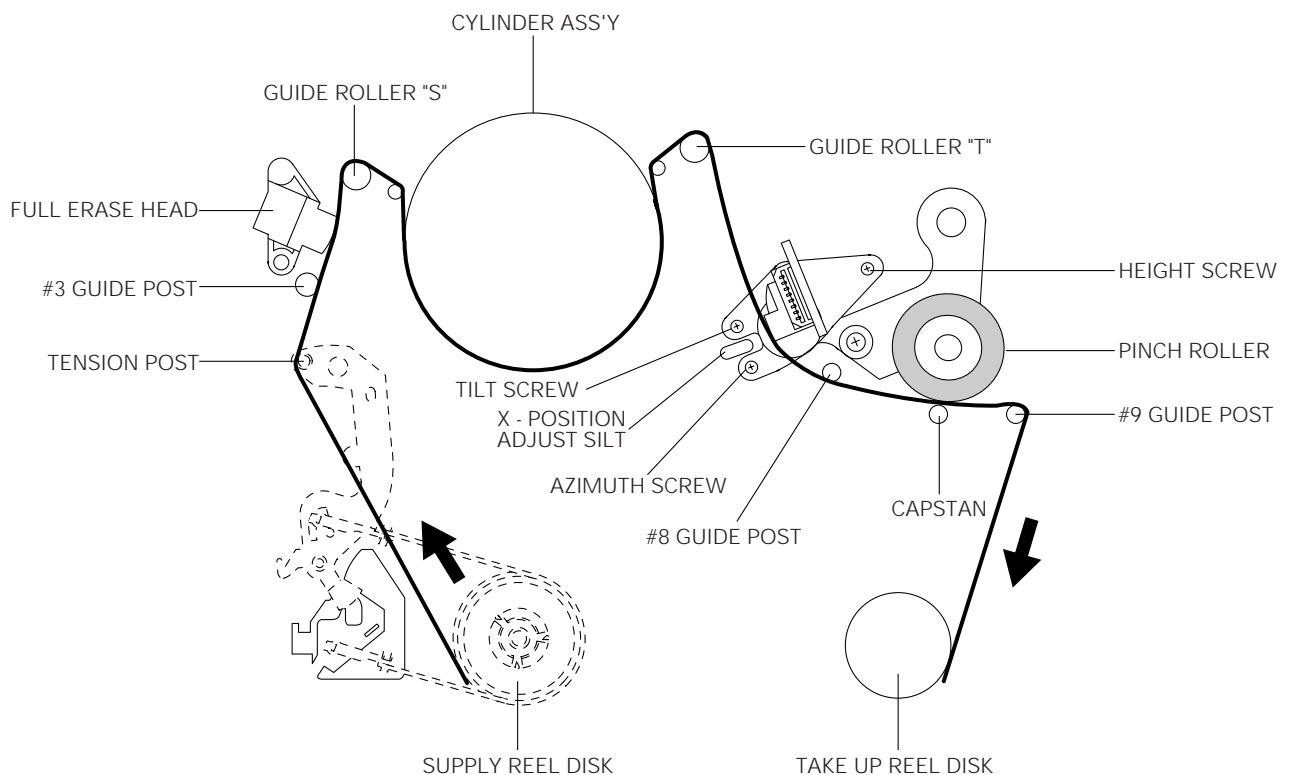


Fig. 2-1 Location of Tape Transport Adjustment

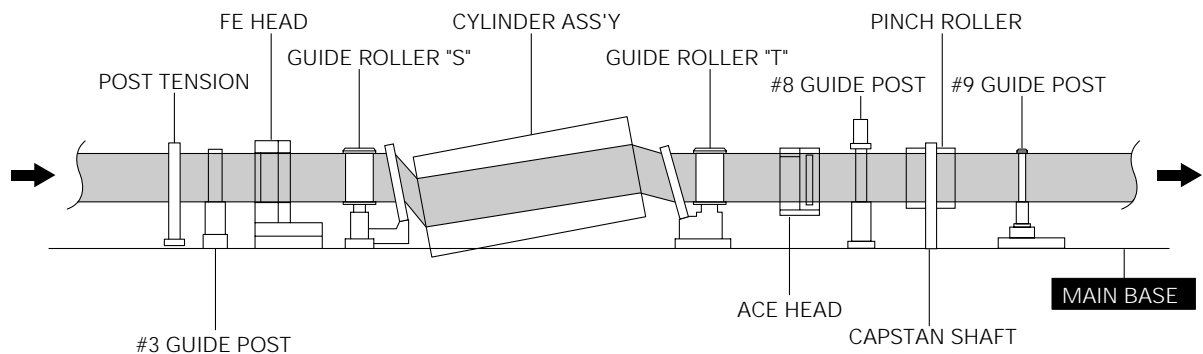


Fig. 2-2 Tape Travel Diagram

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)

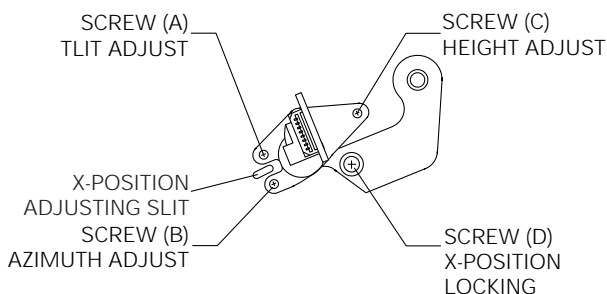


Fig. 2-3 Location of ACE Head Adjustment Screw

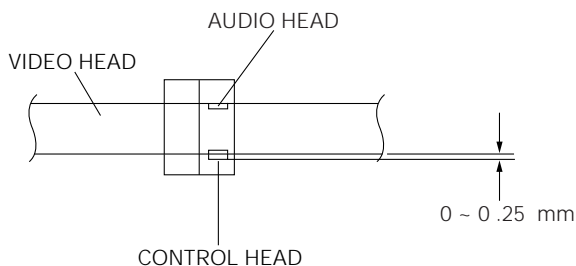


Fig. 2-4 ACE Head Height Adjustment

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.

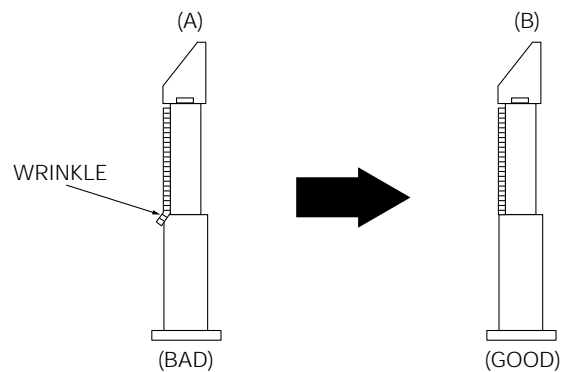


Fig. 2-5 Tape Guide Check

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.

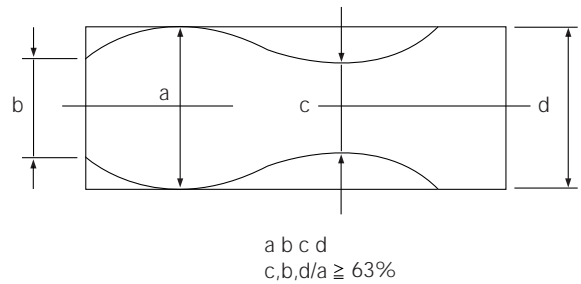


Fig. 2-6 Envelope Waveform Adjustment

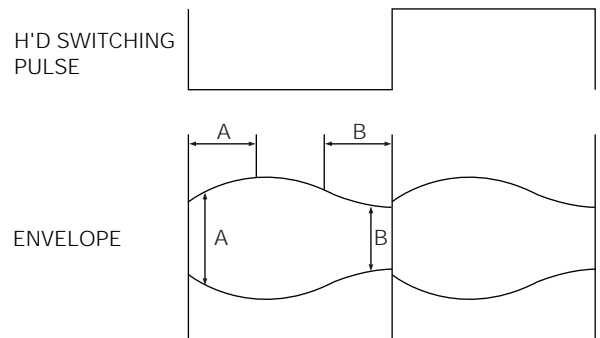


Fig. 2-7 Adjustment Points

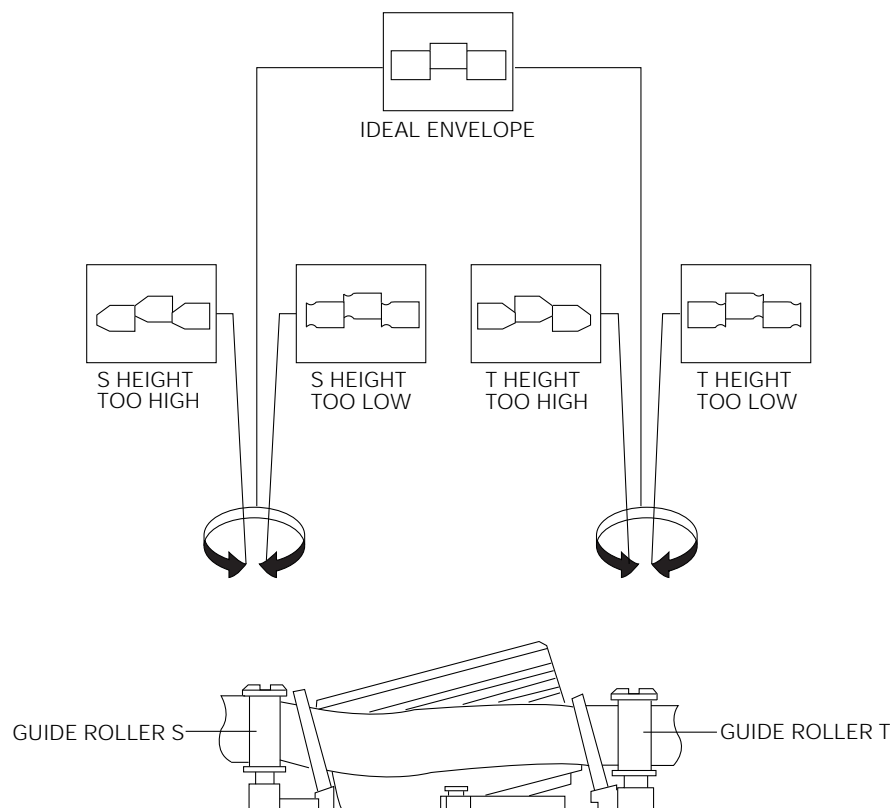


Fig. 2-8 Guide Roller S, T Height Adjustment

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.

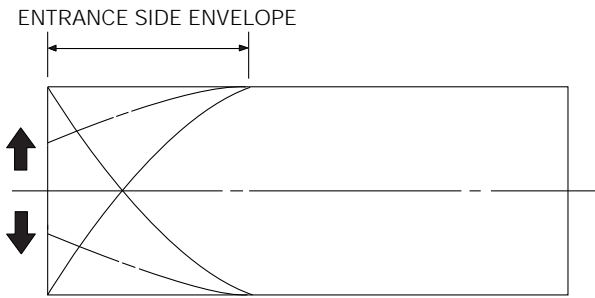


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

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.

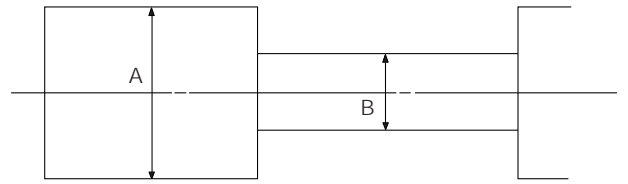


Fig. 2-10 Envelope Output and Output Level

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)

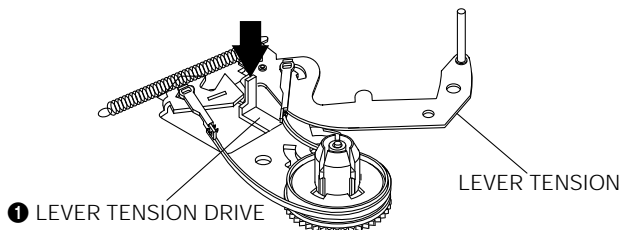


Fig. 2-11

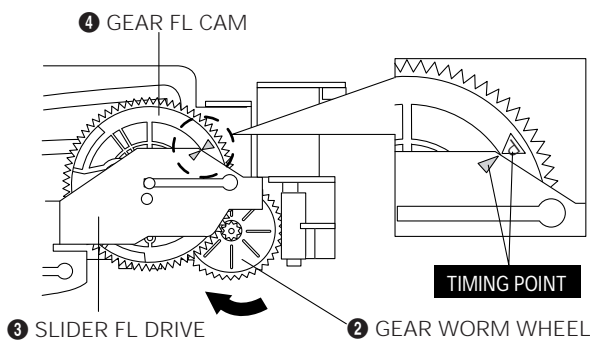


Fig. 2-12

- 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.

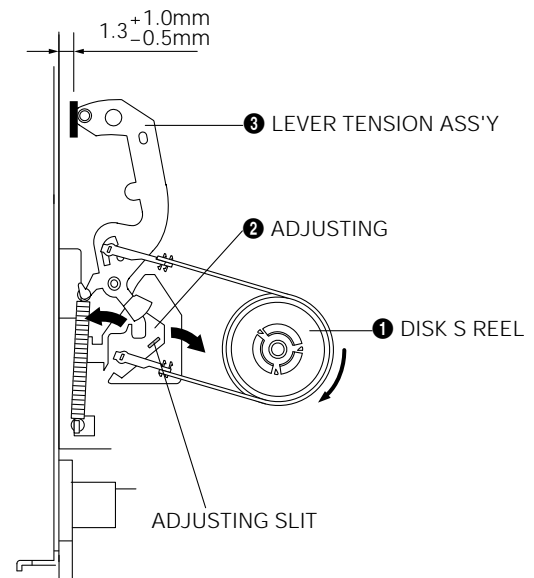


Fig. 2-13 Tension Pole and Back Tension Adjustment

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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