1. MECHANICAL ADJUSTMENT AND CONFIRMATION

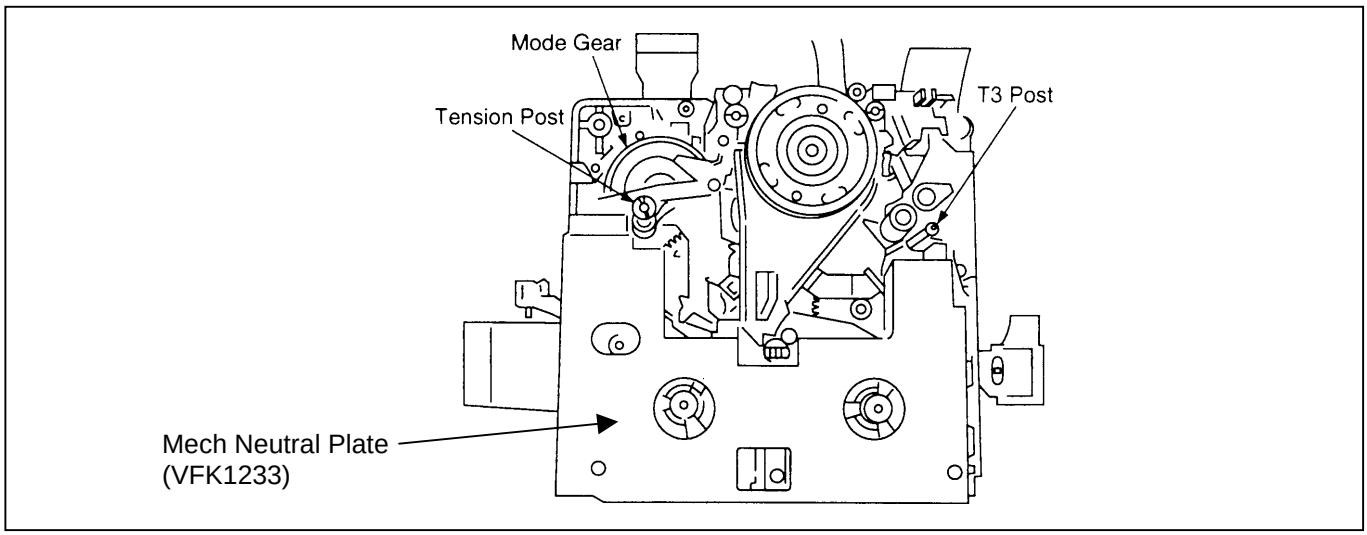
When the following parts are replaced, the mechanical adjustment is required.
Tension Post
T3 Post
Pad Arm Unit
Supply or Take-up Reel Tables

1-1. Tension Post & T3 Post Height Adjustment

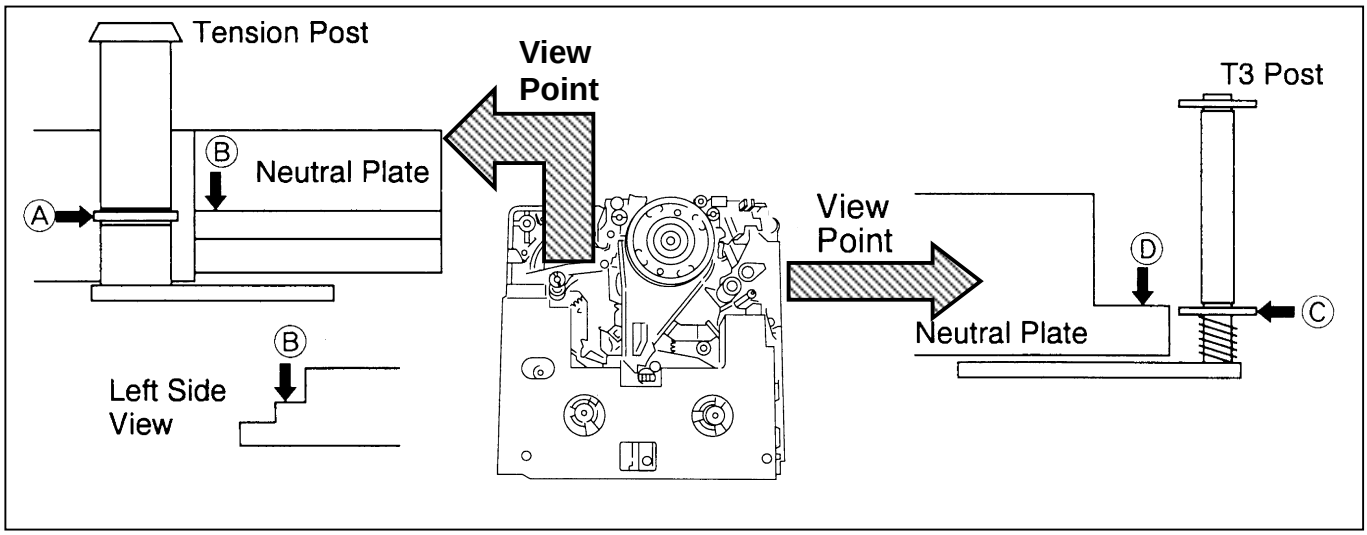
1. Remove the Cylinder Hold Angle and Loading Motor Unit.

NOTE: Not required remove the flexible cable from Loading Motor.

2. Set the Mechanism Plate (VFK1233) on the Mechanism Chassis.
3. Turn the Mode Gear fully clockwise to make full loading condition by using Loading Gear Driver (VFK1266).



4. Adjust the height of Tension Post by VFK1149 so the lower flange (A) point become same height of the top surface (B) of 2nd step of the Mechanism Plate as shown in Figure.
5. Adjust the height of T3 Post by VFK1151 so that the lower flange (C) point become same height of the top surface (D) of the Mechanism Plate as shown in Figure.

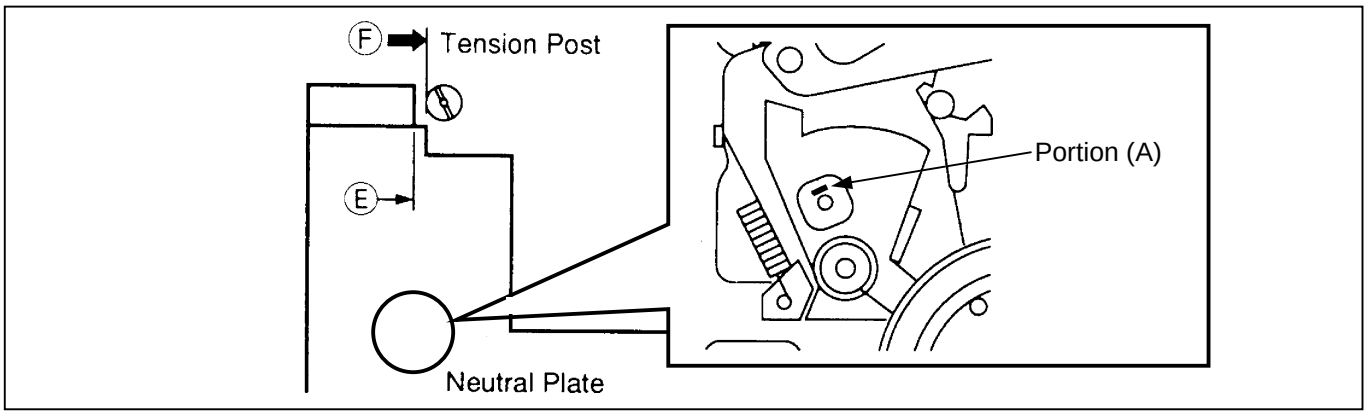


1-2. Tension Post Position Adjustment

1. Remove the Cylinder Hold Angle and Loading Motor Unit.

NOTE: Not required remove the flexible cable from Loading Motor.

2. Turn the Mode Gear to set the Mechanism position in the play mode, that the Soft Brake of the Pad Arm Unit just touch to the Supply Reel Table as shown in Figure.
3. Set the Mechanism Plate on the Mechanism Chassis as shown in Figure.
4. Insert the tip of minus driver to portion(A) as shown in figure and turn clockwise slowly until the surface of the Tension Post comes to 2nd step(“F” Portion of tension post is just touch to “E” portion as shown in figure).



5. After adjustment, turn the Mode Gear to unloading direction then turn back to loading direction, and make sure that position is correct at above specification in Play position.

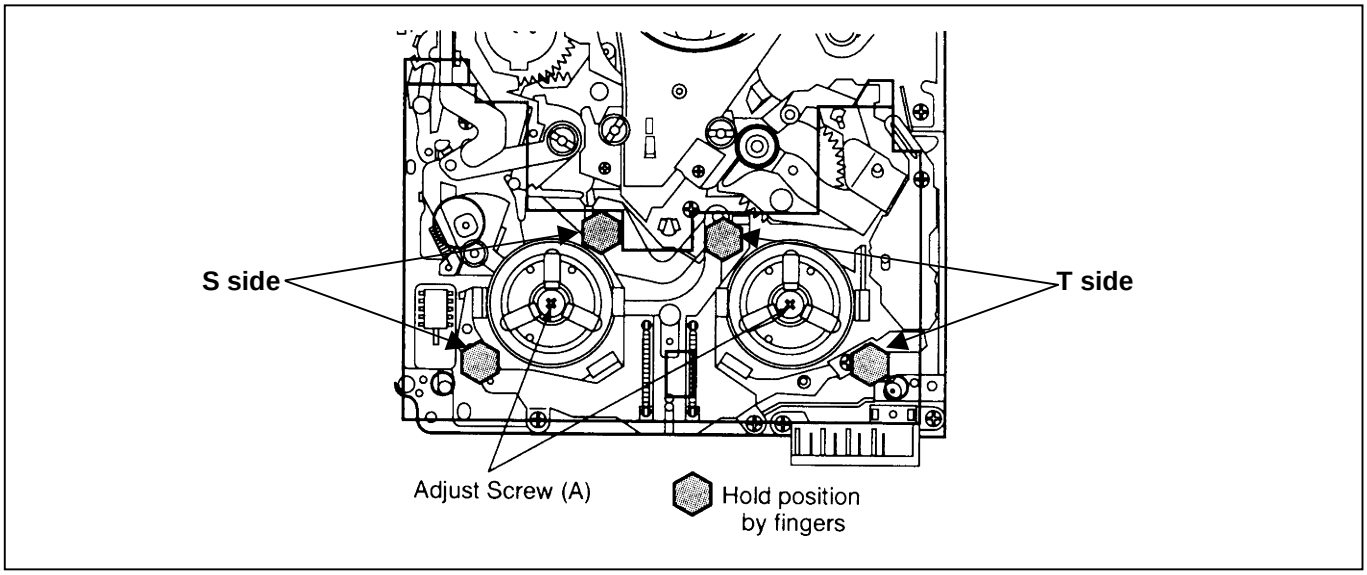
1-3. Supply & Take-up Reel Table Adjustment

This adjustment should be performed for Supply or Take-up Reel Table one by one.

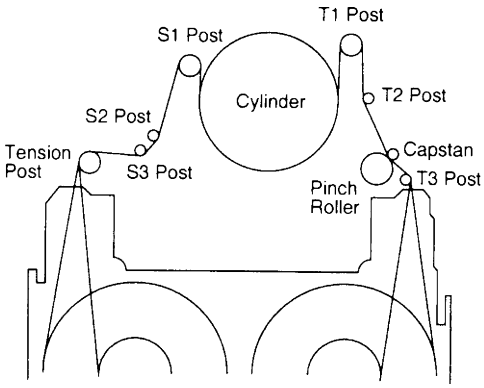
1. Remove the Cylinder Hold Angle and Loading Motor Unit.

NOTE: Not required remove the flexible cable from Loading Motor.

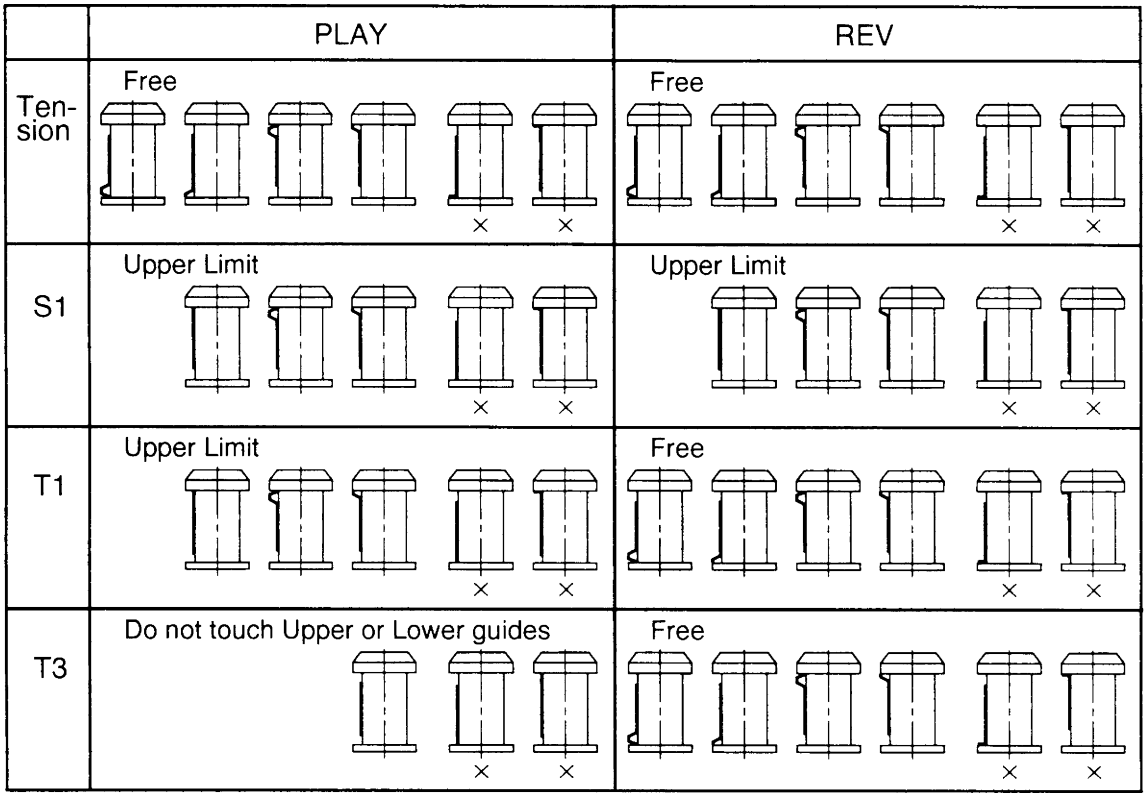
2. Turn the adjustment screw (A) on top of the Supply or Take-up Reel Table fully clockwise. Then, place the Mechanism Plate on the Mechanism Chassis as shown in Figure.
3. Hold the Mechanism plate by finger and slowly turn the adjustment screw counterclockwise until Reel Table just rotate with adjustment screw as shown in Figure.
4. Remove the Mechanism Plate and hold the Reel Table by finger then turn the adjustment screw counterclockwise to 45 degrees from above step point.



1-4. Confirmation of Tape Pass



1. Play back the cassette tape and confirm that the tape pass without curling at the upper and lower guides of the following posts in the Play and REV modes as shown in Figure.

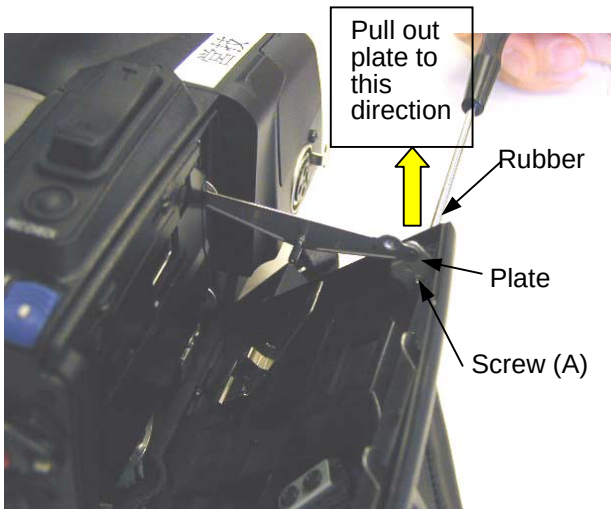


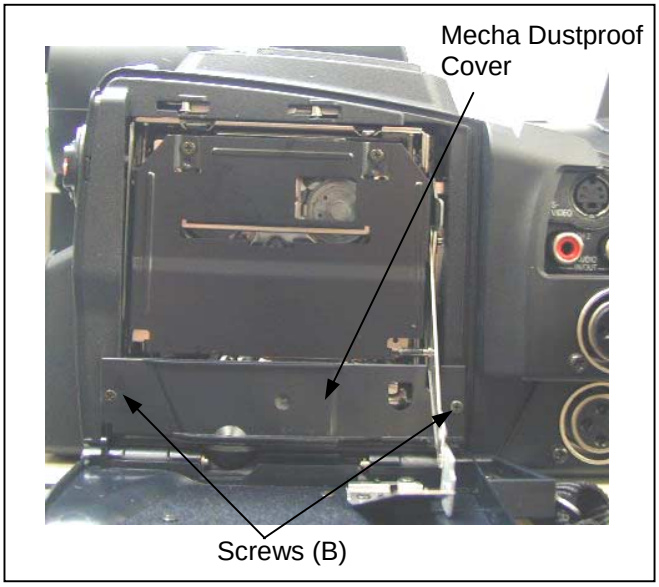
2. If there is curing or damage at the ether guide of posts, readjust the height of the posts by turning the post with the Post Adjustment Driver.

1-5. Confirmation of the Envelope

To adjust envelope waveform, below indicated operation is required.

1. Remove the rubber on Grip Cover Unit.
2. Unscrew the screw (A) and remove the plate from frame.
3. Unscrew the 2 screws (B) and remove the Mecha Dustproof Cover.





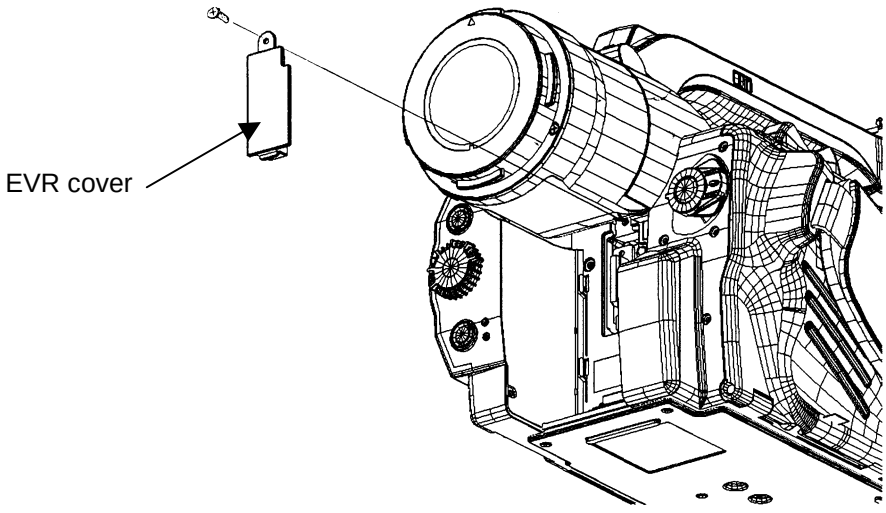
To confirm the envelope output, connect the Connection and Measuring Boards as described below.

For performing the confirmation of envelope, the following tool are required.

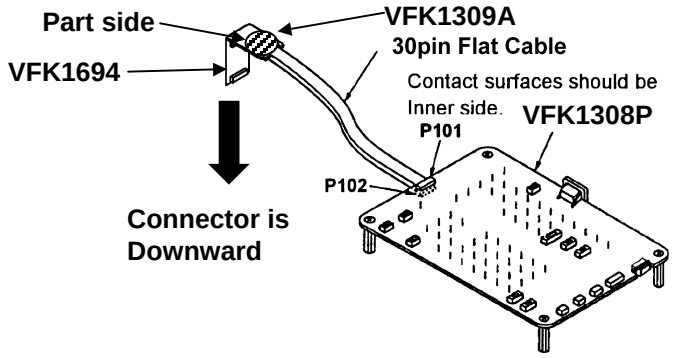
NAME	Part Number	Pcs.	Remark
Measuring Board	VFK1308P	1	
EVR Connector Board	VFK1309A	1	NOTE
EVR Extender Board	VFK1694	1	
30pin Flat Cable	VFK1317	2	
DC Cable	VJA0941	1	
AC Adaptor	-----		

NOTE: VFK1309 can be use to this confirmation and VFK1309A is only required LCD adjustment.

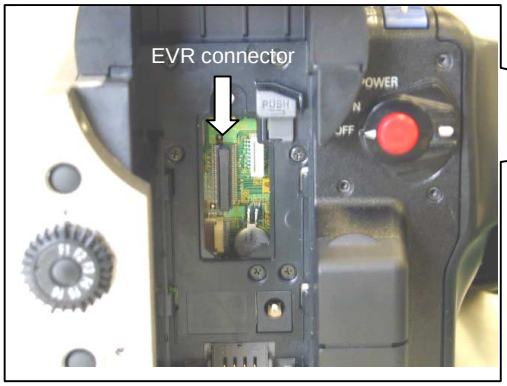
1. Unscrew 1 screw and remove the EVR cover.

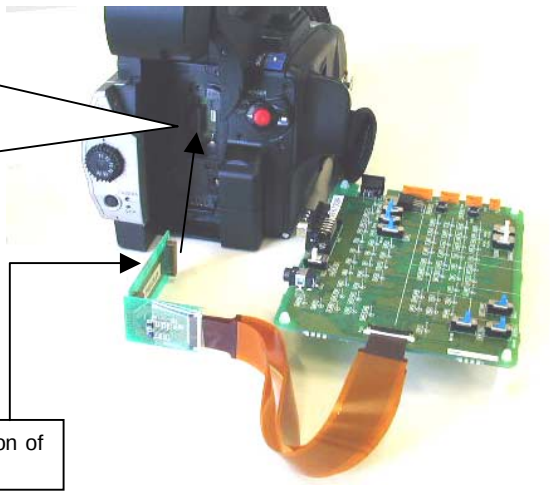


2. Connect the 2 pcs. of 30 pin flat cables(VFK1317) between P101/P102 on the Measuring Board(VFK1308P), and 2 connectors on the EVR Connector Board(VFK1309). Make sure that the contact surface of 2 pcs. of 30 pin Flat Cables are inner side and direction of the EVR Connector Board is as shown in Figure. Then connect the Extender board(VFK1694).



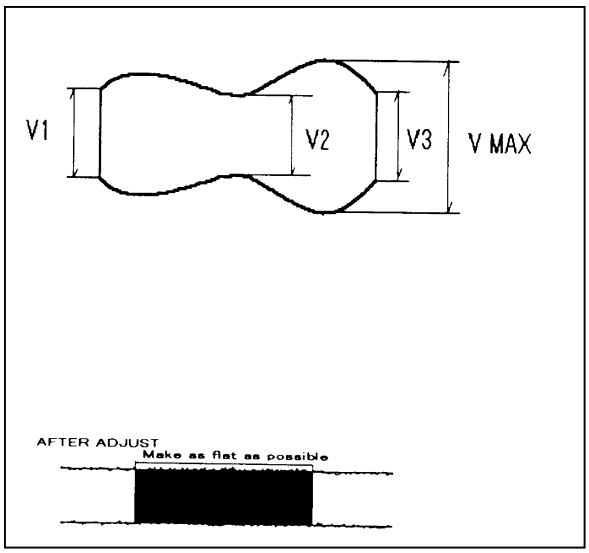
3. Connect the EVR Extender board (VFK1694) to EVR connector on EVR connect C.B.A in AG-DVX100. Then make sure that the direction of the Extender Board is correct as shown in Figure.





When the VFK1694 connect to EVR connector, be careful direction of VFK1694. Please follow as shown in the figure.

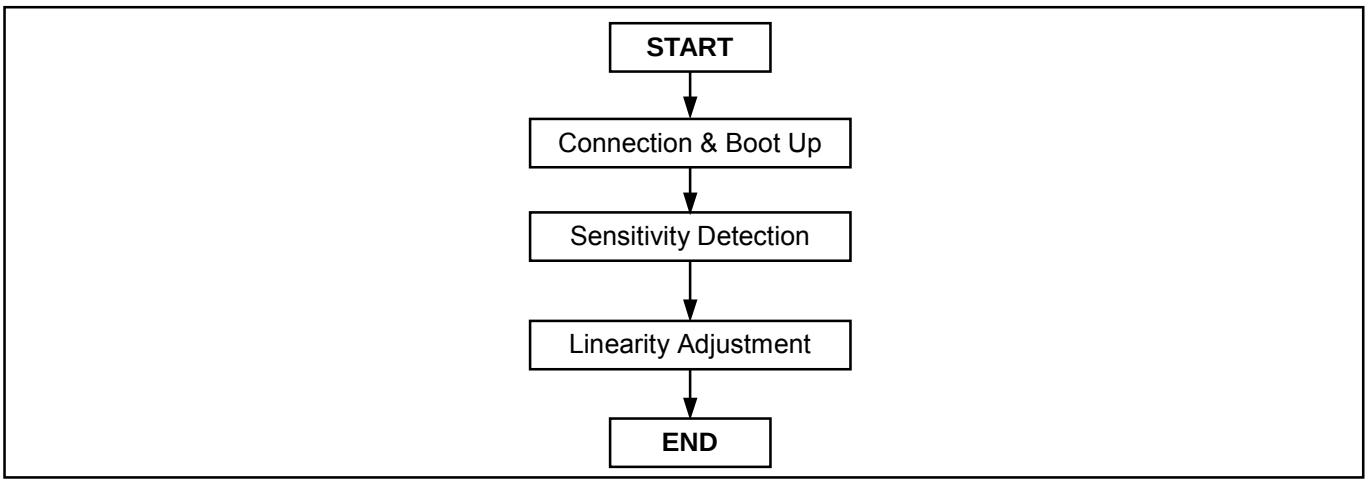
4. Supply DC6V to the Measuring Board (VFK1308P). Please use the DC cable (VJA0941) and AC Adaptor to supply DC voltage to Measuring Board.
5. Connect the oscilloscope to the Measuring Points [ENVELOPE] and [HID] as a trigger on the Measuring Board(VFK1308P).
6. Play back the color bar alignment tape and confirm that the Envelope is within the following specifications.



V1/V max. 0.9
V2/V max. 0.9
V3/V max. 0.9

7. If it is out of the specification, adjust the height of the S1 and T1 Post.

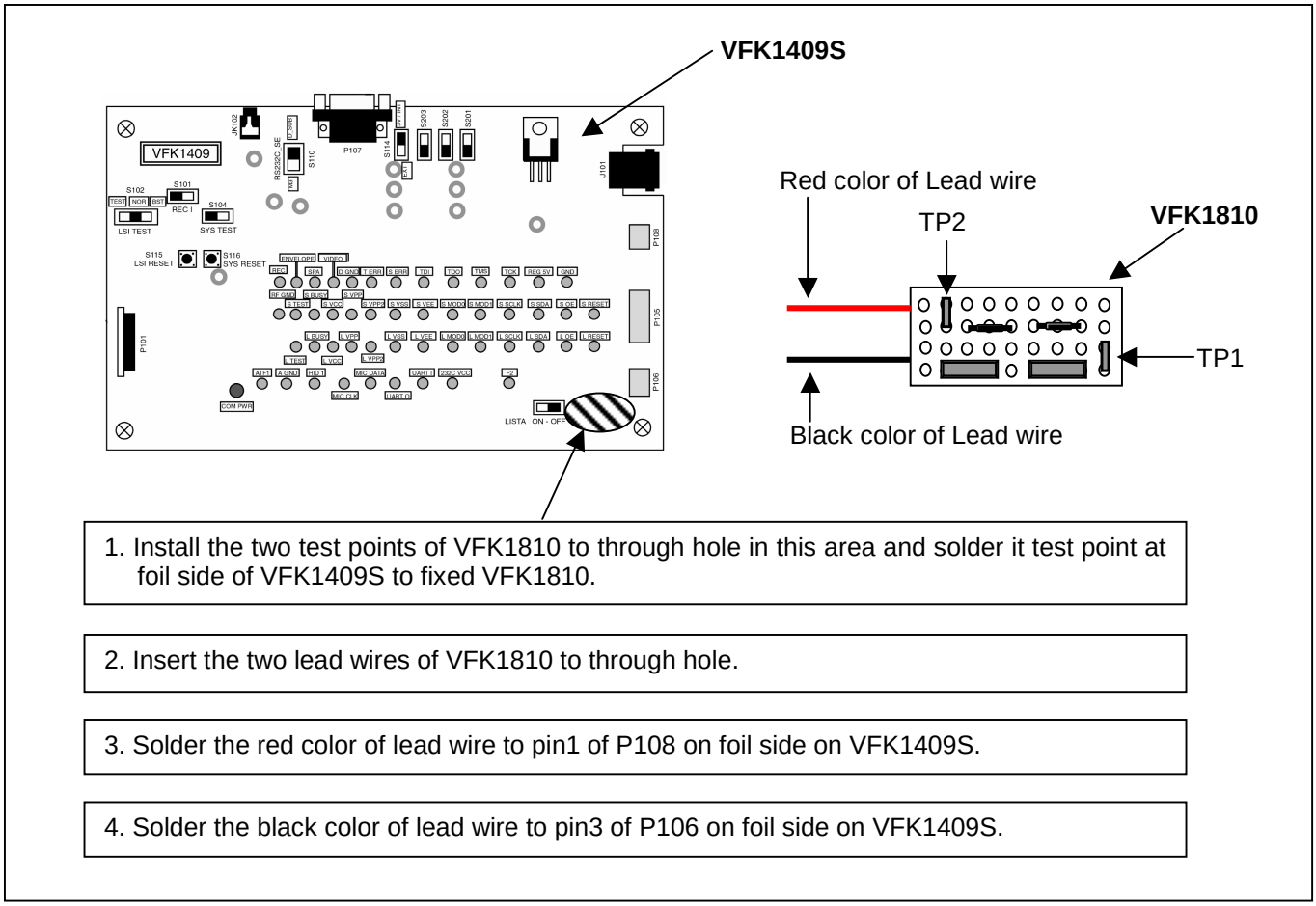
1-6. LISTA Adjustment Procedures



1-6-1. Connection of LISTA Adjustment system

TAPE	VFM3000EDS (DV LISTA)
M. EQ	Personal Computer (A/D Board should be installed.)
TOOL	VFK1481E (LISTA Software), VFK1186 (LISTA Cable), VFK1300 (A/D Converter Board), VFK1308P (Measuring Board), VFK1409A (Measuring Board) ← **NOTE 2** VFK1317 (30P flat cable): 2pcs, VFK1309A (EVR connector board) ← **NOTE 1** VFK1694 (EVR extender board), VJA0941(DC cable): 2pcs, 9P RS232C cross cable.
TP	In case of use VFK1409A **F2** : ATF-ERR (VFK1409A), **TP2** : TRG/HSW (VFK1409A), **GND** : GND (VFK1409A) In case of use VFK1409S **F2** : ATF-ERR (VFK1409S), **TP2** : TRG/HSW (VFK1810), **GND** : GND (VFK1409S)

NOTE 1:
VFK1309 and VFK1309A can be use to perform LISTA adjustment. The VFK1309A is only required LCD adjustment(refer to item 1 of Electrical adjustment procedure in section 4.)
NOTE 2:
If you already have VFK1409S(Measuring board), it can be use to perform LISTA adjustment with VFK1810(LISTA Measuring board).
How to install the VFK1810 to VFK1409S, please refer to next explanation.



1. Set the switches on the Measuring Board as shown below.

<VFK1308P>

SW NAME& No.	Setting Position
RS232C SEL(SW101)	D-SUB
VTR TEST(SW103)	L
BST TEST(SW104)	NORMAL
SW105	H
SW106	OFF
SW107	CENTER position
SW108	H
FLUSH1 (SW102)	NORMAL
FLUSH2 (SW109)	NORMAL

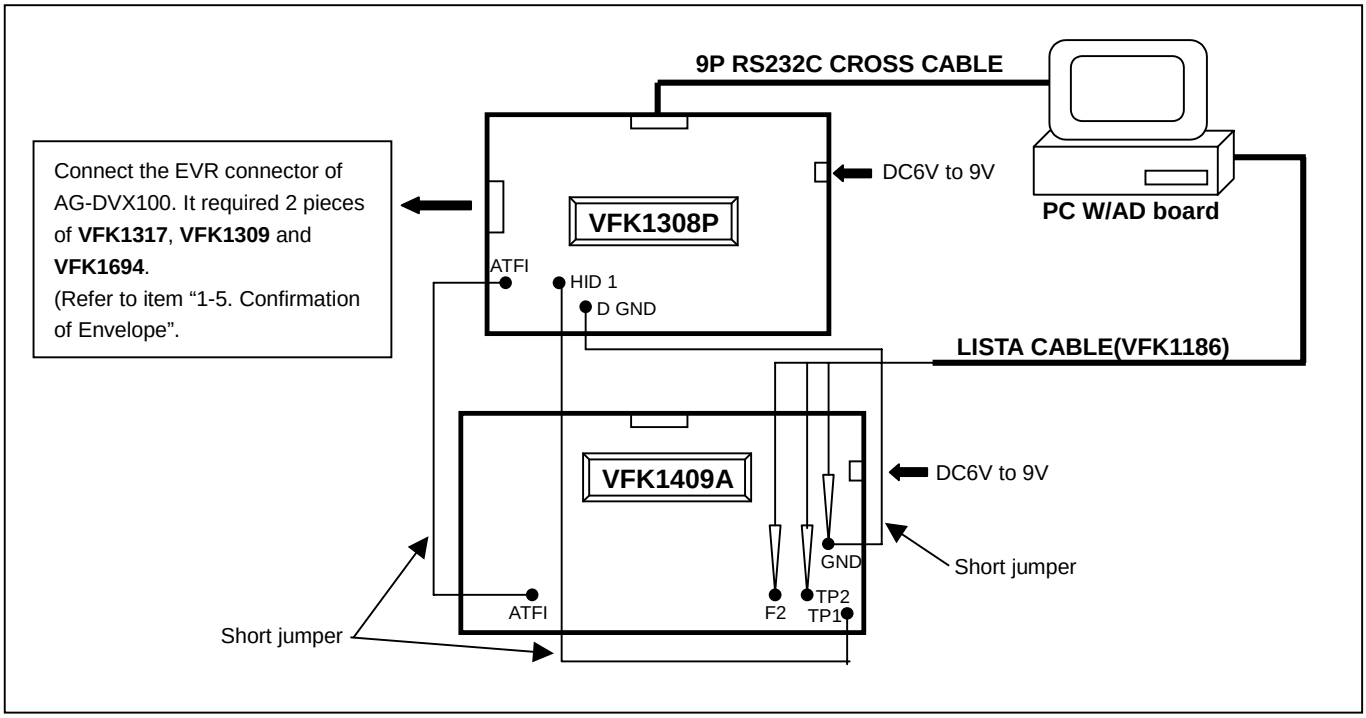
<VFK1409S or VFK1409A>

SW NAME& No.	Setting Position
RS232C SEL (S110)	D-SUB
REC I (S101)	NOR
LSI TEST(S102)	NOR
S104	NOR
S114	EXT
S201	Right side
S202	Right side
S203	Right side
LISTA ON-OFF	ON

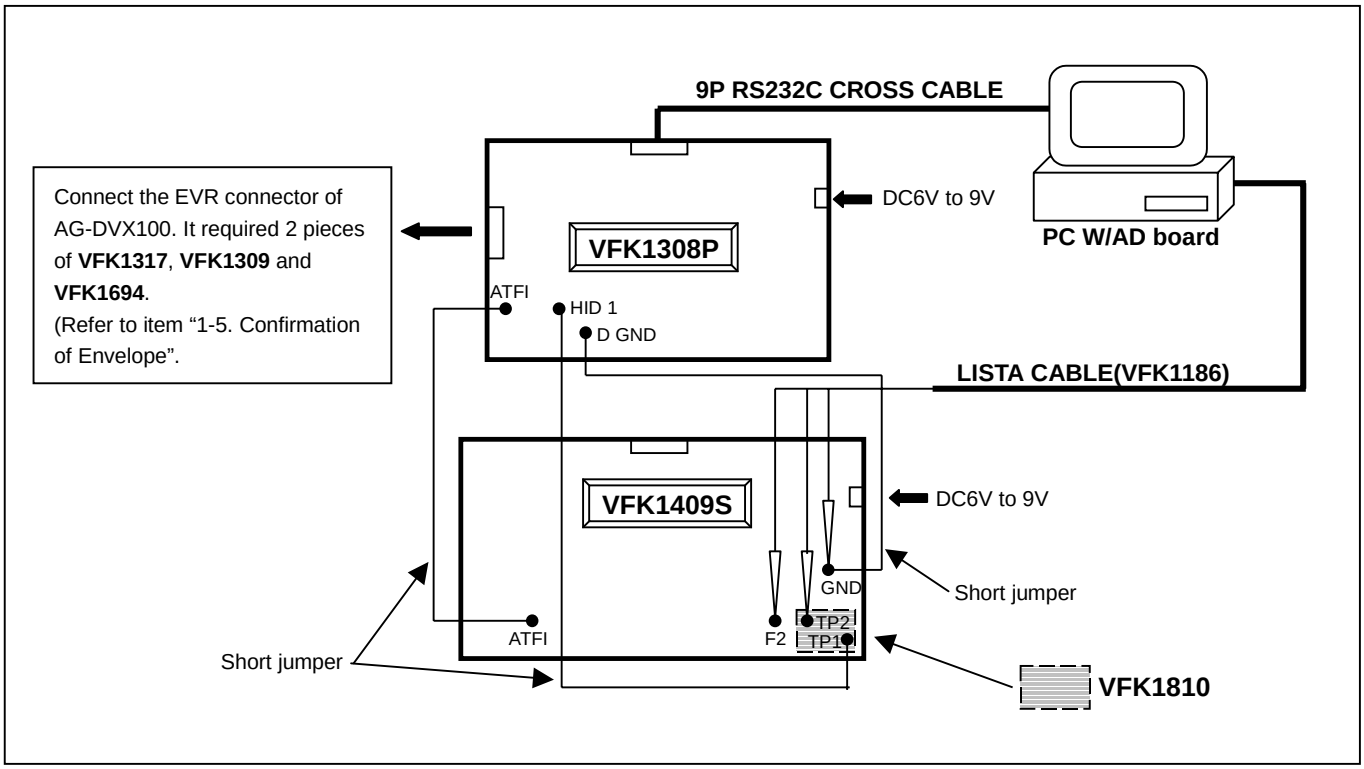
2. Connect a PC, the Measuring Board and the AG-DVX100 as shown below.

<CONNECTION>

1) In case of use VFK1409A



2) In case of use VFK1409S



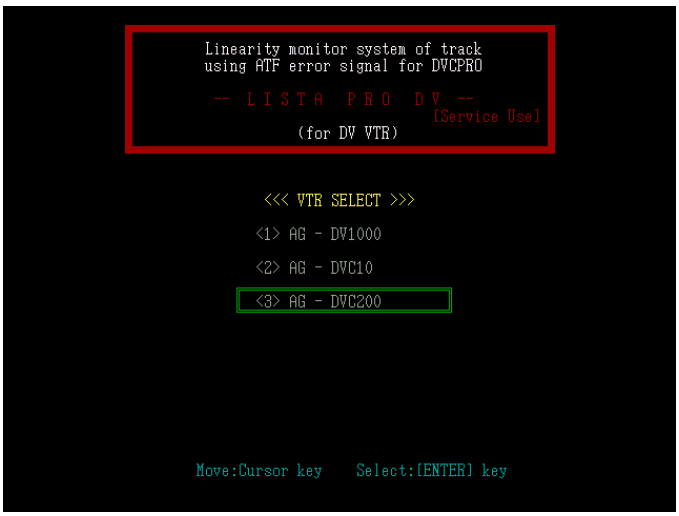
3. Connect the clips of the LISTA cable to test point on the Measuring Board. (Refer to Items **"Sensitivity Detection"** and **"Linearity Adjustment"**.)

1-6-2. Boot up the LISTA software

1. Boot up the LISTA software on DOS mode.

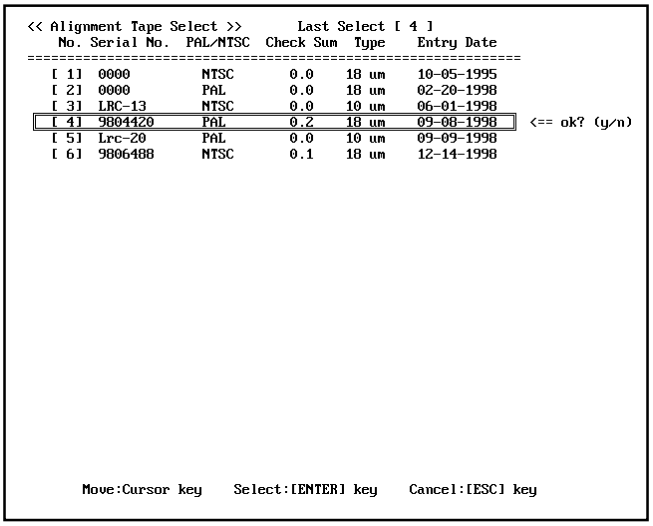
> **< How to Installation and Boot Up >**
> All files on the floppy disk (VFK1481E : LISTA Software) copy to created directly on PC (**i.e.;** C:¥LISTA).
> Type **"LISTA"** and press **ENTER** key, then boot up the LISTA software VFK1481E.

2. After boot up the LISTA software, **<<< FORMAT SELECT >>>** display appeared. Select the item **"DV"**. After select the format, **<<< VTR SELECT >>>** display ppeared, and select the model **"AG-DVC200"**.

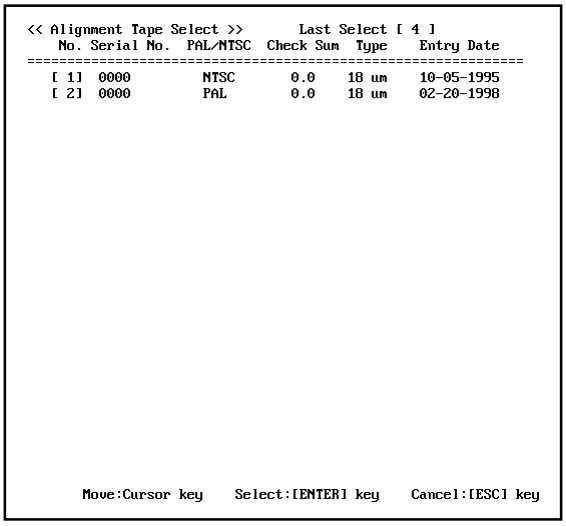


3. Next, select the Serial number of the Alignment tape on the screen. In case of LISTA software have not resisted data of alignment tape, press the ESC key, then main menu is display on the screen. And select the item **"<4> Alignment Tape"** for entry the data on the attachment sheet, which is enclosed of alignment tape.
4. In case of LISTA software have resisted data of alignment tape, select the serial number of Alignment tape, then appear message **"ok?(y/n)"** on the screen. And press **" Y "** or **" ENTER "** key, then LISTA main menu is display on screen.

< In case of Alignment Tape resisted already >



< In case of Alignment Tape does not resisted >



1-6-3. How to Entry the Alignment Tape Data

1. Select the item **"<4> Alignment Tape"** on the LISTA main menu.
2. Select the item **"<2> ENTRY"** on the alignment menu.
3. After display the screen of **<<Alignment Tape Data Entry>>**, first input the Serial Number follow the printed number on the tape label. And input the number **"0"** or **"1"** for selected the PAL/NTSC. And after that for entry the tape type, incase of DVCPRO input to **"0"**, in case of DV input to **"1"**.
4. After select the tape type, the frame for input the DATA and CHECK SUM appeared on the screen. Input the numerical value in numerical order on the data sheet, which are enclosed with alignment tape. If input the wrong number, appear the error message on the screen, then confirm that the data on the sheet.
5. After entry the data, select **"<1> SELECT"** on the Alignment Tape Menu and select the serial number of the alignment tape.

<< Alignment Tape Data Entry >> **Serial No. 0596003 (NTSC) 10μm**

[1]	- 0.1
[2]	0.1
[3]	0.0
[4]	0.2
[5]	0.6
[6]	0.5
[7]	0.7
[8]	0.9
[9]	1.0
[10]	0.8

[11]	0.7
[12]	1.0
[13]	0.7
[14]	0.5
[15]	0.2
[16]	- 0.5
[17]	- 0.3
[18]	- 0.3
[19]	- 0.1
[20]	- 0.6

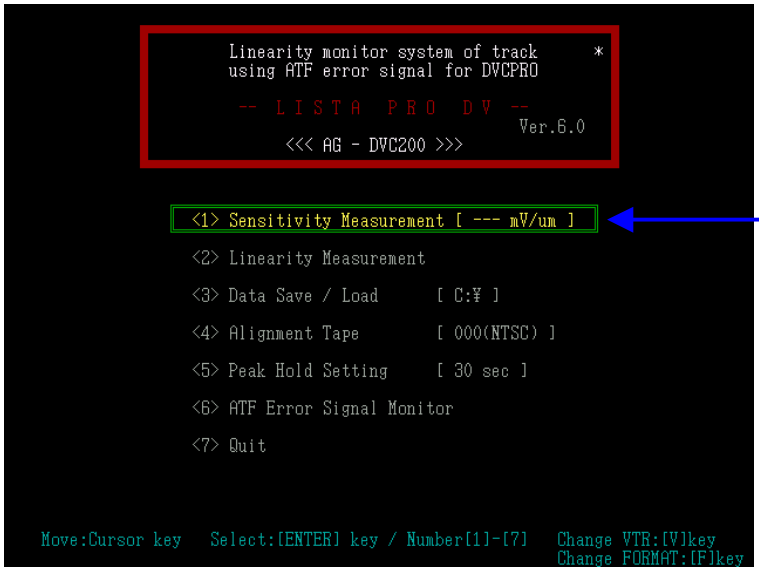
[21]	- 0.4
[22]	- 0.2
[23]	- 0.7
[24]	- 0.6
[25]	- 0.7
[26]	- 0.3
[27]	- 0.4
[28]	- 0.4
[29]	- 0.6
[30]	- 0.3

[31]	- 0.4
[32]	- 0.6
[33]	- 0.3
[34]	- 0.2
[35]	- 0.1
[36]	- 0.3
[37]	- 0.1

[CS]	- 0.6

1-6-4. LISTA Sensitivity Detection

TP	In case of use VFK1409A **F2** : ATF-ERR (VFK1409A), **TP2** : TRG/HSW (VFK1409A), **GND** : GND (VFK1409A) In case of use VFK1409S **F2** : ATF-ERR (VFK1409S), **TP2** : TRG/HSW (VFK1810), **GND** : GND (VFK1409S)
VTR MODE	PLAY
ADJ. MODE	Refer to below explanation
TAPE	VFM3000EDS (DV LISTA)
SPEC.	40 mV / µm to 120 mV / µm



Select at Sensitivity Detection.

1. Set the AG-DVX100 to VCR mode.
2. Insert the DV Alignment Tape (VFM3000EDS) to the AG-DVX100.
3. Press MENU button while pressing ADUB and REW button at the same time, then open the VCR FUNCTION menu.
4. Open the “7. ADJUST MENU” in VCR FUNCTION menu.
5. Select the item “ATF GAIN” and set to ON in ADJUST MENU.
6. Message “NOW SERVO ADJUST PUSH MENU TO RETURN” is appeared on screen.
   Press ► key to playback the tape.
7. Press MENU button to return ADJUST MENU screen.
8. Select item "<1> Sensitivity Measurement " on the LISTA main menu, and press "ENTER".
9. Then the tape is played back (tape speed : 101.2%) automatically, and message “1.2% Speed…” appears an the screen.
10. Press the ENTER key, and then start measurement of the sensitivity value.
11. Confirm that the sensitivity value is with in specification, when the message “<<Sensitivity Measurement Finish>>.

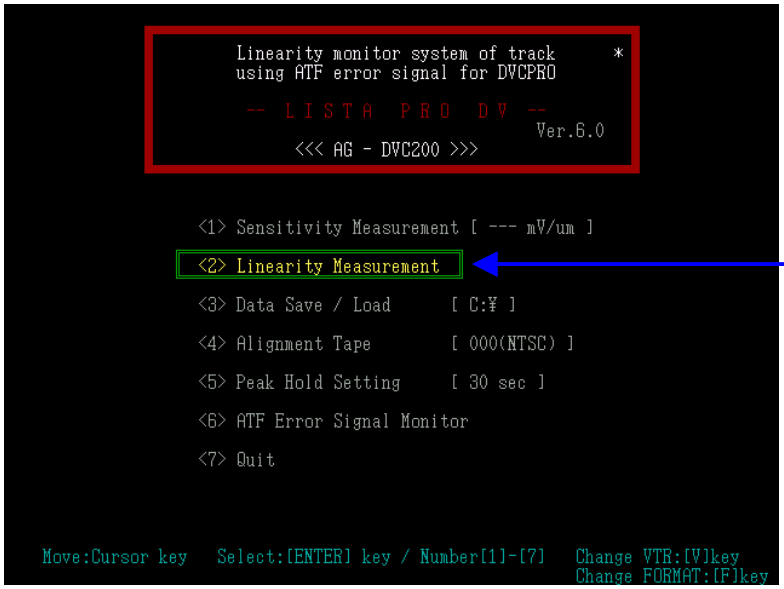
<<Sensitivity Measurement Finish>>

Sensitivity **72.95 (mV/um)**
Sens.1 ~~85.43 (mV/um)~~
Sens.1 85.48 (mV/um)

Confirm that the value of Sens.Value1 and Sens.Value2 in specification

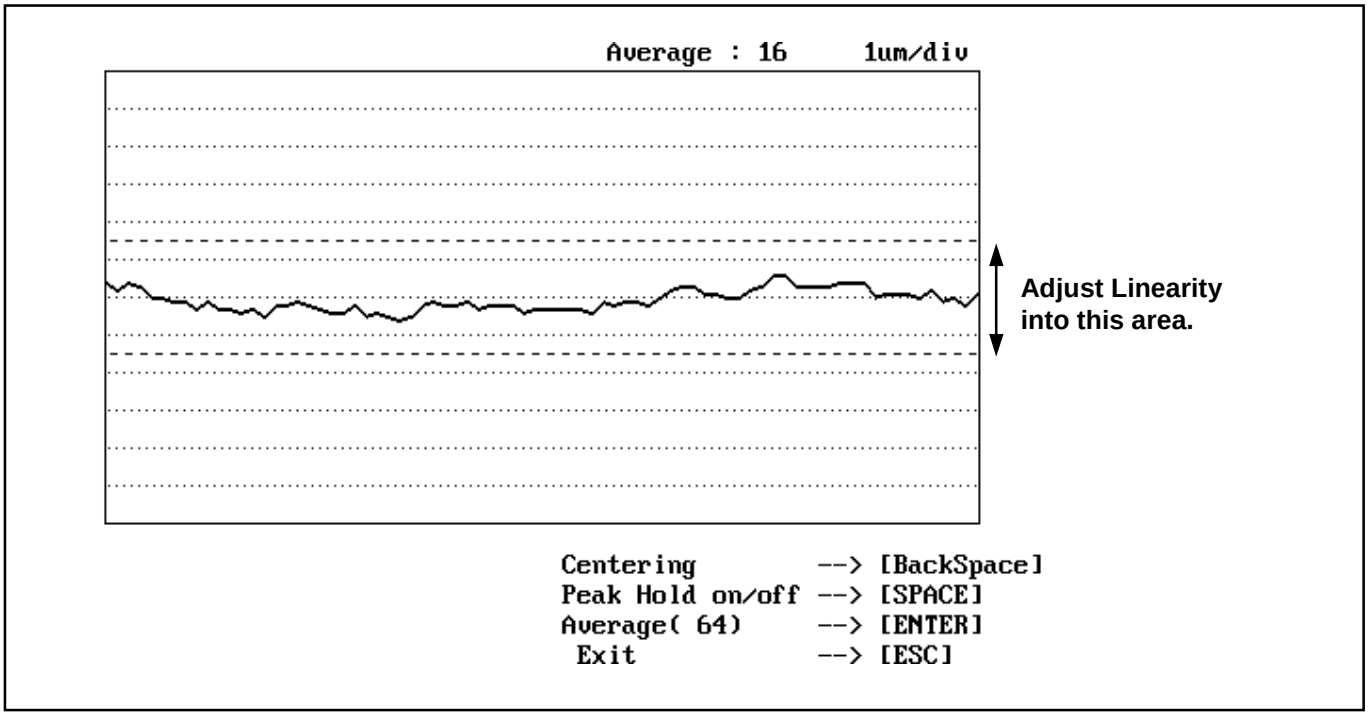
1-6-5. LISTA Linearity Adjustment

TP	In case of use VFK1409A **F2** : ATF-ERR (VFK1409A), **TP2** : TRG/HSW (VFK1409A), **GND** : GND (VFK1409A) In case of use VFK1409S **F2** : ATF-ERR (VFK1409S), **TP2** : TRG/HSW (VFK1810), **GND** : GND (VFK1409S)
ADJ.	S1 and T1 Post Height
VTR MODE	PLAY
ADJ. MODE	Refer to below explanation
TAPE	VFM3000EDS (DV LISTA)
TOOL	VFK1149A : Post Driver
SPEC.	Linearity : less than 3μm



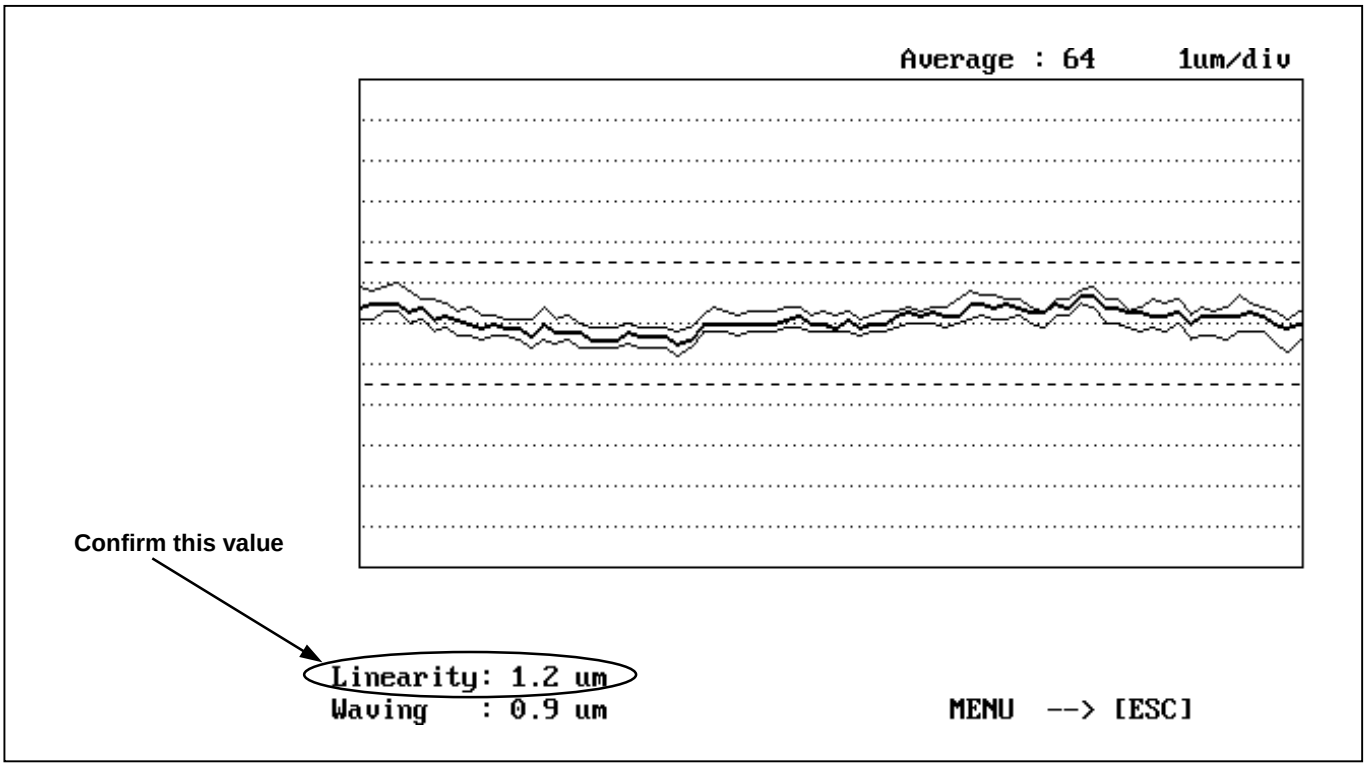
Select at Linearity Measurement.

1. Set the AG-DVX100 to VCR mode.
2. Insert the DV Alignment Tape (VFM3000EDS) to the AG-DVX100.
3. Press MENU button while pressing ADUB and REW button at the same time, then open the VCR FUNCTION menu.
4. Open the “7. ADJUST MENU” in VCR FUNCTION menu.
5. Select the item “LINEARITY” and set to ON in ADJUST MENU.
6. Message “NOW SERVO ADJUST PUSH MENU TO RETURN” is appeared on screen.
   Press ► key to playback the tape.
7. Press MENU button to return ADJUST MENU screen.
8. Select item "<2> Linearity Measurement " on the LISTA main menu, and press "ENTER", then appeared Linearity Waveform.
9. When the waveform as shown below figure is displayed on the screen, press the **”BS (Back Space)”** key for display the waveform positioned at the center of the scale on screen. Adjust S1 and T1 post height by using the post driver so that the linearity waveform is become flat as possible, and it should be within specification. (Adjust linearity waveform in the red dot line on the screen.)



POINT :
The part of left side of waveform (entrance side) is adjusted by height of S1 post and part of right side of waveform (exit side) is adjusted by height of T1 post.
Lower part of above waveform of figure is displayed lead of Cylinder.
When the post driver is remove from upper part of post, linearity waveform is changed.
After finish this adjustment, eject the tape and insert the tape again for confirm the shape of linearity waveform does not changed.

8. Press “SPACE” key to perform the Peak Hold in 30 seconds when linearity is displayed.
9. After finish the Peak Hold, press “SHIFT” and “ } ” key simultaneously on the Key Board, then the numerical values of “Linearity” and “Waving” is displayed on left lower portion of screen. And confirm the numerical value of “Linearity” is in the specification. If the “Linearity” is out of specification adjust height of S1 and T1 post.
10. After this measurement is finished, press the ESC key to return to the main menu.



2. MECHANICAL PARTS REPLACEMENT PROCEDURE

2-1. Disassembly Flowchart

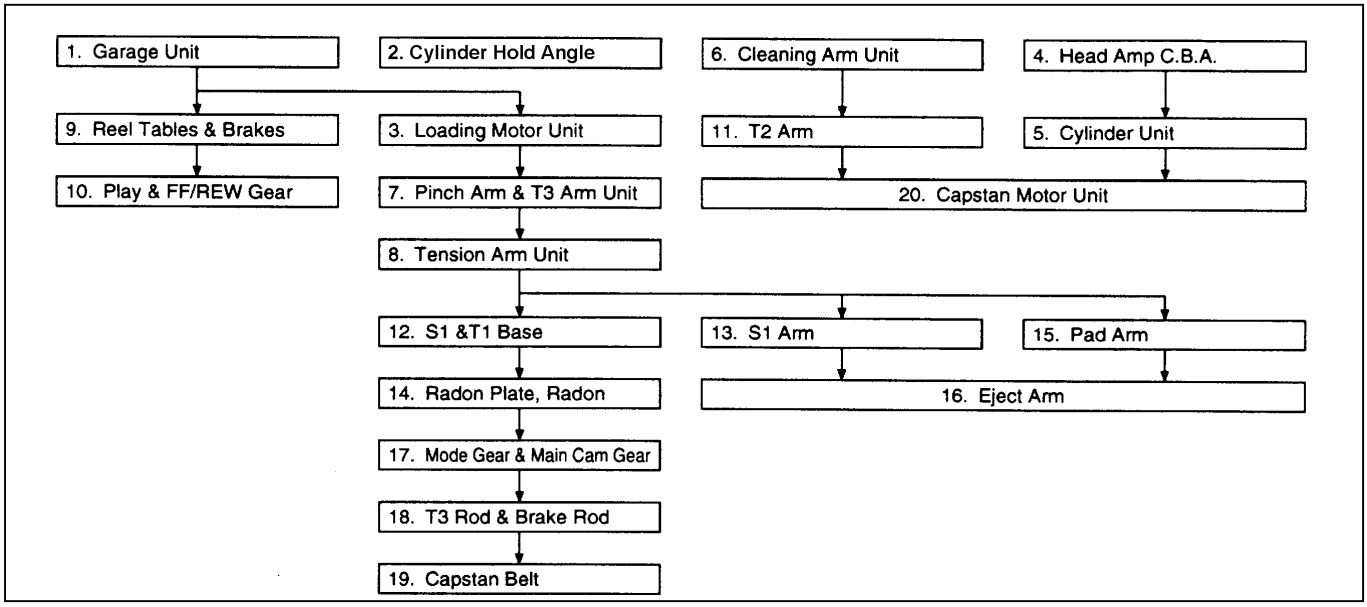


Figure 2-1-1

2-2. Manual Loading / Unloading

For the mechanism maintenance, loading and unloading operation can be manually performed.
In order to perform manual loading and unloading easily, use Gear Driver (VFK1266) as shown in Figure 2-2-1.

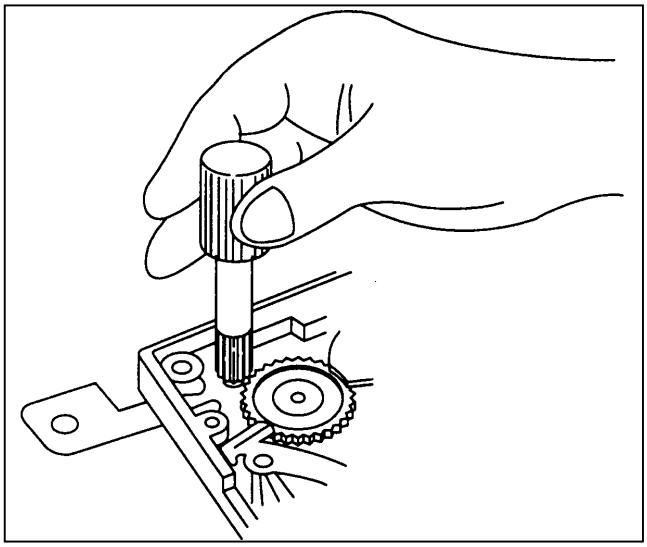


Figure 2-2-1

Rotate the Gear Driver clockwise or counterclockwise so that the Mode Cam Gear rotates opposite direction of the Gear Driver rotation, and then loading and unloading are performed

2-3. Disassembly Procedures

2-3-1. Garage Unit

1. Slide the Lock Lever with tweezers to eject the Garage.

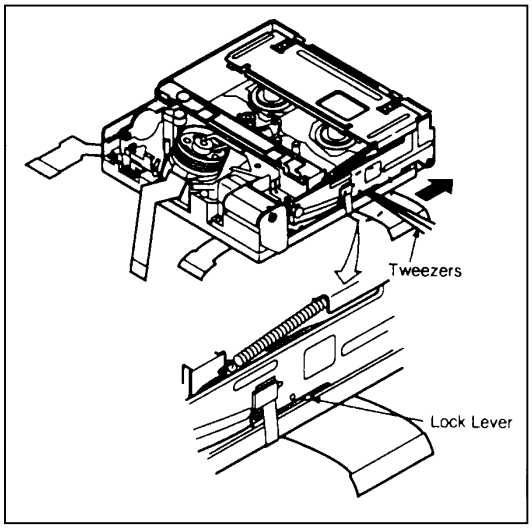


Figure 2-3-1

(Manual Eject)

Unscrew 2 screws (A) and removes Supply and Take-up Photo Transistors from Garage Unit. Unscrew 4 screws (B) and remove the Garage Unit.

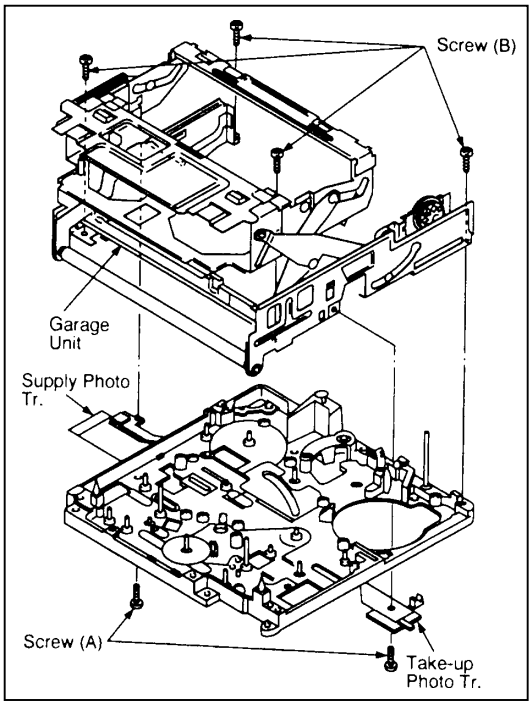


Figure 2-3-2

2-3-2. Cylinder Hold Angle

1. Unscrew 2 screws (C) and remove the Earth Brush.

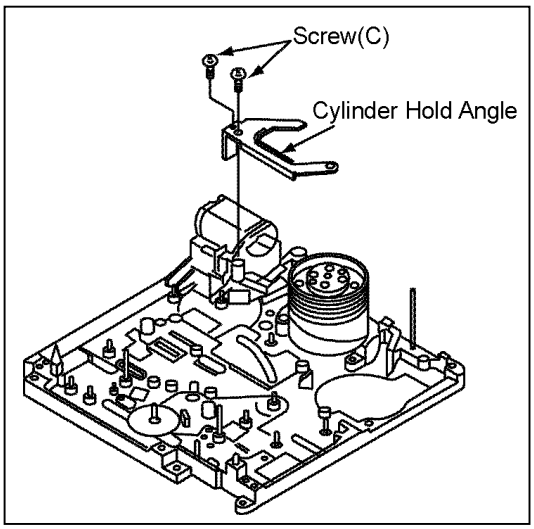


Figure 2-3-3

(Note of installation)

Install the Cylinder Hold Angle so that the tip of Angle is located in the P.C.Board.

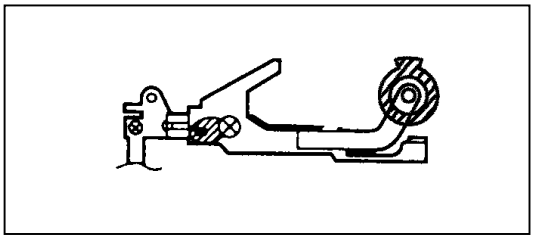


Figure 2-3-4

2-3-3. Loading Motor Unit

1. Unsolder the soldered portion (D). Unscrew 2 screws (E) and remove the Loading Motor Unit.

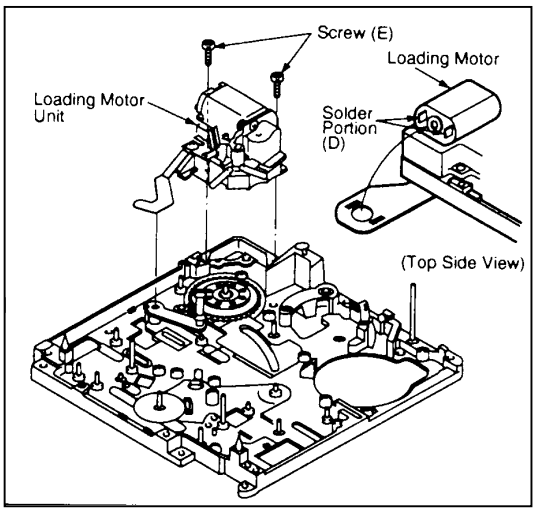


Figure 2-3-5

2-3-4. Head Amp C.B.A.

1 Unscrew screw (F) and remove the Capstan Cover. Disconnect FP5001.Disconnect Unscrew 2 screws (G) and remove the Head Amp C.B.A.

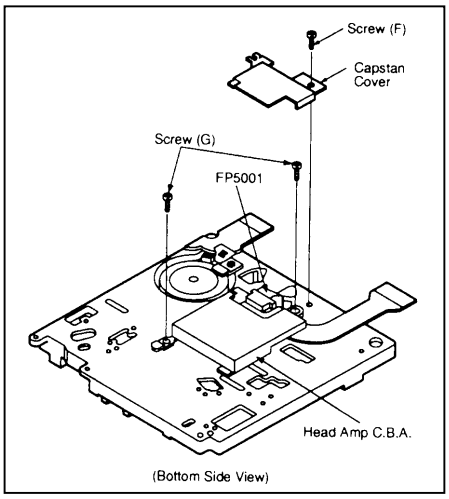


Figure 2-3-6

2-3-5. Cylinder Unit

1. Unscrew 3 screws (H) and remove the Cylinder Unit carefully. Do not touch the Video Head.

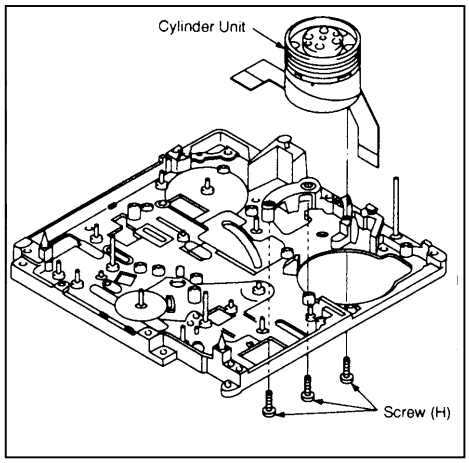


Figure 2-3-7

2-3-6. Cleaning Arm Unit

1. Unlock the locking portion of the Cleaning Arm Unit

(Note of installation)

Hooking portion of the Cleaning Arm Spring is;
Spring (a) -- Cleaning Arm spring (a')
Spring (b) -- T2 Arm Unit (b')

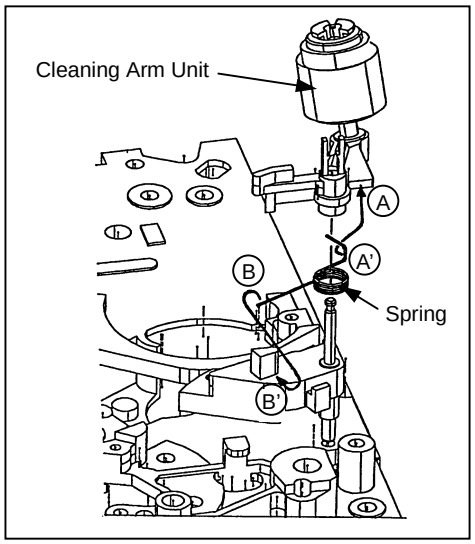


Figure 2-3-8

2-3-7. Pinch Arm & unlock T3

1. Unscrew screw (I), then slide the Pinch Pressure Plate and unlock the locking portion.

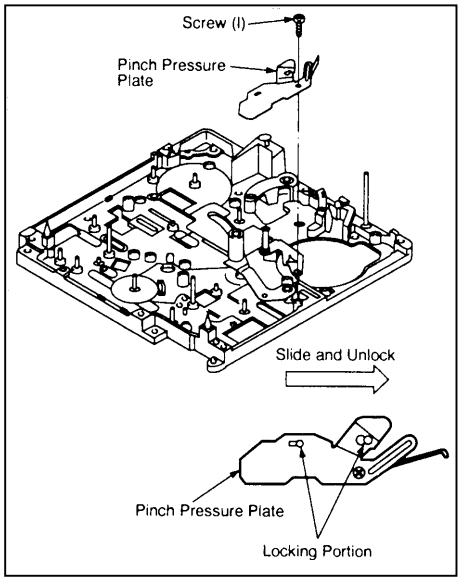


Figure 2-3-9

(Note of installation)
Remove the T3 Arm Unit.
After install T3 Arm Unit, the Height Adjustment is required.

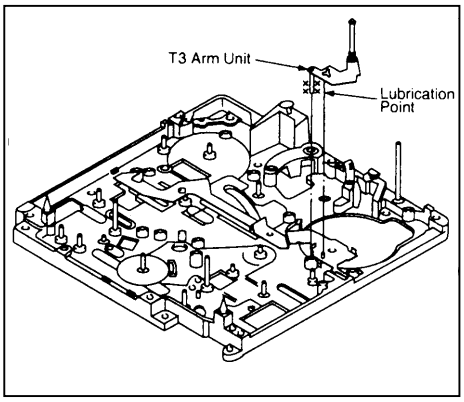


Figure 2-3-10

(Note of installation)
Remove the Pinch Arm Unit and Pinch Arm Spring.

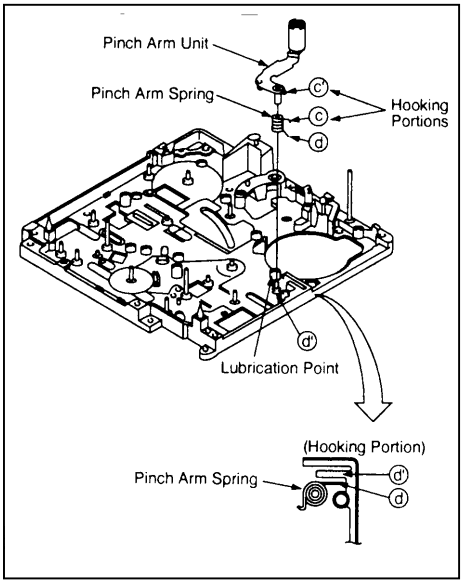


Figure 2-3-11

(Note of installation)
Hooking portion of the Pinch Arm Spring is;
Spring (c) -- Pinch Arm (c')
Spring (d) -- T3 Rod (d')

2-3-8. Tension Arm Unit

1. Turn the Mode Gear counter-clockwise until Tension Arm Unit slightly move to loading direction. Remove the Tension Arm Unit and Cut Washer (J).

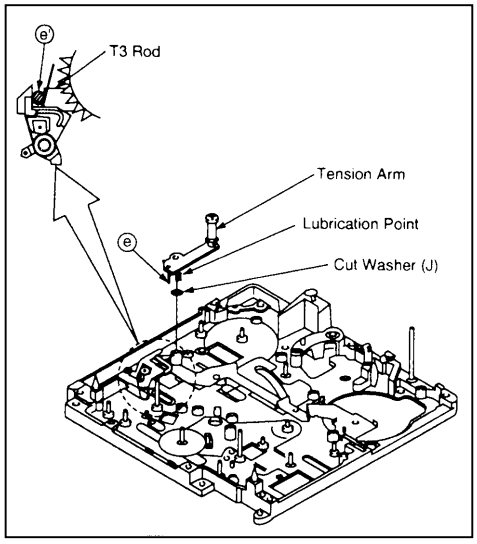


Figure 2-3-12

(Note of installation)
The projection (e) on Tension Arm meets guide (e') on the T3 Rod which is shifted by turning Mode Gear.

2-3-9. Reel Tables & Brakes

1. Unhook the hooking portion (f) and (f'). Unscrew 3 screws (K) and remove Cover Plate.

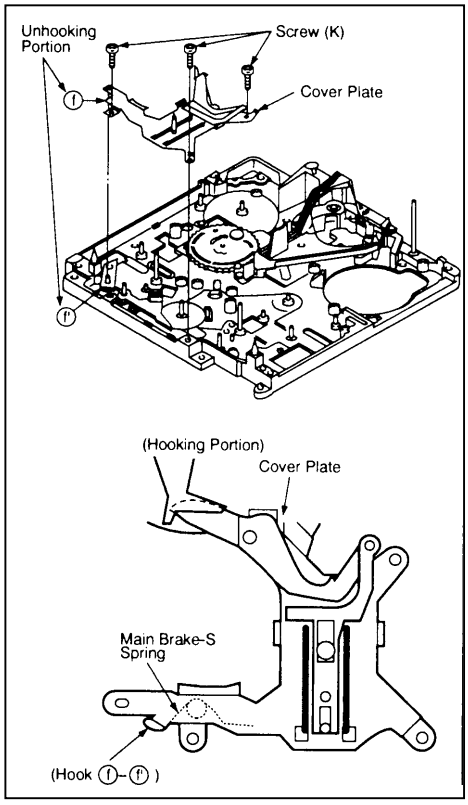


Figure 2-3-13

2. Remove Supply and Take-up Reel Tables.

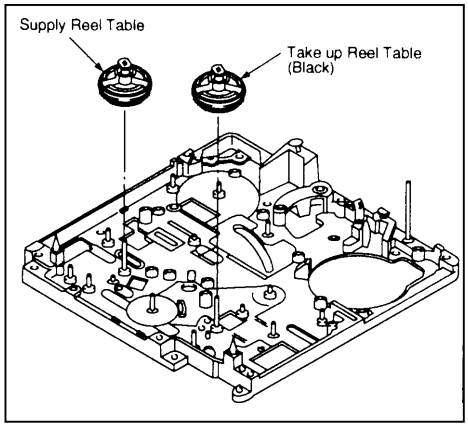


Figure 2-3-14

3. Unhook the hooking portion (g) and (g') of the Review Brake Spring and remove Review Brake.

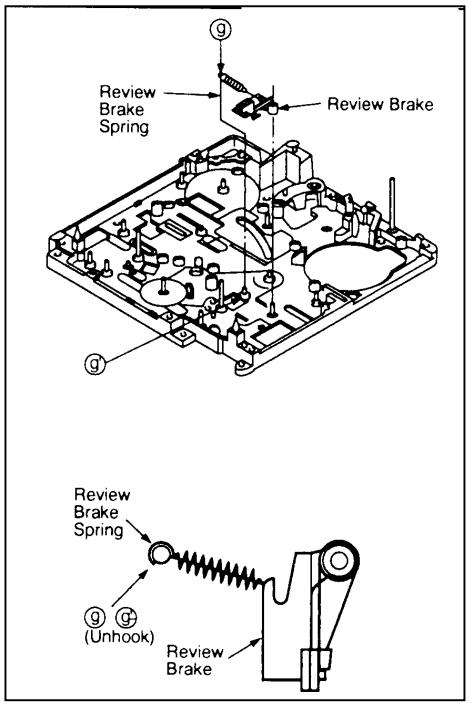


Figure 2-3-15

4. Remove the FF Brake and FF Brake Spring.

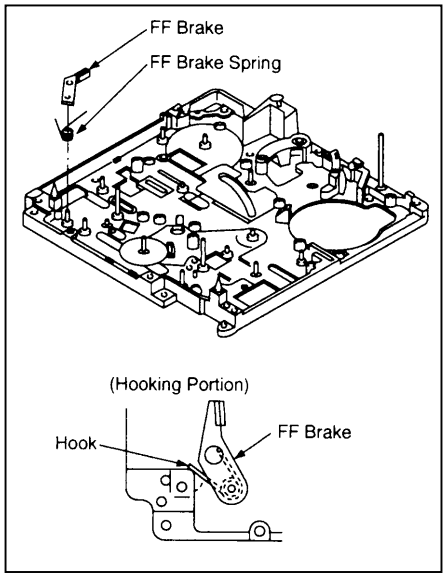


Figure 2-3-16

(Note of installation)
Confirm the hooking portion of the FF Brake Spring.

5. Remove the Main Brake S and Main Brake-S Spring.

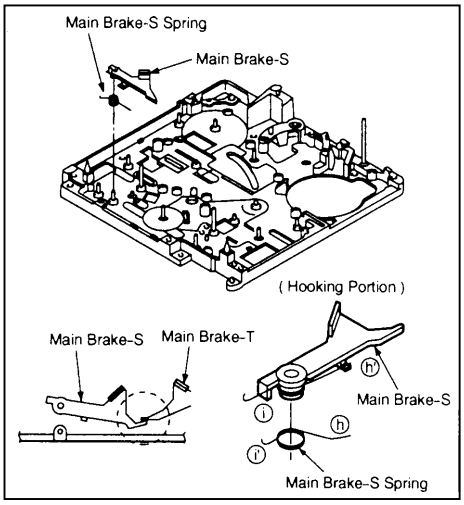


Figure 2-3-17

(Note of installation)
Confirm the hooking portion of the Main Brake-S Spring.

6. Remove the Cut Washer (L) and Main Brake T Unit.

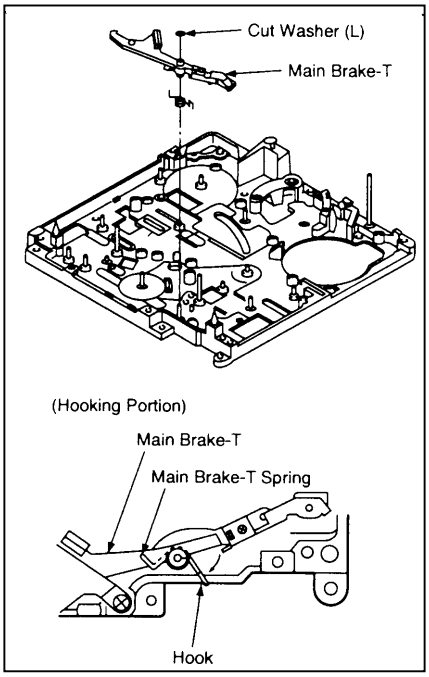


Figure 2-3-18

(Note of installation)
Confirm the hooking portion of the Main Brake T Spring.

2-3-10. Play & FF/REW Gear

1. Remove the Play Idler and Play Gear.

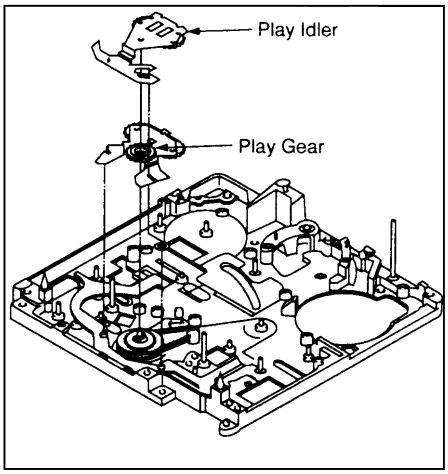


Figure 2-3-19

2-3-11. T2 Arm Unit

1. Remove the Cut Washer (M) and T2 Arm Unit with spring.

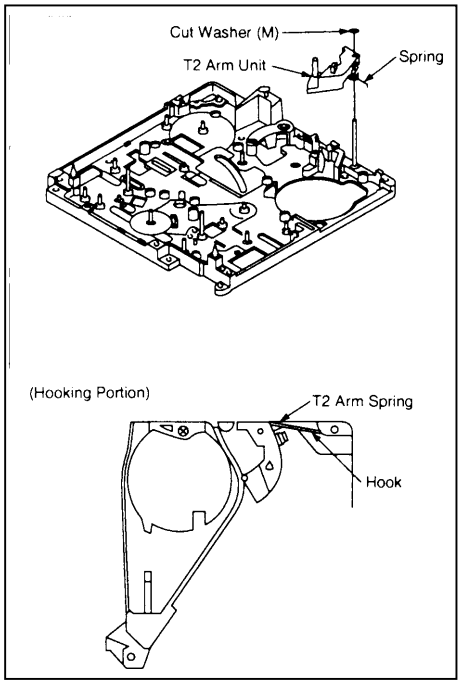


Figure 2-3-20

(Note of installation)
Confirm the hooking portion of the T2 Arm Spring.

2-3-12. S1 & T1 Base

1. Turn the Mode Gear counter-clockwise until half loading position. Hold (N) and (O) positions on S1 and T1 Arm units and then unlock the locking portions (A) and (B) with tweezers.

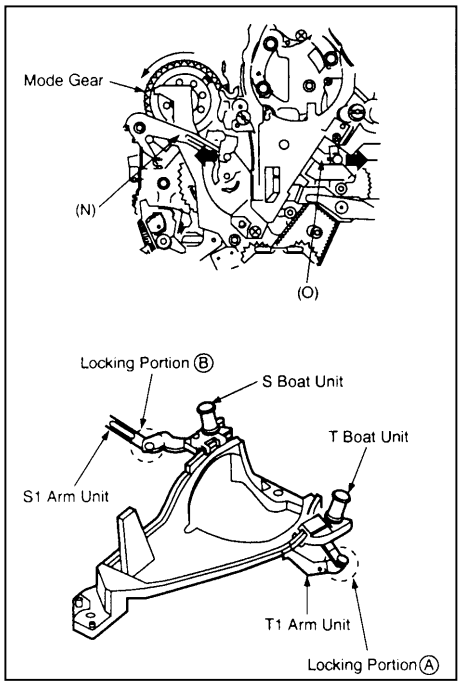


Figure 2-3-21

2. Remove 2 screws (P) and Cylinder Base Unit with S and T Boat Units. Then remove S and T Boat Units from the Cylinder Base Unit.

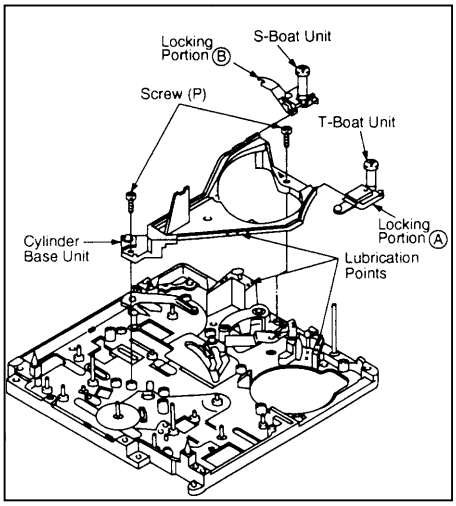


Figure 2-3-22

(Note of installation)
After install the Cylinder Base Unit move, S and T Boat to loading completed position by finger and turn the Mode Gear clockwise until half loading position. Then connect the locking portion (A) and (B).

2-3-13. S1 Arm

1. Turn the Mode Gear fully counter-clockwise. Remove the Cut Washer (Q) and S1 Arm Unit.

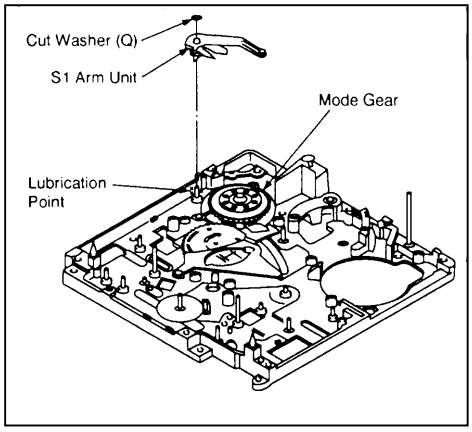


Figure 2-3-23

2-3-14. Radon Plate, Radon Arm & T1 Arm

1. Unscrew 2 screws (R) and remove Radon Plate.

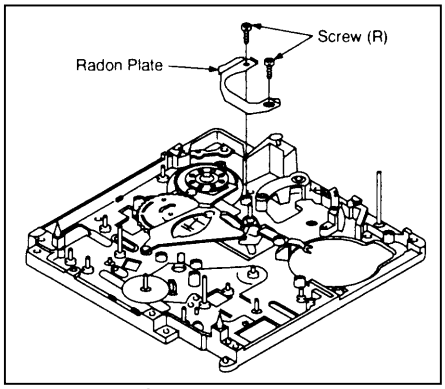


Figure 2-3-24

2. Unscrew screw (S) and remove Radon Arm Unit.

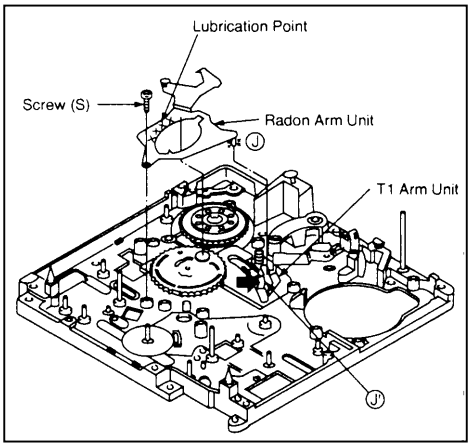


Figure 2-3-25

(Note of installation)
When installing the T1 Arm Unit, the projection (j) on the Radon Arm Unit is aligned to guide (j') on the T1 Arm Unit by pushing the T1 Arm Unit.

3. Remove the T1 Arm Unit.

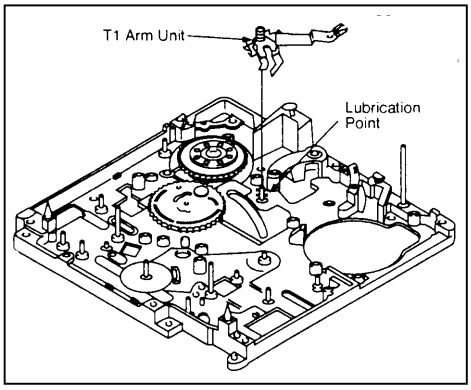


Figure 2-3-26

2-3-15. Pad Arm

1. Unhook the hooking portion (k') of the Pad Arm Spring. Remove the Cut Washer (T) and Pad Arm Unit.

(Note of installation)
Confirm the hooking portion of the Pad Arm Spring(k..k').

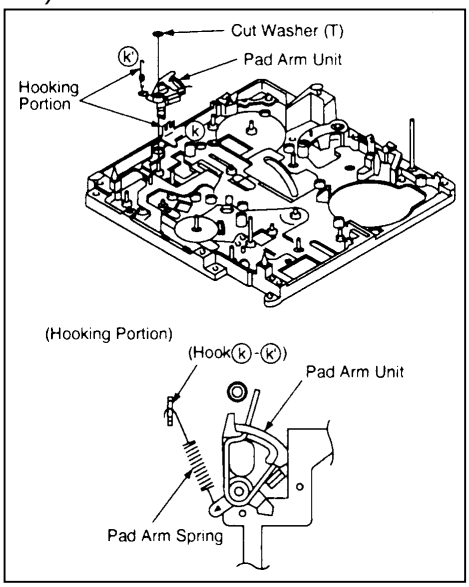


Figure 2-3-27

2-3-16. Eject Arm

1. Unscrew 2 screws(U) and remove the Eject Arm Unit.

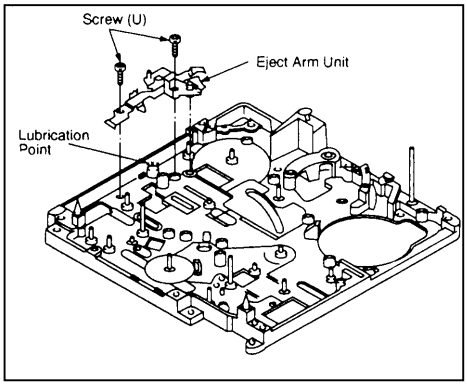


Figure 2-3-28

2-3-17. Mode Gear & Main Cam Gear

1. Remove the Main Cam Gear. Unsolder the soldered portion (l) on the Mechanism Flexible Board. Then remove the Mode Gear.

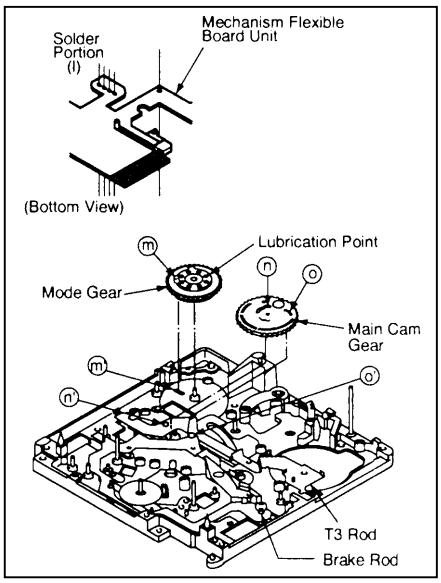


Figure 2-3-29

(Note of installation)
The projection (m) on the Mode Gear meets with the hole (m') on the Mechanism Chassis.
Push the Brake and T3 Rod in fully left direction.

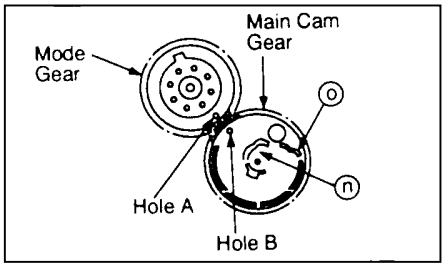


Figure 2-3-30

Install the Main Cam Gear so that the hole A on the Mode Gear is aligned to meet with the hole B on the Main Cam Gear.

Shift the T3 Rod slowly in the right direction until guide (n) on the Main Cam Gear meets with the projection (n') on the T3 Rod.
Shift the Brake Rod slowly in the right direction until guide (o) on the Main Cam Gear meets with the projection (o')on the brake Rod.

2-3-18. T3 Rod & Brake Rod

1. Remove the T3 Rod. The projection (p) and (q) on the T3 Rod meet with the guide (p') and (q') on the Mechanism Chassis.

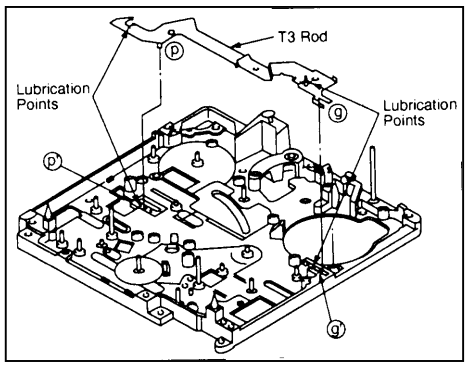


Figure 2-3-31

2. Unscrew 2 screws (V) and remove the Brake Rod, Brake Rod Plate A and B.

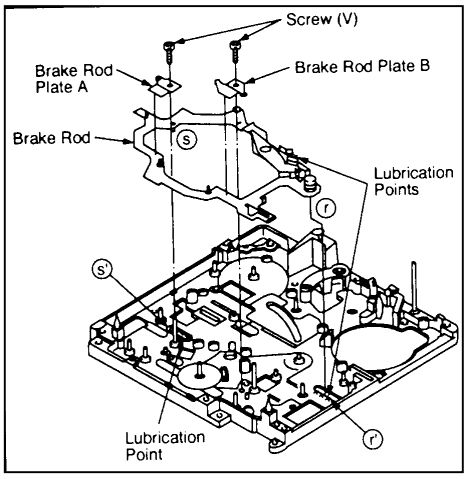


Figure 2-3-32

(Note of installation)
The projection (r) and (s) on the Brake Rod meet with the guide (r') and (s') on the Mechanism Chassis.

2-3-19. Capstan Belt

1. Remove the Center Gear and Washer (W). Unscrew screw (X) and remove LED Holder. Remove Cut Washer (Y).

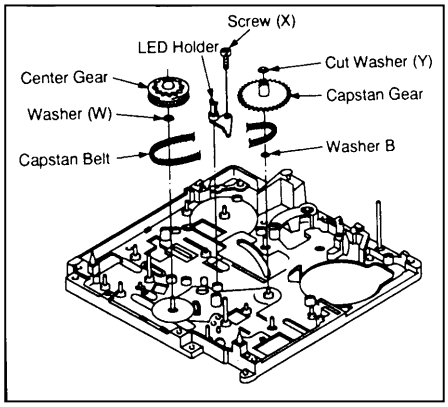


Figure 2-3-33

(Loosen a black screw on the Cap. Motor as shown in Fig.) Slightly lift up in the direction and slowly remove the Capstan Gear. Do not bend the Capstan Shaft.

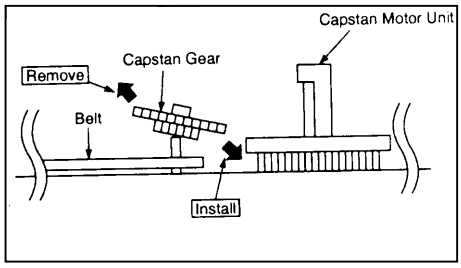


Figure 2-3-34

2. Remove the Capstan Belt.

(Note of installation)
After install Capstan Gear, confirm no warp of the Capstan Gear, no bend of the Capstan Gear Shaft and smooth rotation of the Capstan and Center Gear.

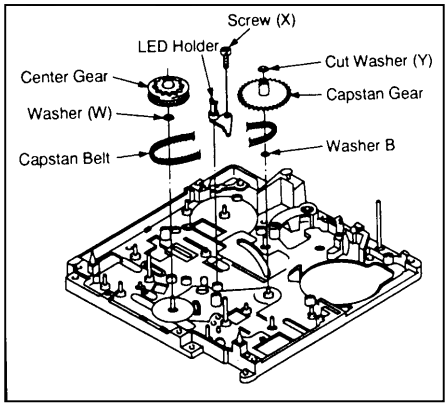


Figure 2-3-35