

**SONY.**

Hi-Fi Products

**CSA-13**

# Service Bulletin

Sony Service Company - Technical Services  
A Division of Sony Electronics Inc.  
Sony Drive, Park Ridge, New Jersey 07856

Model: DTC-57ES/670/750

No. 359

Subject: Intermittent Audio, Mechanism Wrinkles Tape

Date: October 29, 1993

**Symptom:**

(62) The tape is wrinkled due to mechanical problems with the mechanism.

**Solution:**

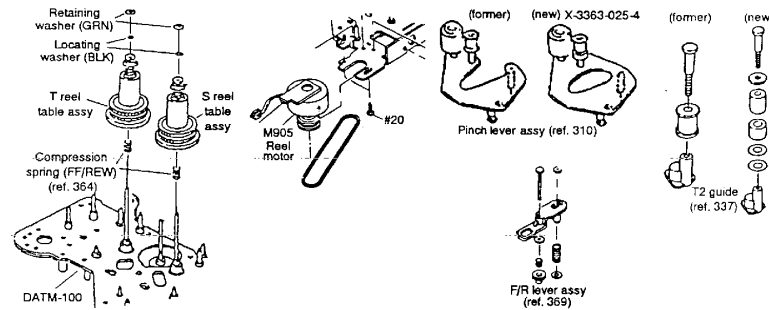
Install the upgrade kit shown in the chart below as described in the Procedure section of this service bulletin.

DESCRIPTION	PART NUMBER
K (57) K	X-3367-348-1

**Procedure:**

**Mechanical parts to be replaced:**

Pinch Lever Assy (ref. 310), Compression Spring (ref. 364), F/R Lever Assy (ref. 369), Reel Motor (ref. M905) and T2 Guide (ref. 337).



**Mechanical**

**Pinch Lever Assembly replacement:**

1. Remove the Capstan Motor M902 (see Figure 1).
2. Remove the Pinch Roller Assembly by removing the retainer washer (ref. 334) and lifting the Pinch Lever Assembly from the top side of the mechanism.
3. Install new Pinch Roller Assembly and replace retaining washer.

(Continued)

Reference: FPR-Q3042  
Autoflagged - YES



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MECHANISM SECTION  
(DATM-100)

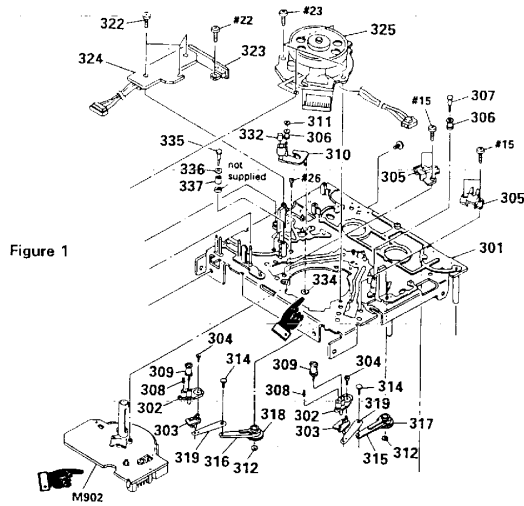


Figure 1

F/R Lever Assembly Replacement:

1. Remove retaining washer (ref. 370) which holds the F/R Lever Assembly (ref. 369) in from the top side of the mechanism and remove the F/R Lever Assembly (see Figure 2a).
2. Install the F/R Lever Assembly supplied in the repair kit and secure with retaining washer. Be sure to insert the Boss from the BT Switching Lever into the oblong opening on the F/R Lever Assy (see Figure 2b).

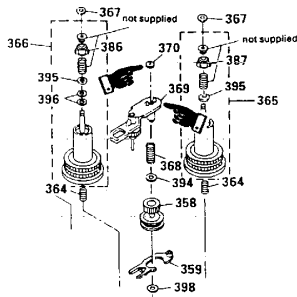


Figure 2a

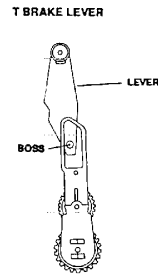


Figure 2b

**Compression Spring Replacement:**

1. Remove the retaining washers (ref. 367) and the reel tables (ref. 365 and 366) and replace the compression springs (ref. 364) with the ones supplied in the repair kit.

*Note: If the reel table assembly is equipped with a black spring, it is necessary to replace the entire reel table assembly with the new reel table assembly (A-2003-710-B).*

2. Re-install the reel tables and secure them using the locating washers (black) and the retaining washers (green) supplied in the repair kit. The black locating washers should be installed first and the green retaining washers on top as shown in the detail of Figure 3.

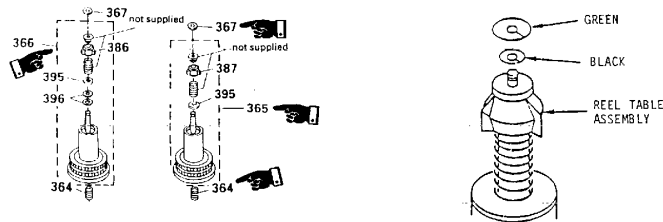
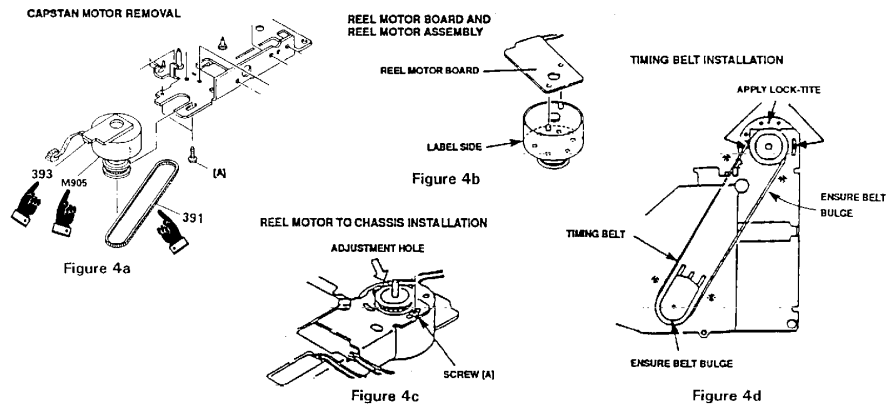


Figure 3

**Reel Motor Replacement:**

1. Remove screw (A) from reel motor and remove reel motor assembly (M905), timing belt (ref. 391) and the reel motor board (ref. 393) (see Figure 4a).
2. Solder reel motor board (ref. 393) to reel motor assembly M905 (see Figure 4b).
3. Loosely fasten reel motor assembly to the chassis with screw (A) (see Figure 4c).
4. Install timing belt (ref. 391) between reel motor assembly and reel drive gear assembly (ref. 358). The belt should bulge slightly in the areas indicated (see Figure 4d).
5. Securely tighten screw (A) and carefully apply lock-tite as shown in Figure 4d.



**Electrical**

**Circuit change to enable take-up torque adjustment:**

*Note:* Skip this section of the procedure on DTC-670 models having a serial number of 800,201 or later. See Service Manual Supplement-1 for details.

1. Remove R360 (see Figure 5).
2. Add a 22K ohm resistor and a 47K ohm potentiometer and a 4.7uF capacitor as shown in Figure 5.

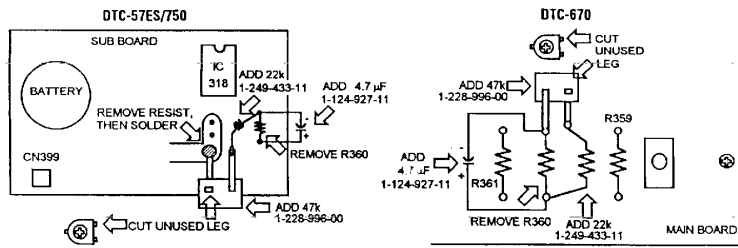


Figure 5

**Addition of a DTC-114ES transistor:**

1. Solder a 470K ohm resistor supplied in the kit to the collector of the DTC-114ES transistor supplied in the kit (see Figure 6).
2. Add a DTC-114ES transistor to the Sub and Main boards as shown, adding a jumper wire between the base of the transistor and test point XTRMT on the Main board.

**SUB BOARD / MAIN BOARD CIRCUIT CHANGES DTC-57ES**

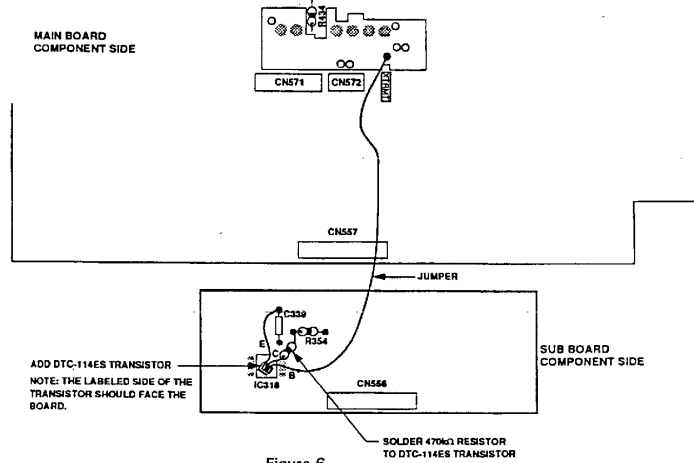


Figure 6

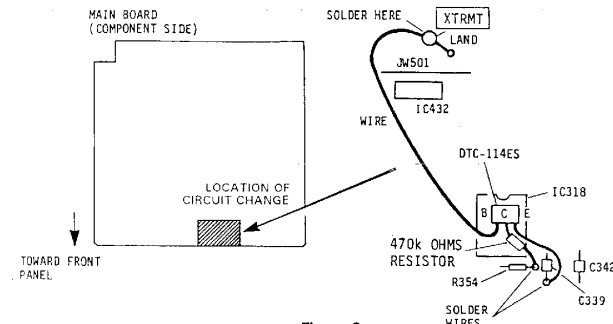


Figure 6

**Back Tension Adjustment:**

1. Remove the mechanical deck and the cassette compartment from the unit and separate the two assemblies. Place the two assemblies on a board without disconnecting any electrical connections (see Figure 7).
2. Put the unit in the test mode, insert a TW-7131 torque test tape (P/N 8-909-708-71) and press the forward button on the unit.
3. Adjust the back tension by slightly turning the adjustment screw located on the left side of the mechanism.
4. Changing modes once or twice (ie. PLAY - PAUSE - PLAY) during the procedure ensures an accurate adjustment. The back tension should be adjusted to 5.0 g/cm to 6.0 g/cm.
5. Check that this value remains steady for one revolution of the torque meter. **This adjustment should be completed before one minute has elapsed as the torque will begin to vary when the plunger begins to heat up.**

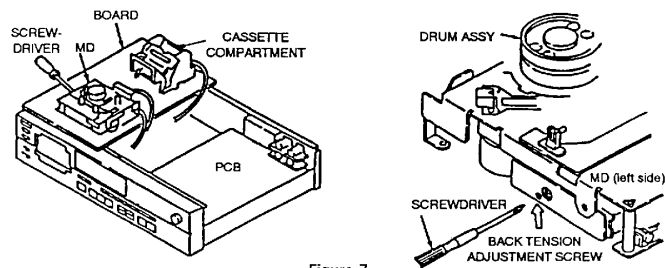


Figure 7

**Take-Up Torque Adjustment:**

1. Put the unit into the test mode, insert the torque cassette TW-7131 and press the PLAY button.
2. Adjust the 47K ohm potentiometer added earlier (or RV301 on the Main board on DTC-670 models having a serial number of 800,201 or later), until a reading between 10 g/cm to 11 g/cm (maximum of 16 g/cm) is obtained.
3. Check that this new value for the take-up torque is maintained for one revolution of the torque meter. Note that the measured value may fluctuate.

**Capstan Motor:**

The capstan motor is fixed to the chassis by three screws. On some units, a soldering lug or a thin washer has been inserted at one of the motor fixing points to slightly incline the capstan axle. This **must** be removed (see Figure 8).

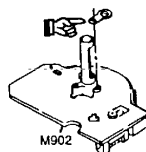


Figure 8

**T2 Guide Replacement:**

The T2 guide only needs replacement if it is an old type consisting of one single piece (see Figure 9).

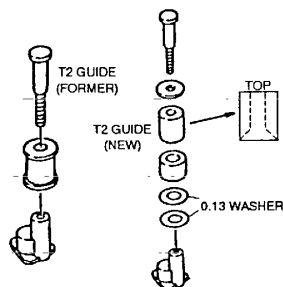


Figure 9

**Tape Path Adjustment:**

*Note: Perform the tape path alignment procedure outlined below in the normal play mode, not the test mode.*

1. Make a 5 minute LP recording at the beginning of a DT-120 type tape and observe the tape path during PLAY and CUE / REV.
2. If the tape is wrinkled before and / or after the capstan, the T2 guide height needs to be adjusted (see Figure 10).

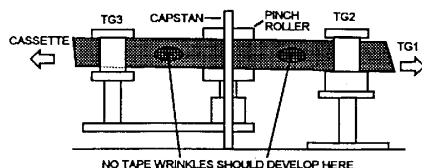


Figure 10

Two different type tape wrinkle problems can be distinguished:

1. The tape is pulled down towards the bottom of the tape guides T2 and T3 and slanted wrinkles develop in the tape.  
**Remedy:** Raise the T2 guide using a 0.13 mm thick washer supplied in the kit (see Figure 11).

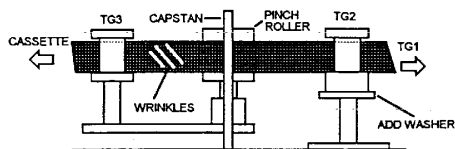


Figure 11

2. The tape is pulled up towards the top of tape guides T2 and T3 and slanted wrinkles develop in the tape.  
**Remedy:** Lower the T2 guide by removing a 0.13 mm washer from the T2 guide (see Figure 12).

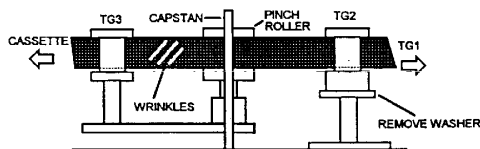


Figure 12

After finishing the tape path alignment procedure, the T2 guide needs to be fixed. Fix the T2 guide by removing it and making a slight incision in the guide axle before reinstalling it into the mechanism (see Figure 13).

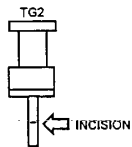


Figure 13

**Stabilization of the Tape Tension From Tape Top to Tape End:**

*Note: It is critical that all back tension adjustments are performed prior to the addition of the components shown below. Adjustment of the back tension will not be possible after these components are installed. If back tension adjustment is necessary after the above components are installed, it will be necessary to remove these components.*

1. Mount a 1K ohm resistor and an RD-ES2.0B1 Zener diode (both supplied in kit) parallel to R384 (see Figure 14). Note the orientation of the Zener diode.
2. Mount a 220 ohm resistor in parallel with R385 (see Figure 14).

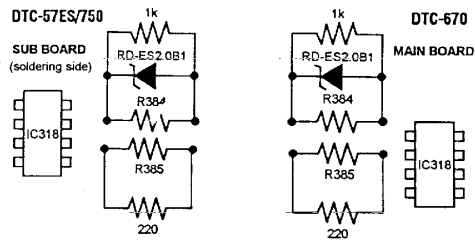
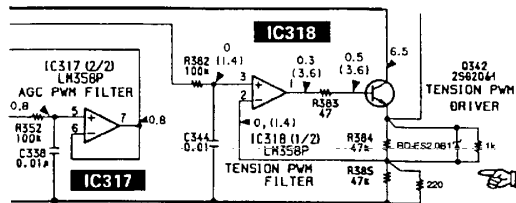


Figure 14

After finishing all steps outlined in this procedure, double check that the tape path and the tape path adjustments are correct. If tape path alignment is necessary at this point, proceed as normal: put the unit in the test mode, insert the TY-7252 test tape, adjust the RF waveform,... Refer to the Service Manual for the complete tape path alignment procedure.