VLF TRENDSETTER/PLATESETTER

Carriage Removal and Installation

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Revision History

Revision	Date	Author	Comments
A	July 20, 1999	R. Baggett	Initial release - ECO C722
B	1999:AUG:25	C. Townsend	ECO D110. Rearranged procedural steps after input from the field. Corrected pointer location in Figure 5. Added sketch to clarify washer orientation when installing ball screw hanger.

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1. SCOPE

The purpose of this document is to explain the removal of the carriage unit from either a VLF Trendsetter or a VLF Platesetter. This operation is primarily required during the upgrade of a TSV or VLF with a green/HRX or an "F" Thermal Head to a "V" Thermal Head.

2. RELATED DOCUMENTS

Thermal Exposure Head, Installation Procedure
http://intranet.creo.com/support/docs/770038ad.pdf

Lubricating the Carriage Tracks and Ballscrew
http://intranet.creo.com/support/docs/lubscrew.pdf

3. TOOLS REQUIRED:

- metric Allen key set
- metric feeler gauges
- flat and Phillips screwdrivers
- lint-free wipes
- acetone
- Spare part: We recommend bringing one spare flex-tube (57-3407A) to the site when performing this upgrade. The flex-tube can be easily damaged during re-installation.

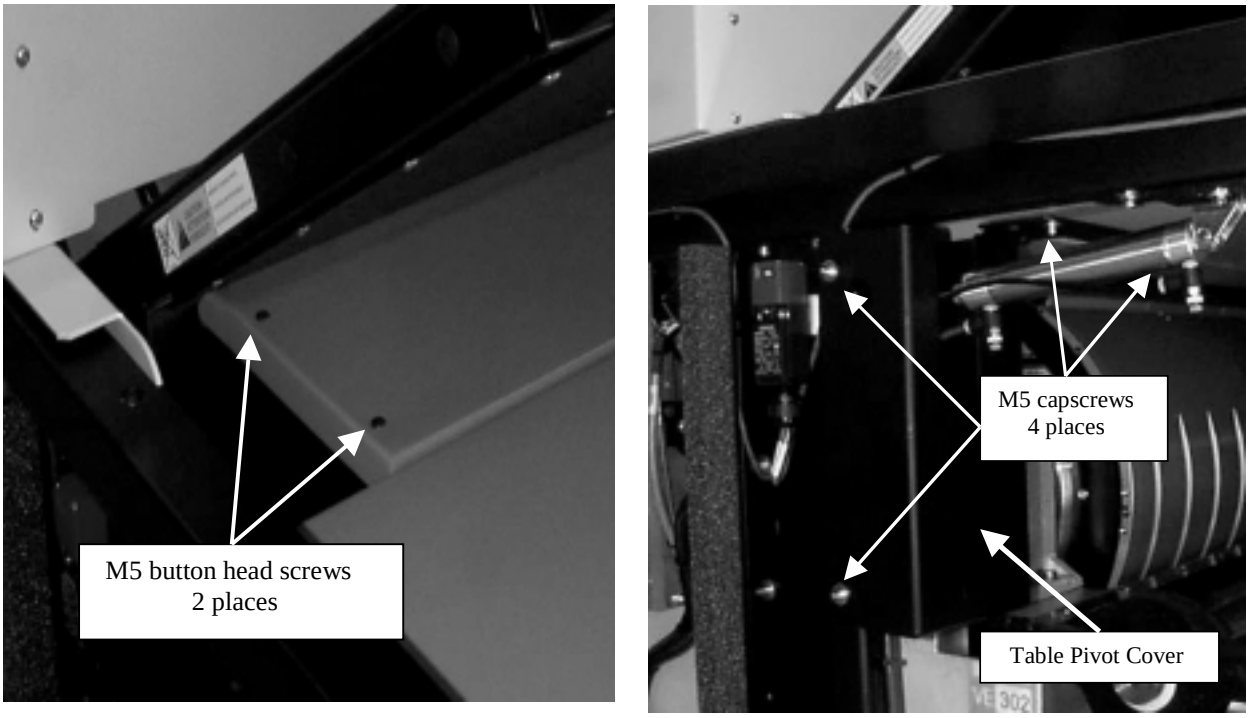
4. GENERAL PREPARATIONS

Note: Operations exclusive to the VLF Trendsetter are in *italics.*

1. *TSV : Remove both side panels and the front panel.*
   VLF PS: Open the cassette bay side engine module access doors.
2. Remove the Thermal head as per Section 4 of the Thermal Exposure Head Installation Procedure (http://intranet.creo.com/support/docs/770038ad.pdf), but leave the Home/Away cable connected to the Home/Away board.

5. REMOVING THE CARRIAGE

1. If the Carriage is not in the Home position, enter the command: `carriage home` or the command: `w`.
2. *TSV only: Remove the table pivot cover on the blower side. Refer to Figure 1.*
   - *remove the two M5 button head screws from the top panel, using a 3 mm hex key*
   - *remove the four M5 capscrews from the frame, using a 4 mm hex key*



(a) M5 button head screws (b) M5 capscrews

Figure 1: Removing the table pivot cover on the blower side (*TSV only*)

3. Move the carriage to allow access to the Home/Away board, using the command: `carriage moveto 300`. Disconnect the Home/Away cable and remove the Home/Away board using a 2.5 mm hex key.

4. Loosen the screw in the ballnut collar securing the flextube, using a 5 mm hex key (see Figure 2).

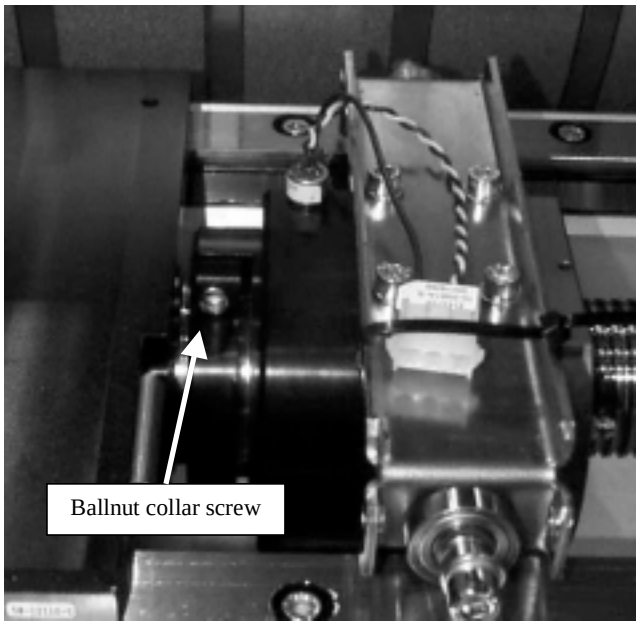


Figure 2: Location of ballnut collar screw

5. Remove the four M6 capscrews (using a 5 mm hex key) and Belleville washers from the ballscrew hanger bracket (see Fig. 3)

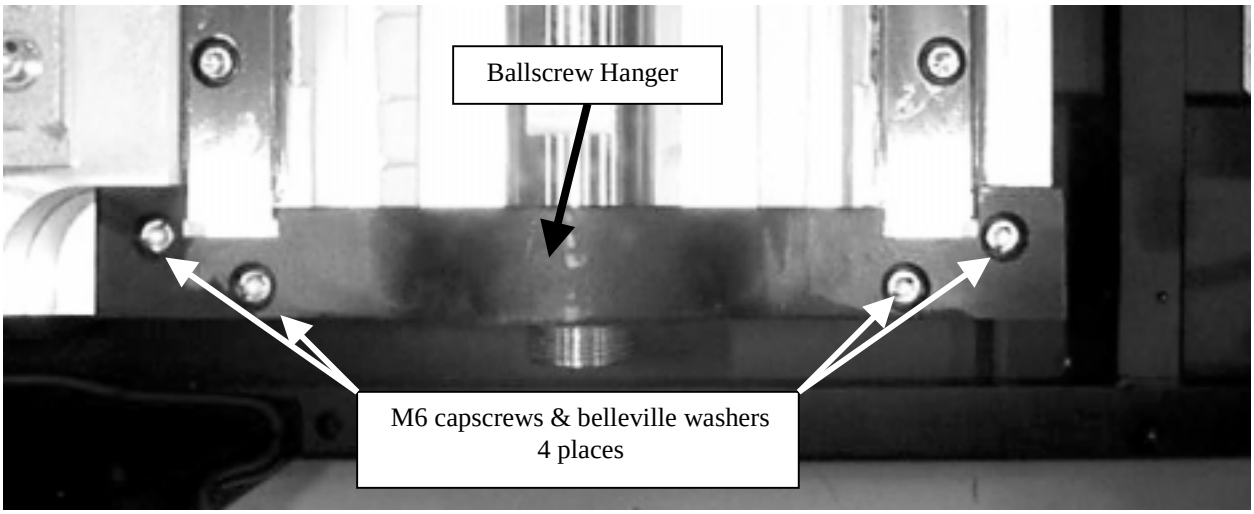


Figure 3: Ballscrew hanger bracket

6. Carefully slide the ballscrew hanger bracket off the end of the ballscrew.
7. Carefully slide the carriage off the end of the tracks.

Warning: Do not put any force on the unsupported end of the ballscrew.

6. PREPARING THE REPLACEMENT CARRIAGE

1. Remove the Home/Away board (10-3791A) using a 2.5 mm hex key. Keep the board for later use.
2. Loosen the mounting screws on the track wipers using a 2.5 mm hex key (see Figure 4).

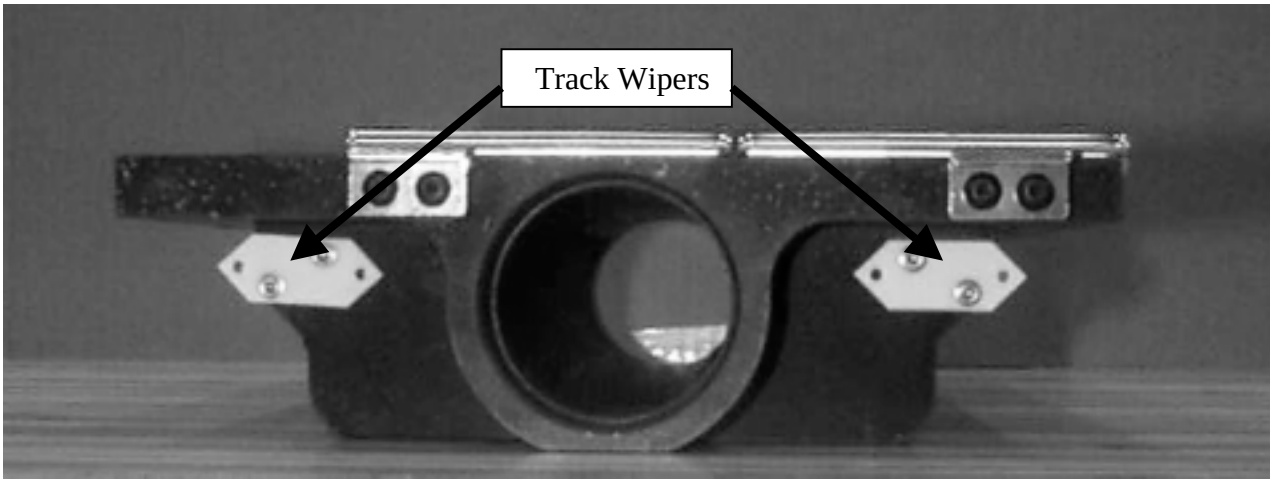


Figure 4: Mounting screws on the track wipers

3. Clean the flextube (57-3407A) thoroughly with acetone and lint-free wipes.

4. Install the flextube as shown in Figure 5. Orient the slots at 45° from horizontal as shown in Figure 6. The flextube should be flush with the face of the bore on the Home End of the carriage and protrude from the Away End (see Figure 7).

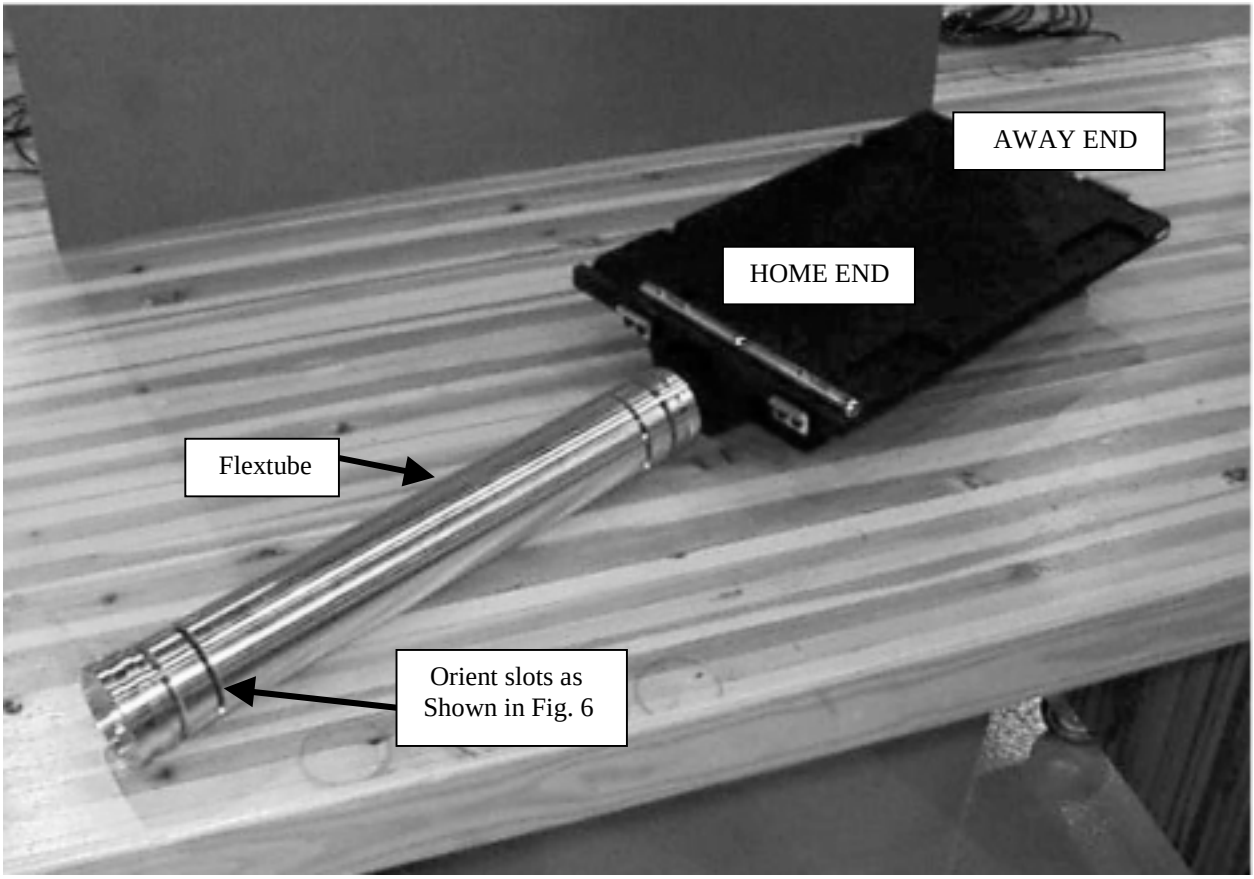


Figure 5: Insertion of flextube

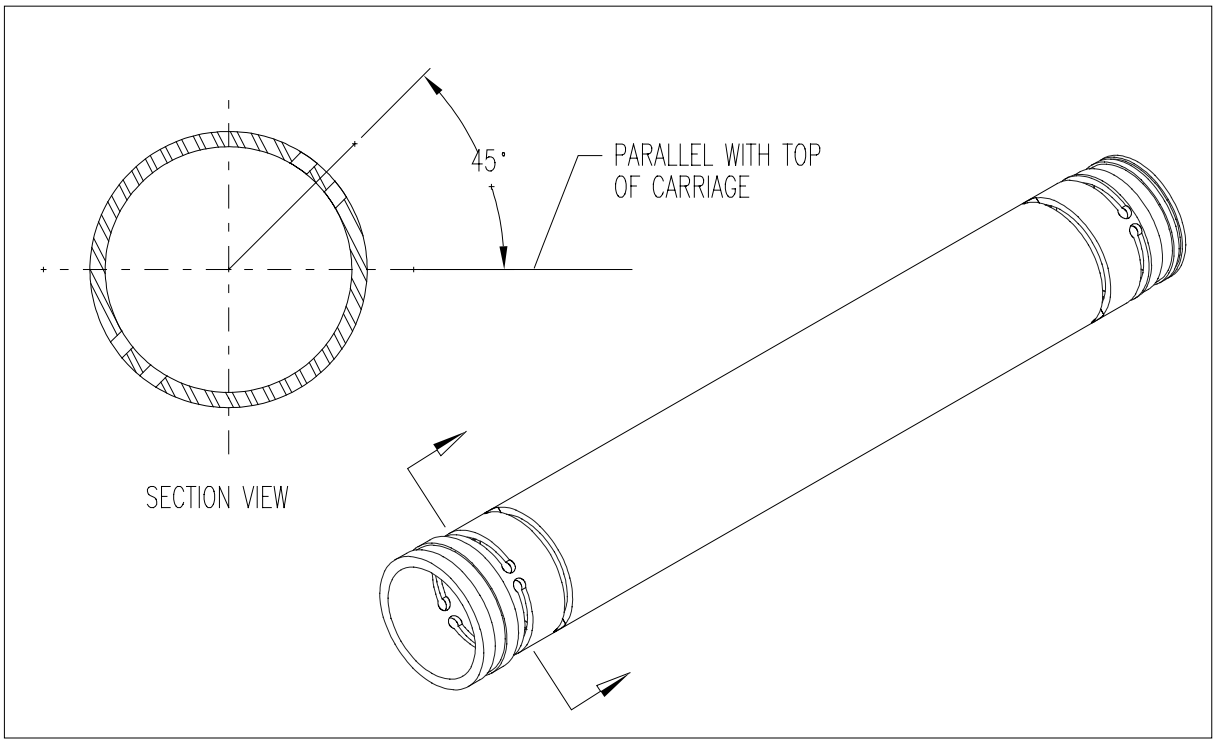
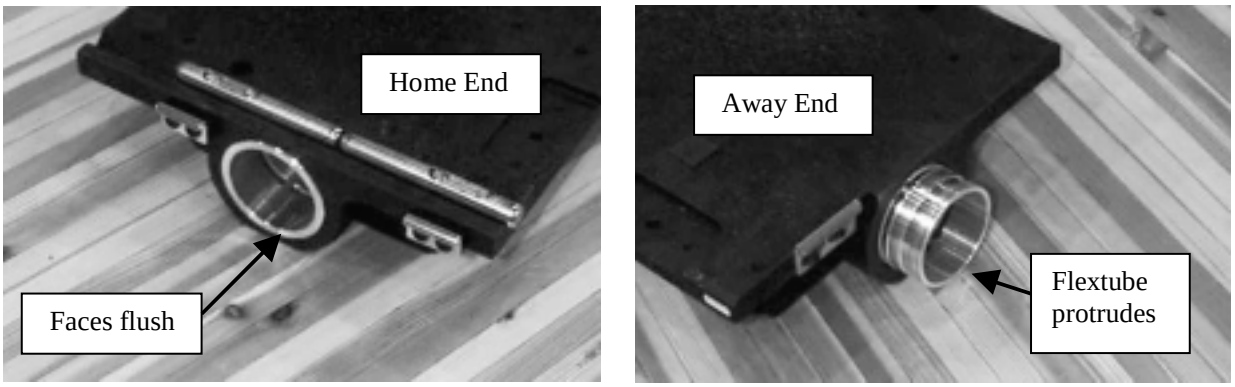


Figure 6: Orientation of flextube



(a) (b)

Figure 7: Flextube position when done; (a) at the home end (b) at the away end.

5. Install an M6 x 10 setscrew, using a 3 mm hex key and Loctite 242, in the underside of the carriage as shown in Figure 8. Tighten the setscrew against the flextube snugly.

Warning: Do not overtighten the setscrew.

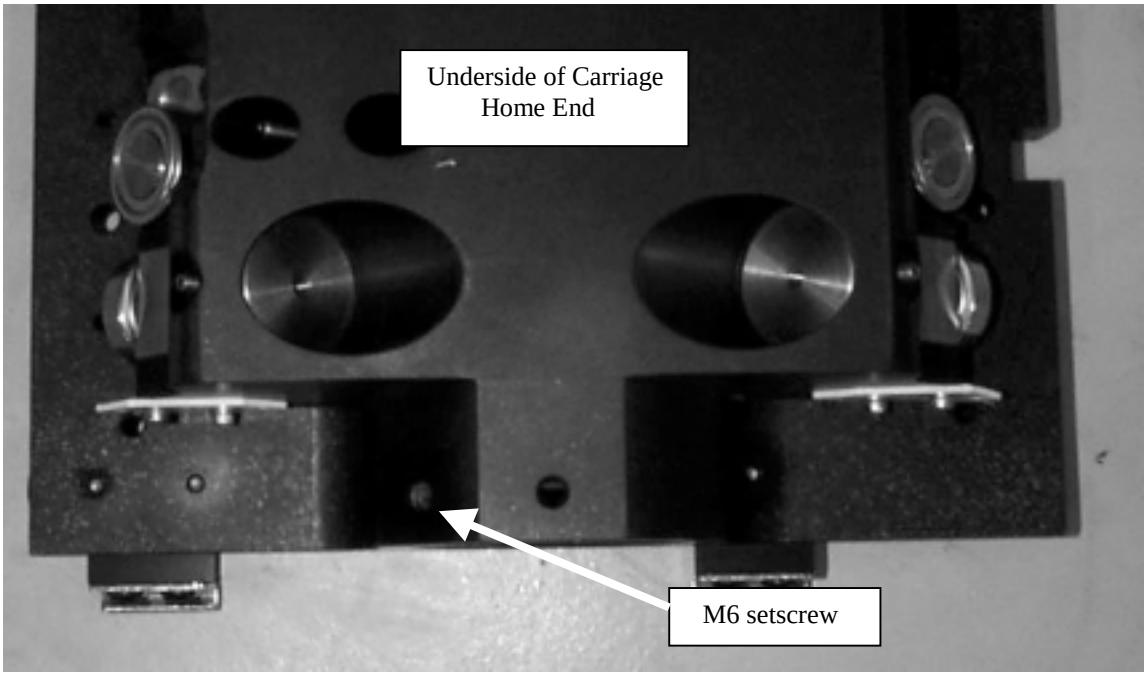


Figure 8: Location of setscrew on carriage

7. INSTALLING THE REPLACEMENT CARRIAGE

1. Install the replacement carriage backwards (i.e., with the Home end towards the Ballscrew Drive end).

2. Adjust the two track wipers on the Away end of the carriage to lightly contact the V grooves in the tracks. Tighten the mounting screws using a 2.5 mm hex key (see Figure 4).

3. Remove the carriage and re-install in the correct orientation. Adjust the Home end track wipers as in step 2 - this section.

4. Re-install the ballscrew hanger up to the shoulder of the ballscrew. Install the mounting screws and the Belleville washers (orientation as shown in Figure 9), but do not tighten. Apply Loctite 242 (removable) to threads.

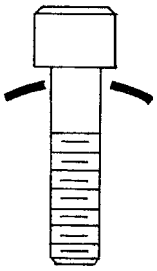


Figure 9: Orientation of Belleville washers

5. Insert a 1.0 mm feeler gauge between the ballscrew hanger and the inboard carriage track, as shown in Figure 10. While applying pressure (see Figure 11)

to hold the ballscrew hanger tight against the feeler gauge and against the shoulder of the ballscrew, tighten the M6 capscrews in the sequence shown in Figure 12.

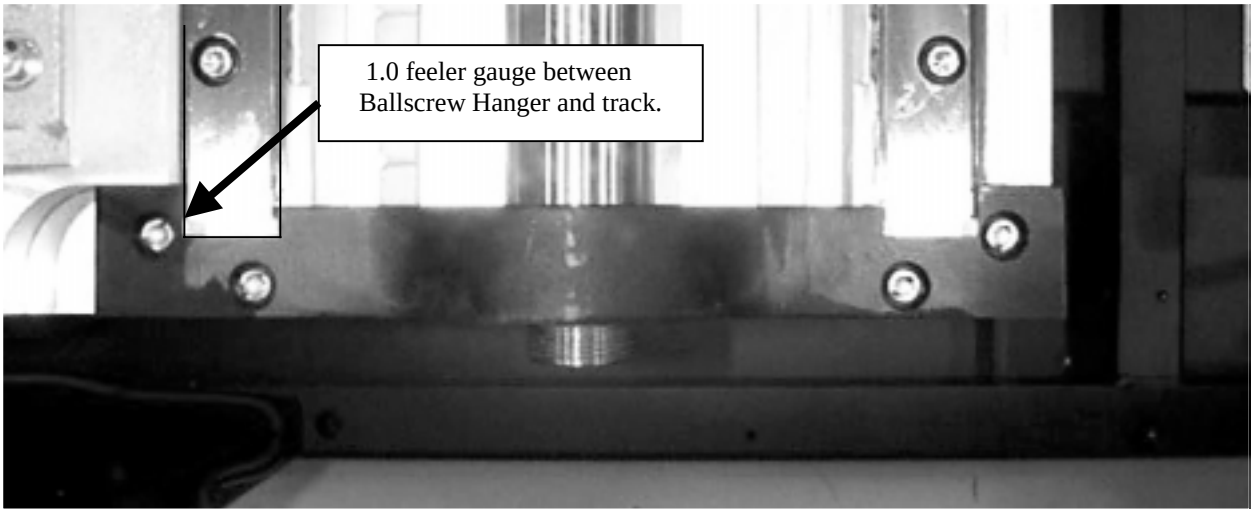


Figure 10: Placement of 1.0 mm feeler gauge

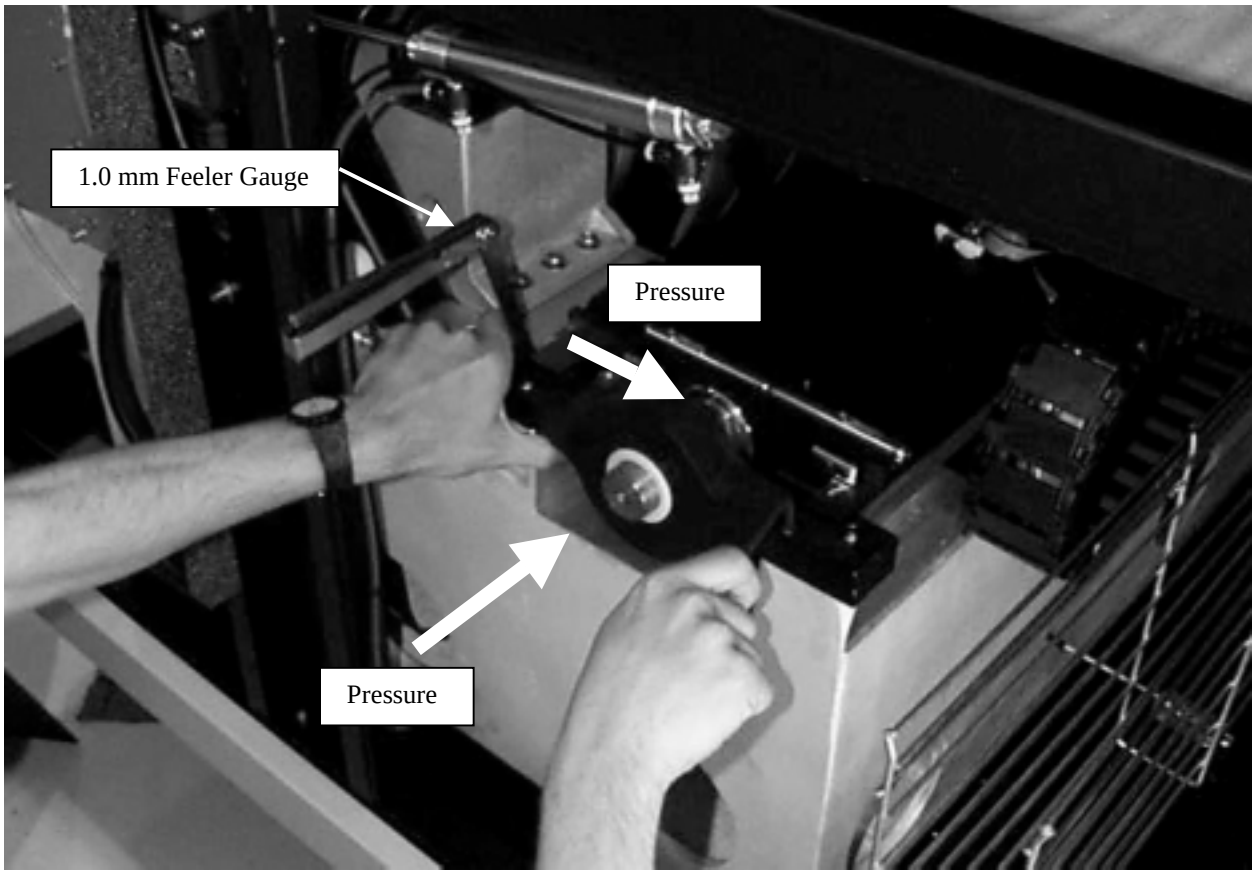


Figure 11: Applying pressure to the feeler gauge

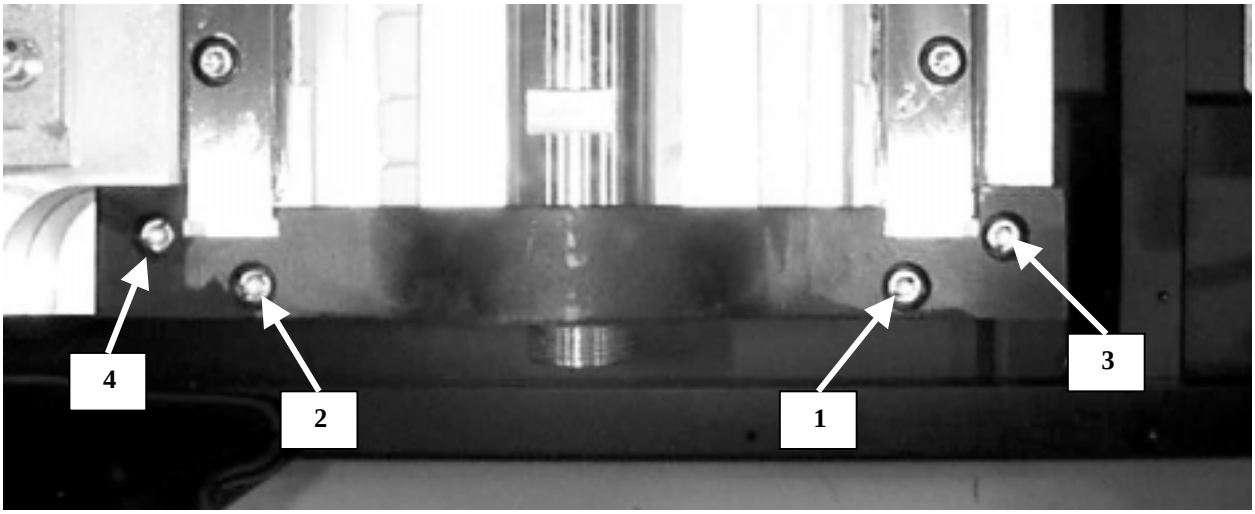


Figure 12: Sequence for tightening M6 capscrews

6. Mount the Home/Away board (10-3791A) on the side of the carriage with two M3 x 16 capscrews (use a 2.5 mm hex key and Loctite 242) and flat washers. The red light on the Home/Away board should be at the top.

7. Move the carriage so that the sensor on the Home/Away board is close to the Home tab. Check the alignment of the Home tab with the slot in the sensor on the Home/Away board (see Figure 13). If it is necessary to adjust the Home tab, remove the mounting screws one at a time and apply Loctite 242. Align tab and tighten mounting screws.

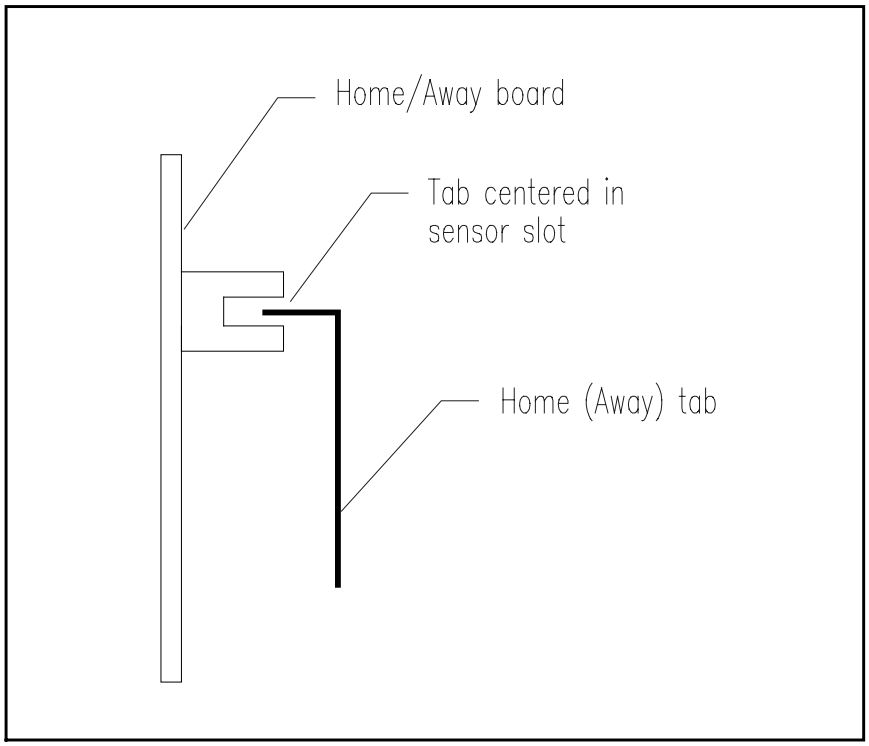


Figure 13: Alignment of Home tab

8. Connect the Home/Away cable to the Home/Away board. Secure the rest of the cables to the top of the carriage to prevent damage when the carriage is moved to the Away position.

9. Move the carriage to engage the flextube with the ballnut collar. Remove the collar screw and apply Loctite 242. While holding the carriage against the ballnut, tighten the collar screw.

10. From the diagnostic terminal, enter the command: `carriage home` or the command: `w`. The carriage should move to the Home end of the engine. Enter the command: `carriage moveto 80000` to move the carriage to the Away end of the engine. It should stop just short of the Away tab.

11. Check the alignment of the Away tab (see Figure 13). If it requires adjusting, follow the procedure detailed in Step 7 – this section.

12. Enter the command: `carriage home`. Check for correct and smooth operation. The carriage is now in position to install the Head.
TSV only: With the carriage in the Away position, enter the command: `carriage move -1000` *and be prepared to enter the abort command:* `a` *when the carriage is in the middle of the operator's area. The Head is easier to install when the carriage is in this position.*

13. *TSV only. Re-install the table pivot cover (refer to section: Removing the Carriage – Step 2) using Loctite 242 on all screws.*



Warning (TSV only): Gently hold the encoder cable against the engine frame to prevent it being snagged while the table pivot cover is being installed (see Figure 14).

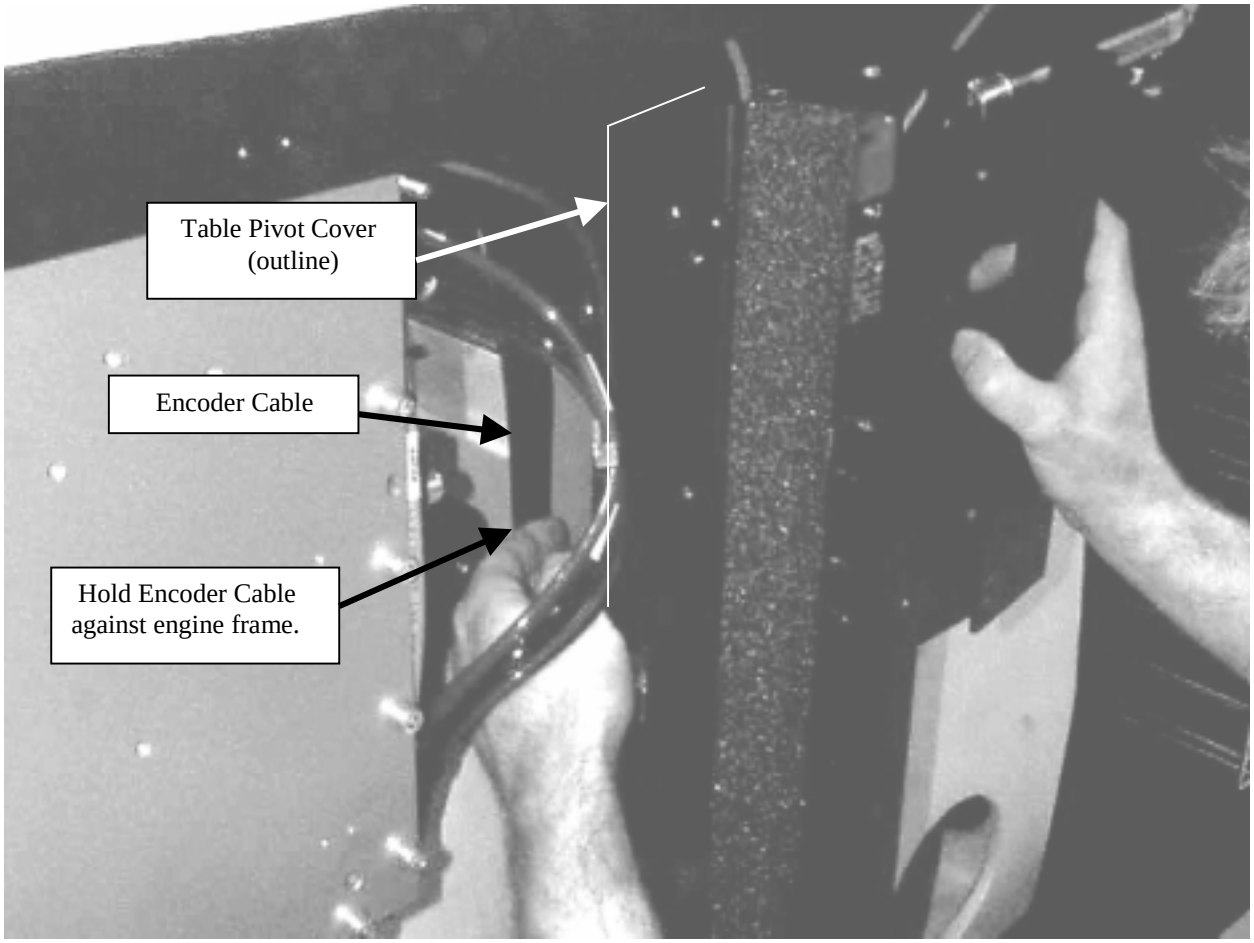


Figure 14: Re-installing the table pivot cover (TSV only)