

TRW Automotive

Commercial Steering Systems

Service Procedure #COL-192

Mack Global Steering Column Lock Trouble Shooting Procedure

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This service procedure applies to any Mack Global Steering Column equipped with a remote foot pedal lock system.

This procedure was prepared to provide a step by step guide to troubleshoot and repair the column lock mechanism. Use these procedures to identify damaged or misadjusted components.

Column Lock Mechanism Components

This TRW Commercial Steering Systems' service bulletin has been written to help you repair commercial vehicles more efficiently. This bulletin should not replace your manuals; you should use them together. These materials are intended for use by properly trained, professional mechanics, NOT "Do-ityourselfers". You should not try to diagnose or repair steering problems unless you have been trained, and have the right equipment, tools and know-how to perform the work correctly and safely.



- 1 Thrust Bearing
- 2 Castle Nut
- 3 Cotter Pin
- 4 Cable
- 5 Gas Spring
- 6 Cam
- 7 Through Bolt

<u>Tools List</u>

- # 27 Torx Driver
- 1/2 in (13 mm) Wrench
- 11/16 in (17 mm) Wrench
- Steel Rule Millimeters
- Needle Nose Pliers
- Permanent Marking Pen

Procedure 1 - Cam Bedding

- 1. Actuate adjustment pedal 10 times; fully unlocking and locking cam. Ensure that the pedal returns to full up position after actuation.
- 2. With the pedal depressed and column unlocked adjust the column. Run the column through the full tilt and telescope range 5 times.
- 3. Continue to **Procedure 2 -Column Lock Test**.

Procedure 2 - Column Lock Test

- 1. Depress the adjustment pedal and place the column in the full up and away position. Release the remote pedal leaving the column in the full up and away position. **Figure 1**
- While seated with hands at the 10 and 2 O'clock position on the steering wheel. Pull the wheel towards you with a force of approximately 120 lbs. <u>DO NOT</u> depress the adjustment pedal during this test. This test is to verify the column will remain in the locked position. Figure 2

NOTE

Gradually apply force to the wheel. **<u>DO NOT</u>** jerk on the steering wheel.

- 3. Column should remain locked when applying reasonable force expected in normal operation (80 120 lbs). If the column remains in the locked position no further adjustments are required.
- If the column does not remain in the locked position with the applied reasonable force expected in normal operation (80 120 lbs) continue to <u>Procedure 3 Trim Panel Removal and Cable Inspection.</u>

Procedure 3 - Trim Panel Removal and Cable Inspection.

- 1. Remove trim panels in sequential order shown in **Figure 3**.
- Check cable routing for crimped or pinched cable. See Figure 4. If cable is damaged replace the cable with Mack service kit 6990-450215X1
- 3. Check for obvious signs of thrust bearing damage. If thrust bearing is damaged please call 1-800-879-0899 (TRW).
- 4. Measure the length of the gas spring rod from the top of the gas cylinder to the center of the mounting pin **Figure 5**. The length should not be less than 65 mm.
- 5. If slack is present in cable, see **Figure 6**, and the gas spring rod is at least 65 mm continue to **Procedure 5 - Adjusting the Castle Nut.**
 - If cable is tight without slack and the gas spring rod measures less than 65 mm continue to
 Procedure 4 - Adjusting the Pedal Cable



Figure 1



Figure 2



Figure 3



Figure 4

Procedure 4 - Adjusting the Pedal Cable

- 1. Loosen the top jam nut at the lower end of the cable to provide slack in the cable. **Figure 7**
- 2. Verify the cam is in the locked position by measuring the length of the gas spring rod from the top of the gas cylinder to the center of the mounting pin **Figure 5**. The length should not be less than 65 mm.
- 3. If the measurement is less than 65 mm with slack in the cable, rotate the cam counter clockwise (up). **Figure 8**
 - If the cam rotates replace the gas spring using Mack Service kit 6990-450215X1. Continue with <u>Procedure 2 - Column</u> <u>Lock Test</u>
 - If the cam cannot be rotated up into the locked position and the measurement is less than 65 mm call 1-800-879-0899.
 - If the measurement is 65 mm or more continue with cable adjustment procedure.
- 4. Adjust the upper jam nut until the pedal contacts the upper stop in the pedal mounting bracket.
- 5. Adjust the lower jam nut up against the pedal mounting bracket and tighten,
- 6. Depress the adjustment pedal slowly until the steering column is unlocked and can be adjusted freely. If the column **DOES NOT** fully release adjust the lower pedal stop bolt to allow more pedal travel accordingly.
- 7. After cable and stop bolt adjustment, <u>Repeat Procedure 2 - Column Lock Test.</u>
 - If the lock test fails
 <u>continue to Procedure 5 - Adjusting the Castle Nut</u>

Procedure 5 - Adjusting the Castle Nut

- 1. To aid in cotter pin removal depress adjustment pedal and rotate through bolt using a 1/2 in wrench.
- 2. Remove cotter pin and mark castle nut flat using the permanent marking pen at the current cotter pin location.
- 3. With 1/2 in wrench securing through bolt head tighten castle nut 1 flat.
- Insert new cotter pin. *Mack part # 29AX3* (3/32 x 1" steel cotter pin) **Do Not Bend Pin Over.**
- 5. Actuate adjustment pedal once to verify cam returns to the fully locked position. Measure the length of the gas strut.
 - If the measurement is less than 65 mm call 1-800-879-0899
 - If the measurement is 65 mm or more continue to

Procedure 2 - Column Lock Test.

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Figure 5



Figure 6



Figure 7



Figure 8

- If column does not remain in the locked position when conducting the column lock test remove the cotter pin and perform steps 3 - 5 one additional time. If the column DOES NOT remain in the locked position after performing these steps twice call TRW -1-800-879-0899.
- 7. If the column remains locked, bend the cotter pin ends to secure the castle nut. **No further adjustments are required**. Re-install trim panels in reverse order of removal.