

TRW Automotive

Commercial Steering Systems

Service Procedure COL-197

Horn Contact Ring Service Procedure

CF600FLG
CF604FLB
CF607FLD000
CF607FLD001
CF607FLD002

Kit #SK000321

November 2009

This is an on-vehicle procedure. Read and understand the entire procedure before beginning.

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-it-yourselfers". 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.

Tools Required & Materials Required

T-30 Torx or 6 Lobed Drive.
 3/8 Inch Hex Socket
 Torque Wrench Capable of 75 and 120 in-lbs
 Drill with a 1/8 inch drill bit.
 Pop Rivet Gun
 Electrical Tape 1.50 inches wide 100 ASTM Black or equivalent.

Service Kit Includes

(1) Horn Wire	451987D11285
(1) Horn Wire	4516700360
(1) Horn Contact Assembly	453108-A1-D
(1) Connector	031140
(1) Contact	453096
(1) Contact Ring	065058
(2) Rivets	040253 Only one is required, second is a spare.
(1) Grease Packet	406028

1. Remove covers from the column assembly.
2. Remove the steering wheel and disconnect the lower intermediate column universal joint assembly. Reference the vehicle owners manual or Freightliner service literature for instructions.
3. Disconnect all electrical wiring from the steering column assembly.
4. If the column assembly is equipped with a mechanical shift mechanism, the cable that runs from the transmission to the column assembly must be disconnected. Disconnect the cable from the column assembly on the driver right side at both the u-bolt location and mechanical shift locations. Reference the vehicles owners manual or Freightliner service literature for instructions.

5. Remove the column assembly from the truck at the (4) bolt locations that secure the aluminum die cast bracket to the dash bracket. Reference the vehicles owners manual or Freightliner service literature for instructions.
6. If the column assembly is equipped with a mechanical shift mechanism, remove the PRNDL display and bracket from the aluminum die cast bracket by removing (2) bolts. The PRNDL display and bracket should remain connected to the column assembly by the metal cable. Do not disconnect the cable.
7. Remove the metal bracket that secures the upper and lower shaft bearings to the aluminum die cast housing. Columns equipped with a mechanical shift mechanism includes (1) large metal bracket that retains both upper and lower bearing. Other columns include (2) smaller brackets for each bearing. A total of (6) bolts are to be removed to allow access to both the upper and lower bearings. Figure 1

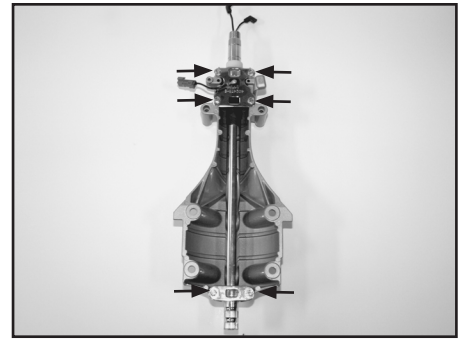


Figure 1

8. Remove the shaft and bearing assembly from the aluminum die cast housing. Figure 2

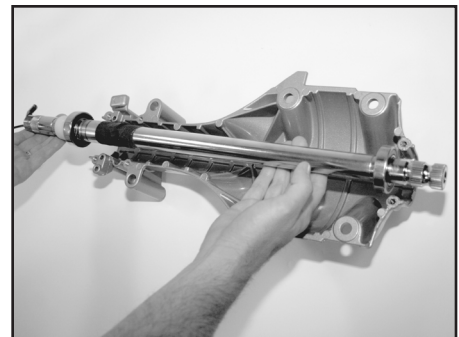


Figure 2

9. Slide the lower bearing down the shaft and remove. Figure 3

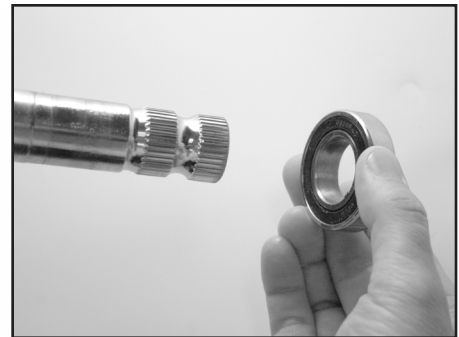


Figure 3

10. Remove the electrical tape from the outer shaft contact ring. Figure 4



Figure 4

11. Using a drill with 1/8 inch size bit, remove the head of the rivet that secures the outer shaft contact ring to the shaft. Figure 5

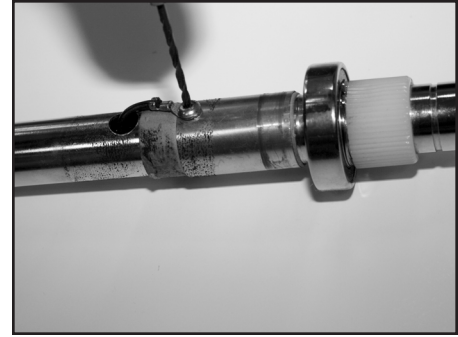


Figure 5

12. Remove the long horn wire from the inside of the shaft by disconnecting the blade terminal at the outer shaft contact ring pulling the wire out the top center hole of the shaft. Figure 6

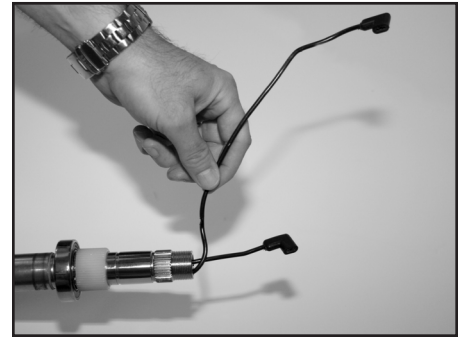


Figure 6

13. Remove the rivet and slide the outer shaft contact ring to lower end and remove. Figure 7

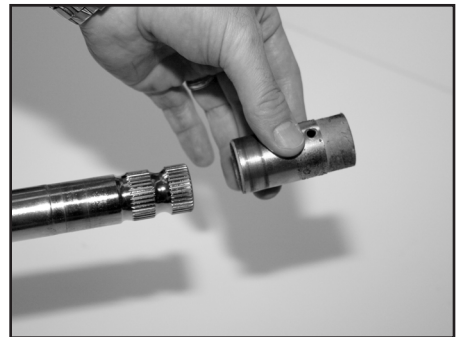


Figure 7

14. Remove the short horn wire and brass contact from the top center hole in the shaft. Figure 8



Figure 8

Assembly Instructions

1. Slide new outer shaft contact ring onto shaft. Figure 9



Figure 9

2. Secure the outer shaft contact ring with a new rivet supplied with service kit. Figure 10

NOTE: Rivet must include the plastic cover to insulate the outer shaft contact ring from the shaft. Failure to use a plastic cover will result in a horn system short circuit with the horn not shutting off when released.

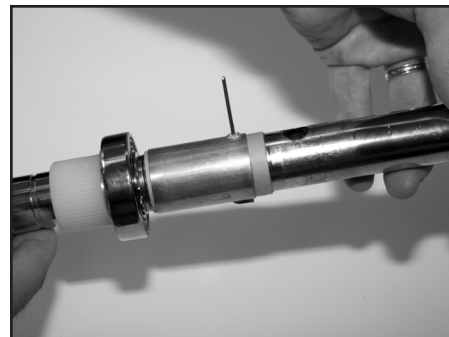


Figure 10

3. Route a new long horn wire through the top center shaft hole. Exit the shaft near the outer shaft contact ring. Connect blade terminal of long wire to the outer shaft contact ring. Figure 11

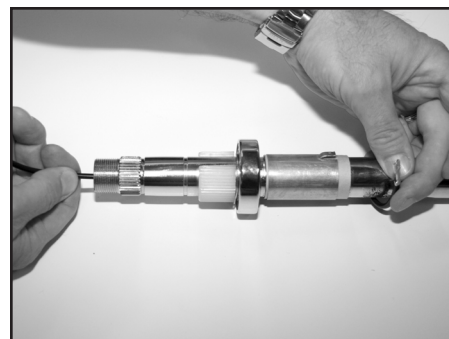


Figure 11

4. Secure the blade terminal connection and wire with electrical tape. Figure 12

NOTE: Do not wrap tape much higher than blade terminal connection location to prevent the loss of electrical continuity in the horn system resulting in the horn failure.

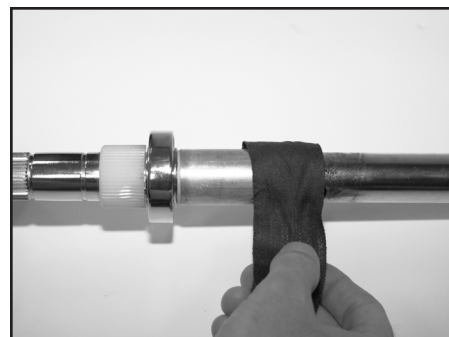


Figure 12

5. Secure a new short wire and new brass contact to the top center shaft hole. Figure 13



Figure 13

6. Slide bearing onto the lower end of the shaft. Figure 14



Figure 14

7. Place the shaft and bearing assembly into the aluminum die cast housing. Figure 15

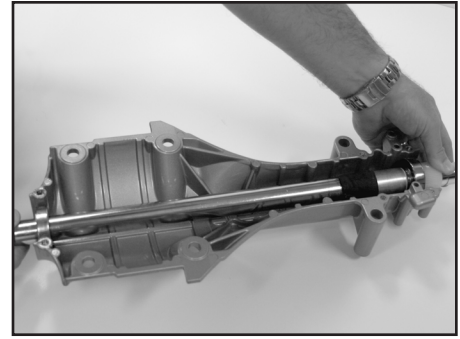


Figure 15

8. Apply grease part 406028 as supplied with kit to the entire exposed brass on the outer shaft contact ring. Figure 16

NOTE: This is a dielectric grease. Use grease supplied in this kit or Lubriplate DS-ES or equivalent.

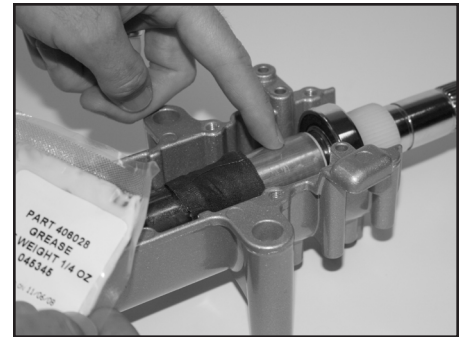


Figure 16

9. Secure the (1) bracket or (2) brackets to the upper and lower bearings. Torque (6) bolts to 120 inch-pounds. Figure 17

NOTE: If the column uses only (1) large bracket to secure both the upper and lower bearing, torque to (4) upper bearing bolts first, then torque to the (2) lower bearing bolts second.

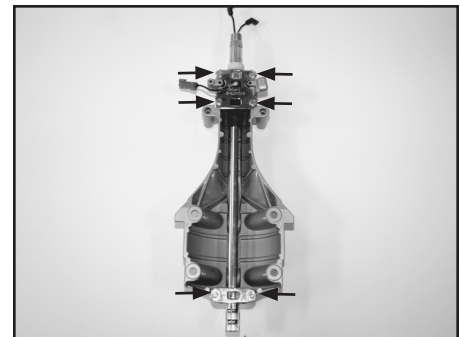
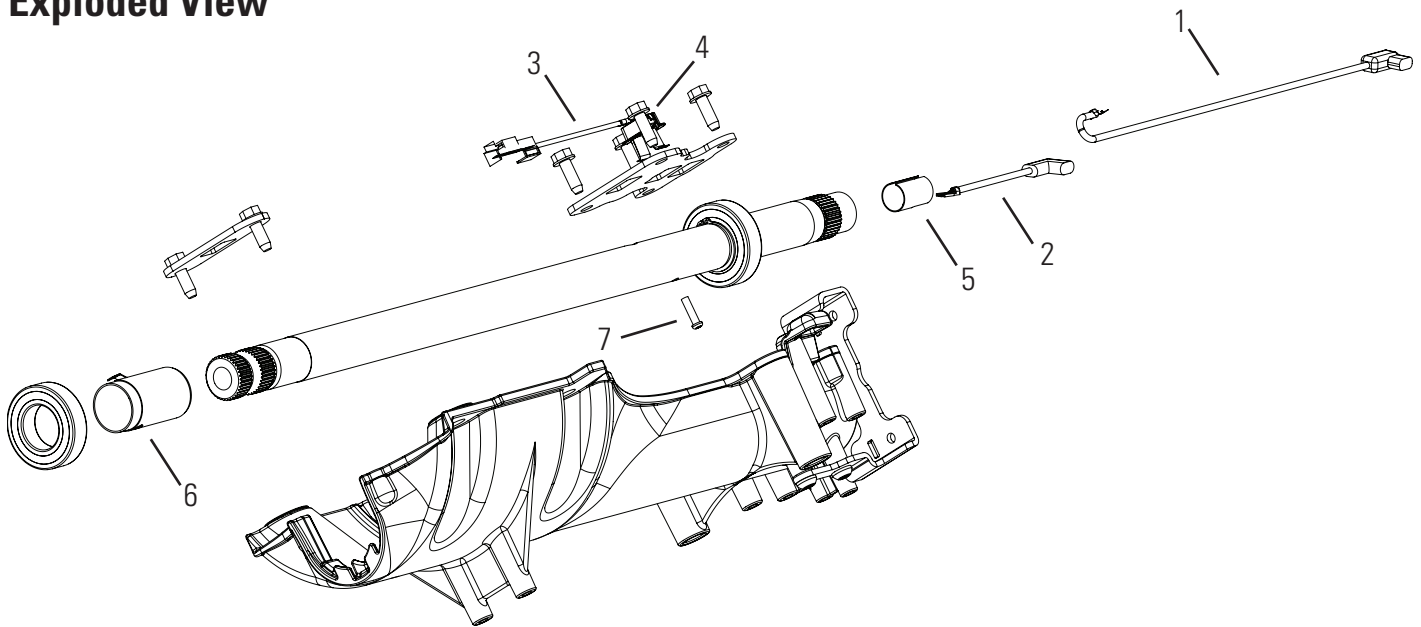


Figure 17

7. If the column is equipped with a mechanical shift mechanism, mount the PRNDL display and bracket to the aluminum die cast housing using (2) bolts torqued to 75 inch-pounds.
8. Mount the column assembly to the dash bracket. Reconnect all electrical connections. Reconnect transmission cable. Reconnect steering wheel and horn wire connections. Reconnect lower universal joint assembly of the intermediate column assembly. Replace and secure all column covers. Reference the vehicles owners manual or Freightliner service literature for instructions.

Exploded View



Service Parts List

No.	Description	Part No.
1	(1) Horn Wire	451987D11285
2	(1) Horn Wire	4516700360
3	(1) Horn Contact Assembly	453108-A1-D
4	(1) Connector	031140
5	(1) Contact	453096
6	(1) Contact Ring	065058
7	(2) Rivets	040253 Only one is required, second is a spare.

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