

Service Procedure COL-212

J19-6032/6033 Steering Column Angle Sensor Harness Remove and Replace Procedure

Use when installing service kit 450210X1 or 450217X1

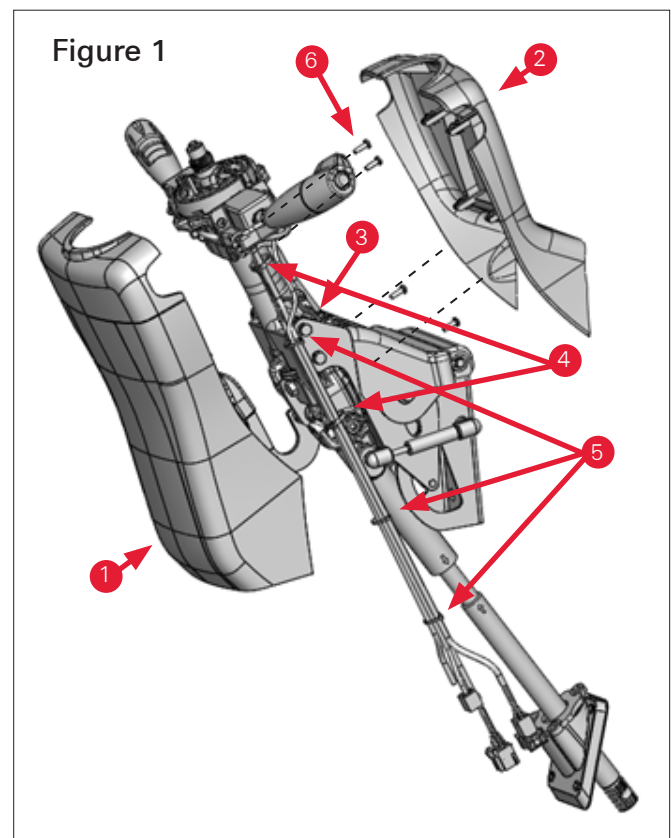
This ZF Commercial Steering Division installation procedure has been written to help you replace steering angle sensor harness on global columns. This procedure should not replace your manuals; you should use them together. These materials are intended for use by properly trained, professional mechanics, NOT "Do-it-yourselfers".

Tool List:

- Torque wrench – capable of measuring up to 40 in-lb
- #2 Phillips drive bit
- #2 Phillips screw driver
- Side-Cut pliers

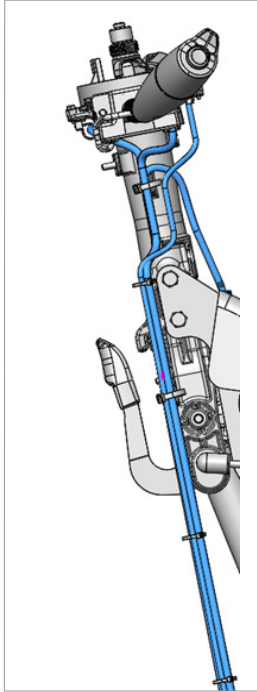
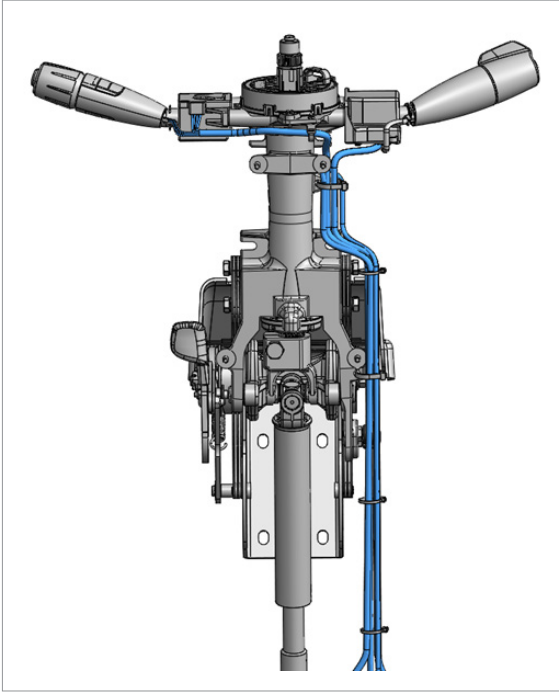
Column Components:

1. Back Shroud
2. Front Shroud
3. Steering angle sensor harness
4. Large Cable Tie (2)
5. Small Cable Tie (3)
6. Shroud mount screws (4)



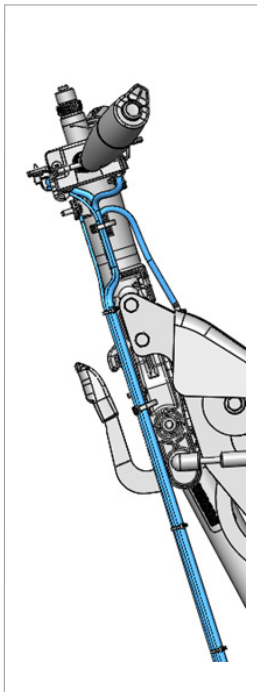
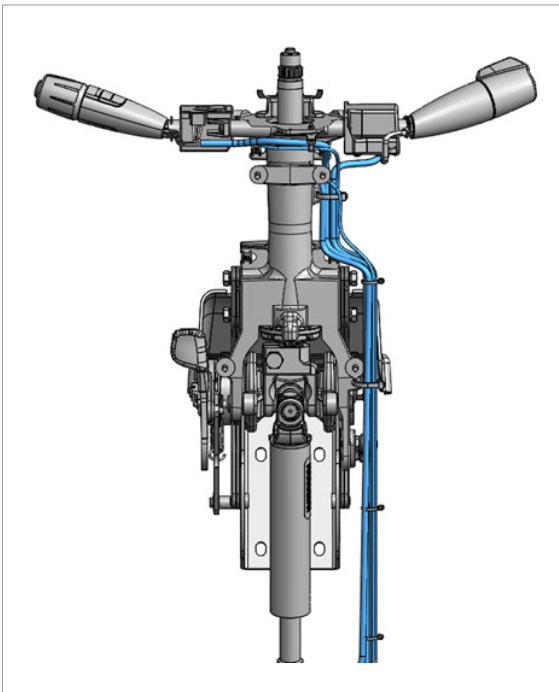
COLUMN OVERVIEW – CLOCKSPEED

Before starting service replacement work, note the harness routing shown below.



COLUMN OVERVIEW – HORN CONTACT

Before starting service replacement work, note the harness routing shown below.



DISASSEMBLY PROCEDURE

Step 1: Remove front shroud by pulling firmly on top end of shroud in a direction away from column assembly.

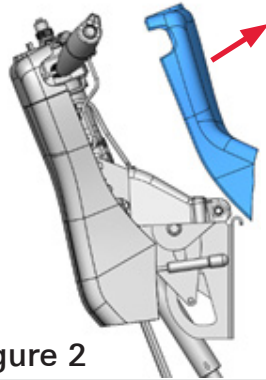


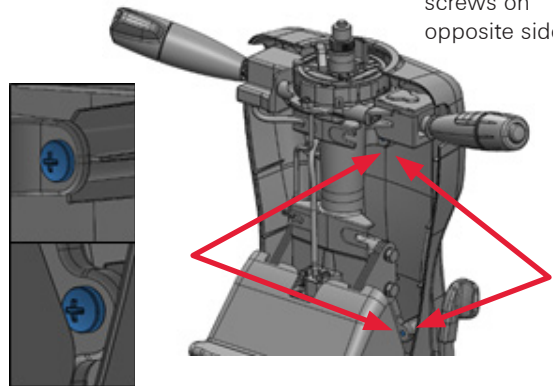
Figure 2

WARNING

Be sure to properly attach wire harness as prescribed below to ensure harnesses do not get caught in moving assemblies.

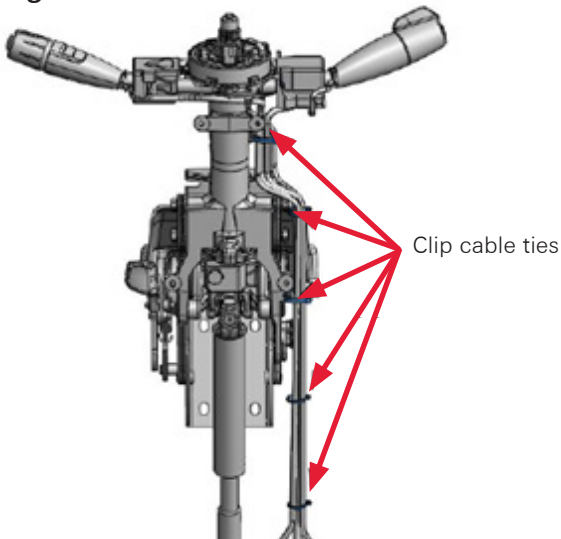
Figure 3

(2) additional screws on opposite side



Step 2: Remove (4) shroud screws using #2 Phillips screw driver.

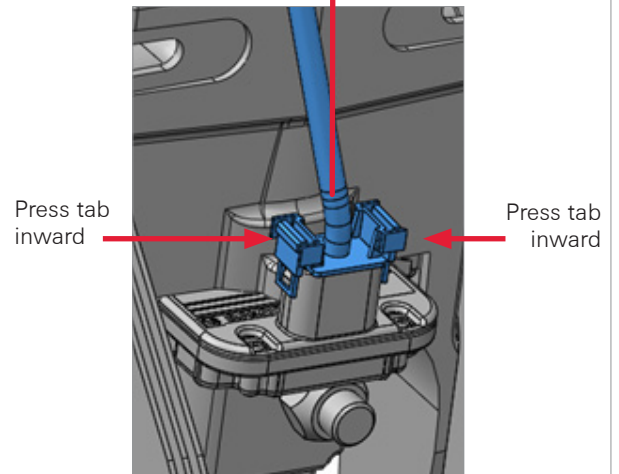
Figure 4



Step 3: Using side cuts, clip (2) large and (3) small cable ties holding wire harness bundle together.

Figure 5

Pull connector out of Sensor body



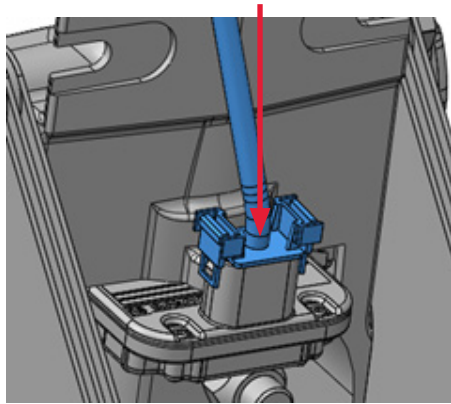
Step 4: Using 1/4" socket and wrench, remove (2) screws fastening clockspring to column housing.

REASSEMBLY PROCEDURE

WARNING

Be sure to properly attach wire harness as prescribed below to ensure harnesses do not get caught in moving assemblies.

Figure 6 Push connector into sensor body



Step 1: Install new harness included with service kit into steering angle sensor connector.

Step 2: Install large cable tie (036316) around harnesses and into column housing feature as shown in Figure 7.1 ,7.2, 7.3. For columns utilizing clock springs, see 7.1 and 7.2, for assemblies with horn contact systems, see 7.3. Pull cable tie tightly. Clip excess tie.

Figure 7.1

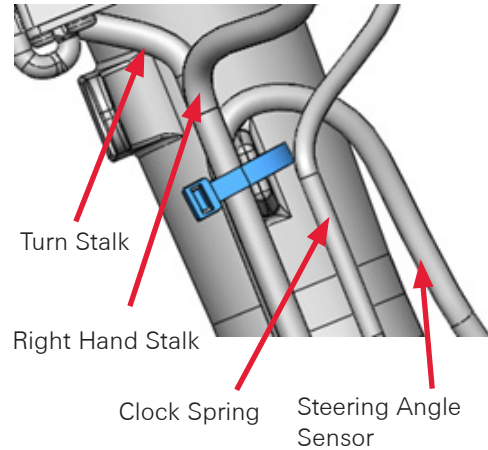


Figure 7.2

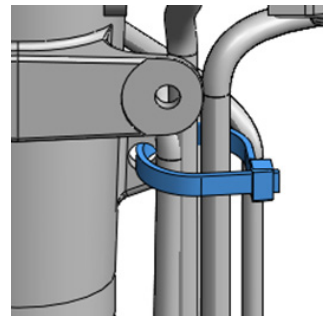
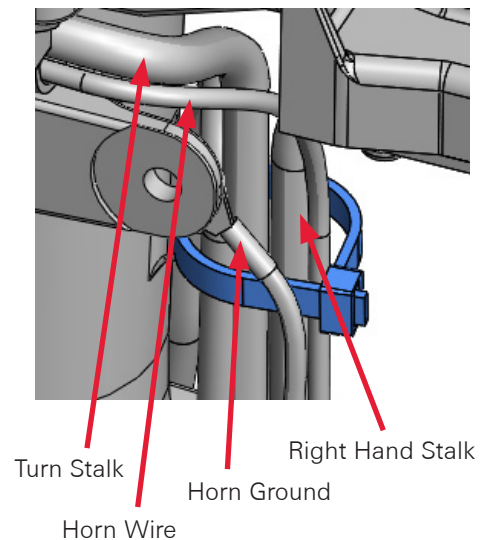
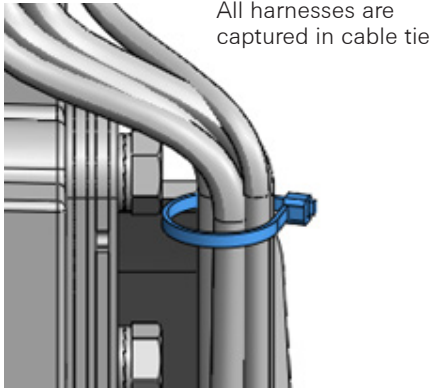


Figure 7.3



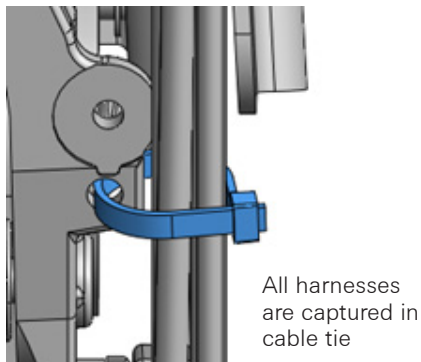
REASSEMBLY PROCEDURE continued

Figure 8



Step 3: Install small cable tie (036348) around harnesses. Cable tie does not attach to housing. Pull Cable tie tightly. Clip excess tie.

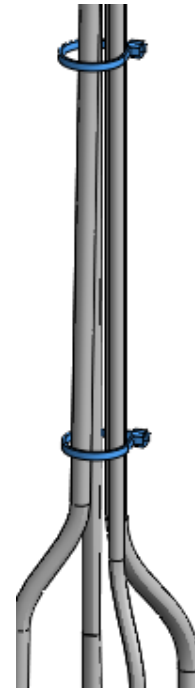
Figure 9



Step 4: install large cable tie (036316) around harnesses and into column housing feature as shown in Figure 9. Pull cable tie tightly. Clip excess tie.

Figure 10

All harnesses are captured in cable tie



Step 5: Install (2) small cable ties (036348) around harnesses. Cable tie does not attach to housing. Pull cable tie tightly. Clip excess tie.

Step 6: Repeat disassembly steps 1-3 in reverse to install shrouds. Attach back shroud first by installing (4) new #2 Phillips screws to 30-40 in-lbs.

WARNING

Be sure to properly attach wire harness as prescribed below to ensure harnesses do not get caught in moving assemblies.

Step 7: Install front shroud by pushing firmly into place. Be sure not to catch turn stalk or right-hand stalk rubber closeout in-between shroud halves.

APPENDIX A – HORN CONTACT



APPENDIX B – CLOCKSPRING

