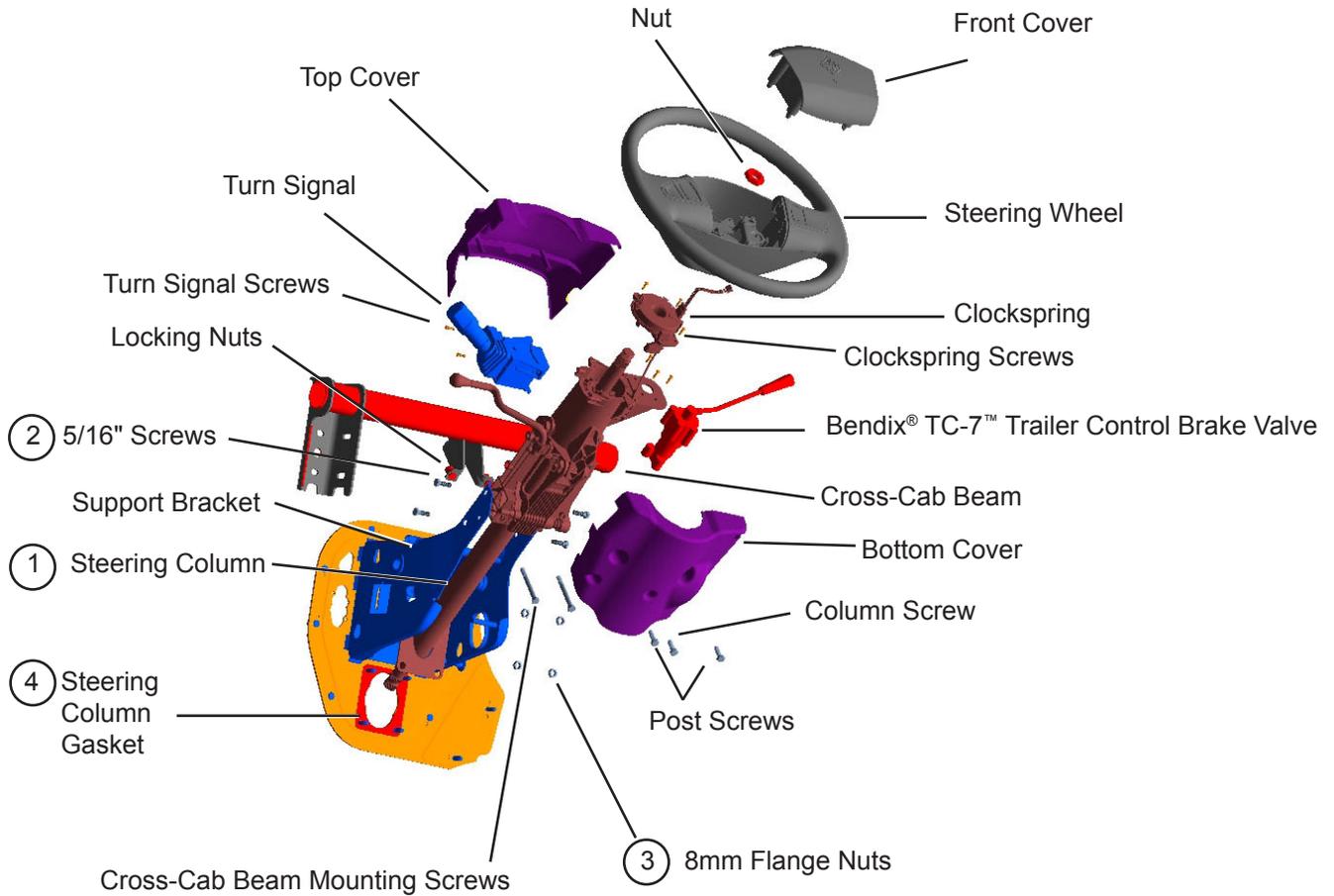




Installation Instructions

STEERING COLUMN KITS



Item No.	Description	Qty.
1	Steering Column	1
2	5/16" Screws	4
3	8mm Flange Nut	4
4	Steering Column Gasket	1

Figure 1 Steering Column Replacement Kit



GENERAL SAFETY GUIDELINES



**WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS
TO AVOID PERSONAL INJURY OR DEATH:**

When working on or around a vehicle, the following guidelines should be observed AT ALL TIMES:

- ▲ Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.
- ▲ Stop the engine and remove the ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically-charged components.
- ▲ Do not attempt to install, remove, disassemble or assemble a component until you have read, and thoroughly understand, the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
- ▲ If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system, a Bendix® DRM™ dryer reservoir module, or a Bendix® AD-9si® air dryer, be sure to drain the purge reservoir.
- ▲ Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.
- ▲ Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
- ▲ Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
- ▲ Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
- ▲ For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.
- ▲ The power **MUST** be temporarily disconnected from the radar sensor whenever any tests **USING A DYNAMOMETER** are conducted on a vehicle equipped with a Bendix® Wingman® system.

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DESCRIPTION

This kit contains all of the necessary components to replace the steering column on International vehicles.

DISASSEMBLY

Be sure to park the vehicle with the wheels straight ahead. The wheels must remain straight during this procedure.

1. Disconnect the intermediate shaft (located in the engine compartment) from the steering column.
2. Disconnect the power source before working on electrical components.
3. Remove the front cover of the steering wheel by inserting a Phillips head screwdriver into each of the four apertures (two per side) as shown in Figure 3. When the latching mechanism is released, pull the front cover forward.
4. Disconnect the electrical connector of the clockspring wiring harness (to the horn) near the steering wheel. Do not attempt to disconnect the harness near the clockspring.
5. Mark the orientation of the shaft spindle and plate to aid alignment at reassembly.
6. Remove the steering wheel nut. Refer to Figure 4.
7. Using a wheel puller to loosen, remove the steering wheel from the shaft spindle. Refer to Figure 5.
8. As shown in Figure 6, remove the steering column covers by removing the two post screws and one column screw with a Torx® driver. Separate the bottom and top cover halves. A wiring harness is attached to the bottom cover half and will prevent the cover from being removed from the steering column area. Complete removal of this cover is necessary to facilitate the installation of this kit.

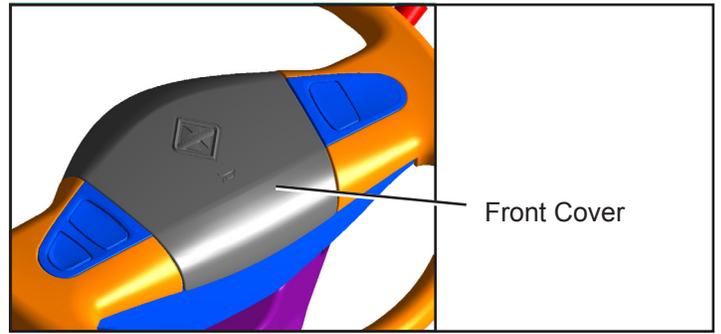


Figure 2 Front Cover

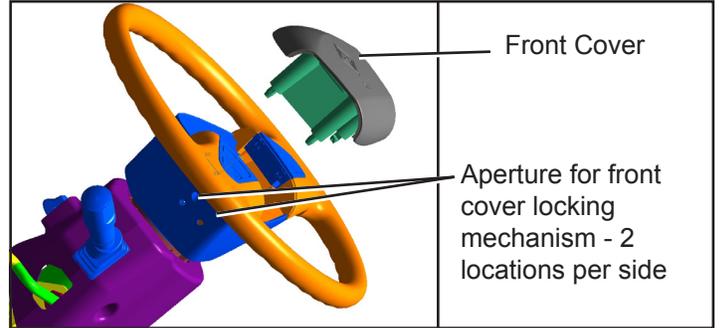


Figure 3 Front Cover Release and Removal

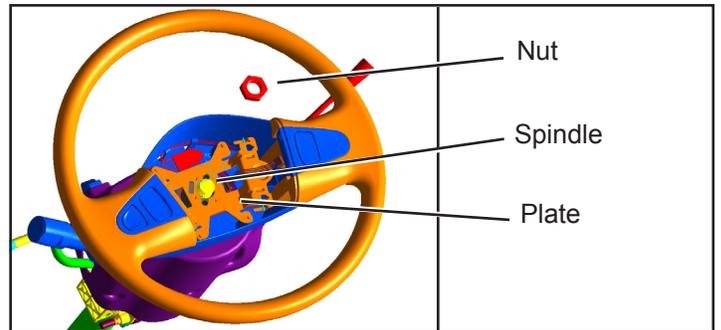


Figure 4 Steering Wheel Nut Removal

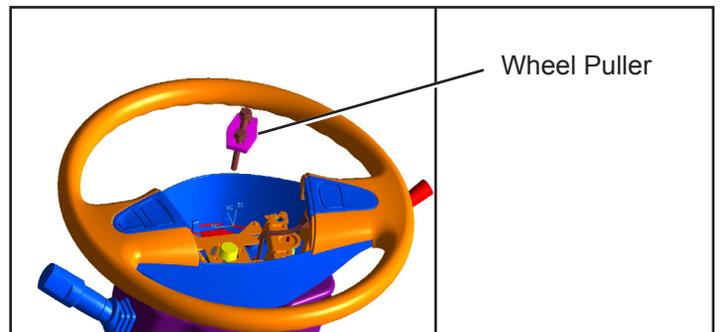


Figure 5 Wheel Puller

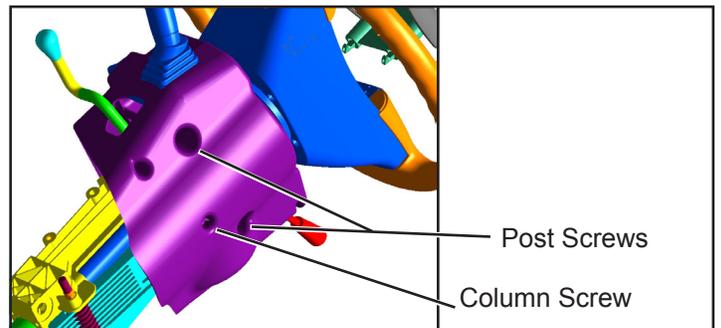


Figure 6 Removing Column and Post Screws (Bottom Side)

9. Disconnect the electrical connector on the bottom side of the clockspring by prying the locking tab gently with a flat blade screwdriver. The locking tab is located on the steering column side of the housing. Refer to Figure 8.

10. Verify that the wheels are straight then tape the top cover of the clockspring to the bottom housing of the clockspring. Using a Torx® driver, remove the three screws that secure the clockspring to the steering column assembly. Refer to Figure 7.

11. With a long handle Torx driver, remove the two turn signal screws that secure the turn signal housing to the steering column. Refer to Figure 9.

12. Disconnect the electrical connector located on the back side of the turn signal housing by gently squeezing the tab of the wiring harness connector while pulling it away from the turn signal.

13. If applicable, locate the Bendix® TC-7™ trailer control brake valve on the steering column pedestal. Identify, mark and disconnect all of the air lines connected to the brake valve. All of the ports contain push-to-connect fittings. To disconnect, push the fitting toward the valve with one hand and pull the air line out, away from the valve, with the other.

14. If applicable, remove the three TC-7 trailer control valve mounting screws securing the valve to the steering column housing. Pull the trailer control valve down, sliding it through the opening in the steering column housing. Removal of the handle is not necessary to remove the brake valve.

15. If the vehicle is equipped with roll stability, disconnect the electrical connector from the top side of the steering column.

16. Locate the cross-cab beam. Remove the two cross-cab beam screws that secure the steering column to the beam.

17. Remove and discard the four 5/16" screws (2) that secure the top portion of the steering column to the steering column housing and the four 8mm flange nuts (3) that secure the bottom of the steering column to the firewall.

18. Lift up and pull forward (toward driver's seat) on the steering column to disengage the splined shaft of the steering column.

19. Remove the gasket material from the steering column mounting surface of the firewall.

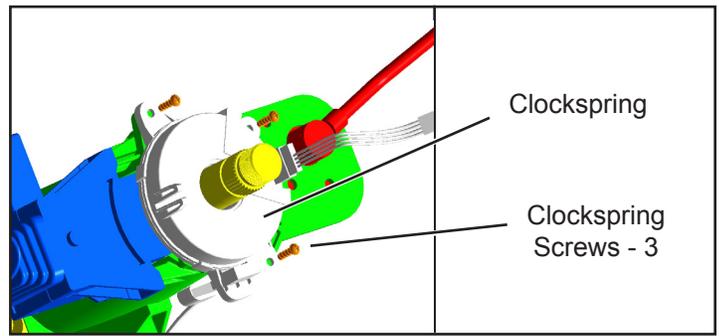


Figure 7 Clockspring Removal

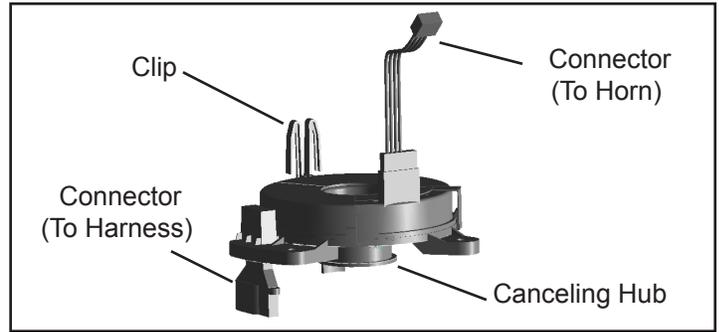


Figure 8 Clockspring - Bottom View

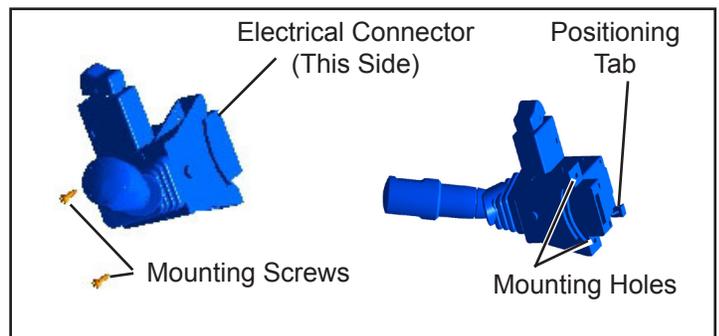


Figure 9 Turn Signal

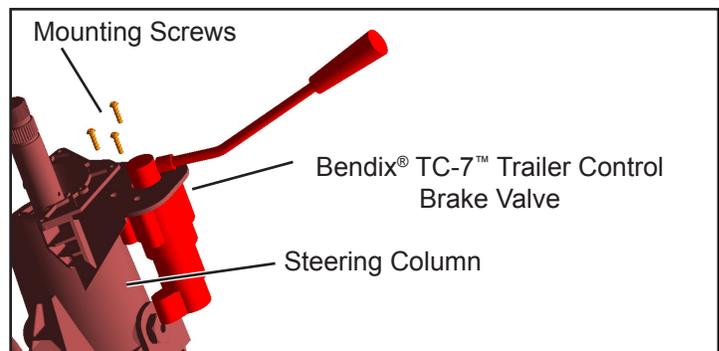


Figure 10 TC-7™ Trailer Control Valve Removal

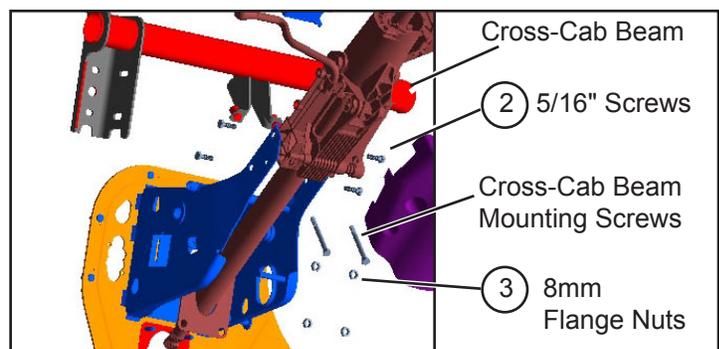


Figure 11 Cross-Cab Beam

ASSEMBLY

Use all of the components contained in this kit.

1. Position the gasket (4) on the four steering column mounting studs that are secured to the firewall.
2. Align the steering column (1) with the opening in the firewall. Using extreme caution, align the steering column splined shaft with the mating coupling. *Refer to Figure 12.*
3. Loosely install the four 8mm flange nuts (3) that secure the steering column to the firewall and the four 5/16" screws (2) that secure the steering column to the support bracket.
4. For tilt column kit piece numbers 5008674 and K114457, tighten the four 5/16" screws (2) to 240–350 in-lbs. For the fixed column kit piece number 5014291, tighten the 5/16" screws (2) to 120–150 in-lbs. Tighten the four 8mm flange nuts (3) to 200–280 in-lbs.
5. For tilt column kit piece number 5008674 and K114457, install the two cross-cab beam mounting screws and tighten to 125–210 in-lbs. For fixed column kit piece number 5014291, install the two cross-cab beam mounting screws and tighten to 100 in-lbs maximum.
6. As shown in Figure 13, install the Bendix® TC-7™ trailer control valve using the three screws removed during the disassembly, tighten to 30–40 in-lbs. Reconnect the air lines. Push the fitting in, towards the valve and insert the air line. When the air line can't be inserted further, pull back on the fitting to secure.

Installing the Clockspring

Clocksprings can be one of two types, either “canceling” or “non-canceling”. A “canceling” clockspring cancels, or turns off the turn signal when the steering wheel is turned, whereas a “non-canceling” clockspring requires the driver to manually cancel the turn signal upon completion of the turn. To convert to a non-canceling assembly, remove the canceling hub by gently pulling and rocking the hub to disengage the three locking tabs. *Refer to Figure 14.*

7. Inspect the clockspring verifying the tape that was installed in step 9 of the disassembly is intact. If the tape is broken, the clockspring must be centered before it can be placed into service. Follow the instructions on the front surface of the clockspring for resetting the assembly. *Refer to Figure 15.*
8. Align the three holes on the clockspring with the column mounting holes. The clockspring holes will align in one direction only. Using the three clockspring screws, secure the clockspring and torque the screws to 15–35 in-lbs.
9. Connect the clockspring electrical connector on the bottom of the housing to the wire harness. *Refer to Figure 14.* An audible “click” ensures the connector is secure.

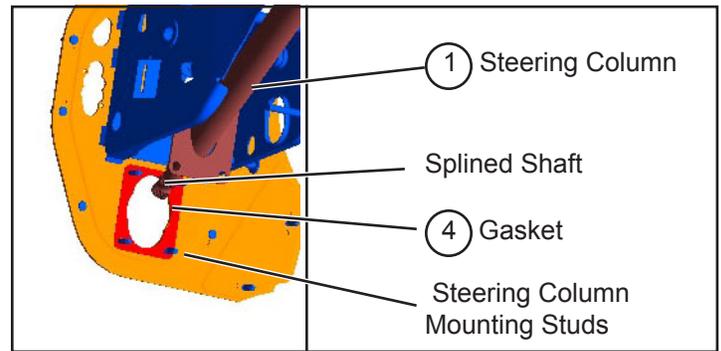


Figure 12 Steering Column Installation

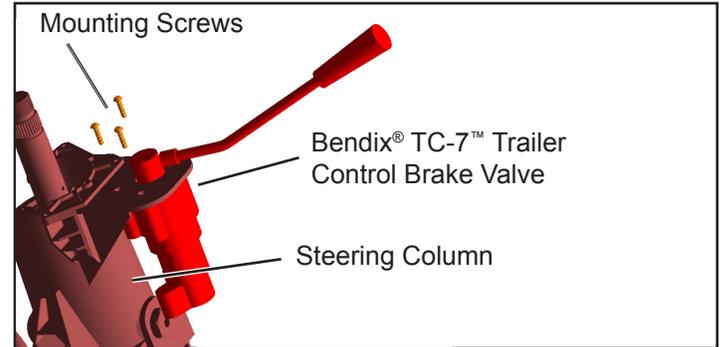


Figure 13 TC-7 Trailer Control Valve Installation

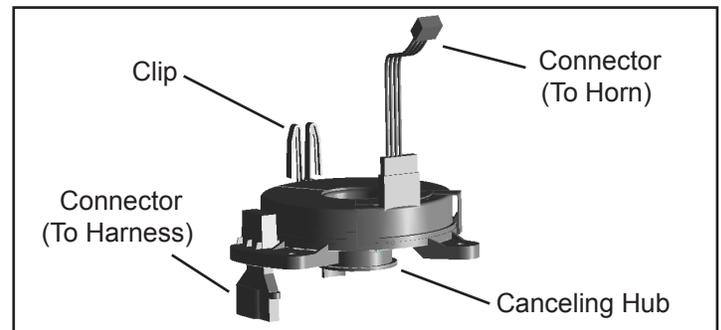


Figure 14 Clockspring

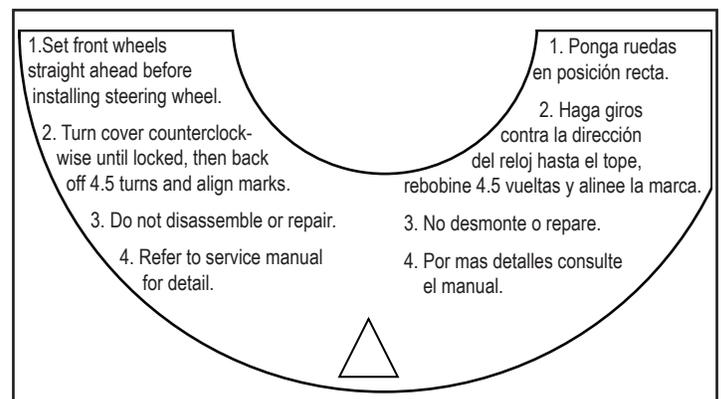


Figure 15 Clockspring Label

10. Align the mounting holes of the turn signal with the holes in the steering column housing. *Refer to Figure 16.* Ensure the positioning tab is centered in the steering column housing locating slot as shown in Figure 17. Secure the turn signal screws and torque to 15–35 in-lbs.
11. Connect the wire harness to the turn signal electrical connector on the bottom of the housing. An audible “click” ensures the connector is secure.
12. If the vehicle is equipped with roll stability, connect the electrical connector to the top side of the steering column. An audible “click” ensures the connector is secure.

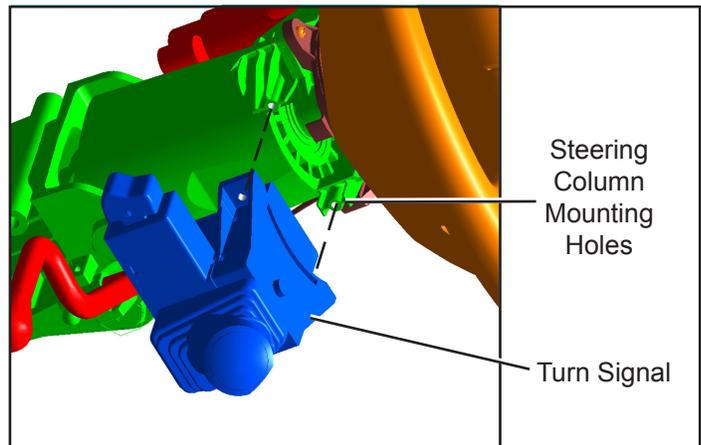


Figure 16 Turn Signal Installation

13. Reinstall the column cover halves, starting with the bottom cover. Secure the wire harness and clip to the cover before installation. Align the steering column screw hole of the bottom cover with the steering column hole. As shown in Figure 18, the locating tab inside the cover rests against the Bendix® TC-7™ trailer control valve mounting plate when properly positioned. Install the column screw and torque to 20–40 in-lbs.

Align the top cover with the bottom cover and install the two post screws. Tighten the post screws to 10-25 in-lbs.

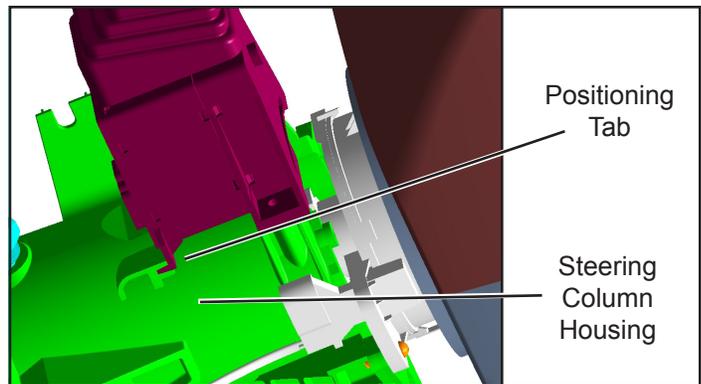


Figure 17 Positioning Tab

14. Reconnect the intermediate shaft to the steering column.
15. Align the steering wheel on the steering column shaft. Also align the clockspring clip with the slot in the steering wheel and feed the clockspring wire harness into the steering wheel opening. Exercise extreme caution to prevent misalignment and possible damage to the clockspring, shaft and steering wheel. Remove or cut the tape that was used to hold the top cover to the bottom cover of the clockspring. *Refer to Disassembly Step 10.*

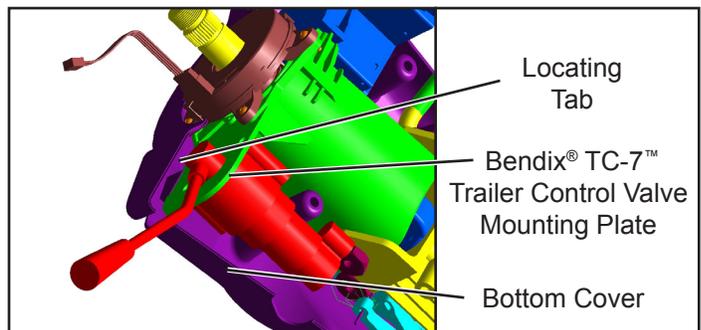


Figure 18 Bottom Cover Installation

16. Replace the steering wheel nut and torque to 660–720 in-lbs.
17. Connect the clockspring wire harness to the steering wheel (horn) connector.
18. Install the front cover.
19. Reconnect the power source.

TESTING THE VEHICLE

1. Activate the horn to verify the electrical connection to the horn is complete.
2. Turn on the turn signal then turn the steering wheel to verify that the system operates correctly as either a “non-canceling” or “canceling” switch.
3. If the horn and / or turn signals are not functioning properly, verify that the power source is connected and that all electrical connections are properly seated.

4. Verify the vehicle wheels turn when the steering wheel is turned and that the steering wheel features such as tilt, if applicable, is also functioning properly.
5. If the vehicle is equipped with roll stability, follow the vehicle manufacturer's instructions to validate the steer angle sensor is functioning properly.

