Technical Service Information

INTERNATIONAL®

TSI–03–05–02R

This TSI replaces 03–05–02

Date: November, 2003

Subject File: Steering

Subject: Douglas Autotech Tilt Steering Column Lower Bearing Realignment

Truck Model: 4200

Truck Model: 4300

Truck Model: 4400

Truck Model: 7400

Truck Model: 7500

Truck Model: 7600

Truck Model: 8500

Truck Model: 8600

Unit Code: 05708

DESCRIPTION

NOTICE

The information supplied herein has been furnished by the manufacturer and/or the supplier for use with its product. International Truck and Engine Corporation reprints this information based on representations made to the Company by the manufacturer and/or supplier and is not responsible for any errors or mishaps resulting from such errors or from any misuse of the product. Every user is urged to carefully follow the instructions which accompany the product. Please refer to the pdf for this TSI for the Douglas AutoTech Bulletin TIB Number 20053003, which provides information on the Steering Column Lower Bearing Realignment.

WARNING – To avoid property damage, personal injury or death, park the vehicle on a level surface, set the parking brake, chock the wheels and turn the engine off.

NOTE – When performing the following procedure, save the pinch bolt, washer, and nut for re-installation.

DESCRIPTION (CONT.)

WARNING – If the pinch bolt, flat washer, and nut have signs of damage, they must be replaced with SAE Grade 8 components to avoid property damage, personal injury or death.

May 30, 2003
TIB Number 20053003
Rev. 0

DOUGLAS AUTOTECH CORP.

World Leadership in Directional Control Technology

Steering Column Lower Bearing Realignment Service Bulletin

Ultra 200 Model Steering Column.

This Technical Information Bulletin (TIB) describes the proper procedure for the removal and re-installation of the Intermediate Steering Shaft and how to realign the Lower Bearing in the Steering Column. The Intermediate Steering Shaft may also be known as the Slip Shaft or I-Shaft.

The following steps outline how to remove and re-install the Intermediate Steering Shaft and realign the Steering Column Lower Bearing.

These instructions **MUST** be read thoroughly before this procedure begins so the equipment, tools, spare parts, etc. will be available as needed to effectively remove and re-install the Intermediate Steering Shaft. And re-align the Steering Column Lower Bearing without causing damage to them or causing injury to yourself. It normally takes .8 of an hour to complete this procedure

Parts List

Quantity	Part Number	Description
1	TIB20053003	Instructions

Tool List

Quantity	Description
1	½" Drive Ratchet
1	¾" – ½" Drive Socket
1	5/8 Combination Wrench
1	11/16" – ½" Drive Socket
1	½" Drive Ft. Lb. Torque Wrench
1	½" Drive Deep Well Socket
1	External Snap Ring Pliers
1	Small Ball Peen Hammer

Steering Column Lower Bearing Diagnostic

Complaint: Terms; Noise described as Snap, Cracking, Clunk or Pop when the Steering Wheel is rotated. The noise is usually more regular when the Steering Column is tilted, but may happen all of the time.

Cause: The Steering Column Lower Bearing may not have seated correctly. If this is the case the Steering Column Lower Bearing will try to align itself as the Steering Wheel is rotated, the Bearing moving in the machined pocket that it fits into can cause these types of noises.

Correction: Follow the steps as outlined in this TIB in order to realign the Steering Column Lower Bearing.

Intermediate Shaft Removal

Upper (Steering Column) end

Step 1) Position the steering wheel to provide access to the Intermediate Shaft yoke pinch bolt.

Step 2) Shut off the Engine, apply brakes and chock wheels.

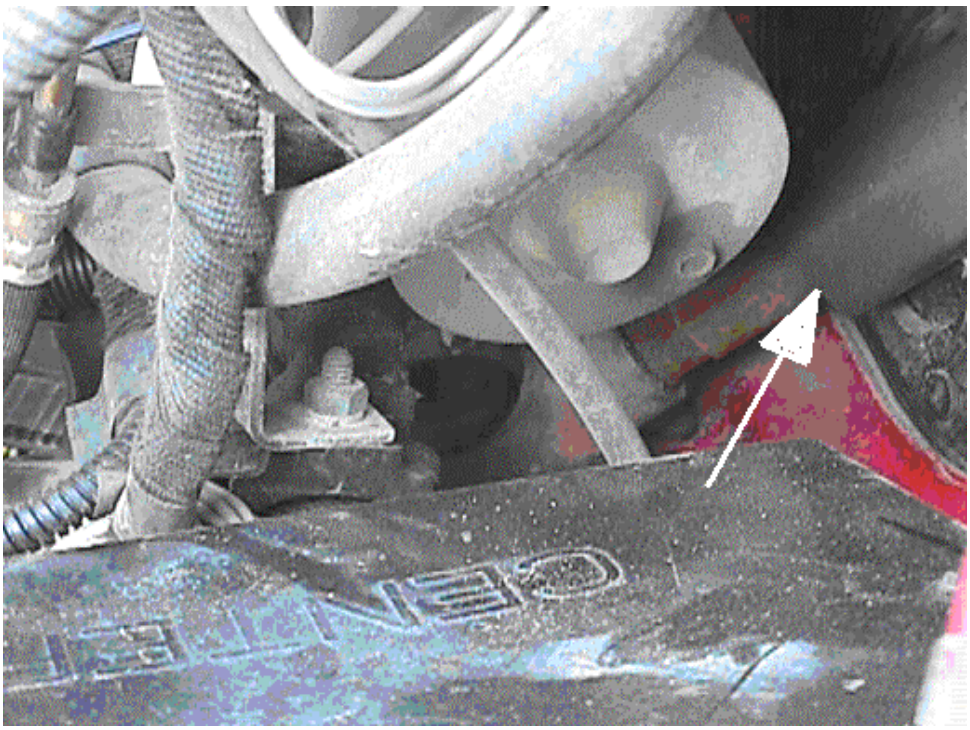
Step3) Mark the Intermediate Shaft yoke and the Steering Column output shaft where they connect in order to keep proper u-joint phasing during re-assembly. This will also keep the Steering Wheel properly aligned.

Step 5) Remove the yoke pinch bolt at the upper end of the shaft (at bottom of steering column).

Step 6) Slide the yoke off the Steering Column output shaft. Once the yoke is free of the steering column, move it out of the way for access to the Steering Column Lower Bearing. This is located inside the Lower Tube and supports the Steering Column output shaft. (See Figure 1)

NOTE: The lower (steering gear) end of the Intermediate shaft will stay attached to the steering gear.

FIGURE 1



Note: Arrow in Figure 1 indicates steering column lower bearing location inside steering column lower tube at this point.

Snap Ring Removal

Step 1) Use the External Snap Ring Pliers to remove the Snap Ring from around the shaft. Do not discard the Snap Ring it will be needed for reassembly.

Step 2) Insert the Deep Well Socket over the Steering Column output Shaft and LIGHTLY tap the Bearing into position. Use a Socket that fits snugly inside the Tube so the force is applied to outside race on the Bearing.

NOTE: The correct position of the Bearing can be verified by tilting the Steering Column, and then rotate it both directions. The noise will be gone if the Bearing is properly seated. If the noise is still there repeat Step 2).

CAUTION: DO NOT TURN THE STEERING WHEEL MORE THAN ONE TURN IN EITHER DIRECTION WITH INTERMEDIATE SHAFT DIS-CONNECTED. THIS WILL DAMAGE THE CLOCKSPRING! BE SURE TO RE-CENTER THE STEERING WHEEL BEFORE RECONNECTING THE INTERMEDIATE SHAFT.

Step 3) Replace the Snap Ring and re-connect the Intermediate Shaft.

Intermediate Shaft Reinstallation

Step 1) Slide the Intermediate Shaft yoke back onto the Steering Column output shaft making sure that the marks made during disassembly to assure proper phasing and Steering Wheel alignment are in line.

Step 2) Slide the Yoke back on the Steering Gear input shaft.
Torque the pinch bolt to 60 +/- 2 FT. LBS.

Step 3) Perform the Critical Checks as outlined in the procedure below.

NOTE: Place a check mark in each box after that check is completed.

CRITICAL CHECKING PROCEDURE

- ❑ Turn the Steering Wheel from full left to full right, lock to lock, to ensure the Column rotates freely and does not lock at any point during rotation. While rotating the Steering Wheel, feel for any catches or binding. Also listen for any unusual noises, like snapping, cracking or popping (none of these are desirable).
- ❑ Tilt the Steering Column and verify it locks.
- ❑ Push the Horn Button to ensure the City Horn functions properly. The Horn Should Sound.

NOTE: If there is anything unusual felt or heard as the Steering Wheel is turned or telescoped. Follow the Manufacturer's removal and replacement procedures for the Steering Column and or the Intermediate Steering Shaft. Replace it with a new one. **DO NOT** attempt to drive the vehicle with a malfunctioning Steering Column in it!

For Steering Column Field Service Technical Support call 800-773-1440.