Technical Service Information

TSI–03–05–03

Date: September, 2003

Subject File: Steering

Subject: Douglas Autotech Steering Column Rattle or Buzzing Noise at Idle

Model: 9200i

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.

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.

DOUGLAS AUTOTECH CORP.

World Leadership in Directional Control Technology

Intermediate Shaft Rattle Service Bulletin

400 Model Intermediate Steering Shaft.
9200 Model International Truck

This bulletin describes the proper procedure for the removal and re-installation of the Intermediate Steering Shaft. This is so material can be removed from the Hex part of the shaft. 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 remove material from the Hex portion of the Shaft.

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 replace the Intermediate Steering Shaft and remove material from the Hex portion of the Shaft, without causing damage to them or causing injury to yourself. This procedure normally takes .5 of an hour to complete.

Parts List

Quantity	Part Number	Description
1	TIB40053003	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	Hacksaw
1	Flat Metal File

Intermediate Shaft Rattle Diagnostic

Complaint: Rattle or “buzzing” when the Engine is idling. This will change or go away if the Engine RPM is increased.

Cause: The Hex portion of the Intermediate Shaft is inserted inside the round Tube it mates with so far that it may touch the inside of the Tube. The vibration from the Engine idling causes the Hex portion to rattle against the inside of the Tube.

Correction: Remove five inches **(5”)** of material from the Hex portion of the Slip Shaft.

Intermediate Shaft Removal

Lower (Steering Gear) end

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

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

Step 3) Mark the slip joint in order to keep proper u-joint phasing during re-assembly.

Step 4) Remove the Yoke pinch bolt at the lower end of the shaft (steering gear end).

Step 5) Slide the yoke off the Steering gear input shaft. Once the yoke is free of the steering gear, slide the shaft apart by pulling it down toward the front of the vehicle separating the upper and lower parts of the shaft.

NOTE: The upper end of the Intermediate shaft will stay attached to the bottom of the Steering Column.

Hex Material Removal

Step 1) Clean the grease off the Hex portion of the Shaft.

Step 2) Wrap the vise jaws with rags to protect the sliding portion of the Hex Shaft. Lock the shaft in the vise.

Step 3) Measure from the end of the Hex Shaft back (toward) the U-Joint five inches (5”) and mark the Shaft**. NOTE: The Hex portion should measure thirty-one inches (31”) from the weld to the end in its original condition.**

Step 4) Use the Hack Saw to cut the Hex Shaft off at the mark five inches (5”) from the end. Leaving twenty-six inches (26”) from the weld to the end.

Step 5) Use the Flat Metal File to remove any burrs and put a slight angle on the cut end of the Hex Shaft.

Intermediate Shaft Reinstallation

Step 1) Slide the Intermediate Shaft back together making sure that the marks made during disassembly to assure proper phasing are in line.

Step 2) Slide the Yoke back onto the Steering Gear input shaft and install the Pinch Bolt. **Torque the pinch bolt to 60 +/- 2 FT. LBS. (81 +/- 3 Nm)**

Step 3) Grease the Zerk at the slip point, apply three (3) to five (5) pumps with a hand operated Grease Gun.

Step 4) 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

1 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).

2 Push the Horn Button to ensure the City Horn functions properly. The Horn Should Sound.

3 On Trucks equipped with Tilt / Telescope Steering Columns: Telescope the Steering Column to all the positions and verify the Column locks at all positions.

4 Tilt the Steering Column to all normal positions and verify it locks at all positions.

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.

Rev. Let.	Date	Signature	Approval	Description
A	7/23/03	JMK	8/08/03	Release with Customer approval