

FIX-N-FAX #77

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Number 77

Mandatory Compliance

Date: June, 1999

MODEL #14 STEERING (upgrade and critical adjustments)

This information is provided to ensure all CDF Model #14's critical steering adjustments are checked and maintained, whenever worn or damaged parts are replaced, or when there are handling issues at highway speeds. The following procedures should be carried out under the directions of the local Fleet Manager.

*Caution: Be sure that proper safety procedures are followed while performing these tasks!

- 1) Perform a road test at highway speeds.
- 2) Be sure all related steering components are checked: Power steering pressures (left & right pop-offs, relief & working pressure). Tight, loose, worn or damaged steering parts, excessively worn tires, tire pressures.
- 3) Remove steering coupler at steering gear.
- 4) Remove drag link from pitman arm, check adjustment at sector shaft. Proper torque is 40 inch pounds, plus or minus 2 inch pounds. Use an inch pound torque wrench to measure torque across center of gear, 1/2 turn each direction. (Reference attached: TRW Repair Manual) Reassemble drag link and steering coupler.
- 5) Install 4-degree X 3" wide, caster wedges between each spring and front axle, thick part to rear. Torque U-Bolts to 200-ft. lbs. **(Be sure axle is setting straight under frame.)**
- 6) Set "toe in to 3/16".
- 7) Make sure unit is equipped with an 18" diameter steering wheel (Navistar part #1661769-C1).

- 8) Inspect to ensure all fasteners are assembled correctly and torqued to specification. Check to be sure that steering still has unobstructed travel in both directions, and steering stops are set to specifications.
- 9) Complete work sheet (page 6), and file in vehicle maintenance records.
- 10) Road test at highway speeds.

NOTE: This Fix-N-Fax isn't intended to be sole reference for Model #14 steering system maintenance and repairs. The TRW Repair Manual should also be utilized.

The above policy and procedures only apply to: Navistar 4800 chassis with TRW 65 Steering Gear and Fabco SDA 12,000 lb. front steering axle assembly.

For questions and clarification, contact your local Fleet Manager.

FINAL ADJUSTMENTS

Tools Required	Materials Required
Box-end wrench Ft. Lbs. Torque wrench In. Lbs. Torque wrench	Screwdriver Sockets *Graduated in single-inch increments

Center Steering Gear



3/4" and 11/16" Socket or box end wrench

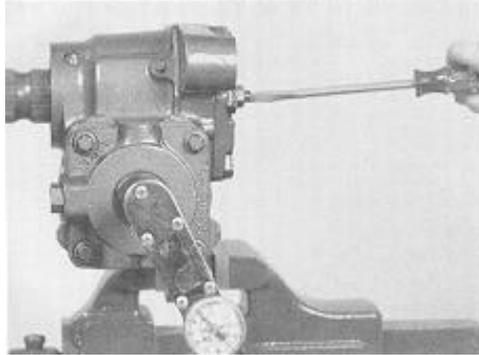
To center the steering gear, rotate input shaft, valve worm assembly, until the timing mark on the end of the sector shaft is in line with the timing mark on the end of housing trunnion.

CAUTION—Do not rotate the input shaft more than 1.5 revolutions from center position until the steering gear is installed, during poppet setting procedure. Doing so could make the automatic poppets inoperative, which would require disassembly of steering gear to reposition poppet seat and sleeve assemblies.

NOTE: Initial poppet contact will occur at less than one input shaft rotation in one direction from steering gear center position, if new or reset poppet adjuster seat and sleeve assemblies are assembled in the unit.

NOTE: Worm preload adjustment was set when input shaft, valve and worm were assembled into valve housing.

Tighten adjusting screw

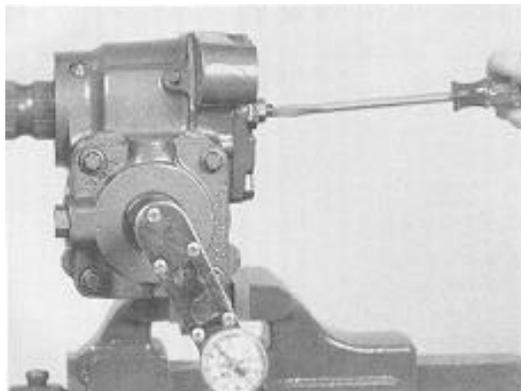


In. Lbs. Torque wrench
Screwdriver 11/16" or 3/4" Socket

With adjusting screw jam nut loose, turn sector shaft adjusting screw clockwise to provide 45-50 In. Lbs. (5-5.5 N m) of torque required to rotate the input shaft, valve/worm assembly through one half turn (180°) each side of center.

NOTE: this procedure will properly mesh and seat the rack piston and sector shaft teeth for final adjustments.

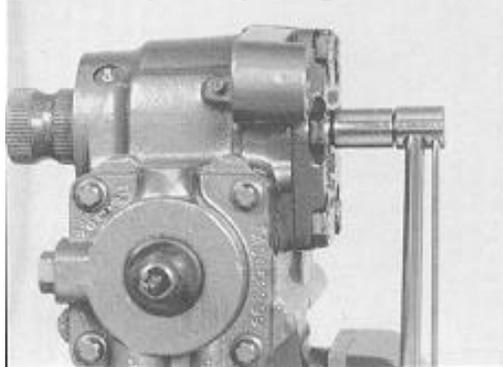
Loosen adjusting screw and note torque



In. Lbs. torque wrench
Screwdriver 11/16" Socket

Turn sector shaft adjusting screw counter-clockwise one half turn and **note maximum torque** required to rotate the input shaft, valve/worm assembly through one half turn (180°) on each side of center.

Adjust adjusting crew

 $\frac{3}{4}$ " Socket $\frac{11}{16}$ " Socket

Ft. Lbs. Torque Wrench

In. Lbs. Torque Wrench

Adjust sector shaft adjusting screw clockwise **to increase** maximum torque noted in step 3 by **7 lbf in.** (.8 N m). Tighten jam nut firmly against side cover while holding the adjusting screw in position. **Final torque jam nut to 43 Ft. Lbs.** (58 N m) and check input shaft, valve/worm assembly torque again. Readjust if input shaft torque exceeds 40 In. Lbs. (4.5 N m).

MODEL #14 STEERING WORK SHEET

DATE _____

"X" NO.: _____ LICENSE NO.: _____ UNIT _____

REPLACE STEERING WHEEL _____

ADJUST STEERING GEAR TO 40 IN LBS.
180° OFF CENTER, BOTH DIRECTIONS _____

INSTALL 4° WEDGES, THICK PART TO REAR _____

CHECK STEERING STOPS _____ (BE SURE TURNING ANGLE IS 36°)

IF STEERING STOPS ARE OUT OF ADJUSTMENT, CHECK PRESSURES & RESET
POPPETS TO SPECS _____

RESET TOE IN TO 3/16" _____

CORRECTION MADE BY _____

COMPLETION DATE _____

NOTE: HARD COPY TO VEHICLE FILE

(see [FIX-N-FAX INDEX](#))