

FORD MOTOR CO. TRACTION-LOK DIFFERENTIAL

LTD
Lincoln
Mark VI
Marquis

DESCRIPTION

The Traction-Lok differential employs 2 sets of multiple disc clutches to control differential action. The side gear mounting distance is controlled by 9 plates; 5 steel, 4 friction, and 1 steel shim by select size to control side gear position. These plates are stacked on the side gear hub housed in the differential case. Located in the differential case, between the side gears, is a 1-piece preload spring, which applies an initial force to clutch packs. Additional clutch capacity is delivered from side gear thrust loads. Friction plates (4) are splined to side gear hub which is splined to left and right axle shafts. Eared steel plates are dogged to case; thus, clutch packs are always engaged.

AXLE RATIO & IDENTIFICATION

A metal tag stamped with model designation and gear ratio is secured to one of the rear cover-to-housing bolts.

Axle Ratio Identification

Code	Axle Ratio	Ring Gear Diameter
WFZ-B	3.08:1	8 1/2"

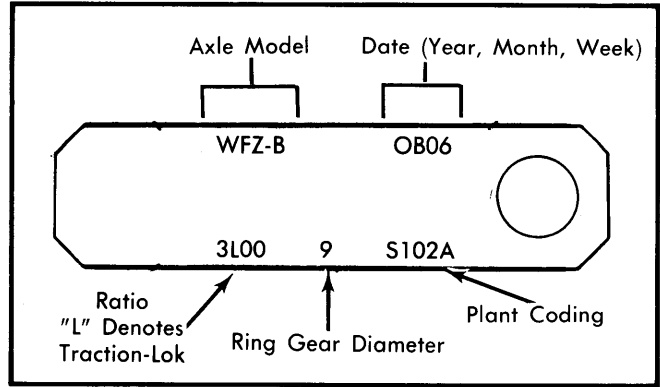


Fig. 1 Ford Motor Co. Rear Axle Identification Tag

TESTING ON CAR

Raise 1 wheel and ensure opposite wheel remains on floor. Install traction tool (T59L-4204-A) and torque wrench to wheel mounting studs. Note required torque to keep wheel rotating through several revolutions (transmission in Neutral). Break-away torque may exceed 30 ft. lbs. An even torque of 30 ft. lbs. should be required to turn shaft without slipping or binding through several revolutions.

REMOVAL & INSTALLATION

See Ford Motor Co. 7 1/2" & 8 1/2" Ring Gear in this section.

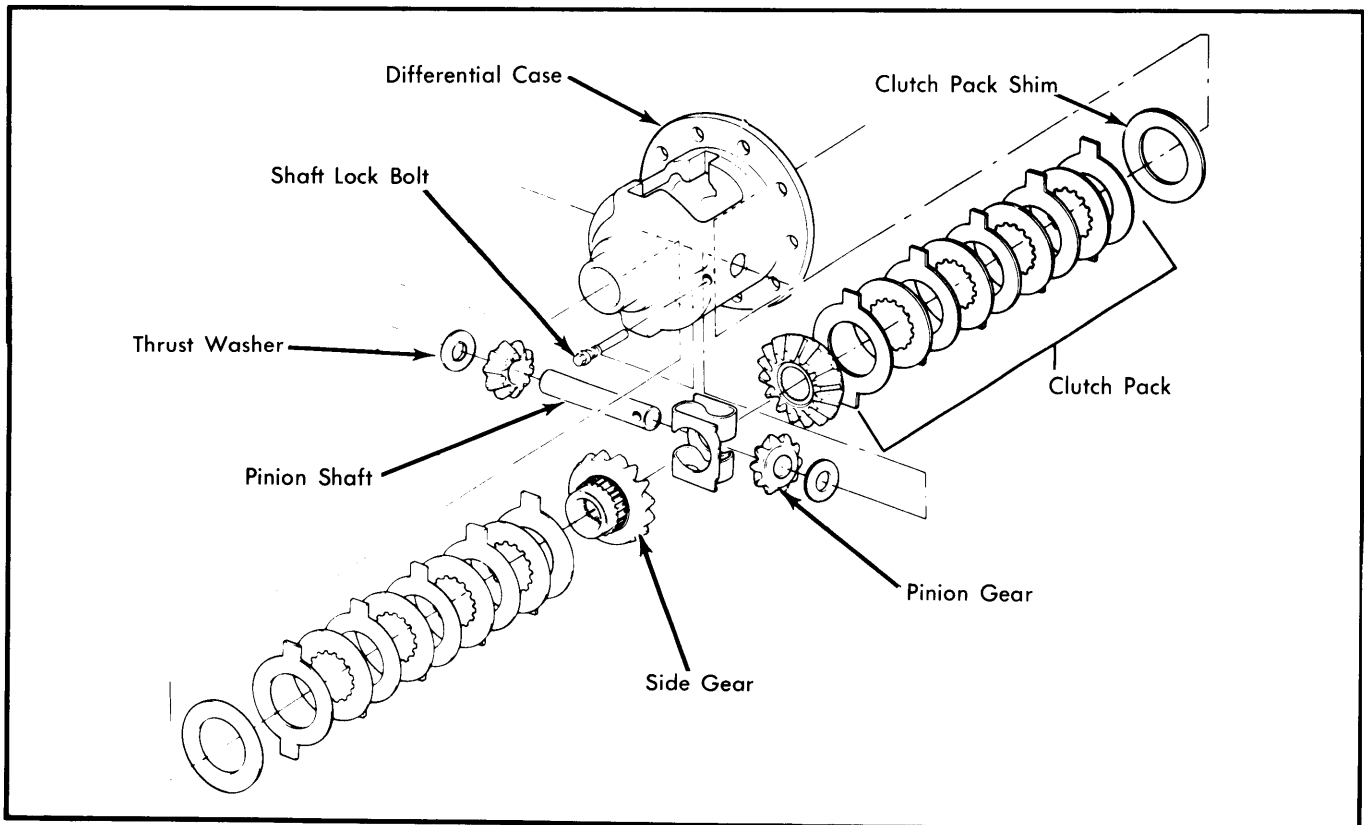


Fig. 2 Exploded View of Ford Motor Co. Traction-Lok Differential

Positive Traction Differentials

FORD MOTOR CO. TRACTION-LOK DIFFERENTIAL (Cont.)

OVERHAUL

NOTE — The following overhaul procedures are for Traction-Lok differential case only. For other axle components, see Ford Motor Co. 7½" & 8½" Ring Gear in this section.

DISASSEMBLY

1) Remove and discard 10 ring gear attaching bolts. Tap ring gear off case with plastic hammer or press gear from case. Remove pinion shaft lock bolt and pinion shaft. Using a drift, drive out "S"-shaped preload spring. See Fig. 3.

NOTE — Care must be taken when removing preload spring due to spring tension.

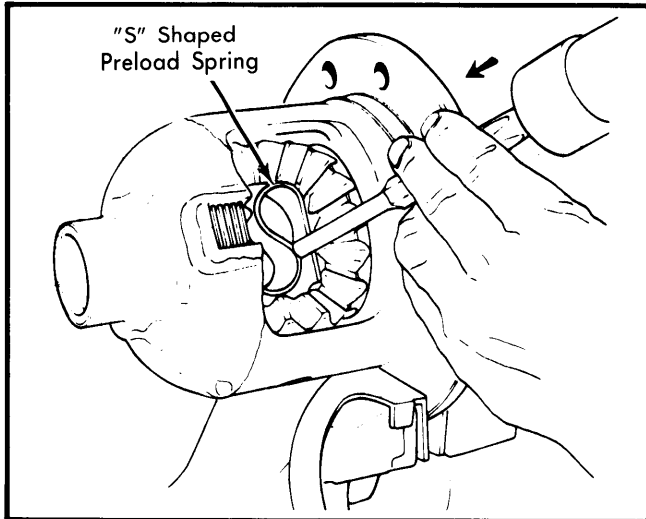


Fig. 3 "S" Shaped Preload Spring Removal

2) Using pinion gear rotator (T80P-4205-A), rotate pinion gears until gears and thrust washers can be removed from case. Remove side gears, clutch plates and shims from right and left cavities and tag them for identification during reassembly.

NOTE — Side gears, clutch plates and shims must be installed in original positions.

CLEANING & INSPECTION

Clean all parts in cleaning solvent and inspect all parts for wear or damage. Replace differential side bearings only if damaged.

REASSEMBLY

1) Pre-lubricate all clutch plates with gear lubricant. Assemble clutch plates on appropriate side gear, then install clutch gauge (T80P-4946-A) on side gear and clutch pack assembly. Using a feeler gauge, select thickest blade that will enter between gauge and clutch pack. See Fig. 4.

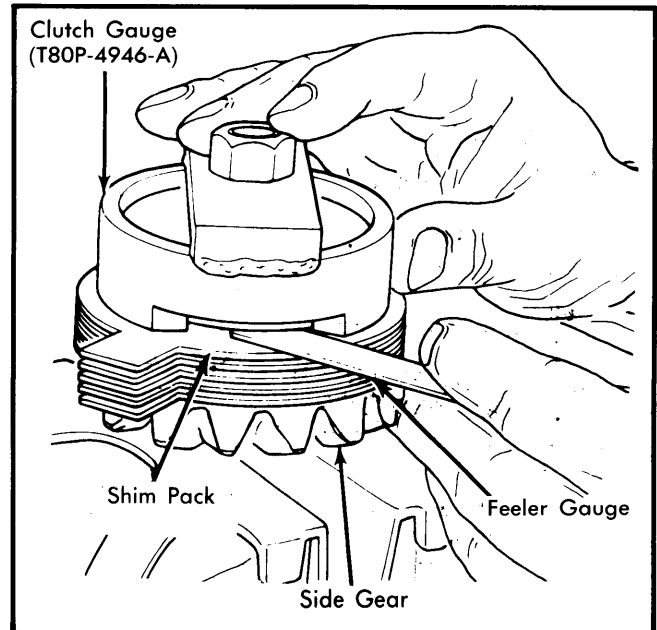


Fig. 4 Clutch Pack Installation

2) Note and record thickness of feeler gauge. This is the thickness of shim required for this clutch pack. Repeat operation on opposite side gear and clutch pack.

3) Mount differential case in a soft-jaw vise and place clutch packs and side gears into original cavities in case. Place pinion gears and thrust washers onto side gears. Install pinion gear rotator (T80P-4205-A) into differential case and rotate pinion gears until pinion gear bores are aligned with pinion shaft holes. See Fig. 5.

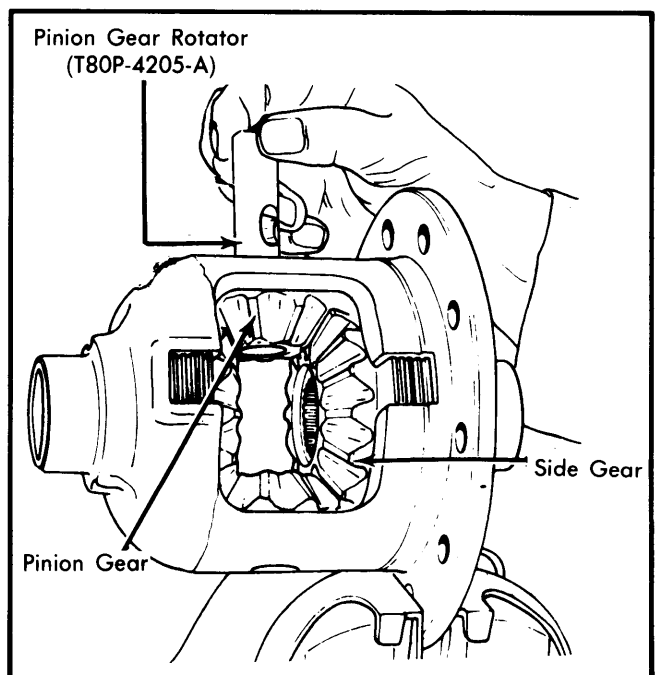


Fig. 5 Pinion and Side Gear Installation

FORD MOTOR CO. TRACTION-LOK DIFFERENTIAL (Cont.)

4) Remove pinion gear rotator. Using a soft-faced hammer, install "S"-shaped preload spring. Install pinion shaft and lock bolt. Do not tighten lock bolt at this time.

NOTE — Prior to installation of differential into carrier housing, a bench torque check must be performed.

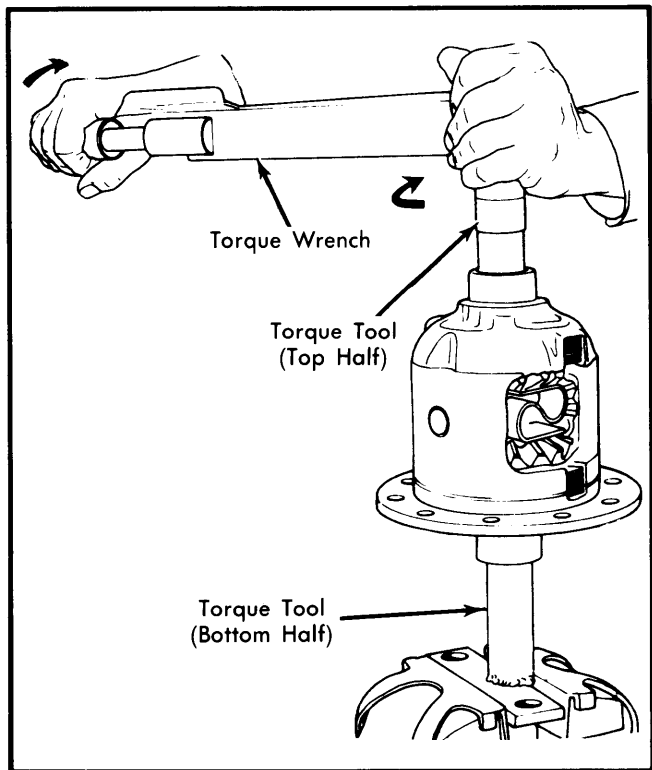


Fig. 6 Bench Torque Check

ADJUSTMENT

Bench Torque Check — 1) Mount bottom half of torque tool in a soft-jaw vise. Mount differential case (without ring gear) on torque tool and install top half of torque tool. Check the torque required to rotate 1 side gear while opposite side gear is held stationary. See Fig. 6.

2) Initial break-away torque and rotating torque for original clutch plates should be 30 ft. lbs. Break-away torque for new clutch plates should be 150-250 ft. lbs. Rotating torque required to keep side gear turning with new clutch plates should be 40 ft. lbs.

FINAL REASSEMBLY

1) Mount ring gear on differential case. Install new ring gear attaching bolts. If ring gear bolts are covered with green coating over 1/2" of threaded area, install and tighten bolts. If new bolts do not have green coating, apply small amount of Loctite to bolt threads and tighten bolts.

2) Install differential case as described for conventional ring gears. See Ford Motor Co. 7 1/2" & 8 1/2" Ring Gear in this section.

AXLE ASSEMBLY SPECIFICATIONS

Application	Ft. Lbs.
Clutch Plate Rotating Torque (Bench)	
Original Clutch Plates	30 Min.
New Clutch Plates	40 Min.