## FORD MOTOR CO. TRACTION-LOK

**Ford Motor Co.**
NOTE – *Traction-Lok is used with Separate Housing Differentials only.*

### DESCRIPTION

Traction-Lok limited slip differential employs multiple disc clutch to control differential action. Side gear mounting distance is controlled by the four steel and four friction plates, and one composite plate with steel on one side and friction material on the other. These discs are stacked on the clutch hub and encased, along with four ear guides, in the differential cover. A one piece preload plate and block and four calibrated preload springs, which apply an initial force to the clutch pack, are located in the differential case. Side gear thrust loads supply additional clutch capacity. The four friction plates are splined to the clutch hub, which in turn is splined to the left axle shaft, and the eared steel plates are dogged to the case.

### AXLE RATIO & IDENTIFICATION

*See Ford Motor Co. Separate Housing in this section.*

### TESTING ON CAR

Raise one wheel (other wheel must be on floor) and install a suitable tool and torque wrench on wheel mounting studs. With transmission in neutral, note torque required to keep wheel rotating through several revolutions. Breakaway torque may initially exceed 40 ft.lbs. An even pressure of at least 40 ft.lbs. should be required to turn axle shaft without slipping or binding.

### REMOVAL & INSTALLATION

*See Ford Motor Co. Separate Housing in this section.*

### OVERHAUL

*Procedures given are for Traction-Lok differential assembly only. For other axle components and specifications, see Ford Motor Co. Separate Housing in this section.*

#### DISASSEMBLY

1) Remove differential case from carrier and remove bearings from differential case in same manner as for conventional case. Remove and discard ring gear bolts and washers. Tap ring gear off case using a soft hammer.

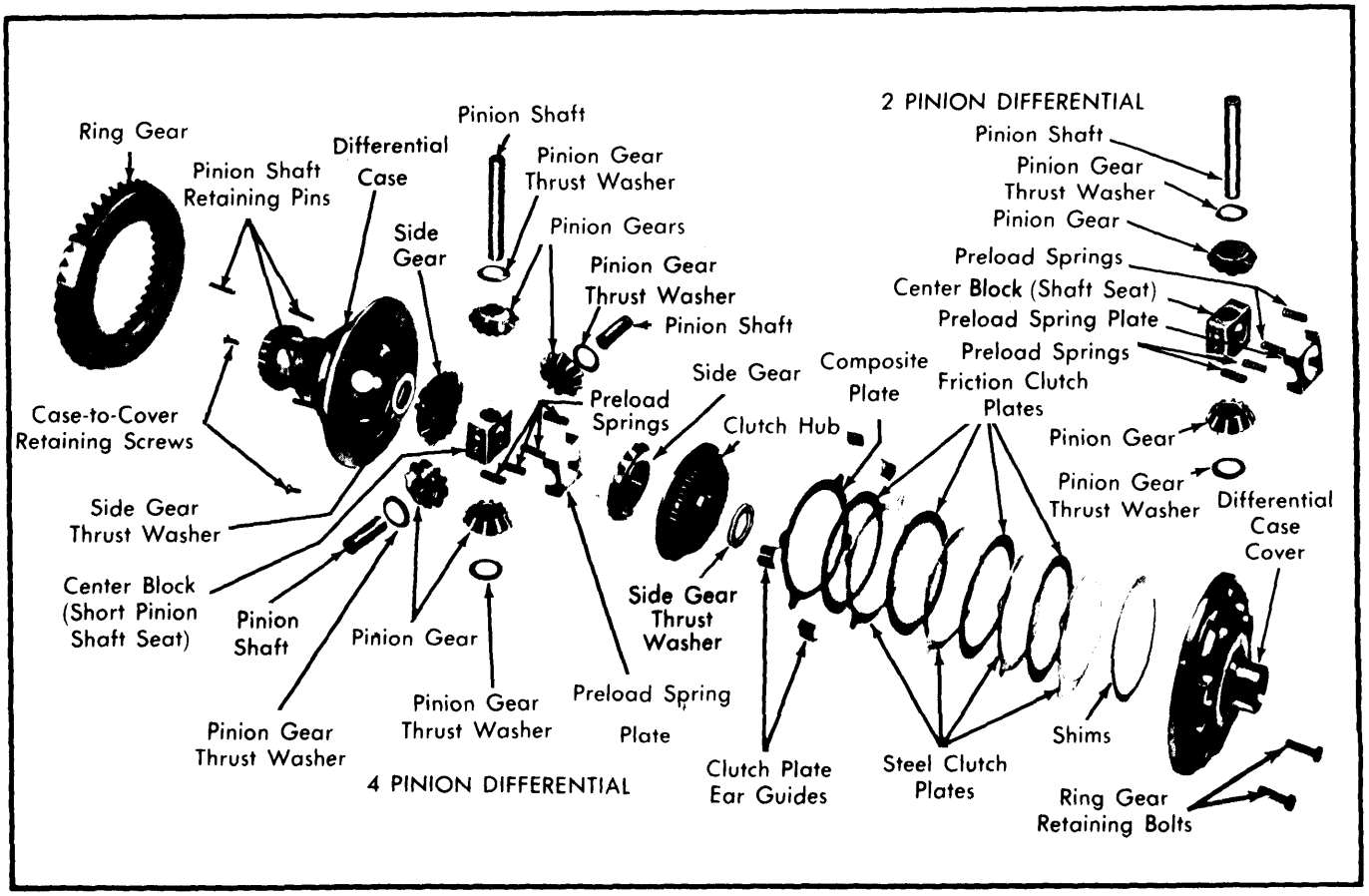


*Fig. 1 Exploded View of Ford Motor Co. Traction-Lok Differential*

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

2) Place differential case in a suitable press to load bearing journals so preload of springs is overcome (approximately 1500 lbs.). If a press is not available, two 7/16" bolts and nuts can be used to compress case halves and overcome preload tension. Loosen the two Allen or Phillips head screws which hold case halves together until one or two threads remain engaged.

3) Remove case assembly from press. Tap on cover to spring it loose, then remove both screws. With cover facing down, lift off case. Remove preload spring plate and springs.

4) From the cover, remove side gear, four clutch plate ear guides, clutch hub, friction and steel clutch plates, and shims. With suitable drift, drive pinion shaft lock pins from case. From end opposite lock pin hole, drive long pinion shaft from case.

5) Remove two short pinion shafts and center block. Remove pinion gears, side gear and thrust washers.

### REASSEMBLY

1) Lubricate all parts with hypoid lubricant. Mount differential case in a soft jawed vise and place a side gear thrust washer and side gear in counterbore of case. Install pinion thrust washers and place pinion gears on side gear, aligning holes in washers and gears with holes in case.

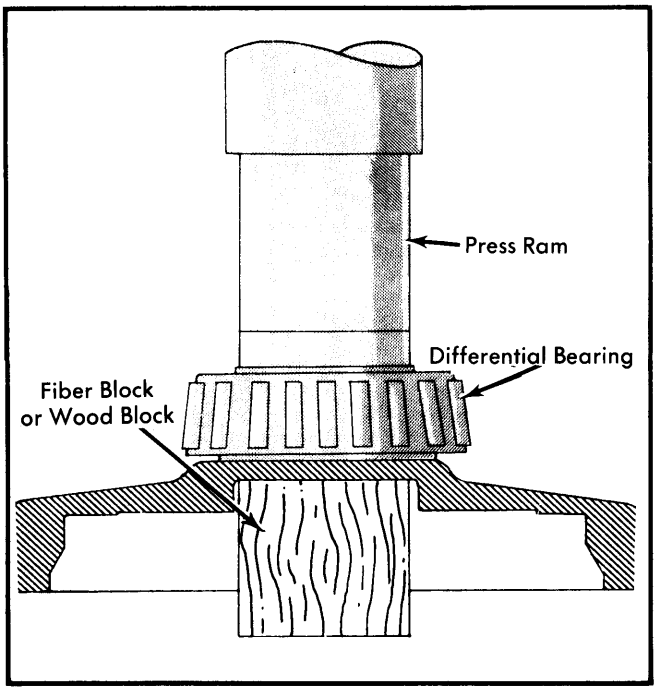


*Fig. 2 Installation of Differential Bearing*

2) Install center block so shaft holes are aligned with holes in pinion gears and case. Center block has two machined sides and two rough sides. With a brass drift, drive in long pinion shaft from outside of case aligning lock pin holes in shaft with holes in case. Center block should be positioned so long shaft is driven through rough side and short shafts driven through machined side.

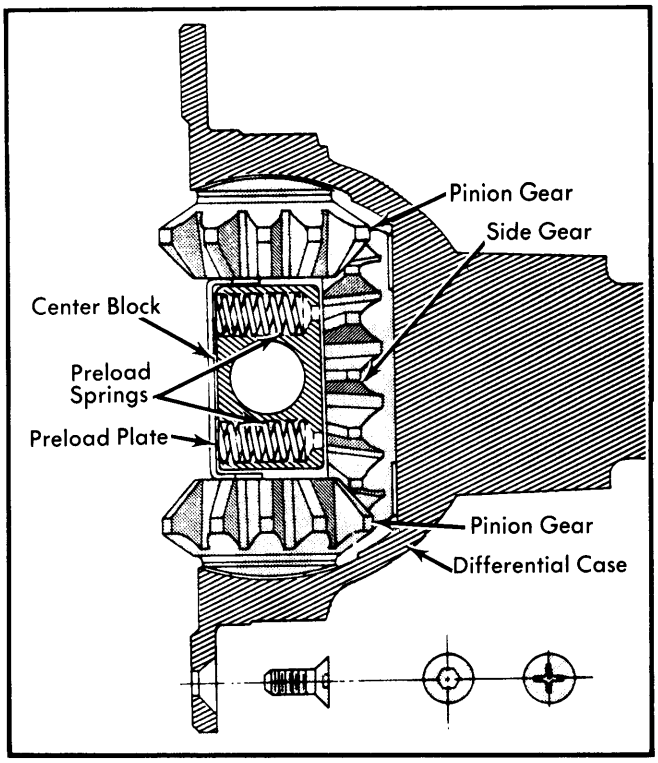


*Fig. 3 Installation of Center Block & Preload Springs*

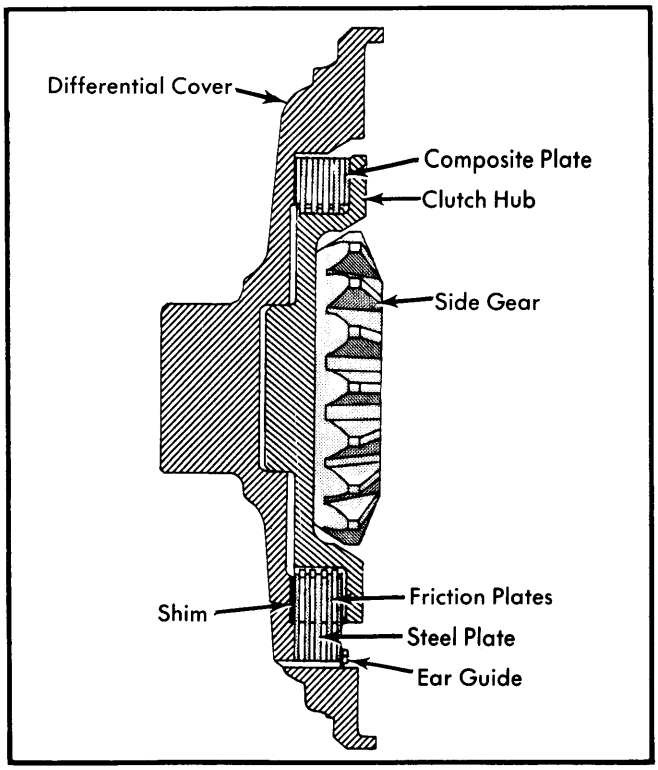


*Fig. 4 Clutch Pack Installation*

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

**3)** Install shaft lock pins making sure pinion and side gears move freely. Place four preload springs in holes provided in center block. Position preload plate over the springs making sure springs are properly seated. Preload plate straddles center block over its narrower or machined width.

**4)** Mount differential cover in soft jawed vise and insert shim(s) of .050" total thickness in cover cavity. Install composite plate (friction material on one side and steel on the opposite) on back side of clutch hub with friction material against hub. Next, install in order: friction plates and steel plates alternately with a steel plate last. When using new plates, soak in hypoid lubricant for 30 minutes prior to assembly.

**5)** Place clutch hub with clutch plates into ear cavities in differential cover, making sure splines on last friction plate are engaged on hub. Using a 9/16" or 5/8" X 2 1/2" bolt with nut and washers, compress clutch pack and place shim template tool (T68P-4946-A) in clutch hub. Some clearance should be maintained between shim tool and cover to case mating surface, using a feeler gauge to determine exact clearance.

**6)** Use shim pack thickness chart to determine correct amount of shim(s) to subtract from .050" shim originally installed. Shim template tool must be used to make correct selection. Remove bolt, nut and flat washers. If shim thickness needs to be changed, remove clutch hub and plates and install proper shim.

**7)** Reinstall components in order and install four steel clutch ear guides and side gear. Place both assemblies in a press and press the two halves together. Insert Allen or Phillips head screws and tighten evenly. Install ring gear using new bolts with a small amount of Loctite and torque evenly to 70-85 ft.lbs.

**8)** Check torque required to rotate one side gear while the other is held stationary. Torque required to keep side gear rotating with new clutch plates should be 100-250 ft. lbs. With used clutch plates, minimum torque required is 40 ft. lbs. (Torque may fluctuate as much as 40 ft. lbs. when new plates are installed.)

### SHIM PACK THICKNESS CHART

| Feeler Gauge Reading Between | Remove Shim(s) From Nominal | Total Required Shim Pack Thickness |
|---|---|---|
| .001-.002" | None | .050" |
| .003-.007" | .005" | .045" |
| .008-.012" | .010" | .040" |
| .013-.017" | .015" | .035" |
| .018-.022" | .020" | .030" |
| .023-.027" | .025" | .025" |
| .028-.032" | .030" | .020" |
| .033-.037" | .035" | .015" |
| .038-.042" | .040" | .010" |
| .043-.047" | .045" | .005" |
| .048-.050" | .050" | None |

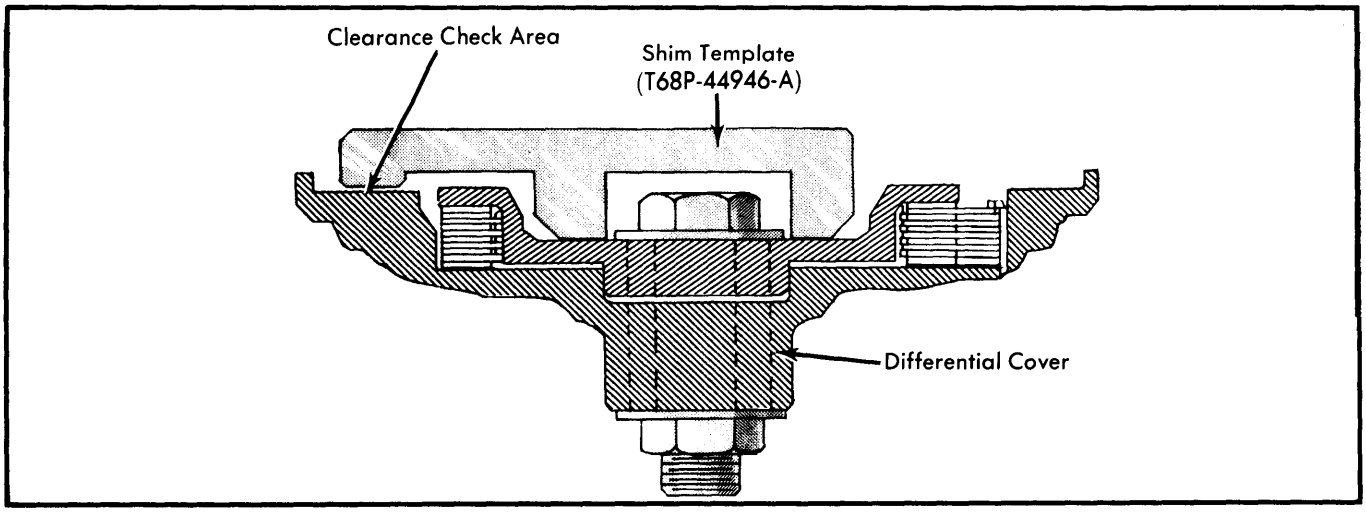


*Fig. 5 Shim Template Tool Application*