DANA/SPICER TRAC-LOK

International Harvester
Jeep
Ford

DESCRIPTION

The Trac-Lok differential uses clutch packs which are preloaded by Bellevue plates to provide limited slip action. Multiple disc clutches permit differential action when required for turning corners and transmit equal torque to both wheels when driving straight ahead. When one wheel tries to spin because of reduced traction, the clutch packs automatically provide more torque to the wheel with the greater traction. Trac-Lok is used on Dana/Spicer axles with a one-piece differential case and two differential pinion gears.

AXLE RATIO & IDENTIFICATION

See Dana/Spicer Semi-Floating or Full Floating Axles in this Section.

LUBRICATION

Ford Motor Co. – Hypoid Gear Lubricant specification ESW-M2C105A and friction modifier additive specification EST-M2C118A.

International Harvester – Lubricant meeting Mil-L-2105-B specifications.

Jeep – Jeep Differential Oil Part No. 8991018.

REMOVAL & INSTALLATION

The same procedure is used to remove and install Trac-Lok differential and conventional differential. *See Dana/Spicer Semi-Floating or Full Floating Axles in this Section.*

OVERHAUL

DISASSEMBLY

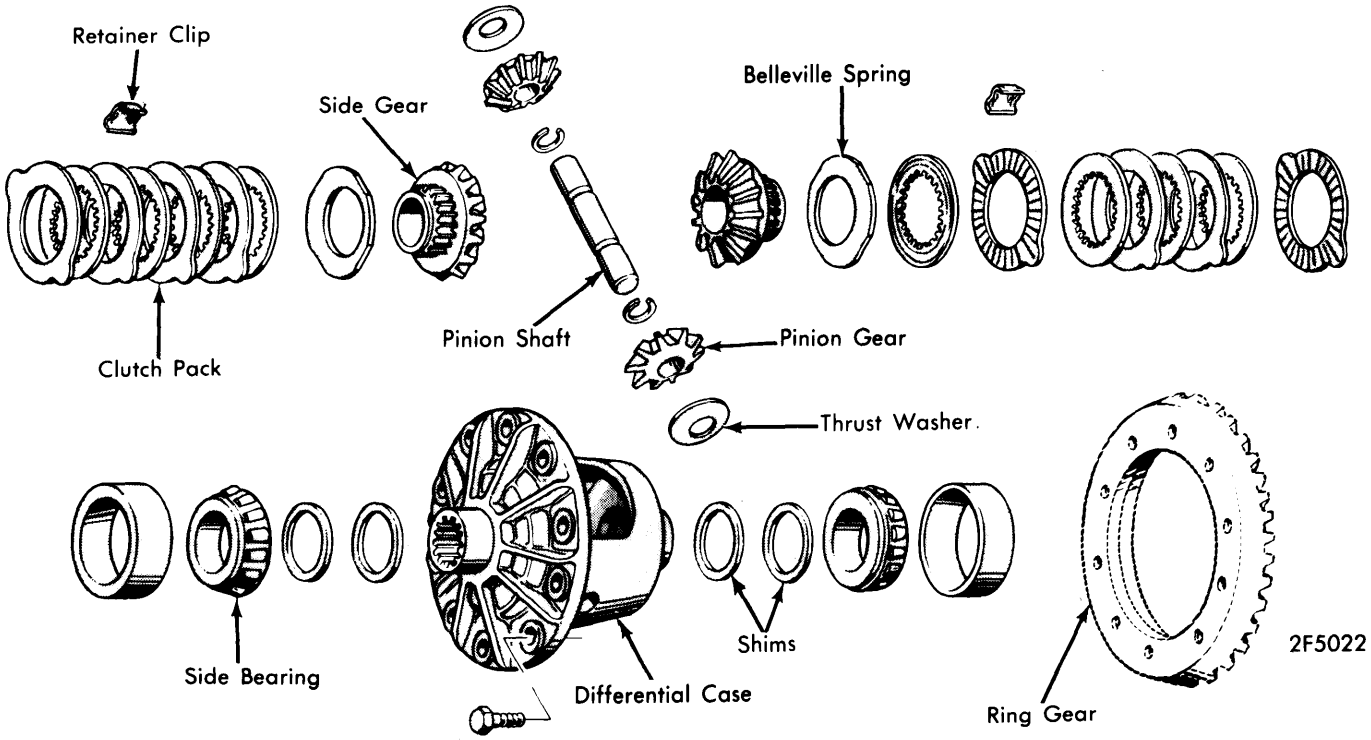
1) Place an axle shaft into vise so that 2 ¾" of splined end extends above jaws. Tighten vise firmly on shaft. Axle shaft will serve as a holding device during removal of ring gear and disassembly of internal components.

2) Remove ring gear attaching bolts and, using a brass drift and hammer, tap ring gear from case. *CAUTION – Place shop towels over vise jaws to protect gear teeth from becoming nicked after it is free from case.* Lift differential assembly from axle shaft and remove ring gear.

3) Reposition case on axle shaft. Using two screwdrivers, remove two snap rings from differential pinion shaft. *NOTE – On some models, pinion shaft is retained by a single lock pin which should be driven from case, using long drift, at this time.* Remove differential pinion shaft and spacer block from case.

4) Place suitable step plate in bottom side gear and position gear rotating tool in top side gear. Insert forcing screw down through top of case and thread into gear rotating tool. *NOTE – Before using forcing screw, lubricate threads with a fine coat of oil. Also apply a small spot of grease to centering hole in step plate.*

5) Thread forcing screw so that it becomes centered in step plate. Tighten screw until differential side gears move away from pinion gears. This relieves load between gears allowing pinions some freedom of movement. Use shim stock of .030" thickness to remove spherical washers. Loosen forcing screw and retighten until a very slight movement of pinions is detected.



TRAC-LOK DIFFERENTIAL ASSEMBLY

DANA/SPICER TRAC-LOK (Cont.)

6) Insert gear rotating pawl between two differential side gear teeth and roll pinion gears out of case. *NOTE — When rotating differential gear, adjust forcing screw until required load is applied to allow differential gears to rotate freely.* Retain top differential side gear and clutch pack in case by holding bottom of rotating tool while removing forcing screw. Remove rotating tool, step plate, top differential gear and clutch pack from case.

7) Remove case from axle shaft. Invert case and remove remaining side gear and clutch pack. Remove retainer clips from both clutch packs and separate clutch plates and discs. *NOTE — During disassembly, keep parts in same order they were removed, so they can be installed in their original position.*

INSPECTION

Clean and dry all parts. Inspect plates, discs and clips for excessive wear or scoring. Inspect gears for extreme wear, cracks or chips. Inspect case for scoring, wear or metal pickup on machined surfaces. *NOTE — If any one member of either clutch pack should be replaced, complete clutch pack for both sides should be replaced. If any one gear requires replacement, all differential gears and thrust washers should be replaced.*

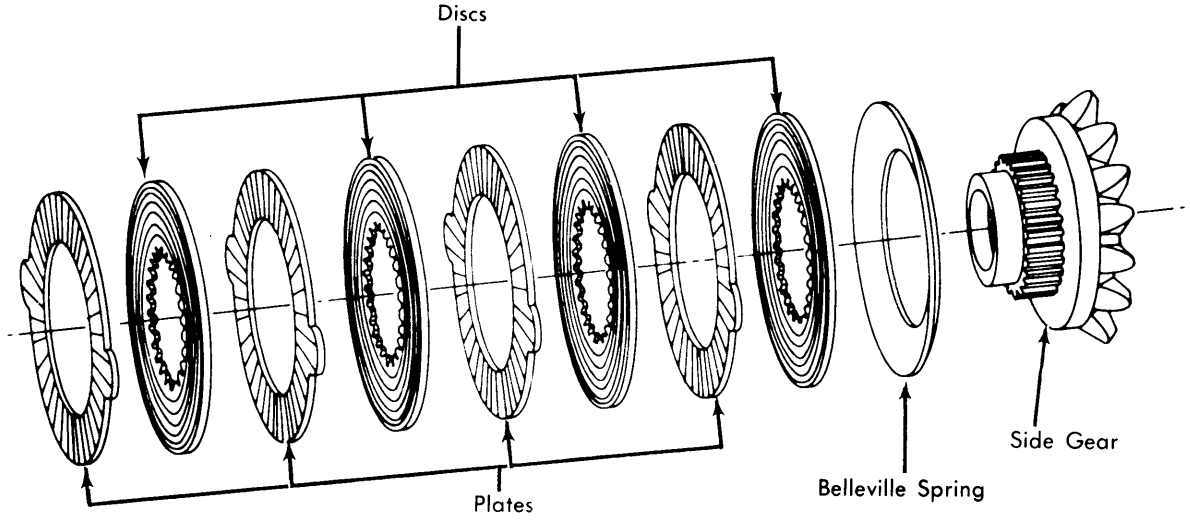
REASSEMBLY

NOTE — Lubricate all parts with positive traction lubricant prior to assembly.

1) Assemble Belleville spring, plates and discs to differential side gears in same position as originally assembled. Install retainer clips to ears of plates, making sure clips are fully seated. Install clutch packs and differential side gears into case, making sure clutch packs fully engage splines on gears and retainer clips are completely seated in pockets of case.

2) While holding gears in place by hand, assemble gear rotating tool in same manner as during disassembly. Position differential pinion gears in case 180° apart, and using rotating tool, roll pinion gears into place such that holes in gears are aligned with holes in case. Tighten forcing screw slightly and install pinion gear thrust washers.

3) Remove forcing screw, rotating tool and step plate. Position spacer block between side gears and install differential pinion shaft. Be sure snap ring grooves of shaft are exposed enough to install snap rings. *NOTE — On models with single lock pin through case, make sure hole in shaft is aligned with hole in case.* Install snap rings (lock pin). Position ring gear onto case assembly and install ring gear attaching bolts.



TYPICAL CLUTCH PACK ARRANGEMENT
(NOT ALL COMBINATIONS ARE SHOWN)