EATON POSITRACTION DIFFERENTIAL

General Motors

DESCRIPTION

The Eaton Positraction unit is a two pinion, limited slip differential with a one piece case. Differential action is limited by clutch packs behind each side gear. The preload on the clutch packs is maintained by spring packs located between the side gears and consisting of four coil springs and two retainers. This assembly is similar to the Borg Warner Positraction unit. The Borg Warner unit is distinguished by a two piece case. If a Borg Warner unit fails, it is not serviced, but is replaced by the servicable Eaton Positraction unit described here.

AXLE RATIO & IDENTIFICATION

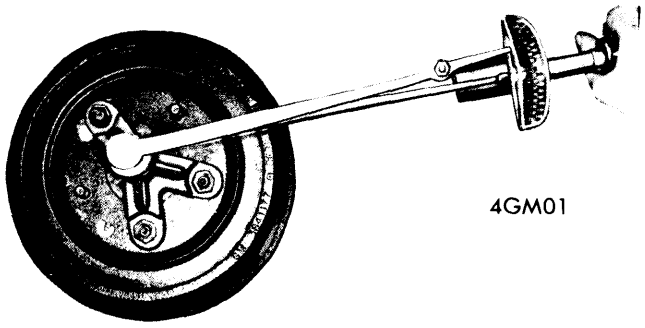
Eaton Positraction units are found on rear axles built by General Motors. *See appropriate article in this Section.*

LUBRICATION

Check level of lubricant every 7,500 miles or six months. Drain and refill axle at first 15,000 miles. After initial drain and refill, no specific drain interval is specified by manufacturer. When adding to or refilling axle, use only special Positraction lubricant.

TESTING ON VEHICLE

With transmission in neutral, engine off and rear wheels raised off ground, remove ONE wheel and tire assembly. Attach suitable adapter to axle shaft flange. Hold remaining tire firmly in place and rotate axle shaft using a torque wrench.Rotation should require a minimum torque of 40 ft. lbs. (70 ft. lbs. for new differential).



4GM01

MEASURING POSITRACTION ROTATING TORQUE

REMOVAL & INSTALLATION

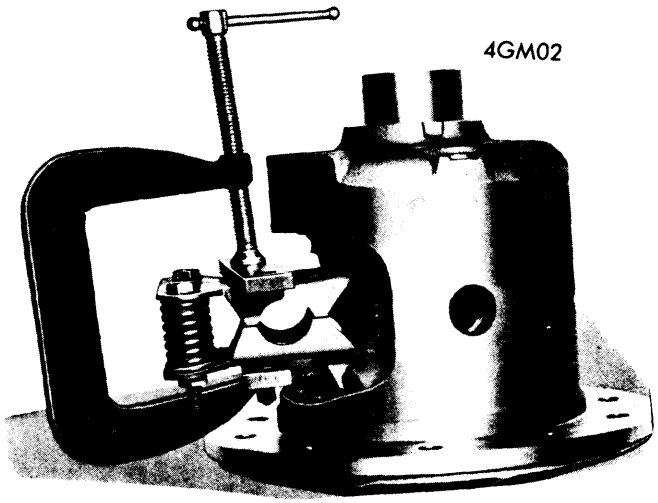
The same procedure is used to remove and install Positraction differentials as conventional differentials. *See appropriate article in this Section.*

OVERHAUL

NOTE — If differential case is two-piece, unit is not an Eaton Positraction; it is a Borg Warner Positraction. Borg Warner unit is not servicable and the following overhaul procedure does not apply. Defective Borg Warner units are replaced by Eaton units.

DISASSEMBLY

1) Remove ring gear, pinion shaft lock screw, pinion shaft and side bearings. Carefully drive spring pack from case just far enough to allow insertion of ¼" bolt through each of the two exposed springs. Install bolts and continue to drive spring pack from case until enough of spring retainer is exposed to permit installation of bar stock and "C" clamp (see illustration). Center bar stock over axle shaft hole in spring retainer, compress spring pack with "C" clamp, then remove pack.



4GM02

REMOVING PRELOAD SPRING PACK

2) Position spring pack in vise and remove ¼" bolts. Alternately relieve "C" clamp pressure and vise pressure until spring tension is relieved. Roll out differential pinion gears and thrust washers. Remove side gears, clutch packs, shims and guides from case. Separate clutch packs from side gears and mark all parts for reassembly reference.

INSPECTION

Check clutch plates and discs for excessive wear and signs of overheating. Inspect preload springs for distortion and tension. Examine spring retainer for alignment and excessive wear at spring seats.

NOTE — Clutch plates and discs are not serviced separately. If replacement is required, clutch pack must be replaced as a unit.

REASSEMBLY

1) Lubricate clutch plates and discs with positraction lubricant. Alternately position clutch plate and clutch disc on side gear, beginning and ending with clutch plate, until assembly of clutch pack is complete. Install clutch pack guides

EATON POSITRACTION DIFFERENTIAL (Cont.)

on clutch pack lugs. Make sure that clutch disc lugs engage with side gear teeth.

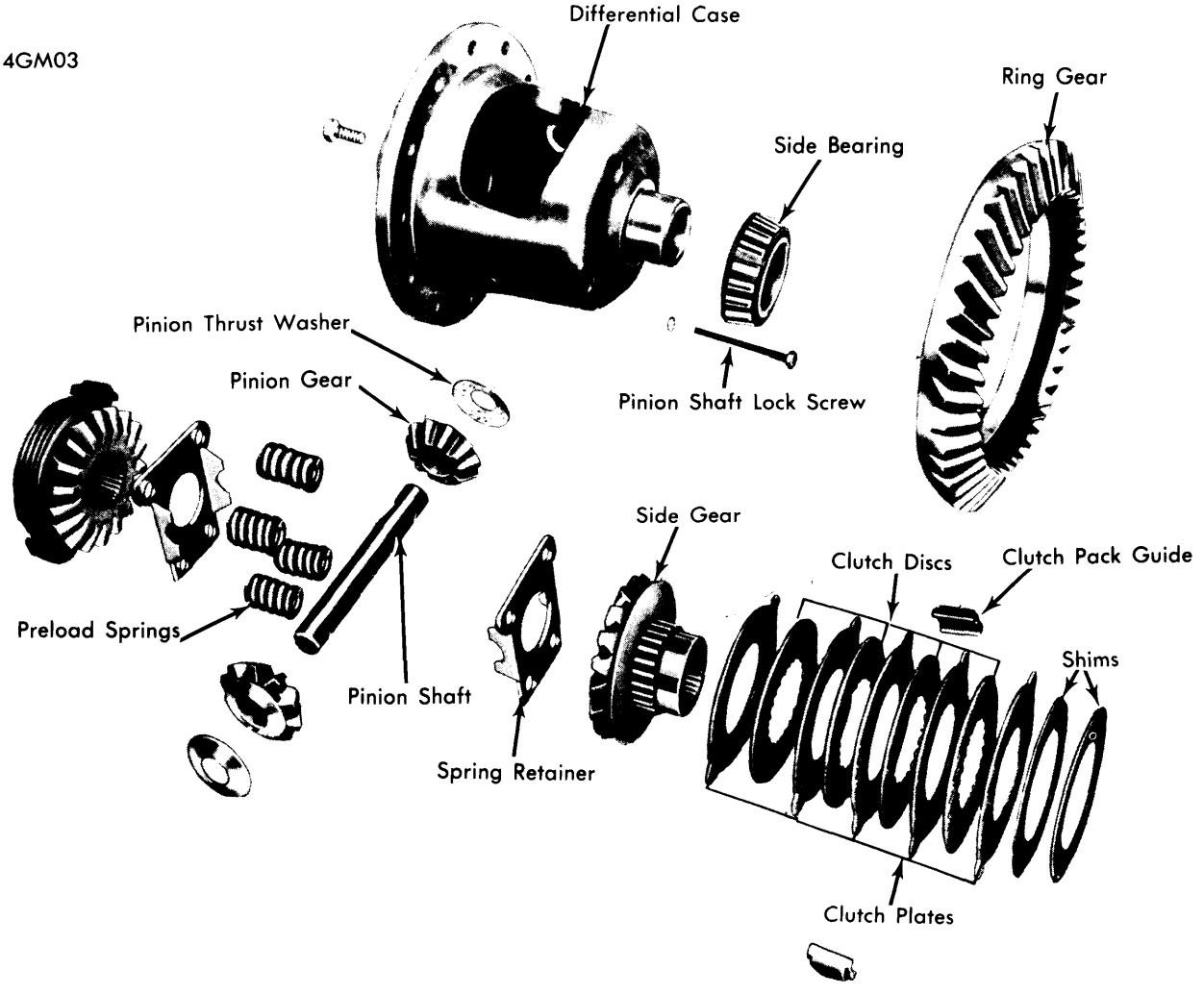
2) Select shims of equal thickness as those removed from case (use original shims if not damaged) and place onto side gear hub. Lubricate and assemble second side gear in similar manner. Install ONE side gear assembly into case. Position pinion gears and thrust washers in place on side gear and install pinion shaft through case and gears

3) Install dial indicator in case with contact tip bearing against tooth surface of pinion gear. Using screwdriver, compress clutch pack and move pinion gear to measure tooth clearance. Change shims as necessary to obtain tooth clearance of .001-.008". Remove internal gears from case and repeat tooth clearance procedure for second side gear.

4) Remove pinion shaft, pinion gears and thrust washers from case. Install remaining side gear, clutch pack and shims into case. Install pinion gears and thrust washers into position in case.

5) Assemble preload springs in spring retainer and clamp assembly in vise. Install "C" clamp and bar stock on spring retainer, then install ¼" bolts through two springs and retainer in same manner as during removal. Position spring pack between side gears and remove bar stock and "C" clamp.

6) Drive spring pack into case far enough to retain the front preload springs, then remove ¼" bolts from springs. Drive spring pack into final postion. Install pinion shaft and lock screw. Check alignment of spring pack with side gears. Slight movement of spring pack can be made if necessary. Install side bearings and ring gear.



EATON POSITRACTION DIFFERENTIAL ASSEMBLY