GEAR TOOTH CONTACT PATTERNS

INSPECTION

PRELIMINARY INSPECTION

Wipe lubricant from internal parts. Rotate gears, and inspect for wear or damage. Mount a dial indicator to housing, and check backlash at several points around ring gear. Backlash must be within specifications at all points. If no defects are found, check gear tooth contact pattern.

GEAR TOOTH CONTACT PATTERN

NOTE: Drive pattern should be well centered on ring gear teeth. Coast pattern should be centered, but may be slightly toward toe of ring gear teeth.

1) Paint ring gear teeth with a suitable marking compound. Wrap a cloth or rope around drive pinion flange to act as a brake. Rotate ring gear until a clear tooth contact pattern is obtained.

2) Contact pattern will indicate whether correct pinion bearing mounting shim has been installed and if drive gear backlash has been set properly. Backlash between drive gear and pinion must be maintained within specified limits, until correct tooth pattern is obtained.

ADJUSTMENTS

GEAR BACKLASH & PINION SHIM CHANGES

NOTE: Backlash is adjusted by shifting shims from 1 side of differential case to the other, or by turning adjusting nuts on which differential side bearings ride. Changing the pinion shims changes the distance from top of pinion to centerline of ring gear.

1) With no change in backlash, moving pinion further from ring gear moves drive pattern toward heel and top of tooth, and moves coast pattern toward toe and top of tooth.

2) With no change in backlash, moving pinion closer to ring gear moves drive pattern toward toe and bottom of tooth, and moves coast pattern toward heel and bottom of tooth.

3) With no change in pinion shim thickness, an increase in backlash moves ring gear further from pinion. Drive pattern moves toward heel and top of tooth, and coast pattern moves toward heel and top of tooth.

4) With no change in pinion shim thickness, a decrease in backlash moves ring gear closer to pinion gear. Drive pattern moves toward toe and bottom of tooth, and coast pattern moves toward toe and bottom of tooth.

Fig. 1: Drive Axle Gear Tooth Pattern