GEAR TOOTH CONTACT PATTERNS
GENERAL INFORMATION
Gear Tooth Contact Patterns

* PLEASE READ THIS FIRST *
The following article is for GENERAL INFORMATION purposes only. Information does not SPECIFICALLY apply to all years, makes and models, but is to be used as a general reference guide.

INSPECTION
PRELIMINARY INSPECTION
Wipe lubricant from internal parts. Rotate gears and inspect for wear or damage. Mount 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
NOTES:
- 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 marking compound. Wrap cloth or rope around drive pinion flange to act as brake. Rotate ring gear until 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.

Fig. 1: Drive Axle Gear Tooth Patterns
ADJUSTMENTS
GEAR BACKLASH & PINION SHIM CHANGES

NOTES:
   Backlash is adjusted by either moving shims from one side of differential case to the other.
   Changing of pinion shims alters the distance from face of pinion of 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, 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.