DRIVE AXLE GEAR TOOTH PATTERNS

PRELIMINARY INSPECTION

Wipe lubricant from internal parts, then 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 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.*

Paint ring gear teeth with gear marking compound. Apply some form of load to differential case to resist rotation. Rotate pinion gear until ring gear has made 1 full revolution. Turn pinion gear in opposite direction to complete 1 full revolution of ring gear. Examine ring gear teeth for contact pattern. Correct as necessary by moving appropriate shims.

GEAR BACKLASH & PINION SHIM CHANGES

NOTE – *Change in tooth pattern is directly related to change in shim and/or backlash adjustment.*

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.

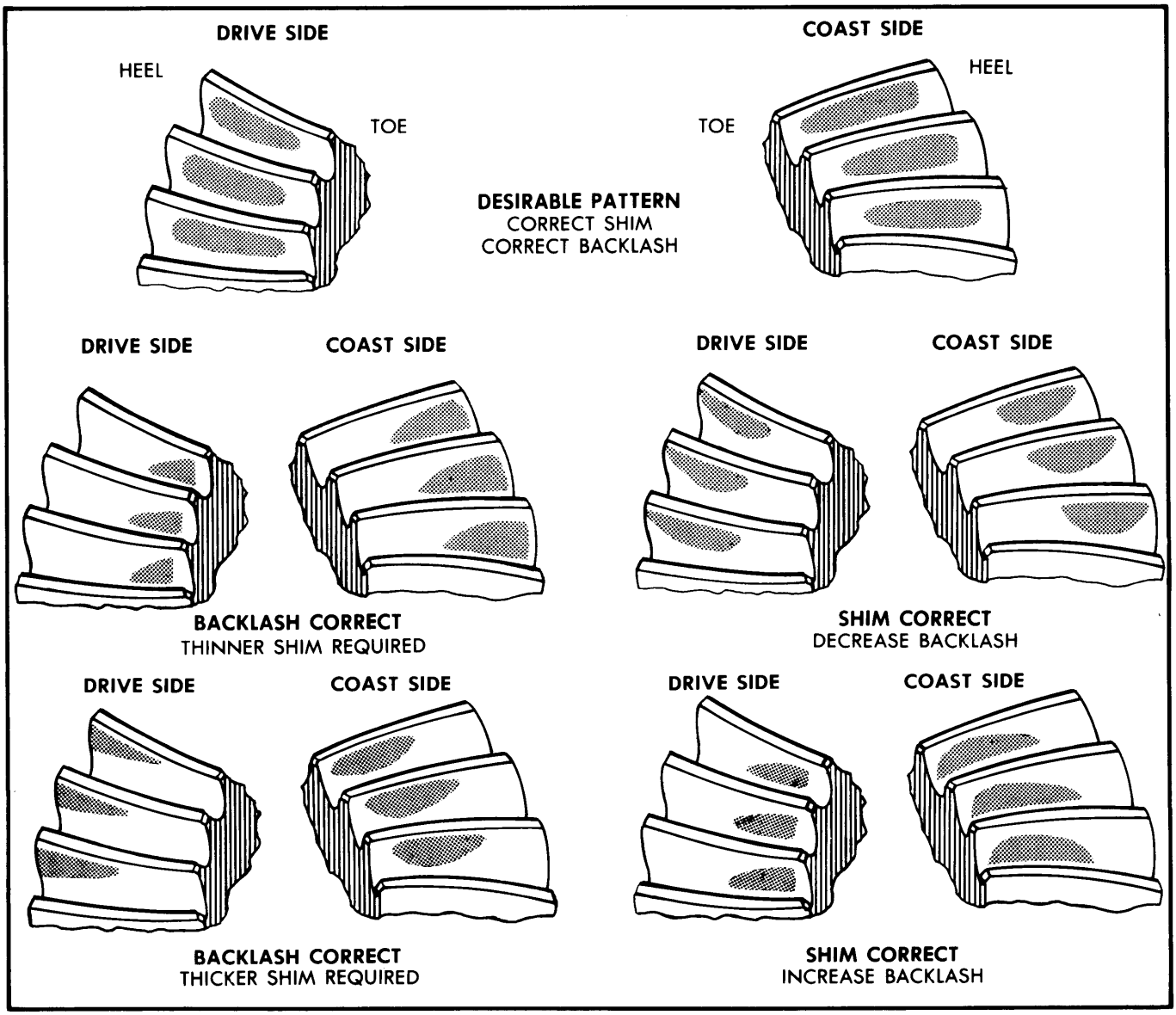

Fig. 1 Drive Axle Gear Tooth Patterns Showing Necessary Corrections