

# Drive Axles

## 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

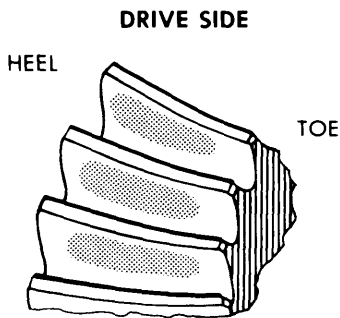
*NOTE* – Drive pattern should be well centered on ring gear teeth. Coast pattern should be centered but may be slightly toward toe of ring gear teeth.

Paint ring gear teeth with a suitable marking compound, then wrap a cloth or rope around drive pinion flange to act as a brake. Rotate ring gear until a clear tooth pattern is obtained. Gear tooth contact pattern will disclose whether correct pinion bearing mounting shim has been installed and drive gear backlash set properly. Backlash between drive gear and pinion must be maintained within specified limits until correct tooth pattern is obtained.

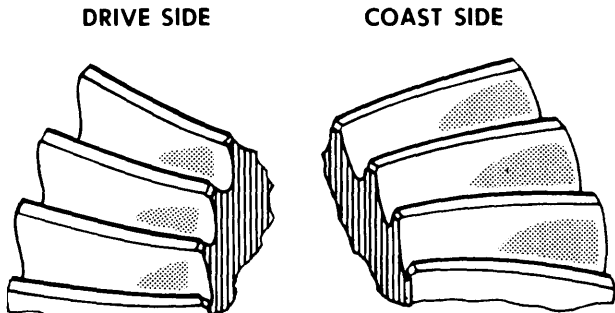
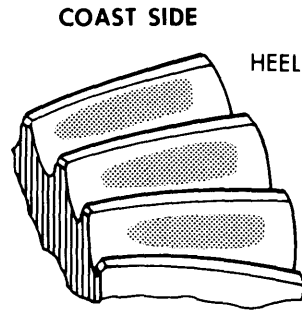
### GEAR BACKLASH & PINION SHIM CHANGES

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

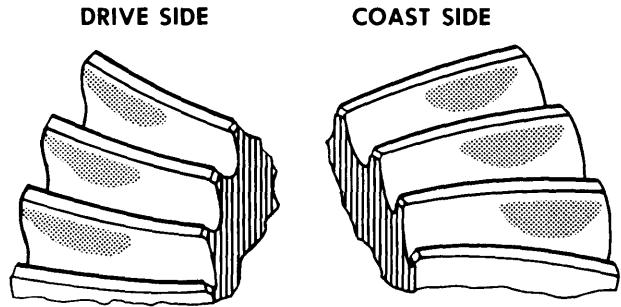
- 1) With no change in backlash, moving pinion further from ring gear moves drive pattern toward heel and top of tooth, and moves coast pattern toward toe and top of tooth.
- 2) With no change in backlash, moving pinion closer to ring gear moves drive pattern toward toe and bottom of tooth, and moves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



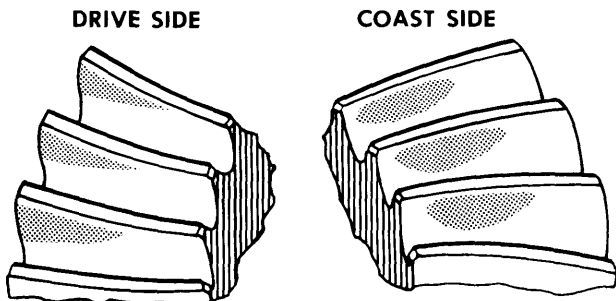
**DESIRABLE PATTERN**  
CORRECT SHIM  
CORRECT BACKLASH



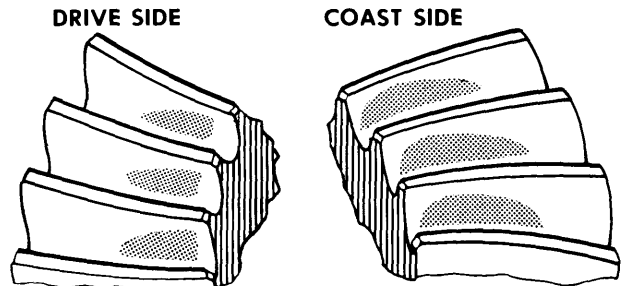
**BACKLASH CORRECT**  
THICKER SHIM REQUIRED



**SHIM CORRECT**  
DECREASE BACKLASH



**BACKLASH CORRECT**  
THINNER SHIM REQUIRED



**SHIM CORRECT**  
INCREASE BACKLASH