

Ring Gear Contact Pattern Interpretation of Face Hobbed (uniform tooth depth) Gear Teeth

Proper ring gear to pinion gear contact pattern is critical for quiet and trouble free gear set operation. Begin by setting proper pinion bearing preload, total turning preload, and ring gear backlash. Use gear marking compound to paint all of the ring gear teeth. Load the ring gear and run a full contact pattern check. Observe all gear teeth for proper contact pattern and a uniform pattern from tooth to tooth.

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Desirable Contact Pattern

The contact pattern on the drive side (convex) of the tooth is centered. The contact pattern on the coast side (concave) of the tooth is centered. Notice in this photograph that both the drive and coast patterns are of equal length and equally centered.

Drive Contact Pattern



Toe-Heel Contact Pattern

The contact pattern on the drive side (convex) of the tooth is mostly towards the toe.

The contact pattern on the coast side (concave) of the tooth is mostly towards the heel.

Correction: Move the pinion gear away from the ring gear.



Heel-Toe Contact Pattern

The contact pattern on the drive side (convex) of the tooth is mostly towards the heel.

The contact pattern on the coast side (concave) of the tooth is mostly towards the toe.

Correction: Move the pinion gear closer to the ring gear.



Toe-Toe Contact Pattern

The contact pattern on the drive side (convex) of the tooth is mostly towards the toe.

The contact pattern on the coast side (concave) of the tooth is mostly towards the toe.

Correction: Increase the ring gear backlash



Heel-Heel Contact Pattern

The contact pattern on the drive side (convex) of the tooth is mostly towards the heel.

The contact pattern on the coast side (concave) of the tooth is mostly towards the heel.

Correction: Decrease the ring gear backlash

Coast Contact Patterns

