



Ring & Pinion Installation Instructions

All sets are matched pairs and identified by matching numbers on the ring and pinion. Make sure you have a matched set.

Clean all parts before you start the assembly. Apply a light coat of oil to all bearings.

Examine all components and remove any burs, nicks or sharp edges that could cause components not to seat properly.

Checking Backlash

It is suggested you set backlash to .008 - .010 inch.

Backlash is the free movement of the ring gear with the pinion held fixed in place.

Correct backlash is obtained by shimming or adjusting the ring gear away from or closer to the pinion.

Pinion bearing preload should be approximately 15 in-lb of rotating torque if you are reusing the bearings. If you are installing new bearings you should obtain 25 in-lb of rotating torque. This is accomplished by a preload shim pack (of various thicknesses) or a crush sleeve. When final assembly is being made you should use a new crush sleeve.

Correct pinion position is obtained by shimming the pinion in or out, to obtain the correct tooth pattern. All housings are not shimmed in the same location, but shimming still moves the pinion in or out. Most housings, the shim is located between the pinion teeth and the pinion head bearing. It is suggested that you start with the same shim thickness on the new set that was used on the old set.

Obtaining Proper Gear Pattern

Paint ring gear teeth with a marking compound to both the drive and coast side.

Rotate ring gear several revolutions in both directions while resistance is being applied to the pinion.

Pattern Interpretation (Ring Gear)

Normal or desirable pattern. The drive pattern should be centered on the tooth or slightly toward the toe. The coast pattern should be centered on the tooth, but may be slightly toward the toe. There should be some clearance between the pattern and the top of the tooth.

Pinion is too deep. Move pinion away from gear centerline.

Pinion is too shallow. Move pinion toward centerline of gear.

Pattern Movements Summarized

- (1) Decreasing backlash moves the ring gear closer to the pinion.
- (2) Increasing backlash moves the ring gear away from the pinion.
- (3) Deep pinion position, with the backlash correct, moves the pinion closer to the ring gear.

Drive pattern moves deeper on the tooth (flank contact) and slightly toward the toe.

Coast pattern moves deeper on the tooth and toward the heel.

- (4) Shallow pinion position, with the backlash correct, moves the pinion further from the ring gear.

Drive pattern moves toward the top of the tooth (face contact) and toward the heel.

Coast pattern moves toward the top of the tooth and slightly toward the toe.

Fastener Torque Specifications

Ring Gear Bolts

3/8" x 7/8" RH 55-60 ft-lb

3/8" x 3/4" RH 45-50 ft-lb

3/8" All LH 45-50 ft-lb

7/16" All 60-65 ft-lb

1/2" All 100-110 ft-lb

Carrier Cap Bolts

7/16" (5/8" head) 60-65 ft-lb

1/2" (3/4" head) 80-85 ft-lb

Lube

Fill the gear case with sufficient amount of 80-90 gear lube of MIL spec. L-2105C, or better, and maintain the proper level at all times. Proper maintenance is a must to protect you safety and working life of your gear set. NOTE: For oval track racing, add 2 to 3 additional pints gear lube.

Break In Procedure

All ring and pinion sets require a brief break-in period in order to ensure long life and quiet operation. The following break-in procedure is recommended before heavy load and constant usage.

1. Bring axle to normal operating temperature by dividing vehicle (empty) for approximately 15 to 20 miles. Do not create any shock loads.
2. Let the axle assembly cool completely.
3. For the next 200 miles of operation, drive gently, without any heavy loads.
4. For trailer towing, an additional cycle of 15 to 20 miles break-in is required with the trailer after step #3. This is important! To properly break in a new gear set, 500 miles of driving is recommended before constant towing.

**IF THIS PROCEDURE IS NOT FOLLOWED, OVERHEATING
AND EVENTUAL GEAR AND/OR BEARING FAILURE MAY
RESULT.**