RING & PINION GEARS INSTALLATION INSTRUCTIONS

KIT CONTENTS

RECOMMENDED TOOLS

Safety Glasses
Metric Ratchet & Socket Set
Metric Wrench Set
Dial Indicator with stand
Bearing Separator
Ball Peen Hammer
Punch (for marking carrier caps)
Degreasing Compound (e.g. Brake Cleaner)
Jack Stands
Factory Service Manual for your vehicle
Torque Wrench
Drain Pan
Arbor Press
Calipers or micrometer
Plastic Dead Blow Hammer
Brass Punch Set
Pry Bar
Razor Blade
Floor Jack
Bearing Puller(s)

LROR-306111

ADDITIONAL PARTS REQUIRED

Differential Setup Kit

Gear Oil (Refer to your owner's manual or the Factory Service Manual for correct type)

CAUTION

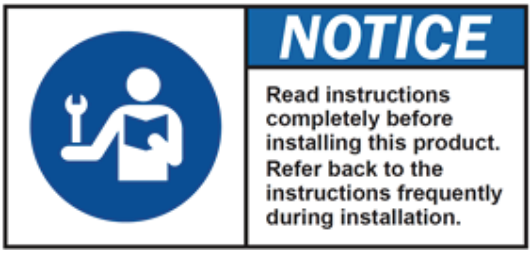
1. Read all instructions completely and carefully before you begin. If anything is not clear, please call our tech support line at 1.801.805.6644 or e-mail sales@lowrangeoffroad.com before proceeding.

2. Check to make sure the kit is complete and that no parts are missing. If anything is missing, please contact customer service at 1.801.805.6644 or 559.252.4950 or sales@lowrangeoffroad.com.

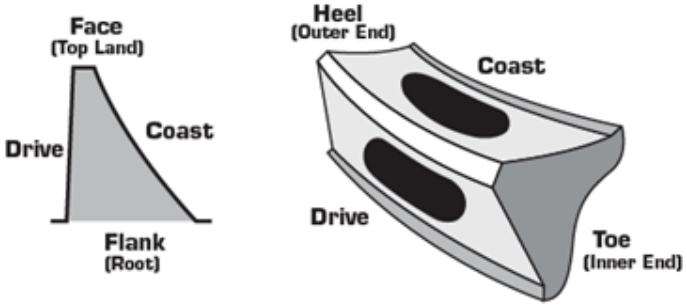
3. Park vehicle on a clean, dry, flat, level surface and block the tires so the vehicle cannot roll in either direction.

4. This product is for off-road use only. It is recommended that the installation steps below be performed by a competent mechanic. Buyers and users of this product hereby expressly assume all risks associated with the installation and use of this product.

5. This installation is typical for most ring & pinion gears. Some vehicles may vary. If necessary, refer to the proper Factory Service Manual for the year and model of your vehicle.



RING GEAR TOOTH TERMINOLOGY



DIFFERENTIAL SETUP SPECIFICATIONS

Differential Model	Pinion Bearing Preload (New Gears)	Backlash	Ring Gear Bolt Torque	Bearing Cap Bolt Torque
Dana 60	17-30 in-lbs (1.9-3.4 N-m)	.006-.010" (.15-.25 mm)	110 ft-lbs (149 N-m)	80 ft-lbs (108 N-m)
Toyota 8" 4-Cyl	12-15 in-lbs (1.3-1.7 N-m)	.006-.010" (.15-.25 mm)	70 ft-lbs (95 N-m)	70 ft-lbs (95 N-m)
Toyota 8" V6 & Turbo	14-17 in-lbs (1.6-1.9 N-m)	.006-.010" (.15-.25 mm)	70 ft-lbs (95 N-m)	70 ft-lbs (95 N-m)
Suzuki Samurai	12-15 in-lbs (1.3-1.7 N-m)	.006-.010" (.15-.25 mm)	70 ft-lbs (95 N-m)	70 ft-lbs (95 N-m)

INSTALLATION INSTRUCTIONS

STEP 1

Place a floor jack under the differential and raise the end of the vehicle. Place jack stands under the frame on both sides of the vehicle. Remove the floor jack.

STEP 2

Remove the axle housing drain plug and drain the oil. Discard the used oil in accordance with all local laws. Many auto parts stores will accept used oil for little or no cost. Save the drain plug for reinstallation.

STEP 3

Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, remove the differential from your vehicle.

STEP 4

Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, disassemble your differential. Discard the old ring & pinion gears, crush sleeves, bearings, seals, pinion nut, and ring gear bolts. Retain all other parts for reinstallation.

STEP 5

Clean all parts with brake cleaner or other solvent. Clean the differential housing with solvent and make sure all oil passages are free of dirt and metal particles. Clean all sealing surfaces and polish if needed. All parts should be free of dirt and metal particles which will cause early wear.

STEP 6

Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, install the ring gear onto the carrier and tighten the bolts according to the torque values specified in the Factory Service Manual. Make sure to use red (permanent) threadlocking compound on each ring gear bolt.

STEP 7

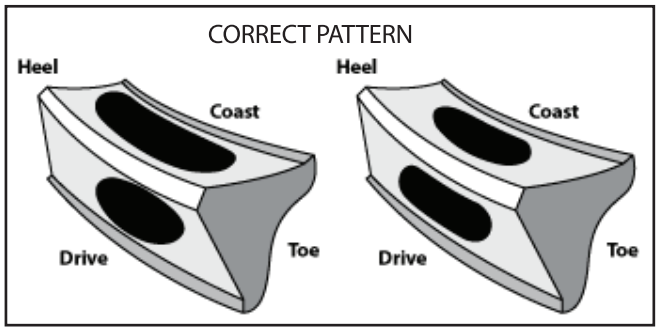
Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, install the pinion gear and set pinion bearing preload.

STEP 8

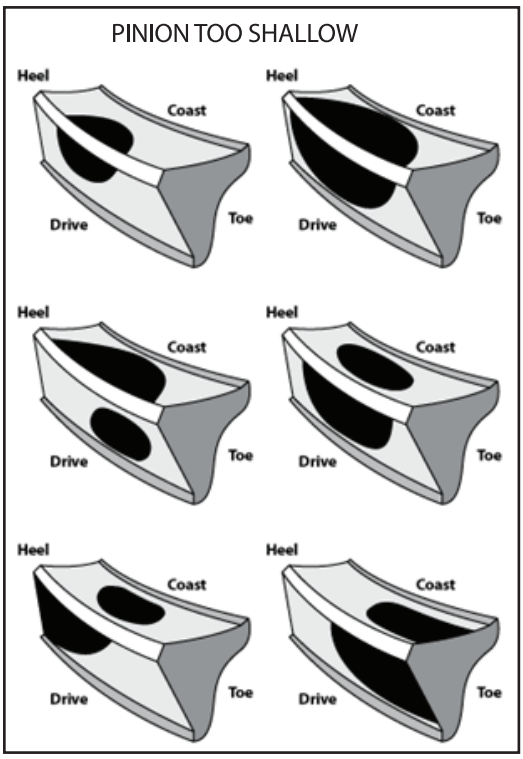
Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, install the carrier and adjust carrier preload and backlash.

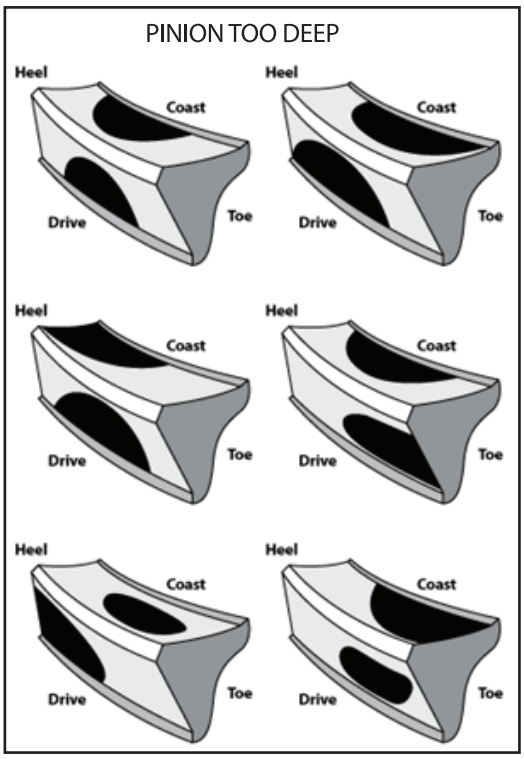
STEP 9

Using gear marking compound and a clean brush, check the pattern on your ring & pinion setup. A correct pattern should look like this:

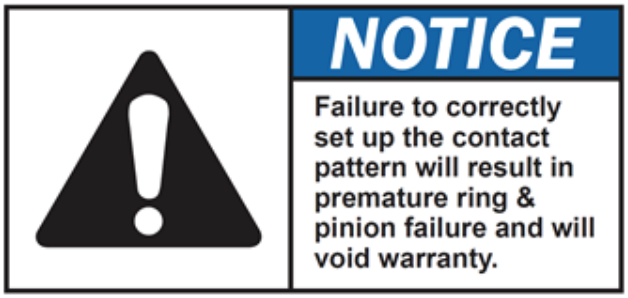


If your pattern does not look like the ones above, check your patterns against the ones below for guidance on what to adjust:





If you cannot get the correct pattern, contact technical support at 1.801.805.6644 or e-mail sales@lowrangeoffroad.com before proceeding. DO NOT PROCEED UNTIL THE CORRECT SETUP PATTEN IS OBTAINED. FAILURE TO SET UP THE CORRECT PATTERN WILL CAUSE PREMATURE GEAR FAILURE AND WILL VOID THE WARRANTY.



STEP 10

Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, finish reassembling the differential.

STEP 11

Following the instructions in the proper Factory Service Manual for the year and model of your vehicle, reinstall the differential into your vehicle. Make sure to use a gasket or RTV Silicone to seal the differential and differential cover (if present) to the axle housing.

STEP 12

Reinstall the drain plug. Remove the fill plug and fill the differential with the gear oil recommended in your Owner's Manual. Reinstall the fill plug.

STEP 13

Lower the vehicle and make sure all bolts are tight. Break-in the gears according to the Break-In Procedure listed below.

RING & PINION BREAK-IN PROCEDURE

All newly rebuilt differentials require a break-in period to prevent damage from overheating. Any overloading or over-heating during this periods can cause the gear oil to break down resulting in ring & pinion failure.

- After installation drive lightly for 20-30 minutes and then allow the differential to cool for at least two hours.
- Avoid heavy throttle use during the first 500 miles.
- Do not tow a trailer during the first 500 miles.
- Change gear oil after 500 miles to remove any particles suspended in the oil.

This may seem unnecessary but it is very easy to damage the differential by loading it before the gear set is completely run in. New ring & pinion gears create excess heat when they are new. This excess heat can damage the heat treatment of the gears. zvv