JL & JT Ring & pinion gear installation instructions

IMPORTANT NOTES

Prior to beginning this install, or any installation, read the instructions thoroughly to familiarize yourself with the required steps.

Refer to the parts list to ensure that all necessary components and hardware has been included.

If any parts are missing, please contact your local dealer for assistance.

Disassembly:

Drain used gear oil into a suitable container for recycling.

Mark all shim thicknesses and locations during disassembled.

Thoroughly clean and inspect all parts.

Assembly:

Make sure all parts are available before starting work.

Considering the wear of the accessories, we recommend using a brand-new differential bearing to work with the new gear.

Use an appropriate amount of gear oil to lubricate the bearings to a certain extent.

Pay attention to setting the bearing preload. Since there is a gap (clearance) between the bearing ring and the roller, applying a certain preload can eliminate the clearance and reduce the noise and vibration during the operation of the bearing. The preload should not be too large, otherwise the wear of the bearing will be accelerated, and in

extreme cases the bearing will be stuck.

Oil the pinion nut washer surface during all assembly procedures and apply medium-strength thread-locking compound to the pinion nut threads during final assembly.

Tighten the pinion nut to the proper torque, For different axle types, we give the following suggestions.

Description	N·m	Ft. Lbs.
M186	217	106
M200	240-550	177-406
M210	217	106
M220	488	360

Adjusting:

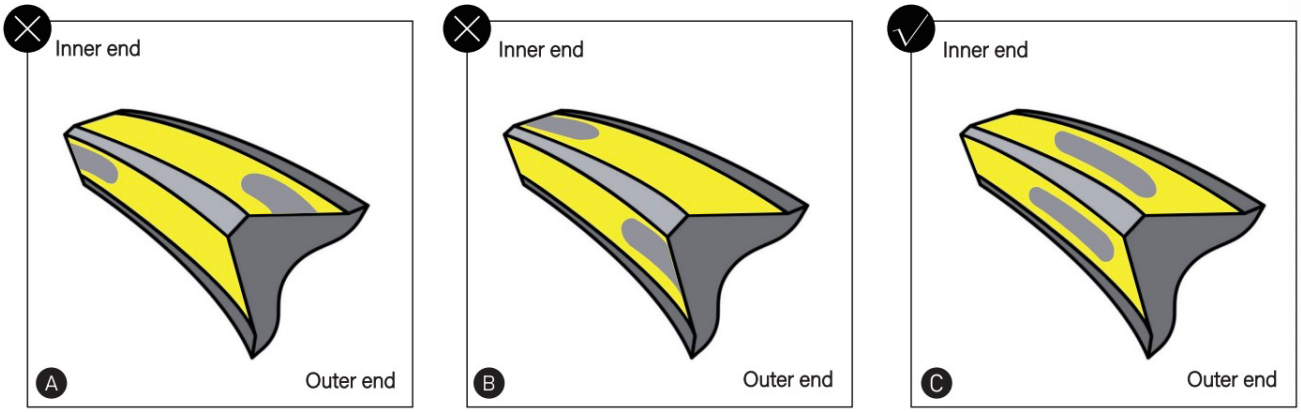
1.According to the two data to berify whether the installation meets the standard, determine the direction of adjusting.

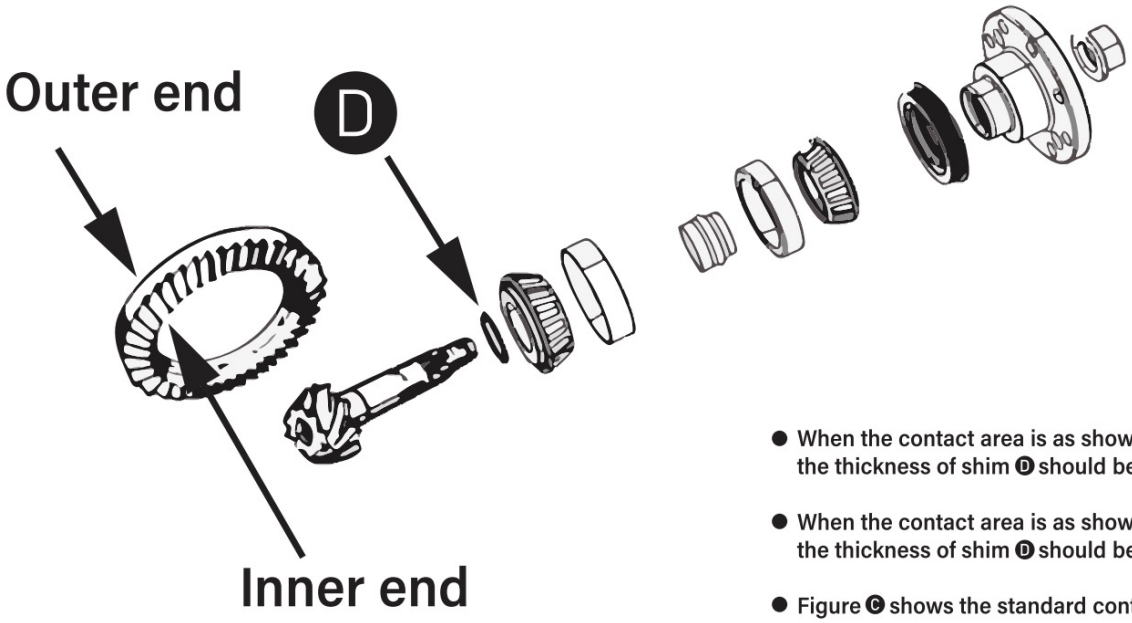
The contact area pattern of the ring gear and pinion gear.

Using a special gear marking compound (which clearly indicates gear contact without running or smudging), evenly coat 3-4 tooth faces. Rotate by grabing and turning the ring gear, not the pinion.

For different axle types, we give the following adjust suggestion:

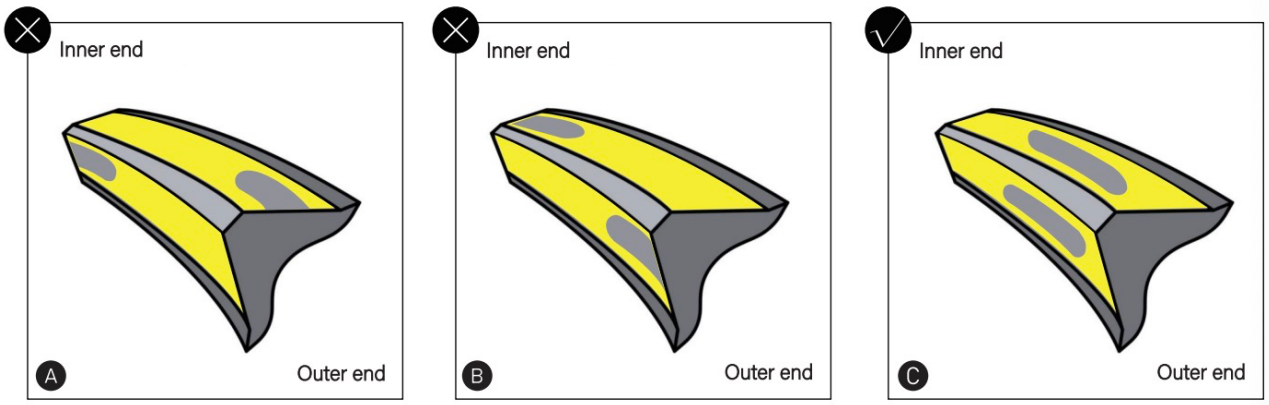
For：DANA M186

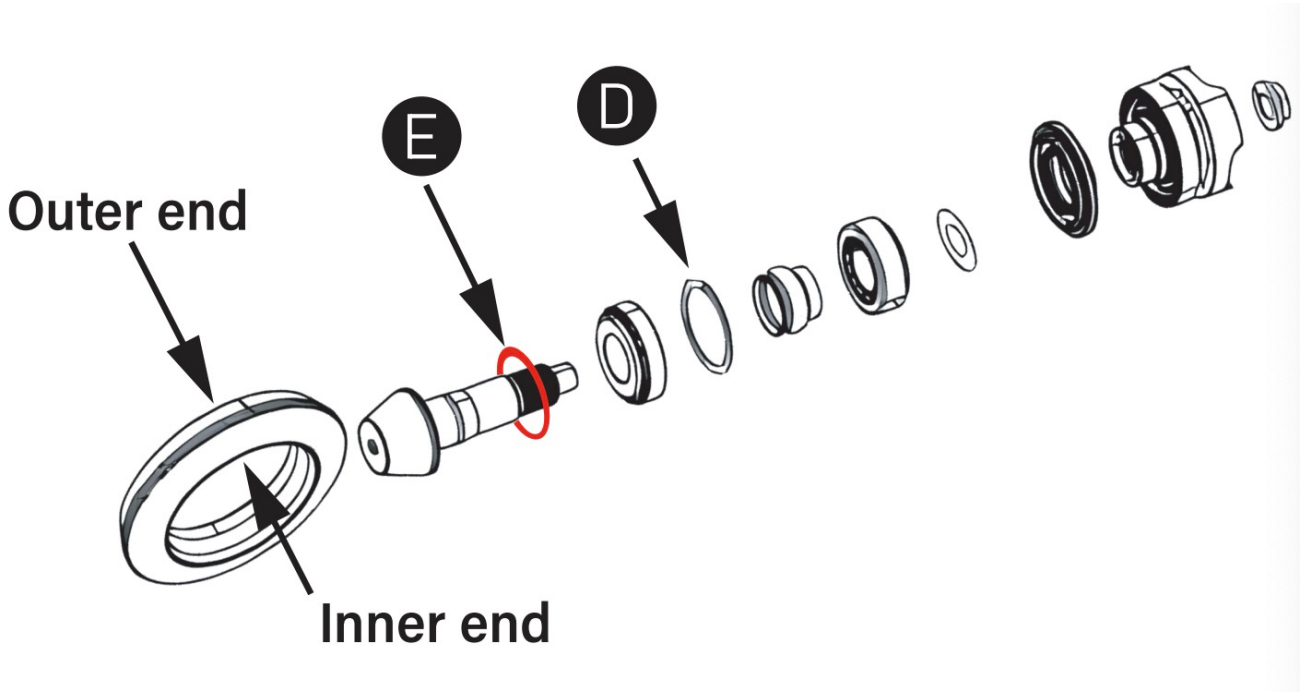




- When the contact area is as shown in Figure Ⓐ, the thickness of shim Ⓓ should be reduced.
- When the contact area is as shown in Figure Ⓑ, the thickness of shim Ⓓ should be increased.
- Figure Ⓒ shows the standard contact area.

For：DANA M200 M210 M220





- When the contact area is as shown in Figure Ⓐ, the thickness of shim Ⓓ should be reduced.
- When the contact area is as shown in Figure Ⓑ, shims should be added at the position shown in Ⓔ. The parameters are 55mm outer diameter, 46.65mm inner diameter (M200:52mm outer diameter, 41.5mm inner diameter). The recommended thickness is 0.1mm-0.3mm, which should be determined according to the actual situation.
- Figure Ⓒ shows the standard contact area.

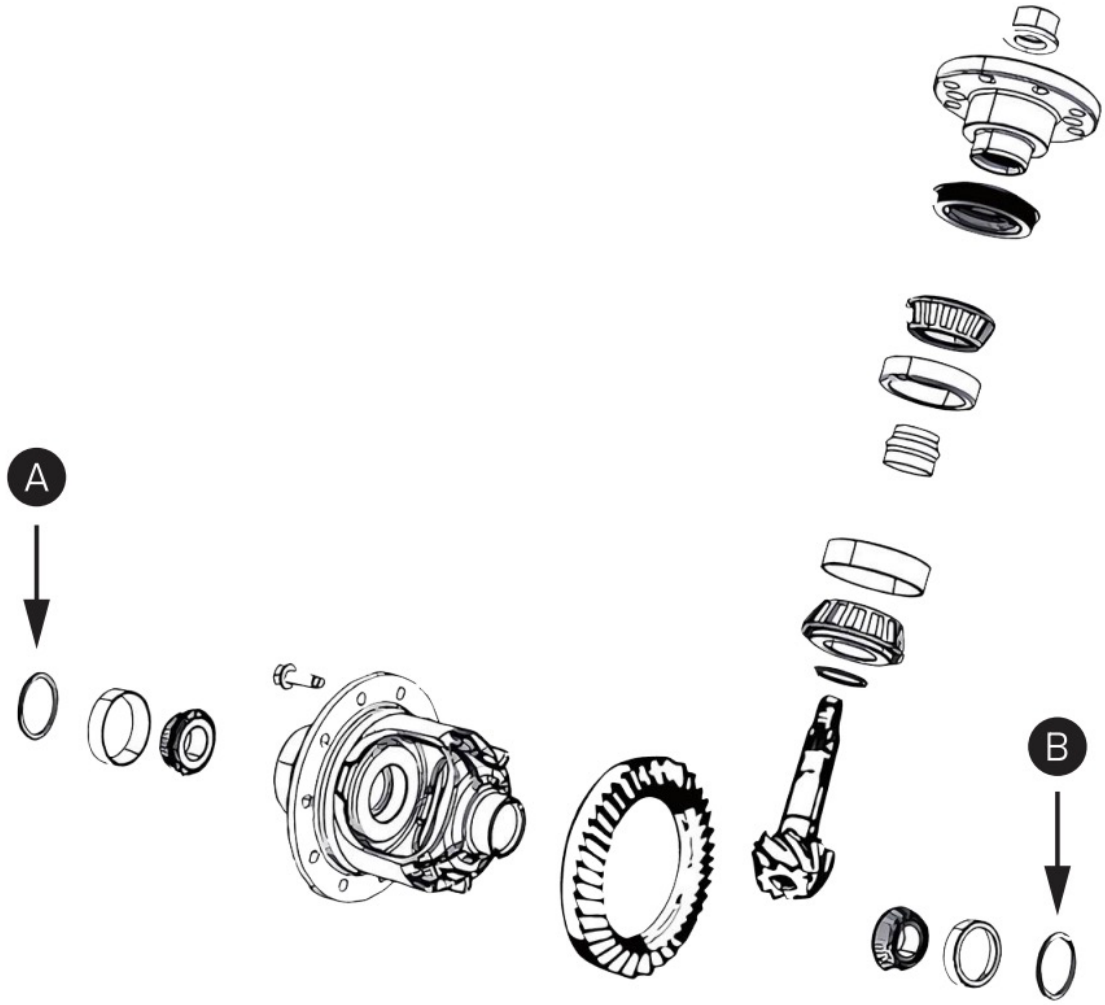
2. The backlash between the large and small gears.

Use a dial indicator to measure the clearance between ring and pinion gear, fix the dial indicator on the axle housing, make the pointer to be perpendicular to the tooth surface, and push the ring gear slightly to read the clearance value.

Make the backlash between 0.15-0.25mm by adjusting the gasket thickness at A and B.

For different axle types, we give the following suggestion.

Modle	A	B
M186 D30 (FRONT)	3.6mm	2.9mm
M200 D35 (REAR)	2.2mm	2.0mm
M210 D44 (FRONT)	3.0mm	2.3mm
M220 D44(REAR)	3.2mm	2.1mm



Break in:

When installing a new ring and pinion it is recommended to properly break in the new components. The proper break in procedure will extend the life of the components and help with the prevention of premature failure usually caused by

extreme heat.

Although your new ring and pinion is “Lapped” from the factory for smooth quiet operation, they will still need to be broken in once they have been installed. A new ring and pinion will initially run hotter when new and can cause extensive damage if the temperature exceeds ideal operating conditions for an extended period of time.

The suggested break in procedure is as follows:

The first drive with the new ring and pinion should be under normal driving conditions (No hard starts, No racing, No off-roading, No towing and not at highway speeds).

The vehicle should be driven 15-20 minutes around town, normal stop and go driving. Then you should let the axle assembly “completely cool”(this will allow the gear oil to cool down so it dose not reach temperatures that will break down the oil, causing loss of protection)

Repeat the 10-15minute drive and cooling off period 2-3 times.

Then you will want to drive on the highway and repeat the process at least 2 times abiding by local speed laws but not exceeding 65MPH, be sure to let the axle assembly completely cool between drives (very important).

Lastly you will want to change the gear oil after the initial 500-1000miles and your gears are broken in correctly.

When filling the axle with oil, use a highly quality name brand and fill the unit to the manufacturer’s recommended capacity. Synthetic oil is recommended for most applications, grade 75w-140.