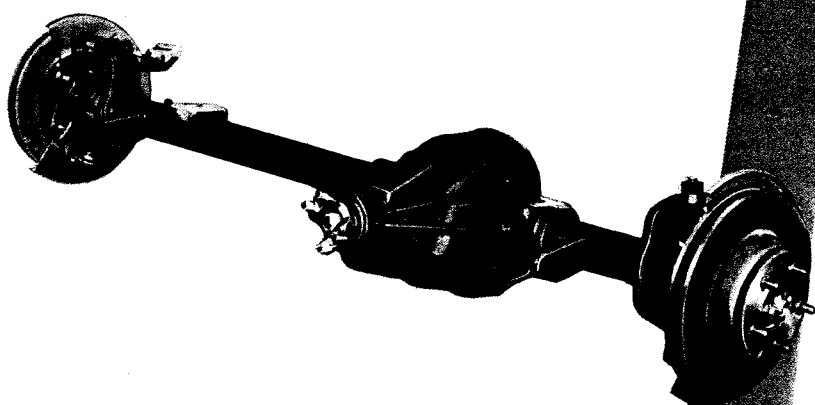


# **SPICER® AXLE**

## **SERVICE MANUAL**

**MODEL**



**LIVE SPINDLE**

**44**

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**SPICER AXLE DIVISION**



**DANA CORPORATION**

**FORT WAYNE, INDIANA**

# SERVICING FRONT AXLE ROTOR-HUB AND WHEEL BEARINGS

## SUBMERSION OR DEEP WATER FORDING

If the vehicle is exposed to water deep enough to cover the hubs of the front axle, it is recommended that the wheel ends be disassembled and inspected for water damage or any other contamination. Pay particular attention to the bearings on the rotor hub and the bearing bore in the knuckle.

### NOTE

*Throughout this manual, reference is made to certain tool numbers whenever special tools are required. These numbers are numbers of the Miller Special Tool Company, 32615 Park Lane, Garden City, Michigan 48135 and/or Dana Power Equipment Division, P.O. Box 321, Dept. 24, Toledo, Ohio 43691. They are used herein for customer convenience only. Dana Corporation makes no warranty or representation to these tools.*

### NOTE

*It is recommended that whenever bearings are removed they are to be replaced with new ones, regardless of mileage.*

## WHEEL BEARING LUBRICATION

For grease packing, it is recommended that a number 2 consistency, lithium base 12 hydroxy stearate grease containing an E. P. additive be used.

## DISASSEMBLY

Raise vehicle on hoist or safety stand. Remove wheel and brake calipers. Refer to Vehicle Service Manual for removal of brake components.

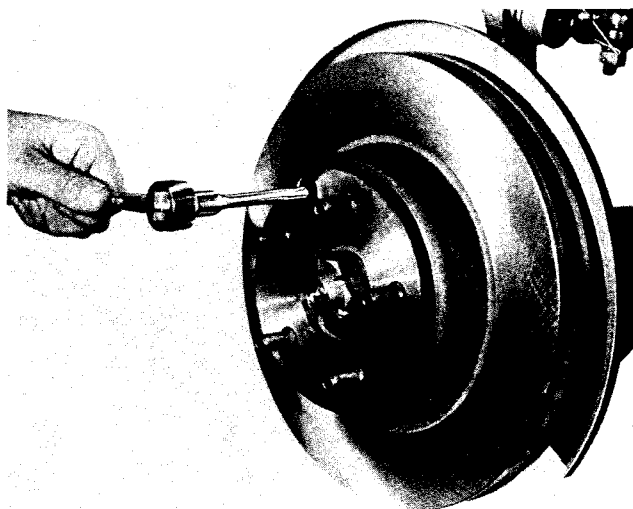


FIGURE 182

1009-182

Remove cap screws, which retain rotor assembly to knuckle.

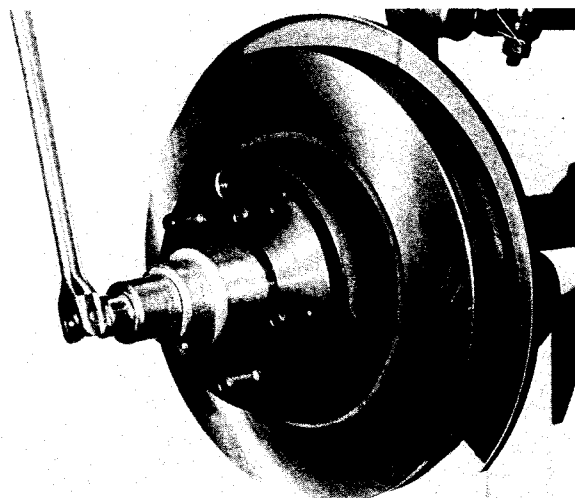


FIGURE 183

1009-183

Remove cotter key, axle shaft nut and washer.

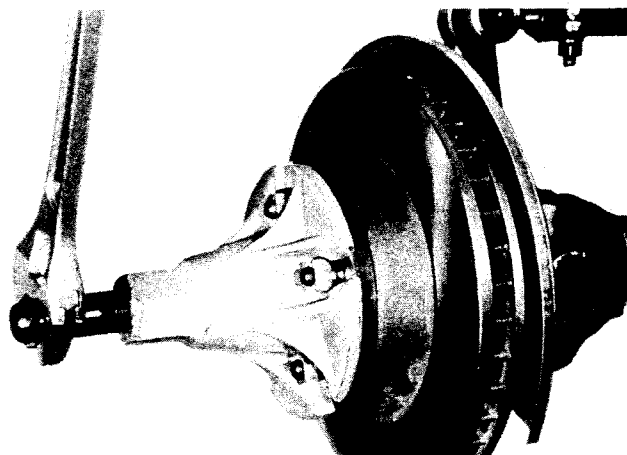


FIGURE 184

1009-184

Install puller tool over wheel bolts. Install wheel nuts to hold puller in place. Tighten forcing screw of puller tool to remove rotor, hub and bearing retainer assembly. Remove puller.

Tool: #C-319-A Puller Tool.

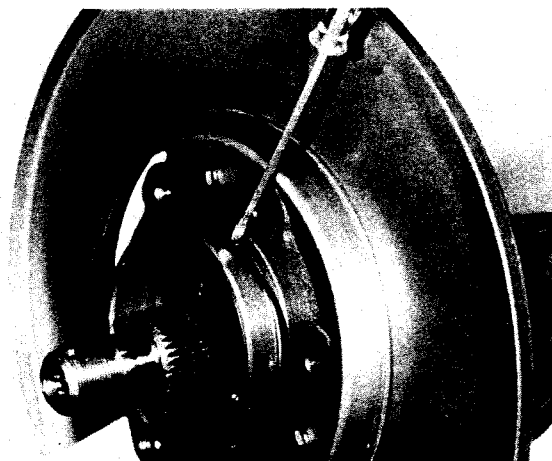
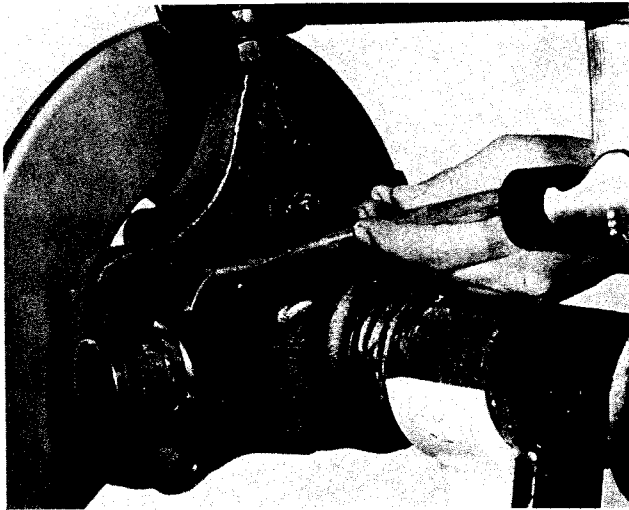


FIGURE 185

1009-185

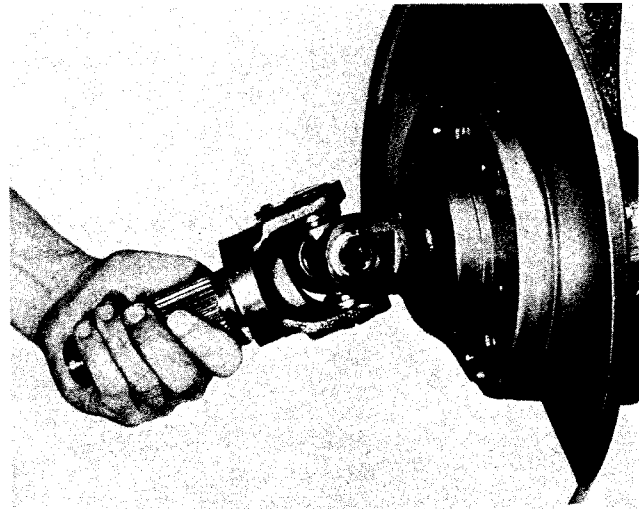
# SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS

Remove "O" ring from knuckle and discard. Replace with new one at time of assembly.



**FIGURE 186**

1009-186

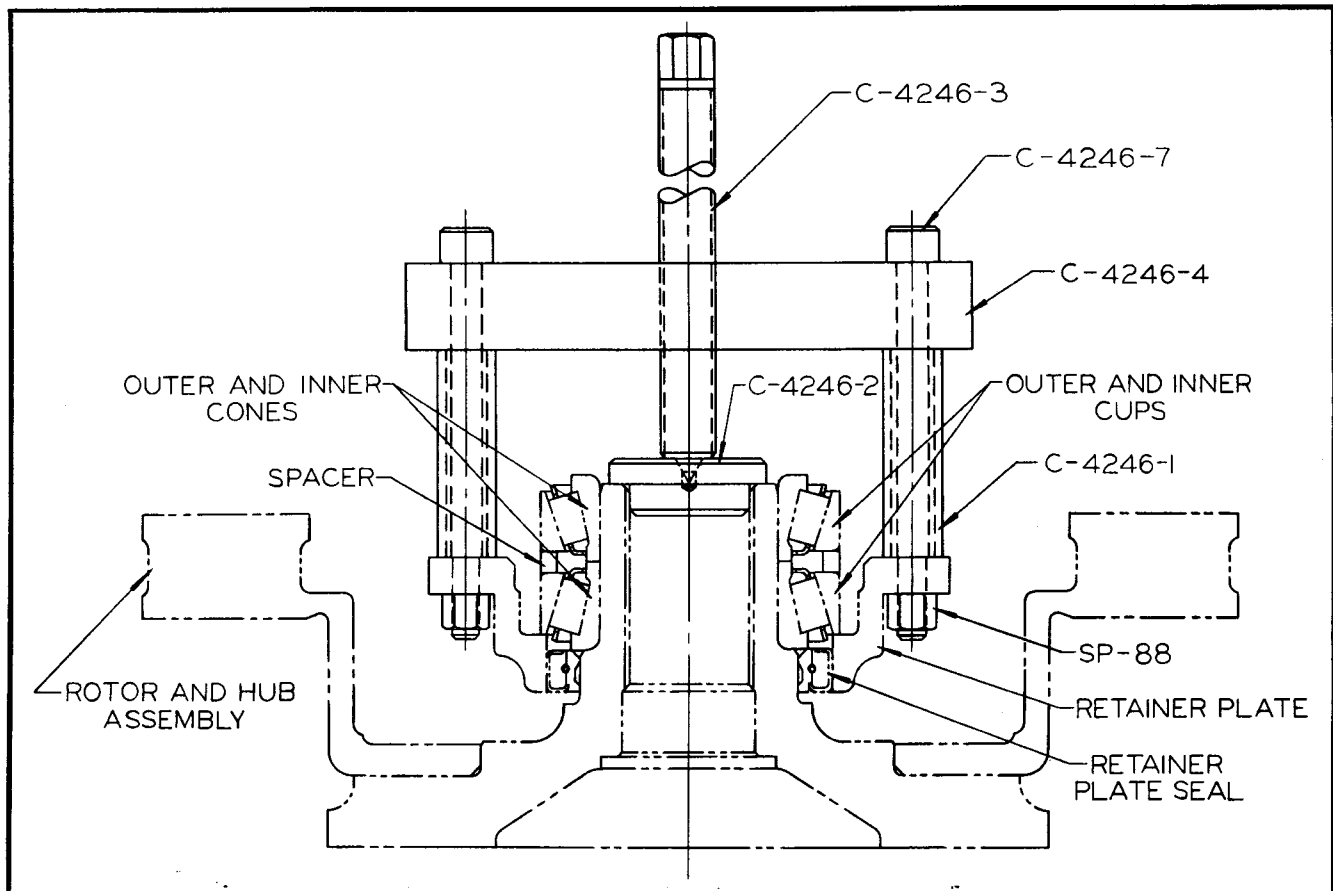


**FIGURE 187**

1009-187

Remove inner seal with drift or large screw driver. Caution should be used, not to nick or scratch the seal diameter of the shaft. Discard seal and replace with new one during assembly.

After inner seal has been removed, the axle shaft joint assembly can be removed for service or inspection.



**FIGURE 188**

**L/D Bearing Disassembly #1**

1009-188

The complete tool kit assembly part number is C-4246-A

# SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS

## NOTE

Place a few shop towels over jaws of vise to protect any machined surfaces. Position rotor and hub in vise.

## NOTE

The rotor and bearing retainer have been sectioned which show their proper position and also show the correct method of tool usage. For proper tool identification refer to Figure #188.

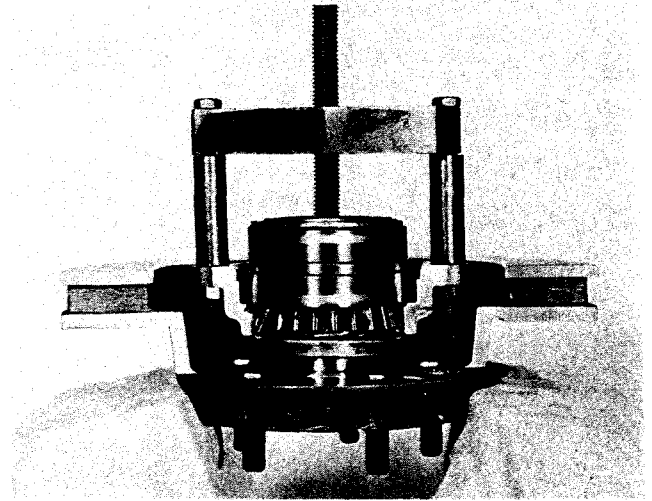


FIGURE 189

1009-189

Assemble tools exactly as shown. Tighten forcing screw. In the process the seal and outer bearing cone will remain on the hub. The inner bearing cup, cone, spacer and outer bearing cup will be removed while removing the bearing retainer.

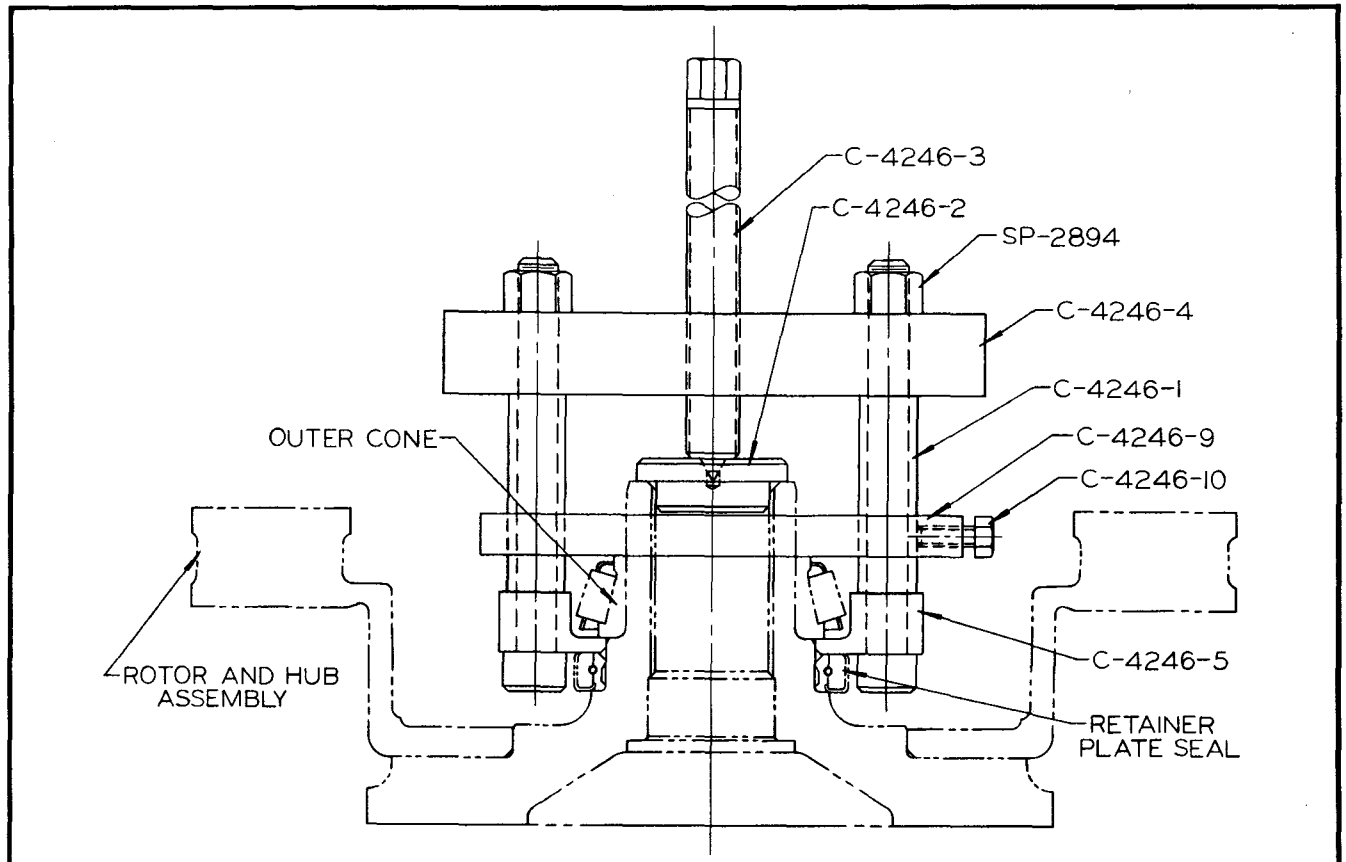


FIGURE 190

L/D Bearing Disassembly #2

1009-190

# SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS

Place bearing retainer plate on flat surface with outer face up. Assemble new seal into plate with the "inside" marking on the seal downward. Assemble seal into retainer plate until flush. Make sure seal is not cocked. Apply a small amount of lube around lip of seal.

Tool: #C-4250 Seal Installer.

## NOTE

*Make sure hub is free of any dirt etc. To clean hub, use a standard cleaning solvent. If any small nicks or burrs are on hub, use a small piece of emery cloth to remove.*

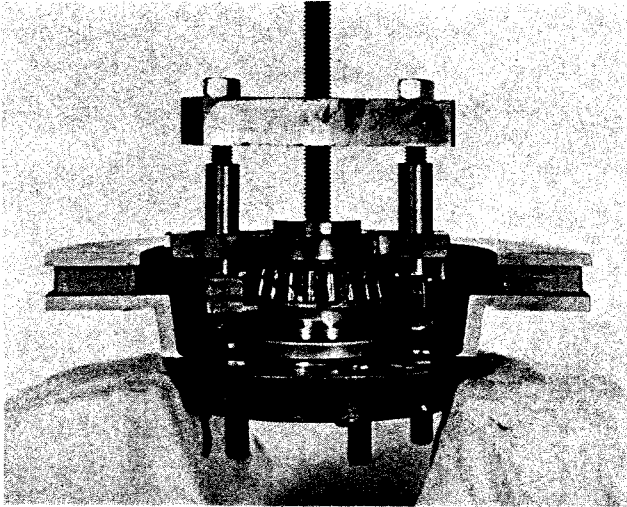


FIGURE 191

1009-191

Assemble tools as shown to remove outer bearing cone. Remove seal and discard. Replace with new one during assembly.

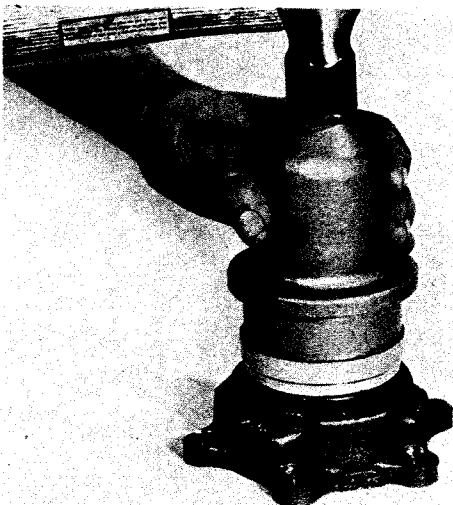


FIGURE 192

1009-192

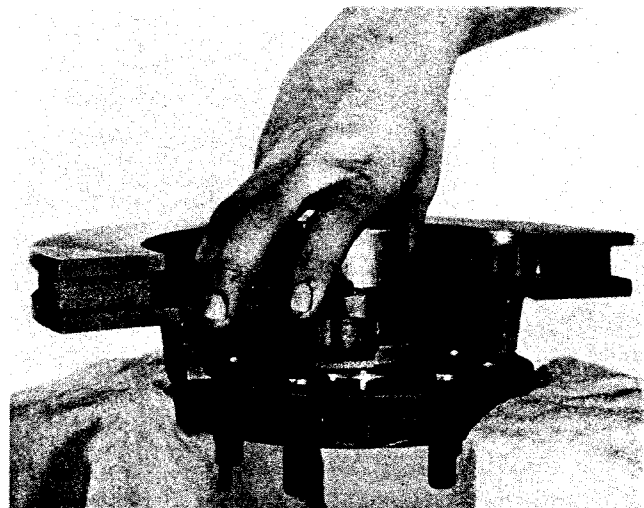


FIGURE 193

1009-193

Assemble bearing retainer plate and seal on to hub as shown.

# SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS

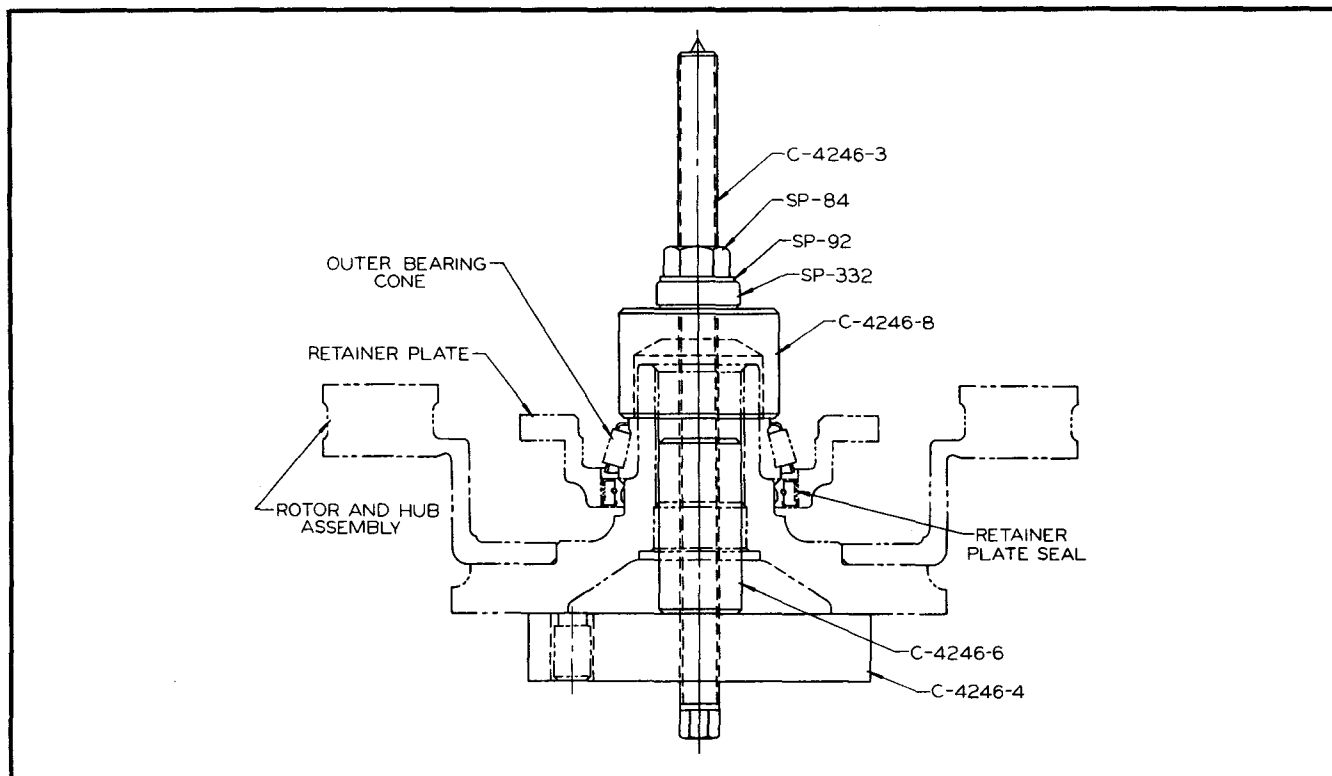


FIGURE 194

L/D Bearing Assembly #1

1009-194

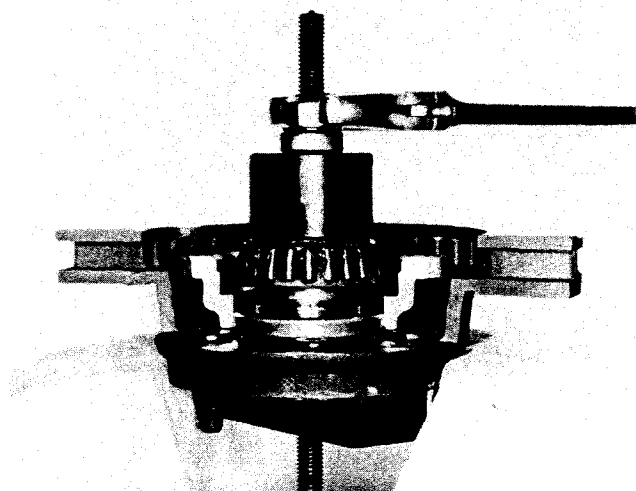


FIGURE 195

1009-195

Pack bearing cones with the specified grease. Assemble new outer bearing cone on hub, making sure it is not cocked. Start bearing on, making absolutely sure the taper of the bearing rollers are in the same direction as shown. Assemble tools and press bearing onto hub until it is completely seated.

Refer to line drawing in Figure #194 for proper tools and their position. Remove tools.

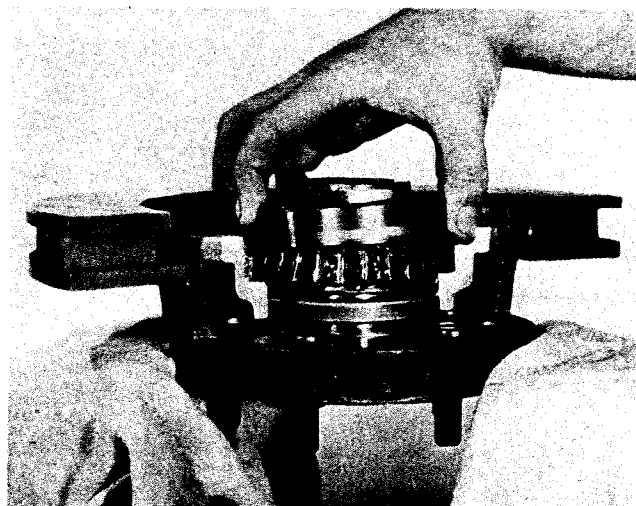
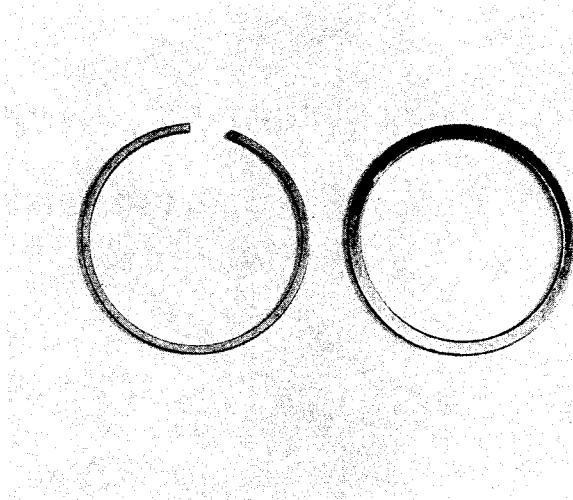


FIGURE 196

1009-196

Assemble new bearing cup. Rotate cup a few turns, this will distribute the grease around the inside of the cup.

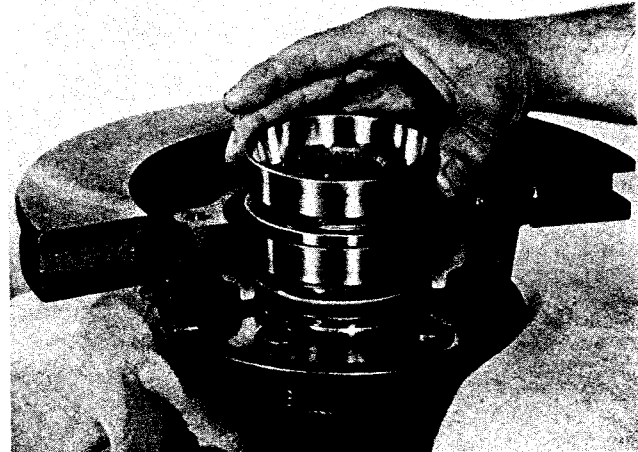
# SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS



**FIGURE 197**

1009-197

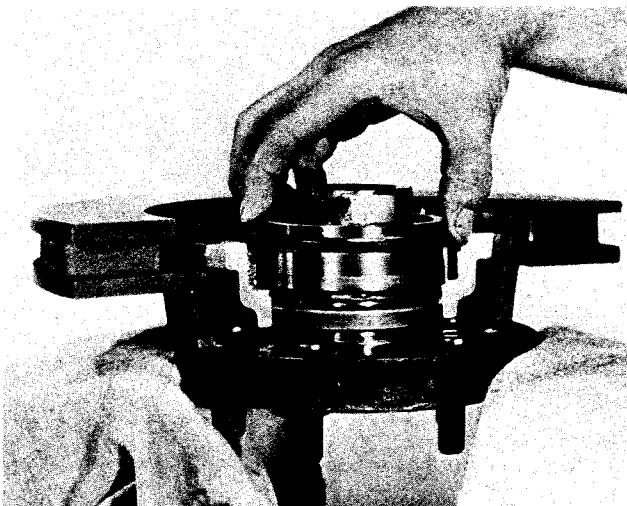
Early production, axle assemblies were designed with a split spacer. Late or current production axles are designed with a solid spacer. Service parts will contain the solid spacer. Figure #197 shows both spacers and any axles being serviced which contain the split spacer are to be changed to the solid spacer.



**FIGURE 199**

1009-199

Assemble new inner bearing cup on top of solid spacer.



**FIGURE 198**

1009-198

Assemble new *solid* spacer on top of outer bearing cup.

# SERVICING FRONT AXLE ROTOR-HUB AND WHEEL BEARINGS

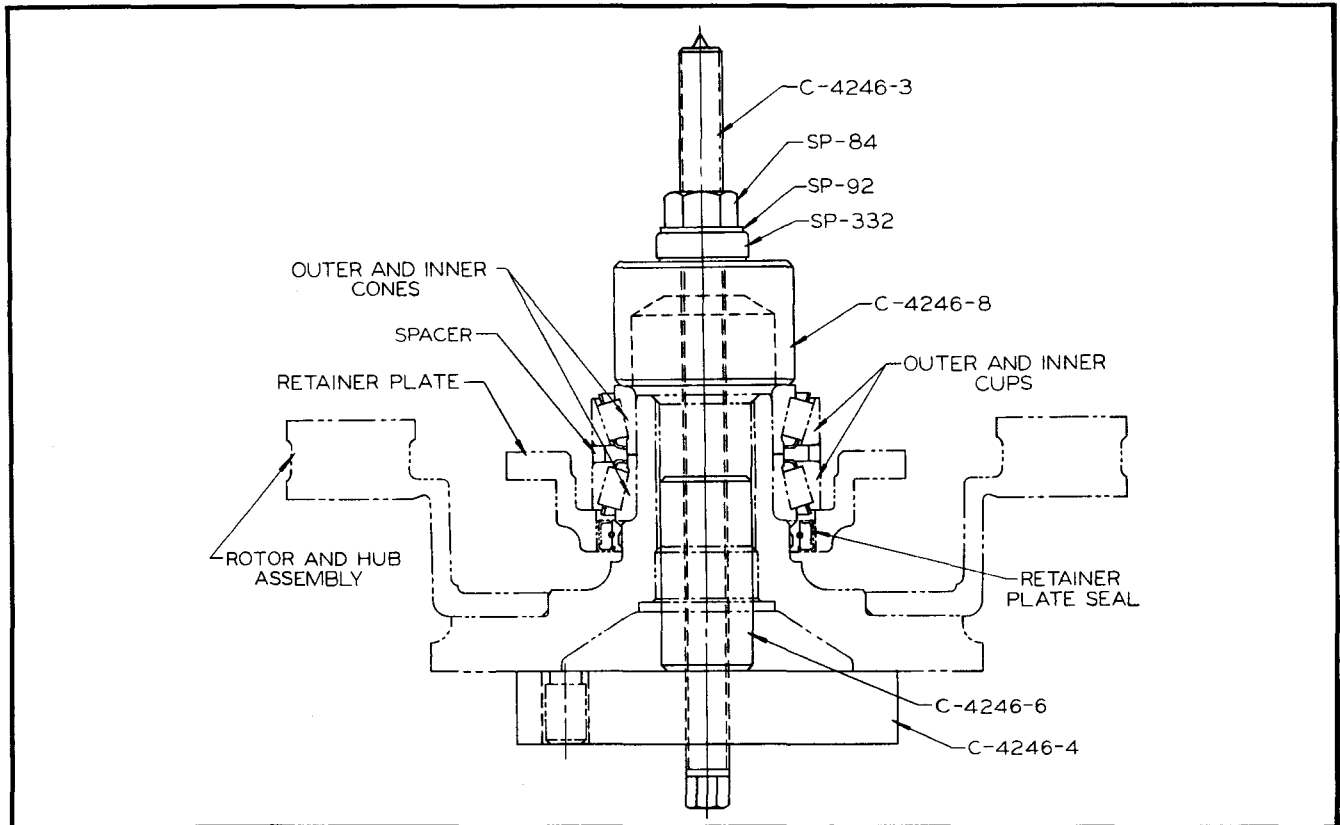


FIGURE 200

L/D Bearing Assembly #2

1009-200

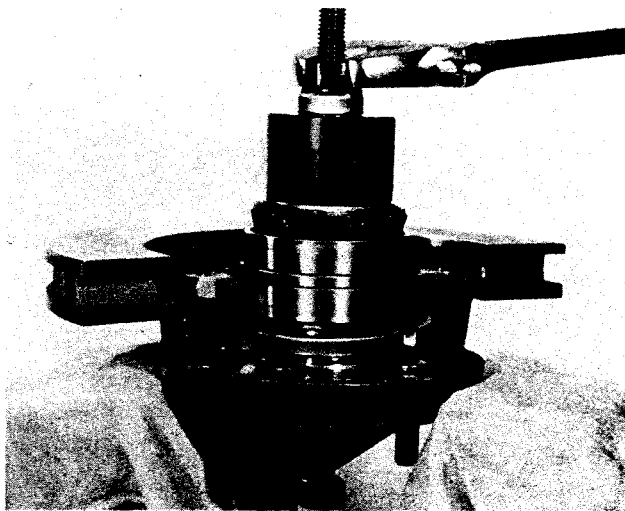


FIGURE 201

1009-201

Pack bearing cone with the specified grease. Assemble new inner bearing cone on hub making sure it is not cocked. Start bearing on, making absolutely sure the taper of the bearing rollers are in the same direction as shown. Assemble tools and press bearing onto hub until it is completely seated into cup and the cup is completely seated onto the spacer. Refer to line drawing in Figure #200 for proper tools and their position. Remove tools.

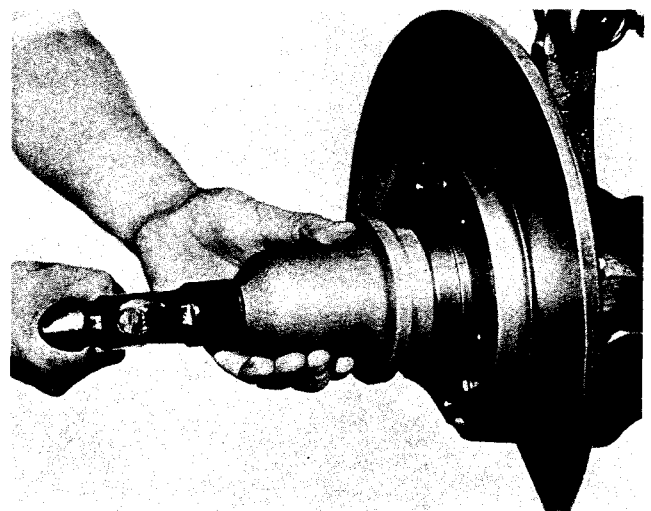


FIGURE 202

1009-202

Apply a small amount of grease to lip of seal. Push axle shaft assembly all the way into housing. Start the new seal into the knuckle bore with the "inside" marking on the seal towards installing tool. Tap on installing tool (make sure seal is not cocked) until seal is approximately  $\frac{1}{4}$  inch into knuckle. Pull shaft out and the seal diameter of the shaft will slip into seal.

# SERVICING FRONT AXLE ROTOR-HUB AND WHEEL BEARINGS

## CAUTION

*Do not pull shaft into seal any further than the seal diameter. This is to prevent damage to seal lip during assembly.*

Reinstall seal driver tool, hit on tool until it hits or bottoms out against knuckle. Seal should now be properly positioned.

Tool: #C-4250 Seal Installer.

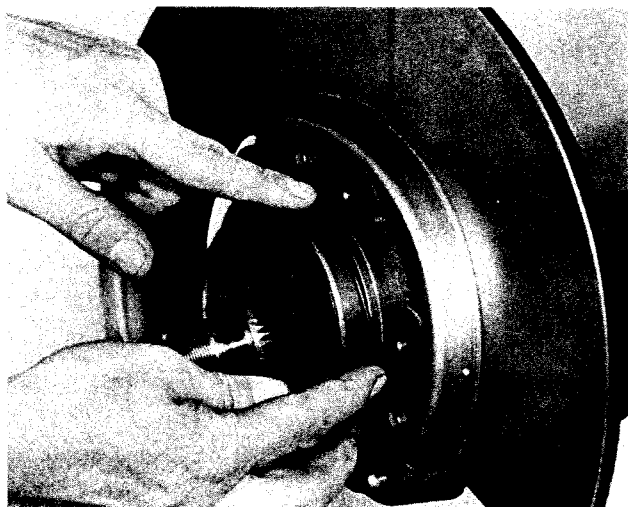


FIGURE 203

1009-203

Assemble new "O" ring on knuckle as shown. You are now ready for rotor assembly.

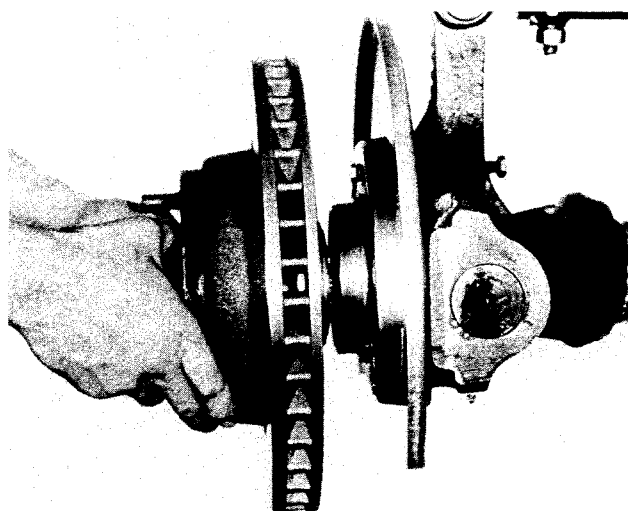


FIGURE 204

1009 204

Carefully put the brake rotor and bearing assembly on to the axle shaft splines and the bearings starting into the knuckle bore. Keep brake rotor assembly as straight as possible. If brake rotor assembly cocks, pull it off check for nicks etc. Do not use extreme force, such as hammering.

This may cause damage to the bearings or other parts. When brake rotor assembly is in place, assemble axle shaft washer and nut. This is to keep brake rotor from sliding back off.

## CASTING GATE

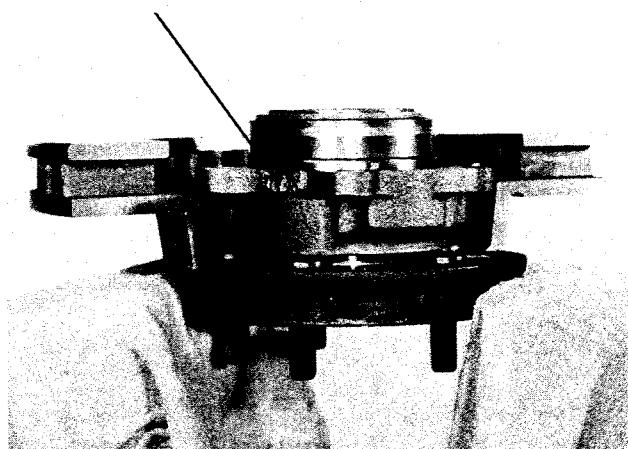


FIGURE 205

1009-205

## CAUTION

*There is a casting gate, or boss on the outside of the bearing retainer flange between the bolt holes. Make sure this area of the retainer is positioned between the screws which retain the dust shield to the knuckle. If retainer is not assembled properly the gate or boss will interfere with the screws of the dust shield and will not seat against the knuckle.*

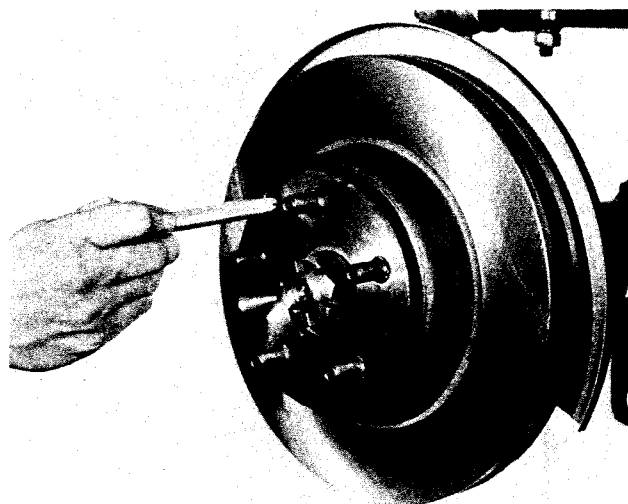
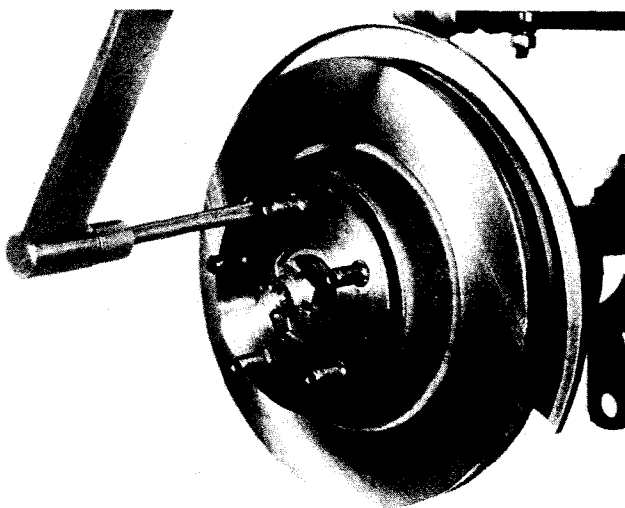


FIGURE 206

1009-206

Align bearing retainer screw holes with a drift so the screws can be started through the hole in the brake rotor assembly. Make sure gate or boss is between dust shield screws.

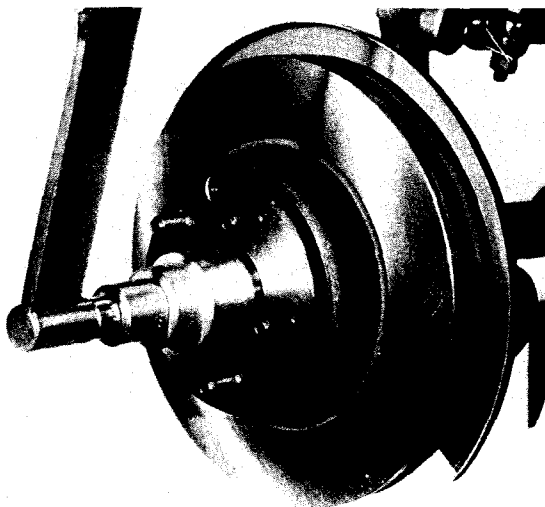
## SERVICING FRONT AXLE ROTER-HUB AND WHEEL BEARINGS



**FIGURE 207**

1009-207

Start cap screws and tighten them to 25-35 lbs. ft. in a criss-cross pattern.



**FIGURE 208**

1009-208

Hold brake rotor assembly and tighten axle shaft nut to 100 lbs. ft. Continue to tighten until next slot aligns up with cotter key hole in shaft. Assemble cotter key. Replace brake caliper and wheel. Refer to Vehicle Manual for brake components.

For further information write to:

Spicer Axle Division

Dana Corporation

P. O. Box 1209

Fort Wayne, Indiana 46801

Attention: Technical Service Department