Rockwell

Maintenance Manual UPDATE

For Field Maintenance Manual No. 9
"Planetary Axle Wheel Ends"

Replacing Pinion Shafts With Roller Bearings

Planetary Axle Models
SPRC-1927, SPRC-1736,
PRC-1105 & PRC-1615 ONLY

⚠ WARNING

To prevent serious eye injury, you must always wear safe eye protection when performing maintenance or service.

When you replace the pinion shafts, you must replace the needle roller bearings, planetary gears and set screws. For maximum planetary gear life, change the pinion shafts and needle roller bearings on both wheel ends at the same time.

Disassemble the Planetary Spider

⚠ WARNING

Do not work under a vehicle supported only by jacks. Jacks can slip or fall over and cause serious personal injury. Support the vehicle with safety stands.

1. Remove the planetary spider from the wheel hub. See pages 5 and 6 of Field Maintenance Manual No. 9.
2. Remove the set screws (when used) that hold the pinion shafts in the spider. Set screws are located at the small diameter ends of the pinion shaft.
3. Put the spider assembly in a press with the flange side **DOWN**.

NOTE:

When a press is not available, use a brass drift and mallet to remove the pinion shafts.

⚠ WARNING

Do not hit steel parts with a steel hammer. Pieces can break off and cause serious personal injury.

4. Place blocks under the spider. Blocks give you more room to remove the planetary pinion shafts.
5. Press the shaft out of the spider and planetary gear. Remove all three pinion shafts the same way.
6. Remove the planetary gears and thrust washers from the planetary spider.
7. Remove the needle roller bearings from the bore of the planetary gear.

Assemble the Planetary Spider

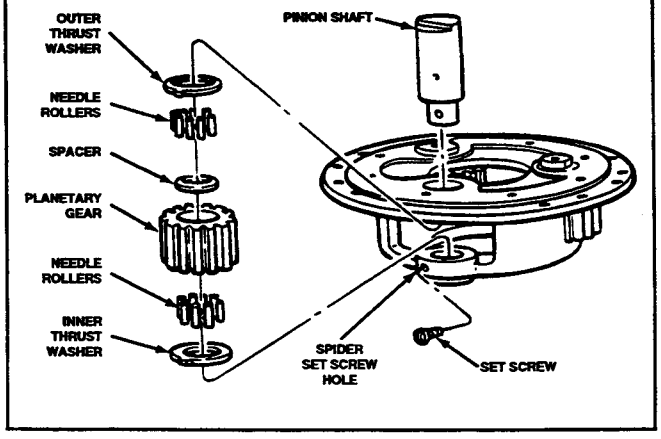
1. Prepare the parts for assembly as described under "Prepare for Reassembly" on pages 13-15 of Field Maintenance Manual No. 9.

NOTE:

Flush the complete axle before reassembly. Most current rigid axles (PRC, PRM and PRS) do not use axle shaft oil seals. The lube is common to the wheel ends and the center section. Contamination from either wheel end or the carrier can spread to all other areas of the axle. Therefore, the entire axle (both wheel ends and center section) must be thoroughly drained and flushed.

2. Apply Rockwell-approved grease (O-617-A or B, NLGI Grade 1 or 2) to the side of the inner thrust washer that is opposite the tang. The inner thrust washer has a smaller inner diameter than the outer thrust washer. The greased side of the washer goes toward the gear. Tangs to the outside will fit in the spider grooves.
3. Put the washer on the end of the new planetary gear (**Figure 1**).

Figure 1



4. Apply grease (O-617-A or B, NLGI Grade 1 or 2) to the bore of the planetary gear.

NOTE:

The number of needle roller bearings used is different for each axle model.

5. Install a row of needle rollers around the bore in the pinion. Install as many rollers as will fit. Refer to the Bill of Material to determine the correct number of rollers.
6. Put the spacer into the bore of the gear on top of the needle rollers. Put another row of needle rollers on top of the spacer.
7. Apply grease (O-617-A or B, NLGI Grade 1 or 2) to the side of the outer thrust washer opposite the tang. Put the washer on the end of the planetary gear. The tang must be aligned with the tang of the opposite washer.
8. Set the planetary spider on a level surface with the flange side **UP**. Carefully slide the loaded planetary gear assembly into position in the planetary spider.
   a. The outer thrust washer (large bore) must be on top of the gear assembly.
   b. The washer tangs must be in the planetary spider grooves.
   c. The needle roller bearings must be in place.
9. Install the pinion shaft through the spider, the planetary gear and thrust washers. An interference fit will bind the large end of the pinion shaft in the spider. When the shaft has a set screw hole, the shaft hole must align with the spider set screw hole.

NOTE:

A shaft without a set screw must be aligned so that the flat surface on the large end is toward the outside of the hub. This alignment allows for spider cover clearance and prevents the shaft from rotating when the cover is installed.

10. Repeat steps 1 through 8 to install the second and third sets of pinion shafts, gears, needle rollers and thrust washers.
11. Check the alignment of the pinion shafts.
    a. When the pinion shafts do not have set screws, put the spider cover in place. When necessary, rotate the shafts so the spider cover fits over the flats. Once the shafts are aligned, remove the cover.
    b. When the pinion shafts have set screws, the shaft and spider set screw holes must be aligned. Adjust the alignment as necessary.

⚠ WARNING

Do not hit steel parts with a steel hammer. Pieces can break off and cause serious personal injury.

12. Use a press and sleeve to press each pinion shaft into the planetary spider. The pinion shaft is correctly installed when the shoulder of the shaft bottoms against the inner (bottom) thrust washer.

NOTE:

When a press is not available, use a brass drift and mallet to install the pinion shafts.

13. When necessary, install the set screws in the spider and pinion shafts. When the screws have been used before, apply one or two drops of Loctite 277 (part no. 2297-C-3747) or an equivalent to the threads of the spider before installing the screws. Tighten the set screws to a torque of 15-25 lb-ft (20-33 N•m). T
14. Install the planetary spider on the wheel hub. See "Reassembly" on pages 25 and 26 of Field Maintenance Manual No. 9.

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