

## PROPELLER SHAFT

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### PROPELLER SHAFT

The propeller shaft assembly consists of the tubular piece of steel, universal joints and yokes.

The rear end of the propeller shaft is attached to the companion flange of the rear axle through the universal joint and the front end is attached to the main shaft of the transmission by means of the splined sliding yoke, which permits fore and aft movement of the propeller shaft when the rear axle moves up and down.

The universal joints are lubricated for life, so do not require lubricating.

#### 8-A. REMOVING OF PROPELLER SHAFT

1. Remove the bolts attaching the rear end of the propeller shaft to the companion flange of the rear axle.

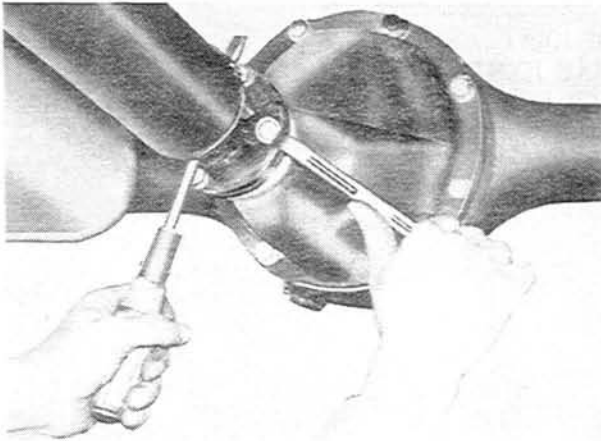


Fig. 8-1 Disconnecting of propeller shaft

2. Pull the propeller shaft rearward and disconnect it from the transmission extension.

#### 8-B. CHECKING OF PROPELLER SHAFT

1. Check the run-out of the propeller shaft by supporting both ends of the propeller shaft on the V blocks and applying a dial indicator. The permissible run-out is under 0.4 mm (0.016 in).

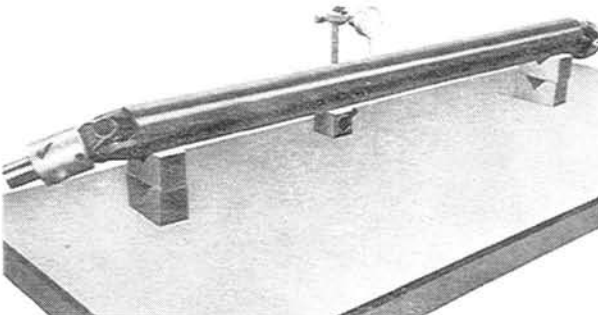


Fig. 8-2 Checking of run-out

2. Check the propeller shaft for dynamic unbalance. If it is more than 20 cm-kg (17.4 in-lb) at 4,000

rpm, correct or replace it. Excessive unbalance of the propeller shaft causes vibration and noise.

#### 8-C. DISASSEMBLING OF UNIVERSAL JOINT

1. Remove the snap rings retaining the bearing cups in the yoke.

2. Using a hammer and drift, drive in one of the bearing cups and remove the opposite bearing cup from the yoke.

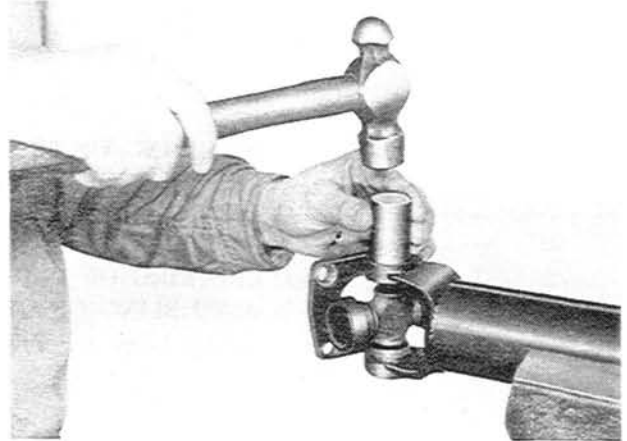


Fig. 8-3 Removing of bearing cup

3. Remove the remaining bearing cup by pressing the spider.

4. Remove the spider from the yoke.

If the **universal joint replacer** (49 0259 460) is available, use it to disassemble the universal joint, as follows:

1. Remove the snap rings.

2. Position the **universal joint replacer** (49 0259 460) on the yoke and screw in the center bolt until the bearing cup comes out of the yoke.

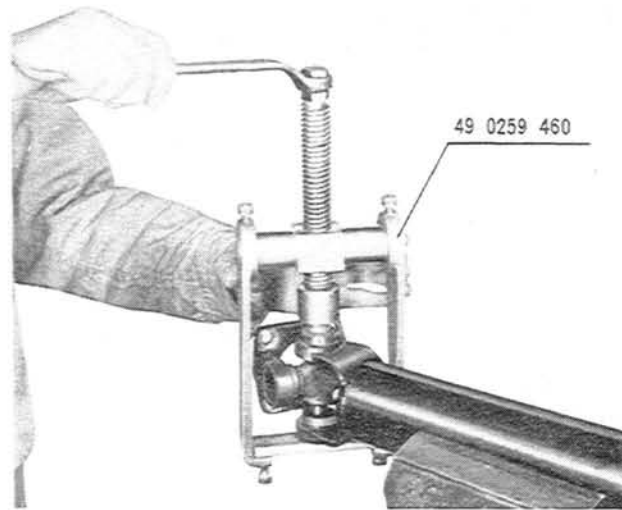


Fig. 8-4 Universal joint replacer

3. Remove the replacer and remove the bearing cup.

4. Remove the other bearing cups in the same manner.

**8-D. CHECKING OF UNIVERSAL JOINT**

1. Examine the bearing surfaces of the spider. They should be smooth and free from pits.
2. Measure the diameter of the spider. If the wear of the spider exceeds 0.1 mm (0.0394 in), replace with a new one. The standard diameter is 14.72 mm (0.5795 in).

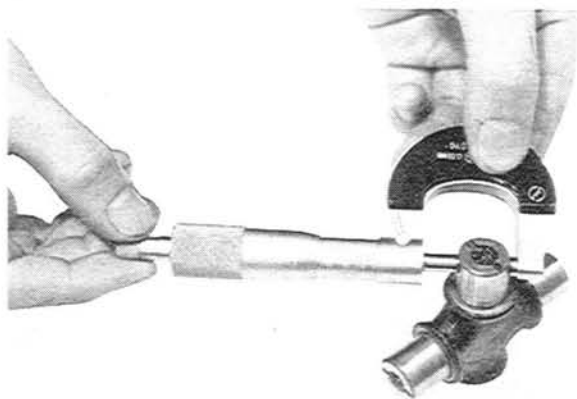


Fig. 8-5 Measuring of spider diameter

3. Check the needle rollers in the bearing cups for wear or any damage. The rollers should have a uniformly good appearance and roll freely inside the bearing cup.

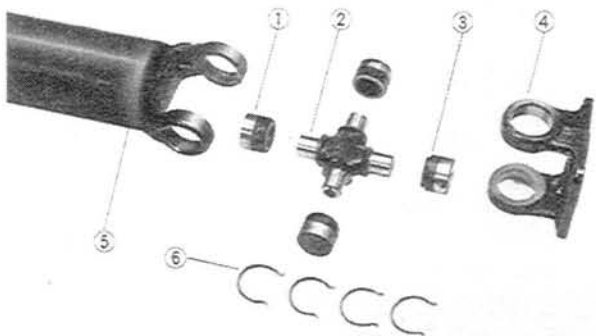


Fig. 8-6 Universal joint

- |                   |                    |
|-------------------|--------------------|
| 1. Roller bearing | 4. Yoke            |
| 2. Spider         | 5. Propeller shaft |
| 3. Oil seal       | 6. Snap ring       |

**8-E. ASSEMBLING OF UNIVERSAL JOINT**

1. Smear the wall of the bearing cup with grease to retain the needle rollers in place.
2. Assemble the needle rollers in the bearing cup and fill them with grease.
3. Fit the oil seal in place.

4. Place the spider in the yoke. Position the needle roller bearing assembly into the yoke.
5. Using the replacer together with the adopter and plate, press-fit the bearing assembly into the yoke while guiding the spider into the bearing until the snap ring can be installed.

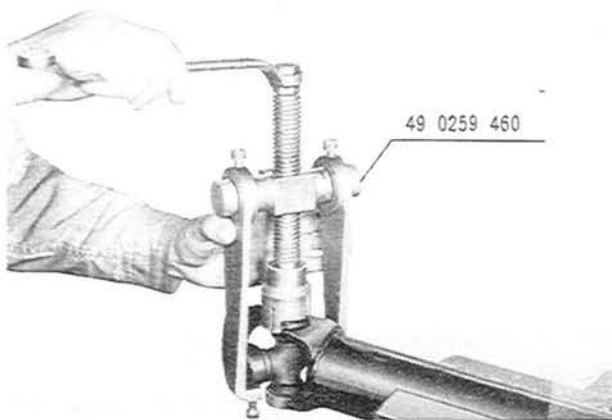


Fig. 8-7 Installing of bearing cup

6. Install the snap ring.
7. Press-fit the remaining bearing assembly into the yoke as instructed above.
8. Install the snap ring to hold the bearing cups in the yoke. In this case select the properly sized snap rings so that the universal joint is placed in the center of the cups.

The snap rings are available in the following thickness.

1.22 mm (0.048 in)	1.28 mm (0.050 in)	1.34 mm (0.053 in)
1.24 mm (0.049 in)	1.30 mm (0.051 in)	1.36 mm (0.054 in)
1.26 mm (0.050 in)	1.32 mm (0.052 in)	1.38 mm (0.054 in)

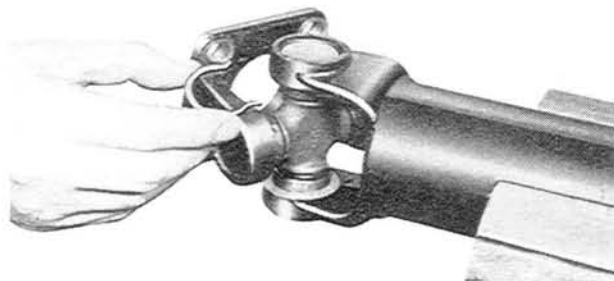


Fig. 8-8 Installing of snap ring

**8-F. INSTALLING OF PROPELLER SHAFT**

Installing the propeller shaft in the reverse order of removing.

**SPECIAL TOOL**

49 0259 460	Universal joint replacer
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