PROPELLER SHAFT AND UNIVERSAL JOINTS

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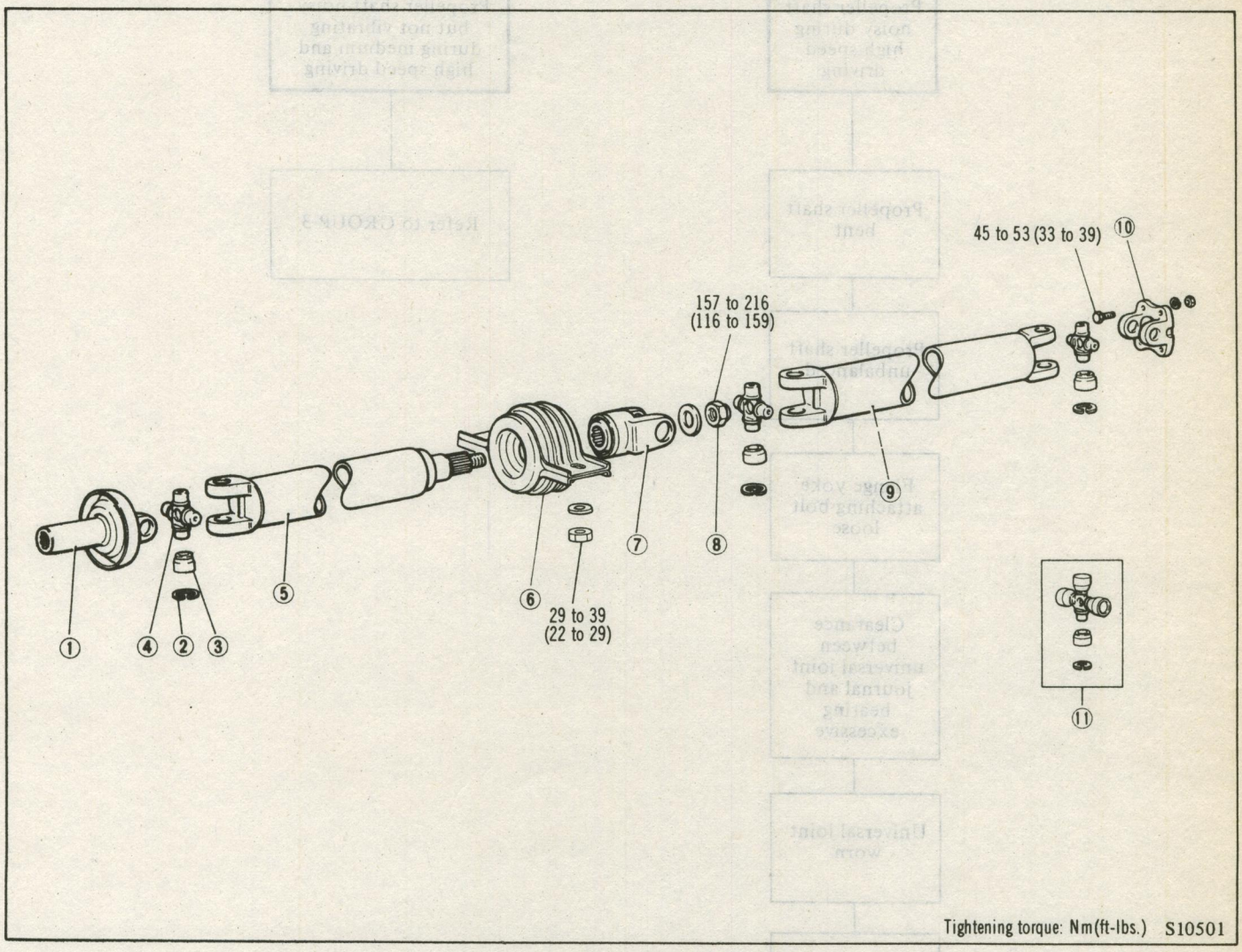
GENERAL INFORMATION

A three-joint type propeller shaft with cross-shaft type universal joints is used.



(1) Sleeve yoke
(2) Snap ring
(3) Needle bearing
(4) Universal joint journal
(5) Front propeller shaft
(6) Center bearing assembly
(7) Center yoke
(8) Center yoke attaching nut
(9) Rear propeller shaft
(10) Propeller shaft flange yoke
(11) Universal joint journal kit

Fig. 1 Propeller Shaft Components

TROUBLE SHOOTING

- Propeller shaft noisy during high speed driving
  - Propeller shaft bent
  - Propeller shaft unbalanced
  - Flange yoke attaching bolt loose
  - Clearance between universal joint journal and bearing excessive
  - Universal joint worn
  - Center bearing bracket loose
  - Center bearing worn
- Propeller shaft noisy, but not vibrating during medium and high speed driving
  - Refer to GROUP 3

PROPELLER SHAFT

REMOVAL

(1) Remove bolts connecting flange yoke to differential companion flange, and remove nuts attaching the center bearing assembly.

(2) Remove the propeller shaft by drawing it out.

(3) Make mating marks on the flange yoke and differential companion flange.

NOTE: When the sleeve yoke end of the propeller shaft is pulled out from the transmission extension housing, transmission oil will flow out if the front end of the truck is raised higher.

When removing the propeller shaft, be careful not to damage the oil seal lip and see that no foreign substance is present in the lip area. Also use care to keep the oil seal clean and free of dust.

DISASSEMBLY

Universal Joint Assembly

(1) Remove the snap ring using snap ring pliers.

(2) Using a vise and suitable wrench sockets as shown in Figure 2, force out one needle bearing from the propeller shaft flange yoke.

(3) Remove the other needle bearing in the same manner as described above.

CAUTION:
When disassembling, note the positions of snap rings so that they may be reinstalled in the same positions.

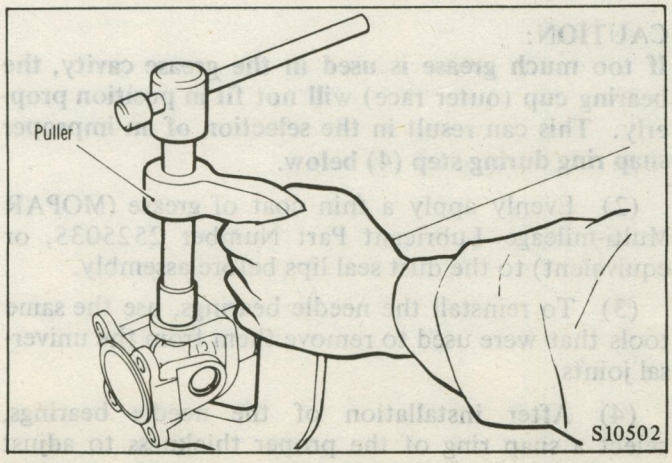


Fig. 2 Removing the Needle Bearing

Center Bearing Assembly

(1) Take out the propeller shaft assemblly and disconnect center universal joint. Take out center yoke attaching nut on center yoke.

(2) Remove the center yoke. Remove the center bearing bracket from the bearing by prying up.

(3) Using a puller, remove the bearing as shown in Figure 3.

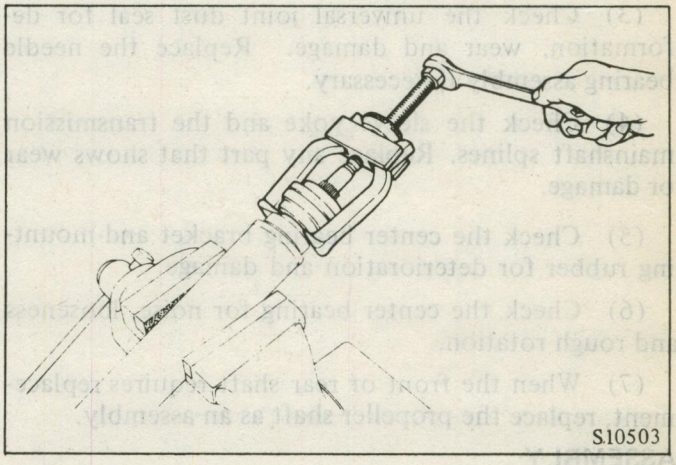


Fig. 3 Removing the Center Bearing

NOTE: The center bracket and mounting rubber attaching band are spot-welded on the circumference and therefore can not be disassembled.

INSPECTION

(1) Mount the propeller shaft on V blocks placed approximately 50 mm (2 in.) from the shaft ends.

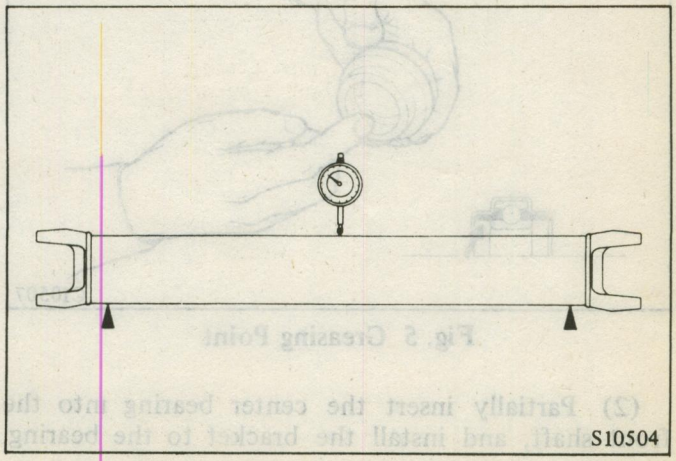


Fig. 4 Checking Propeller Shaft Bend

Using dial indicator check the amount of bend. If the bend exceeds the standard dimension or the propeller shaft indicates cracks over the tubing or on yoke weld seams, replace the propeller shaft. (Fig. 4)

Description	Standard dimension mm (in.)
Bend of propeller shaft	Within 0.5 (.02) (Total indicator reading)

(2) If universal joint journals indicate needle roller impressions, dents, pitting or rust, replace both the universal joint journals and needle bearings as an assembly.

(3) Check the universal joint dust seal for deformation, wear and damage. Replace the needle bearing assembly if necessary.

(4) Check the sleeve yoke and the transmission mainshaft splines. Replace any part that shows wear or damage.

(5) Check the center bearing bracket and mounting rubber for deterioration and damage.

(6) Check the center bearing for noise, looseness and rough rotation.

(7) When the front or rear shaft requires replacement, replace the propeller shaft as an assembly.

ASSEMBLY

Center Bearing Assembly

(1) When installing the center bearing, fill the bearing grease cavity with multipurpose grease (MOPAR Multi-mileage Lubricant Part Number 2525035, or equivalent) as necessary.

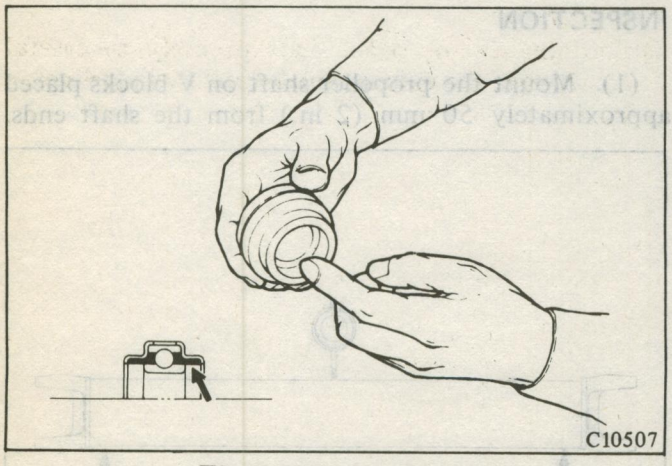


Fig. 5 Greasing Point

(2) Partially insert the center bearing into the front shaft, and install the bracket to the bearing. Verify that the bracket mounting rubber part is properly fitted in the bearing groove all around. Install the center yoke. Align the mating marks on the shaft and yoke, and properly connect the shafts. (Fig. 6)

Part to be tightened	Torque Nm (ft-lbs.)
Center yoke attaching nut	157 to 216 (116 to 159)

CAUTION:
The center yoke and center bearing bracket lock nuts are self-lock nuts, which must be replaced with new parts.

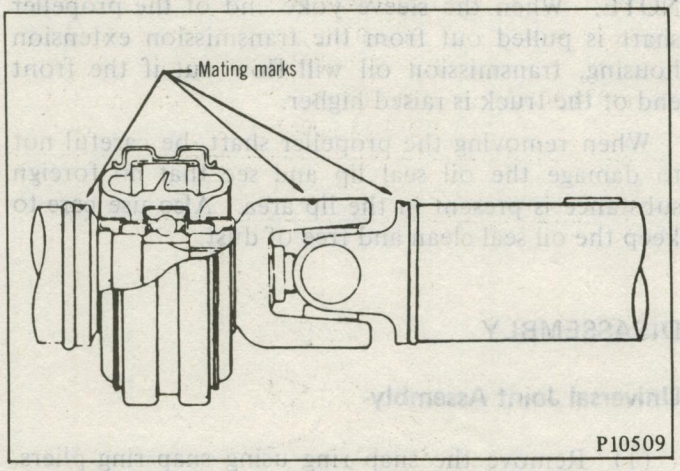


Fig. 6 Mating Marks of Yoke and Shaft

Universal Joint Assembly

(1) Pack a sufficient amount of grease (MOPAR Multi-mileage Lubricant Part Number 2525035, or equivalent) in each grease cavity of the universal joint journals. Also apply a thin coat of grease (MOPAR Multi-mileage Lubricant Part Number 2525035, or equivalent) evenly to the needle bearings and the journals.

CAUTION:
If too much grease is used in the grease cavity, the bearing cup (outer race) will not fit in position properly. This can result in the selection of an improper snap ring during step (4) below.

(2) Evenly apply a thin coat of grease (MOPAR Multi-mileage Lubricant Part Number 2525035, or equivalent) to the dust seal lips before assembly.

(3) To reinstall the needle bearings, use the same tools that were used to remove them from the universal joints.

(4) After installation of the needle bearings, select a snap ring of the proper thickness to adjust the snap ring-to-bearing end clearance to the standard value.

CAUTION:
If possible, use snap rings of the same thickness on each pair of yokes in order to provide adequate balance to the propeller shaft.

Range of Snap Rings

Part No.	Thickness mm (in.)	Color code
MA180905	1.28 ±0.015 (.0504 ±.0006)	
MA180906	1.31 ±0.015 (.0516 ±.0006)	Yellow painted
MA180907	1.34 ±0.015 (.0528 ±.0006)	Blue painted
MA180908	1.37 ±0.015 (.0539 ±.0006)	Purple painted

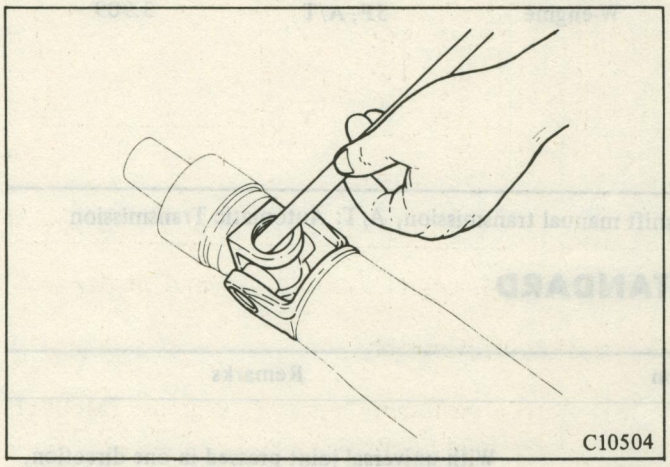


Fig. 7 Measuring for Snap Ring Selection

Description	Standard value	Remarks
Clearance between needle bearing assembly and snap ring (at one side)	0 to 0.03 mm (0 to .001 in.)	With the snap rings installed, press the universal joint in one direction, then measure clearance between the other snap ring and bearing end.
Turning torque of universal joint journal	0.8 Nm (.6 ft-lbs.)	
Propeller shaft dynamic unbalance	Less than 5.0 g (.18 oz.)	Check dynamic unbalance with the universal joint assembly flange yoke sleeve installed.
Fit between needle bearing cap (outer race) and yoke	0.03T to 0.02L mm (.0012T to .0008L in.)	

INSTALLATION

When installing the propeller shaft, observe the following items:

(1) Clean the outside surface of the sleeve yoke very carefully and apply gear oil before installing propeller shaft.

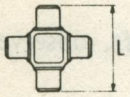
(2) Securely tighten flange yoke bolts and center bearing attaching nuts to the standard torque.

Parts to be tightened	Torque Nm (ft-lbs.)
Flange yoke bolts	45 to 53 (33 to 39)
Center bearing attaching nuts	29 to 39 (22 to 29)

CAUTION:
On installing the propeller shaft assembly, be careful not to damage the exhaust, brake and fuel pipelines.

SPECIFICATIONS

Description	Specifications mm (in.)	Engine	Transmission *	Final gear ratio
Propeller shaft				
Type	3-joint type	All models		
Length x O.D. x t				
Front	660 x 75 x 1.6 (26.0 x 2.95 x .06)	U-engine	4F (KM130)	3.909
	560 x 75 x 1.6 (22.0 x 2.95 x .06)	U-engine	A/T	3.909
	664 x 75 x 1.6 (26.1 x 2.95 x .06)	W-engine	5F (KM132)	3.909
	569 x 75 x 1.6 (22.4 x 2.95 x .06)	W-engine	A/T	3.909
Rear	851 x 75 x 1.6 (33.5 x 2.95 x .06)	U-engine	4F, A/T	3.909
	842 x 75 x 1.6 (33.1 x 2.95 x .06)	W-engine	5F, A/T	3.909
Universal joint				
Type	Cross shaft type	All models		
Bearing	Grease-packed needle bearing	All models		
Journal O.D.	14.689 (.57831)	All models		
Length (L)	63.99 (2.52)	U-engine	4F, A/T	3.909
	76.79 (3.02)	W-engine	5F, A/T	3.909



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* 4F: 4 speed floor shift manual transmission, 5F: 5 speed floor shift manual transmission, A/T: Automatic Transmission

SERVICING STANDARD

Description	Standard dimension	Remarks
Propeller shaft		
End play of universal joint journal	0 to 0.03 mm (0 to .001 in.)	With universal joint pressed in one direction, check clearance between other snap ring and bearing end.
(Journal turning torque)	0.8 Nm (.6 ft-lbs.)	
Fitting of needle bearing cap (outer race) and yoke	0.03T to 0.02L mm (.0012T to .0008L in.)	
Bend of propeller shaft	Within 0.5 mm (.02 in.)	Total indicator reading

TIGHTENING TORQUE

Description	Torque Nm (ft-lbs.)
Center yoke attaching nut	157 to 216 (116 to 159)
Flange yoke installation	45 to 53 (33 to 39)
Center bearing bracket attaching nut	29 to 39 (22 to 29)