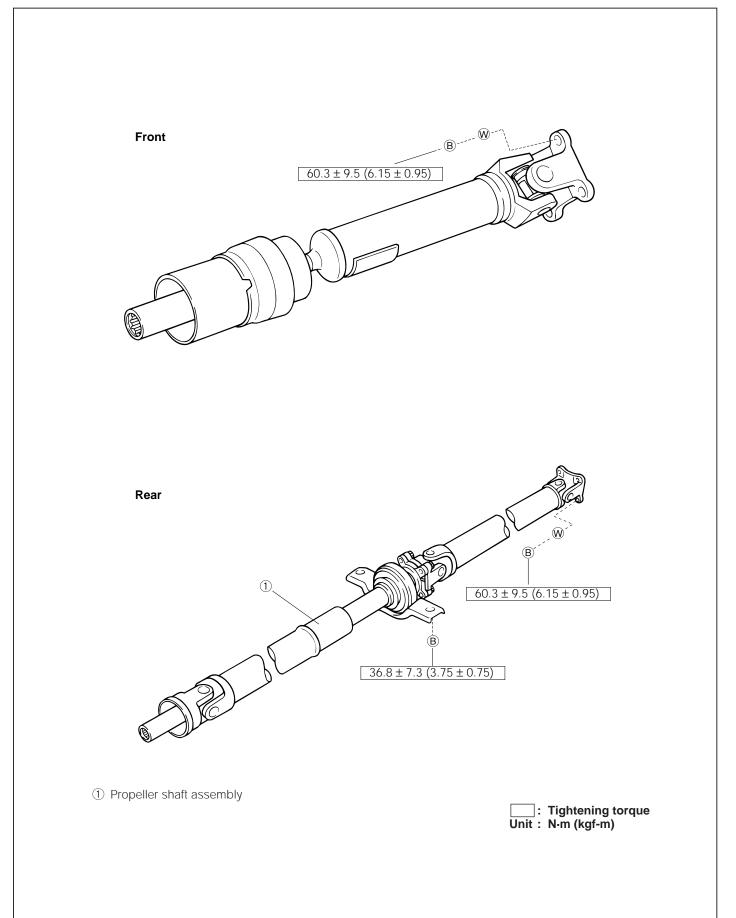


# **PROPELLER SHAFT**

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### COMPONENTS



## **IN-VEHICLE INSPECTION**

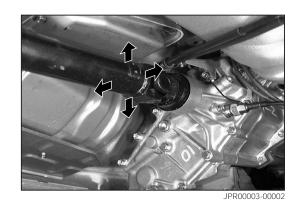
Ensure that the universal joint section of the propeller shaft exhibits no excessive play by turning it by your hand in up-and-down and right-and-left directions.

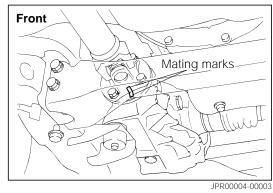
If any excessive play exists, replace the propeller shaft with a new one.

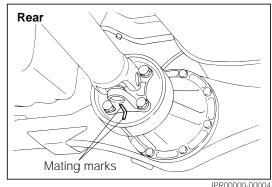
### REMOVAL

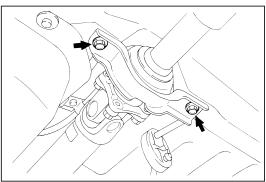
- 1. Jack up the vehicle and support it with safety stands. (As for the jacking-up points and supporting points for safety stands, refer to the GI section in this service manual.)
- 2. Put mate marks on the flange yoke and companion flange, respectively.

- 3. Remove the two attaching bolts of the center support bearing and support the center bearing with a suitable hanger or jack, etc., so that no bending force may be applied to the center support. (For rear propeller shaft) CAUTION:
  - Never apply the bending force to the center bearing and No. 2 joint of the rear propeller shaft.
- 4. Loosen the attaching bolts of the flange yoke evenly.
- Remove the propeller shaft assembly by removing the attaching bolts and disconnect it from the transfer case. NOTE:
  - Prior to disconnection of the propeller shaft from the transfer case, drain the transfer oil from the transfer case or prepare a suitable oil stopper and install it immediately after disconnection of the propeller shaft, for quite large amount of the transfer oil will flow out.













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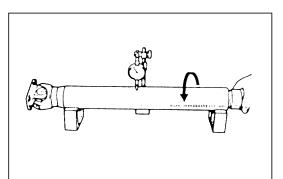
# PR-4

## INSPECTION

#### Front & rear

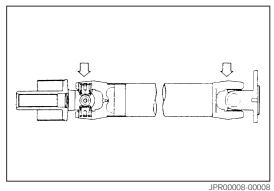
1. Check the propeller shaft for evidence of damage or bend.

Limit of bend: 0.5 mm



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2. Check the spider bearing cup-fitting section for damage.

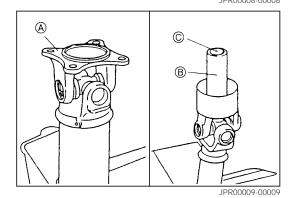


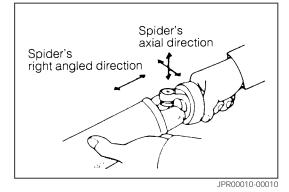
- 3. Check the flange yoke and sleeve yoke.
  - Inspect to see whether any damage is present at the differential drive pinion companion flange-contact section (A).
  - (2) Check the oil seal sliding section (B) for damage or wear.
  - (3) Check the spline  $\ensuremath{\mathbb{C}}$  for damage or wear.
  - (4) Fit the sleeve yoke onto the sliding spline of the transmission output shaft.

Ensure that the spline exhibits no looseness in the rotating direction and the sleeve can slide freely in the axial direction on the spline.

- 4. Check the universal joint for looseness as follows:
  - (1) Check the spider for looseness in an axial direction.
  - (2) Check the spider for looseness in a right-angled-direction.
  - (3) Check the spider for smooth rotation.

If any damage is found, replace the propeller shaft with a new one.

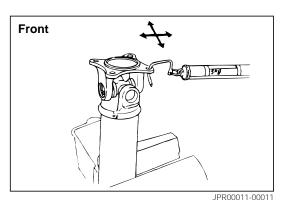


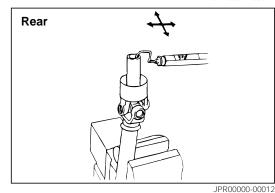


- 5. Check of universal joint preload
  - (1) Hook a spring scale at the bolt hole of the flange voke as well as at the sleeve yoke end.
  - (2) Gently pull the spring scale to measure the starting torque.

Starting Torque: 0.029 - 1.47 N·m (0.003 - 0.15 kgf-m)

Replace the propeller shaft, if the preload fails to meet the specified value.





### INSTALLATION

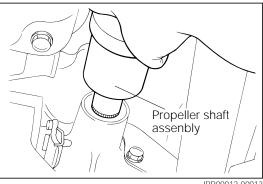
1. Apply the specified transmission fluid to both the inner and outer sides of the sleeve.

Specified Gear Oil Grade: API GL-3 or GL-4 Viscosity: SAE 75W-85 or 75W-90

- 2. Insert the propeller shaft assembly into the output shaft of the transfer case.
  - CAUTION:
  - Never insert the propeller shaft to the transfer case by force. Failure to observe this caution may damage the bush or oil seal in the transfer case.
  - Never apply the bending force to the center bearing and No. 2 joint of the rear propeller shaft.
- 3. Assemble the propeller shaft while aligning it with the mating mark put on the companion flange of the differential. (As for the illustration, refer to the disassembling procedure.)

CAUTION:

- Never insert the propeller shaft into the transfer case by force. Failure to observe this caution may damage the bush or oil seal in the transfer case.
- Never apply the bending force to the center bearing and No. 2 joint of the rear propeller shaft.



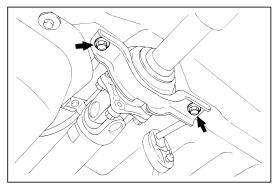
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# PR-6

- Install the propeller shaft yoke flange to the flange of the differential with new four attaching bolts with washers.
  CAUTION :
  - Be sure to clean the attaching surface of the yoke and flange properly. Failure to observe this caution may lead to propeller shaft vibration or damage, etc.
- Tighten the attaching bolts evenly over two or three stages to the specified tightening torque.
  Tightening Torque:

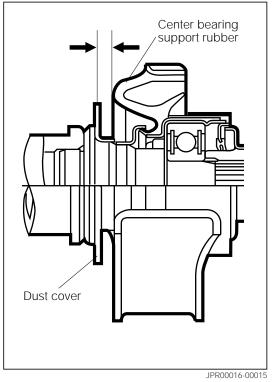
Tightening Torque:  $60.3 \pm 9.5$  N·m ( $6.15 \pm 0.95$  kgf-m)

6. Temporarily install the center support with two attaching bolts.



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7. Ensure that the clearance between the center bearing support rubber and the dust cover is within the specified value.

#### Specified clearance: 6 mm or more at installation.

If the clearance fails to meet the specified value, adjust the clearance by adjusting the center support attaching position.

Tighten the attaching bolts to the specified tightening torque evenly in two or three stages.
Tightening Torque: 26.8 + 7.2 N m (2.75 + 0.75 kcf m)

Tightening Torque:  $36.8 \pm 7.3$  N·m  $(3.75 \pm 0.75$  kgf-m)

9. Check and fill the specified transfer oil to the transfer case.

(Refer to the TR section.)

- 10. While turning the propeller shaft, ensure that the propeller shaft turns smoothly without exhibiting abnormal noise and/or binding.
- 11. Jack down the vehicle and check the clearance between the center support rubber and the dust cover.
- 12. Ensure that the clearance between the center bearing support rubber and the dust cover is within the specified value.

#### Specified clearance: 10 mm or more

If the clearance fails to meet the specified value, adjust the clearance by adjusting the center support attaching position. Then, tighten the attaching bolts to the specified tightening torque.

## TIGHTENING TORQUE

Tightoning component	Tightening torque	
Tightening component	N·m	kgf-m
Propeller shaft flange × Differential flange	60.3 ± 9.5	6.15 ± 0.95
Center bearing support × Body	36.8 ± 7.3	3.75 ± 0.75

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