

SECTION **PR**
PROPELLER SHAFT

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PR

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

NVH Troubleshooting Chart

EDS000A3

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Symptom		Possible cause and SUSPECTED PARTS														
		Uneven rotation torque	Center bearing improper installation	Excessive center bearing axial end play	Center bearing mounting (insulator) cracks, damage or deterioration	Excessive joint angle	Rotation imbalance	Excessive runout	DIFFERENTIAL	AXLE AND SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING	
PROPELLER SHAFT	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Shake		x			x				x	x	x	x	x	x	
	Vibration	x	x	x	x	x	x	x	x	x	x		x		x	
Reference page		—	Refer to PR-3, "REAR PROPELLER SHAFT"	—	—	—	Refer to PR-3, "REAR PROPELLER SHAFT"	—		NVH in RFD section	NVH in FAX, RAX, FSU, and RSU section	NVH in WT section	NVH in WT section	NVH in RAX section	NVH in BR section	NVH in PS section

x: Applicable

REAR PROPELLER SHAFT

REAR PROPELLER SHAFT

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On-Vehicle Service PROPELLER SHAFT VIBRATION

EDS000A5

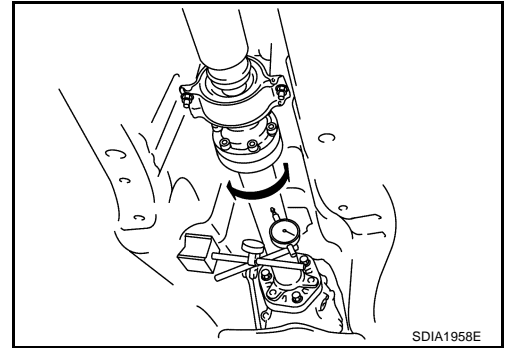
CAUTION:

If vibration is present at high speed, check mounting between propeller shaft and companion flange.
If vibration is present at high speed, check propeller shaft runout first.

1. Measure propeller shaft runout at runout measuring points by rotating final drive companion flange with your hands.

Propeller shaft runout limit : 0.6 mm (0.024 in) or less

2. If runout still exceeds specifications, disconnect propeller shaft at final drive companion flange: then rotate companion flange 60, 120, 180, 240, 300 degrees and reconnect propeller shaft.
3. Check runout again. If runout still exceeds specifications, replace propeller shaft assembly.
4. Perform driving test to check.
5. If the runout exceeds the service limit, do the following:
 - Remove the propeller shaft from the final drive companion flange.
 - Turn the propeller shaft 60, 120, 180, 240, 300 degrees and reinstall the propeller shaft to the companion flange, then measure the runout again.
 - If the runout still exceeds the service limit, replace the propeller shaft assembly.
 - Check the vibration by driving the vehicle.

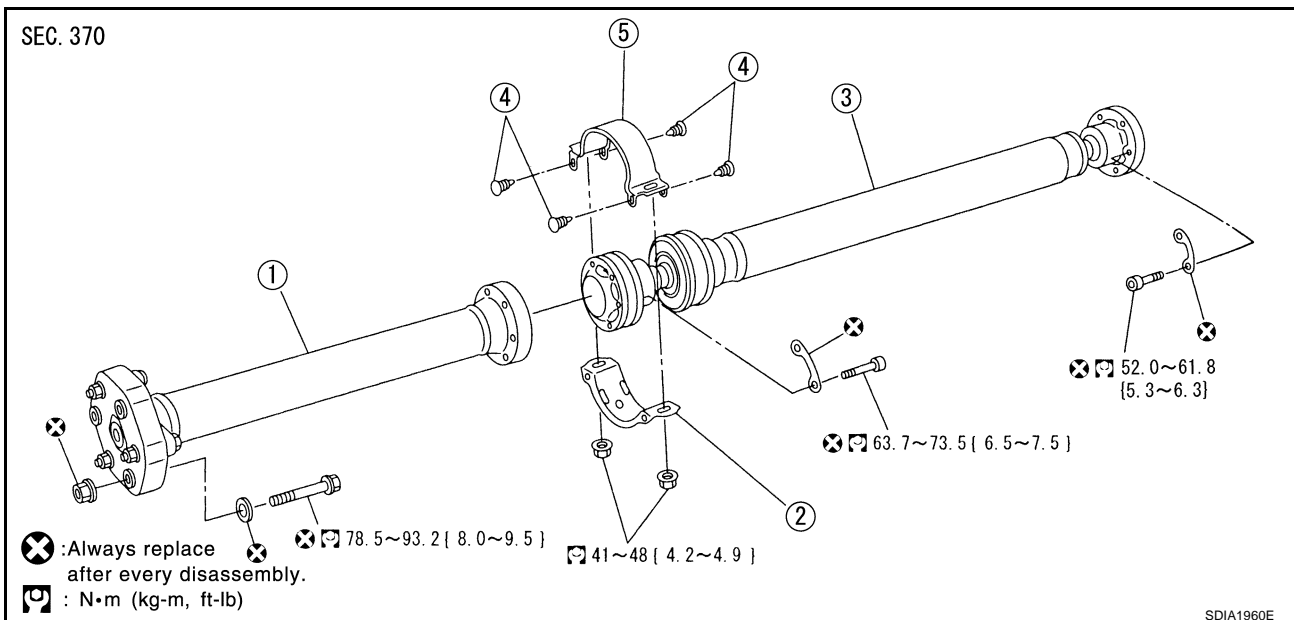


APPEARANCE AND NOISE INSPECTION

- Inspect propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

Removal and Installation

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- | | | |
|------------------------|--|------------------------|
| 1. 1st propeller shaft | 2. Center bearing lower mounting bracket | 3. 2nd propeller shaft |
| 4. Clip | 5. Center bearing upper mounting bracket | |

REMOVAL

1. Move A/T select lever to N range position.
2. Remove exhaust tube.
3. Remove floor reinforcement.

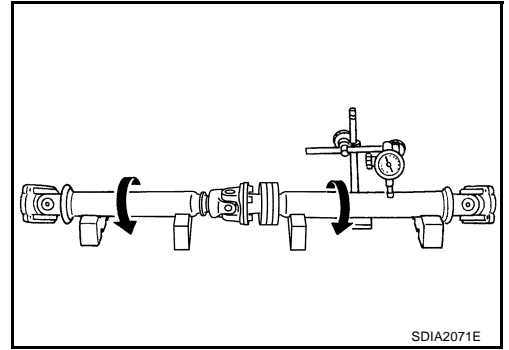
REAR PROPELLER SHAFT

4. Remove propeller shaft.

INSPECTION

1. Inspect propeller shaft runout. If runout exceeds specifications, replace propeller shaft assembly.

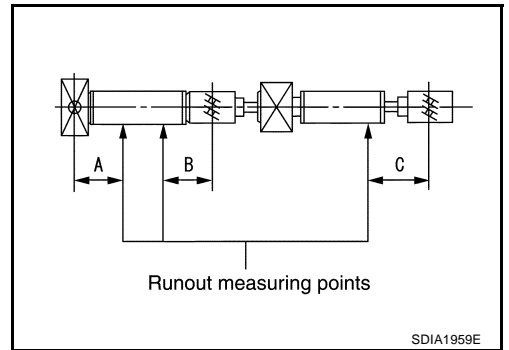
Propeller shaft runout limit : 0.6 mm (0.024 in) or less



Propeller shaft runout measuring point:

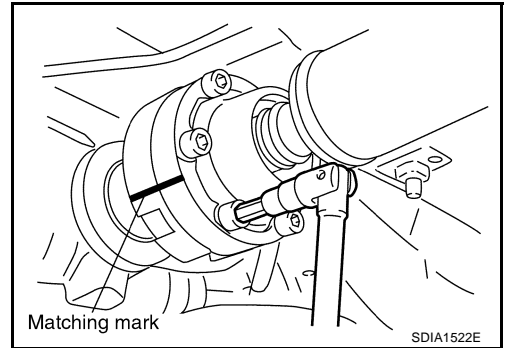
Unit: mm (in)

Distance	A	B	C
	162 (6.38)	160 (6.30)	185 (7.28)



INSTALLATION

1. Paying attention to following items, install in the reverse order of removal.
 - a. Install the propeller shaft onto the rear final drive companion flange while aligning the matching marks that are marked during removal.

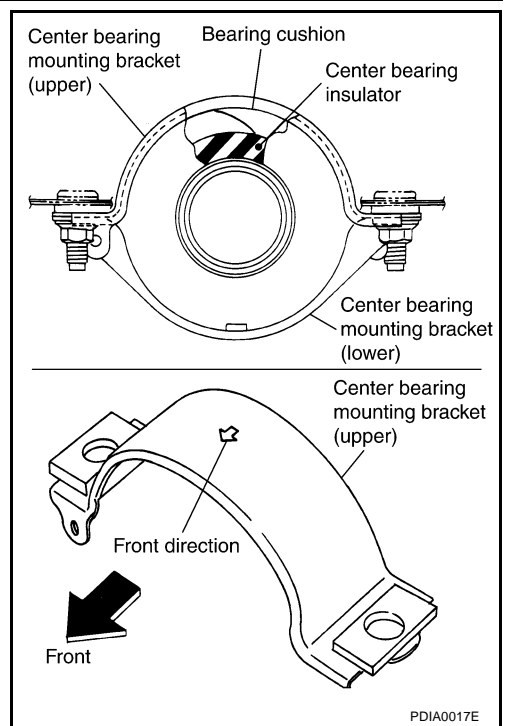


REAR PROPELLER SHAFT

- b. Adjust position of the bearing cushion so as not to apply thrust play to the center bearing insulator.
- c. Position the bearing cushion overlap as shown in the figure.
- d. Install the center bearing bracket (upper) with its arrow mark facing forward.
- e. Tighten the center bearing mounting bracket (upper) fixing nuts to specified torque.

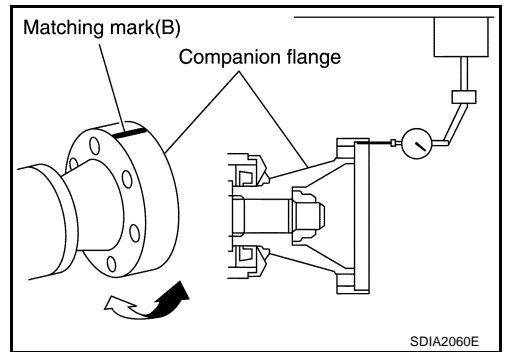
CAUTION:

Do not reuse the nuts. Always replace the nuts with a new one.



2. If companion flange has been removed, put new alignment matching mark B on it. Then, reassemble using the following procedure. Perform these steps when either of final drive and shaft is replaced with a new one.

- a. Erase original mark B from companion flange with suitable solvent.
- b. Measure companion flange vertical runout.
- c. Determine the position where maximum runout is read on dial indicator. Put mark (shown by B in figure) on flange perimeter corresponding to maximum runout position.



3. If the propeller shaft or final drive has been replaced, connect the propeller shaft and final drive as follows:

NOTE:

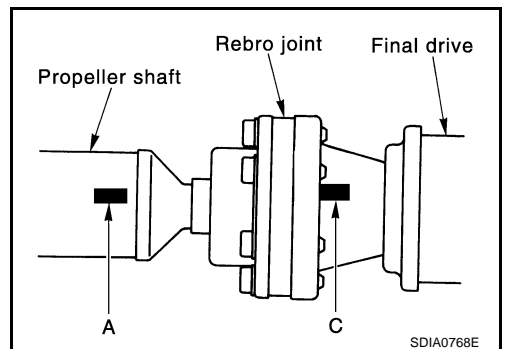
Avoid damaging the rebro joint boot, protect it with a shop towel or equivalent.

- Install the propeller shaft while aligning its matching mark A with the mark C on the joint as close as possible.
- Tighten the joint bolts/nuts to specified torque.

CAUTION:

Do not reuse the bolts, and washers. Always replace them with new ones.

- After installation, check the vibration by driving the vehicle. If the vibration is present, remove the propeller shaft from the final drive companion flange.
- Turn the propeller shaft 60, 120, 180, 240 or 300 degrees and reinstall the propeller shaft to the companion flange, then measure the runout again by driving the vehicle on each angle position.



SERVICE DATA

SERVICE DATA

PFP:00030

General Specifications

EDS001YG

Applied model	VK 45 DE
Propeller shaft model	3F-R-2VL107
Number of joints	3
Coupling method with transmission	Flange type

Propeller Shaft Runout Limit

EDS0007R

Model	3F-R-2VL107
Propeller shaft runout limit	mm(in) 0.6 (0.024) or less