

SECTION **PR**
PROPELLER SHAFT

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PR

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PRECAUTIONS

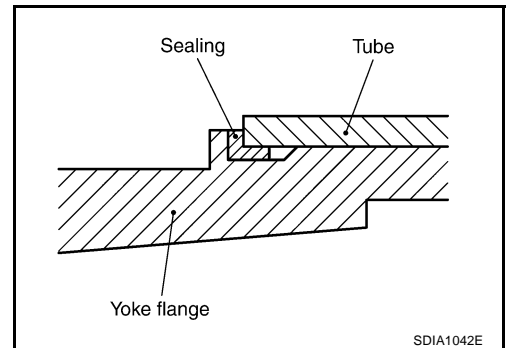
PRECAUTIONS

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Precautions for Propeller Shaft

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- If propeller shaft is dropped, replace propeller shaft with new one.
- Do not hit, impact, or damage tube.
- If damage such as cracks or peeling off in sealing (joint between yoke and tube) is found, replace propeller shaft with new one.
- If there is chipping or bend in tube, replace propeller shaft with new one.
- Check that the gap is between tube and yoke flange. If there is no gap, replace propeller shaft.
- Protect propeller shaft with protector (special service tool) during work.



PREPARATION

PREPARATION

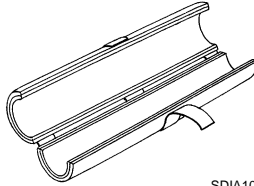
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Special Service Tools

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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
— (J46208) Propeller shaft protector	Removing and installing propeller shaft



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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

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NVH Troubleshooting Chart

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

Reference page														
Reference page			—	—										
Possible cause and SUSPECTED PARTS			Uneven rotation torque	Excessive joint angle	Rotation imbalance	Excessive runout	DIFFERENTIAL	AXLE AND SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKES	STEERING	
Symptom	PROPELLER SHAFT	Noise	x	x	x	x	x	x	x	x	x	x	x	
		Shake		x					x	x	x	x	x	x
		Vibration	x	x	x	x			x	x		x		x

x: Applicable

REAR PROPELLER SHAFT

REAR PROPELLER SHAFT

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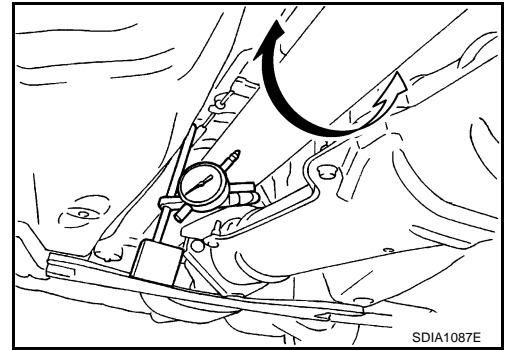
On-Vehicle Service PROPELLER SHAFT VIBRATION

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If vibration is present at high speed, inspect propeller shaft runout first.

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

Runout limit : 1.5 mm (0.059 in) or less

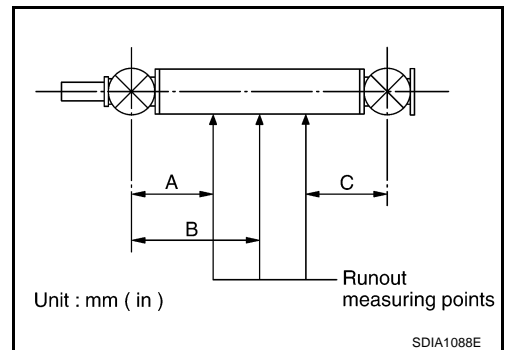


Propeller shaft runout measuring points:

Unit: mm (in)

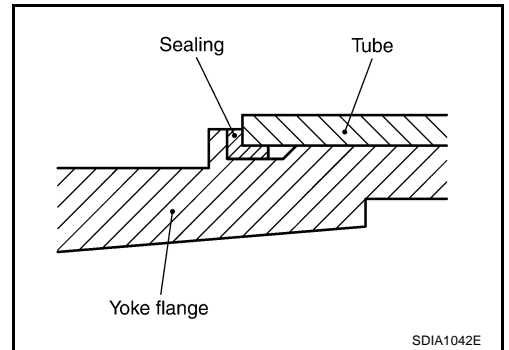
Distance	A	B	C
M/T	340 (13.39)	660.5 (26.00)	340 (13.39)
A/T	340 (13.39)	641.5 (25.26)	340 (13.39)

2. If runout still exceeds specifications, disconnect propeller shaft at final drive companion flange; then rotate companion flange 90, 180, 270 degrees and reconnect propeller shaft.
3. Check runout again. If runout still exceeds specifications, replace propeller shaft assembly.



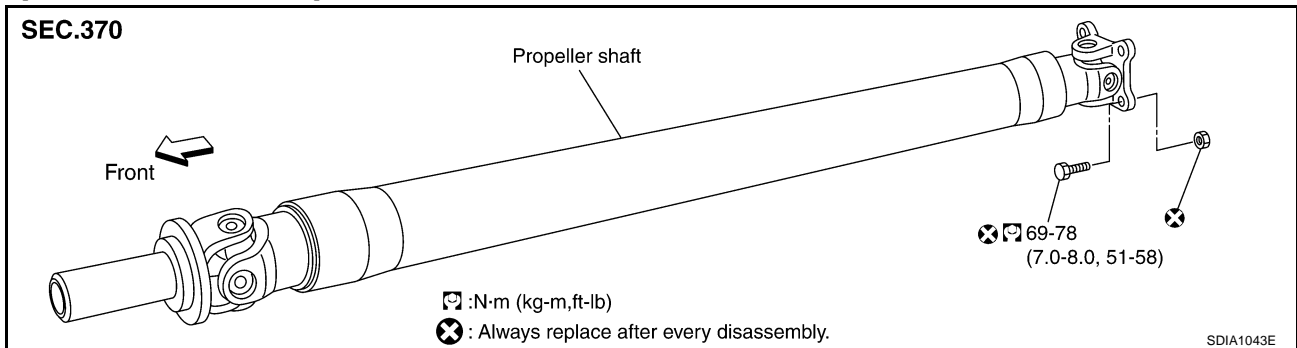
APPEARANCE CHECKING

- Inspect propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.
- If damage such as cracks or peeling off sealing (joint between yoke and tube) is found, replace propeller shaft with new one.
- Check that the gap is between tube and yoke flange. If there is no gap, replace propeller shaft.



Replacement of Propeller Shaft

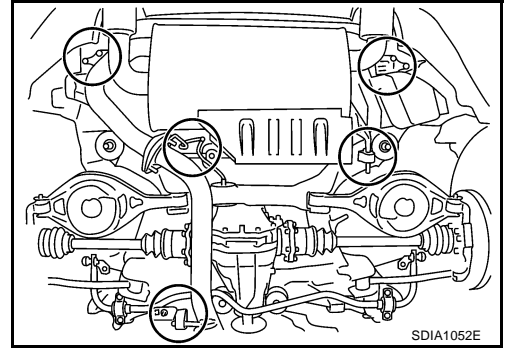
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REAR PROPELLER SHAFT

REMOVAL

1. Shift selector lever to neutral (M/T) or N position (A/T).
2. Release parking brake.
3. To keep space for removing propeller shaft, first detach rear-side mounts (5 locations) of exhaust tube and main muffler. Then lower exhaust tube and main muffler, and support them with jack or equivalent. (See figure.)
4. Remove mounting bolts (4) securing final drive and propeller shaft, and remove propeller shaft from vehicle. (Do not reuse them.)



INSTALLATION

CAUTION:

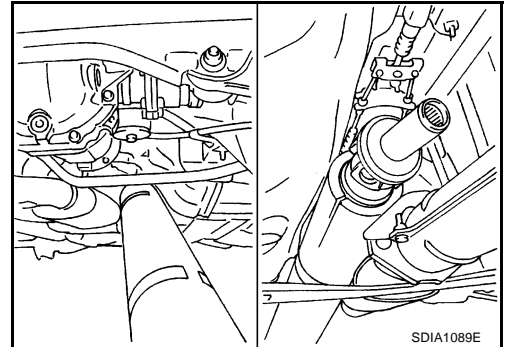
- When installing propeller shaft, handle it carefully.
- Propeller shaft must be installed with packing material attached (delivered condition). Do not install propeller shaft with packing material removed.

1. Insert propeller shaft with packing material between floor reinforcement and floor panel.

CAUTION:

After insertion, check that shift control boot does not come off (M/T).

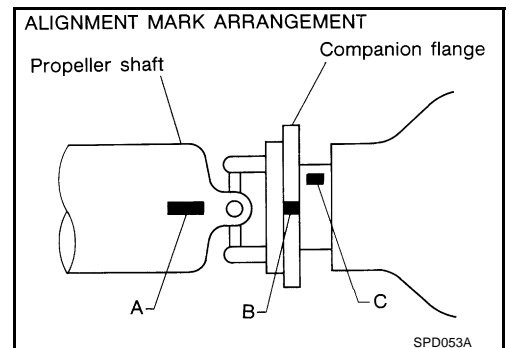
2. Fix propeller shaft temporarily.



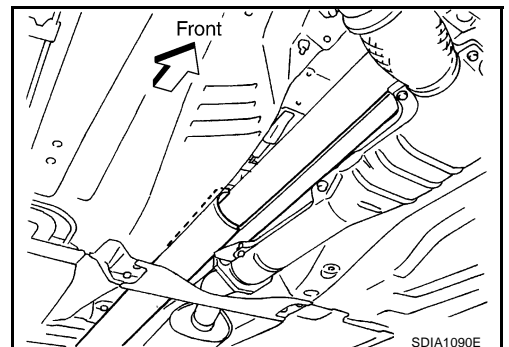
3. Face mark C on final drive joint upward.
4. With mark C facing upward, install final drive so that unbalance mark A on propeller shaft comes near as possible to joint mating mark B.
5. Tighten mounting bolts (4) securing final drive and propeller shaft to specified torque.



: 69 - 78 N·m (7.0 - 8.0 kg·m, 51 - 58 ft·lb)



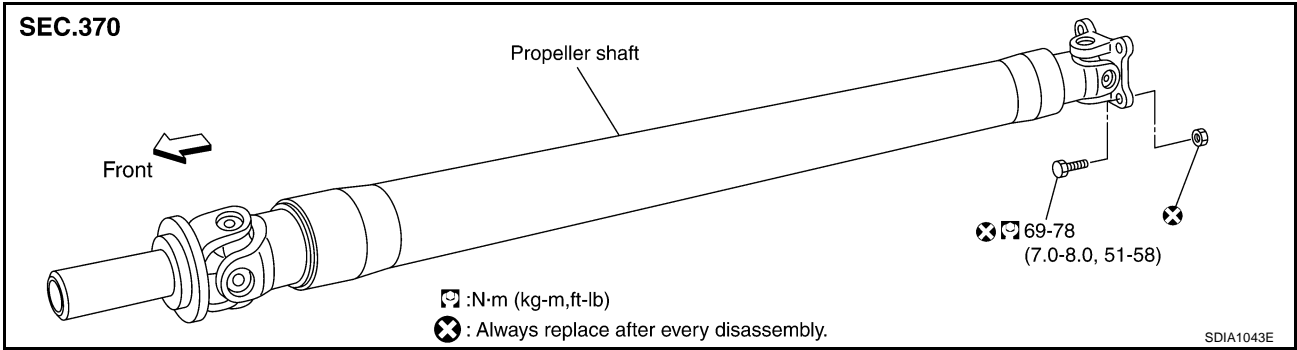
6. Remove tape with fixing packing material for propeller shaft.
7. Remove packing material from propeller shaft.
8. Return exhaust system to its original position. For tightening torque, [EX-3. "EXHAUST SYSTEM"](#).



REAR PROPELLER SHAFT

Removal and Installation

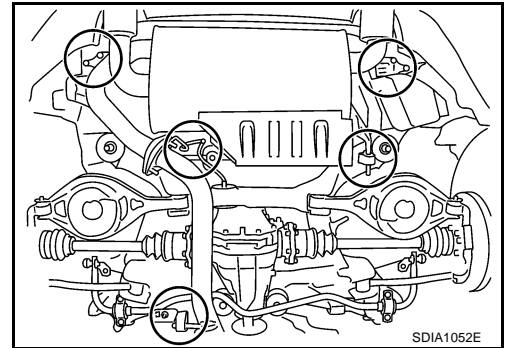
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REMOVAL

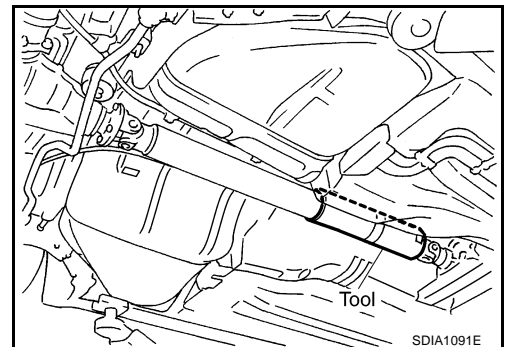
CAUTION:

- Protector (special service tool) is intended to protect propeller shaft. Therefore, do not detach it during work.
 - When removing propeller shaft, handle it carefully.
1. To keep space for removing propeller shaft, first detach rear-side mounts (5 locations) of exhaust tube and main muffler. Then lower exhaust tube and main muffler, and support them with jack or equivalent. (See figure.)



2. Attach protector (special service tool) to propeller shaft.

Tool number : - (J46208)

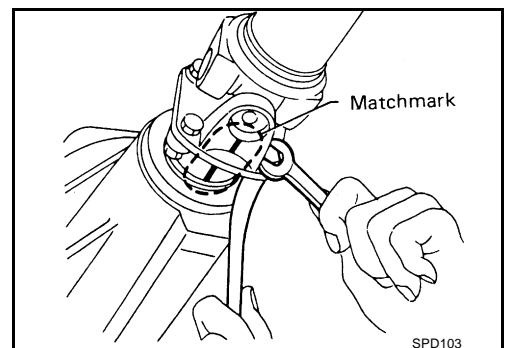


3. Put matchmarks on flanges and separate propeller shaft from final drive.

CAUTION:

Use paint or something similar for matchmarks in order to avoid scratching.

4. Remove mounting bolts (4) securing final drive and propeller shaft, then remove propeller shaft from vehicle.



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REAR PROPELLER SHAFT

INSTALLATION

CAUTION:

When installing propeller shaft, handle it carefully.

1. With protector (special service tool) attached, align mating marks made during removal, and install propeller shaft.
2. Tighten mounting bolts (4) securing final drive and propeller shaft to specified torque.

 : 69 - 78 N·m (7.0 - 8.0 kg-m, 51 - 58 ft-lb)

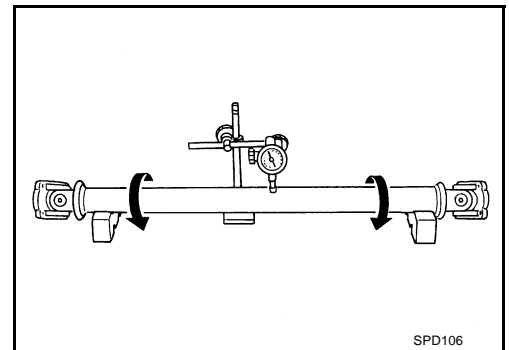
3. Remove propeller shaft from protector (special service tool).
4. Return exhaust system to its original position. For tightening torque, [EX-3. "EXHAUST SYSTEM"](#).

Inspection

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

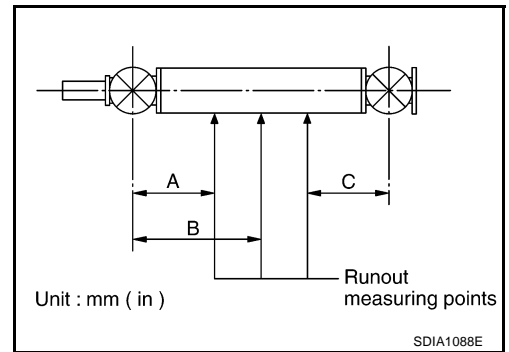
Runout limit : 1.5 mm (0.059 in) or less



- Propeller shaft runout measuring points:

Unit: mm (in)

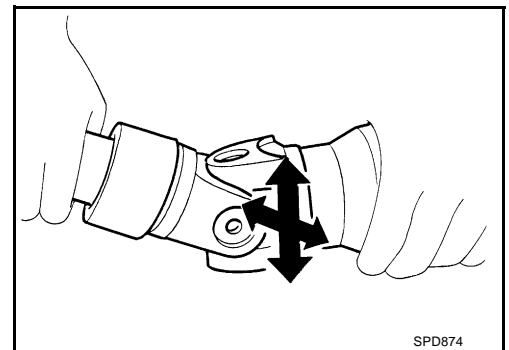
Distance	A	B	C
M/T	340 (13.39)	660.5 (26.00)	340 (13.39)
A/T	340 (13.39)	641.5 (25.26)	340 (13.39)



- If runout still exceeds specifications, replace propeller shaft assembly.

- Inspect journal axial play. If the play exceeds specifications, replace propeller shaft assembly.

Journal axial play : 0 mm (0 in)

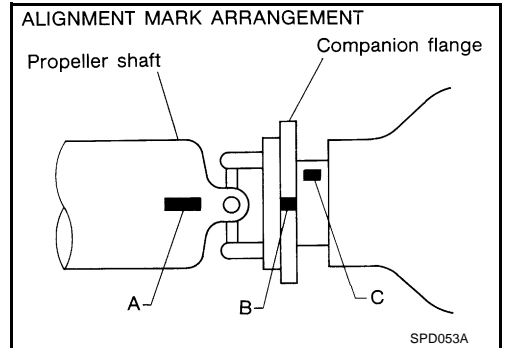


REAR PROPELLER SHAFT

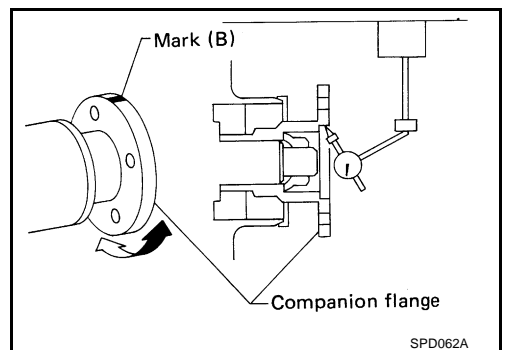
Companion Flange Installation

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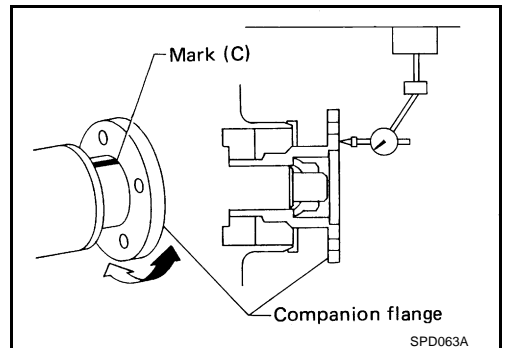
If companion flange has been removed, put new alignment marks B and C on it. Then, reassemble using the following procedure. (Perform step 4 when final drive and propeller shaft are separated from each other. Also perform step 4 when either of these parts is replaced with a new one.)



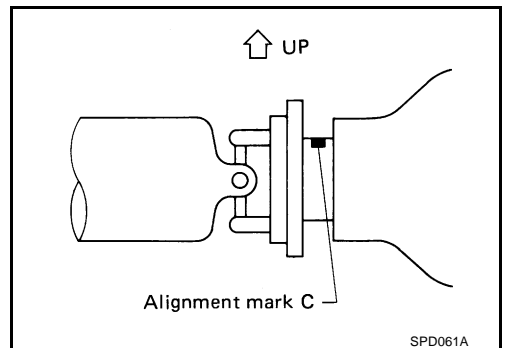
1. Erase original marks B and C from companion flange with suitable solvent.
2. Measure companion flange vertical runout.
3. Determine the position where maximum runout is read on dial gauge. Put mark (shown by B in figure) on flange perimeter corresponding to maximum runout position.



4. Measure companion flange surface runout.
5. Determine the position where maximum runout is read on dial gauge. Put mark (shown by C in figure) on flange perimeter corresponding to maximum runout position.



6. Position companion flange and propeller shaft using alignment marks A and B. Set the marks A and B as close to each other as possible. Temporarily attach bolts and nuts.
7. Press down propeller shaft with alignment mark C facing upward. Then tighten the lower nut to specified torque.
8. Tighten remaining nuts to specified torque.



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SERVICE DATA

SERVICE DATA

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General Specifications

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Applied model	VQ35DE		
	M/T	A/T	
Propeller shaft model	2S80A CFRP		
Number of joints	2		
Coupling method with transmission	Sleeve type		
Type of journal bearings	Shell type (Non-disassembly type)		
Distance between yokes	mm (in)	95 (3.74)	
Shaft length (Spider to spider)	mm (in)	1321 (52.007)	1283 (50.512)
Shaft outer diameter	mm (in)	85.0 (3.346)	

Journal Axial Play

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Model	2S80A CFRP		
Journal axial play	mm (in)	0 (0)	

Propeller Shaft Runout Limit

ADS0002K

Model	2S80A CFRP		
Propeller shaft runout limit	mm (in)	1.5 (0.059) or less	