

SECTION **FAX**  
FRONT AXLE

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FAX

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# PRECAUTIONS

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## PRECAUTIONS

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### Precautions

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Observe the following precautions when disassembling and servicing the wheel hub and drive shafts.

- Perform work in a location which is as dust-free as possible.
- Before disassembling and servicing, clean the outside of parts.
- Prevention of the entry of foreign objects must be taken into account during disassembly of the component parts.
- Disassembled parts must be carefully reassembled in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Paper shop cloths must be used. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Disassembled parts (except for rubber parts) should be cleaned with a suitable solvent which shall be removed by blowing with air or wiping with paper shop cloths.

# PREPARATION

## PREPARATION

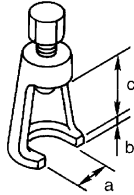
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### Special Service Tools

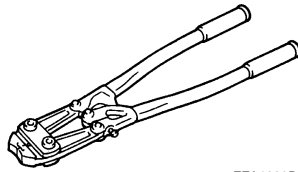
EDS001Q7

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
ST29020001 (J-24319-01) Gear arm puller	Removing ball joint for steering knuckle <b>a: 34 mm (1.34 in)</b> <b>b: 6.5 mm (0.256 in)</b> <b>c: 61.5 mm (2.421 in)</b>
KV40107300 ( — ) Boot band crimping tool	Installing boot bands



NT694

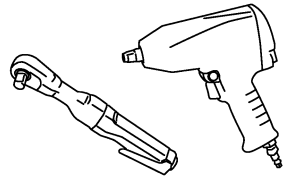


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### Commercial Service Tools

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Tool name	Description
Power tools	Removing bolts and nuts



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# NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

## NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PF0:00003

### NVH Troubleshooting Chart

EDS00109

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	Reference page																	
			<a href="#">FAX-7</a>	<a href="#">FAX-9</a>	<a href="#">FAX-9</a>	<a href="#">FAX-7</a>	—	<a href="#">FAX-5</a>	<a href="#">PR-3, "NVH Troubleshooting Chart"</a>	<a href="#">FFD-6, "NVH Troubleshooting Chart"</a>	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	<a href="#">FSU-4, "NVH Troubleshooting Chart"</a>	<a href="#">WT-4, "NVH Troubleshooting Chart"</a>	<a href="#">WT-4, "NVH Troubleshooting Chart"</a>	<a href="#">BR-5, "NVH Troubleshooting Chart"</a>	<a href="#">PS-5, "NVH Troubleshooting Chart"</a>			
DRIVE SHAFT	Noise, Vibration	Excessive joint angle	x	x																
	Shake	Joint sliding resistance	x		x															
	AXLE	Noise	Imbalance				x	x		x	x									
		Shake	Improper installation, looseness				x	x		x										
		Vibration	Parts interference																	
		Shimmy	Wheel bearing damage																	
		Shudder	PROPELLER SHAFT																	
		Poor quality ride or handling	DIFFERENTIAL																	
	DRIVE SHAFT																			
	AXLE																			
	SUSPENSION																			
	TIRES																			
	ROAD WHEEL																			
	BRAKES																			
	STEERING																			

x: Applicable

# WHEEL HUB

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## WHEEL HUB

### On-Vehicle Inspection and Service

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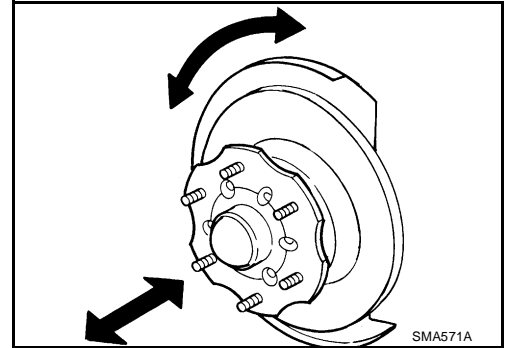
Make sure the mounting conditions (looseness, backlash) of each component and component status (wear, damage) are normal.

### WHEEL BEARING INSPECTION

- Move wheel hub in the axial direction by hand. Make sure there is no looseness of wheel bearing.

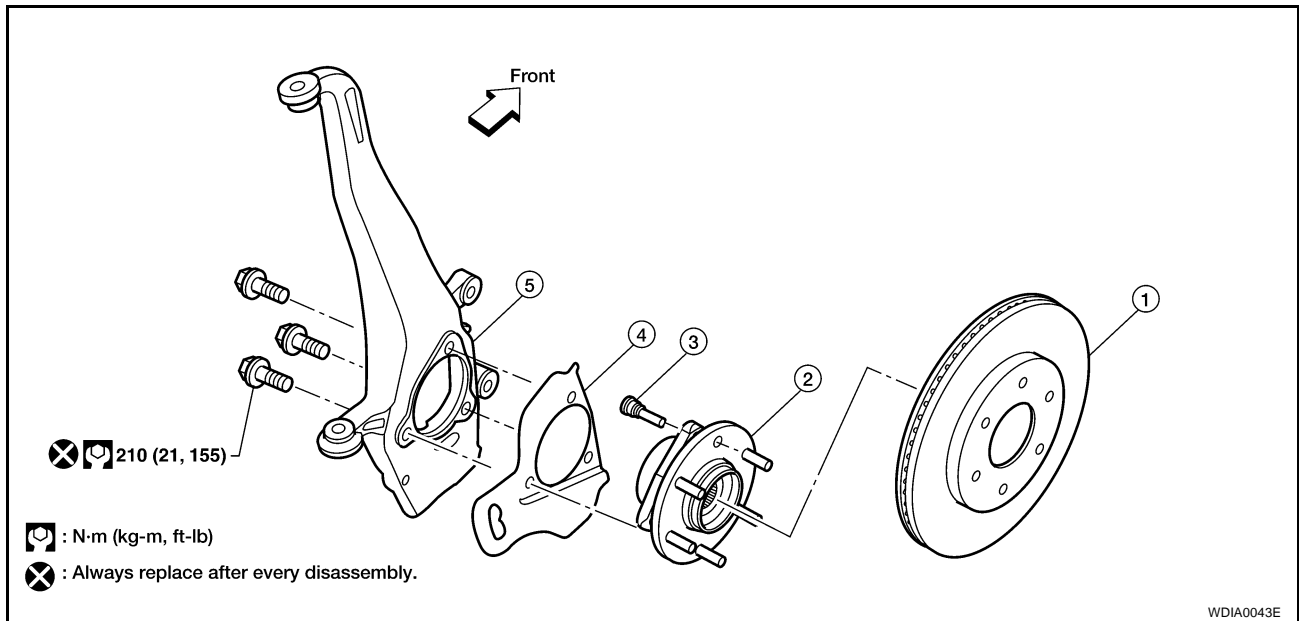
**Axial end play limit : 0.05 mm (0.002 in) or less**

- Rotate wheel hub and make sure there is no unusual noise or other irregular conditions. If there are any irregular conditions, replace wheel hub and bearing assembly.



### Removal and Installation

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1. Disc rotor
2. Wheel hub and bearing assembly
3. Wheel stud
4. Splash guard
5. Steering knuckle

### REMOVAL

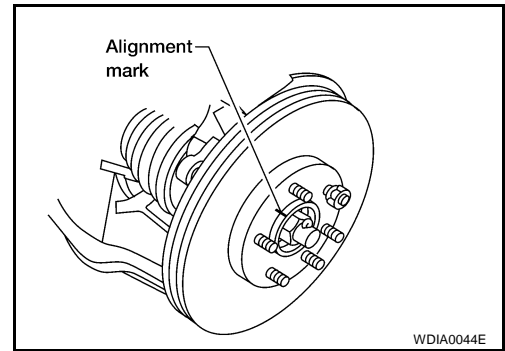
1. Remove wheel and tire using power tool.
2. For 4X4 models, remove engine undercover using power tool.
3. Without disassembling the hydraulic lines, remove torque member bolts using power tool. Then reposition brake caliper aside with wire. Refer to [BR-24, "Removal and Installation of Brake Caliper and Disc Rotor"](#).

#### NOTE:

Do not press brake pedal while brake caliper is removed.

# WHEEL HUB

- Put alignment mark on disc rotor and wheel hub and bearing assembly, then remove disc rotor.



- For 4X4 models, remove cotter pin, then remove lock nut from drive shaft using power tool. Refer to [FAX-7, "Removal and Installation"](#) .
  - For 4X4 models, remove drive shaft from wheel hub and bearing assembly. Refer to [FAX-7, "Removal and Installation"](#) .
  - Remove ABS sensor. Refer to [BRC-38, "Removal and Installation"](#) .
    - Inspect the ABS sensor O-ring, replace the ABS sensor assembly if damaged.
    - Clean the ABS sensor hole and mounting surface with a suitable brake cleaner and clean lint-free shop rag. Be careful that dirt and debris do not enter the axle bearing area.
    - Apply a coat of suitable grease to the ABS sensor O-ring and mounting hole.
- CAUTION:**  
**Do not pull on the ABS sensor harness.**
- Remove wheel hub and bearing assembly bolts using power tool.
  - Remove splash guard and wheel hub and bearing assembly from steering knuckle.

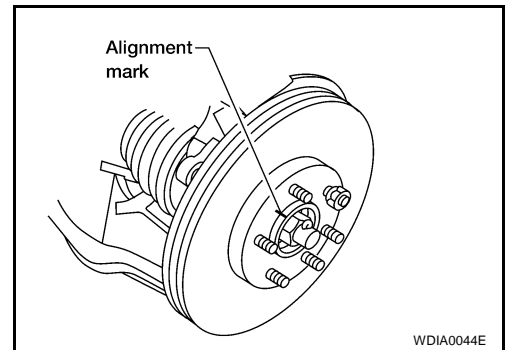
## INSPECTION AFTER REMOVAL

Check for deformity, cracks and damage on each part, replace if necessary.

## INSTALLATION

Installation is in the reverse order of removal.

- When installing disc rotor on wheel hub and bearing assembly, position the disc rotor according to alignment mark. (When not using the alignment mark, refer to [BR-27, "DISC ROTOR INSPECTION"](#) .)
- When installing wheel and tire. Refer to [WT-7, "Rotation"](#) .



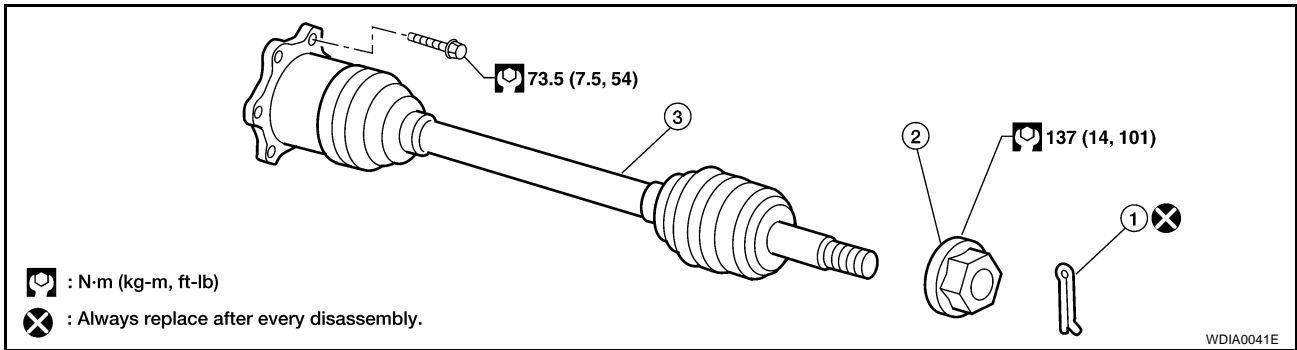
# DRIVE SHAFT

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## DRIVE SHAFT

### Removal and Installation

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1. Cotter pin

2. Drive shaft nut

3. Drive shaft

### REMOVAL

1. Remove wheel and tire using power tool.
2. Remove engine under cover using power tool.
3. Remove ABS sensor harness from mount on knuckle.

#### CAUTION:

**Do not pull on ABS sensor harness.**

4. Without disassembling the hydraulic lines, remove brake caliper using power tool. Reposition it aside with wire. Refer to [BR-24, "Removal and Installation of Brake Caliper and Disc Rotor"](#).

#### NOTE:

Avoid depressing brake pedal while brake caliper is removed.

5. Remove coil spring and shock absorber assembly using power tool. Refer to [FSU-10, "Removal and Installation"](#).
6. Separate upper link ball joint stud from steering knuckle using Tool.

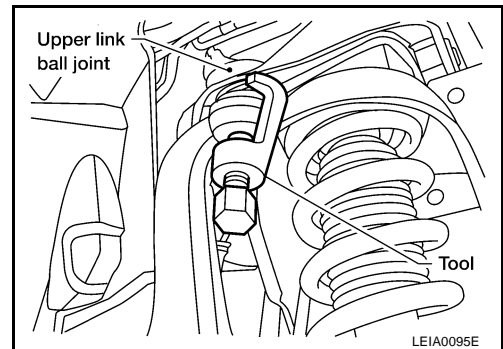
- Support lower link with jack.

**Tool number : ST29020001 (J-24319-01)**

7. Remove cotter pin, then remove drive shaft nut.
8. Remove drive shaft mounting bolts from front final drive.
9. Remove drive shaft from wheel hub and bearing assembly.

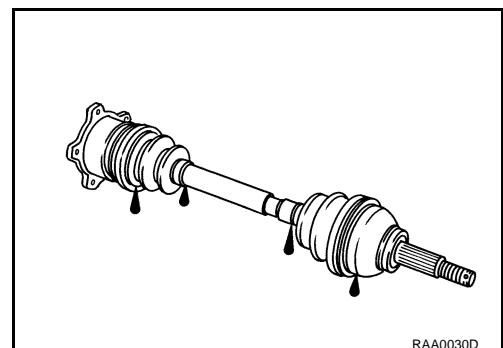
#### CAUTION:

- **When removing drive shaft, do not apply an excessive angle to drive shaft joint. Also be careful not to excessively extend slide joint.**



### INSPECTION AFTER REMOVAL

- Move joint up, down, left, right, and in axial direction. Check for any rough movement or significant looseness.
- Check boot for cracks or other damage, and for grease leakage.
- If damaged, disassemble drive shaft to verify damage, and repair or replace as necessary.



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# DRIVE SHAFT

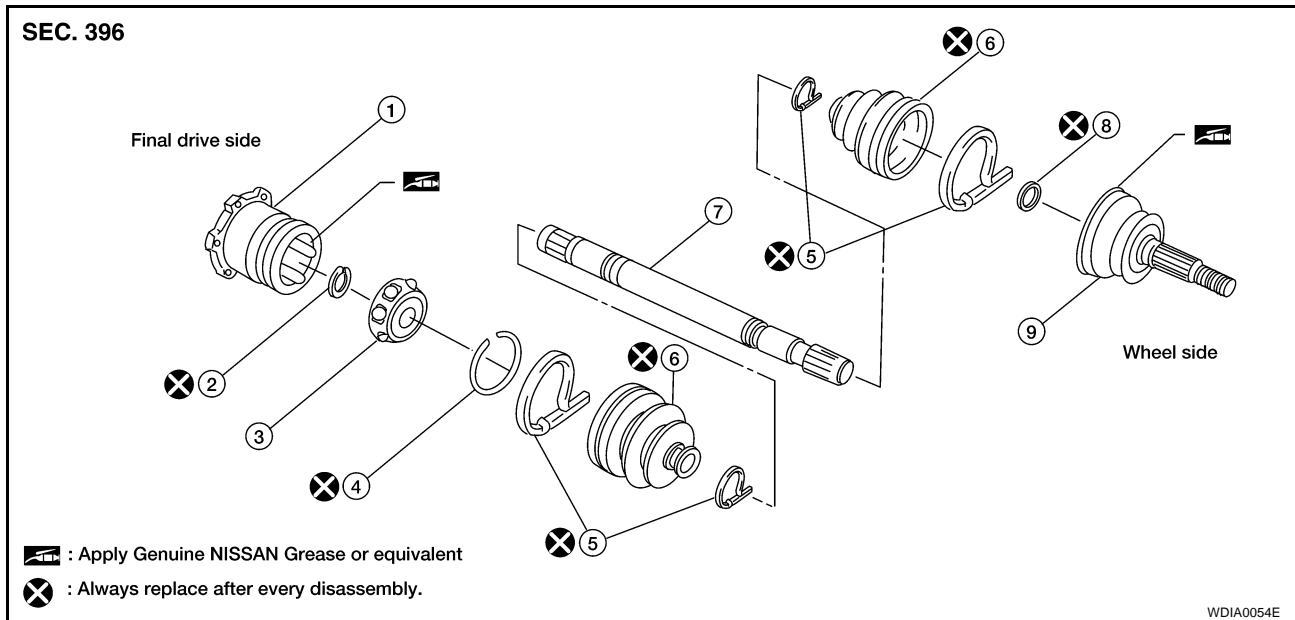
## INSTALLATION

Installation is in the reverse order of removal.

- Tighten wheel nuts to specification. Refer to [WT-7, "Rotation"](#).

## Disassembly and Assembly

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- |                          |              |   |
|--------------------------|--------------|---|
| 1. Sliding joint housing | 2. Snap ring | 3. Ball cage, steel ball, inner race assembly |
| 4. Stopper ring          | 5. Boot band | 6. Boot                                       |
| 7. Drive shaft           | 8. Circlip   | 9. Joint sub-assembly                         |

## DISASSEMBLY

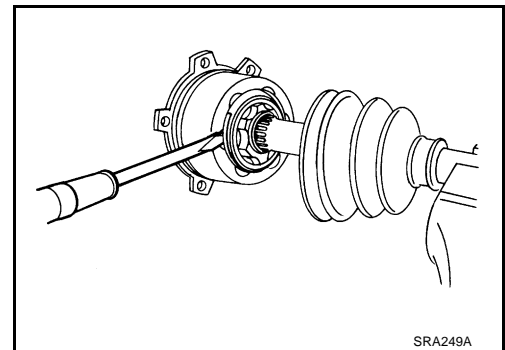
### Final Drive Side

1. Mount the drive shaft in a vise.

#### **CAUTION:**

**When mounting the drive shaft in a vise, use copper or aluminum plates between the vise and the drive shaft.**

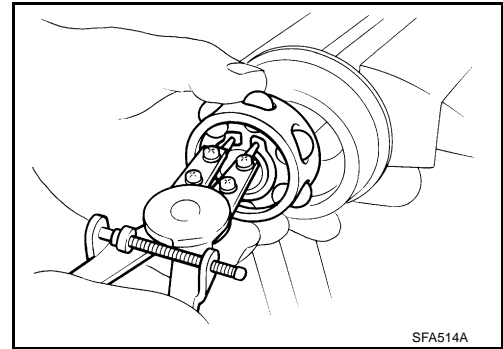
2. Remove the boot bands.
3. Remove the stopper ring with a flat-bladed screwdriver as shown, and pull the housing off.





# DRIVE SHAFT

4. Remove the snap ring, then remove the ball cage, steel ball, inner race assembly from the drive shaft.



5. Remove the boot from the drive shaft.
6. Remove any old grease on the housing using paper towels.

## Wheel Side

1. Mount the drive shaft in a vise.

### CAUTION:

**When mounting the drive shaft in a vise, use copper or aluminum plates between the vise and the drive shaft.**

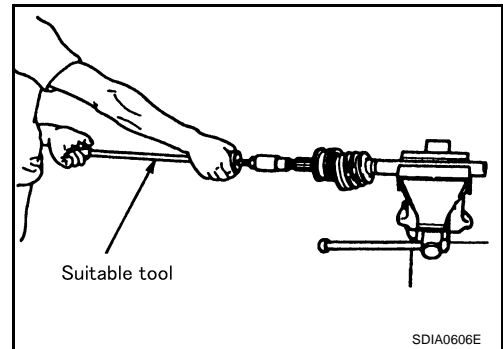
2. Remove the boot bands, then remove the boot from the joint sub-assembly.
3. Screw a suitable drive shaft puller 30 mm (1.18 in) or more into the threaded part of the joint sub-assembly. Pull the joint sub-assembly off of the drive shaft as shown.

### NOTE:

Align the sliding hammer and drive shaft and remove the joint sub-assembly by pulling directly.

### CAUTION:

- If the joint sub-assembly cannot be removed after five or more attempts, replace the drive shaft and joint sub-assembly as a set.



4. Remove the boot from the drive shaft.
5. Remove the circlip from the drive shaft.
6. While rotating the ball cage, remove any old grease from the joint sub-assembly using paper towels.

## INSPECTION AFTER DISASSEMBLY

### Drive Shaft

- Replace the drive shaft if there is any runout, cracking, or other damage.

### Joint Sub-assembly

- Check for any rough rotation or unusual axial looseness.
- Clean any foreign material from inside the joint sub-assembly.
- Check for any compression scars, cracks, or fractures.

### CAUTION:

**If any defective conditions are found in the joint sub-assembly components, replace the entire joint sub-assembly.**

### Sliding Joint Side Housing

- Check for any compression scars, cracks, fractures, or unusual wear on the ball rolling surface.
- Check for any damage to the drive shaft screws.
- Check for any deformation of the boot installation components.

### Ball Cage

- Check the sliding surface for any compression scars, cracks, or fractures.

# DRIVE SHAFT

## Steel Ball

- Check for any compression scars, cracks, fractures, or unusual wear.

## Inner Race

- Check the ball sliding surface for any compression scars, cracks, or fractures.
- Check for any damage to the serrated part.

### **CAUTION:**

**If any defective conditions are found, install a new housing, ball cage, steel ball, and inner race as a set.**

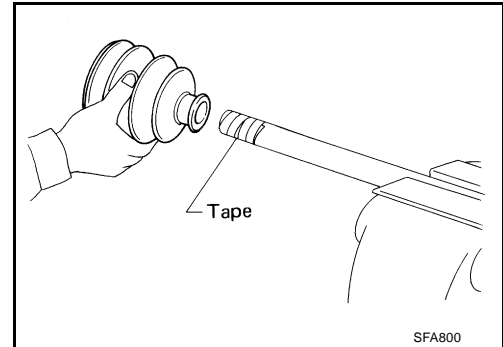
## ASSEMBLY

### Final Drive Side

1. Wrap the serrated part of the drive shaft with tape. Install the boot band and boot to drive shaft.

### **NOTE:**

Discard the old boot band and boot and use a new one for assembly.

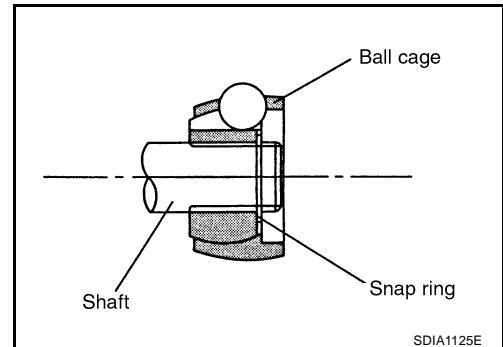


2. Remove the tape wound around the serrated part of the drive shaft.

3. Install the ball cage, steel ball, and inner race assembly on the drive shaft, and secure them tightly using the snap ring.

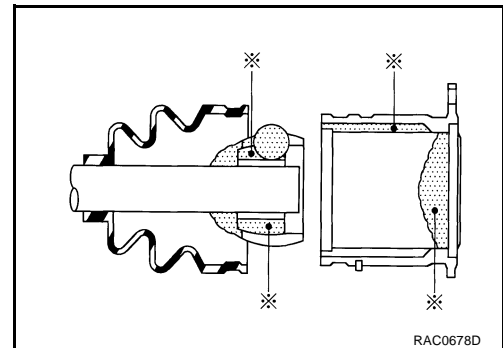
### **NOTE:**

Discard the old snap ring and use a new one for assembly.



4. Insert the specified quantity of Genuine NISSAN Grease or equivalent, onto the housing (indicated by \* marks), and install it onto shaft. Refer to [MA-11, "RECOMMENDED FLUIDS AND LUBRICANTS"](#).

**Grease capacity : 130 – 150 g (4.58 – 5.29 oz)**



5. Install the stopper ring onto the housing.
6. After installation, pull on the shaft to check engagement between the sliding joint and the stopper ring.

# DRIVE SHAFT

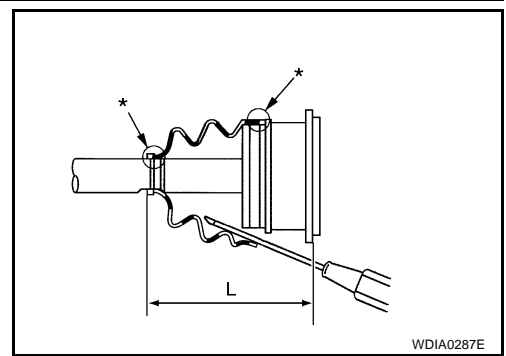
7. Install the boot securely into the grooves (indicated by \* marks) as shown.

**CAUTION:**

If there is grease on boot mounting surfaces (indicated by \* marks) of shaft and housing, boot may come off. Remove all grease from surfaces.

8. Check that the boot installation length "L" is the length indicated below. Insert a suitable tool into large end of boot. Bleed air from boot to prevent boot deformation.

**Boot installation length "L" : 145 mm (5.71 in)**



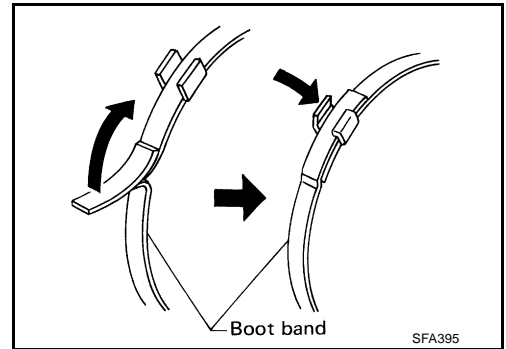
**CAUTION:**

- The boot may break if the boot installation length is less than the specified value.
- Do not touch the tip of the screwdriver to the inside of the boot.

9. Secure the large and small ends of the boot with the new boot bands as shown.

**NOTE:**

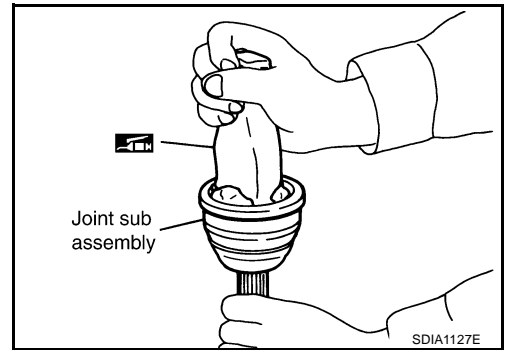
Discard the old boot bands and use new ones for assembly.



10. After installing the sliding joint housing to the drive shaft, rotate the boot to check that the boot is positioned correctly. If the boot is not positioned correctly, reposition the boot and secure the boot using a new boot band.

## Wheel Side

1. Insert the Genuine NISSAN Grease or equivalent, into the joint sub-assembly serration hole until the grease begins to ooze from the ball groove and serration hole. Refer to [MA-11, "RECOMMENDED FLUIDS AND LUBRICANTS"](#). After inserting the grease, use a shop cloth to wipe off the grease that has oozed out.

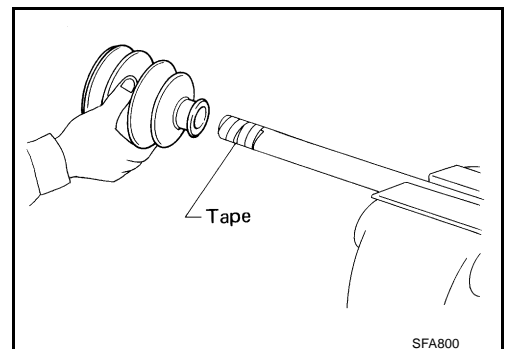


2. Wrap the serrated part of the drive shaft with tape. Install the boot band and boot onto the shaft. Do not damage the boot.

**NOTE:**

Discard the old boot band and boot and use a new one for assembly.

3. Remove the protective tape wound around the serrated part of the drive shaft.



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## DRIVE SHAFT

- Attach the circlip to the drive shaft. The circlip must fit securely into the drive shaft groove. Attach the nut to the joint sub-assembly.

Use a soft hammer to press-fit the circlip.

**NOTE:**

Discard the old circlip and use a new one for assembly.

- Insert the specified quantity of Genuine NISSAN Grease or equivalent, into the joint sub-assembly and the large end of the boot. Refer to [MA-11, "RECOMMENDED FLUIDS AND LUBRICANTS"](#).

**Grease capacity** : 145 – 165 g (5.11 – 5.82 oz)

- Install the boot securely into the grooves (indicated by the \* marks) as shown.

**CAUTION:**

**If there is grease on the boot mounting surfaces (indicated by the \* marks) of the drive shaft and joint sub-assembly, the boot may come off. Remove all grease from the drive shaft surfaces.**

- Check that the boot installation length "L" is the specified length. Insert a suitable tool into the large end of the boot. Bleed the air from the boot to prevent boot deformation.

**Boot installation length "L"** : 168.4 mm (6.63 in)

**CAUTION:**

- The boot may break if the boot installation length is less than the specified length.
- Do not contact inside surface of boot with the tip of the screwdriver.

- Secure large and small ends of the boot using new boot bands using tool as shown.

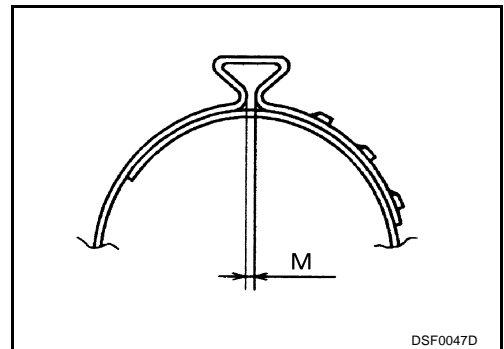
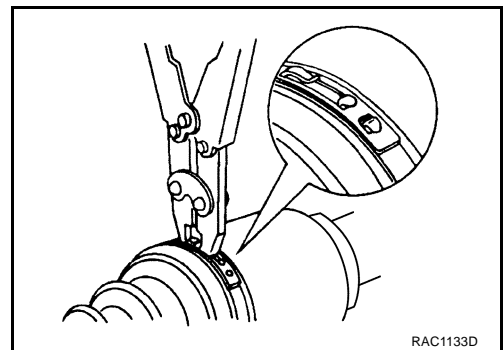
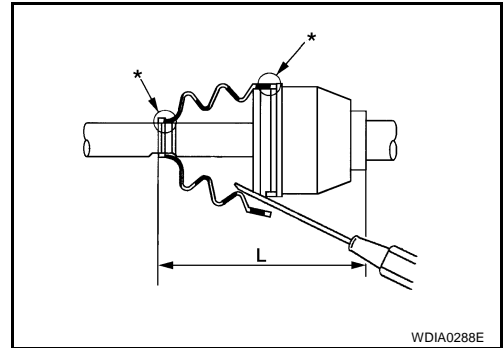
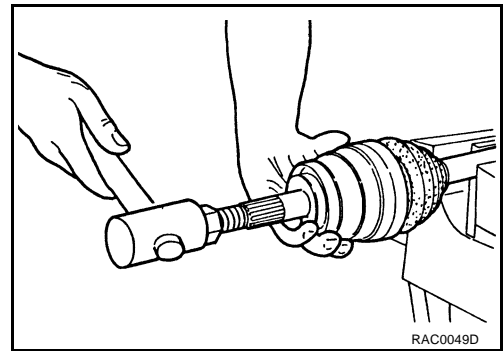
**Tool number** : KV40107300 ( — )

**NOTE:**

Discard the old boot bands and use new ones for assembly.

- Secure boot band so that dimension "M" meets specification as shown.

**Dimension "M"** : 1.0 – 4.0 mm (0.39 – 1.57 in)



- After installing the joint sub-assembly to the drive shaft, rotate the boot to check that it is positioned correctly. If the boot is not positioned correctly, reposition the boot and secure the boot using a new boot band.

# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

### Wheel Bearing

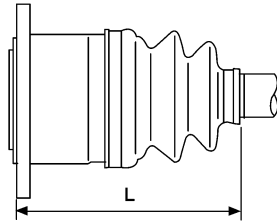
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Axial end play	0.05 mm (0.002 in) or less
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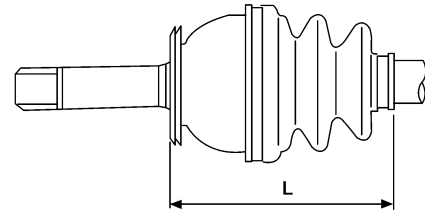
### Drive Shaft

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Final drive side



Wheel side



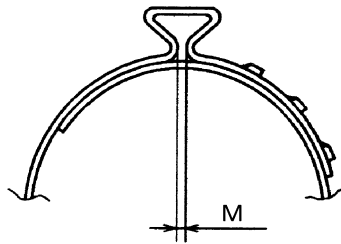
WDIA0065E

Drive shaft joint type	Final drive side	Rzeppa	
	Wheel side	Rzeppa	
Grease	Quality	Nissan Genuine Grease or equivalent	
	Capacity	Final drive side	130 - 150 g (4.58 - 5.29 oz)
		Wheel side	145 - 165 g (5.11 - 5.82 oz)
Boot length	Final drive side "L1"	145 mm (5.71 in)	
	Wheel side "L2 "	168.4 mm (6.63 in)	

### Boot Bands

EDS003LN

Unit: mm (in)



DSF0047D

Dimension "M"	1.0 - 4.0 (0.39 - 1.57)
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# SERVICE DATA AND SPECIFICATIONS (SDS)

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