

**SECTION FAX**  
**FRONT AXLE**

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**FAX**

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# PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS

#### Precaution for Technicians Using Medical Electric

INFOID:000000007073068

##### OPERATION PROHIBITION

###### **WARNING:**

- Parts with strong magnet is used in this vehicle.
- Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.

##### NORMAL CHARGE PRECAUTION

###### **WARNING:**

- If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.
- As radiated electromagnetic wave generated by on board charger at normal charge operation may effect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not enter the vehicle compartment (including luggage room) during normal charge operation.

##### Precaution at telematics system operation

###### **WARNING:**

- If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.
- The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.
- If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator(ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.

##### Precaution at intelligent key system operation

###### **WARNING:**

- If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.
- The electromagnetic wave of intelligent key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.
- If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of intelligent key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before intelligent key use.

#### Point to Be Checked Before Starting Maintenance Work

INFOID:000000007080020

The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work.

###### **NOTE:**

If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000007006568

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS

# PRECAUTIONS

## < PRECAUTION >

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

## PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the power switch OFF, disconnect the 12V battery, and wait at least 3 minutes before performing any service.

## Precaution for Removing 12V Battery

INFOID:000000007006518

When removing the 12V battery, turn ON/OFF the power switch and check that the charging status indicator does not blink. The 12V battery must be removed within one hour after checking the indicator lamp.

### **NOTE:**

- The automatic 12V battery charge control may start even when the power switch is in OFF state.
- The automatic 12V battery charge control does not start within approximately one hour when the power switch is turned ON/OFF.

## Precautions for Drive Shaft

INFOID:000000007006073

Observe the following precautions when disassembling and assembling drive shaft.

- Never disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a location which is as dust-free as possible.
- Clean the parts, before disassembling and assembling.
- Prevent the entry of foreign objects during disassembly of the service location.
- Reassemble disassembled parts carefully in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Use paper waste. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Clean disassembled parts (except for rubber parts) with kerosene which shall be removed by blowing with air or wiping with paper waste.

# PREPARATION

< PREPARATION >

## PREPARATION

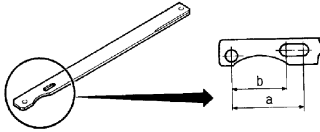
### PREPARATION

#### Special Service Tools

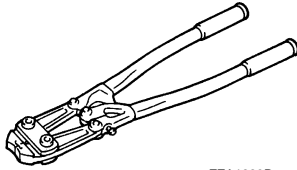
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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number Tool name	Description
KV40104000 ( — ) Hub lock nut wrench a: 85 mm (3.35 in) b: 65 mm (2.56 in)	Removing and Installing wheel hub lock nut.
KV40107300 ( — ) Boot band crimping tool	Installing boot band
KV40107500 ( — ) Drive shaft attachment	Removing drive shaft
KV38107900 ( — ) Protector a: 32 mm (1.26 in) dia.	Installing drive shaft



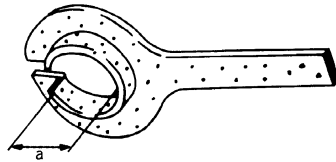
ZZA0802D



ZZA1229D



ZZA1230D



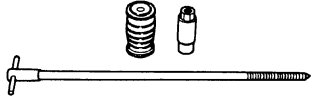
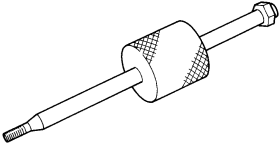
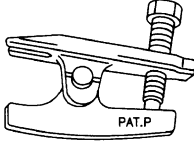
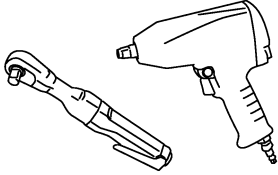
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# PREPARATION

< PREPARATION >

## Commercial Service Tools

INFOID:000000007006075

Tool name	Description
<p>Drive shaft puller</p>  <p>JPDIG0152ZZ</p>	<p>Remove drive shaft joint sub assembly</p>
<p>Sliding hammer</p>  <p>ZZA0023D</p>	<p>Remove drive shaft</p>
<p>Ball joint remover</p>  <p>PAT.P</p> <p>NT146</p>	<p>Removing hub bolt</p>
<p>Power tool</p>  <p>PBIC0190E</p>	<p>Loosening bolts and nuts</p>

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# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

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

#### NVH Troubleshooting Chart

INFOID:000000007006076

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

Reference page			Possible cause and SUSPECTED PARTS												
			—	<a href="#">FAX-30, "Inspection"</a>	—	<a href="#">FAX-9, "Exploded View"</a>	—	<a href="#">FAX-7, "Inspection"</a>	NVH in FAX and FSU sections	Refer to FRONT AXLE in this chart	NVH in WT section	NVH in WT section	Refer to DRIVE SHAFT in this chart	NVH in BR section	NVH in ST section
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	DRIVE SHAFT	Noise	x	x				x	x	x	x	x		x	x
		Shake	x		x				x	x	x	x		x	x
	FRONT AXLE	Noise				x	x	x	x		x	x	x	x	x
		Shake				x	x	x	x		x	x	x	x	x
		Vibration				x	x	x	x		x		x		x
		Shimmy				x	x		x		x	x		x	x
		Judder				x			x		x	x		x	x
		Poor quality ride or handling				x	x		x		x	x			

x: Applicable

# FRONT WHEEL HUB AND KNUCKLE

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### FRONT WHEEL HUB AND KNUCKLE

#### Inspection

INFOID:000000007006077

#### COMPONENT PART

Check that the mounting conditions (looseness, backlash) of each component and component conditions (wear, damage) are normal.

#### WHEEL HUB ASSEMBLY (BEARING-INTEGRATED TYPE)

Check the following items, and replace the part if necessary.

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

**Axial end play** : Refer to [FAX-31, "Wheel Bearing"](#).

- Rotate wheel hub assembly and check there is no unusual noise or other irregular conditions. If there is any of irregular conditions, replace wheel hub assembly.

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## FRONT DRIVE SHAFT

< PERIODIC MAINTENANCE >

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### FRONT DRIVE SHAFT

#### Inspection

INFOID:000000007006078

Check the following items, and replace the part if necessary.

- Check drive shaft mounting point and joint for looseness and other damage.

**CAUTION:**

**Replace entire drive shaft assembly when noise or vibration occurs from drive shaft.**

- Check boot for cracks and other damage.



# FRONT WHEEL HUB AND KNUCKLE

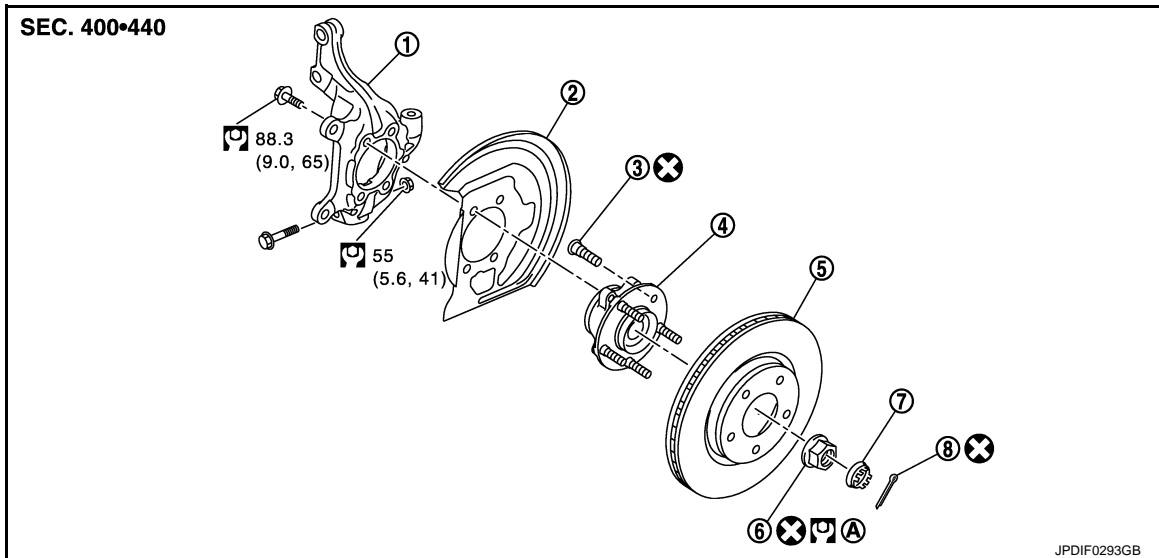
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### FRONT WHEEL HUB AND KNUCKLE

Exploded View

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- |                                                 |                 |                       |
|-------------------------------------------------|-----------------|-----------------------|
| 1. Steering knuckle                             | 2. Splash guard | 3. Hub bolt           |
| 4. Wheel hub assembly (Bearing-integrated type) | 5. Disc rotor   | 6. Wheel hub lock nut |
| 7. Adjusting cap                                | 8. Cotter pin   |                       |

A. Tightening must be done following the installation procedure. Refer to [FAX-9. "Removal and Installation"](#).

⊗: Always replace after every disassembly.

Ⓜ: N·m (kg-m, ft-lb)

### Removal and Installation

INFOID:000000007006080

#### REMOVAL

1. Remove tires with power tool. Refer to [WT-45. "Exploded View"](#).
2. Remove wheel sensor and sensor harness. Refer to [BRC-148. "FRONT WHEEL SENSOR : Removal and Installation"](#).
3. Remove lock plate from strut assembly. Refer to [BR-214. "FRONT : Exploded View"](#).
4. Remove caliper assembly. Hang caliper assembly not to interfere with work. Refer to [BR-227. "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).

#### CAUTION:

**Never depress brake pedal while brake caliper is removed.**

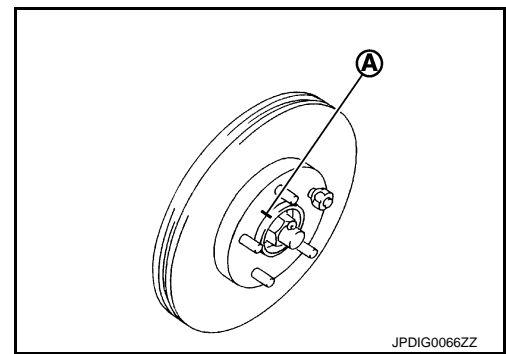
5. Remove disc rotor.

#### CAUTION:

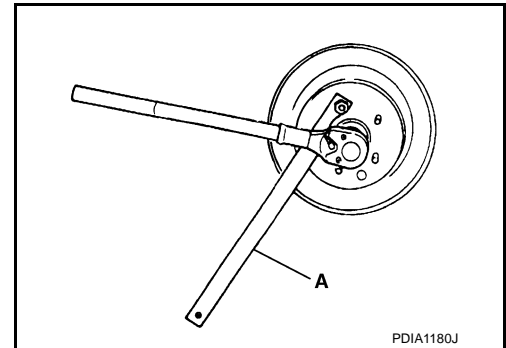
# FRONT WHEEL HUB AND KNUCKLE

## < REMOVAL AND INSTALLATION >

- Put matching marks (A) on the wheel hub assembly and the disc rotor before removing the disc rotor.
- Never drop disc rotor.



6. Remove cotter pin and adjusting cap, and then loosen wheel hub lock nut, using a hub lock nut wrench (A) [SST: KV40104000 ( — )].



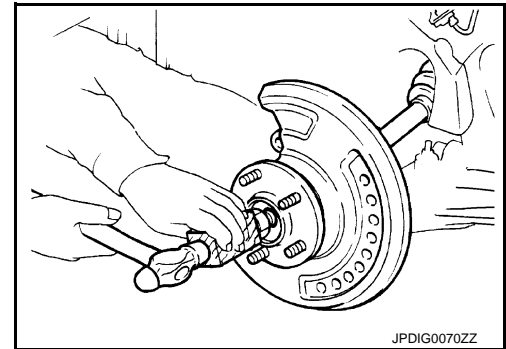
7. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub assembly from drive shaft.

### CAUTION:

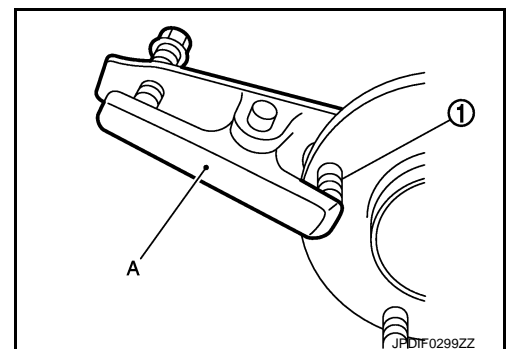
- Never place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.
- Never allow drive shaft to hang down without support for joint sub-assembly, shaft and the other parts.

### NOTE:

Use suitable puller, if wheel hub assembly and drive shaft cannot be separated even after performing the above procedure.



8. Remove wheel hub lock nut.
9. Separate steering knuckle from transverse link with power tool.
10. Suspend the drive shaft with suitable wire.
11. Remove wheel hub assembly and splash guard from steering knuckle with power tool.
12. Remove steering outer socket from steering knuckle. Refer to [ST-16. "Removal and Installation"](#).
13. Remove strut assembly from steering knuckle with power tool. Refer to [FSU-12. "Removal and Installation"](#).
14. Remove hub bolts (1) from wheel hub assembly, using the ball joint remover (A) (commercial service tool).
- ### CAUTION:
- Remove hub bolt only when necessary.
  - Never hammer the hub bolt to avoid impact to the wheel hub assembly.
  - Pull out the hub bolt in a direction perpendicular to the wheel hub assembly.
15. Perform inspection after removal. Refer to [FAX-11. "Inspection"](#).



## INSTALLATION

Note the following, and install in the reverse order of the removal.

# FRONT WHEEL HUB AND KNUCKLE

## < REMOVAL AND INSTALLATION >

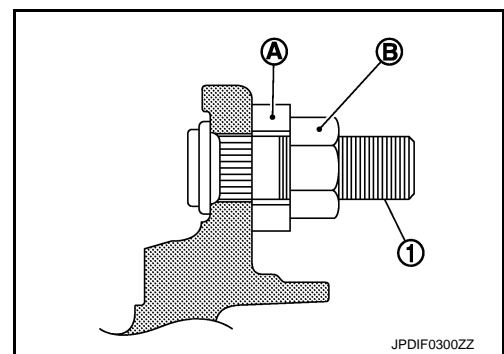
- Place a washer (A) as shown in the figure to install the hub bolts (1) by using the tightening force of the nut (B).

### CAUTION:

- Check that there is no clearance between wheel hub assembly, and hub bolt.
- Never reuse hub bolt.
- Never reuse steering knuckle and transverse link fixing nut.
- Clean the matching surface of wheel hub lock nut and wheel hub assembly.

### CAUTION:

Never apply lubricating oil to these matching surface.

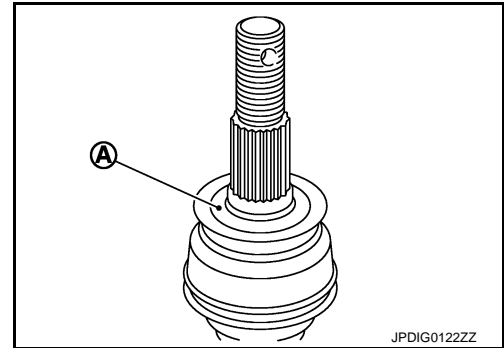


- Clean the matching surface of drive shaft, wheel hub assembly. And then apply paste [service parts (440037S000)] to surface (A) of joint sub-assembly of drive shaft.


### CAUTION:

Apply paste to cover entire flat surface of joint sub-assembly of drive shaft.

Amount paste : 1.0 – 3.0 g (0.04 – 0.10 oz)



- Use the following torque range for tightening the wheel hub lock nut.

 : 180 – 185 N·m (18.4 – 18.8 kg·m, 133 – 136 ft·lb)

### CAUTION:

- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
- Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.
- Never reuse wheel hub lock nut.

### NOTE:

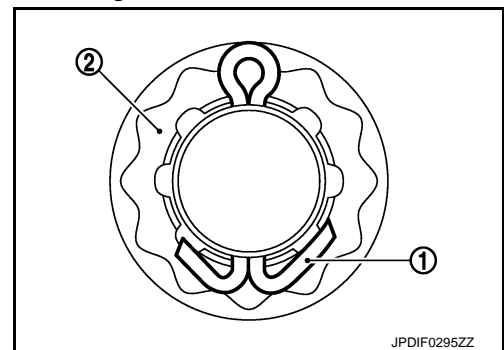
Wheel hub lock nut tightening torque does not over torque for avoiding axle noise, and does not less than torque for avoiding looseness.

- Align the matching marks that have been made during removal when reusing the disc rotor.
- When installing a cotter pin (1) and adjusting cap (2), securely bend the basal portion to prevent rattles.

### CAUTION:

Never reuse cotter pin.

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub assembly and steering knuckle.
- Perform inspection after installation. Refer to [FAX-11, "Inspection"](#).



INFOID:000000007006081

## Inspection

### INSPECTION AFTER REMOVAL

Check the following items, and replace the part if necessary.

- Check components for deformation, cracks, and other damage.
- Check boots of transverse link and steering outer socket ball joint for breakage, axial end play, and swing torque.
- Transverse link: Refer to [FSU-16, "Inspection"](#).
- Steering outer socket: Refer to [ST-19, "Inspection"](#).

### INSPECTION AFTER INSTALLATION

## FRONT WHEEL HUB AND KNUCKLE

### < REMOVAL AND INSTALLATION >

---

1. Check wheel sensor harness for proper connection. Refer to [BRC-148. "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check the wheel alignment. Refer to [FSU-11. "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-59. "Work Procedure"](#).

# FRONT DRIVE SHAFT BOOT

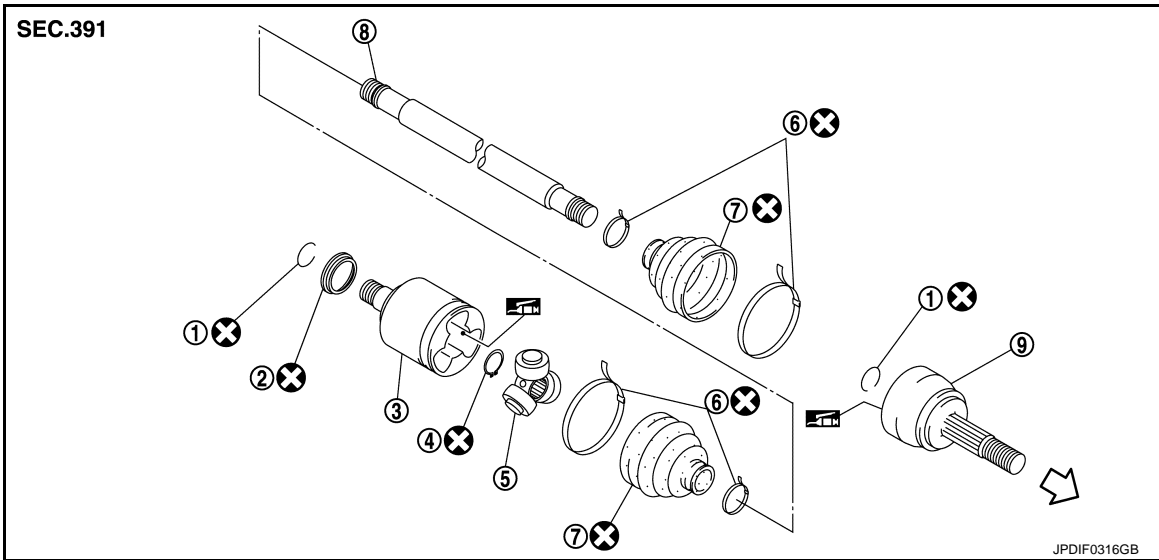
< REMOVAL AND INSTALLATION >

## FRONT DRIVE SHAFT BOOT

Exploded View

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LEFT SIDE



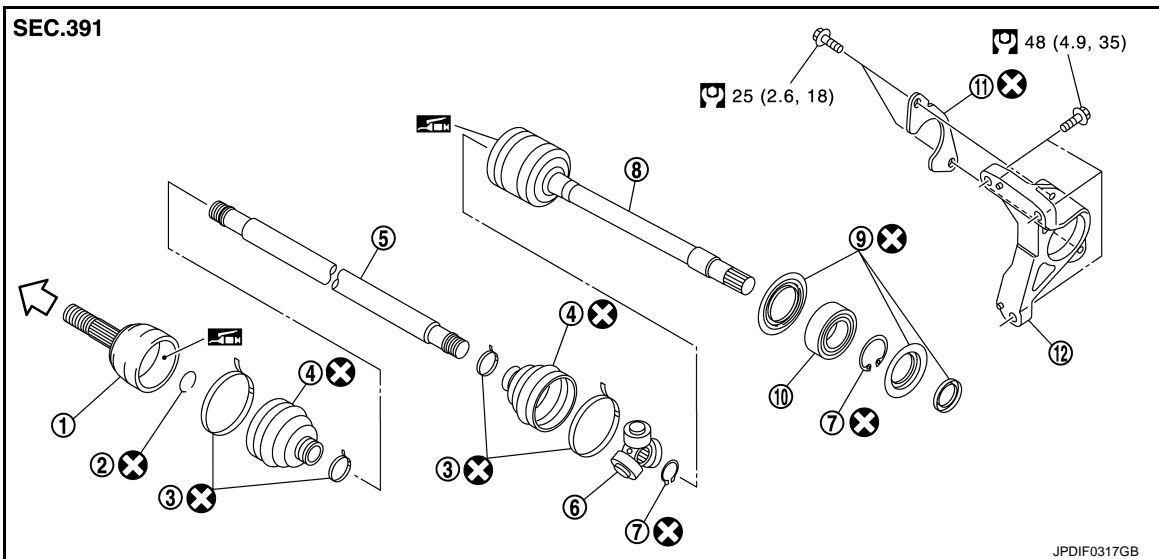
- |                  |                    |                       |
|------------------|--------------------|-----------------------|
| 1. Circular clip | 2. Dust shield     | 3. Housing            |
| 4. Snap ring     | 5. Spider assembly | 6. Boot band          |
| 7. Boot          | 8. Shaft           | 9. Joint sub-assembly |

← : Wheel side

: Fill NISSAN Genuine grease or equivalent.

: Always replace after every disassembly.

RIGHT SIDE





- |                       |                  |                             |
|-----------------------|------------------|-----------------------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band                |
| 4. Boot               | 5. Shaft         | 6. Spider assembly          |
| 7. Snap ring          | 8. Housing       | 9. Dust shield              |
| 10. Support bearing   | 11. Retainer     | 12. Support bearing bracket |


← : Wheel side

# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

 : Fill NISSAN Genuine grease or equivalent.

 : Always replace after every disassembly.

 : N·m (kg·m, ft·lb)

## WHEEL SIDE

### WHEEL SIDE : Removal and Installation

INFOID:000000007006083

#### REMOVAL

1. Remove tires with power tool. Refer to [WT-45, "Exploded View"](#).
2. Remove cotter pin and adjusting cap, and then loosen wheel hub lock nut. Refer to [FAX-9, "Removal and Installation"](#).

3. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub assembly from drive shaft.

#### NOTE:

Use suitable puller, if wheel hub assembly and drive shaft cannot be separated even after performing the above procedure.

4. Remove wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-16, "Removal and Installation"](#).
6. Remove transverse link from steering knuckle with power tool. Refer to [FAX-9, "Exploded View"](#).
7. Remove drive shaft from wheel hub assembly.

#### CAUTION:

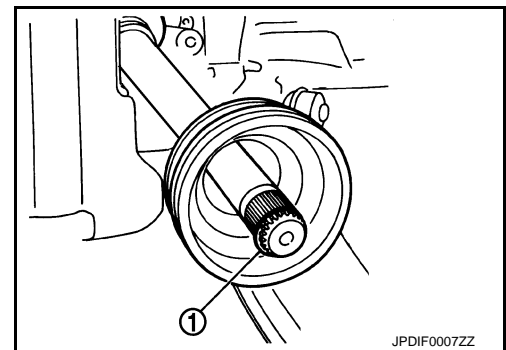
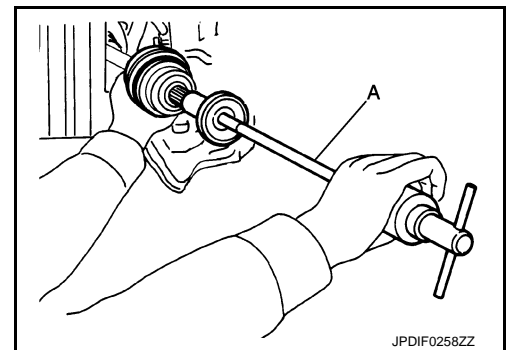
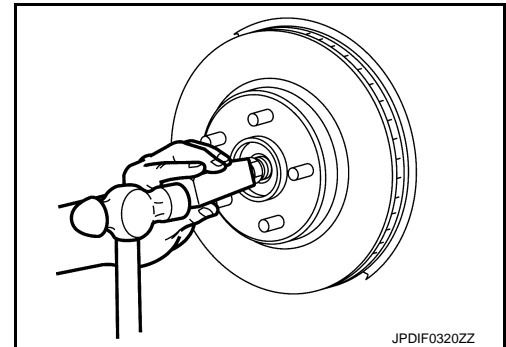
- Never place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.
- Never allow drive shaft to hang down without support for joint sub-assembly, shaft and the other parts.

8. Remove boot bands, and then remove boot from joint sub-assembly.
9. Screw drive shaft puller (A) (commercial service tool) into joint sub-assembly screw part to a length of 30 mm (1.18 in) or more. Support drive shaft with one hand and pull out joint sub-assembly from shaft.

#### CAUTION:

- Align drive shaft puller and drive shaft and remove them by pulling firmly and uniformly.
- If joint sub-assembly cannot be pulled out, try after removing drive shaft from vehicle. Refer to [FAX-22, "WHEEL SIDE : Disassembly and Assembly"](#).

10. Remove circular clip (1) from shaft.
11. Remove boot from shaft.



#### INSTALLATION

1. Clean the old grease on joint sub-assembly with paper waste.

# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

- Fill serration slot joint sub-assembly (1) with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.

**CAUTION:**

After applying grease, use a paper waste to wipe off old grease that has oozed out.

- Install boot and boot bands to shaft.

**CAUTION:**

- Wrap serration on shaft with tape to protect the boot from damage.
- Never reuse boot and boot band.

- Remove the tape wrapped around the serration on shaft.

- Position the circular clip (1) on groove at the shaft edge.

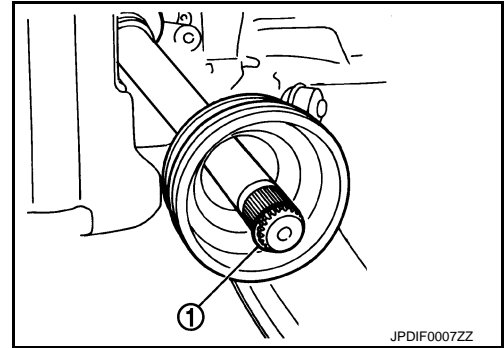
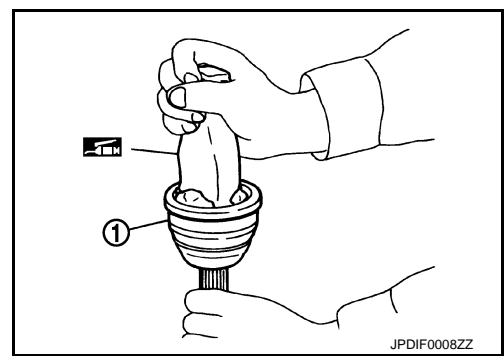
**CAUTION:**

Never reuse circular clip.

**NOTE:**

Drive joint inserter is recommended when installing circular clip.

- Align both center axes of the shaft edge and joint sub-assembly. Then assemble shaft with joint sub-assembly holding circular clip.



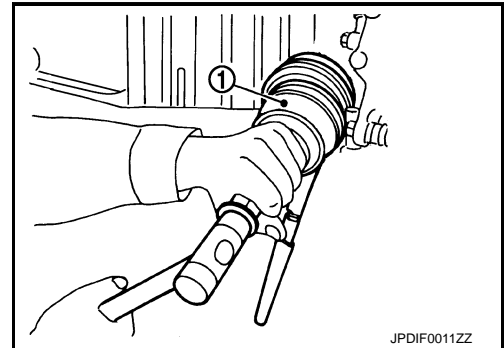
- Install joint sub-assembly (1) to shaft using plastic hammer.

**CAUTION:**

- Check circular clip is properly positioned on groove of the joint sub-assembly.
- Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.

- Apply the specified amount of grease into the boot inside from large diameter side of boot.

Grease amount : Refer to [FAX-31, "Drive Shaft"](#).



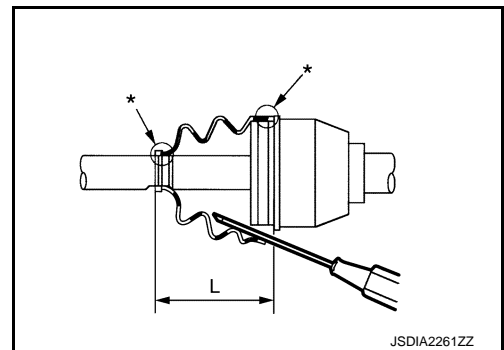
- Install the boot securely into grooves (indicated by "\*" marks) shown in the figure.

L : Boot installation length

**CAUTION:**

If grease adheres to the boot mounting surface (indicated by "\*" marks) on the shaft or joint sub-assembly, boot may be removed. Remove all grease from the boot mounting surface.

- To prevent the deformation of the boot, adjust the boot installation length to the specified value by inserting the suitable tool into inside of the boot from the large diameter side of the boot and discharging the inside air.



Boot installation length : Refer to [FAX-31, "Drive Shaft"](#).

**CAUTION:**

- If the boot installation length exceeds the standard, it may cause breakage of the boot.
- Be careful not to touch the inside of the boot with a tip of tool.

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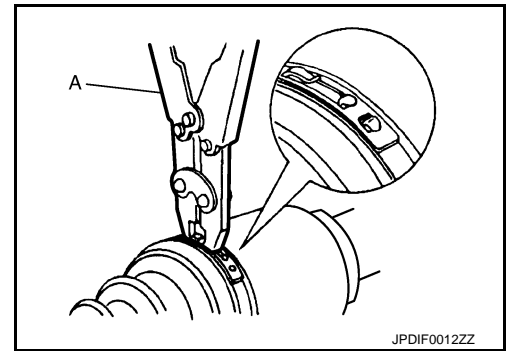
# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

11. Secure the large and small ends of the boot with boot bands using the boot band crimping tool (A) [SST: KV40107300 ( — )].

**CAUTION:**

- Never reuse boot band.



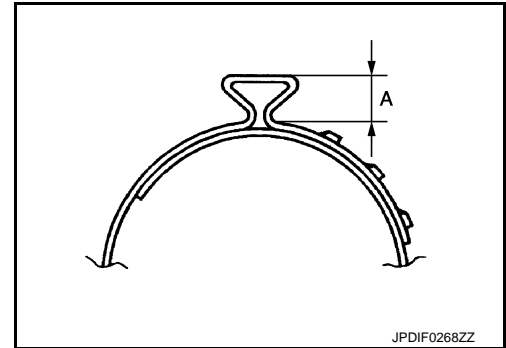
- Secure boot band so that dimension (A) meets the specification as shown in the figure.

**A : 7.0 mm (0.276 in) or less.**

12. Check that displacement does not occur when boot is rotated with the joint sub-assembly and shaft fixed.

**CAUTION:**

- Reinstall them using boot bands when boot installation positions become incorrect.
- Never reuse boot band.



13. Clean the matching surface of wheel hub lock nut and wheel hub assembly.

**CAUTION:**

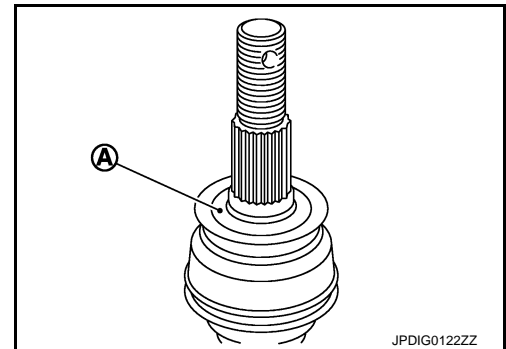
**Never apply lubricating oil to these matching surface.**

14. Clean the matching surface of drive shaft, wheel hub assembly. And then apply paste [service parts (440037S000)] to surface (A) of joint sub-assembly of drive shaft.

**CAUTION:**

**Apply paste to cover entire flat surface of joint sub-assembly of drive shaft.**

**Amount paste : 1.0 – 3.0 g (0.04 – 0.10 oz)**



15. Insert drive shaft to wheel hub assembly, and then temporarily tighten wheel hub lock nut.


**CAUTION:**

- Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.
- Never reuse wheel hub lock nut.

16. Install transverse link to steering knuckle. Refer to [FAX-9, "Exploded View"](#).

17. Install steering outer socket to steering knuckle. Refer to [ST-16, "Removal and Installation"](#).

18. Use the following torque range for tightening the wheel hub lock nut.

 : **180 – 185 N·m (18.4 – 18.8 kg·m, 133 – 136 ft·lb)**

**CAUTION:**

- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
- Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.

**NOTE:**

Wheel hub lock nut tightening torque does not over torque for avoiding axle noise, and does not less than torque for avoiding looseness.



# FRONT DRIVE SHAFT BOOT

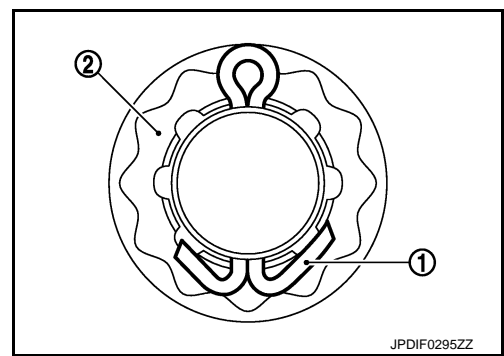
## < REMOVAL AND INSTALLATION >

19. When installing a cotter pin (1) and adjusting cap (2), securely bend the basal portion to prevent rattles.

**CAUTION:**

**Never reuse cotter pin.**

20. Install tires. Refer to [WT-45, "Exploded View"](#).
21. Perform inspection after installation. Refer to [FAX-17, "Inspection"](#).



## REDUCTION GEAR SIDE

### REDUCTION GEAR SIDE : Removal and Installation

INFOID:000000007006084

Remove boot after drive shaft is removed from the vehicle.

- For drive shaft removal and installation, follow the instructions below.
- Left side: Refer to [FAX-19, "LEFT SIDE : Removal and Installation"](#).
- Right side: Refer to [FAX-20, "RIGHT SIDE : Removal and Installation"](#).
- For drive shaft disassembly and assembly, refer to [FAX-24, "REDUCTION GEAR SIDE : Disassembly and Assembly"](#).

## Inspection

INFOID:000000007006085

### INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-148, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check the wheel alignment. Refer to [FSU-11, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-59, "Work Procedure"](#).

# FRONT DRIVE SHAFT

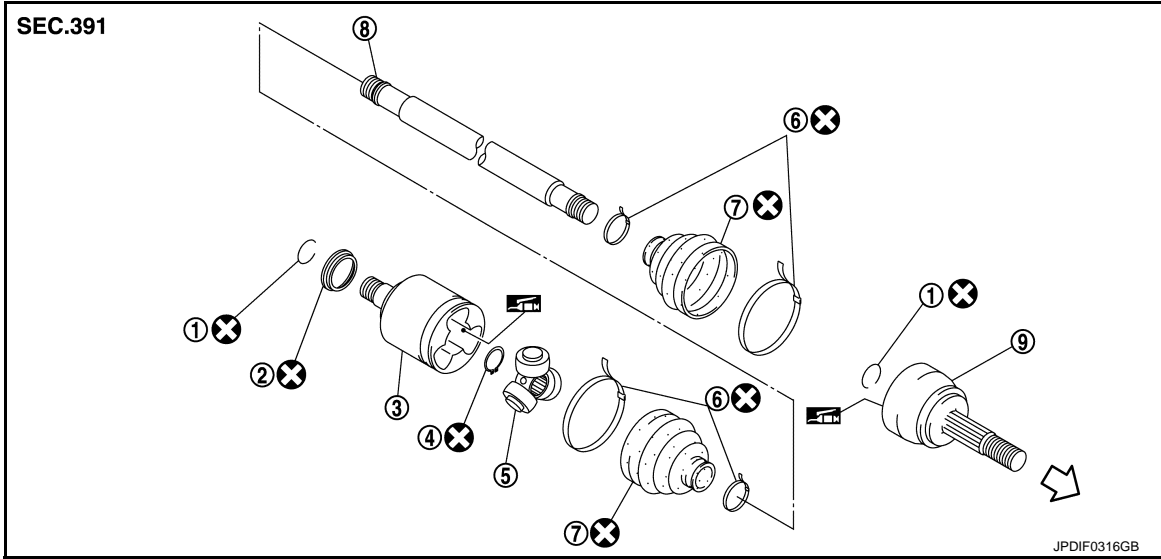
< REMOVAL AND INSTALLATION >

## FRONT DRIVE SHAFT

Exploded View

INFOID:000000007006086

LEFT SIDE



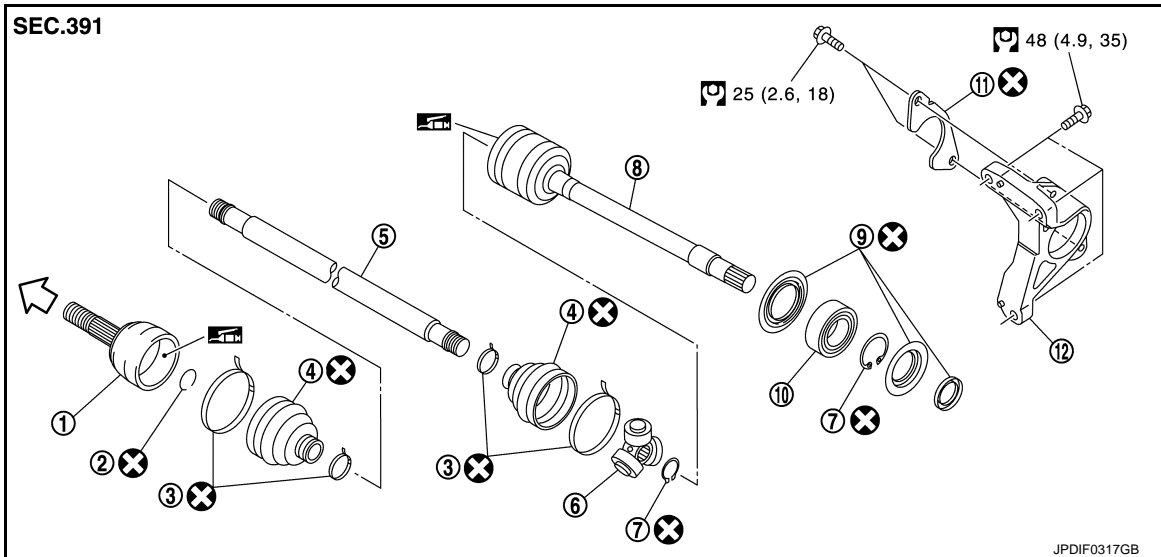
- |                  |                    |                       |
|------------------|--------------------|-----------------------|
| 1. Circular clip | 2. Dust shield     | 3. Housing            |
| 4. Snap ring     | 5. Spider assembly | 6. Boot band          |
| 7. Boot          | 8. Shaft           | 9. Joint sub-assembly |

↔ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

: Always replace after every disassembly.

RIGHT SIDE





- |                       |                  |                             |
|-----------------------|------------------|-----------------------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band                |
| 4. Boot               | 5. Shaft         | 6. Spider assembly          |
| 7. Snap ring          | 8. Housing       | 9. Dust shield              |
| 10. Support bearing   | 11. Retainer     | 12. Support bearing bracket |


↔ : Wheel side

# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

 : Fill NISSAN Genuine grease or equivalent.

 : Always replace after every disassembly.

 : N·m (kg·m, ft·lb)

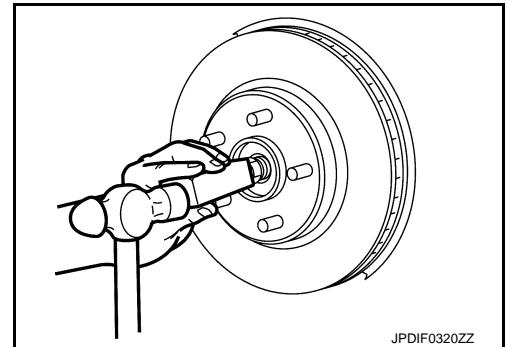
## LEFT SIDE

### LEFT SIDE : Removal and Installation

INFOID:000000007006087

#### REMOVAL

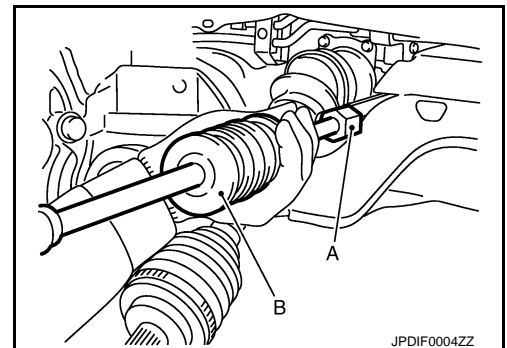
1. Remove tires with power tool. Refer to [WT-45, "Exploded View"](#).
2. Remove cotter pin and adjusting cap, and then loosen wheel hub lock nut. Refer to [FAX-9, "Removal and Installation"](#).
3. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub assembly from drive shaft.  
**NOTE:**  
Use suitable puller, if wheel hub assembly and drive shaft cannot be separated even after performing the above procedure.
4. Remove wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-16, "Removal and Installation"](#).
6. Remove transverse link from steering knuckle with power tool. Refer to [FAX-9, "Exploded View"](#).
7. Remove shaft assembly from wheel hub assembly.



#### **CAUTION:**

- Never place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.
- Never allow drive shaft to hang down without support for joint sub-assembly, shaft and the other parts.

8. Use the drive shaft attachment (A) [SST: KV40107500 ( — )] and a sliding hammer (B) (commercial service tool) while inserting tip of the drive shaft attachment between shaft and reduction gear assembly, and then remove drive shaft from reduction gear assembly.  
**CAUTION:**
  - Never place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.
  - Confirm that the circular clip is attached to the drive shaft.
9. Perform inspection after removal. Refer to [FAX-30, "Inspection"](#).

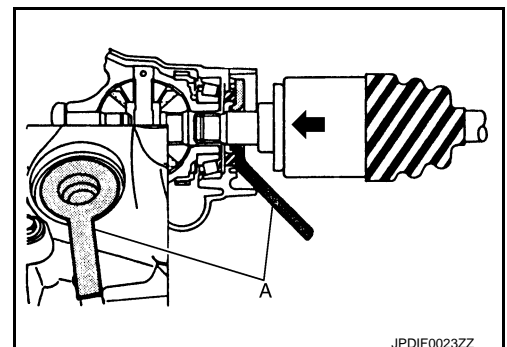


#### INSTALLATION

Note the following, and install in the reverse order of removal.

##### Reduction Gear Side

- Place the protector (A) [SST: KV38107900 ( — )] onto reduction gear assembly to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a hammer to install securely.  
**CAUTION:**  
**Check that circular clip is completely engaged.**
- Perform inspection after installation. Refer to [FAX-30, "Inspection"](#).



##### Wheel Hub Side

- Clean the matching surface of wheel hub lock nut and wheel hub assembly.

#### **CAUTION:**

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# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

**Never apply lubricating oil to these matching surface.**


- Clean the matching surface of drive shaft and wheel hub assembly. And then apply paste [service parts (440037S000)] to surface (A) of joint sub-assembly of drive shaft.

**CAUTION:**

**Apply paste to cover entire flat surface of joint sub-assembly of drive shaft.**

**Amount paste : 1.0 – 3.0 g (0.04 – 0.10 oz)**

- Use the following torque range for tightening the wheel hub lock nut.

 : **180 – 185 N·m (18.4 – 18.8 kg·m, 133 – 136 ft-lb)**

**CAUTION:**

- **Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.**
- **Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.**
- **Never reuse wheel hub lock nut.**

**NOTE:**

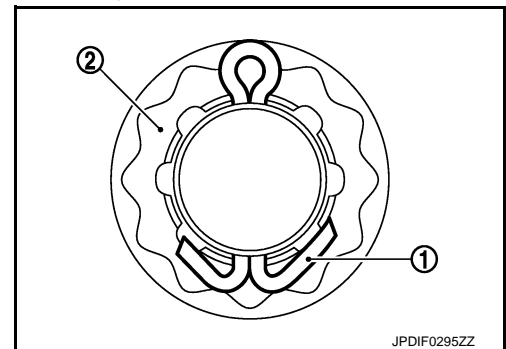
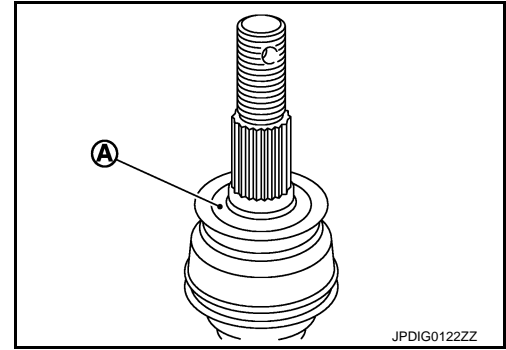
Wheel hub lock nut tightening torque does not over torque for avoiding axle noise, and does not less than torque for avoiding looseness.

- Align the matching marks that have been made during removal when reusing the disc rotor.
- When installing a cotter pin (1) and adjusting cap (2), securely bend the basal portion to prevent rattles.

**CAUTION:**

**Never reuse cotter pin.**

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub assembly and steering knuckle.
- Perform inspection after installation. Refer to [FAX-30, "Inspection"](#).



## RIGHT SIDE

### RIGHT SIDE : Removal and Installation

INFOID:000000007006088

#### REMOVAL

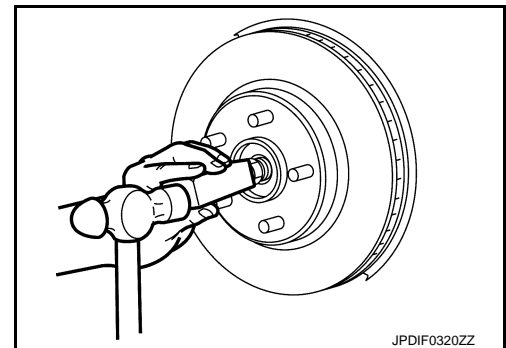
1. Remove tires with power tool. Refer to [WT-45, "Exploded View"](#).
2. Remove cotter pin and adjusting cap, and then loosen wheel hub lock nut. Refer to [FAX-9, "Removal and Installation"](#).

3. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub assembly from drive shaft.

**NOTE:**

Use suitable puller, if wheel hub assembly and drive shaft cannot be separated even after performing the above procedure.

4. Remove wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
5. Remove steering outer socket from steering knuckle. Refer to [ST-16, "Removal and Installation"](#).
6. Remove transverse link from steering knuckle with power tool. Refer to [FAX-9, "Exploded View"](#).
7. Remove drive shaft from wheel hub assembly.



**CAUTION:**

- **Never place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
- **Never allow drive shaft to hang down without support for joint sub-assembly, shaft and the other parts.**

# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

8. Remove retainer.
9. Remove drive shaft assembly from reduction gear assembly.

**CAUTION:**

**Never place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**

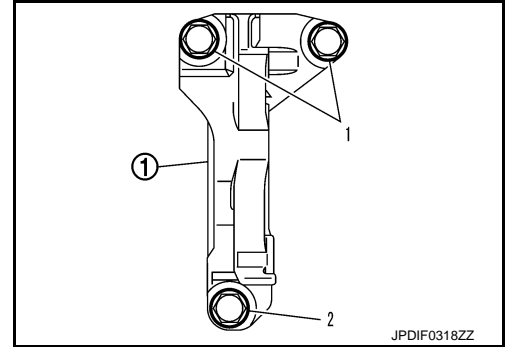
10. Remove support bearing bracket.
11. Perform inspection after removal. Refer to [FAX-30. "Inspection"](#).

## INSTALLATION

Note the following, and install in the reverse order of removal.

### Reduction Gear Side

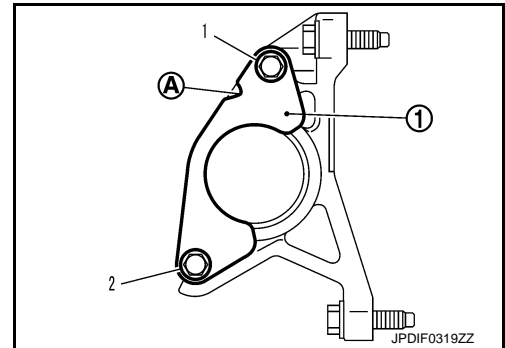
- Install support bearing bracket in following procedure.
- Temporarily tighten support bearing bracket (1) mounting bolts in the numerical order as shown in the figure, then tighten them to specified torque.



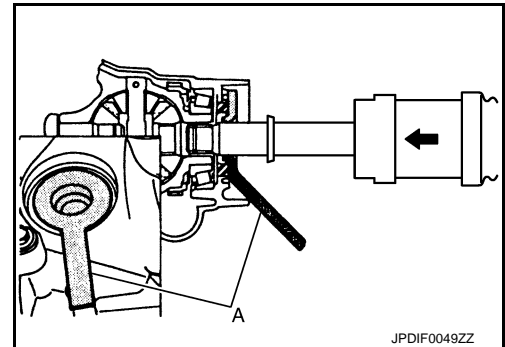
- Set retainer (1) so that notch (A) becomes upper side. Temporarily tighten mounting bolts in the numerical order as shown in the figure, then tighten them to specified torque.

**CAUTION:**

**Never reuse retainer.**



- Place the protector (A) [SST: KV38107900 ( — )] onto reduction gear assembly to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a hammer to install securely.
- Perform inspection after installation. Refer to [FAX-30. "Inspection"](#).



### Wheel Hub Side

- Clean the matching surface of wheel hub lock nut and wheel hub assembly.

**CAUTION:**

**Never apply lubricating oil to these matching surface.**

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# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

- Clean the matching surface of drive shaft and wheel hub assembly. And then apply paste [service parts (440037S000)] to surface (A) of joint sub-assembly of drive shaft.

**CAUTION:**

Apply paste to cover entire flat surface of joint sub-assembly of drive shaft.

Amount paste : 1.0 – 3.0 g (0.04 – 0.10 oz)

- Use the following torque range for tightening the wheel hub lock nut.

 : 180 – 185 N·m (18.4 – 18.8 kg·m, 133 – 136 ft·lb)

**CAUTION:**

- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
- Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.
- Never reuse wheel hub lock nut.

**NOTE:**

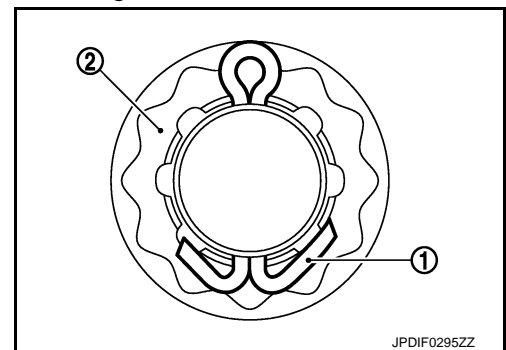
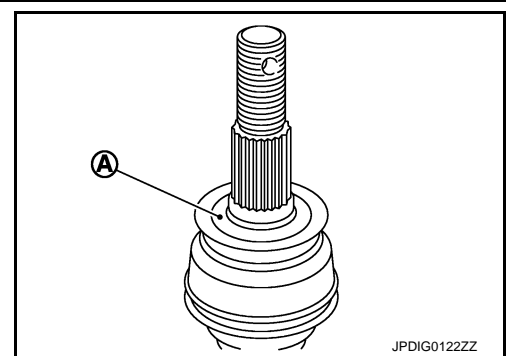
Wheel hub lock nut tightening torque does not over torque for avoiding axle noise, and does not less than torque for avoiding looseness.

- Align the matching marks that have been made during removal when reusing the disc rotor.
- When installing a cotter pin (1) and adjusting cap (2), securely bend the basal portion to prevent rattles.

**CAUTION:**

Never reuse cotter pin.

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub assembly and steering knuckle.
- Perform inspection after installation. Refer to [FAX-30, "Inspection"](#).



## WHEEL SIDE

### WHEEL SIDE : Disassembly and Assembly

INFOID:000000007006089

#### DISASSEMBLY

1. Fix shaft with a vise.

**CAUTION:**

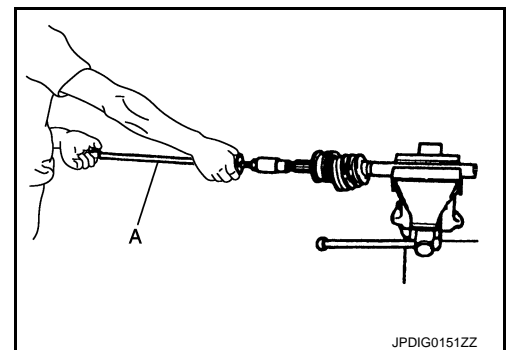
Protect shaft when fixing with a vise using aluminum or copper plates.

2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw drive shaft puller (A) (commercial service tool) into joint sub-assembly screw part to a length of 30 mm (1.18 in) or more. Support drive shaft with one hand and pull out joint sub-assembly from shaft.

**CAUTION:**

- Align drive shaft puller and drive shaft and remove them by pulling firmly and uniformly.
- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub-assembly as a set.

4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Perform inspection after disassembly. Refer to [FAX-30, "Inspection"](#).



#### ASSEMBLY

1. Clean the old grease on joint sub-assembly with paper waste.

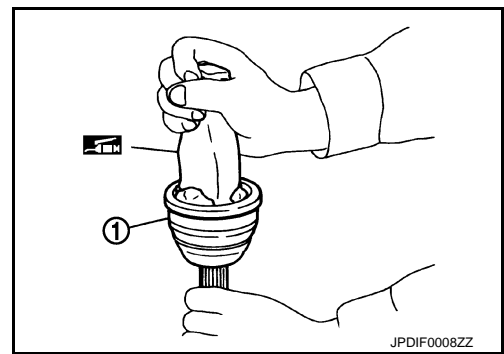
# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

2. Fill serration slot joint sub-assembly (1) with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.

**CAUTION:**

After applying grease, use a paper waste to wipe off old grease that has oozed out.

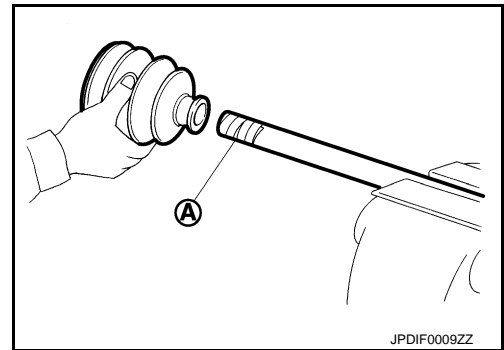


3. Install boot and boot bands to shaft.

**CAUTION:**

- Wrap serration on shaft with tape (A) to protect the boot from damage.
- Never reuse boot and boot band.

4. Remove the tape wrapped around the serration on shaft.



5. Position the circular clip (1) on groove at the shaft edge.

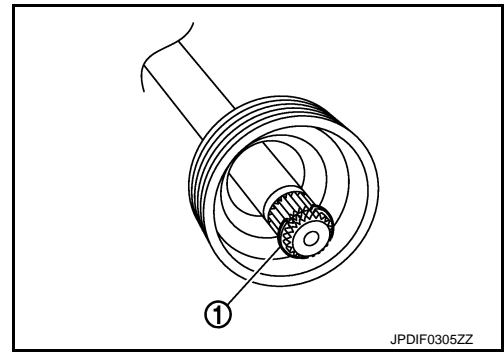
**CAUTION:**

Never reuse circular clip.

**NOTE:**

Drive joint inserter is recommended when installing circular clip.

6. Align both center axes of the shaft edge and joint sub-assembly. Then assemble shaft with joint sub-assembly holding circular clip.



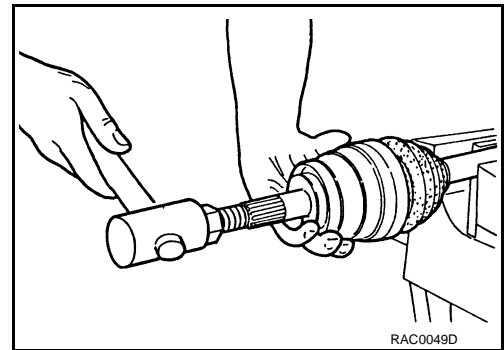
7. Install joint sub-assembly to shaft using plastic hammer.

**CAUTION:**

- Check circular clip is properly positioned on groove of the joint sub-assembly.
- Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.

8. Apply the specified amount of grease into the boot inside from large diameter side of boot.

Grease amount : Refer to [FAX-31, "Drive Shaft"](#).



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# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

9. Install the boot securely into grooves (indicated by “\*” marks) shown in the figure.

L : Boot installation length

### CAUTION:

If grease adheres to the boot mounting surface (indicated by “\*” marks) on the shaft or joint sub-assembly, boot may be removed. Remove all grease from the boot mounting surface.

10. To prevent the deformation of the boot, adjust the boot installation length to the specified value by inserting the suitable tool into inside of the boot from the large diameter side of the boot and discharging the inside air.

Boot installation length : Refer to [FAX-31, "Drive Shaft"](#).

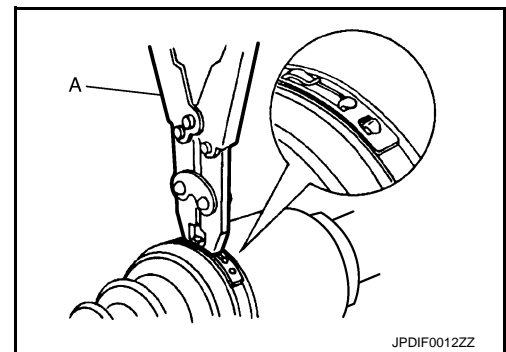
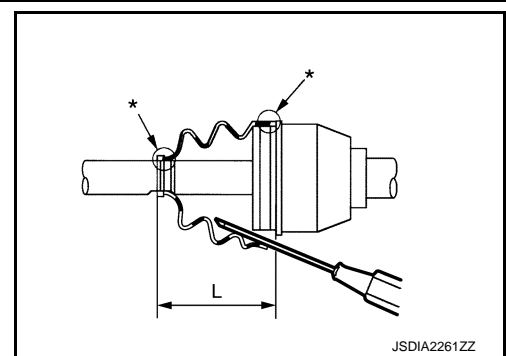
### CAUTION:

- If the boot installation length exceeds the standard, it may cause breakage of the boot.
- Be careful not to touch the inside of the boot with a tip of tool.

11. Secure the large and small ends of the boot with boot bands using the boot band crimping tool (A) [SST: KV40107300 ( — )].

### CAUTION:

- Never reuse boot band.



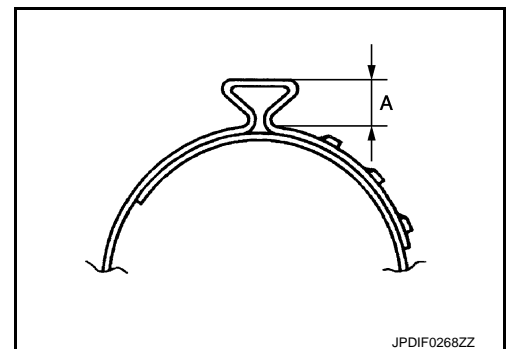
- Secure boot band so that dimension (A) meets the specification as shown in the figure.

A : 7.0 mm (0.276 in) or less.

12. Check that displacement does not occur when boot is rotated with the joint sub-assembly and shaft fixed.

### CAUTION:

- Reinstall them using boot bands when boot installation positions become incorrect.
- Never reuse boot band.



## REDUCTION GEAR SIDE

### REDUCTION GEAR SIDE : Disassembly and Assembly

INFOID:000000007006090

#### DISASSEMBLY

Left Side

1. Fix shaft with a vise.

### CAUTION:

Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from housing.  
3. Put matching marks on housing and shaft, and then pull out housing from shaft.

### CAUTION:

Use paint or an equivalent for matching marks. Never scratch the surfaces.



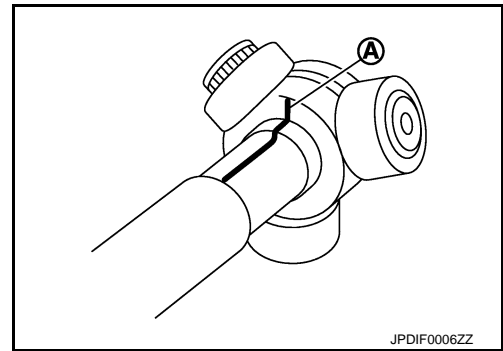
# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

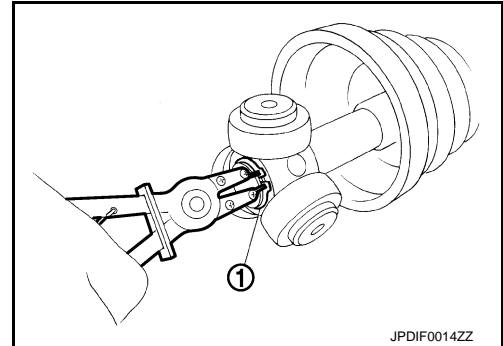
- Put matching marks (A) on the spider assembly and shaft.

**CAUTION:**

**Use paint or an equivalent for matching marks. Never scratch the surfaces.**



- Remove snap ring (1), and then remove spider assembly from shaft.
- Remove boot from shaft.
- Remove dust shield from housing.
- Remove circular clip from housing.
- Perform inspection after disassembly. Refer to [FAX-30. "Inspection"](#).



### Right Side

- Fix shaft with a vise.

**CAUTION:**

**Protect shaft using aluminum or copper plates when fixing with a vise.**

- Remove boot bands, and then remove boot from housing.
- Put matching marks on housing and shaft, and then pull out housing from shaft.

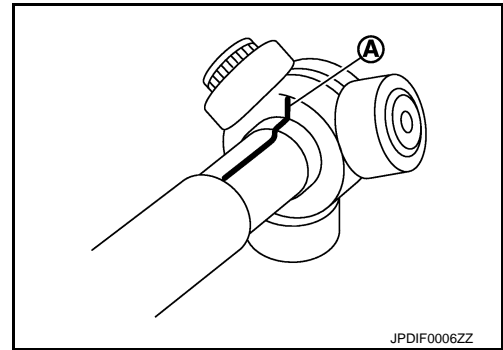
**CAUTION:**

**Use paint or an equivalent for matching marks. Never scratch the surfaces.**

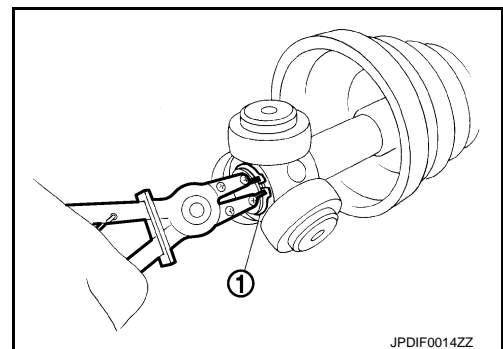
- Put matching marks (A) on the spider assembly and shaft.

**CAUTION:**

**Use paint or an equivalent for matching marks. Never scratch the surfaces.**



- Remove snap ring (1), and then remove spider assembly from shaft.
- Remove boot from shaft.
- Remove circular clip from housing.



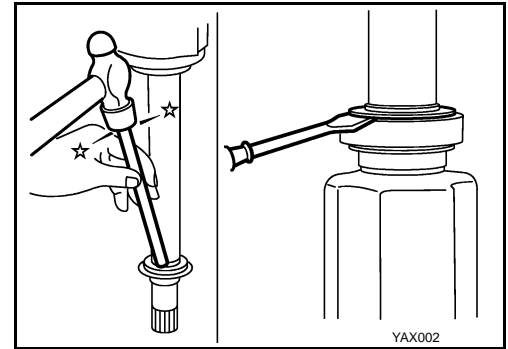
- Remove support bearing, follow the procedure described below.

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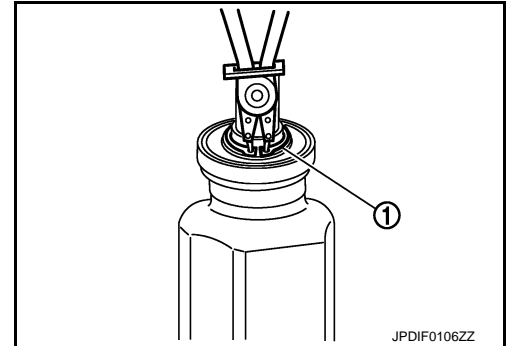
## FRONT DRIVE SHAFT

### < REMOVAL AND INSTALLATION >

a. Remove dust shield from housing.



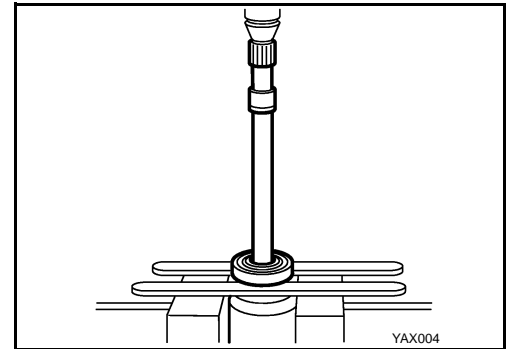
b. Remove snap ring (1).



c. Press out support bearing from housing.

d. Remove dust shield from housing.

9. Perform inspection after disassembly. Refer to [FAX-30. "Inspection"](#).



## ASSEMBLY

### Left Side

1. Clean the old grease on housing assembly with paper waste.

2. Install dust shield to housing.

**CAUTION:**

**Never reuse dust shield.**

3. Install circular clip to housing.

**CAUTION:**

**Never reuse circular clip.**

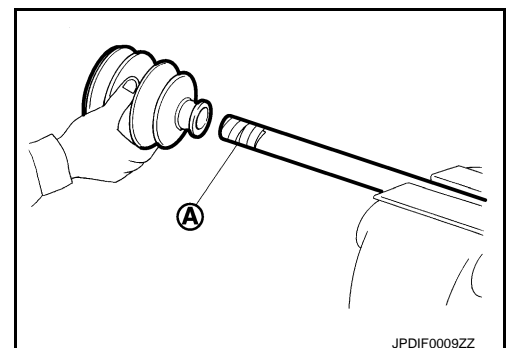
4. Install new boot and boot bands to shaft.

**CAUTION:**

• **Wrap serration on shaft with tape (A) to protect boot from damage.**

• **Never reuse boot and boot bands.**

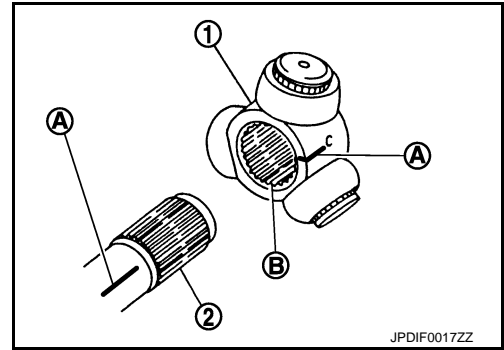
5. Remove the tape wrapped around the serration on shaft.



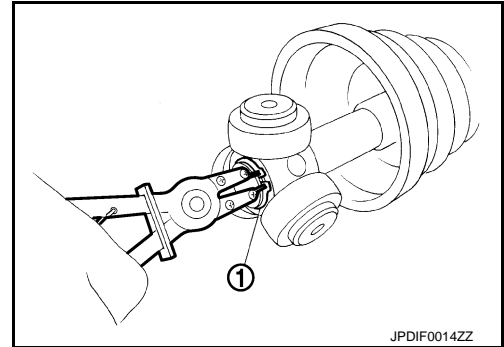
# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

6. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) during the removal, and direct the serration mounting surface (B) to the shaft.



7. Secure spider assembly onto shaft with snap ring (1).  
**CAUTION:**  
**Never reuse snap ring.**
8. Apply the appropriate amount of grease to spider assembly and sliding surface.
9. Assemble the housing onto spider assembly, and apply the balance of the specified amount grease.

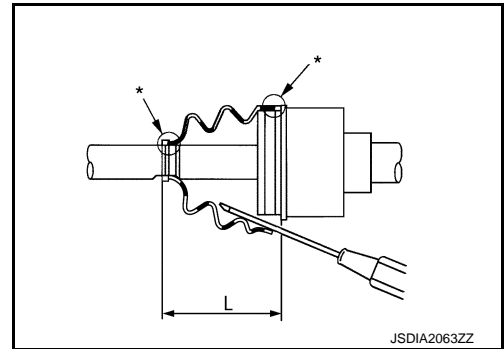


**Grease amount** : Refer to [FAX-31, "Drive Shaft"](#).

10. Align matching marks put during the removal of housing.
11. Install boot securely into grooves (indicated by "\*" marks) shown in the figure.

L : Boot installation length

**CAUTION:**  
**If grease adheres to the boot mounting surface (with "\*" marks) on shaft or housing, boot may be removed. Remove all grease from the surface.**



12. To prevent the deformation of the boot, adjust the boot installation length to the value by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

**Boot installation length** : Refer to [FAX-31, "Drive Shaft"](#).

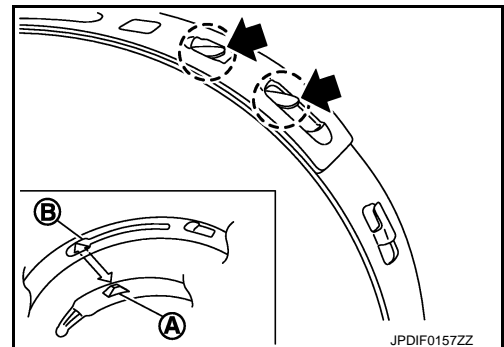
**CAUTION:**

- If the boot installation length exceeds the standard, it may cause breakage of the boot.
- Be careful not to touch the inside of the boot with the tip of tool.

13. Install boot bands securely.  
**CAUTION:**  
**Never reuse boot bands.**
- a. Put boot band in the groove on drive shaft boot. Then fit pawls into holes to temporary installation.

**NOTE:**  
 For the large diameter side, fit projection (A) and guide slit (B) at first.

- b. Pinch projection on the band with suitable pliers to tighten band.



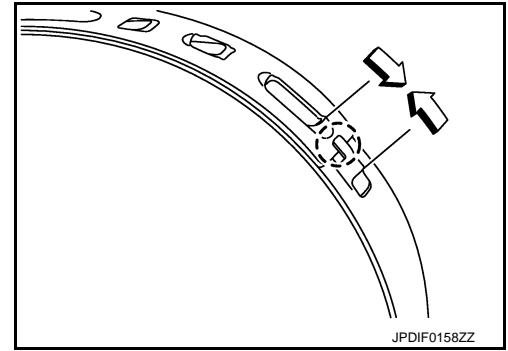
# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

- c. Insert the tip of band into the lower part of pawl (marked with dotted circle) as shown in the figure.
- 14. Check that displacement does not occur when boot is rotated with the housing assembly fixed.

**CAUTION:**

- If displacement occurs, reinstall band.
- Never reuse boot band.



### Right Side

- 1. Install support bearing, follow the procedure described below.

- a. Install dust shield to housing.

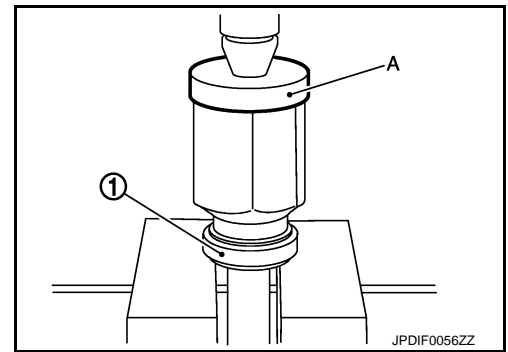
**CAUTION:**

**Never reuse dust shield.**

- b. Press support bearing (1) onto housing to using the suitable tool (A).

**CAUTION:**

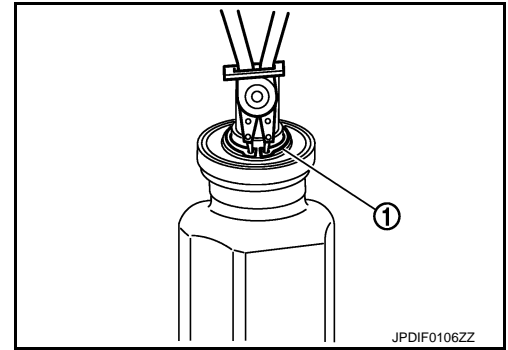
**Never reuse support bearing.**



- c. Install snap ring (1).

**CAUTION:**

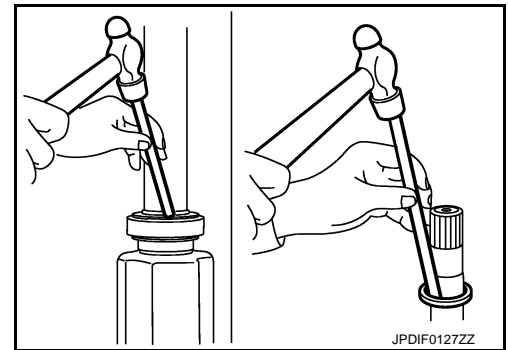
**Never reuse snap ring.**



- d. Install dust shields.

**CAUTION:**

**Never reuse dust shields.**



- 2. Clean the old grease on housing assembly with paper waste.

- 3. Install new boot and boot bands to shaft.

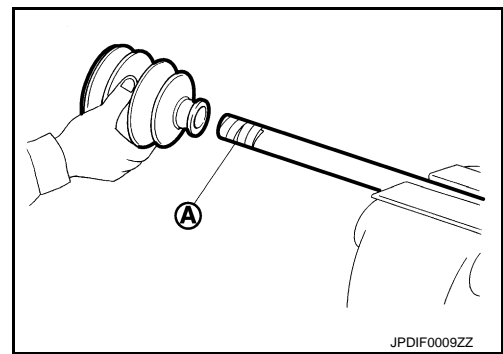
**CAUTION:**

# FRONT DRIVE SHAFT

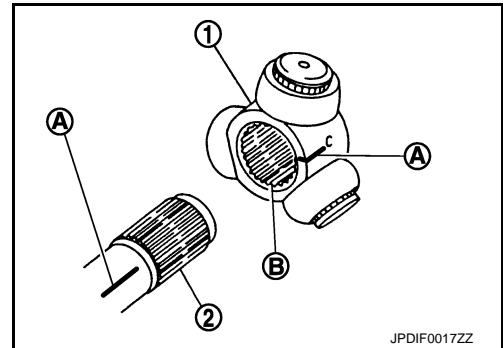
## < REMOVAL AND INSTALLATION >

- Wrap serration on shaft with tape (A) to protect boot from damage.
- Never reuse boot and boot bands.

4. Remove the tape wrapped around the serration on shaft.



5. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) during the removal, and direct the serration mounting surface (B) to the shaft.



6. Secure spider assembly onto shaft with snap ring (1).

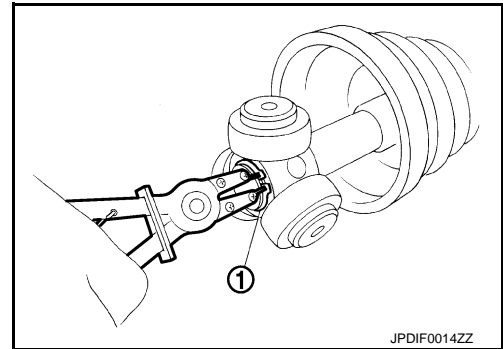
**CAUTION:**  
Never reuse snap ring.

7. Apply the appropriate amount of grease to spider assembly and sliding surface.

8. Assemble the housing onto spider assembly, and apply the balance of the specified amount grease.

**Grease amount** : Refer to [FAX-31, "Drive Shaft"](#).

9. Align matching marks put during the removal of housing.

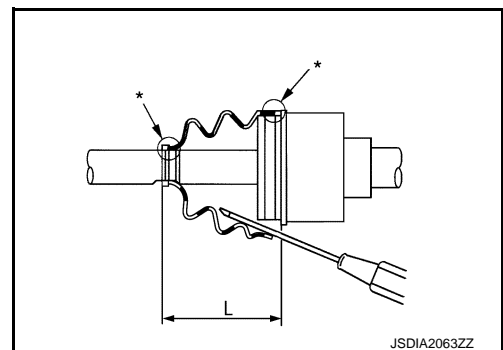


10. Install boot securely into grooves (indicated by "\*" marks) shown in the figure.

L : Boot installation length

**CAUTION:**  
If grease adheres to the boot mounting surface (with "\*" marks) on shaft or housing, boot may be removed. Remove all grease from the surface.

11. To prevent the deformation of the boot, adjust the boot installation length to the value by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.



**Boot installation length** : Refer to [FAX-31, "Drive Shaft"](#).

**CAUTION:**

- If the boot installation length exceeds the standard, it may cause breakage of the boot.
- Be careful not to touch the inside of the boot with the tip of tool.

12. Install boot bands securely.

**CAUTION:**  
Never reuse boot bands.

a. Put boot band in the groove on drive shaft boot. Then fit pawls into holes to temporary installation.

**NOTE:**

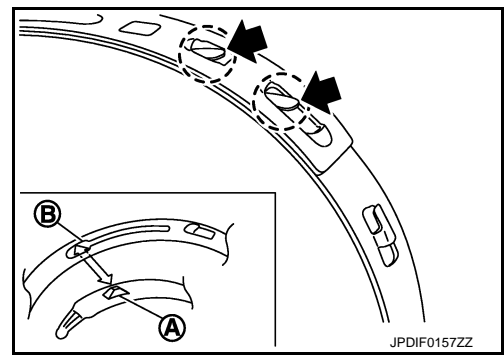
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# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

For the large diameter side, fit projection (A) and guide slit (B) at first.

- b. Pinch projection on the band with suitable pliers to tighten band.

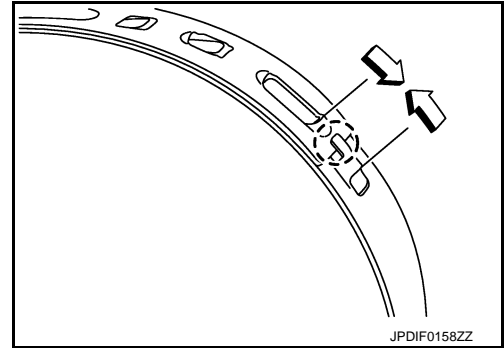


- c. Insert the tip of band into the lower part of pawl (marked with dotted circle) as shown in the figure.

13. Check that displacement does not occur when boot is rotated with the housing assembly fixed.

**CAUTION:**

- If displacement occurs, reinstall band.
- Never reuse boot band.



## Inspection

INFOID:000000007006091

### INSPECTION AFTER REMOVAL

Check the following items, and replace the part if necessary.

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Check the support bearing bracket for cracks, deformation and other damage.

### INSPECTION AFTER DISASSEMBLY

Check the following items, and replace the part if necessary.

#### Shaft

Check shaft for runout, cracks, or other damage.

#### Joint Sub-Assembly

Check the following:

- Joint sub-assembly for rough rotation and excessive axial looseness.
  - The inside of the joint sub-assembly for entry of foreign material.
  - Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly.
- Replace joint sub-assembly if there are any non-standard conditions of components.

#### Housing and spider assembly

Replace housing and spider assembly if there is scratching or wear of housing roller contact surface or spider roller contact surface.

**NOTE:**

Housing and spider assembly are used in a set.

#### Support Bearing (Right Side)

Check bearing rolls freely and is free from noise, cracks, pitting or wear. Replace support bearing if there are any non-standard conditions.

#### Support Bearing Bracket (Right Side)

Check for support bearing bracket, cracks, or damage. Replace support bearing bracket if there are any non-standard conditions.

### INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-11. "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-59. "Work Procedure"](#).

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### Wheel Bearing

INFOID:0000000007006092

Item	Standard
Axial end play	0.05 mm (0.002 in) or less

#### Drive Shaft

INFOID:0000000007006093

Item	Standard	
	Wheel side	Reduction gear side
Grease quantity	88 – 108 g (3.11 – 3.80 oz)	153 – 166 g (5.40 – 5.85 oz)
Boots installed length*	95.4 mm (3.756 in)	94 mm (3.70 in)

\*: For measuring position, refer to [FAX-22, "WHEEL SIDE : Disassembly and Assembly"](#) (Wheel side), [FAX-24, "REDUCTION GEAR SIDE : Disassembly and Assembly"](#) (Reduction gear side).

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