

SECTION **FAX**  
FRONT AXLE

A  
B  
C

FAX

CONTENTS

E

<b>SYMPTOM DIAGNOSIS</b> .....	2	<b>FRONT DRIVE SHAFT BOOT</b> .....	11	F
<b>NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING</b> .....	2	Exploded View .....	11	
NVH Troubleshooting Chart .....	2	<b>WHEEL SIDE</b> .....	12	G
<b>PRECAUTION</b> .....	3	WHEEL SIDE : Removal and Installation .....	12	
<b>PRECAUTIONS</b> .....	3	<b>TRANSAXLE SIDE</b> .....	14	H
Caution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" .....	3	TRANSAXLE SIDE : Removal and Installation .....	14	
Precautions for Drive Shaft .....	3	Inspection .....	14	
Precautions for Removing of Battery Terminal .....	4	<b>FRONT DRIVE SHAFT</b> .....	15	I
<b>PREPARATION</b> .....	5	Exploded View .....	15	
<b>PREPARATION</b> .....	5	<b>LEFT SIDE</b> .....	16	J
Special Service Tool .....	5	LEFT SIDE : Removal and Installation .....	16	
Commercial Service Tool .....	5	<b>RIGHT SIDE</b> .....	17	K
<b>PERIODIC MAINTENANCE</b> .....	7	RIGHT SIDE : Removal and Installation .....	17	
<b>FRONT WHEEL HUB AND KNUCKLE</b> .....	7	<b>WHEEL SIDE</b> .....	18	L
Inspection .....	7	WHEEL SIDE : Disassembly and Assembly .....	18	
<b>FRONT DRIVE SHAFT</b> .....	8	<b>TRANSAXLE SIDE</b> .....	19	
Inspection .....	8	TRANSAXLE SIDE : Disassembly and Assembly...20		
<b>REMOVAL AND INSTALLATION</b> .....	9	Inspection .....	25	M
<b>FRONT WHEEL HUB AND KNUCKLE</b> .....	9	<b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> .....	27	
Exploded View .....	9	<b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> .....	27	N
Removal and Installation .....	9	Wheel Bearing .....	27	
Inspection .....	10	Drive Shaft .....	27	O

P

# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

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

#### NVH Troubleshooting Chart

INFOID:000000009948784

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

Reference			—	<a href="#">FAX-25</a>	—	<a href="#">FAX-9</a>	—	<a href="#">FAX-7</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	x
		Shake				x	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	x
		Judder				x			x		x	x		x	x	x
		Poor quality ride or handling				x	x		x		x	x				

x: Applicable

# PRECAUTIONS

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## PRECAUTION

### PRECAUTIONS

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

INFOID:000000009948785

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 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 ignition ON or engine running, 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 ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precautions for Drive Shaft

INFOID:000000009948786

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.

# PRECAUTIONS

< PRECAUTION >

## Precautions for Removing of Battery Terminal

INFOID:000000010078183

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

**NOTE:**

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

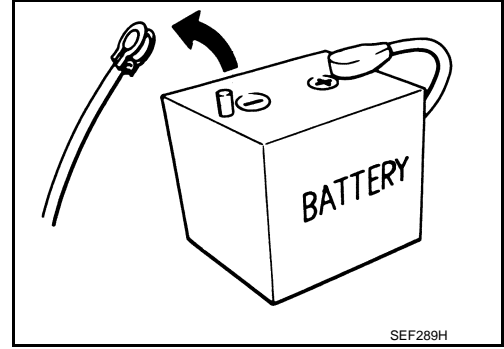
**NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

**NOTE:**

The removal of 12V battery may cause a DTC detection error.



# PREPARATION

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## PREPARATION

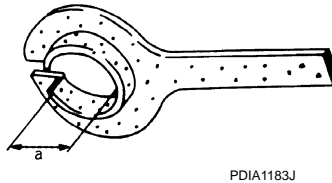
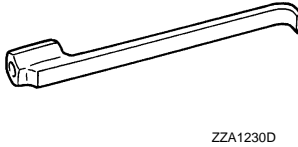
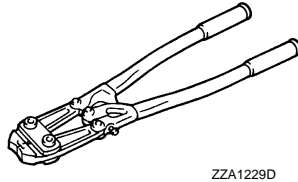
### PREPARATION

#### Special Service Tool

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

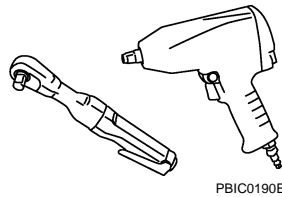
Tool number (Kent-More No.) Tool name	Description
KV40107300 ( — ) Boot band crimping tool	Installing boot band
KV40107500 ( — ) Drive shaft attachment	Removing drive shaft
KV38107900 ( — ) Protector a: 32 mm (1.26 in) dia.	Installing drive shaft



#### Commercial Service Tool

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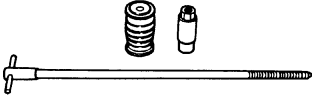
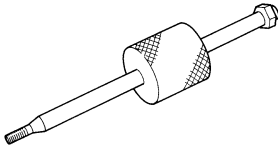
Tool name	Description
Power tool	Loosening bolts and nuts



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# PREPARATION

## < PREPARATION >

Tool name	Description
<p data-bbox="155 197 324 222">Drive shaft puller</p>  <p data-bbox="880 415 967 432">JPDIG0152ZZ</p>	<p data-bbox="1052 197 1458 222">Removing drive shaft joint sub assembly</p>
<p data-bbox="155 449 311 474">Sliding hummer</p>  <p data-bbox="880 667 948 684">ZZA0023D</p>	<p data-bbox="1052 449 1266 474">Removing drive shaft</p>

# FRONT WHEEL HUB AND KNUCKLE

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### FRONT WHEEL HUB AND KNUCKLE

#### Inspection

INFOID:000000009948789

#### COMPONENT PART

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

#### WHEEL HUB AND BEARING ASSEMBLY

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

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

**Axial end play** : Refer to [FAX-27, "Wheel Bearing"](#).

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

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## FRONT DRIVE SHAFT

< PERIODIC MAINTENANCE >

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### FRONT DRIVE SHAFT

#### Inspection

INFOID:000000009948790

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

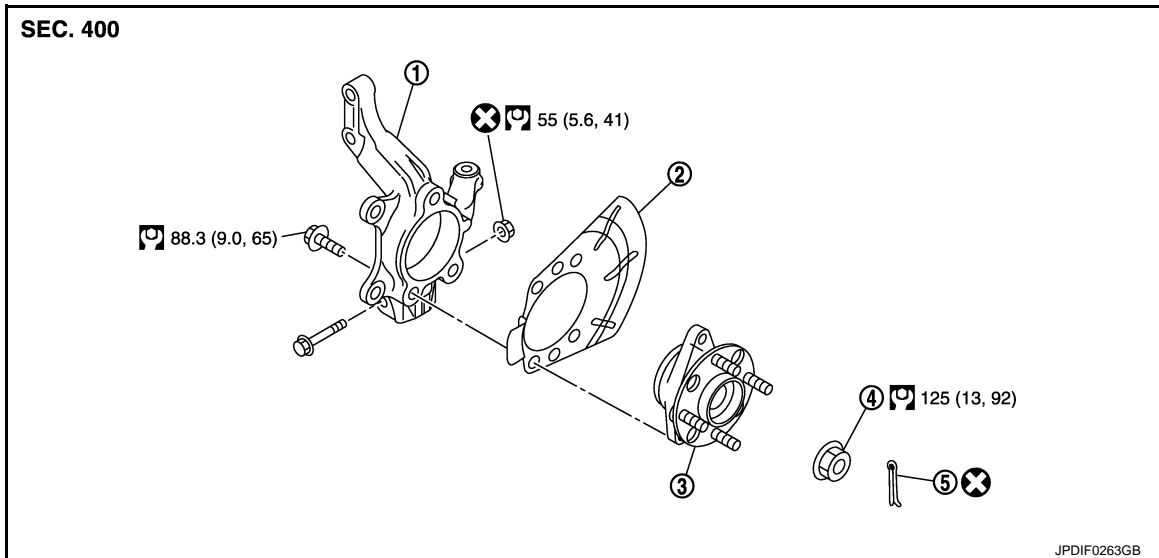
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:000000009948791



1. Steering knuckle
2. Splash guard
3. Wheel hub and bearing assembly
4. Wheel hub lock nut
5. Cotter pin

Refer to [GI-4, "Components"](#) for symbols in the figure.

## Removal and Installation

INFOID:000000009948792

### REMOVAL

1. Remove tires with power tool. Refer to [WT-46, "Exploded View"](#).
2. Remove wheel sensor and sensor harness. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove caliper assembly. Hang caliper assembly not to interfere with work. Refer to [BR-34, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

#### CAUTION:

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

5. Remove disc rotor. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
6. Remove cotter pin, and then loosen wheel hub lock nut with power tool.
7. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing 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 and bearing assembly and drive shaft cannot be separated even after performing the above procedure.

8. Remove wheel hub lock nut.
9. Remove wheel hub and bearing assembly, and then remove splash guard.
10. Suspend the drive shaft with suitable wire.
11. Remove steering outer socket from steering knuckle. Refer to [ST-14, "Exploded View"](#).
12. Remove steering knuckle from transverse link.

# FRONT WHEEL HUB AND KNUCKLE

## < REMOVAL AND INSTALLATION >

---

13. Remove steering knuckle from strut assembly. Refer to [FSU-9, "Exploded View"](#).

### INSTALLATION

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

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

**CAUTION:**

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

- Tighten the wheel hub lock nut to the specified torque. Refer to [FAX-9, "Exploded View"](#).

**CAUTION:**

**Never use a power tool to tighten the wheel hub lock nut.**

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and axle housing.
- Never reuse cotter pin.

### Inspection

INFOID:000000009948793

### INSPECTION AFTER REMOVAL

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

- Check components for deformation, cracks, and other damage. Replace if necessary.
- Check boots of transverse link and steering outer socket ball joint for breakage, axial play, and torque. Refer to [FSU-13, "Inspection"](#) and [ST-18, "Inspection"](#).

### INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-9, "Special Repair Requirement"](#).

# FRONT DRIVE SHAFT BOOT

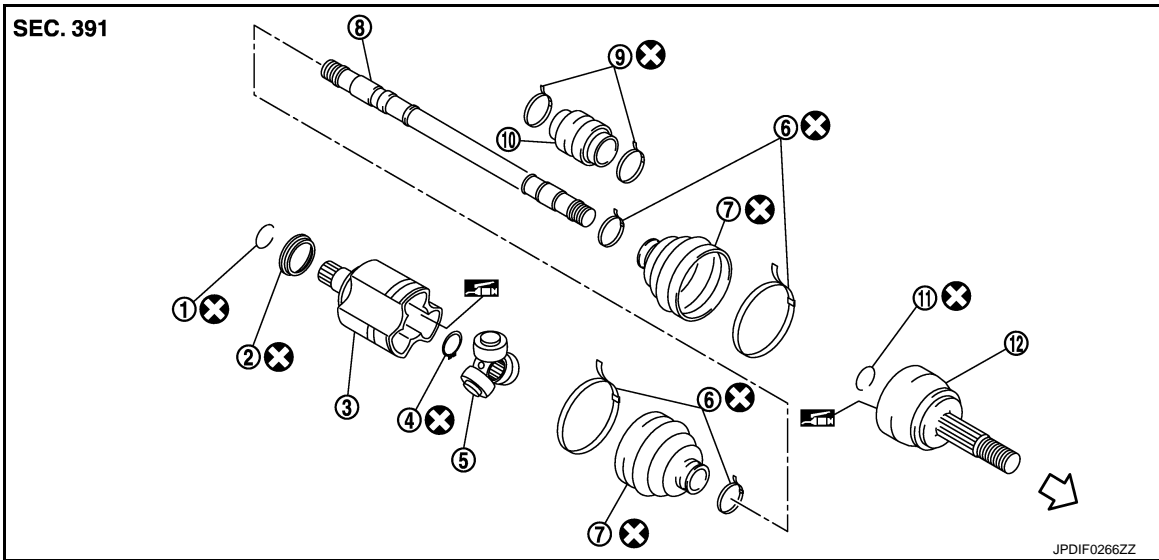
< REMOVAL AND INSTALLATION >

## FRONT DRIVE SHAFT BOOT

Exploded View


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LEFT SIDE



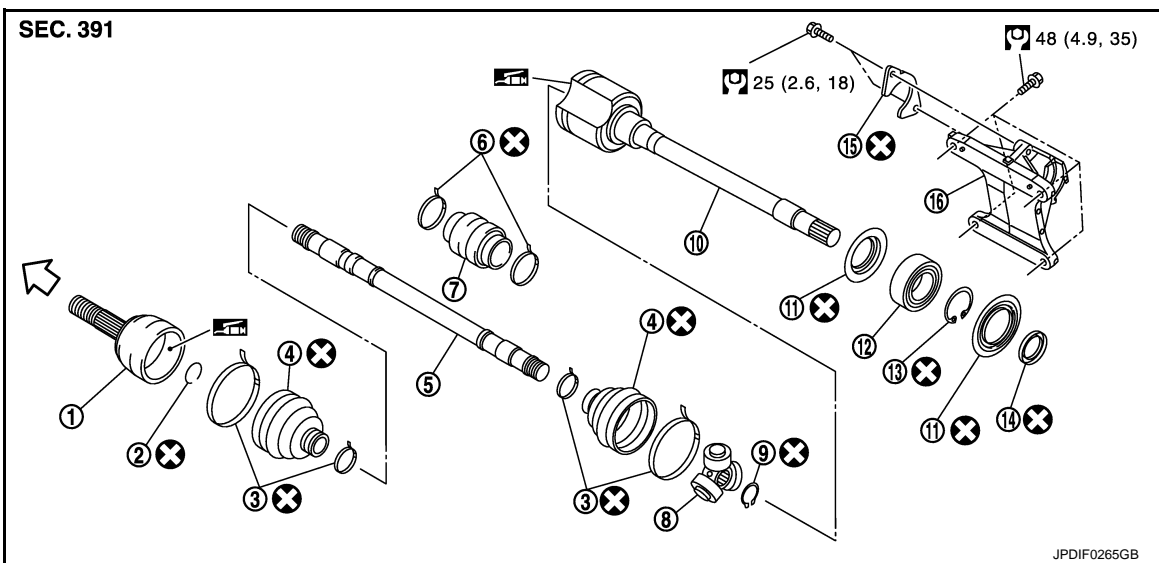
- |                    |                    |                        |
|--------------------|--------------------|------------------------|
| 1. Circular clip   | 2. Dust shield     | 3. Housing             |
| 4. Snap ring       | 5. Spider assembly | 6. Boot band           |
| 7. Boot            |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

⇐ : Wheel side

 : Fill NISSAN Genuine grease or equivalent.

Refer to [GI-4, "Components"](#) for symbols not described on the above.

RIGHT SIDE




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

# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

- |                             |                 |           |
|-----------------------------|-----------------|-----------|
| 13. Snap ring               | 14. Dust shield | 15. Plate |
| 16. Support bearing bracket |                 |           |
- ↶ : Wheel side

 : Fill NISSAN Genuine grease or equivalent.

Refer to [GI-4, "Components"](#) for symbols not described on the above.

## WHEEL SIDE

### WHEEL SIDE : Removal and Installation

INFOID:000000009948795

#### REMOVAL

1. Remove tires with power tool. Refer to [WT-46, "Exploded View"](#).
2. Remove wheel sensor and sensor harness. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove caliper assembly. Hang caliper assembly not to interfere with work. Refer to [BR-34, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

#### CAUTION:

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

5. Remove disc rotor. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
6. Remove cotter pin, and then loosen wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
7. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing 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.**

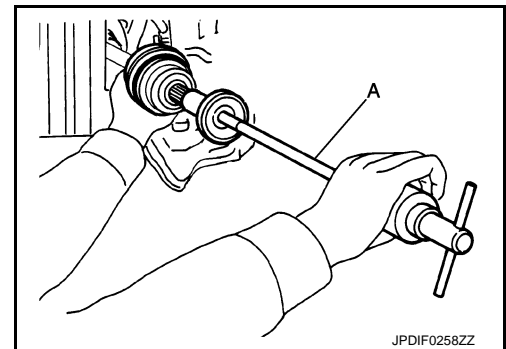
#### NOTE:

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

8. Remove wheel hub lock nut.
9. Remove strut assembly from steering knuckle. Refer to [FSU-9, "Exploded View"](#).
10. Remove drive shaft from wheel hub and bearing assembly.
11. Remove boot bands, and then remove boot from joint subassembly.
12. Screw drive shaft puller (commercial service tool) (A) 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 a sliding hammer 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-18, "WHEEL SIDE : Disassembly and Assembly"](#).**



13. Remove circular clip from shaft.
14. Remove boot from shaft.

#### INSTALLATION

1. Clean the old grease on joint sub-assembly with paper waste.
2. Fill serration slot joint sub-assembly 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.**

# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

3. 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.

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

5. Position the circular clip 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.

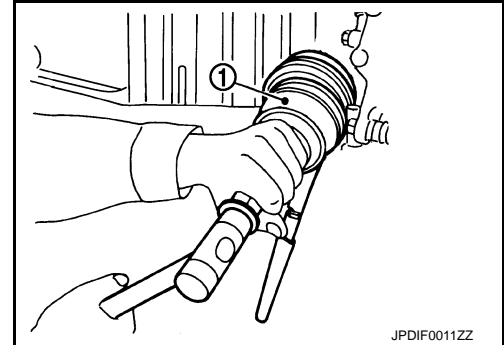
7. Install joint sub-assembly (1) to shaft using plastic hammer.

**CAUTION:**

**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-27, "Drive Shaft"](#).

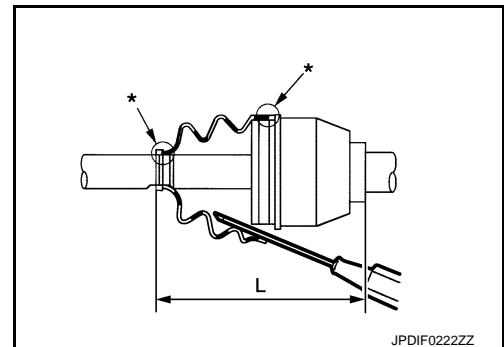


9. Install the boot securely into grooves (indicated by "\*" marks) shown in the figure.

**CAUTION:**

**If grease adheres to the boot mounting surface (indicated by "\*" mark) 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 (L) to the specified value shown below by inserting the suitable tool into inside of the boot from the large diameter side of the boot and discharging the inside air.



**L** : Refer to [FAX-27, "Drive Shaft"](#).

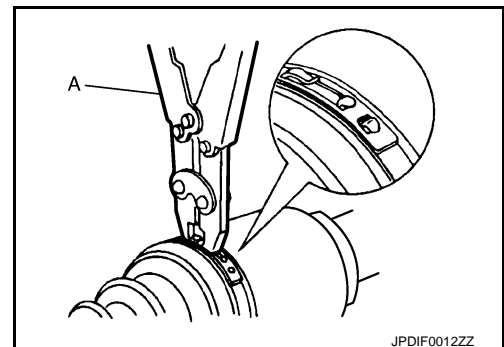
**CAUTION:**

- 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 [SST: KV40107300 ( — )] (A).

**CAUTION:**

**Never reuse boot band.**



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# FRONT DRIVE SHAFT BOOT

## < REMOVAL AND INSTALLATION >

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. Secure joint sub-assembly and shaft, and then check that they are in the correct position when rotating boot. Reinstall them using boot bands when boot installation positions become incorrect.

**CAUTION:**

**Never reuse boot band.**

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

**CAUTION:**

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

14. Insert drive shaft to wheel hub and bearing assembly, and then temporarily tighten wheel hub lock nut.
15. Install strut assembly to steering knuckle. Refer to [FSU-9, "Exploded View"](#).
16. Install disc rotor. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
17. Install caliper assembly to steering knuckle. Refer to [BR-34, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
18. Install lock plate to strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
19. Install wheel sensor and sensor harness to steering knuckle. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
20. Tighten the wheel hub lock nut to the specified torque. Refer to [FAX-9, "Exploded View"](#).

**CAUTION:**

**Never use a power tool to tighten the wheel hub lock nut.**

**NOTE:**

Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and axle housing.

21. Install cotter pin. Refer to [FAX-9, "Exploded View"](#).

**CAUTION:**

- **Never reuse cotter pin.**
- **Bend cotter pin at the root sufficiently to prevent any looseness.**

22. Install tires. Refer to [WT-46, "Exploded View"](#).

## TRANSAXLE SIDE

### TRANSAXLE SIDE : Removal and Installation

INFOID:000000009948796

**NOTE:**

Remove boot after removing drive shaft. Refer to [FAX-16, "LEFT SIDE : Removal and Installation"](#) (left side), [FAX-17, "RIGHT SIDE : Removal and Installation"](#) (right side).

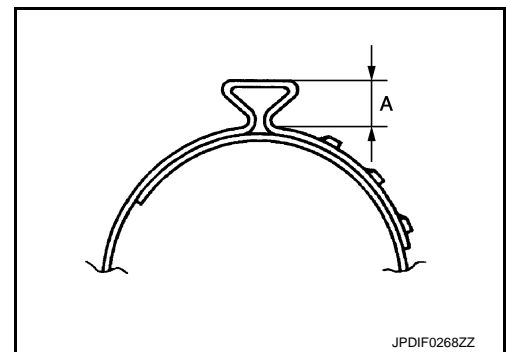
## Inspection

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### INSPECTION AFTER INSTALLATION

Check the following items, and replace the part it 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 wheel sensor harness for proper connection. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
- Adjust neutral position of steering angle sensor. Refer to [BRC-9, "Special Repair Requirement"](#).



# FRONT DRIVE SHAFT

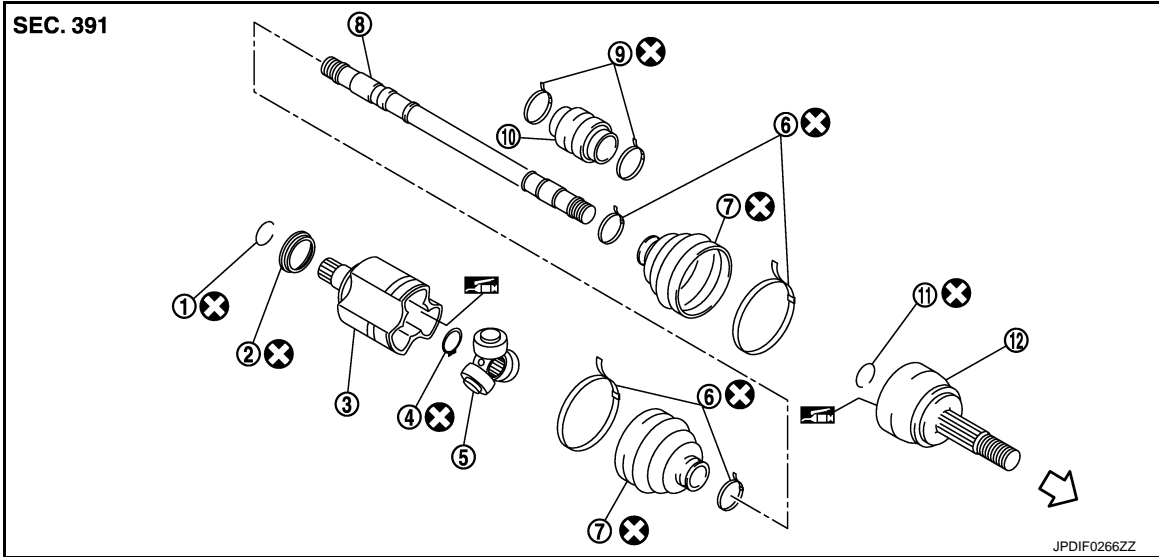
< REMOVAL AND INSTALLATION >

## FRONT DRIVE SHAFT

Exploded View


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LEFT SIDE



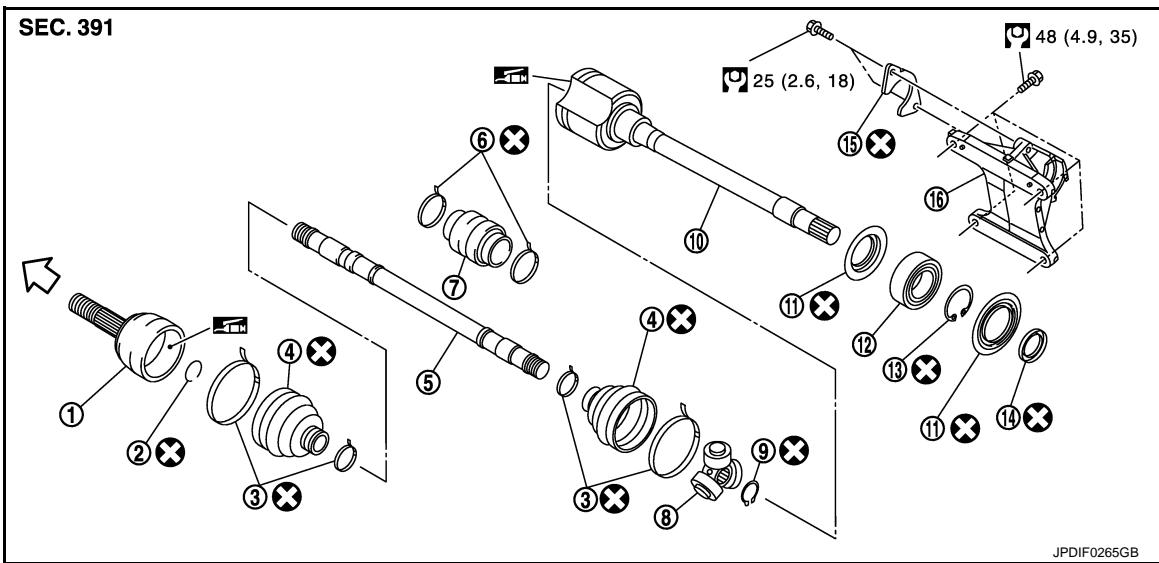
- |                    |                    |                        |
|--------------------|--------------------|------------------------|
| 1. Circular clip   | 2. Dust shield     | 3. Housing             |
| 4. Snap ring       | 5. Spider assembly | 6. Boot band           |
| 7. Boot            |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

⇐ : Wheel side

 : Fill NISSAN Genuine grease or equivalent.

Refer to [GI-4, "Components"](#) for symbols not described on the above.

RIGHT SIDE



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



# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >


13. Snap ring

14. Dust shield

15. Plate

16. Support bearing bracket

↶ : Wheel side

 : Fill NISSAN Genuine grease or equivalent.

Refer to [GI-4, "Components"](#) for symbols not described on the above.

## LEFT SIDE

### LEFT SIDE : Removal and Installation

INFOID:000000009948799

#### REMOVAL

1. Remove tires with power tool. Refer to [WT-46, "Exploded View"](#).
2. Remove cotter pin, and then loosen wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
3. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing 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 and bearing assembly and drive shaft cannot be separated even after performing the above procedure.

4. Remove wheel hub lock nut.
5. Remove transverse link from steering knuckle. Refer to [FSU-13, "Exploded View"](#).
6. Remove shaft assembly from wheel hub and bearing assembly.

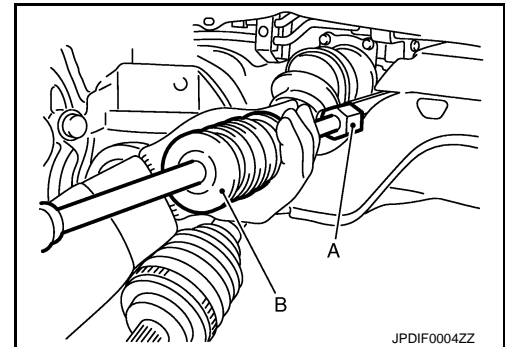
#### CAUTION:

**Be careful not to damage front wheel sensor and harness.**

7. Use the drive shaft attachment [SST: KV40107500 ( — )] (A) and a sliding hammer (commercial service tool) (B) while inserting tip of the drive shaft attachment between shaft and transaxle assembly, and then remove drive shaft from transaxle 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.



#### INSTALLATION

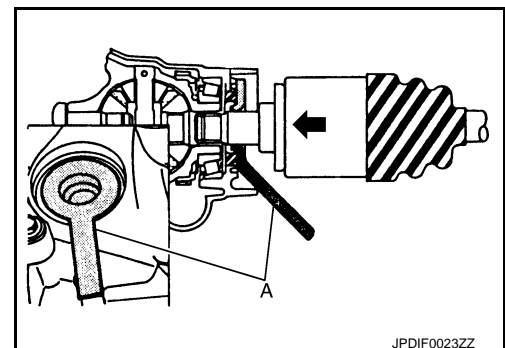
Note the following, and install in the reverse order of removal.

##### Transaxle Side

- Always replace differential side oil seal with new one when installing drive shaft. Refer to [TM-18, "Removal and Installation"](#) (MT), [TM-229, "Removal and Installation"](#) (CVT).
- Place the protector [SST: KV38107900 ( — )] (A) onto transaxle 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.**



##### Wheel Hub Side



# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

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

**CAUTION:**

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

- Tighten the wheel hub lock nut to the specified torque. Refer to [FAX-9, "Exploded View"](#).

**CAUTION:**

**Never use a power tool to tighten the wheel hub lock nut.**

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and axle housing.
- Never reuse cotter pin.

## RIGHT SIDE

### RIGHT SIDE : Removal and Installation

INFOID:000000009948800

FAX

#### REMOVAL

1. Remove tires with power tool. Refer to [WT-46, "Exploded View"](#).
2. Remove wheel sensor and sensor harness if necessary. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
3. Remove cotter pin, and then loosen wheel hub lock nut. Refer to [FAX-9, "Exploded View"](#).
4. Patch wheel hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing 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 and bearing assembly and drive shaft cannot be separated even after performing the above procedure.

5. Remove wheel hub lock nut.
6. Remove transverse link from steering knuckle. Refer to [FSU-13, "Exploded View"](#).
7. Remove drive shaft from wheel hub and bearing assembly.
8. Remove bearing housing plate bolts.
9. Remove drive shaft from transaxle 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.

#### INSTALLATION

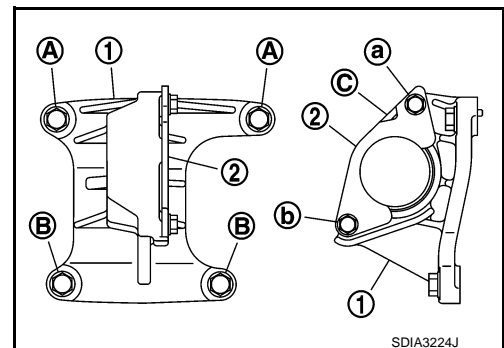
Note the following, and install in the reverse order of removal.

##### Transaxle Side

- Always replace differential side oil seal with new one when installing drive shaft. Refer to [TM-18, "Removal and Installation"](#) (MT), [TM-229, "Removal and Installation"](#) (CVT).
- Install support bearing bracket (1) in following procedure,
  - Temporarily tighten mounting bolts (A), (B), then tighten them to specified torque.
  - Set plate (2) so that notch (C) becomes upper side. Temporarily tighten mounting bolts (a), (b), then tighten them to specified torque.

**CAUTION:**

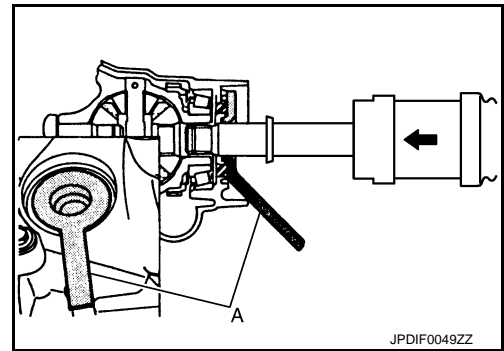
**Never reuse plate.**



# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

- Place the protector [SST: KV38107900 ( — )] (A) onto transaxle 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.



### Wheel Hub Side

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

#### **CAUTION:**

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

- Tighten the wheel hub lock nut to the specified torque. Refer to [FAX-9, "Exploded View"](#).

#### **CAUTION:**

**Never use a power tool to tighten the wheel hub lock nut.**

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and axle housing.
- Never reuse cotter pin.

## WHEEL SIDE

### WHEEL SIDE : Disassembly and Assembly

INFOID:000000009948801

#### DISASSEMBLY

- Fix shaft with a vise.

#### **CAUTION:**

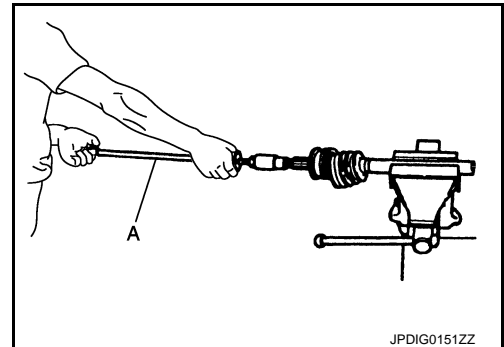
**Protect shaft when fixing with a vise using aluminum or copper plates.**

- Remove boot bands, and then remove boot from joint sub-assembly.
- Screw drive shaft puller (commercial service tool) (A) 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 a sliding hammer 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.**

- Remove circular clip (1) from shaft.
- Remove boot from shaft.



#### ASSEMBLY

- Clean the old grease on joint sub-assembly with paper waste.
- Fill serration slot joint sub-assembly 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 on groove at the shaft edge.

#### **CAUTION:**

**Never reuse circular clip.**

#### **NOTE:**

# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

Drive joint inserter is recommended when installing circular clip.

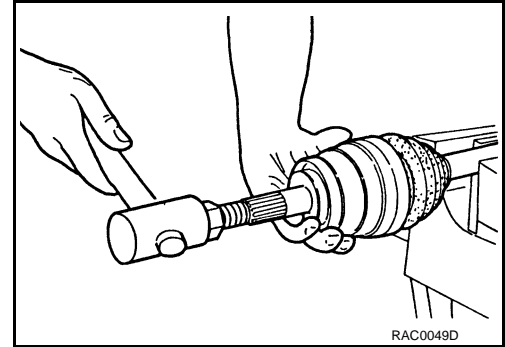
- Align both center axes of the shaft edge and joint sub-assembly. Then assemble shaft with joint sub-assembly holding circular clip.
- Install joint sub-assembly to shaft using plastic hammer.

**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-27, "Drive Shaft"](#).

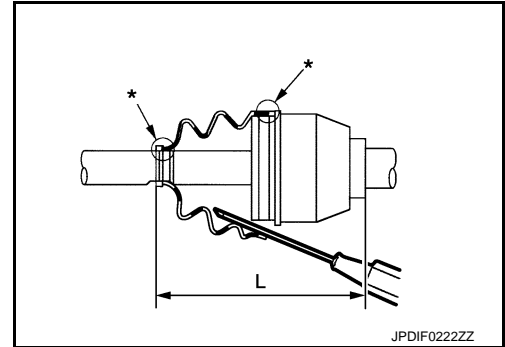


- Install the boot securely into grooves (indicated by "\*" marks) shown in the figure.

**CAUTION:**

If grease adheres to the boot mounting surface (indicated by "\*" mark) 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 (L) to the specified value shown below by inserting the suitable tool into inside of the boot from the large diameter side of the boot and discharging the inside air.



**L** : Refer to [FAX-27, "Drive Shaft"](#).

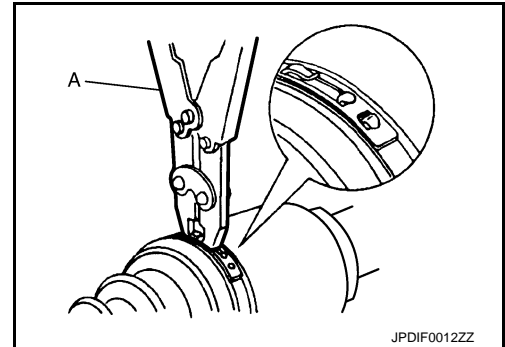
**CAUTION:**

- 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.

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

**CAUTION:**

Never reuse boot band.



**NOTE:**

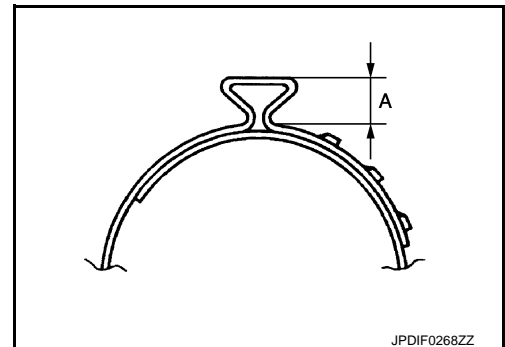
Secure boot band so that dimension (A) meets the specification as shown in the figure.

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

- Secure joint sub-assembly and shaft, and then check that they are in the correct position when rotating boot. Reinstall them using boot bands when boot installation positions become incorrect.

**CAUTION:**

Never reuse boot band.



## TRANSAXLE SIDE

A  
B  
C  
FAX  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

# FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

## TRANSAXLE SIDE : Disassembly and Assembly

INFOID:00000009948802

### 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.

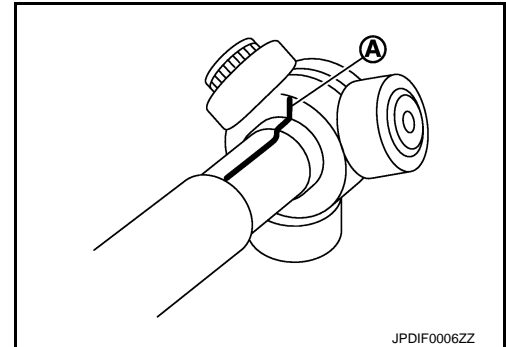
**CAUTION:**

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

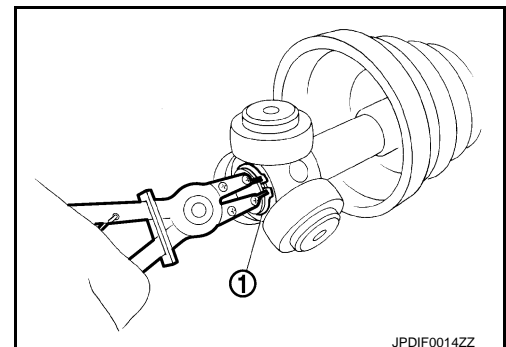
4. Put matching marks (A) on the spider assembly and shaft.

**CAUTION:**

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



5. Remove snap ring (1), and then remove spider assembly from shaft.
6. Remove boot from shaft.
7. Remove dust shield from housing.
8. Remove circular clip from housing.
9. Clean old grease on housing with paper towels.
10. Remove damper bands, then remove dynamic damper from shaft.



#### Right 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.

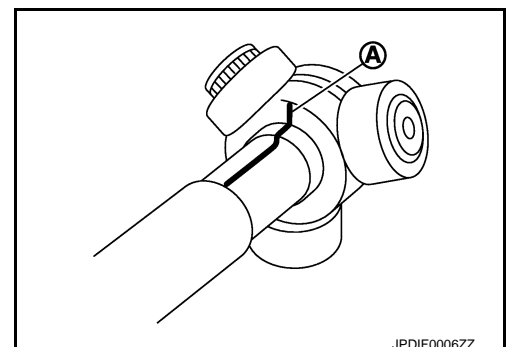
**CAUTION:**

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

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

**CAUTION:**

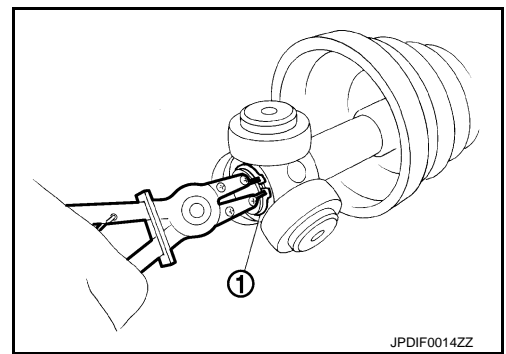
**Use paint or an equivalent for matching marks. Never scratch the surfaces.**



# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

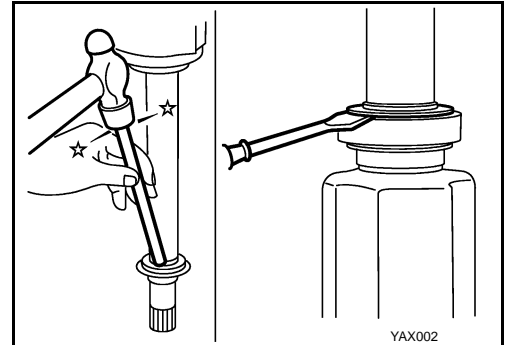
5. Remove snap ring (1), and then remove spider assembly from shaft.
6. Remove boot from shaft.
7. Remove circular clip from housing.
8. Remove damper bands, then remove dynamic damper from shaft.



A  
B  
C

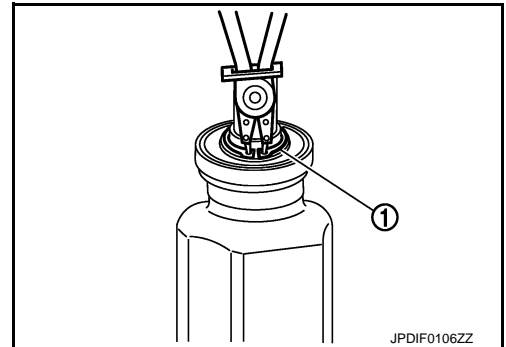
FAX

9. Remove support bearing, follow the procedure described below.
  - a. Remove dust shield from housing.



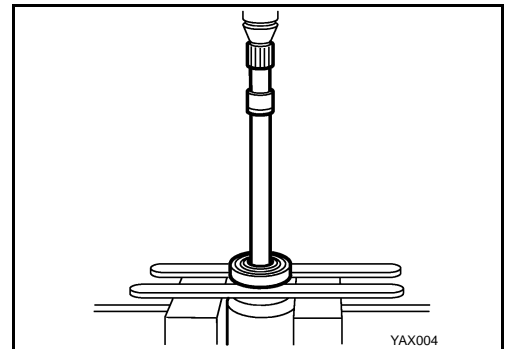
E  
F  
G

- b. Remove snap ring (1).



H  
I  
J

- c. Press out support bearing from housing.
  - d. Remove dust shield from housing.



L  
M  
N

10. Clean old grease on housing with paper waste.

## ASSEMBLY

### Left Side

1. Install dynamic damper, follow the procedure described below.
  - a. Install dynamic damper to shaft.

O  
P

# FRONT DRIVE SHAFT

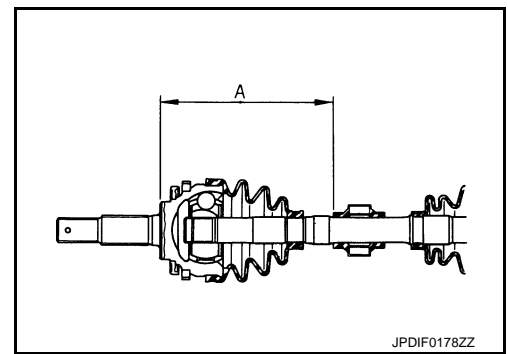
## < REMOVAL AND INSTALLATION >

- b. Secure dynamic damper with bands in the following specified position (A) when installing.

**CAUTION:**

**Never reuse bands.**

**A** : Refer to [FAX-27, "Drive Shaft"](#).

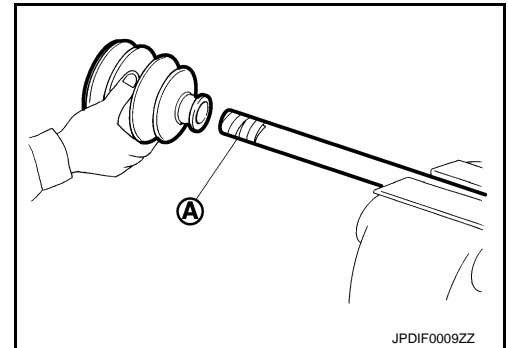


2. Wrap serration on shaft with tape (A) to protect boot from damage. Install new boot and boot bands to shaft.

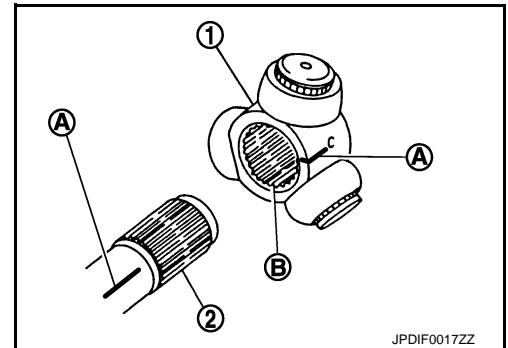
**CAUTION:**

**Never reuse boot and boot bands.**

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



4. 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.



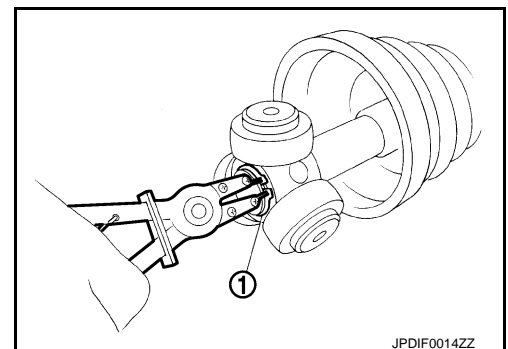
5. Secure spider assembly onto shaft with snap ring (1).

**CAUTION:**

**Never reuse snap ring.**

6. Apply the appropriate amount of grease to spider assembly and sliding surface.  
7. Assemble the housing onto spider assembly, and apply the balance of the specified amount grease.

**Grease amount** : Refer to [FAX-27, "Drive Shaft"](#).

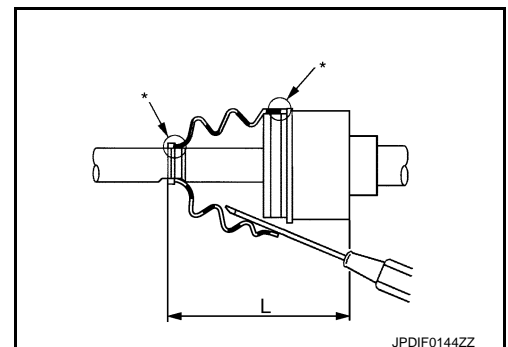


8. Align matching marks put during the removal of housing.  
9. Install boot securely into grooves (indicated by "\*" marks) shown in the figure.

**CAUTION:**

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

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



**L** : Refer to [FAX-27, "Drive Shaft"](#).

# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

**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.

11. Install boot bands securely as shown in the figure.

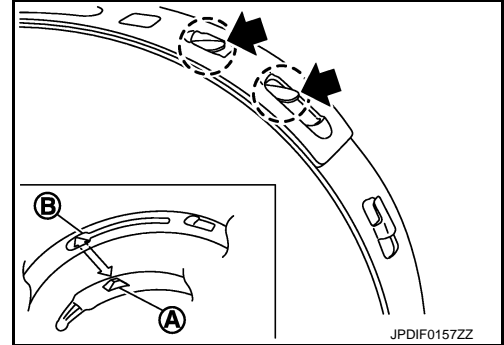
**CAUTION:**

**Never reuse boot bands.**

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

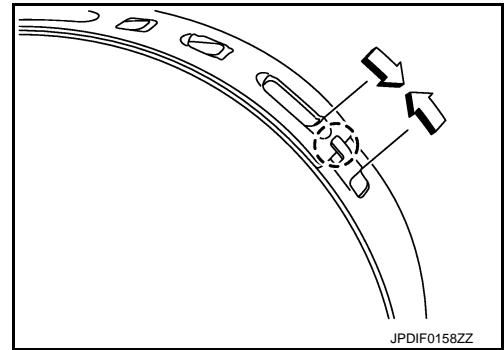
**NOTE:**

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.

c. Insert tip of band below end of the pawl.



12. Secure housing and shaft, and then check that they are in the correct position when rotating boot. Install them with new boot band when the mounting positions become incorrect.

13. Install dust shield.

**CAUTION:**

**Never reuse dust shield.**

14. Install circular clip to housing.

**CAUTION:**

**Never reuse circular clip.**

Right Side

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

a. Install dust shield to housing.

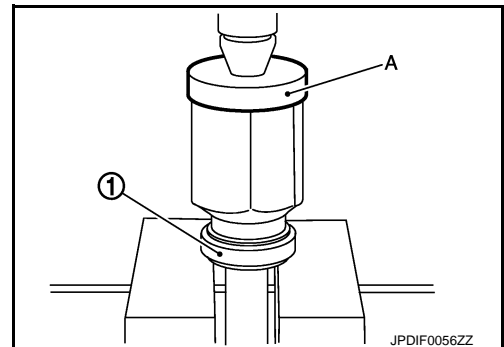
**CAUTION:**

**Never reuse dust shield.**

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

**CAUTION:**

**Never reuse support bearing.**



A

B

C

FAX

E

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G

H

I

J

K

L

M

N

O

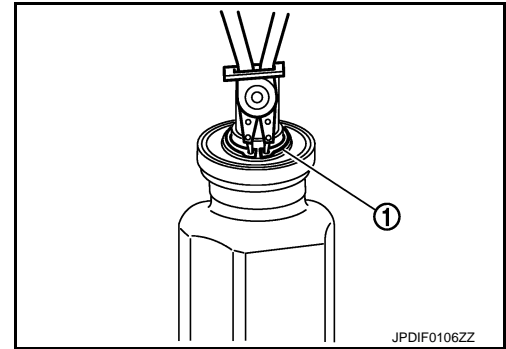
P

# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

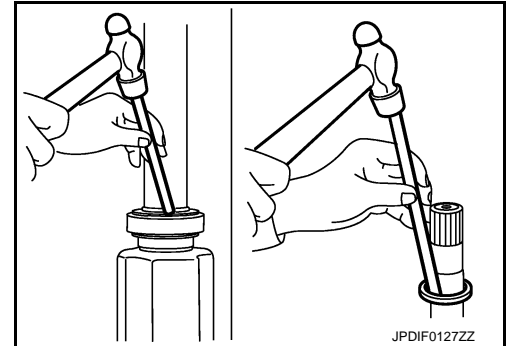
- c. Install snap ring (1).

**CAUTION:**  
Never reuse snap ring.



- d. Install dust shields.

**CAUTION:**  
Never reuse dust shields.



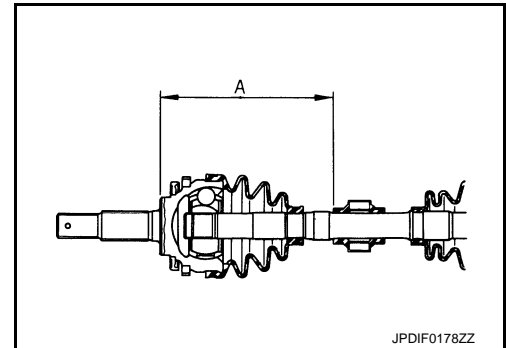
2. Install dynamic damper, follow the procedure described below.

- a. Install dynamic damper to shaft.

- b. Secure dynamic damper with bands in the following specified position (A) when installing.

**CAUTION:**  
Never reuse bands.

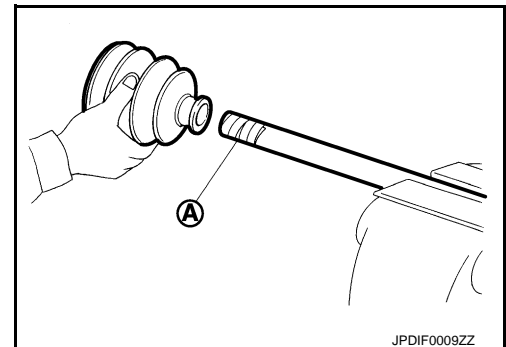
**A** : Refer to [FAX-27, "Drive Shaft"](#).



3. Wrap serration on shaft with tape (A) to protect boot from damage. Install new boot and boot bands to shaft.

**CAUTION:**  
Never reuse boot and boot band.

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

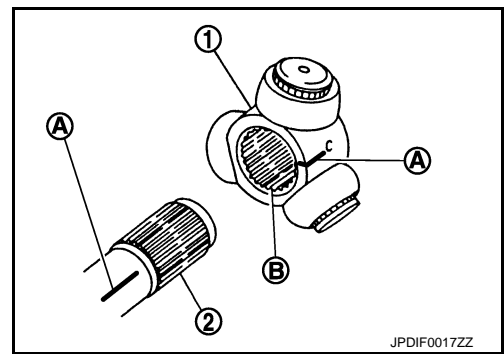




# FRONT DRIVE SHAFT

## < REMOVAL AND INSTALLATION >

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.



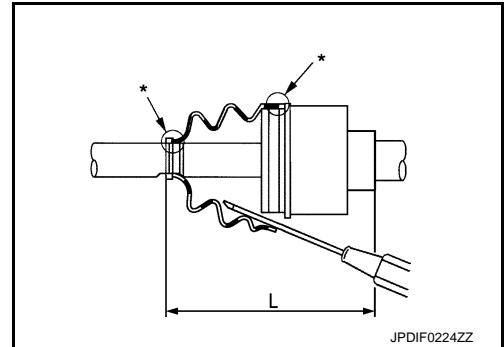
6. Secure spider assembly onto shaft with snap ring (1).  
**CAUTION:**  
**Never reuse snap ring.**
7. Apply the appropriate amount of grease to spider assembly and sliding surface.
8. Assemble the housing onto spider assembly, and apply the balance of the specified amount grease.

**Grease amount** : Refer to [FAX-27, "Drive Shaft"](#).



9. Align matching marks put during the removal of housing.
10. Install the boot, following the procedures below.
- Install boot securely into grooves (indicated by "\*" marks) shown in the figure (Except for CVT models).

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

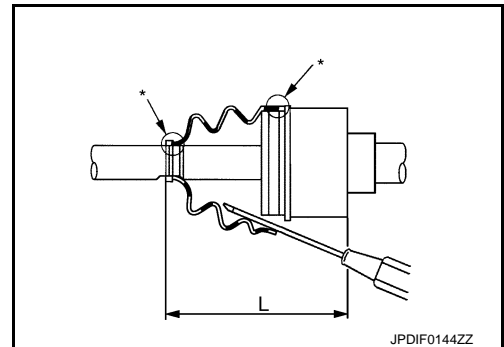


- Install boot securely into grooves (indicated by "\*" marks) shown in the figure (For CVT models).

**CAUTION:**  
**If grease adheres to the boot mounting surface (with "\*" mark) 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 shown below (L) by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

**L** : Refer to [FAX-27, "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. Secure housing and shaft, and then check that they are in the correct position when rotating boot. Install them with new boot band when the mounting positions become incorrect.

## Inspection

INFOID:000000009948803

## INSPECTION AFTER REMOVAL

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

## FRONT DRIVE SHAFT

### < REMOVAL AND INSTALLATION >

---

- 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. Replace if necessary.

#### Dynamic Damper

Check damper for cracks or wear. Replace if necessary.

#### Joint Sub-Assembly (Wheel Side)

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 (Transaxle Side)

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 wheel sensor harness for proper connection. Refer to [BRC-110, "FRONT WHEEL SENSOR : Exploded View"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-9, "Special Repair Requirement"](#).

## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### Wheel Bearing

INFOID:000000009948804

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

### Drive Shaft

INFOID:000000009948805

FAX

Item			Left side	Right side
Grease quantity	Wheel side	MT	80 – 100 g (2.83 – 3.52 oz)	
		CVT	77 – 97 g (2.72 – 3.42 oz)	
	Transaxle side	MT	130 – 140 g (4.59 – 4.93 oz)	
		CVT	113 – 123 g (3.99 – 4.33 oz)	
Boots installed length	Wheel side	MT	141.7 mm (5.58 in)	
		CVT	136.0 mm (5.35 in)	
	Transaxle side	MT	155.7 mm (6.13 in)	167.7 mm (6.60 in)
		CVT	153.6 mm (6.05 in)	148.6 mm (5.85 in)
Dimension of dynamic damper	MT	230 – 236 mm (9.06 – 9.29 in)		
	CVT	225 – 231 mm (8.86 – 9.09 in)		