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FRONT AXLE

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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[2WD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000000957469

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

Reference page		FAX-6	—	FAX-5	NVH in FAX and FSU sections	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		Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	TIRES	ROAD WHEELS	DRIVE SHAFT	BRAKES	STEERING	
Symptom	FRONT AXLE	Noise	x	x	x	x	x	x	x	x	
		Shake	x	x	x	x	x	x	x	x	
		Vibration	x	x	x	x	x		x		x
		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

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FAX

PREPARATION

< PREPARATION >

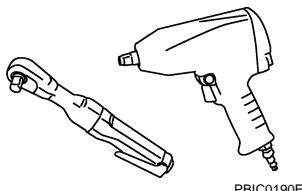
[2WD]

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:000000000957470

Tool name	Description
<p data-bbox="162 415 267 441">Power tool</p>  <p data-bbox="844 630 917 651">PBIC0190E</p>	<p data-bbox="1006 415 1242 441">Looseing bolts and nuts</p>

FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE MAINTENANCE >

[2WD]

ON-VEHICLE MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:000000000957471

Refer to [FAX-6, "Exploded View"](#).

Inspection

INFOID:000000000957472

MOUNTING INSPECTION

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

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WHEEL BEARING INSPECTION

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

Standard

Axial end play : Refer to [FAX-8, "Wheel Bearing"](#).

- Rotate wheel hub and make sure that 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 WHEEL HUB AND KNUCKLE

< ON-VEHICLE REPAIR >

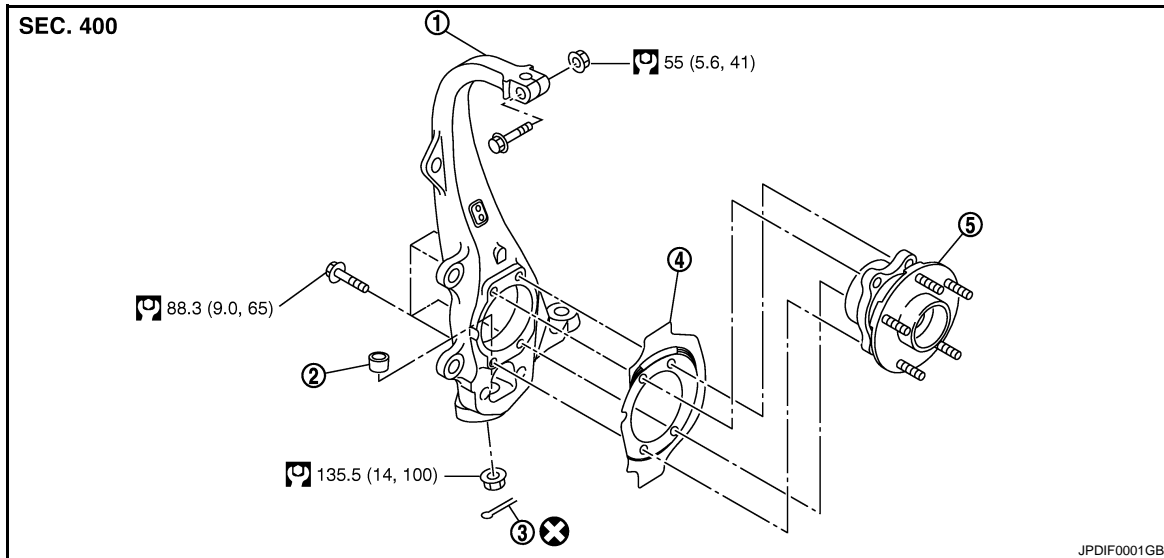
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ON-VEHICLE REPAIR

FRONT WHEEL HUB AND KNUCKLE

Exploded View

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|---------------------|-----------------------------------|---------------|
| 1. Steering knuckle | 2. Ball seat | 3. Cotter pin |
| 4. Splash guard | 5. Wheel hub and bearing assembly | |

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

Removal and Installation

INFOID:000000000957474

REMOVAL

Wheel Hub and Bearing Assembly

1. Remove tires from vehicle with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-100, "Removal and Installation"](#).
CAUTION:
Never pull on wheel sensor harness.
3. Remove torque member mounting bolts with power tool. Hang torque member in a place where it will not interfere with work. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Removal and Installation"](#) (1 piston type), [BR-46, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
CAUTION:
Never depress brake pedal while brake caliper is removed.
4. Remove disc rotor. Refer to [BR-40, "BRAKE PAD \(1 PISTON TYPE\) : Inspection and Adjustment"](#) (1 piston type), [BR-41, "BRAKE PAD \(2 PISTON TYPE\) : Inspection and Adjustment"](#) (2 piston type).
5. Remove wheel hub and bearing assembly mounting bolts, and then remove splash guard and wheel hub and bearing assembly from steering knuckle.

Steering Knuckle

1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove brake hose bracket. Refer to [BR-21, "FRONT BRAKE : Exploded View"](#).

FRONT WHEEL HUB AND KNUCKLE

[2WD]

< ON-VEHICLE REPAIR >

3. Remove cotter pin (1) of steering outer socket, and then loosen the nut.
4. Remove steering outer socket (2) from steering knuckle (3) so as not to damage ball joint boot (4) using the ball joint remover.

CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

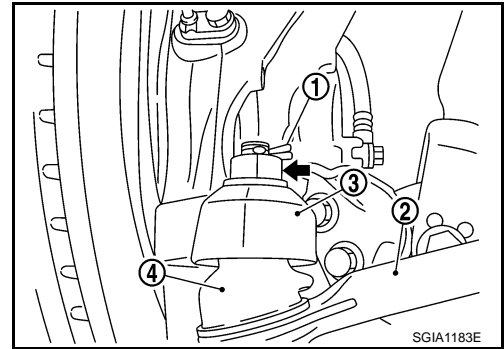
5. Remove cotter pin of transverse link and steering knuckle, and then loosen nut.
6. Separate upper link from steering knuckle. Refer to [FSU-15, "Removal and Installation"](#).

7. Separate transverse link from steering knuckle so as not to damage ball joint boot using the ball joint remover.

CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

8. Remove steering knuckle from vehicle.



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INSTALLATION

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

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

Inspection

INFOID:000000000957475

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INSPECTION AFTER REMOVAL

Check components for deformation, cracks, and other damage. Replace if there are.

Ball Joint Inspection

Check boots of transverse link and steering outer socket ball joint for breakage, axial play, and torque. Refer to [FSU-13, "Inspection"](#) and [ST-32, "2WD : Inspection"](#).

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INSPECTION AFTER INSTALLATION

- Check the wheel alignment. Refer to [FSU-21, "Wheel Alignment"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

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SERVICE DATA AND SPECIFICATIONS (SDS)

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[2WD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:000000000957476

Axial end play	0.05 mm (0.002 in) or less
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NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[AWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000000957477

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

Reference page			—	FAX-27	—	FAX-23	—	FAX-28	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	TIRES	ROAD WHEELS	DRIVE SHAFT	BRAKES	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

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

INFOID:000000000957478

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 and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the SRS section.
- Do not 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.

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:000000000957479

NOTE:

- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

This vehicle is equipped with a push-button ignition switch and a steering lock unit.

If the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

2. Carry the Intelligent Key or insert it to the key slot and turn the push-button ignition switch to ACC position. (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT-III.

Precaution for Procedure without Cowl Top Cover

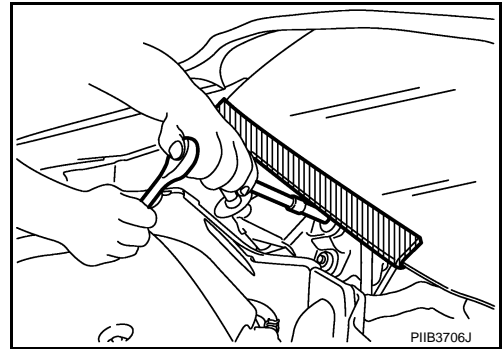
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PRECAUTIONS

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< PRECAUTION >

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precautions for Drive Shaft

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CAUTION:

Observe the following precautions when disassembling and assembling drive shaft.

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

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PREPARATION

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PREPARATION

PREPARATION

Special Service Tool

INFOID:000000000957482

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

Tool number (Kent-Moore No.) Tool name	Description
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
KV38100500 (-) Drift a: 80 mm (3.15 in) dia. b: 60 mm (2.36 in) dia.	Installing drive shaft plug
KV38102200 (-) Drift a: 90 mm (3.54 in) dia. b: 31 mm (1.22 in) dia.	Installing drive shaft plug

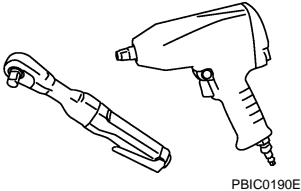
Commercial Service Tool

INFOID:000000000957483

PREPARATION

< PREPARATION >

[AWD]

Tool name	Description
<p data-bbox="164 216 277 243">Power tool</p>  <p data-bbox="850 436 922 451">PBIC0190E</p>	<p data-bbox="1008 216 1263 243">Loosening bolts and nuts</p>

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FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE MAINTENANCE >

[AWD]

ON-VEHICLE MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:000000000957484

Refer to [FAX-16, "Exploded View"](#).

Inspection

INFOID:000000000957485

MOUNTING INSPECTION

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

WHEEL BEARING INSPECTION

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

Standard

Axial end play : Refer to [FAX-28, "Wheel Bearing"](#).

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

FRONT DRIVE SHAFT

< ON-VEHICLE MAINTENANCE >

[AWD]

FRONT DRIVE SHAFT

Inspection

INFOID:000000000957486

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

CAUTION:

Replace entire drive shaft assembly when noise or vibration occur from drive shaft.

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FRONT WHEEL HUB AND KNUCKLE

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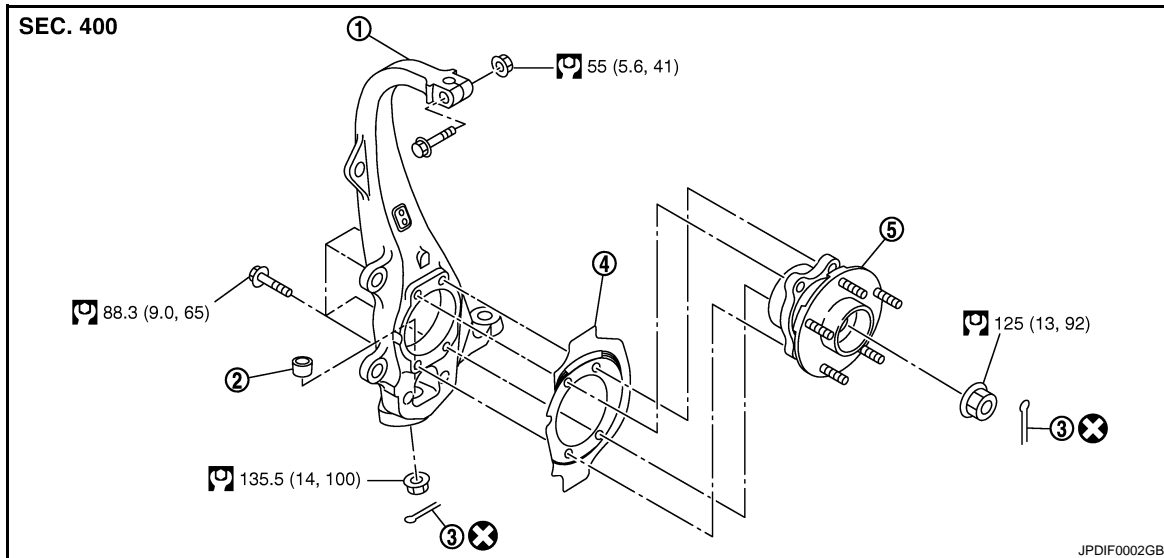
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ON-VEHICLE REPAIR

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:000000000957487



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|---------------------|-----------------------------------|---------------|
| 1. Steering knuckle | 2. Ball seat | 3. Cotter pin |
| 4. Splash guard | 5. Wheel hub and bearing assembly | |

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

Removal and Installation

INFOID:000000000957488

REMOVAL

Wheel Hub and Bearing Assembly

1. Remove tires from vehicle with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-100, "Removal and Installation"](#).
CAUTION:
Never pull on wheel sensor harness.
3. Remove torque member mounting bolts with power tool. Hang torque member in a place where it will not interfere with work. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Removal and Installation"](#) (1 piston type), [BR-46, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
CAUTION:
Never depress brake pedal while brake caliper is removed.
4. Remove disc rotor. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Removal and Installation"](#) (1 piston type), [BR-46, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
5. Remove cotter pin, then loosen hub lock nut with power tool.

FRONT WHEEL HUB AND KNUCKLE

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< ON-VEHICLE REPAIR >

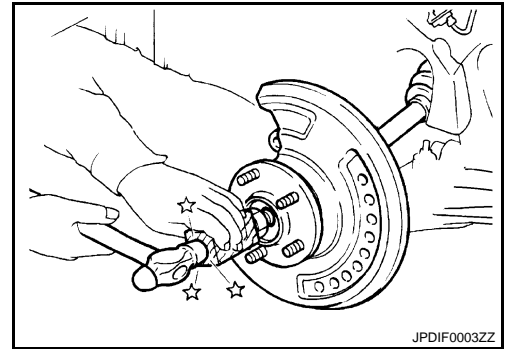
6. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Take out the hub lock nut.

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 housing (or joint sub-assembly), shaft and the other parts.

NOTE:

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



7. Remove wheel hub and bearing assembly mounting bolts, and then remove splash guard and wheel hub and bearing assembly from steering knuckle.

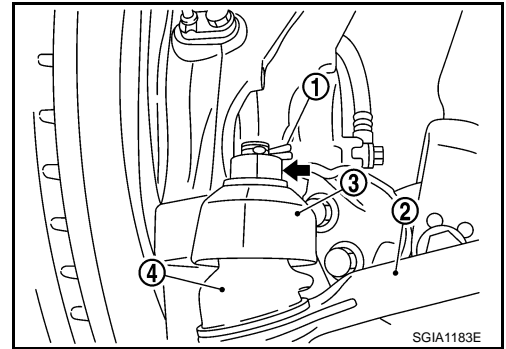
Steering Knuckle

1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove brake hose bracket. Refer to [BR-21, "FRONT BRAKE : Exploded View"](#).
3. Remove cotter pin (1) of steering outer socket, and then loosen the nut.
4. Remove steering outer socket (2) from steering knuckle (3) so as not to damage ball joint boot (4) using the ball joint remover.

CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

5. Remove cotter pin transverse link and steering knuckle, and then loosen nut.
6. Separate upper link from steering knuckle. Refer to [FSU-35, "Removal and Installation"](#).
7. Separate transverse link from steering knuckle so as not to damage ball joint boot using the ball joint remover.



CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

8. Remove steering knuckle from vehicle.

INSTALLATION

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

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

Inspection

INFOID:000000000957489

INSPECTION AFTER REMOVAL

Check components for deformation, cracks, and other damage. Replace if there are.

Ball Joint Inspection

Check boots of transverse link and steering outer socket ball joint for breakage, axial play, and torque. Refer to [FSU-33, "Inspection"](#) and [ST-60, "Socket Axial End Play"](#).

INSPECTION AFTER INSTALLATION

- Check the wheel alignment. Refer to [FSU-41, "Wheel Alignment"](#).
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).

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FRONT DRIVE SHAFT BOOT

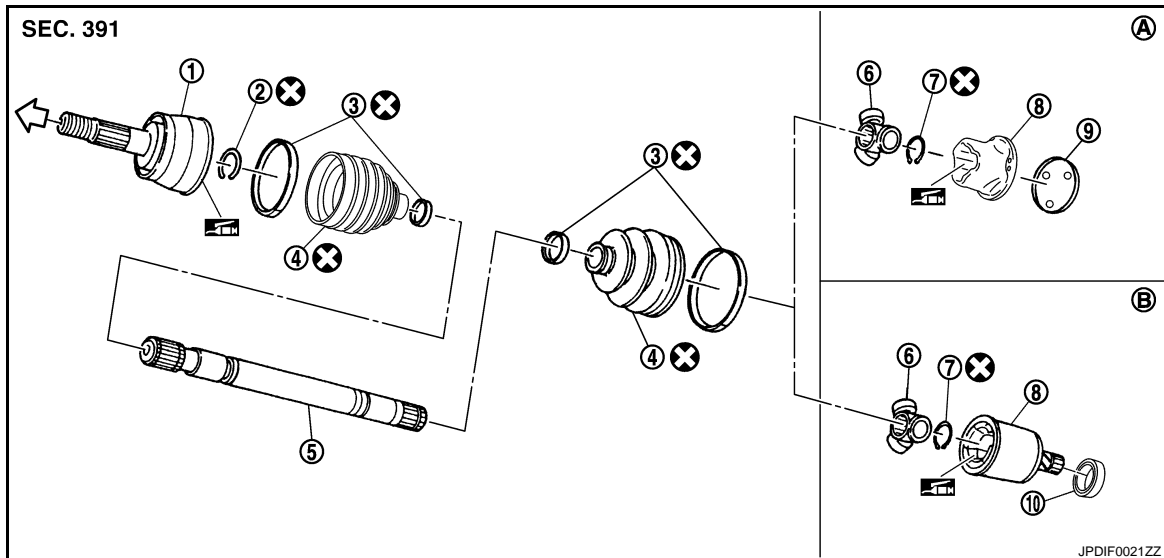
< ON-VEHICLE REPAIR >

[AWD]

FRONT DRIVE SHAFT BOOT

Exploded View

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|-----------------------|------------------|--------------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band |
| 4. Boot | 5. Shaft | 6. Spider assembly |
| 7. Snap ring | 8. Housing | 9. Plug |
| 10. Dust shield | | |
| A. Left side | B. Right side | |

↔: Wheel side

: NISSAN genuine grease or an equivalent.

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

Replacement

INFOID:000000000957491

DRIVE SHAFT BOOT (WHEEL SIDE)

1. Remove tires from vehicle with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-100, "Removal and Installation"](#).
CAUTION:
Never pull on wheel sensor harness.
3. Remove brake hose bracket. Refer to [BR-21, "FRONT BRAKE : Exploded View"](#).
4. Remove torque member mounting bolts with power tool. Hang torque member in a place where it will not interfere with work. Refer to [BR-40, "BRAKE PAD \(1 PISTON TYPE\) : Inspection and Adjustment"](#) (1 piston type), [BR-40, "BRAKE PAD \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
CAUTION:
Never depress brake pedal while brake caliper is removed.
5. Remove disc rotor. Refer to [BR-39, "BRAKE PAD \(1 PISTON TYPE\) : Removal and Installation"](#) (1 piston type), [BR-41, "BRAKE PAD \(2 PISTON TYPE\) : Inspection and Adjustment"](#) (2 piston type).
6. Remove cotter pin, then loosen hub lock nut with a power tool.

FRONT DRIVE SHAFT BOOT

[AWD]

< ON-VEHICLE REPAIR >

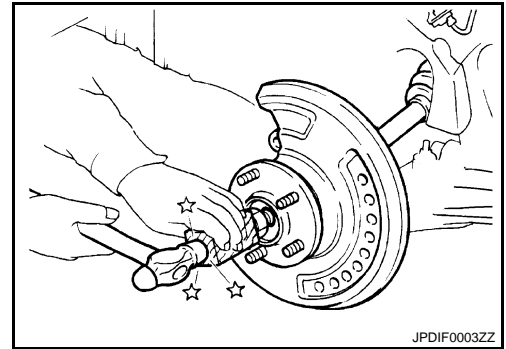
7. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Take out the hub lock nut.

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 housing (or joint sub-assembly), shaft and the other parts.

NOTE:

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



8. Remove cotter pin (1) of steering outer socket, and then loosen the nut.

9. Remove steering outer socket (2) from steering knuckle (3) so as not to damage ball joint boot (4) using the ball joint remover.

CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

10. Remove cotter pin of transverse link and steering knuckle, and then loosen nut.

11. Separate transverse link from steering knuckle so as not to damage ball joint boot using the ball joint remover.

CAUTION:

Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.

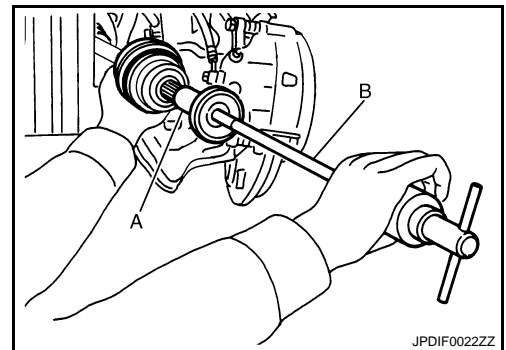
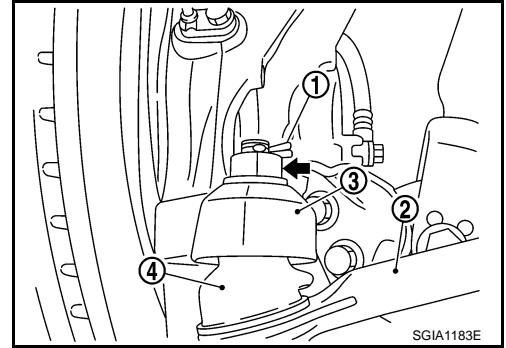
12. Remove drive shaft from wheel hub and bearing assembly.

13. Remove boot bands, and then remove boot from joint sub-assembly.

14. Screw a drive shaft puller (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 with a sliding hammer (B) from shaft.

CAUTION:

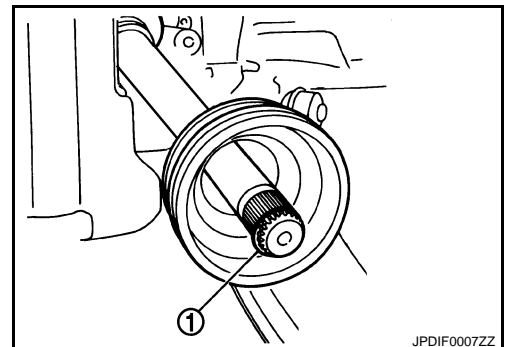
- Align a sliding hammer and drive shaft and remove them by pulling firmly and uniformly.
- If joint sub-assembly cannot be pulled out, try after removing drive shaft from vehicle.



15. Remove the circular clip (1) from shaft.

16. Remove boot from shaft.

17. Clean the old grease on joint sub-assembly with paper towels.



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FRONT DRIVE SHAFT BOOT

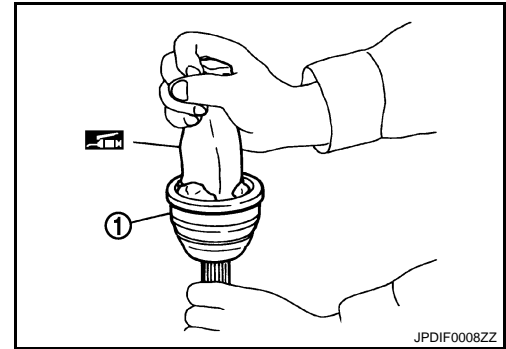
< ON-VEHICLE REPAIR >

[AWD]

18. 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 shop cloth to wipe off old grease that has oozed out.

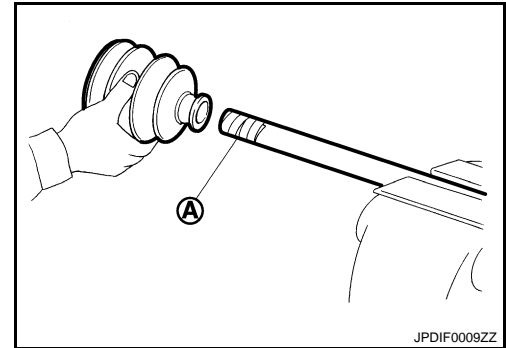


19. Wrap serration on shaft with tape (A) to protect the boot from damage. Install boot and boot bands to shaft.

CAUTION:

Never reuse boot and boot band.

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



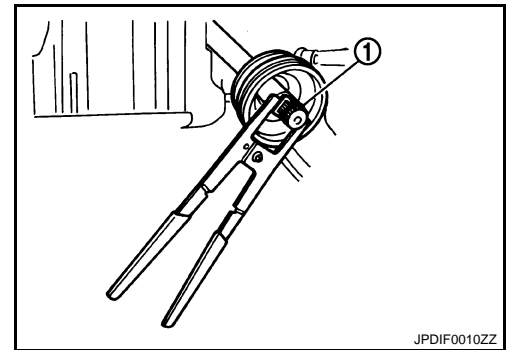
21. Position circular clip (1) on groove at the shaft edge.

CAUTION:

Never reuse circular clip.

NOTE:

Drive joint inserter is recommended when installing circular clip.



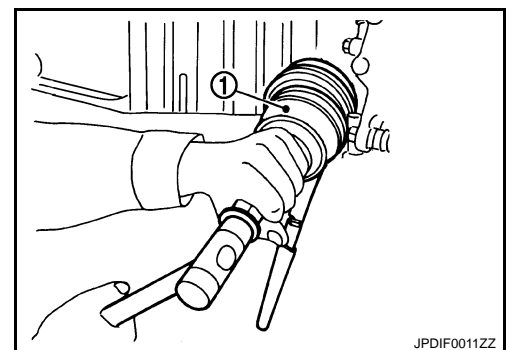
22. Align both center axes of the shaft edge and joint sub-assembly. Then assemble shaft with circular clip joint sub-assembly.

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

CAUTION:

Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.

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



Standard

Grease amount : Refer to [FAX-28, "Drive Shaft"](#).

FRONT DRIVE SHAFT BOOT

[AWD]

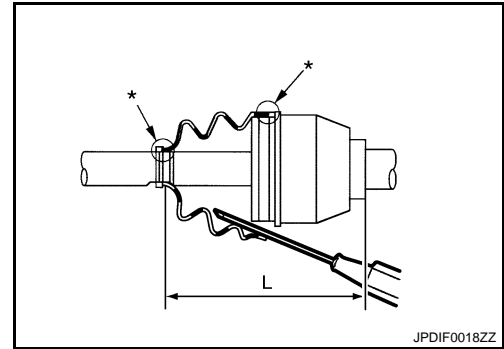
< ON-VEHICLE REPAIR >

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

CAUTION:

If grease adheres to the boot mounting surface (with "*" mark) on the shaft or joint sub-assembly, boot may come off. Remove all grease from the surface.

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



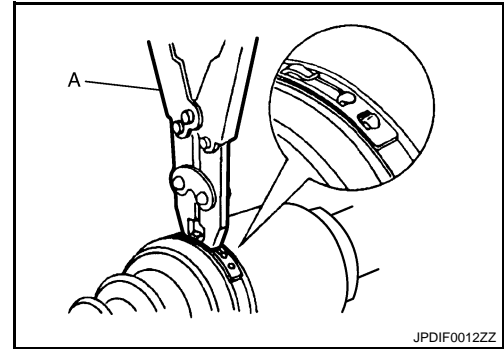
Standard

Boots installed length (L) : Refer to FAX-28, "Drive Shaft".

CAUTION:

- If the boot mounting length is outside the standard, it may cause breakage in the boot.
- Be careful not to touch the inside of the boot with a tip of tool.

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

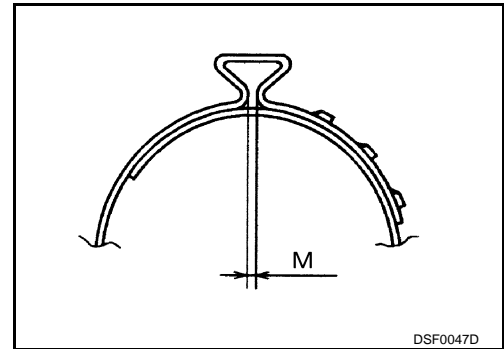


NOTE:

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

Dimension "M" : 2.0 – 3.0 mm (0.079 – 0.118 in)

28. Secure joint sub-assembly and shaft, and then make sure that they are in the correct position when rotating boot. Install them with boot band when boot installation positions become incorrect.
29. Insert drive shaft to wheel hub and bearing assembly, and then temporarily tighten hub lock nut.



CAUTION:

- The drive shaft is press-fit. When assembling the shaft, never press it, but pull it until fully seated by tightening the hub lock nut.
- Check that anticorrosive oil is applied to the thread of the drive shaft. If not, apply appropriate oil such as engine oil.
- If sufficient oil is not applied to the thread of the drive shaft, the hub lock nut may be seized and the tightening torque reaches the specified limit prematurely. It may cause looseness or abnormal noises.

30. Install transverse to steering knuckle. Refer to [FSU-13, "Removal and Installation"](#).
31. Install steering outer socket to steering knuckle. Refer to [FAX-16, "Exploded View"](#).
32. Install disc rotor. Refer to [BR-39, "BRAKE PAD \(1 PISTON TYPE\) : Removal and Installation"](#) (1 piston type), [BR-40, "BRAKE PAD \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
33. Install torque member to steering knuckle. Refer to [BR-39, "BRAKE PAD \(1 PISTON TYPE\) : Removal and Installation"](#) (1piston type), [BR-40, "BRAKE PAD \(2 PISTON TYPE\) : Removal and Installation"](#) (2 piston type).
34. Install brake hose bracket to steering knuckle. Refer to [BR-21, "FRONT BRAKE : Exploded View"](#).

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FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[AWD]

-
35. Install wheel sensor to steering knuckle. Refer to [BRC-100, "Removal and Installation"](#).
 36. Tighten the hub lock nut to the specified torque. Refer to [FAX-16, "Exploded View"](#).
 37. Install cotter pin.
CAUTION:
 - **Never reuse cotter pin.**
 - **Bend it at the root sufficiently to prevent any looseness.**
 38. Install tires to vehicle.

FRONT DRIVE SHAFT

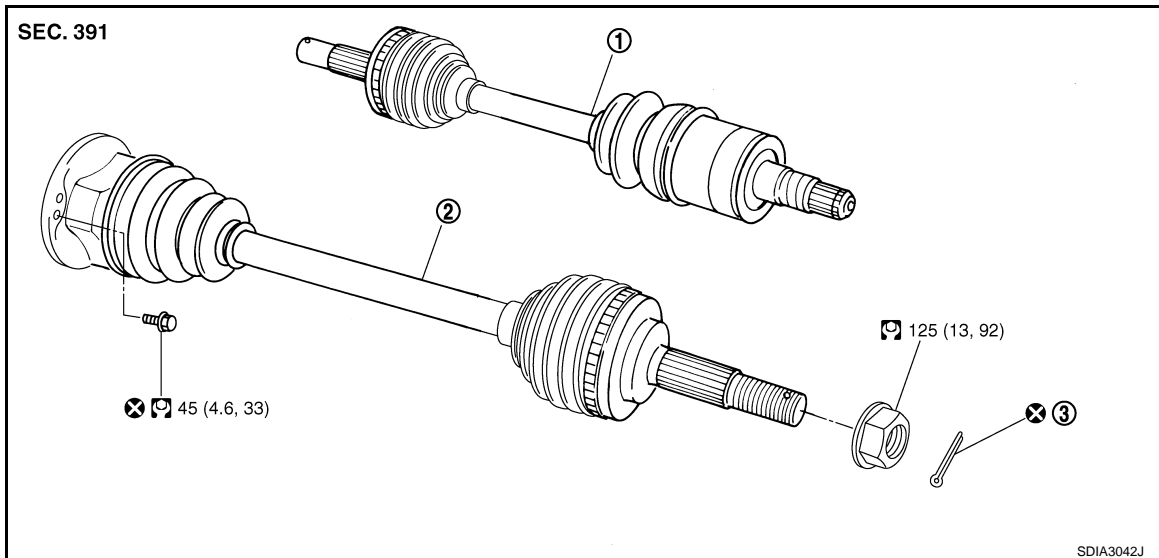
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[AWD]

FRONT DRIVE SHAFT

Exploded View

INFOID:000000000957492



1. Drive shaft (right side)
2. Drive shaft (left side)
3. Cotter pin

Refer to GI section for symbols in the figure.

Refer to [FAX-18. "Exploded View"](#), for the Exploded view of shaft "Disassembly and Assembly".

Removal and Installation

INFOID:000000000957493

REMOVAL

Left Side

1. Refer to the procedure from 1 to 12 in [FAX-18. "Replacement"](#).
2. Remove shock absorber from transverse link with power tool. Refer to [FSU-29. "Removal and Installation"](#).
3. Remove fixing bolts and nuts, and then remove drive shaft from vehicle.

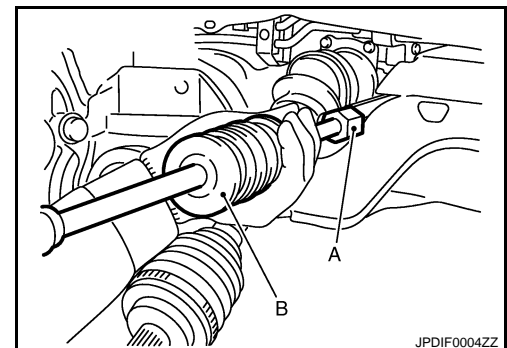
Right Side

Remove drive shaft from front final drive.

- Remove drive shaft from front final drive using the drive shaft attachment (A) [SST:KV40107500 (-)] and a sliding hammer (B) while inserting tip of the drive shaft attachment between housing and front final drive.

CAUTION:

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



INSTALLATION

Left Side

Install in the reverse order of removal.

Right Side

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

CAUTION:

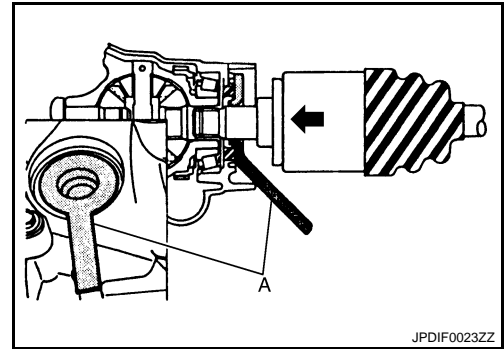
Always replace front final drive oil seal with new one when installing drive shaft. Refer to [DLN-50. "Removal and Installation"](#).

FRONT DRIVE SHAFT

[AWD]

< ON-VEHICLE REPAIR >

- Place the protector (A) [SST:KV38107900 (-)] onto front final drive to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a hammer to install securely.



Disassembly and Assembly

INFOID:000000000957494

DISASSEMBLY

Front Final Drive Side

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 housing.
3. If plug needs to be removed, move boot to wheel side, and take it out with a plastic hammer. (left side)
4. Put matching marks on housing and shaft, and then pull out housing from shaft.

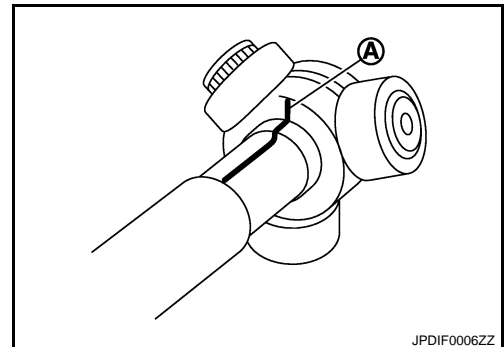
CAUTION:

Use paint or similar substance for matching marks. Never scratch the surfaces.

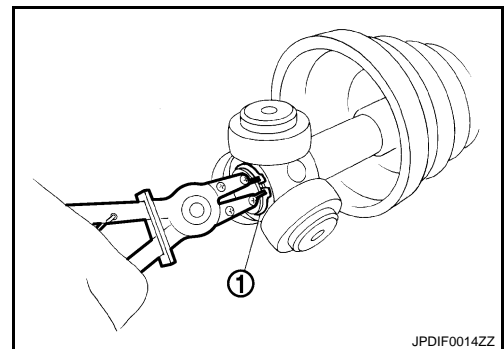
5. Put matching marks (A) on the spider assembly and shaft.

CAUTION:

Use paint or similar substance for matching marks. Never scratch the surfaces.



6. Remove snap ring (1), and then remove spider assembly from the shaft.
7. Remove boot from the shaft.
8. Remove dust cover from housing. (right side)
9. Clean old grease on housing with paper towels.



Wheel Side

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.

FRONT DRIVE SHAFT

[AWD]

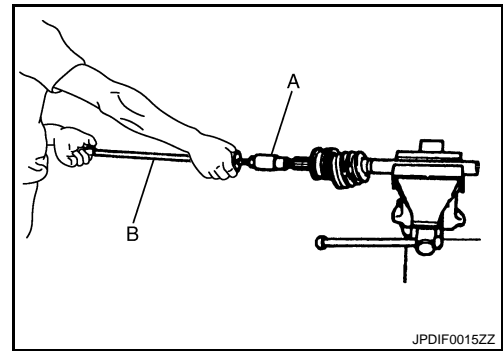
< ON-VEHICLE REPAIR >

- Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with a sliding hammer (B) from shaft.

CAUTION:

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

- Remove circular clip from shaft.
- Remove boot from shaft.
- Clean old grease on joint sub-assembly with paper towels while rotating ball cage.



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ASSEMBLY

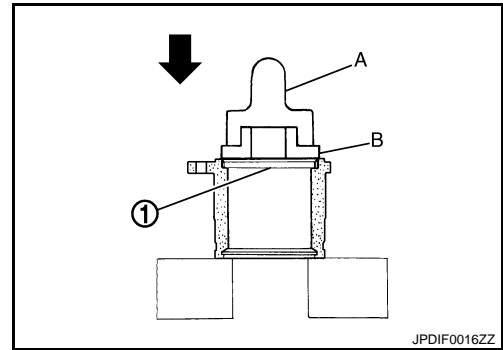
Front Final Drive Side

- If plug (1) has been removed, use a drift to press in a new one. (left side)

←: Press

A: Drift [SST: KV38100500 (-)]

B: Drift [SST: KV38102200 (-)]



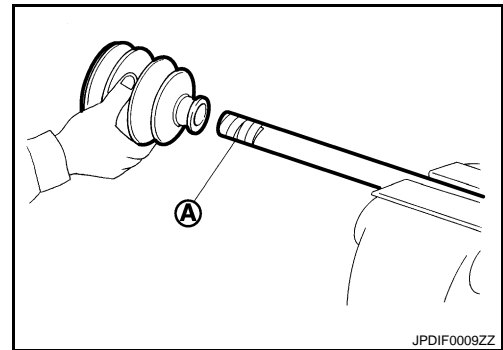
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- Wrap serration on shaft with tape (A) to protect boot from damage. Install new boot and boot bands to shaft.

CAUTION:

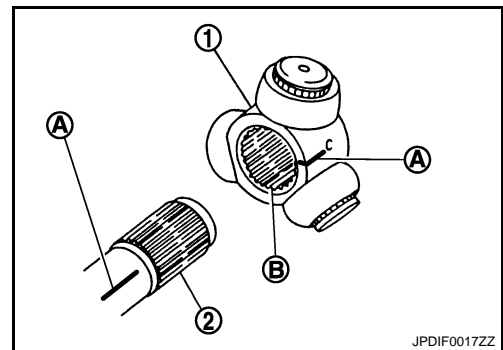
Never reuse boot and boot band.

- Remove the tape wrapped around the serration on shaft.



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



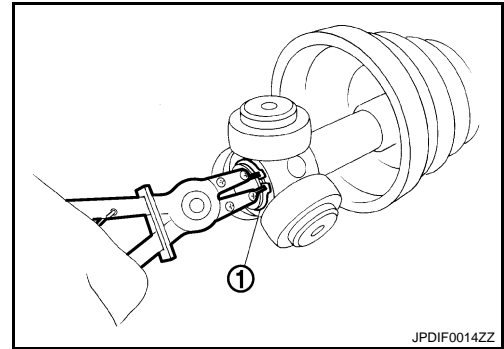
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FRONT DRIVE SHAFT

[AWD]

< ON-VEHICLE REPAIR >

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



Standard

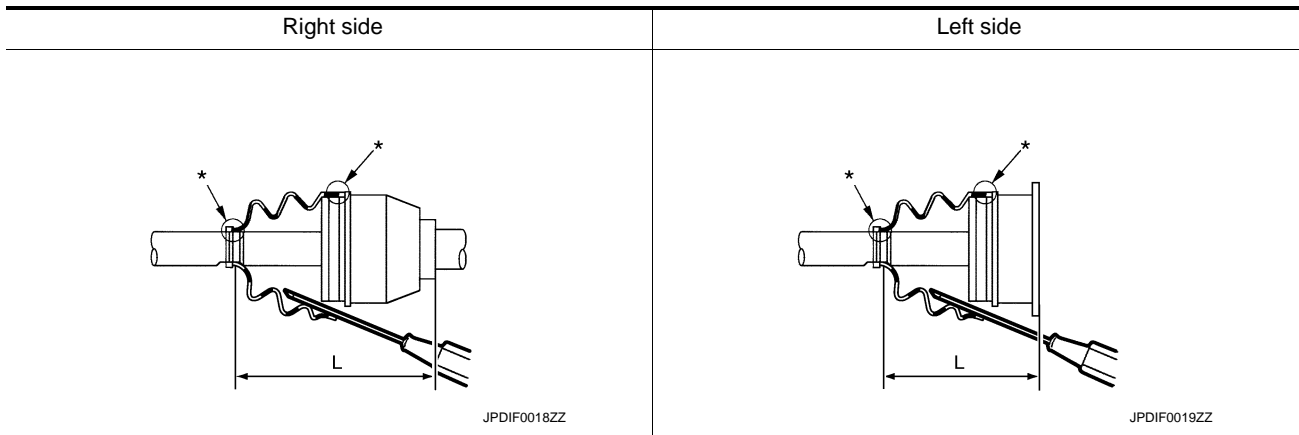
Grease amount : Refer to [FAX-28, "Drive Shaft"](#).

8. Align matching marks painted when housing was removed.
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 come off. Remove all grease from the surface.

10. To prevent from 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.



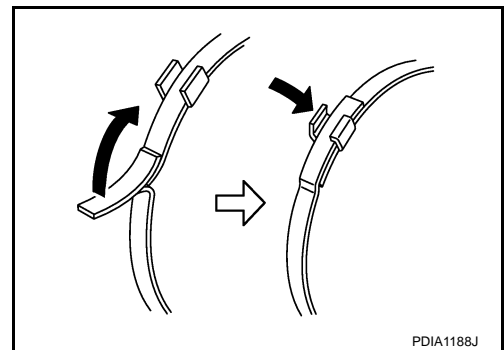
Standard

Boots installed length (L) : Refer to [FAX-28, "Drive Shaft"](#).

CAUTION:

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

11. Install new larger and smaller boot bands securely.
 - a. For one-touch clamp band (left side)
 - i. Secure the large and small ends of a boot with new boot bands as shown in the figure.



- b. For low profile type band (right side)

FRONT DRIVE SHAFT

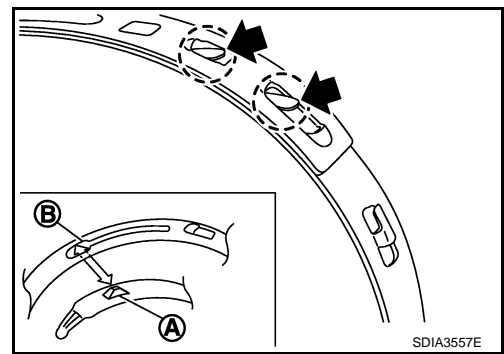
[AWD]

< ON-VEHICLE REPAIR >

- i. 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.



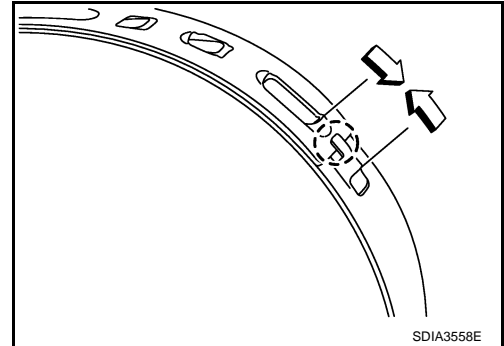
- ii. Pinch projection on the band with suitable pliers to tighten band.
iii. Insert tip of band below end of the pawl.

12. Secure housing and shaft, and then make sure 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 cover to housing. (right side)

CAUTION:

Never reuse dust cover.



Wheel Side

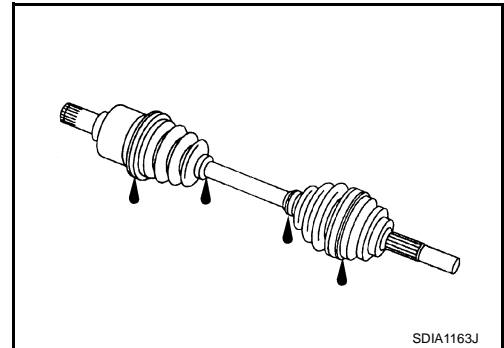
For further details on the installation procedure, refer to the installation procedure of "Replacement" for the drive shaft boot.

Inspection

INFOID:000000000957495

INSPECTION AFTER REMOVAL

- 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.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.



INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace if there are.

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 (Front Final Drive 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.

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SERVICE DATA AND SPECIFICATIONS (SDS)

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[AWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:000000000957496

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

INFOID:000000000957497

Joint		Wheel side	Front final drive side
Grease quantity	Left side	77 – 97 g (2.72 – 3.42 oz)	95 – 105 g (3.35 – 3.70 oz)
	Right side		113 – 123 g (3.99 – 4.34 oz)
Boots installed length	Left side	136 mm (5.35 in)	151.9 mm (5.98 in)
	Right side		158 mm (6.22 in)