

SECTION **FAX**
FRONT AXLE

A
B
C

FAX

CONTENTS

E

PRECAUTION	2	Exploded View	9	F
PRECAUTIONS	2	Removal and Installation	9	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Disassembly and Assembly	11	G
Precaution for Drive Shaft	2	Inspection	13	
Precautions for Wheel Hub and Knuckle	2	FRONT DRIVE SHAFT BOOT	14	H
PREPARATION	3	Exploded View	14	
PREPARATION	3	WHEEL SIDE	14	I
Special Service Tools	3	WHEEL SIDE : Removal and Installation	15	
Commercial Service Tools	4	TRANSAXLE SIDE	18	J
SYMPTOM DIAGNOSIS	6	TRANSAXLE SIDE : Removal and Installation	18	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	6	Inspection	18	K
NVH Troubleshooting Chart	6	FRONT DRIVE SHAFT	19	
PERIODIC MAINTENANCE	7	Exploded View	19	L
FRONT WHEEL HUB AND KNUCKLE	7	Removal and Installation	19	
Inspection	7	UNIT DISASSEMBLY AND ASSEMBLY ...	21	M
FRONT DRIVE SHAFT	8	FRONT DRIVE SHAFT	21	
Inspection	8	Exploded View	21	N
REMOVAL AND INSTALLATION	9	Disassembly and Assembly	22	
FRONT WHEEL HUB AND KNUCKLE	9	SERVICE DATA AND SPECIFICATIONS (SDS)	27	O
		SERVICE DATA AND SPECIFICATIONS (SDS)	27	P
		Wheel Bearing	27	
		Drive Shaft	27	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000012431882

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. Information necessary to service the system safely is included in the SR 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 SR 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.

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

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT 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 three minutes before performing any service.

Precaution for Drive Shaft

INFOID:000000012431883

Observe the following precautions when disassembling and assembling drive shaft.

- Do not 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 for Wheel Hub and Knuckle

INFOID:000000012431884

Observe the following precautions when assembling wheel hub and knuckle.

- Perform work in a location which is as dust-free as possible.
- Use paper waste. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- If any of wheel hub, steering knuckle, wheel bearing, and wheel hub lock nut is dropped, it must not be used.
- Always check that the tools used for press-fit work of wheel hub and wheel bearing have no wear and deformation so that a pressure can be applied vertically.

PREPARATION

< PREPARATION >

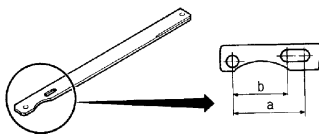
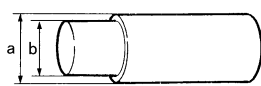
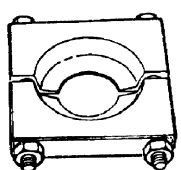
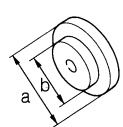
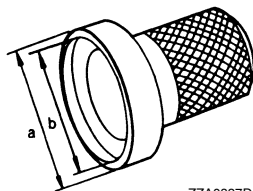
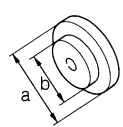
PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000012431885

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV40104000 (—) Hub lock nut wrench  ZZA0802D	Removing and Installing wheel hub lock nut a: 85 mm (3.35 in) b: 65 mm (2.56 in)
ST33710000 (—) Drift  ZZA1233D	Removing wheel hub a: 30 mm (1.18 in) dia. b: 23 mm (0.91 in) dia.
ST30031000 (—) Puller  ZZA0700D	Removing wheel bearing inner race (outer)
ST35321000 (—) Drift  ZZA1051D	<ul style="list-style-type: none"> • Removing wheel bearing • Installing wheel hub a: 49 mm (1.93 in) dia. b: 41 mm (1.61 in) dia.
ST35271000 (—) Drift  ZZA0837D	Installing wheel bearing a: 72 mm (2.83 in) dia. b: 63 mm (2.48 in) dia.
ST33061000 (—) Drift  ZZA1051D	Installing wheel hub a: 38 mm (1.50 in) dia. b: 28.5 mm (1.122 in) dia.

A

B

C

FAX

E

F

G

H

I

J

K

L

M

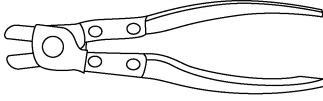

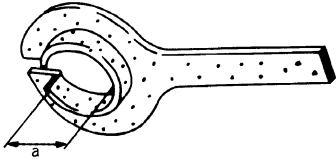
N

O

P

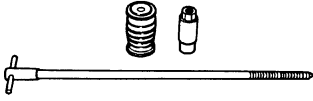
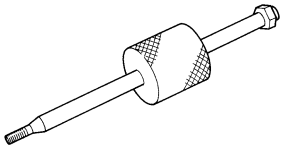
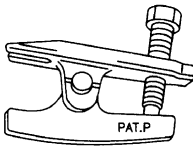
PREPARATION

< PREPARATION >

Tool number (TechMate No.) Tool name	Description
KV40107300 (J-51751) Boot band crimping tool  ALDIA0586ZZ	Installing boot band
KV40107500 (—) Drive shaft attachment  ZZA1230D	Removing drive shaft
KV38107900 (—) Differential side oil seal protector  PDIA1183J	Installing drive shaft a: 32 mm (1.26 in) dia.

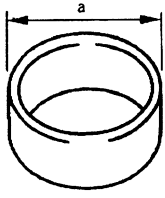
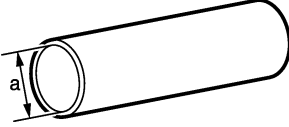
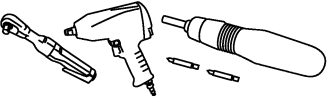
Commercial Service Tools

INFOID:000000012431886

Tool name	Description
Drive shaft puller  JPDIG0152ZZ	Removing drive shaft joint sub-assembly
Sliding hammer  ZZA0023D	Removing drive shaft
Ball joint remover  PAT.P NT146	Removing wheel stud

PREPARATION

< PREPARATION >

Tool name	Description
Drift  ZZA0898D	<ul style="list-style-type: none"> Installing wheel bearing Installing splash guard a: 68 mm (2.68 in) dia.
Drift  JPDIC0679ZZ	Installing splash guard a: 95 mm (3.74 in) dia.
Power tool  PIIB1407E	Loosening nuts, screws and bolts

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

FAX

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000012431887

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

Reference			—	FAX-8	—	FAX-8	—	FSU-5	FSU-5	—	WT-45	WT-44	—	BR-7	ST-7	
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	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
		Shudder				x			x		x	x			x	x
		Poor quality ride or handling				x	x		x		x	x				

x: Applicable

FRONT WHEEL HUB AND KNUCKLE

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

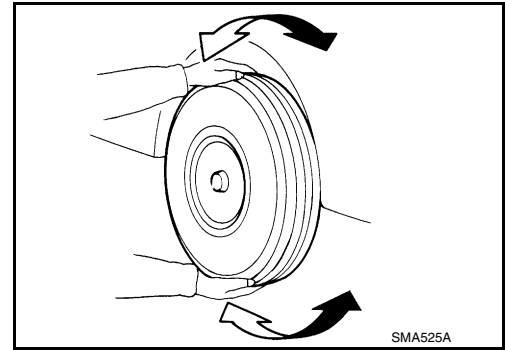
FRONT WHEEL HUB AND KNUCKLE

Inspection

INFOID:0000000012431888

COMPONENT PART

- Check that the mounting conditions (looseness, backlash) of each component and component conditions (wear, damage) are normal.
- Check the axle and suspension parts for excessive play, weary or damage.
- Shake each front wheel to check for excessive play.



FRONT WHEEL BEARING INSPECTION

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

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

Axial end play : Refer to [FAX-27](#).

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

FRONT DRIVE SHAFT

< PERIODIC MAINTENANCE >

FRONT DRIVE SHAFT

Inspection

INFOID:000000012431889

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 when noise or vibration occurs from drive shaft.

- Check boot for cracks and other damage.

FRONT WHEEL HUB AND KNUCKLE

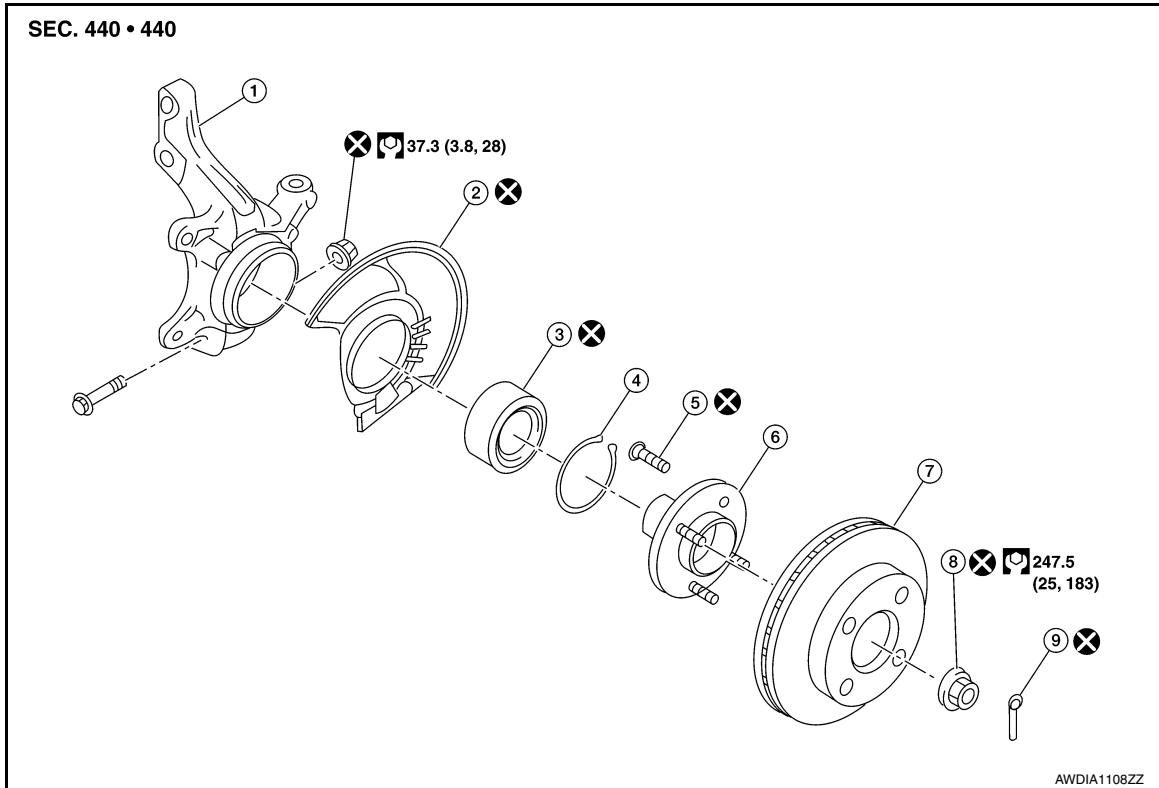
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:000000012431890



- | | | |
|---------------------|-----------------------|------------------|
| 1. Steering knuckle | 2. Splash guard | 3. Wheel bearing |
| 4. Snap ring | 5. Wheel stud | 6. Wheel hub |
| 7. Disc brake rotor | 8. Wheel hub lock nut | 9. Cotter pin |

Removal and Installation

INFOID:000000012431891

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-48, "Removal and Installation"](#).
2. Separate front wheel sensor from front wheel hub. Refer to [BRC-143, "FRONT SENSOR ROTOR : Removal and Installation"](#).
CAUTION:
When removing front wheel hub, first separate front wheel sensor from front wheel hub. Failure to do so may result in damage to front wheel sensor wires, making front wheel sensor inoperative.
3. Remove brake caliper using power tool, leaving brake hose connected. Reposition brake caliper aside with wire. Refer to [BR-37, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put matching marks on disc brake rotor and wheel hub, then remove disc brake rotor.
CAUTION:
 - Use paint for matching parts. Do not damage the disc brake rotor or wheel hub.
 - Do not drop disc rotor.
5. Remove and discard cotter pin, and then loosen wheel hub lock nut, using Tool.

Tool number : KV40104000 (—)

FRONT WHEEL HUB AND KNUCKLE

< REMOVAL AND INSTALLATION >

6. Separate the drive shaft from the wheel hub by lightly tapping the end of the drive shaft using a suitable tool and a wood block.

NOTE:

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

7. Remove wheel hub lock nut.
8. Remove the nut and separate the steering outer socket from steering knuckle. Refer to [ST-14, "Exploded View"](#).
9. Remove the nuts and bolts, then separate the steering knuckle from strut. Refer to [FAX-9, "Removal and Installation"](#).
10. Suspend the drive shaft with suitable wire.

CAUTION:

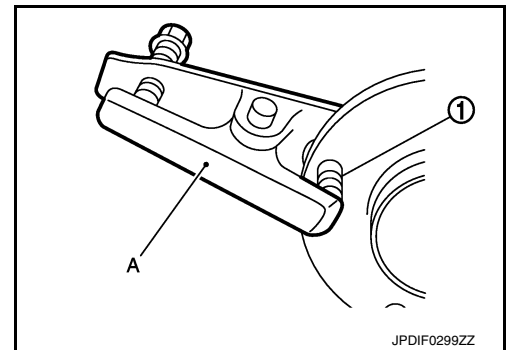
- Do not place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.
- Do not allow drive shaft to hang down without support for joint sub-assembly, shaft and the other parts.

11. Remove transverse link outer nut and bolt. Remove steering knuckle from transverse link.

12. Remove wheel studs (1) from wheel hub using the suitable tool (A) (if necessary).

CAUTION:

- Remove stud only when necessary.
- Do not hammer the wheel stud or damage to the wheel bearing may occur.
- Press the wheel stud straight out to avoid damaging the stud.



13. Perform inspection after removal. Refer to [FAX-13, "Inspection"](#).

INSTALLATION

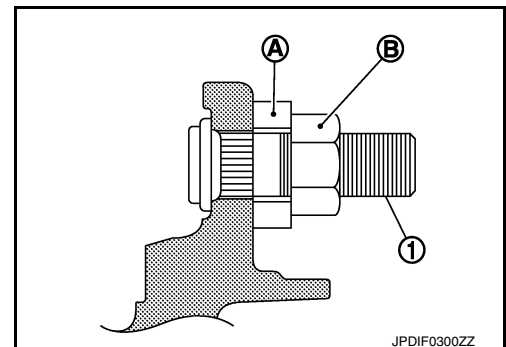
Installation is in the reverse order of the removal.

CAUTION:

- Do not reuse the transverse link outer nut.
- Do not damage the wheel bearing seal. If damage has occurred, replace wheel bearing.
- Do not allow paint to adhere to the wheel bearing seal.
- Check each mating surface for water and foreign matter. If there is any water or foreign matter, clean the mounting surface.
- Position the stud (1) to the wheel hub flange. Place a washer (A) and nut (B) on the opposite end of the stud. Tighten to press the stud into the wheel hub flange.

CAUTION:

- Check that no clearance exists between wheel hub and wheel stud after installation.
- Do not reuse wheel stud.



- Clean the mating surfaces of wheel hub lock nut and wheel hub.

CAUTION:

Do not apply lubricating oil to the mating surface of the wheel hub lock nut and the wheel hub.

FRONT WHEEL HUB AND KNUCKLE

< REMOVAL AND INSTALLATION >

- Clean the mating surfaces of drive shaft, wheel hub, and wheel bearing. Apply Molykote M77 to surface (A) of joint sub-assembly.

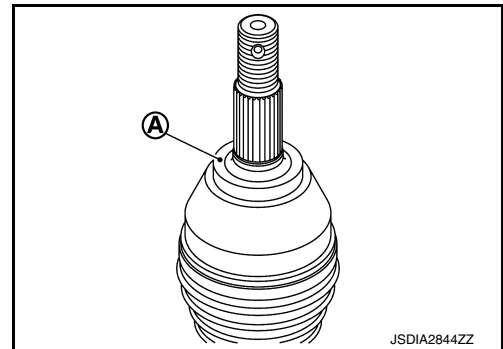
CAUTION:

Apply Molykote M77 to cover entire flat surface of joint sub-assembly.

NOTE:

Always check with the Parts Department for the latest parts information.

Molykote M77 quantity : Refer to [FAX-27, "Drive Shaft"](#).



- When reusing disc rotor, align the matching marks during removal.
- When installing a cotter pin, securely bend the cotter pin to prevent rattles.

CAUTION:

Do not reuse cotter pin.

- Perform the inspection. Refer to [FAX-13, "Inspection"](#).

Disassembly and Assembly

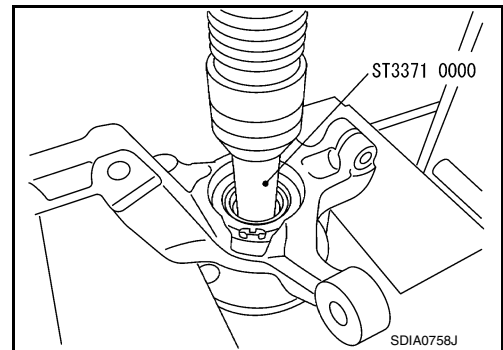
INFOID:000000012431892

DISASSEMBLY

1. Remove wheel hub using Tool.

Tool number : ST33710000 (—)

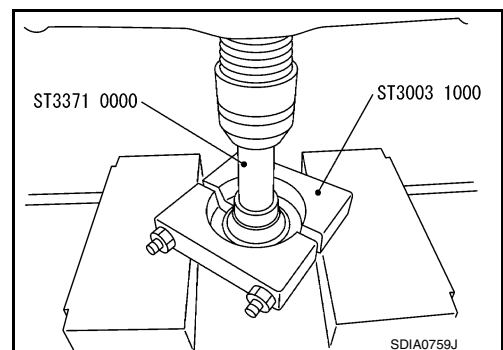
2. Remove splash guard from steering knuckle.



3. Remove wheel bearing inner race (outer side) from wheel hub using Tools.

Tool number : ST33710000 (—)

: ST30031000 (—)



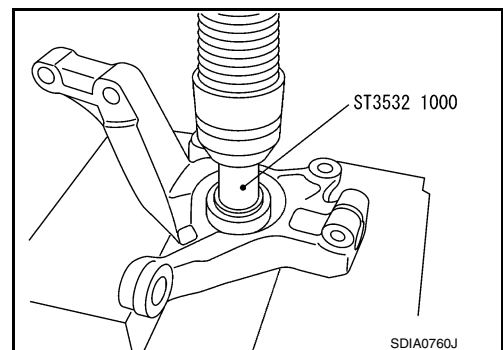
4. Remove snap ring from steering knuckle using suitable tool.

CAUTION:

Do not damage steering knuckle.

5. Remove wheel bearing from steering knuckle using Tool.

Tool number : ST35321000 (—)



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

FRONT WHEEL HUB AND KNUCKLE

< REMOVAL AND INSTALLATION >

6. Perform inspection after disassembly. Refer to [FAX-13. "Inspection"](#).

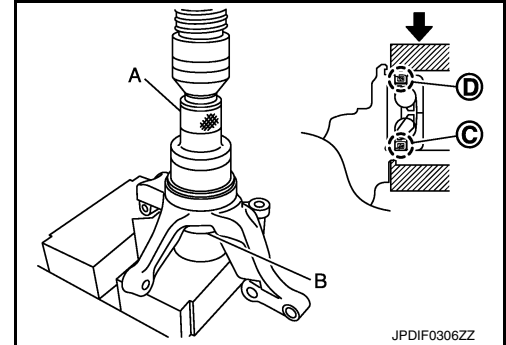
ASSEMBLY

1. Install wheel bearing to steering knuckle using the Tool (A) and a suitable tool (B).

Tool number (A) : ST35271000 (—)

CAUTION:

- Do not reuse wheel bearing.
- Do not apply a cleaning agent or anticorrosive to the mounting surfaces of the wheel bearing and steering knuckle.
- Install wheel bearing with the wheel sensor rotor rubber part (C) faced to the steering knuckle inner side.
- The wheel sensor rotor of the wheel bearing must be kept free of foreign matter.
- The press-fit load must be applied to the wheel bearing outer race and the steering knuckle.
- Do not apply press-fit load to the wheel bearing inner race, the seal (C) on the rubber surface side (wheel sensor rotor side), and the seal (D) on the metallic surface side. If a press-fit load is applied, the wheel bearing must be replaced with a new one.



Wheel bearing press-fit load : Refer to [FAX-27. "Wheel Bearing"](#).

2. Install snap ring to steering knuckle.

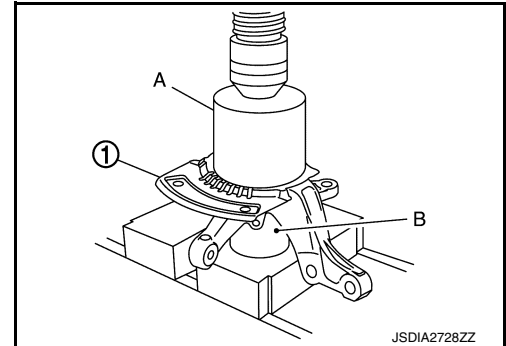
CAUTION:

- Do not damage the wheel bearing seal.
- The snap ring must be installed evenly into the groove.

3. Press splash guard (1) into the steering knuckle using suitable tools (A and B).

CAUTION:

Do not reuse splash guard.



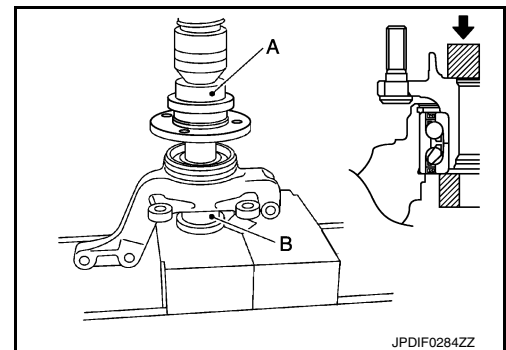
4. Install wheel hub using Tools (A and B).

Tool number (A) : ST33061000 (—)

(B) : ST35321000 (—)

CAUTION:

- Do not apply lubricating oil to the press-fit surface of the wheel hub bearing.
- Set wheel hub and wheel bearing horizontally and insert them vertically.
- The press-fit load must be applied to the wheel hub and the wheel bearing inner race.
- Do not apply press-fit load to the steering knuckle and the wheel bearing, the seal. If a press-fit load is applied, the wheel bearing must be replaced with a new one.
- Apply a press-fit load and maintain the loaded state for 30 seconds.
- If the inserted wheel hub is removed again, the wheel bearing must be replaced with a new one.



Wheel bearing press-fit load : Refer to [FAX-27. "Wheel Bearing"](#).

FRONT WHEEL HUB AND KNUCKLE

< REMOVAL AND INSTALLATION >

5. Perform inspection after assembly. Refer to [FAX-13, "Inspection"](#).

Inspection

INFOID:000000012431893

INSPECTION AFTER REMOVAL

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

- Check components for deformation, cracks, and other damage.
- Check boots of transverse link and steering outer socket ball joint for breakage, axial end play, and swing torque. Refer to [FSU-10, "Inspection"](#) and [FSU-20, "Ball Joint"](#).

INSPECTION AFTER DISASSEMBLY

Wheel Hub

- Check wheel hub for cracks (with magnetic exploration or dye testing). Replace if necessary.

Steering Knuckle

- Check steering knuckle for deformation, cracks, and other damage. Replace if any non-standard conditions are found.

Snap Rings

- Check snap ring for wear or cracks. Replace if necessary.

INSPECTION AFTER ASSEMBLY

Check wheel bearing rotating torque as per the following instructions.

NOTE:

The adequacy of turning torque can be judged from a measurement value by a spring balancer.

1. For a proper fit of the bearing, turn the wheel hub clockwise and counterclockwise, respectively, 10 times or more with a press-fit load applied.

Wheel bearing press-fit load : Refer to [FAX-27, "Wheel Bearing"](#)

2. Set a suitable tool on strut mounting hole (upper). Measure rotating torque at an rpm of 8 - 12 rpm.

Rotating torque : Refer to [FAX-27, "Wheel Bearing"](#).

Spring balance measurement : Refer to [FAX-27, "Wheel Bearing"](#).

- If the turning torque cannot be obtained by the above method, measure the torque, according to the instructions below.
- Install drive shaft and tighten the hub lock nut to the specified torque. Rotate the wheel hub to fit properly.
- Set a suitable tool on a wheel nut and measure turning torque at turning speeds of 8 to 12 rpm.

Rotating torque : Refer to [FAX-27, "Wheel Bearing"](#)

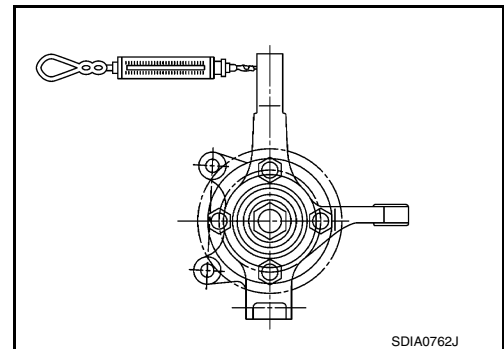
Spring balance measurement : Refer to [FAX-27, "Wheel Bearing"](#)

INSPECTION BEFORE INSTALLATION

Check wheel sensor rotor for foreign matter. Clean the rotor, if necessary.

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness to be sure the connectors are fully seated. Refer to [BRC-140, "FRONT WHEEL SENSOR : Removal and Installation"](#).
2. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).



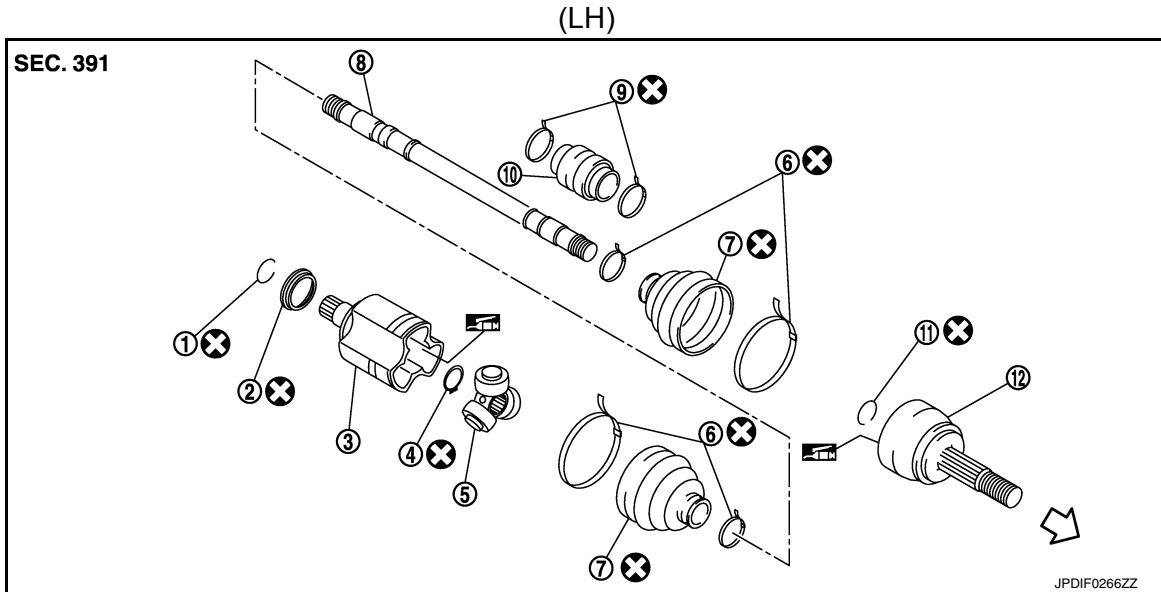
FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

FRONT DRIVE SHAFT BOOT

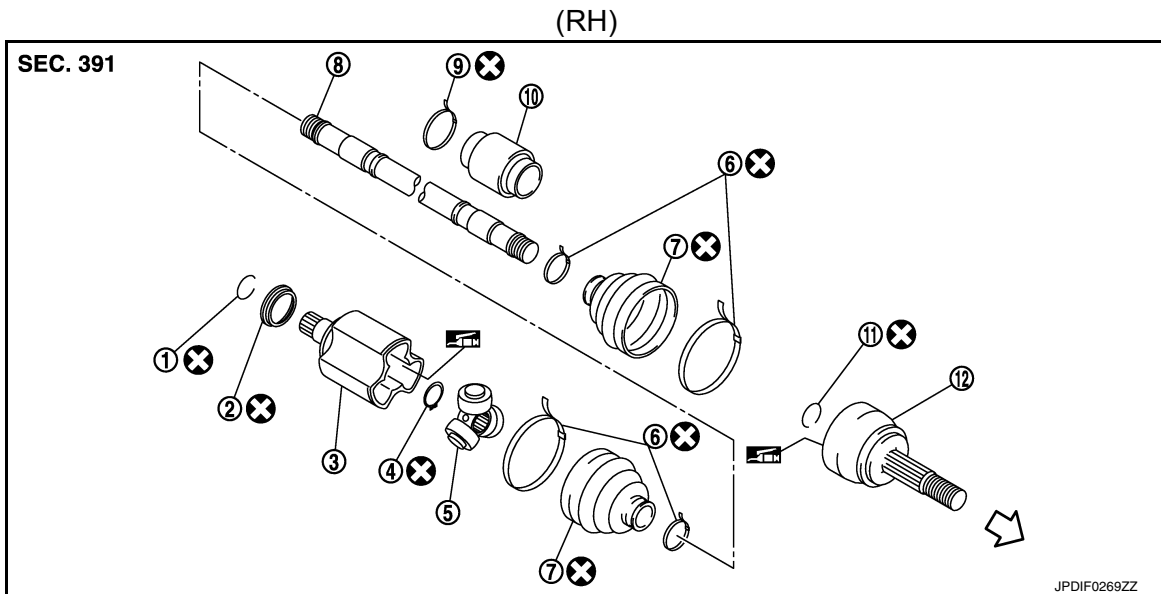
Exploded View

INFOID:000000012431894



- | | | |
|--------------------|--------------------|------------------------|
| 1. Circular clip | 2. Dust shield | 3. Slide joint 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



- | | | |
|--------------------|--------------------|------------------------|
| 1. Circular clip | 2. Dust shield | 3. Slide joint 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

WHEEL SIDE