SECTION FAX
FRONT AXLE

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012347486

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.**

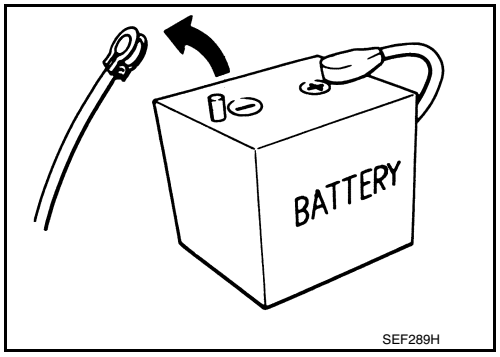
Precautions for Removing Battery Terminal

INFOID:0000000013085287

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



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.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

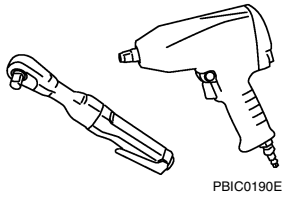
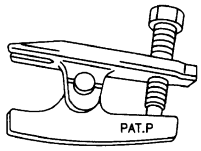
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 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

PREPARATION

Commercial Service Tools

INFOID:0000000012347488

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts
Ball joint remover  NT146	• Removing ball joint for steering knuckle • Removing hub bolt

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000012347489

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

Reference			FAX-8, "Exploded View"	—	FAX-7, "Inspection"	NVH in FAX and FSU sections	NVH in WT section	NVH in WT section	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	TIRE	ROAD WHEEL	BRAKE	STEERING
Symptom	FRONT AXLE	Noise	×	×	×	×	×	×	×	×
		Shake	×	×	×	×	×	×	×	×
		Vibration	×	×	×	×	×	—	—	×
		Shimmy	×	×	—	×	×	×	×	×
		Judder	×	—	—	×	×	×	×	×
		Poor quality ride or handling	×	×	—	×	×	×	—	—

×: Applicable, —: Not applicable

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Inspection

INFOID:0000000012347490

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.

Axial end play : Refer to FAX-10, "Wheel Bearing".

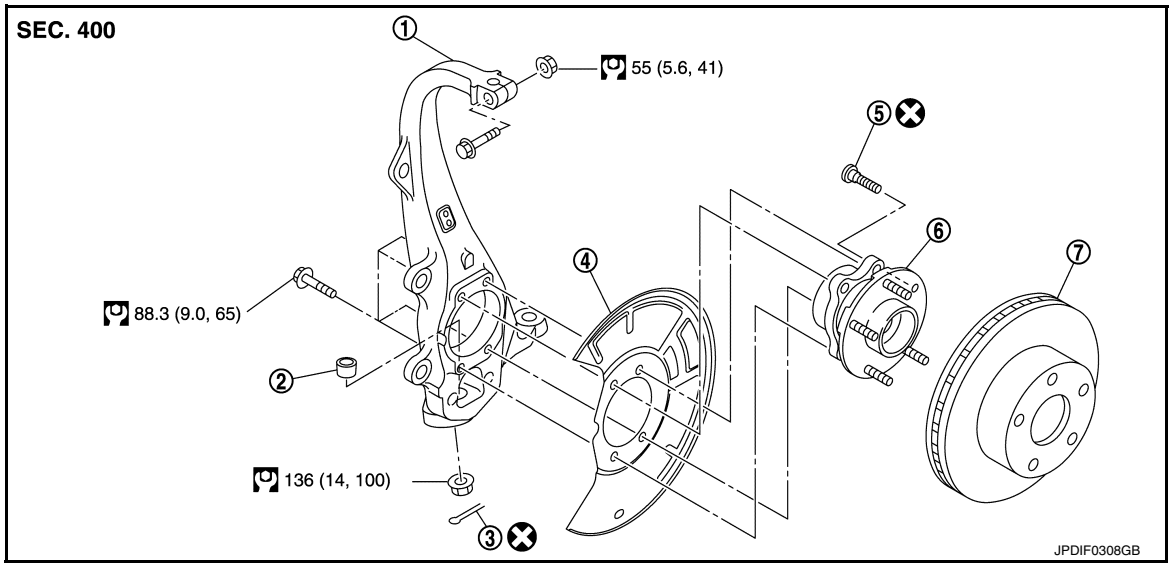
- Rotate wheel hub and bearing assembly and make sure that is no unusual noise or other irregular conditions. If there is any of irregular conditions, replace wheel hub and bearing assembly.

REMOVAL AND INSTALLATION

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000012347491



① Steering knuckle ② Ball seat ③ Cotter pin
④ Splash guard ⑤ Hub bolt ⑥ Wheel hub and bearing assembly
⑦ Disc rotor
⊗ :Always replace after every disassembly.
:N·m (kg-m, ft-lb)

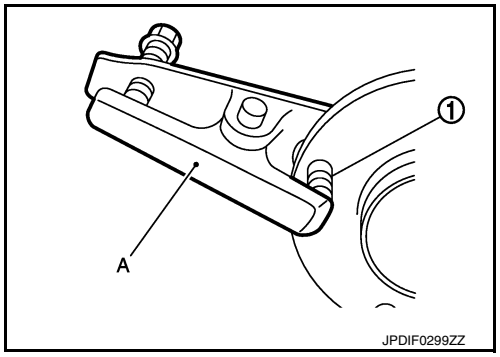
Removal and Installation

INFOID:0000000012347492

REMOVAL

1. Remove tires with power tool. Refer to WT-64, "Exploded View".
2. Remove wheel sensor and sensor harness. Refer to BRC-161, "FRONT WHEEL SENSOR : Removal and Installation".
   CAUTION:
   Never pull on wheel sensor harness.
3. Remove brake hose bracket from steering knuckle. Refer to BR-27, "FRONT : Removal and Installation".
4. Remove caliper assembly. Hang caliper assembly in a place where it will not interfere with work. Refer to BR-48, "BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Removal and Installation" (2 piston type) or BR-52, "BRAKE CALIPER ASSEMBLY (4 PISTON TYPE) : Removal and Installation" (4 piston type).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
5. Remove disc rotor.
   CAUTION:
   - **Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.**
   - **Never drop disc rotor.**
6. Remove wheel hub and bearing assembly, and then remove splash guard.
7. Separate steering outer socket from steering knuckle. Refer to ST-41, "2WD : Removal and Installation".
   CAUTION:
   Never damage ball joint boot.
8. Separate steering knuckle from upper link.

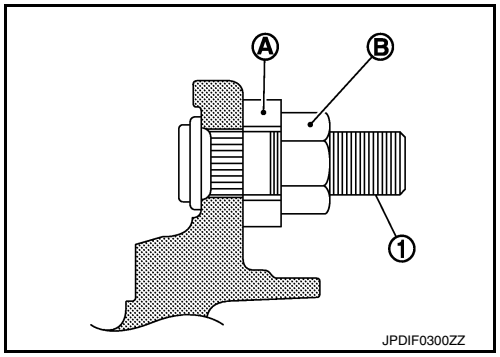
9. Remove cotter pin of transverse link and steering knuckle, and then loosen nut.
10. Separate steering knuckle from transverse link, using the ball joint remover (commercial service tool), and remove steering knuckle.
CAUTION:
- **Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.**
- **Never damage ball joint boot.**
11. Remove steering knuckle.
12. Remove hub bolts ① from wheel hub and bearing assembly, using the ball joint remover (A) (commercial service tool).
CAUTION:
- **Remove hub bolt only when necessary.**
- **Never hammer the hub bolt to avoid impact to the wheel hub and bearing assembly.**
- **Pull out the hub bolt in a direction perpendicular to the wheel hub and bearing assembly.**



INSTALLATION

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

- Place a washer Ⓐ as shown in the figure to install the hub bolts ① by using the tightening force of the nut Ⓑ.
CAUTION:
  - **Check that there is no clearance between wheel hub and bearing assembly, and hub bolt.**
  - **Never reuse hub bolt.**
- Align the matching marks that have been made during removal when reusing the disc rotor.
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and steering knuckle.
- Never reuse cotter pin.



Inspection

INFOID:0000000012347493

INSPECTION AFTER REMOVAL

Check components for deformation, cracks, and other damage. Replace it if necessary.

Ball Joint Inspection

Check boots of transverse link, upper link, and steering outer socket ball joint for breakage, axial play, and torque. Refer to FSU-14, "Inspection", FSU-16, "Inspection", and ST-48, "2WD : Inspection".

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to BRC-161, "FRONT WHEEL SENSOR : Exploded View".
2. Check the wheel alignment. Refer to FSU-8, "Inspection".
3. Adjust neutral position of steering angle sensor. Refer to BRC-67, "Description".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000012347494

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

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012347495

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:0000000012347496

- 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 for Removing Battery Terminal

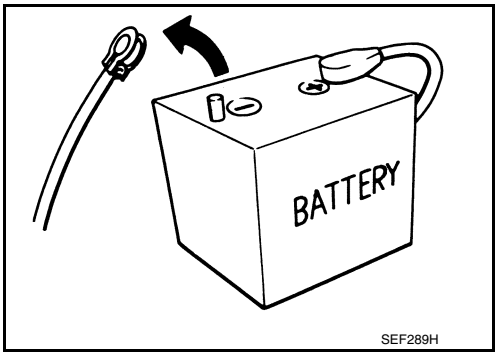
INFOID:0000000013085288

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



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.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- 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.

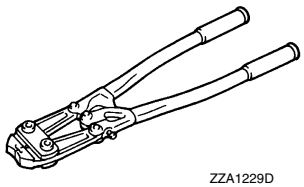
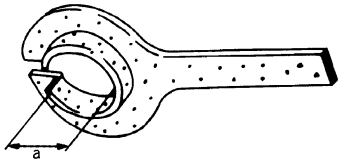
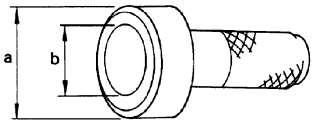
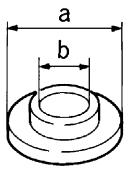
PREPARATION

PREPARATION

Special Service Tools

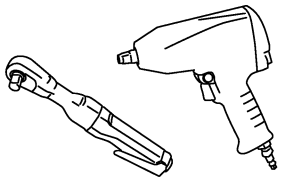
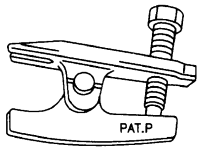
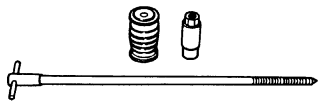
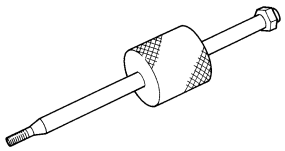
INFOID:0000000012347498

The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
KV40107300 (–) Boot band crimping tool  ZZA1229D	Installing boot band
KV40107500 (–) Drive shaft attachment  ZZA1230D	Removing drive shaft
KV38107900 (–) Protector a: 32 mm (1.26 in) dia.  PDIA1183J	Installing drive shaft
KV38100500 (–) Drift a: 80 mm (3.15 in) dia. b: 60 mm (2.36 in) dia.  ZZA0701D	Installing drive shaft plug (VK56VD)
KV38102200 (–) Drift a: 90 mm (3.54 in) dia. b: 31 mm (1.22 in) dia.  ZZA0920D	Installing drive shaft plug (VK56VD)

Commercial Service Tools

INFOID:0000000012347499

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts
Ball joint remover  NT146	• Removing ball joint for steering knuckle • Removing hub bolt
Drive shaft puller  JPDIG0152ZZ	Removing drive shaft joint sub assembly
Sliding hummer  ZZA0023D	Removing drive shaft

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000012347500

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

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
Reference			—	FAX-33, "Inspection"	—	FAX-18, "Exploded View"	—	FAX-16, "Inspection"	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
Symptom	DRIVE SHAFT	Noise	×	×	—	—	—	×	×	×	×	×	—	×	×
		Shake	×	—	×	—	—	×	×	×	×	×	—	×	×
	FRONT AXLE	Noise	—	—	—	×	×	×	×	—	×	×	×	×	×
		Shake	—	—	—	×	×	×	×	—	×	×	×	×	×
		Vibration	—	—	—	×	×	×	×	—	×	—	×	—	×
		Shimmy	—	—	—	×	×	—	×	—	×	×	—	×	×
		Judder	—	—	—	×	—	—	×	—	×	×	—	×	×
		Poor quality ride or handling	—	—	—	×	×	—	×	—	×	×	—	—	—

×: Applicable, —: Not applicable

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Inspection

INFOID:0000000012347501

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.

Axial end play : Refer to FAX-35, "Wheel Bearing".

- Rotate wheel hub and bearing assembly 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

Inspection

INFOID:0000000012347502

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

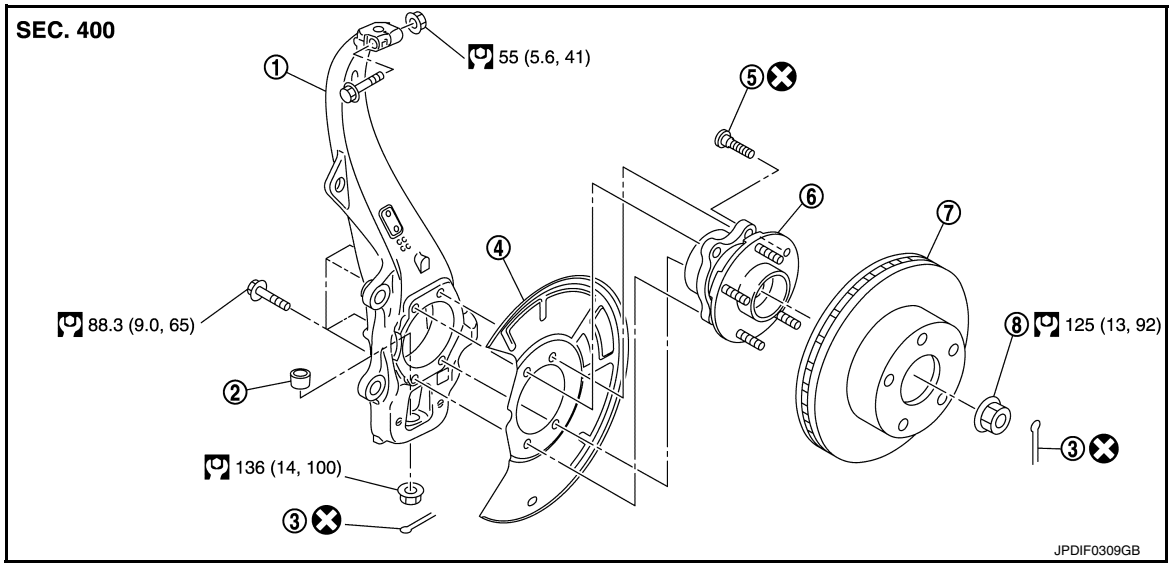
CAUTION:
Replace entire drive shaft assembly when noise or vibration occurs from drive shaft.

REMOVAL AND INSTALLATION

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000012347503



① Steering knuckle
② Ball seat
③ Cotter pin
④ Splash guard
⑤ Hub bolt
⑥ Wheel hub and bearing assembly
⑦ Disc rotor
⑧ Wheel hub lock nut

⊗ :Always replace after every disassembly.

:N·m (kg-m, ft-lb)

Removal and Installation

INFOID:0000000012347504

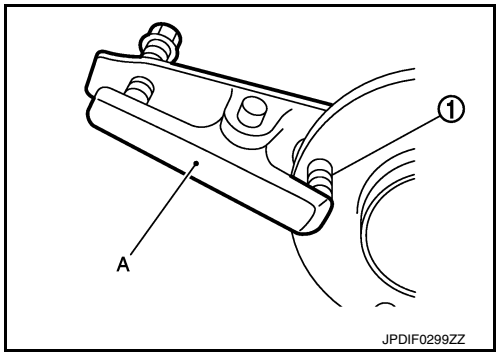
REMOVAL

1. Remove tires with power tool. Refer to WT-64, "Exploded View".
2. Remove wheel sensor and sensor harness. Refer to BRC-161, "FRONT WHEEL SENSOR : Removal and Installation".
   CAUTION:
   Never pull on wheel sensor harness.
3. Remove brake hose bracket from steering knuckle. Refer to BR-27, "FRONT : Removal and Installation".
4. Remove caliper assembly. Hang caliper assembly in a place where it will not interfere with work. Refer to BR-48, "BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Removal and Installation" (2 piston type) or BR-52, "BRAKE CALIPER ASSEMBLY (4 PISTON TYPE) : Removal and Installation" (4 piston type).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
5. Remove disc rotor.
   CAUTION:
   - **Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.**
   - **Never drop disc rotor.**
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 or 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.

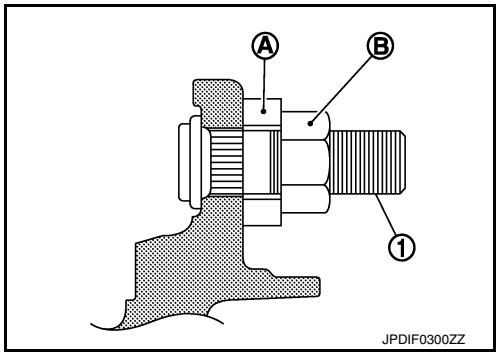
8. Remove shock absorber assembly. Refer to FSU-30, "Removal and Installation".
9. Remove wheel hub lock nut.
10. Remove wheel hub and bearing assembly, and then remove splash guard.
11. Separate steering outer socket from steering knuckle. Refer to ST-51, "AWD : Removal and Installation".
    CAUTION:
    Never damage ball joint boot.
12. Remove cotter pin of transverse link and steering knuckle, and then loosen nut.
13. Separate steering knuckle from transverse link, using the ball joint remover (commercial service tool), and remove steering knuckle.
    CAUTION:
    - **Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.**
    - **Never damage ball joint boot.**
14. Remove steering knuckle.
15. Remove hub bolts ① from wheel hub and bearing assembly, using the ball joint remover (A) (commercial service tool).
    CAUTION:
    - **Remove hub bolt only when necessary.**
    - **Never hammer the hub bolt to avoid impact to the wheel hub and bearing assembly.**
    - **Pull out the hub bolt in a direction perpendicular to the wheel hub and bearing assembly.**



INSTALLATION

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

- Place a washer Ⓐ as shown in the figure to install the hub bolts ① by using the tightening force of the nut Ⓑ.
  CAUTION:
  - **Check that there is no clearance between wheel hub and bearing assembly, and hub bolt.**
  - **Never reuse hub bolt.**
- Clean the matching surface of wheel hub lock nut and wheel hub and bearing assembly.
  CAUTION:
  Never apply lubricating oil to these matching surface.
- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
  CAUTION:
  Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.
- Align the matching marks that have been made during removal when reusing the disc rotor.
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and steering knuckle.
- Never reuse cotter pin.



Inspection

INFOID:0000000012347505

INSPECTION AFTER REMOVAL

Check components for deformation, cracks, and other damage. Replace it if necessary.

Ball Joint Inspection

Check boots of transverse link, upper link, and steering outer socket ball joint for breakage, axial play, and torque. Refer to FSU-34, "Inspection", FSU-36, "Inspection", and ST-58, "AWD : Inspection".

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to BRC-161, "FRONT WHEEL SENSOR : Exploded View".
2. Check the wheel alignment. Refer to FSU-28, "Inspection".
3. Adjust neutral position of steering angle sensor. Refer to BRC-67, "Description".

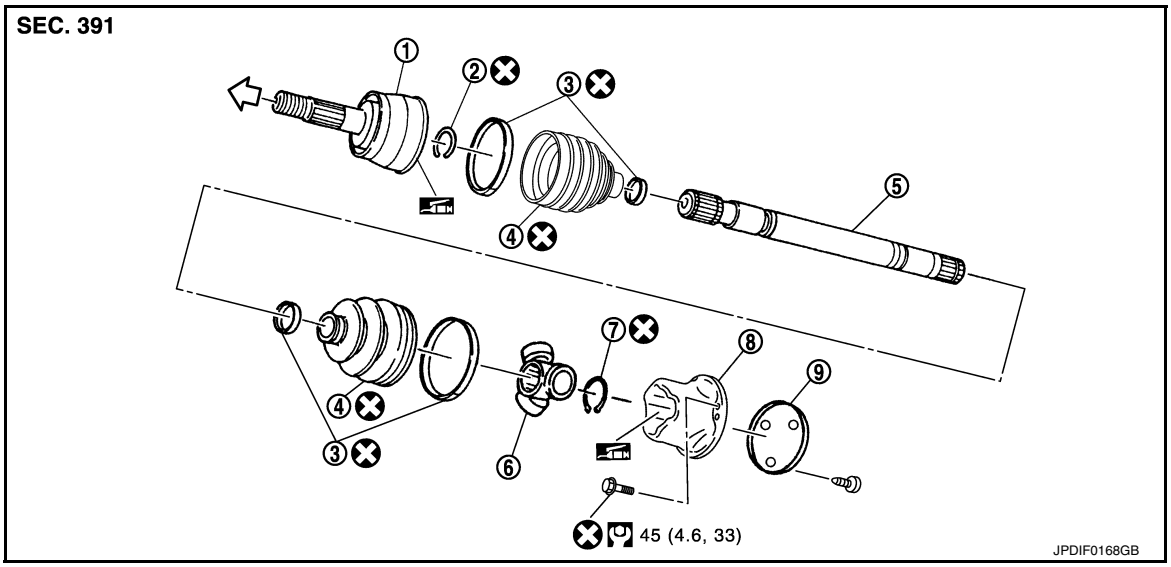
FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:0000000012347506

LEFT SIDE

VQ37VHR



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

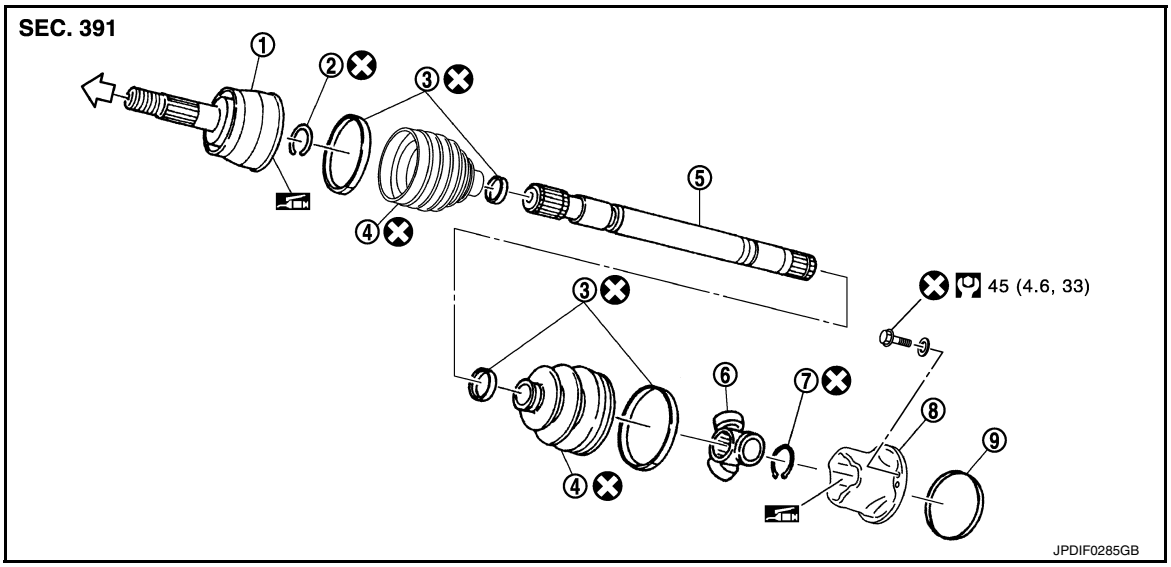
⇦ : Wheel side

⊗ :Always replace after every disassembly.

:N·m (kg-m, ft-lb)

:NISSAN genuine grease or an equivalent.

VK56VD



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

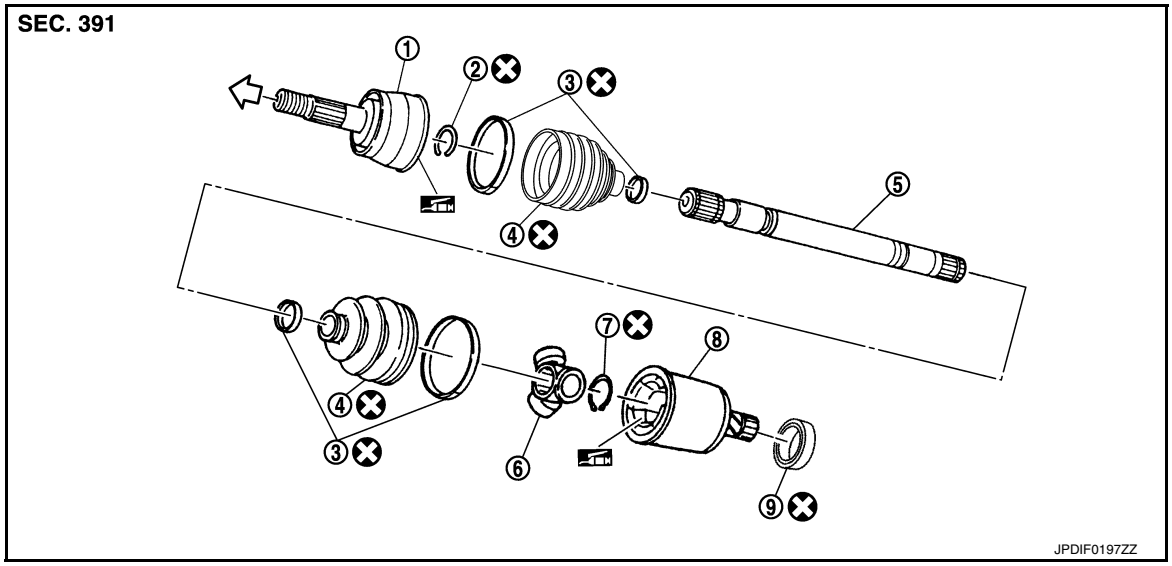
: Wheel side

:Always replace after every disassembly.

:N·m (kg-m, ft-lb)

:NISSAN genuine grease or an equivalent.

RIGHT SIDE



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

: Wheel side

:Always replace after every disassembly.

:NISSAN genuine grease or an equivalent.

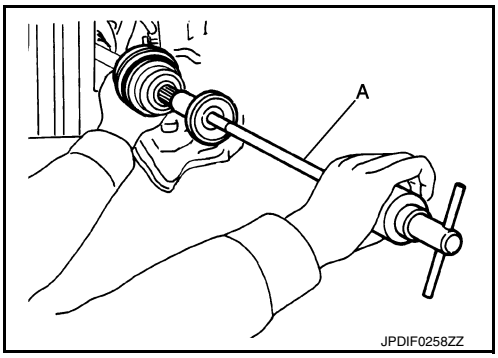
WHEEL SIDE

WHEEL SIDE : Removal and Installation

INFOID:0000000012347507

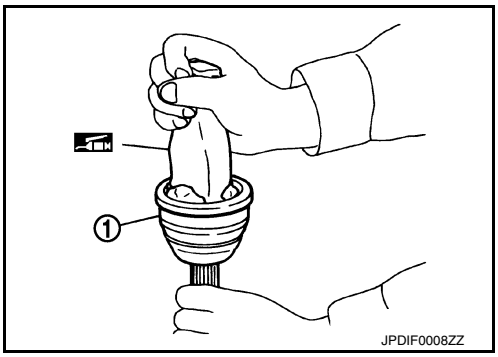
REMOVAL

1. Remove shock absorber. Refer to FSU-30, "Removal and Installation".
2. Remove wheel hub lock nut. Refer to FAX-18, "Removal and Installation".
3. Remove drive shaft from steering knuckle.
4. Remove boot bands, and then remove boot from joint sub-assembly.
5. Screw drive shaft puller (A) (commercial service tool) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and remove 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.**
6. Remove circular clip from shaft.
7. Remove boot from shaft.

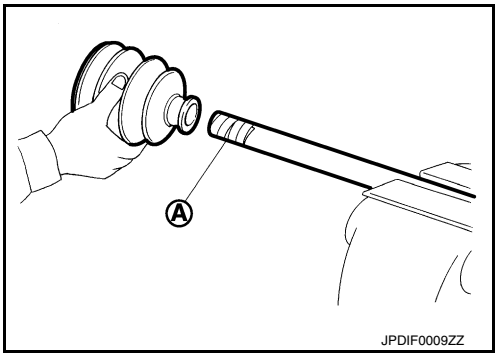


INSTALLATION

1. Clean the old grease on joint sub-assembly with paper waste.
2. Fill serration slot joint sub-assembly ① with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.
CAUTION:
After applying grease, use a paper waste to wipe off old grease that has oozed out.

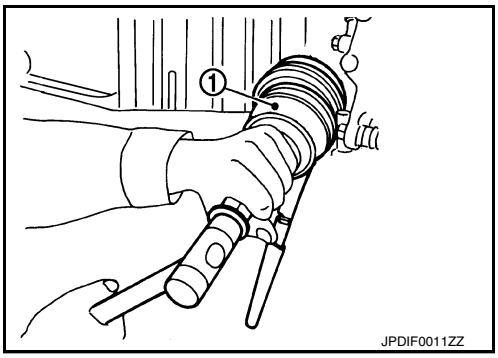


3. Install boot and boot bands to shaft.
CAUTION:
- **Wrap serration on shaft with tape Ⓐ to protect the boot from damage.**
- **Never reuse boot and boot band.**
4. Remove the tape wrapped around the serration on shaft.
5. Position circular clip on groove at the shaft edge.
CAUTION:
Never reuse circular clip.
6. Align both center axles of the shaft edge and joint sub-assembly.



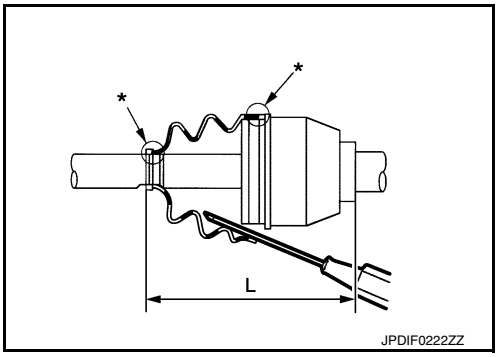
7. Install joint sub-assembly ① to shaft using plastic hammer.
CAUTION:
Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.
8. Fill serration slot joint sub-assembly with NISSAN genuine grease or equivalent until the serration slot and ball grove become full to the brim.

Grease amount : Refer to FAX-35, "Drive Shaft".



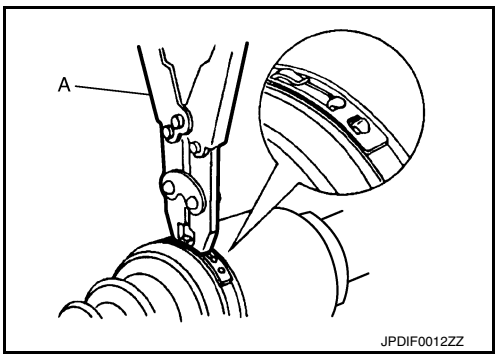
9. Install the boot securely into grooves (indicated by "*" marks) shown in the figure.
CAUTION:
If grease adheres to the boot mounting surface (indicated by "*" mark) on the shaft or joint sub-assembly, boot may come off. Remove all grease from the surface.
10. To prevent the deformation of the boot, 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-35, "Drive Shaft".



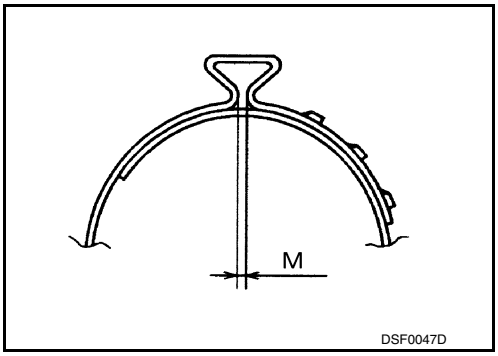
CAUTION:
- **If the boot installation length is outside the standard, it may cause breakage of boot.**
- **Be careful not to touch the inside of the boot with a tip of tool.**

11. Secure the ends of the boot with boot bands using the boot band crimping tool (A) [SST: KV40107300 (–)].
CAUTION:
- **Never reuse boot band.**



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

M : 2.0 – 3.0 mm (0.079 – 0.118 in)



12. Check that location stays in the correct position when joint hub assembly and shaft are secured and boot is rotated.
CAUTION:
- **Install again when location does not stay in the correct position.**
- **Never reuse boot band.**
13. Clean contact surface of wheel hub lock nut and wheel hub assembly.
CAUTION:
Never apply lubricating oil to these matching surface.
14. Insert drive shaft to wheel hub assembly, and then temporarily tighten wheel hub lock nut.
CAUTION:
When tightening temporarily, always tighten to a torque that is less than the specified torque.
15. Install shock absorber. Refer to FSU-30, "Removal and Installation".
16. Tighten wheel hub lock nut to the specified torque. Refer to FAX-18, "Removal and Installation".
CAUTION:
- **Always install drive shaft using tightening torque force of wheel hub lock nut. Refer to FAX-18, "Exploded View".**
- **Never use an impact wrench or similar substance for tightening wheel hub lock nut.**

FINAL DRIVE SIDE

FINAL DRIVE SIDE : Removal and Installation

INFOID:0000000012347508

Remove boot after drive shaft is removed from the vehicle.
- Remove and install drive shaft. Refer to FAX-27, "LEFT SIDE : Removal and Installation" (Left side) and FAX-28, "RIGHT SIDE : Removal and Installation" (Right side).
- Disassemble and assemble drive shaft. Refer to FAX-30, "FINAL DRIVE SIDE : Disassembly and Assembly".

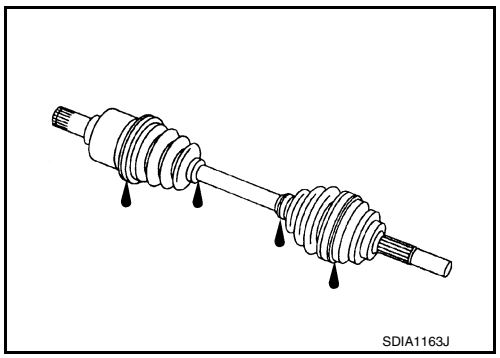
Inspection

INFOID:0000000012347509

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 INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to BRC-161, "FRONT WHEEL SENSOR : Exploded View".
2. Check the wheel alignment. Refer to FSU-28, "Inspection".
3. Adjust neutral position of steering angle sensor. Refer to BRC-67, "Description".

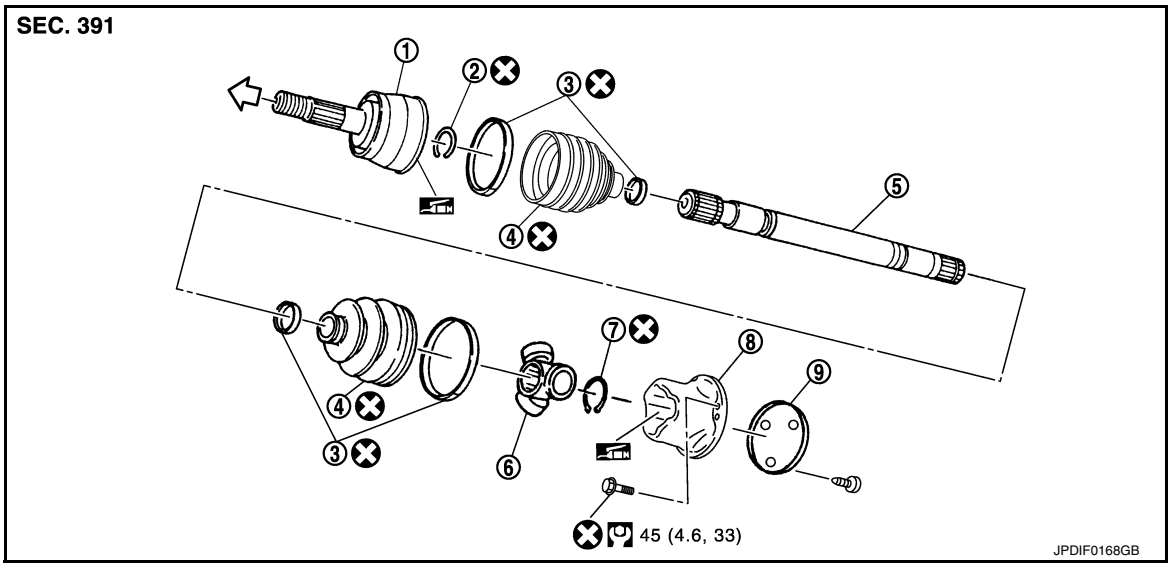
FRONT DRIVE SHAFT

Exploded View

INFOID:0000000012347510

LEFT SIDE

VQ37VHR



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

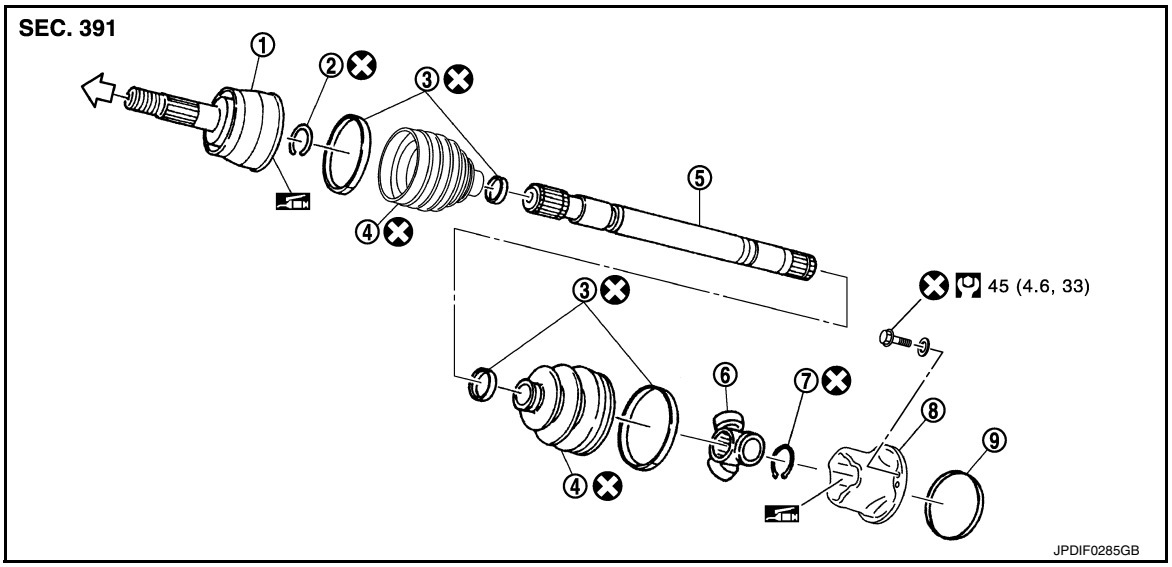
⇦ : Wheel side

⊗ :Always replace after every disassembly.

:N·m (kg-m, ft-lb)

:NISSAN genuine grease or an equivalent.

VK56VD



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

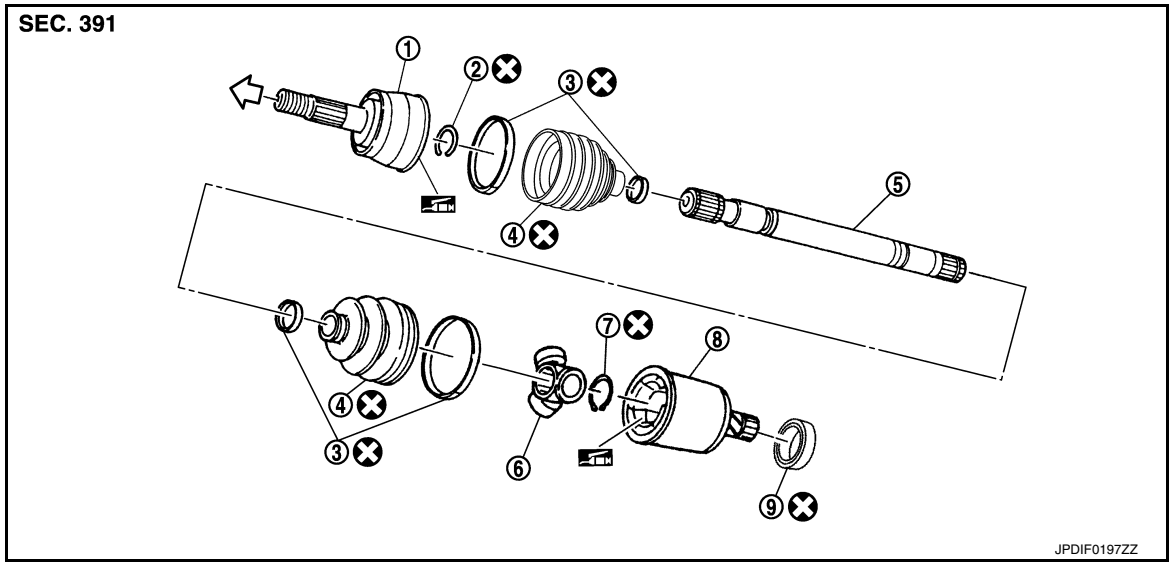
: Wheel side

:Always replace after every disassembly.

:N·m (kg-m, ft-lb)

:NISSAN genuine grease or an equivalent.

RIGHT SIDE



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

: Wheel side

:Always replace after every disassembly.

:NISSAN genuine grease or an equivalent.

LEFT SIDE

LEFT SIDE : Removal and Installation

INFOID:0000000012347511

REMOVAL

1. Remove the shock absorber. Refer to FSU-30, "Removal and Installation".
2. Remove wheel hub lock nut. Refer to FAX-18, "Removal and Installation".
3. Remove drive shaft from steering knuckle.
4. Remove drive shaft mounting bolts from side shaft. (VQ37VHR)
5. Remove drive shaft mounting bolts and washers from side shaft. (VK56VD)
6. Remove drive shaft from vehicle.

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

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

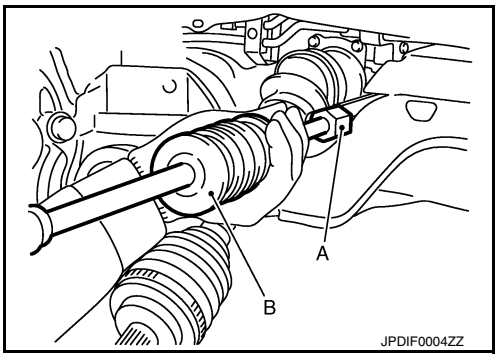
RIGHT SIDE

RIGHT SIDE : Removal and Installation

INFOID:0000000012347512

REMOVAL

1. Remove the shock absorber. Refer to FSU-30, "Removal and Installation".
2. Remove wheel hub lock nut. Refer to FAX-18, "Removal and Installation".
3. Remove drive shaft from steering knuckle.
4. Remove drive shaft from front final drive using the drive shaft attachment (A) [SST: KV40107500 (–)] and a sliding hammer (B) (commercial service tool) 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.

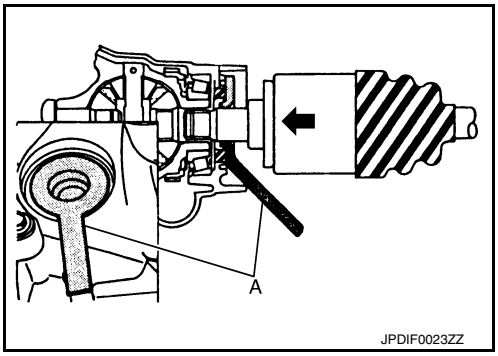


INSTALLATION

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

Final Drive Side

- Replace front final drive side oil seal. Refer to DLN-128, "RIGHT SIDE : Removal and Installation".
- Place the protector (A) [SST: KV38107900 (–)] onto 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.
  CAUTION:
  Check that circular clip is completely engaged.



Wheel 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.
- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
  CAUTION:
  Be sure to use torque wrench to tighten the wheel hub lock nut. Never use a power tool.
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing assembly and steering knuckle.

WHEEL SIDE

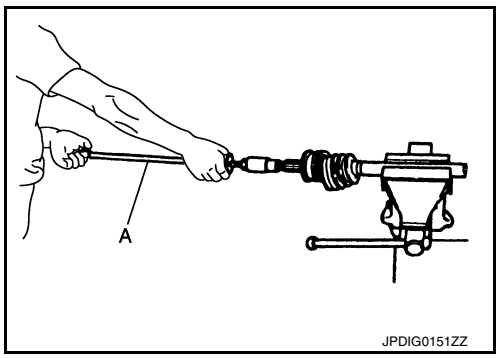
WHEEL SIDE : Disassembly and Assembly

INFOID:0000000012347513

DISASSEMBLY

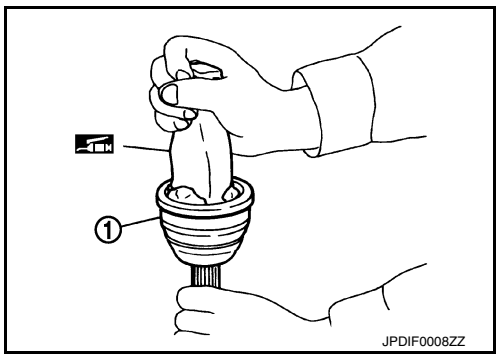
1. Fix shaft with a vise.
   CAUTION:
   Protect shaft when fixing with a vise using aluminum or copper plates.
2. Remove boot bands, and then remove boot from joint sub-assembly.

3. Screw drive shaft puller (A) (commercial service tool) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and remove joint sub-assembly 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.**
4. Remove circular clip from shaft.
5. Remove boot from shaft.

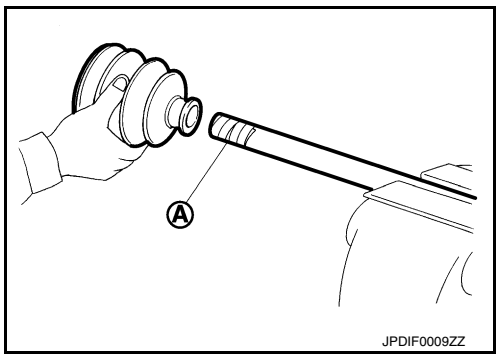


ASSEMBLY

1. Clean the old grease on joint sub-assembly with paper waste.
2. Fill serration slot joint sub-assembly (1) with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.
CAUTION:
After applying grease, use a paper waste to wipe off old grease that has oozed out.

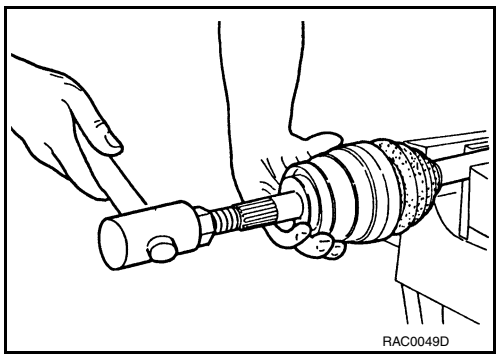


3. Install boot and boot bands to shaft.
CAUTION:
- **Wrap serration on shaft with tape (A) to protect the boot from damage.**
- **Never reuse boot and boot band.**
4. Remove the tape wrapped around the serration on shaft.
5. Position circular clip on groove at the shaft edge.
CAUTION:
Never reuse circular clip.
6. Align both center axles of the shaft edge and joint sub-assembly. Then assemble shaft with circular clip joint sub-assembly.

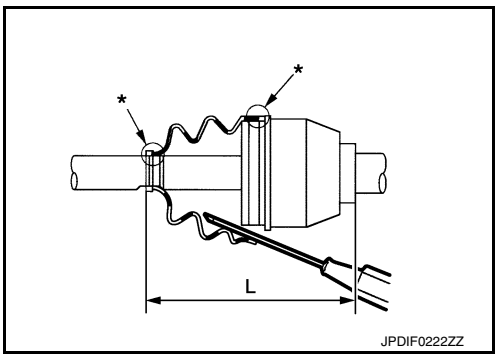


7. Install joint sub-assembly to shaft using plastic hammer.
CAUTION:
Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.
8. Apply the balance of the specified amount of grease into the boot inside from large diameter side of boot.

Grease amount : Refer to FAX-35, "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 come off. Remove all grease from the surface.

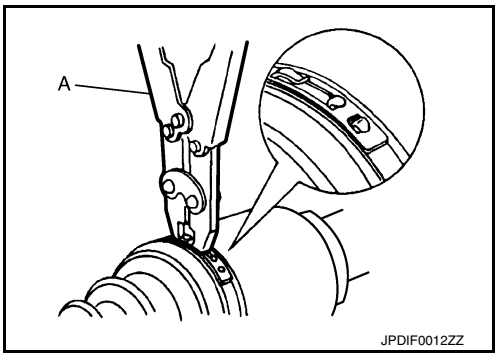


10. To prevent the deformation of the boot, adjust the boot installation length (L) to the specified value shown below by inserting the suitable tool into inside of the boot from the large diameter side of the boot and discharging the inside air.

L : Refer to FAX-35, "Drive Shaft".

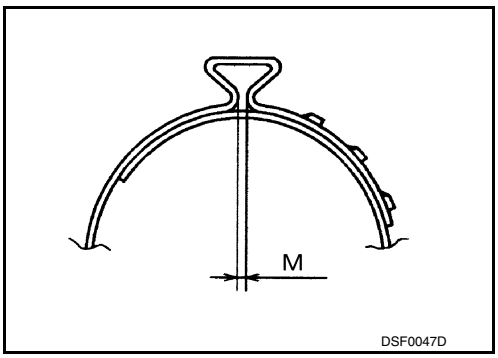
CAUTION:
- **If the boot installation length is outside the standard, it may cause breakage of the boot.**
- **Be careful not to touch the inside of the boot with a tip of tool.**

11. Secure the ends of the boot with boot bands using the boot band crimping tool (A) [SST: KV40107300 (–)].
CAUTION:
- **Never reuse boot band.**



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

M : 2.0 – 3.0 mm (0.079 – 0.118 in)



12. Check that location stays in the correct position when joint hub assembly and shaft are secured and boot is rotated.
CAUTION:
- **Install again when location does not stay in the correct position.**
- **Never reuse boot band.**

FINAL DRIVE SIDE

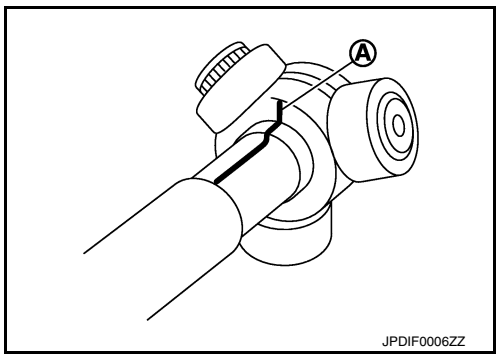
FINAL DRIVE SIDE : Disassembly and Assembly

INFOID:0000000012347514

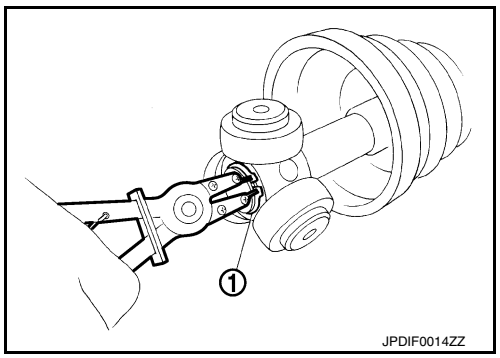
DISASSEMBLY

1. Fix shaft with a vise.
CAUTION:
Protect shaft when fixing with a vise using aluminum or copper plates.
2. Remove boot bands, and then remove boot from housing.
3. 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.
4. Remover housing from spider assembly.

5. Put matching marks Ⓐ on the spider assembly and shaft.
CAUTION:
Use paint or similar substance for matching marks. Never scratch the surfaces.

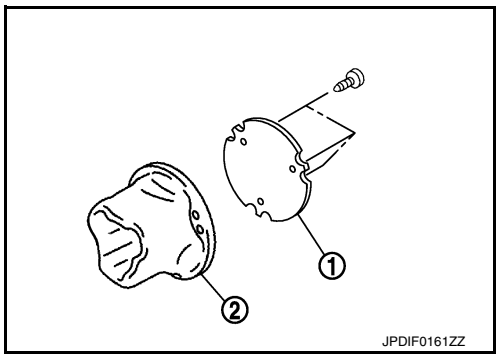


6. Remove snap ring ①, and then remove spider assembly from the shaft.
7. Remove boot from the shaft.
8. Remove dust shield from housing. (Right side)
9. Remove plug from housing. (Left side)

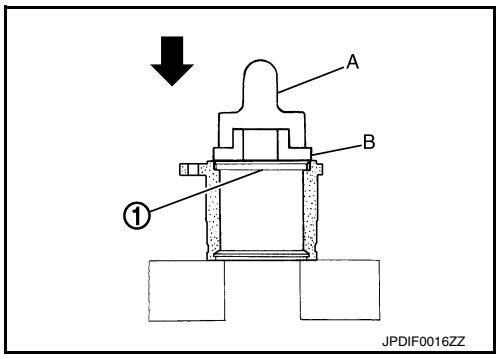


ASSEMBLY

1. Clean old grease on housing with paper waste.
2. Plug has been removed, install with the following procedure. (Left side)
   - Install plug ① to housing ② with screw. (VQ37VHR)



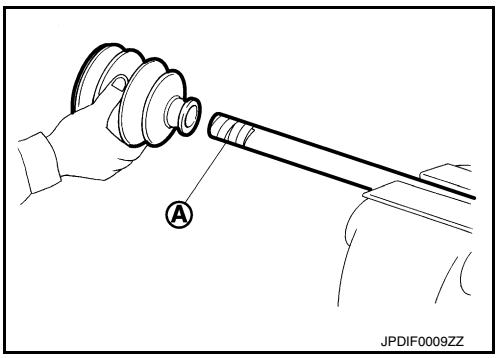
   - Install plug ① to housing with drift. (VK56VD)



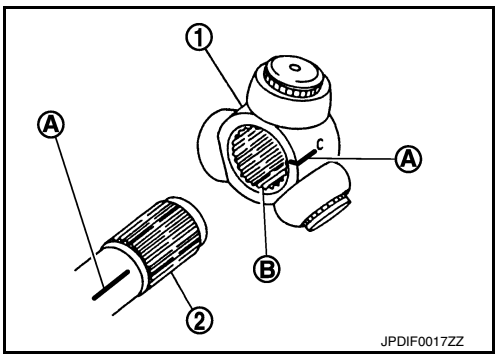
   ⬅ : Press
   A : Drift [SST: KV38100500 (–)]
   B : Drift [SST: KV38102200 (–)]

3. Install dust shield to housing. (Right side)
CAUTION:
Never reuse dust shield.

4. Wrap serration on shaft with tape Ⓐ to protect boot from damage. Install boot and boot bands to shaft.
CAUTION:
Never reuse boot and boot band.
5. Remove the tape wrapped around the serration on shaft.

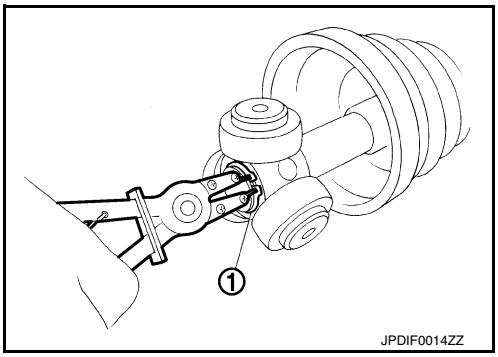


6. Install the spider assembly ①, align it with the matching marks Ⓐ on the shaft ② during the removal, and direct the serration mounting surface Ⓑ to the shaft.

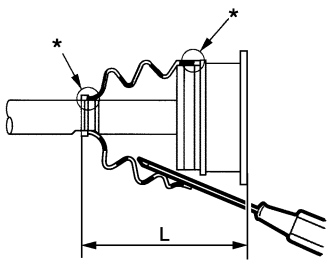
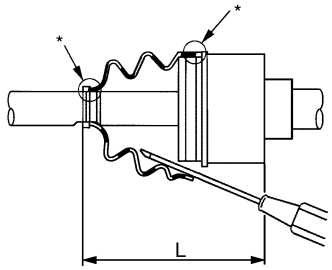


7. Secure spider assembly onto shaft with snap ring ①.
CAUTION:
Never reuse snap ring.
8. Apply the appropriate amount of grease to spider assembly and sliding surface.
9. Assemble the housing onto spider assembly, and apply the balance of the specified amount grease.

Grease amount : Refer to FAX-35, "Drive Shaft".



10. Align matching marks painted when housing was removed.
11. 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 shaft or housing, boot may come off. Remove all grease from the surface.

Left side	Right side
	

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

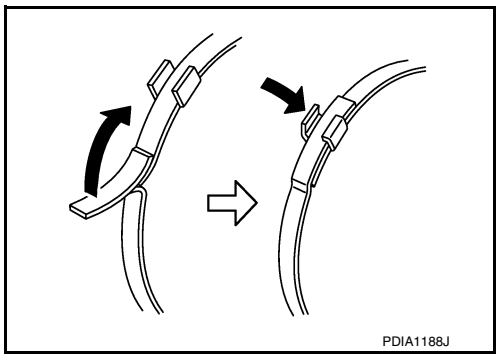
L : Refer to FAX-35, "Drive Shaft".

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

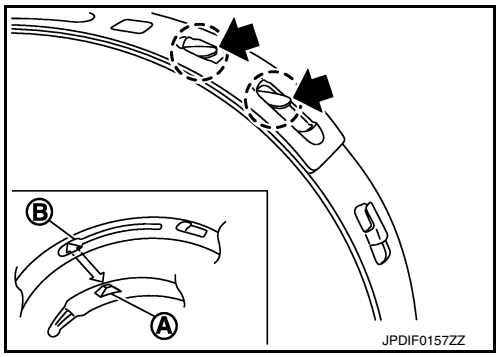
13. Install boot bands securely.

CAUTION:
Never reuse boot band.

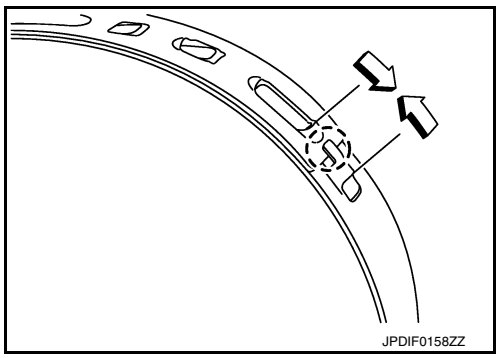
For one-touch clamp band
- Install boot bands securely as show in the figure.



For low profile type band
1. 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 Ⓐ and guide slit Ⓑ at first.



2. Pinch projection on the band with suitable pliers to tighten band.
3. Insert the tip of band into the lower part of pawl (marked with dotted circle) as shown in the figure.



14. Align matching marks painted when housing was removed.
15. Check that location stays in the correct position when housing and shaft are secured and boot is rotated.

CAUTION:
- **Install again when location does not stay in the correct position.**
- **Never reuse boot band.**

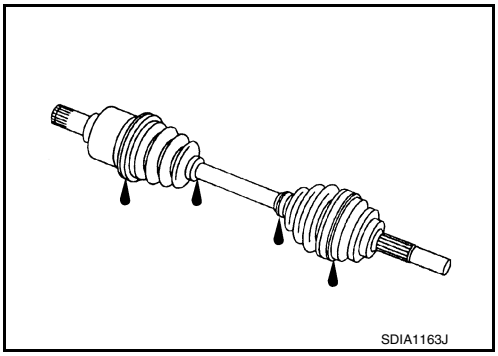
Inspection

INFOID:0000000012347515

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 it if necessary.

Joint Sub-Assembly (Wheel Side)

Check the following items, replace the parts if necessary.

- 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 (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.

INSPECTION AFTER INSTALLATION

1. Check wheel sensor harness for proper connection. Refer to BRC-161, "FRONT WHEEL SENSOR : Exploded View".
2. Check the wheel alignment. Refer to FSU-28, "Inspection".
3. Adjust neutral position of steering angle sensor. Refer to BRC-67, "Description".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000012347516

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

Drive Shaft

INFOID:0000000012347517

VQ37VHR

Item		Left side	Right side
Grease quantity	Wheel side	77 – 97 g (2.72 – 3.42 oz)	
	Final drive side	95 – 105 g (3.36 – 3.70 oz)	113 – 123 g (3.99 – 4.33 oz)
Boots installed length	Wheel side	136 mm (5.35 in)	
	Final drive side	152 mm (5.98 in)	158.6 mm (6.24 in)

VK56VD

Item		Left side	Right side
Grease quantity	Wheel side	77 – 97 g (2.72 – 3.42 oz)	
	Final drive side	95 – 105 g (3.36 – 3.70 oz)	113 – 123 g (3.99 – 4.33 oz)
Boots installed length	Wheel side	136 mm (5.35 in)	
	Final drive side	149.5 mm (5.89 in)	158.6 mm (6.24 in)