SECTION FAX
FRONT AXLE

CONTENTS

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000010297289

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

Reference page			—	FAX-28	—	FAX-10	—	FAX-8	NVH in FAX and FSU sections	Refer to Front axle in this chart	NVH in WT section	NVH in WT section	Refer to DRIVE SHAFT in this chart	NVH in BR section	NVH in ST section
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	DRIVE SHAFT	Noise	×	×				×	×	×	×	×		×	×
		Shake	×		×			×	×	×	×	×		×	×
	FRONT AXLE	Noise				×	×	×	×		×	×	×	×	×
		Shake				×	×	×	×		×	×	×	×	×
		Vibration				×	×	×	×		×		×		×
		Shimmy				×	×		×		×	×		×	×
		Judder				×			×		×	×		×	×
		Poor quality ride or handling				×	×		×		×	×			

×: Applicable

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010297290

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 “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.**

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010297291

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- **This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).**
- **Remove and install all control units after disconnecting both battery cables with the ignition switch in the LOCK position.**
- **Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.**

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, 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. Use the Intelligent Key or mechanical key to turn the ignition switch to the ACC position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

5. When the repair work is completed, return the ignition switch to the LOCK position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT.

Precautions for Drive Shaft

INFOID:0000000010297292

CAUTION:

Note 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 dust-free location.**
- **Before disassembling and assembling, clean the parts.**
- **Prevent the entry of foreign objects during disassembly of the service location.**
- **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.**
- **When disassembling a joint or disassembling the drive shaft from the transaxle, when exists, replace the circlip.**

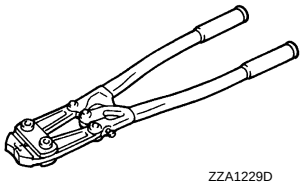
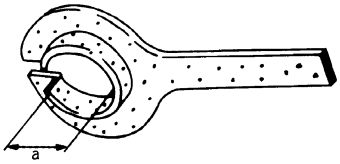
PREPARATION

PREPARATION

Special Service Tool

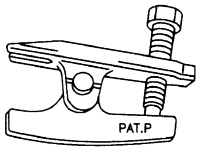
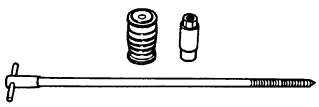
INFOID:0000000010450964

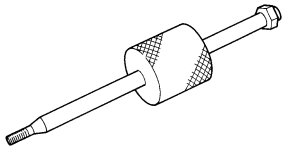
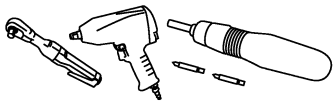
The actual shape of the tools may differ from those illustrated here.

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  PDIA1183J	Installing drive shaft **a: 32 mm (1.26 in) dia.**

Commercial Service Tools

INFOID:0000000010450965

Tool name	Description
Ball joint remover  NT146	Removing wheel stud
Drive shaft puller  JPDIG0152ZZ	Removing drive shaft joint sub assembly

Tool name	Description
Sliding hammer  ZZA0023D	Removing drive shaft
Power tool  PIIB1407E	Loosening nuts, screws and bolts

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000010297294

Refer to FAX-10, "Exploded View".

Inspection

INFOID:0000000010297295

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-38, "Wheel Bearing".

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

FRONT DRIVE SHAFT

Inspection

INFOID:0000000010297296

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

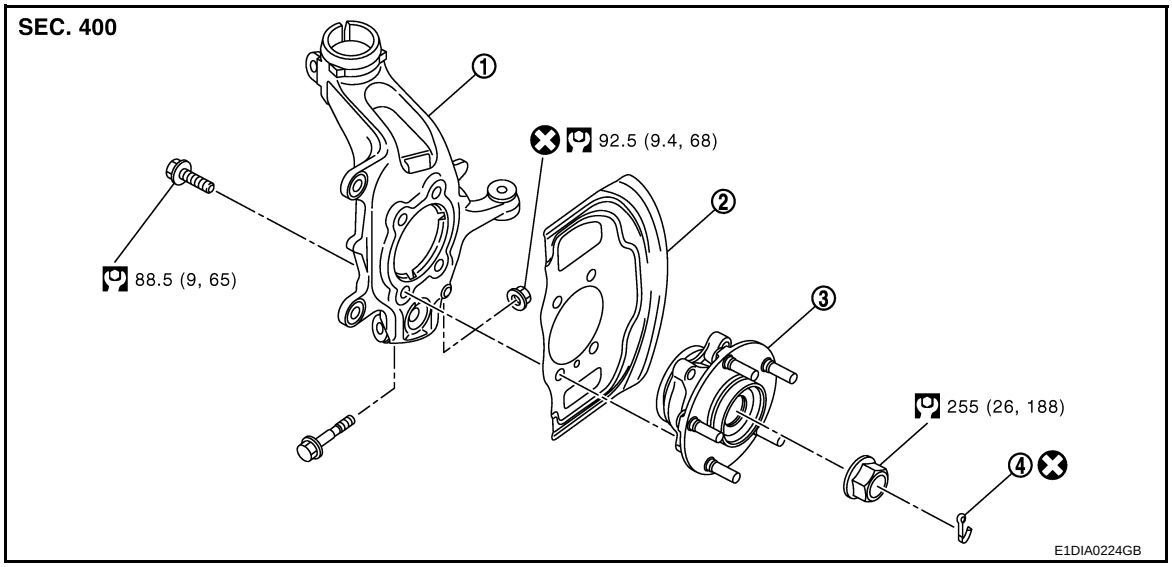
CAUTION:
Replace entire drive shaft assembly when noise or vibration occur from drive shaft.

REMOVAL AND INSTALLATION

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000010297297



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

Refer to GI-4, "Components" for symbols in the figure.

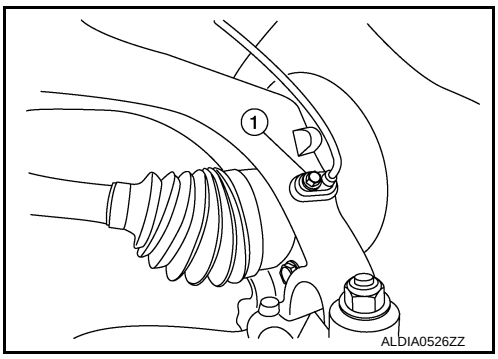
Removal and Installation

INFOID:0000000010297298

REMOVAL

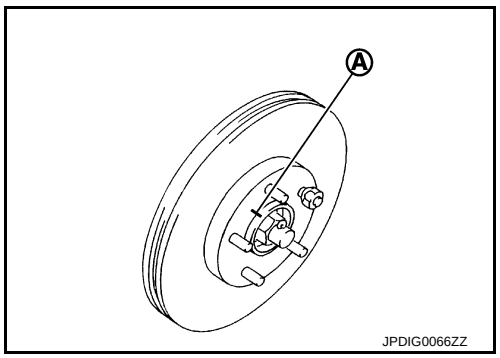
Wheel Hub and Bearing Assembly

1. Remove tires from vehicle.
2. Remove wheel sensor from steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Exploded View" .
   CAUTION:
   - **Failure to separate the front wheel sensor from the streering knucklemay result in damage to the front wheel sensor.**
   - **Pull out the front wheel sensor, being careful to turn it as little it possible. Do not pull on wheel sensor harness.**



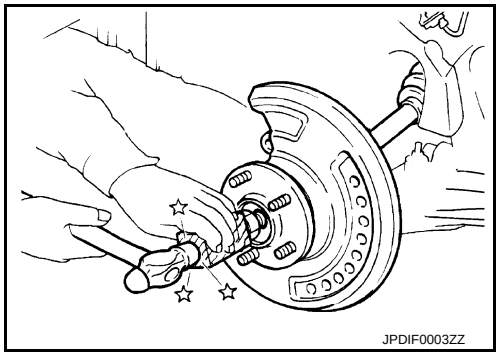
3. Remove lock plate from strut assembly. Refer to BR-19, "FRONT : Exploded View" (LHD), BR-63, "FRONT : Exploded View" (RHD).
4. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.

5. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.
CAUTION:
Never drop the disc brake rotor.
6. Remove disc rotor.
7. Remove cotter pin, and then loosen hub lock nut.



8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.
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.**

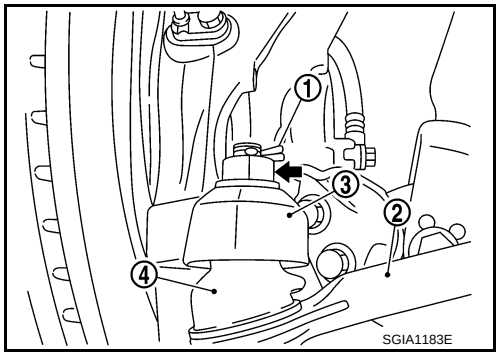
NOTE:
Use suitable puller, if wheel hub and bearing assembly and drive shaft cannot be separated even after performing the above procedure.



9. Remove the engine side cover.
10. Remove the lower nut and bolt from the steering knuckle. Refer to FAX-10, "Exploded View".
11. Separate transverse link from steering knuckle.
12. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to FAX-14, "Exploded View".
13. Remove the wheel hub and bearing bolts using power tool.
14. Remove the splash guard and the wheel hub and bearing from the steering knuckle.

Steering knuckle

1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove cotter pin (1) of steering outer socket, and then loosen the nut.
3. Remove steering outer socket (2) from steering knuckle (3) using the ball joint remover so as not damage ball joint boot (4).
CAUTION:
Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.
4. Remove transverse link from steering knuckle.
5. Remove steering knuckle from strut assembly.
6. Remove steering knuckle from vehicle.



INSTALLATION

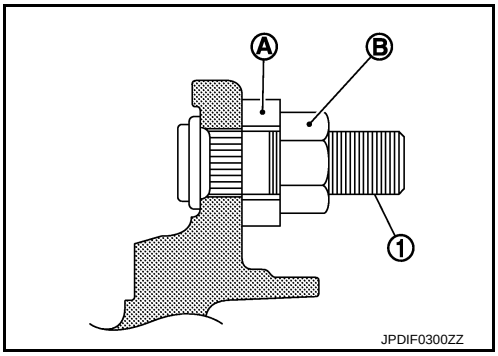
Note the following, and install in the reverse order of the removal.
- Under unladen conditions perform the final tightening of each parts removed when removing wheel hub and bearing assembly and steering knuckle.

CAUTION:
- **Never reuse the wheel stud.**
- **Never reuse the cotter pin.**

Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).

CAUTION:

Check that there is no clearance between the wheel stud and the wheel hub and bearing.



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

CAUTION:

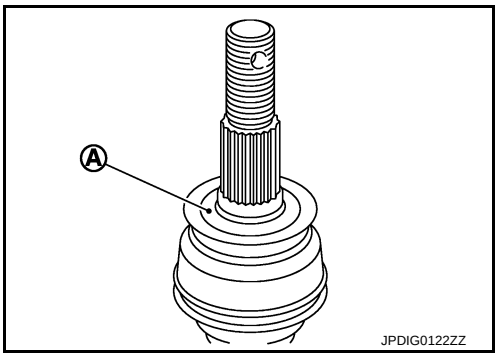
Never apply lubricating oil to these mating surfaces.

- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. pply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant **FAX-37, "Drive Shaft"**



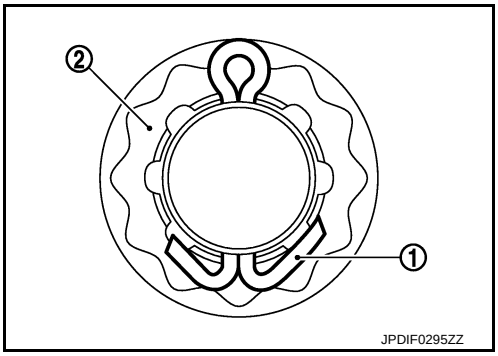
NOTE:

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

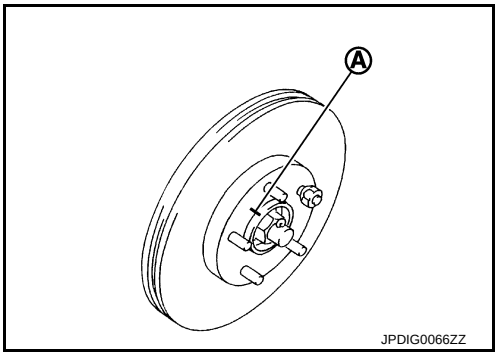
- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.

CAUTION:

- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- When installing a the cotter pin (1) and the nut retainer (2), securely bend the cotter pin to prevent rattles.



- Align the matching marks (A) on the disc brake rotor and on the wheel hub and bearing.



- Complete the inspection. Refer to FAX-8, "Inspection".

Inspection

INFOID:0000000010297299

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-6, "Inspection" and ST-14, "Inspection".

INSPECTION AFTER INSTALLATION

- Check the wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to BRC-64, "Work Procedure".

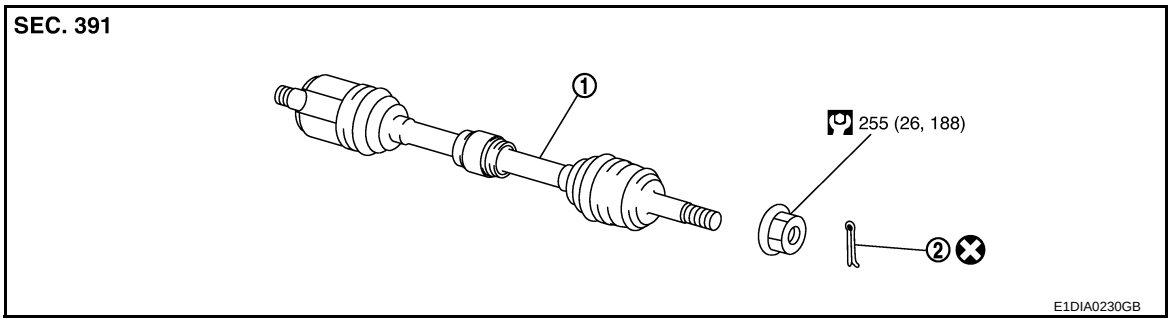
FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:0000000010297300

REMOVAL

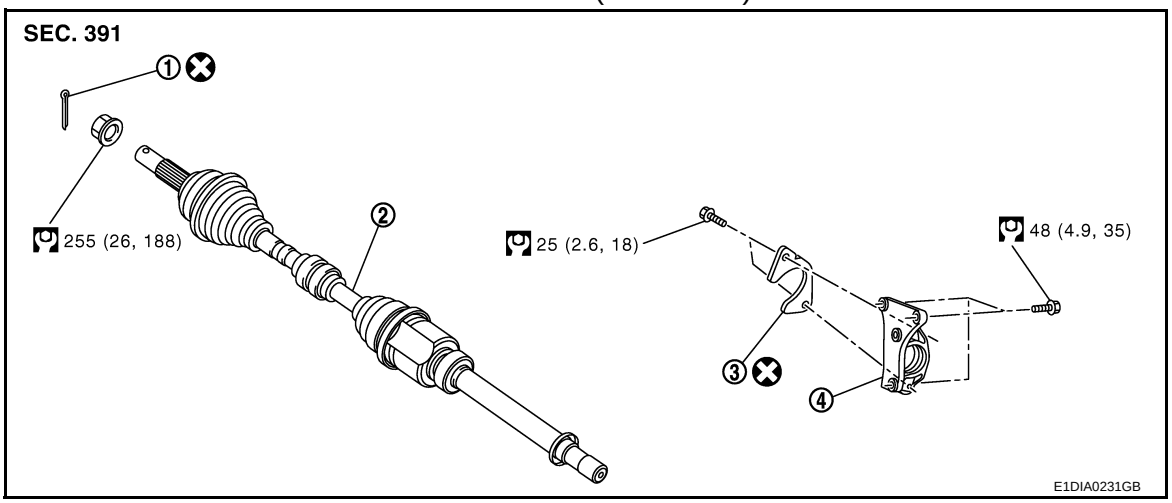
LEFT SIDE



1. Drive shaft
2. Cotter pin

Refer to GI-4, "Components" for symbols in the figure.

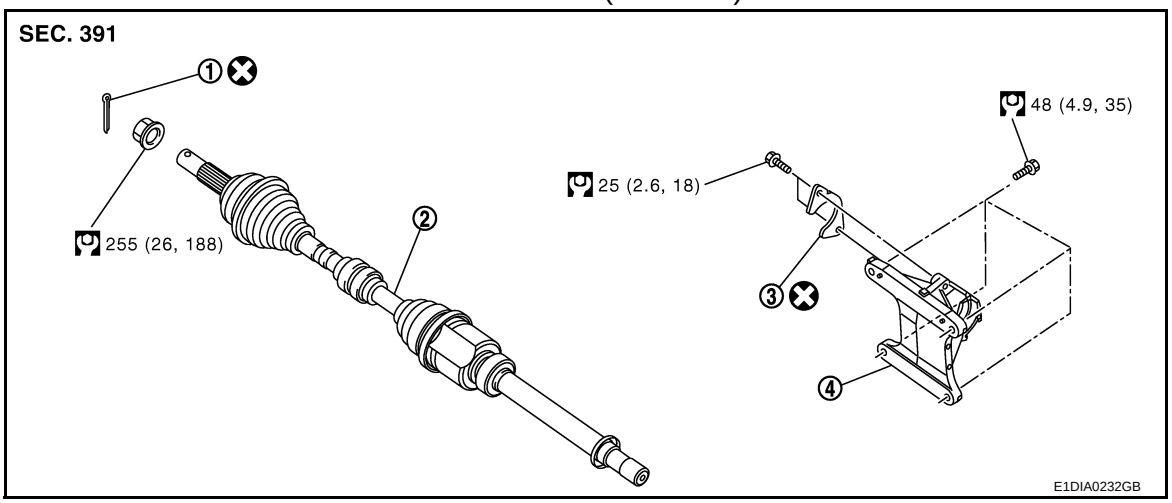
RIGHT SIDE (HRA2DDT)



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure.

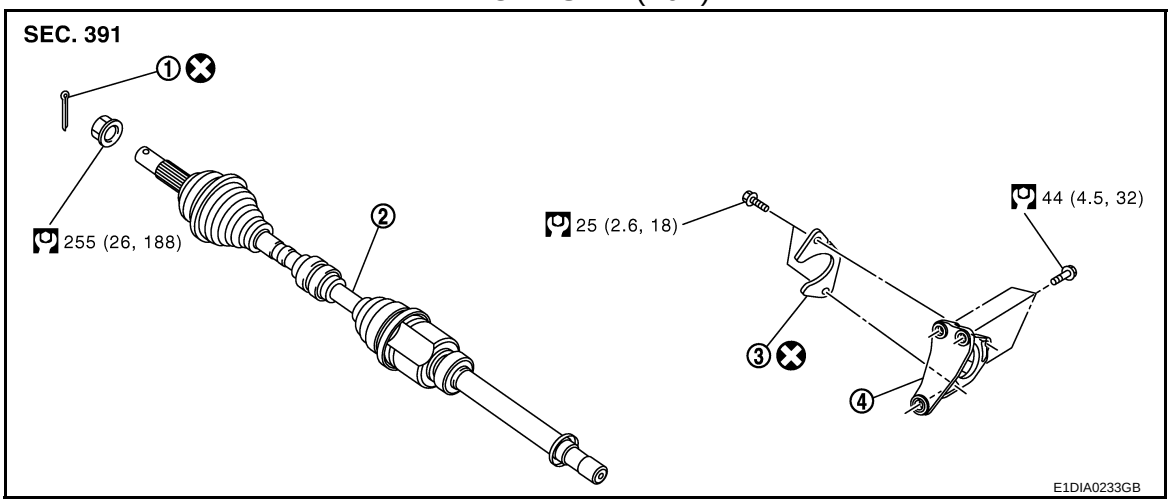
RIGHT SIDE (MR20DD)



1. Cotter pin 2. Drive shaft 3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure.

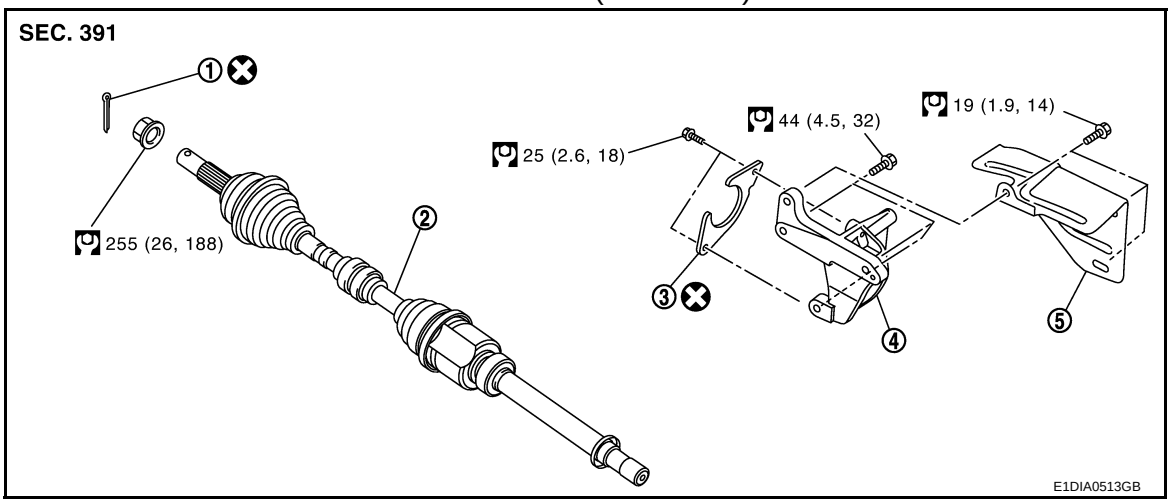
RIGHT SIDE (K9K)



1. Cotter pin 2. Drive shaft 3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure.

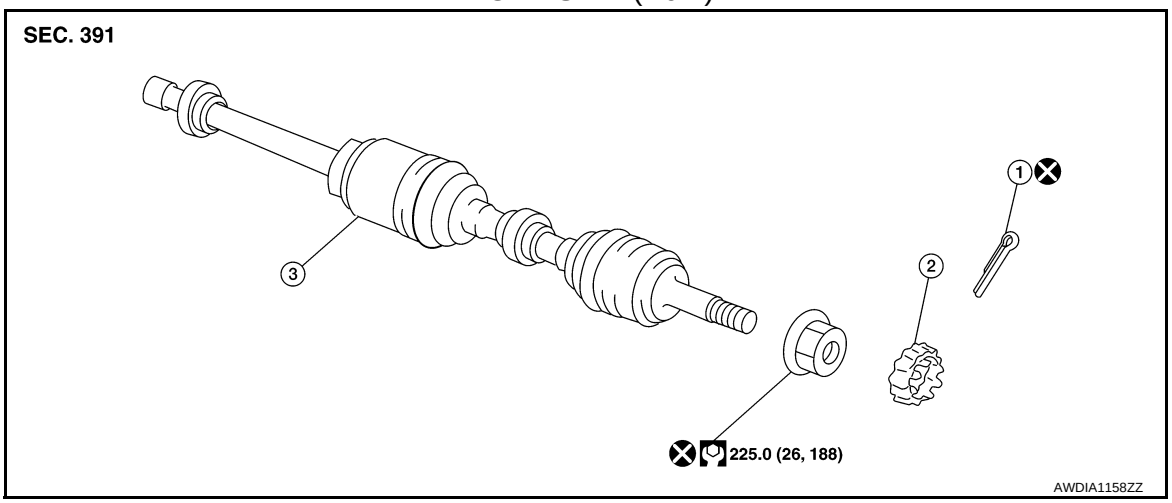
RIGHT SIDE (MR16DDT)



1. Cotter pin 2. Drive shaft 3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure.

RIGHT SIDE (R9M)

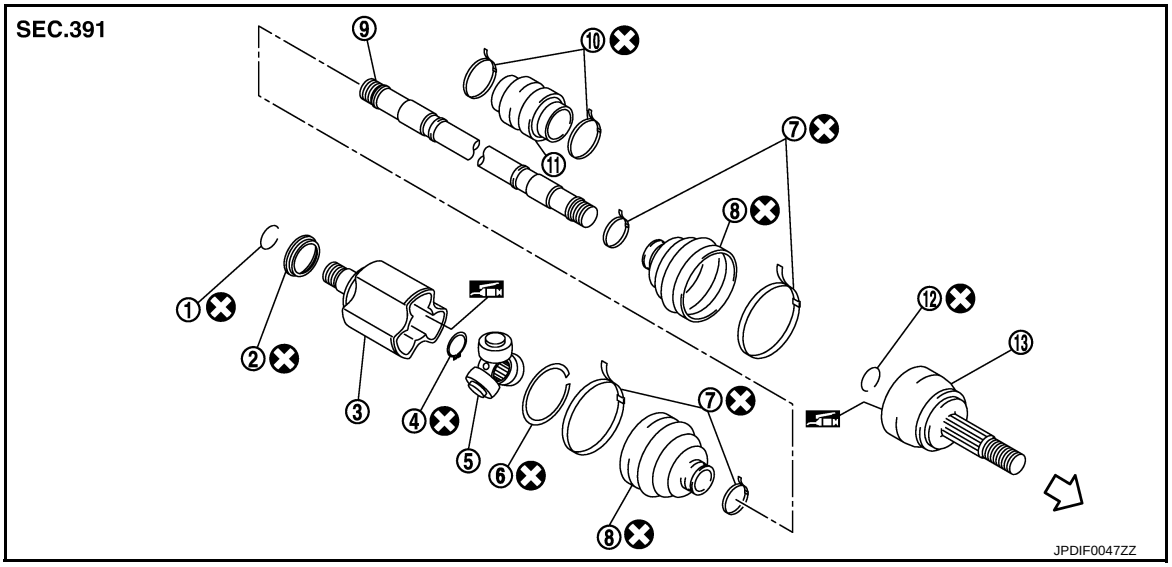


1. Cotter pin
2. Nut retainer
3. Drive shaft

Refer to GI-4, "Components" for symbols in the figure.

DISASSEMBLY

LEFT SIDE



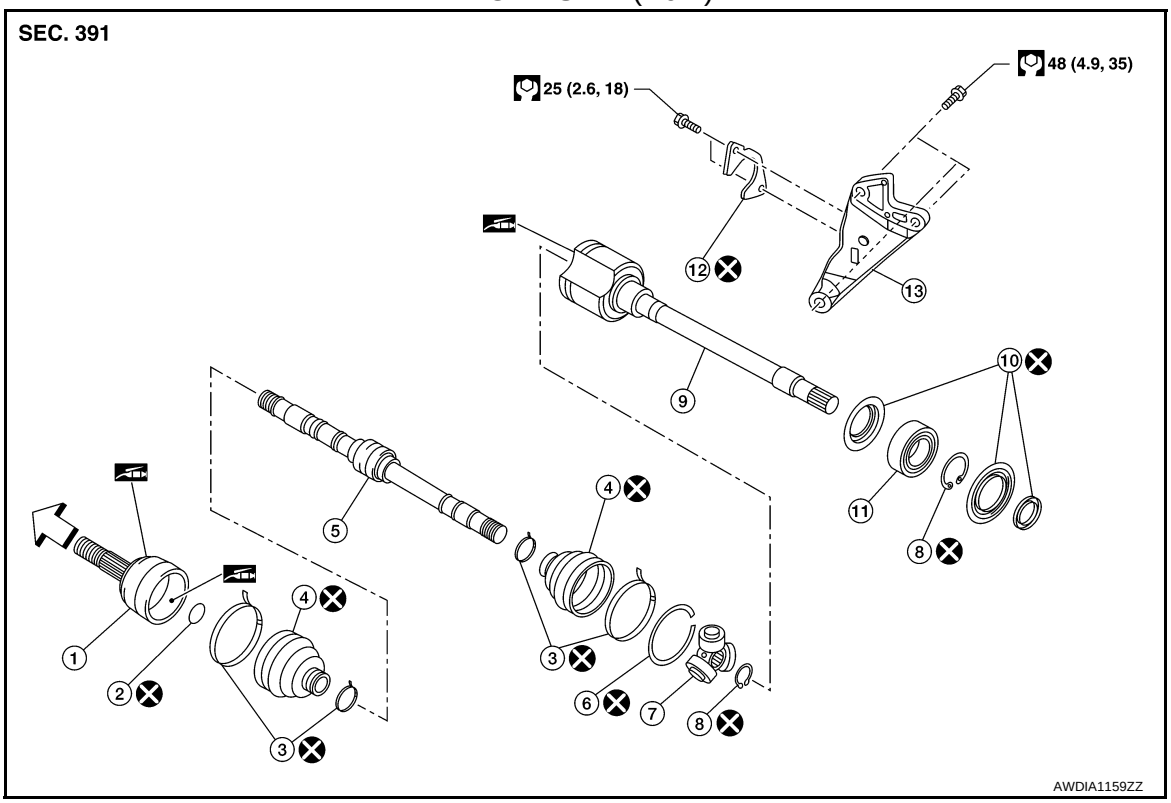
1. Circular clip
2. Dust shield
3. Housing
4. Snap ring
5. Spider assembly
6. stopper ring
7. Boot band
8. Boot
9. Shaft
10. Damper band
11. Dynamic damper
12. Circular clip
13. Joint sub-assembly

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

RIGHT SIDE (R9M)



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

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

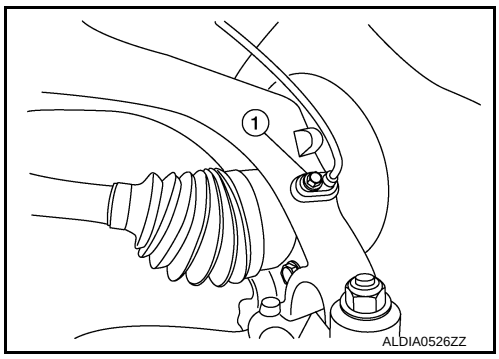
WHEEL SIDE

WHEEL SIDE : Removal and Installation

INFOID:0000000010432013

REMOVAL

1. Remove tires from vehicle.
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle.
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Never pull on wheel sensor harness.**
3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.



10. Dust shield
11. Support bearing
12. Plate
13. Support bearing bracket

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

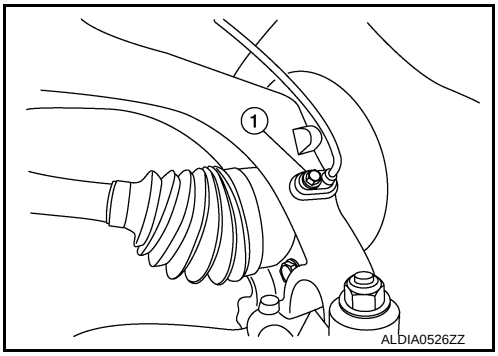
WHEEL SIDE

WHEEL SIDE : Removal and Installation

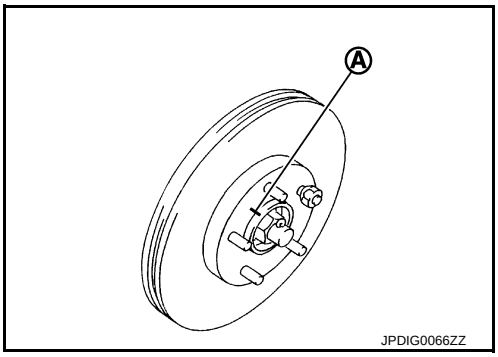
INFOID:0000000010432013

REMOVAL

1. Remove tires from vehicle.
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle.
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Never pull on wheel sensor harness.**

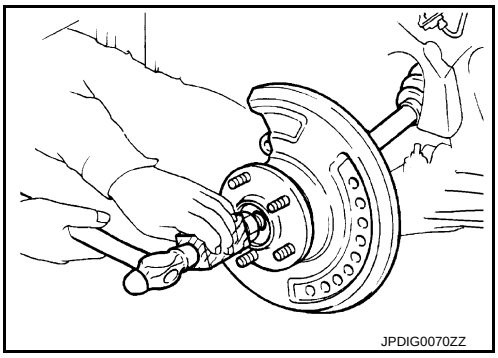


3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.
   CAUTION:
   Never drop the disc brake rotor.



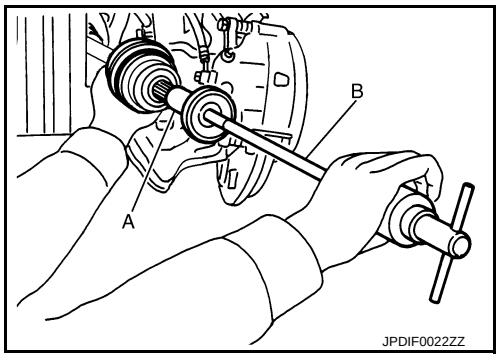
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.
   CAUTION:
   - **Never place the drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
   - **Never allow the drive shaft to hang down without support-for housing (or joint sub-assembly), shaft and the other parts.**

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

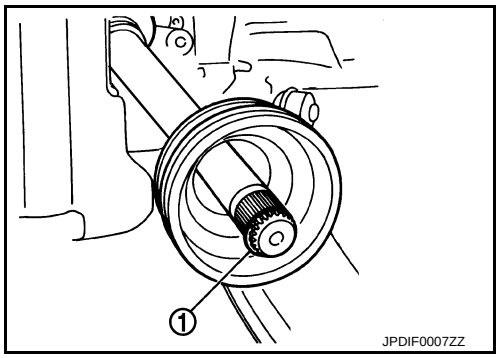


9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FAX-10, "Exploded View".
10. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire.

11. Remove boot bands.
12. Remove boot from joint sub-assembly.
13. 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.**



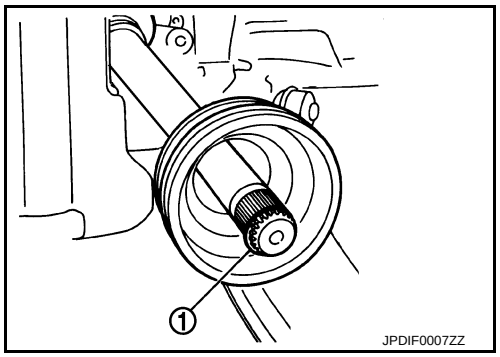
14. Remove circular clip (1) from shaft (exept for R9M) our housing assembly (R9M).



15. Remove outer boot from shaft.
16. Inspect the components. Refer to FAX-21, "Inspection".

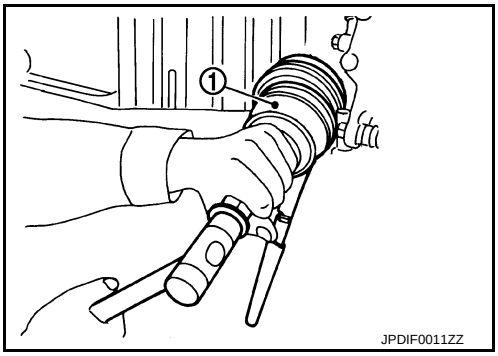
INSTALLATION

1. Clean the old grease on joint sub-assembly with paper shop cloth.
2. Fill serration slot joint sub-assembly with NISSAN genuine grease or equivalent.
   CAUTION:
   After applying grease, use a paper shop cloth to wipe off old grease that has oozed out.
   NOTE:
   Always check with the Parts Department for the latest parts information.
3. Install boot and boot bands to shaft.
   CAUTION:
   - **Wrap serration on shaft with tape to protect the boot from damage.**
   - **Never reuse boot and boot band.**
4. Remove the tape wrapped around the serration on shaft.
5. Position the circular clip (1) on groove at the shaft edge.
   CAUTION:
   Never reuse circular clip.
   NOTE:
   A drive joint inserter is recommended when installing the circular clip.



6. Align of the shaft and joint sub-assembly. Assemble the shaft with joint sub-assembly while holding the circular clip.

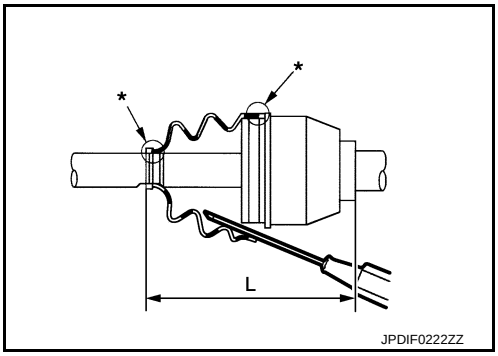
7. Install joint sub-assembly (1) to housing assembly using suitable tool.
CAUTION:
Confirm that joint sub-assembly is correctly engaged while rotating drive housing assembly.



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

Grease amount : Refer to FAX-37, "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 the joint sub-assembly, boot may come off. Remove all grease from the boot mounting surface.
10. Make sure boot installation length (L) is the specified length. Insert a suitable tool into the large end of boot. Bleed air from boot to prevent boot deformation.



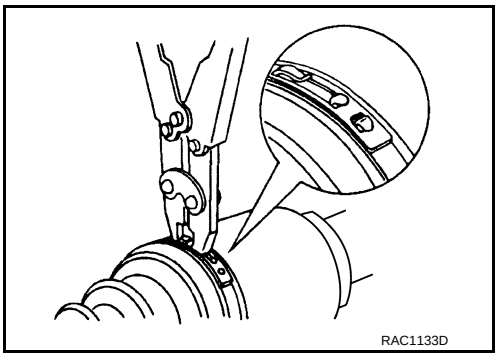
Boot installation length (L) : Refer to FAX-37, "Drive Shaft".

CAUTION:
- **Boot may break if boot installation length is not within standard value.**
- **Be careful that suitable tool does not contact inside surface of boot.**

11. Install new large and small boot bands securely using Tool.

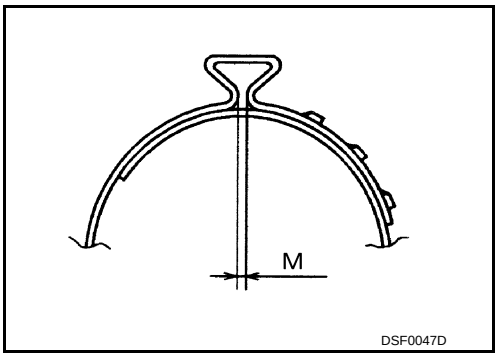
Tool number : KV40107300 (—)

CAUTION:
Never reuse boot band.



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

Dimension (M) : Refer to FAX-18, "WHEEL SIDE : Removal and Installation".



13. Attempt to rotate the boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.

- **When installing, make sure there is no foreign material such as iron fragments on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and then install the front wheel sensor.**

22. Hold the wheel hub and bearing. tighten the wheel hub lock nut. Refer to FAX-10, "Removal and Installation".
    CAUTION:
    - **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
    - **Too much torque causes axle noise. too little torque causes wheel bearing loosness. Tighten the wheel hub lock nut to the specification.**
23. Install the nut retainer.
24. Install a new cotter pin. Refer to FAX-10, "Exploded View".
    CAUTION:
    - **Never reuse cotter pin.**
    - **Bend cotter pin securely to prevent any looseness.**
25. Install the front wheel and tire. Refer to WT-57, "Wheel Balance Adjustment (Aluminum Wheel)".

TRANSAXLE SIDE

TRANSAXLE SIDE : Removal and Installation

INFOID:0000000010432014

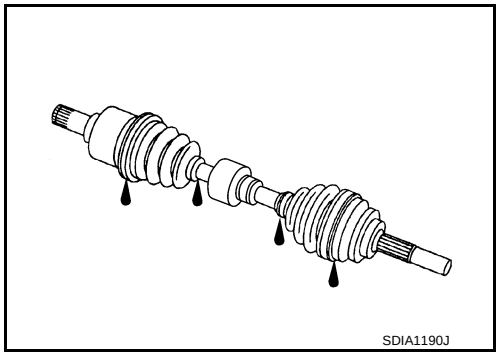
NOTE:
Remove boot after removing drive shaft.
- For drive shaft removal and installation, refer to FAX-22, "Removal and Installation (LH)".
- For drive shaft disassembly and assembly, refer to FAX-30, "Disassembly and Assembly (LH)" (LH) or FAX-34, "Disassembly and Assembly (RH)" (RH).

Inspection

INFOID:0000000010432015

INSPECTION AFTER INSTALLATION

Check the following items, and replace the part if necessary.
- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Check the wheel sensor harness to be sure the connectors are fully seated.
- Check the wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".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FRONT DRIVE SHAFT

Exploded View (LH)

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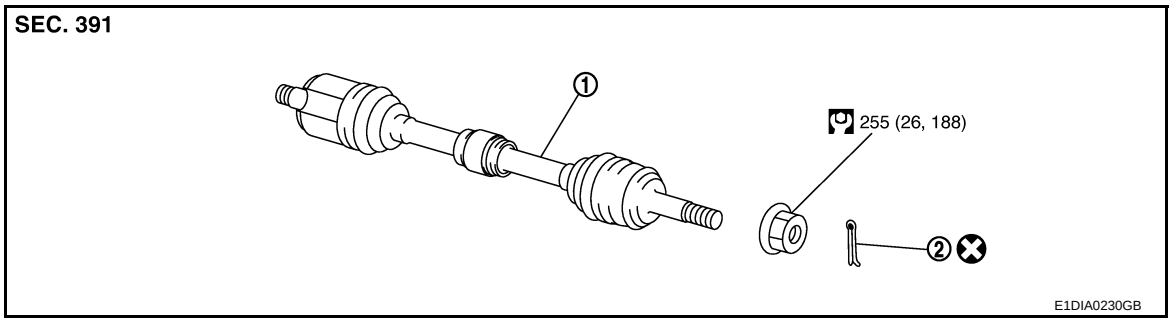


1. Drive shaft
2. Cotter pin

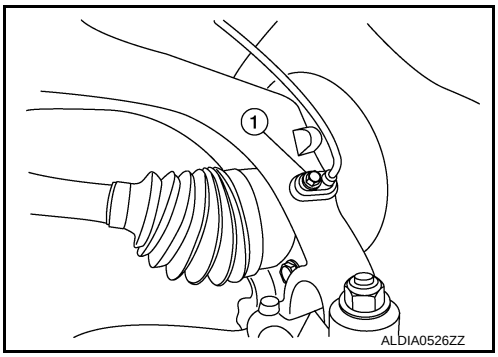
Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation (LH)

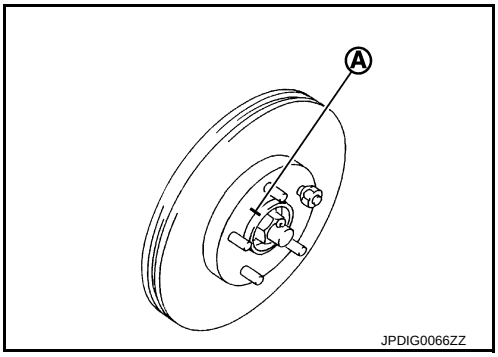
INFOID:0000000010432037

REMOVAL

1. Remove tires from vehicle.
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Removal and Installation".
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Never pull on wheel sensor harness.**

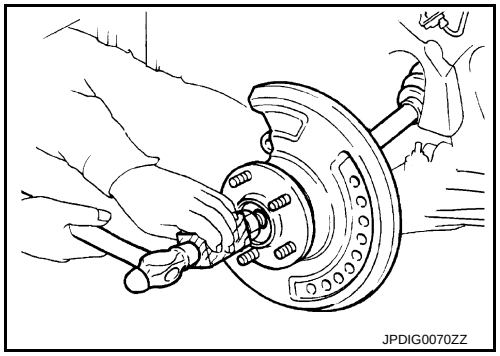


3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.
   CAUTION:
   Never drop the disc brake rotor.



5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.

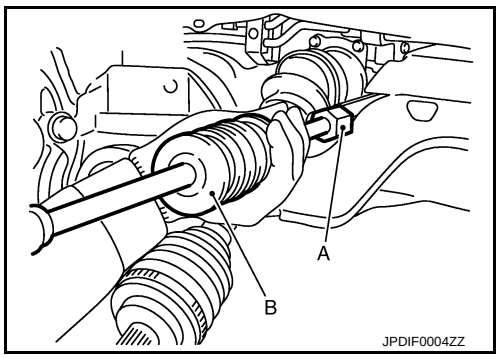
8. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.



CAUTION:
- **Never place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
- **Never allow drive shaft to hangdown without support for housing (or joint sub-assembly), shaft and the other parts.**

NOTE:
Use a suitable puller iff drive shaft cannot be separated from the wheel hub and bearing.

9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FAX-10, "Exploded View".
10. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire.
11. Remove drive shaft from transaxle assembly.
    - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.



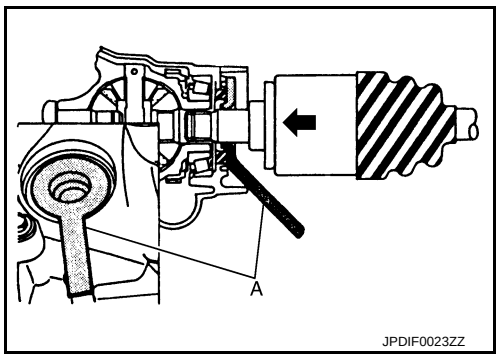
CAUTION:
- **Never place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**
- **Confirm that the circular clip is attached to the drive shaft.**

Tool (A) : KV40107500 (––)

INSTALLATION

Installation is in the reverse order of removal.
- Install a new differential side oil seal.

CAUTION:
Do not reuse the differential side oil seal.
- Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.



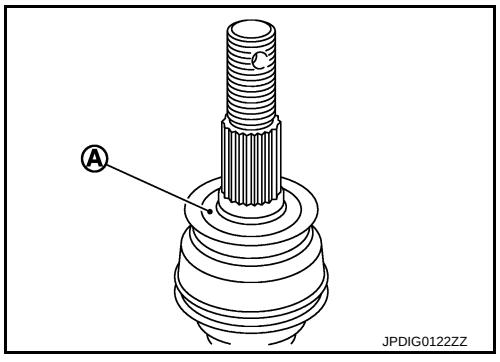
CAUTION:
Check that circular clip is completely engaged.

Tool (A) : KV38107900 (––)

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

CAUTION:
Never apply lubricating oil to these matching surface.

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



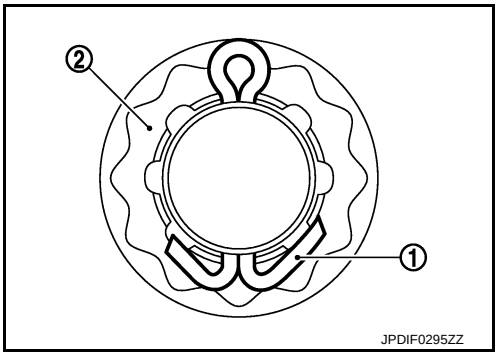
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : FAX-38, "Drive Shaft"

NOTE:

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

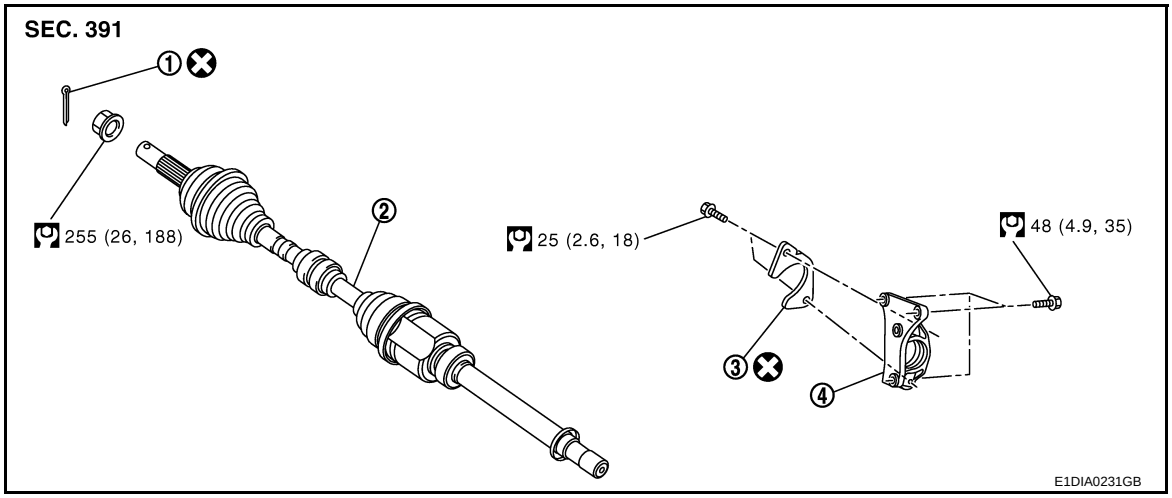
- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
  CAUTION:
  - **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
  - **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- Align the matching marks that have been made during removal when reusing the disc brake rotor.
- When installing a cotter pin (1) and nut retainer (2), securely bend the cotter pin to prevent rattles.
  CAUTION:
  Never reuse cotter pin.
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.



Exploded View (RH)

INFOID:0000000010432038

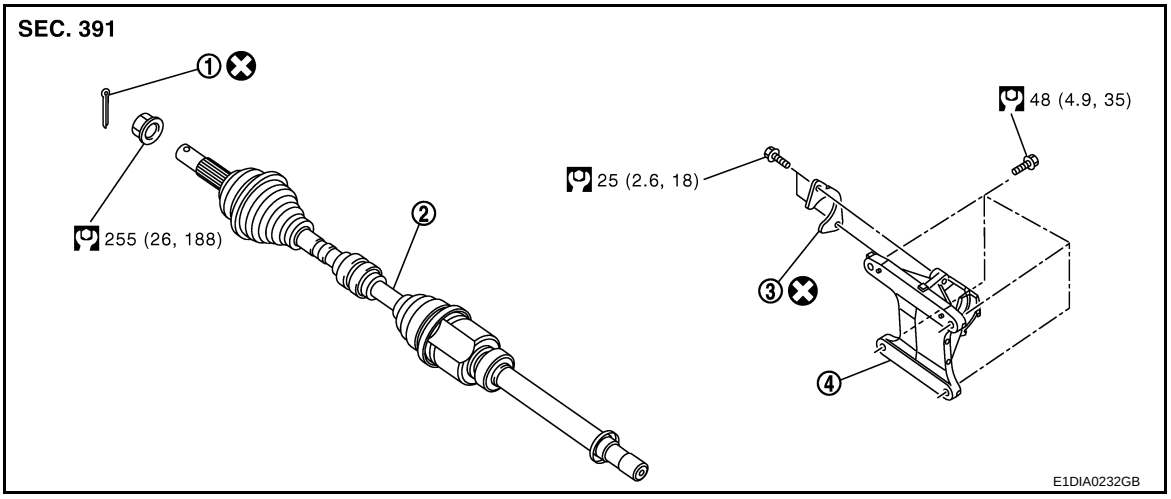
HRA2DDT :



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

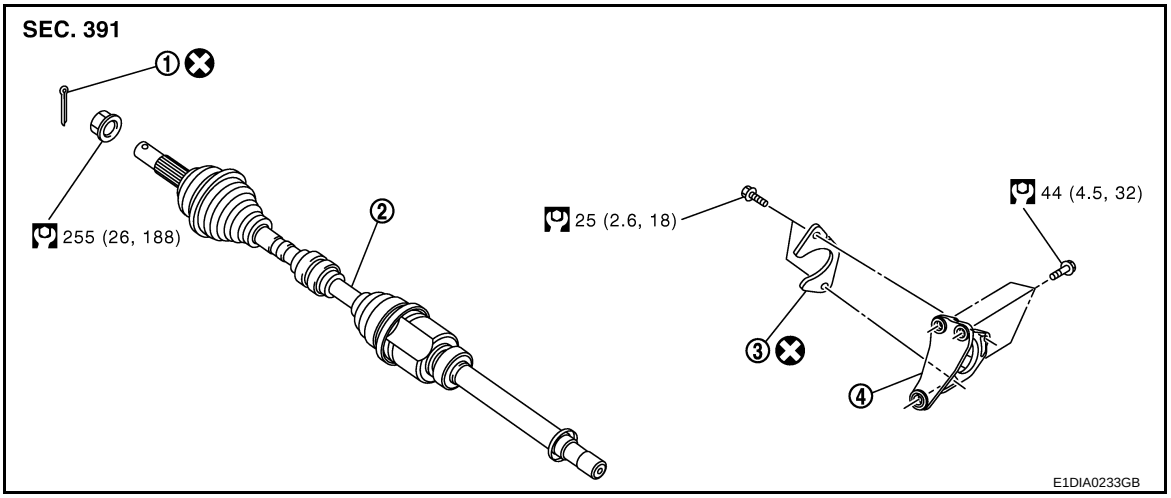
MR20DD :



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

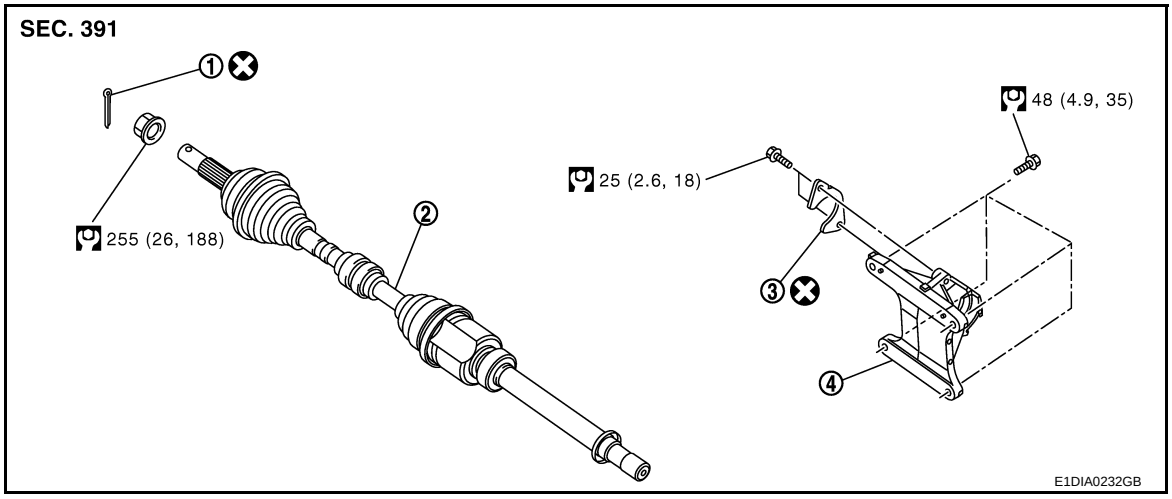
K9K :



1. Cotter pin
2. Drive shaft
3. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

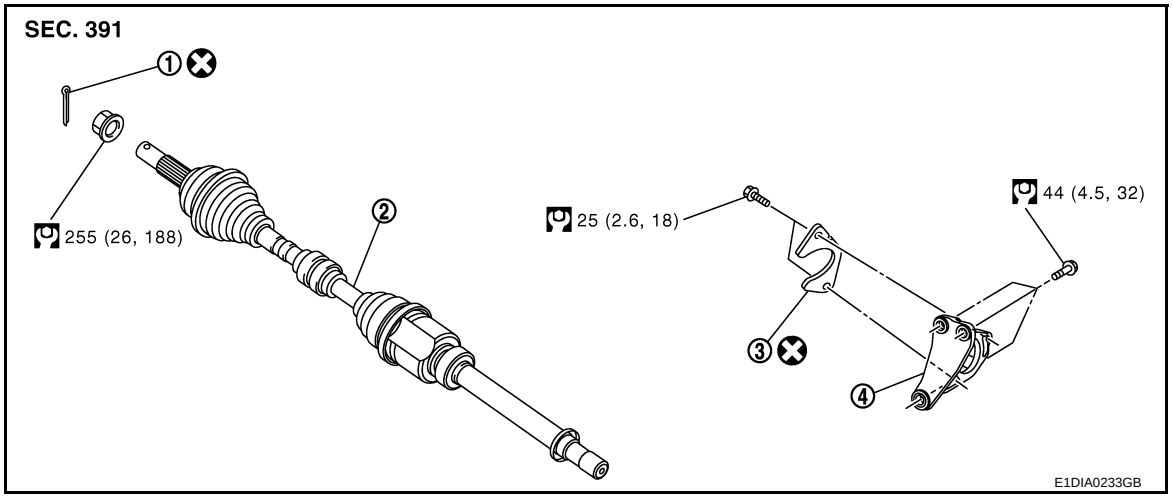
R9M :



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

K9K :

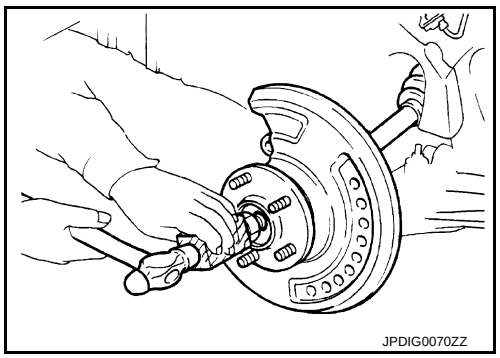


1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

MR16DDT :

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


JPDIG0070ZZ

CAUTION:
- **Never place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
- **Never allow drive shaft to hangdown without support for housing (or joint sub-assembly), shaft and the other parts.**

NOTE:
Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.

9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FAX-10, "Exploded View".
10. Separate drive shaft from wheel hub and bearing and reposition drive shaft aside with wire.
11. Remove retainer mounting bolts and retainer.
12. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
13. Remove drive shaft from transaxle assembly.
    - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.

    CAUTION:
    - **Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**

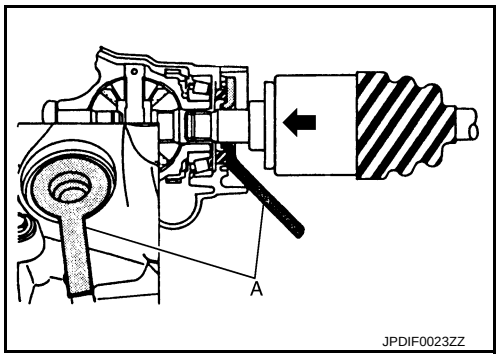
    Tool : KV40107500 (––)

INSTALLATION

1. Install a new differential side oil seal.

   CAUTION:
   Never reuse the differential side oil seal.

2. Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.



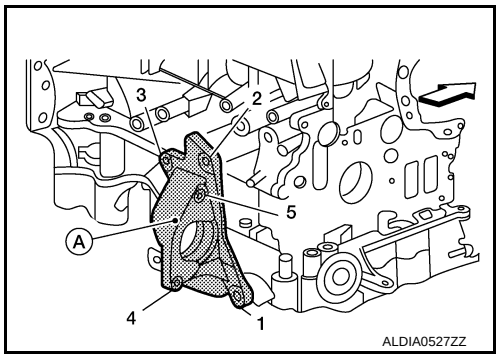
JPDIF0023ZZ

   CAUTION:
   Check that circular clip is completely engaged.

   Tool : KV38107900 (––)

Support bearing bracket

1. Install front drive shaft and bearing retainer with notch (A) facing upward.
2. Tighten bolts in the numerical order as shown.
   - Refer to the following for the installation positions of bolts.



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⇦ : Front

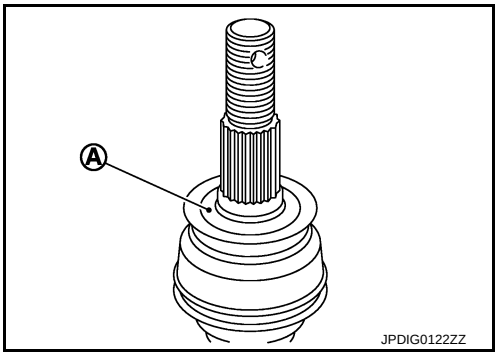
M12 bolts	**: No. 1**	**97.1 N·m (9.9 kg-m, 72 ft-lb)**
M10 bolts	**: No. 2, 3**	**48.0 N·m (4.9 kg-m, 35 ft-lb)**
M8 bolts	**: No. 4, 5**	**25.0 N·m (2.6 kg-m, 18 ft-lb)**

3. Clean the matching surface of wheel hub lock nut and wheel hub and bearing.
CAUTION:
Never apply lubricating oil to these matching surface.

4. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : FAX-38, "Drive Shaft"

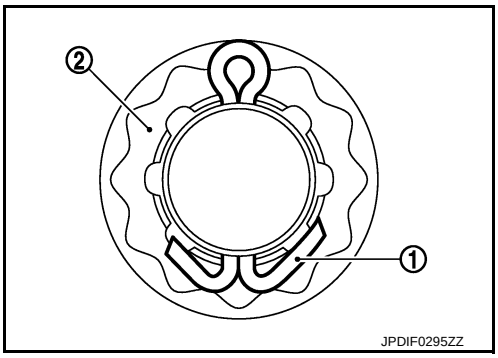
NOTE:
Always check with the Parts Department for the latest parts information.



5. Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
CAUTION:
- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**

6. Align the matching marks that have been made during removal when reusing the disc brake rotor.

7. When installing a cotter pin (1) and adjusting cap (2), securely bend the cotter pin to prevent rattles.
CAUTION:
Never reuse cotter pin.



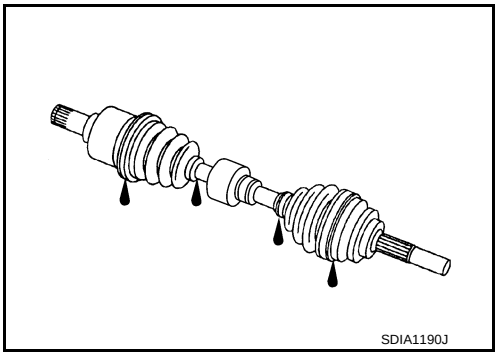
8. Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.
9. Installation of the remaining components is in the reverse order of removal.

Inspection

INFOID:0000000010432040

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.

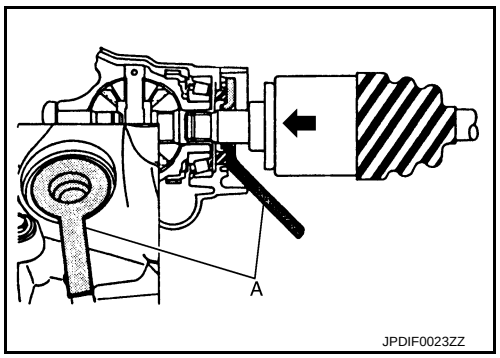


INSPECTION AFTER DISASSEMBLY

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

2. Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.
CAUTION:
Check that circular clip is completely engaged.

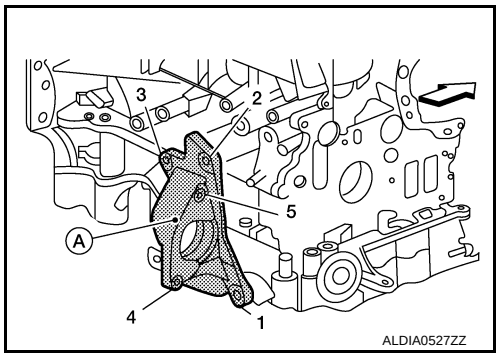
Tool : KV38107900 (––)



Support bearing bracket

1. Install front drive shaft and bearing retainer with notch (A) facing upward.
2. Tighten bolts in the numerical order as shown.
• Refer to the following for the installation positions of bolts.

⇦ : Front

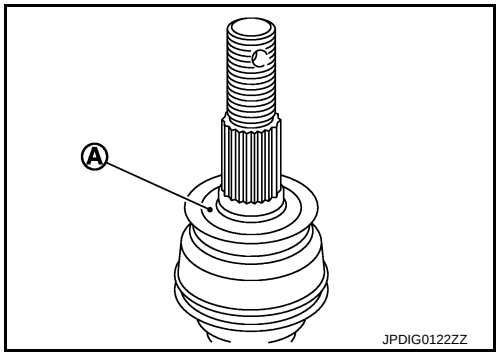


M12 bolts	**: No. 1**	**97.1 N·m (9.9 kg-m, 72 ft-lb)**
M10 bolts	**: No. 2, 3**	**48.0 N·m (4.9 kg-m, 35 ft-lb)**
M8 bolts	**: No. 4, 5**	**25.0 N·m (2.6 kg-m, 18 ft-lb)**

3. Clean the matching surface of wheel hub lock nut and wheel hub and bearing.
CAUTION:
Never apply lubricating oil to these matching surface.
4. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : FAX-37, "Drive Shaft"

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



5. Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
CAUTION:
- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**

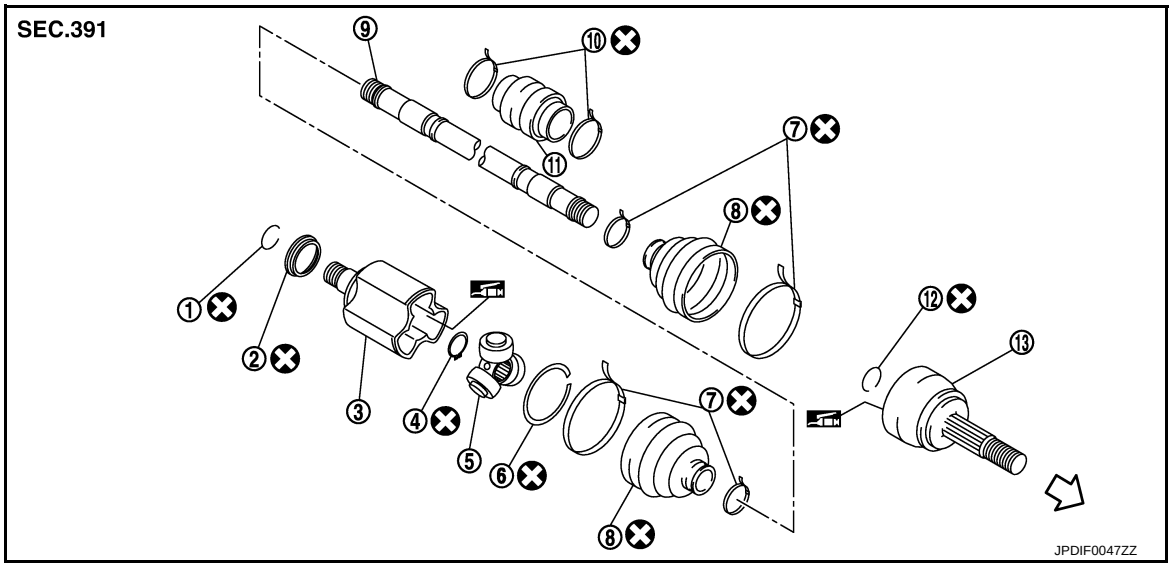
6. Align the matching marks that have been made during removal when reusing the disc brake rotor.

UNIT DISASSEMBLY AND ASSEMBLY

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:0000000010435861



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

⇦ Wheel side

Refer to GI-4, "Components" for symbols in the figure.

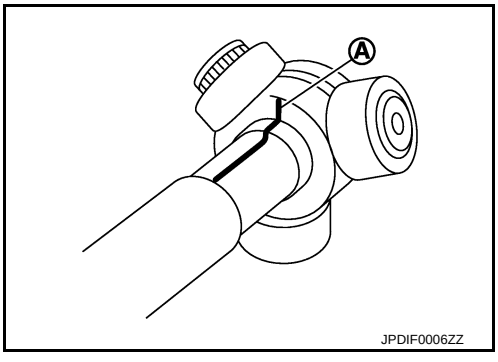
Disassembly and Assembly (LH)

INFOID:0000000010435862

DISASSEMBLY

Transaxle Assembly Side

1. Fix shaft with a vise.
   CAUTION:
   Protect shaft using aluminum or copper plates when fixing with a vise.
2. Remove boot bands, and then remove boot from housing.
3. Remove stopper ring.
4. Put matching marks on housing and shaft, and then pull out housing from shaft.
   CAUTION:
   Use paint or an equivalent for matching marks. Do not scratch the surfaces.
5. Put matching marks (A) on the spider assembly and shaft.
   CAUTION:
   Use paint or an equivalent for matching marks. Do not scratch the surfaces.



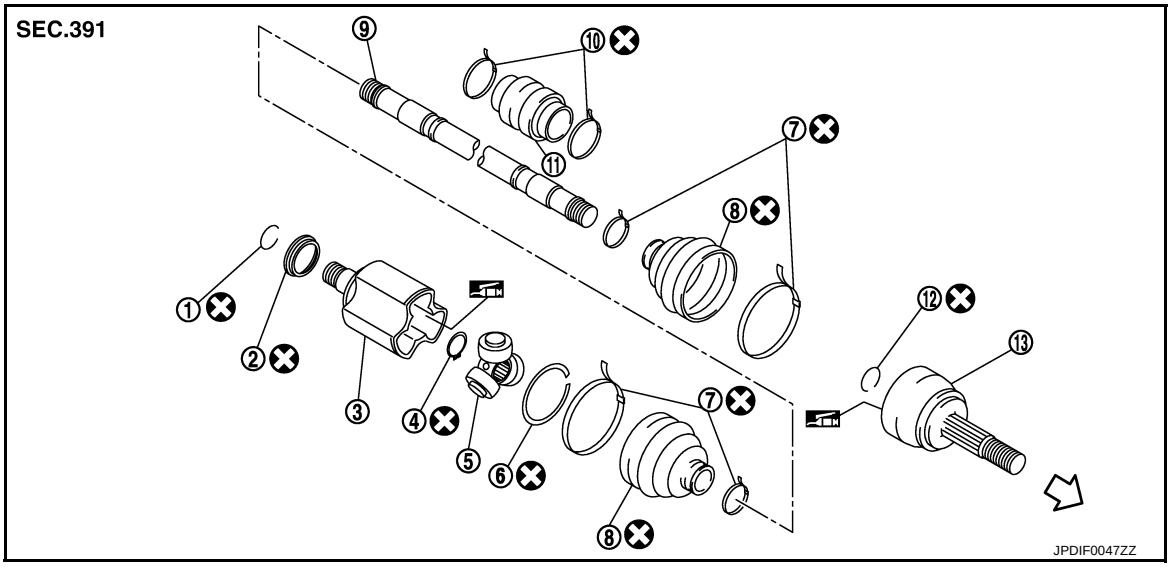
UNIT DISASSEMBLY AND ASSEMBLY

FRONT DRIVE SHAFT

Exploded View

INFOID:0000000010435861

LHD models

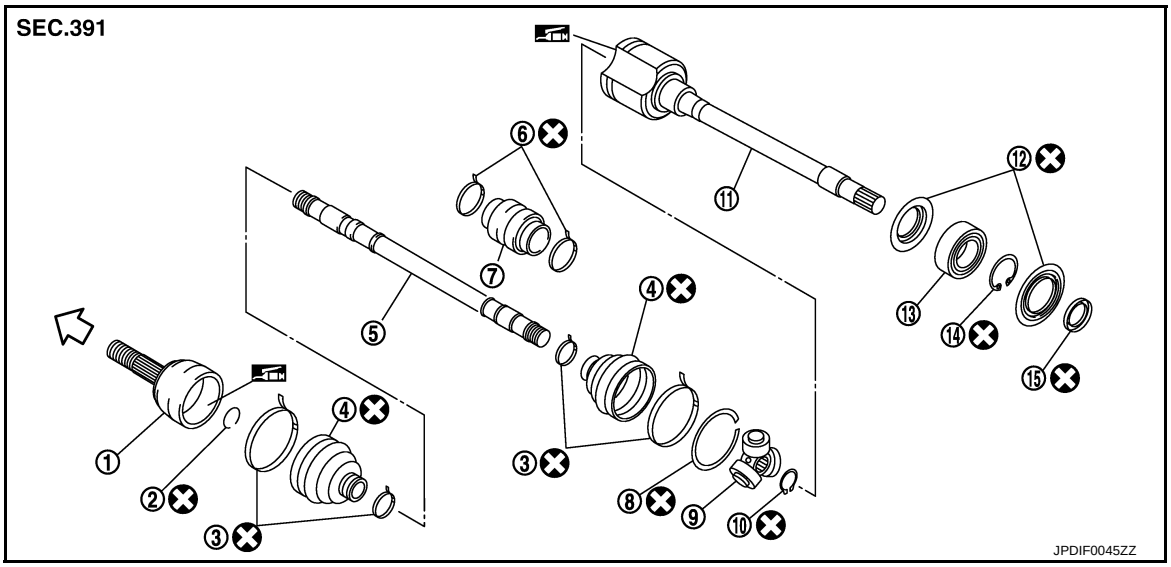


1. Circular clip
2. Dust shield
3. Housing
4. Snap ring
5. Spider assembly
6. Stopper ring
7. Boot band
8. Boot
9. Shaft
10. Damper band
11. Dynamic damper
12. Circular clip
13. Joint sub-assembly

⇦ Wheel side

Refer to GI-4, "Components" for symbols in the figure.

RHD models - HRA2DDT, MR20DD, K9K, MR16DDT



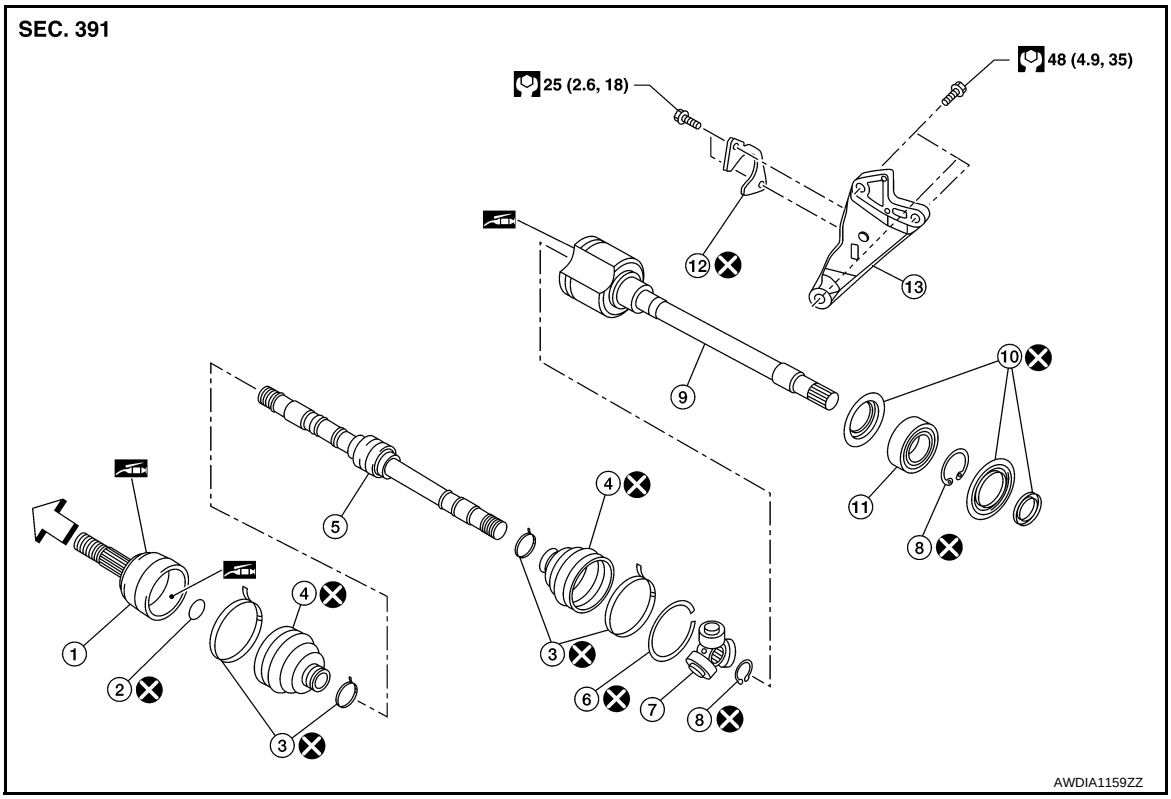
1. Joint sub-assembly
2. Circular clip
3. Boot band
4. Boot
5. Shaft
6. Damper band
7. Dynamic damper
8. Stopper ring
9. Spider assembly
10. Snap ring
11. Housing assembly
12. Dust shield

13. Support bearing
14. Snap ring
15. Dust shield

⇦ : Wheel side

Refer to GI-4, "Components" for symbols in the figure.

RHD models - R9M



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

⇦ : Wheel side

Refer to GI-4, "Components" for symbols in the figure.

Disassembly and Assembly

INFOID:0000000011722644

DISASSEMBLY

Transaxle Side

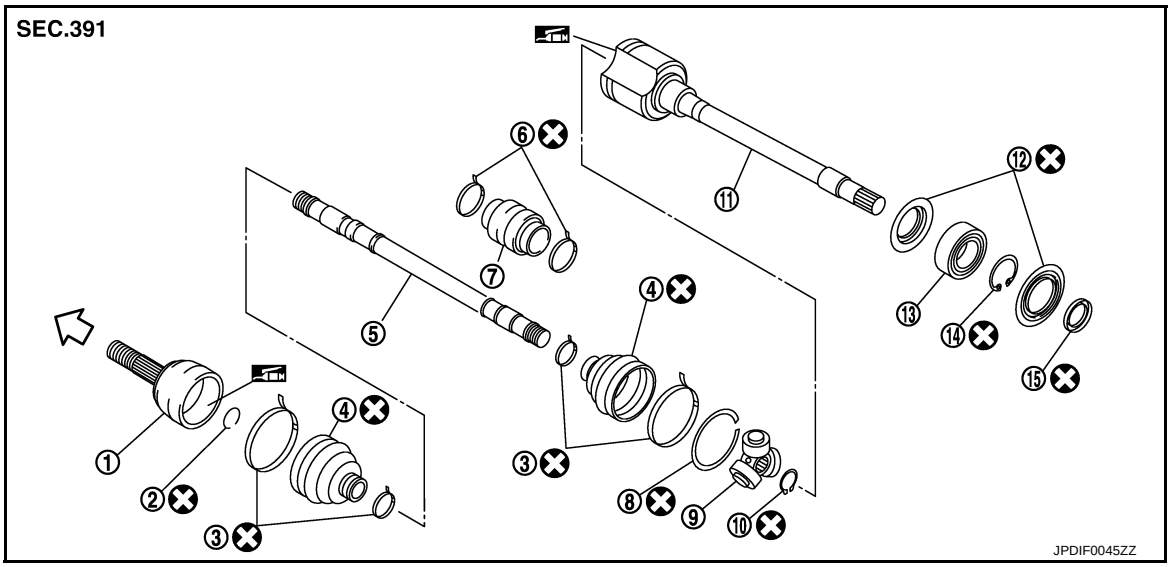
1. Housing on the side of transaxle cannot be disassembled. When removing boot, perform procedure 1 to 5 on the wheel side first. And then remove dynamic damper and band (left side).
2. Remove boot bands, then remove boots from housing assembly, and remove boot from shaft after the above service.
3. Remove dust shield from housing assembly.
4. Remove circular clip from housing assembly (left side).
5. Clean old grease on housing assembly with paper towels.

Support Bearing

Exploded View (RH)

INFOID:0000000010435863

HRA2DDT, MR20DD, K9K

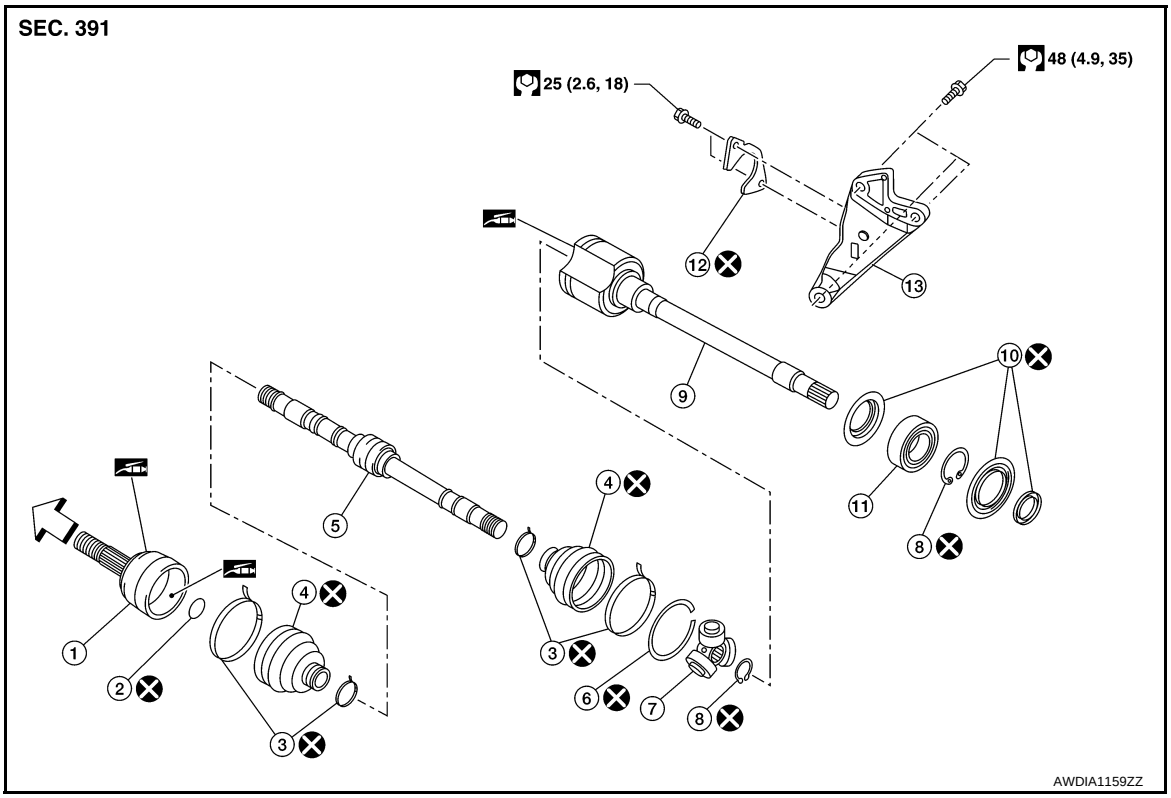


1. Joint sub-assembly
2. Circular clip
3. Boot band
4. Boot
5. Shaft
6. Damper band
7. Dynamic damper
8. Stopper ring
9. Spider assembly
10. Snap ring
11. Housing assembly
12. Dust shield
13. Support bearing
14. Snap ring
15. Dust shield

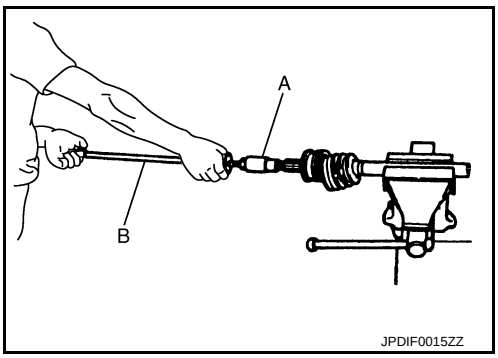
⇦ : Wheel side

Refer to GI-4, "Components" for symbols in the figure.

R9M



3. 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.**
4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper towels while rotating ball cage.



ASSEMBLY

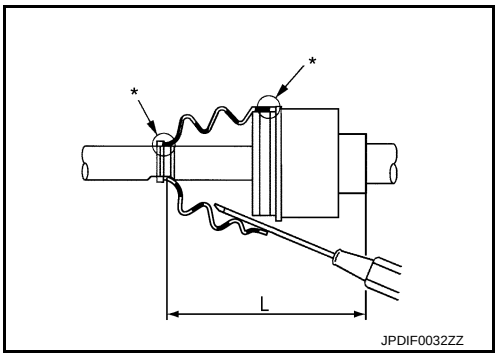
Transaxle Assembly Side

1. Wrap serration on housing assembly with tape to protect boot from damage. Install new boot and boot bands to housing assembly.
   CAUTION:
   Never reuse boot and boot band.
2. Remove the tape wrapped around the serration on housing assembly.
3. Apply specified amount grease to the housing assembly.

Standard

Grease amount : Refer to FAX-37, "Drive Shaft".

4. Install boot securely into grooves (indicated by “*” marks) shown in the figure.
   CAUTION:
   If grease adheres to the boot mounting surface (with “*” mark) on shaft or housing, boot may be removed. Remove all grease from the surface.
5. 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.

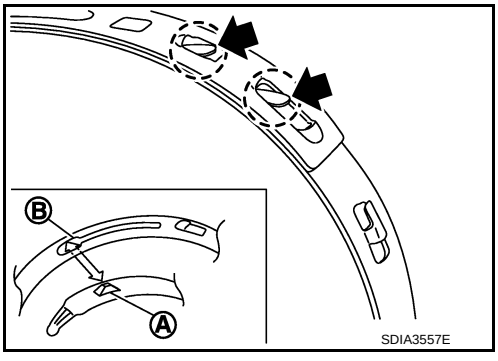


Standard

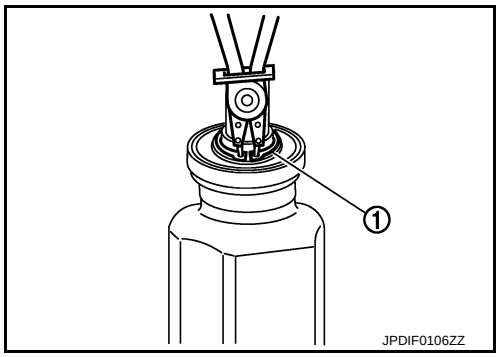
Boots installed length (L) : Refer to FAX-37, "Drive Shaft".

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

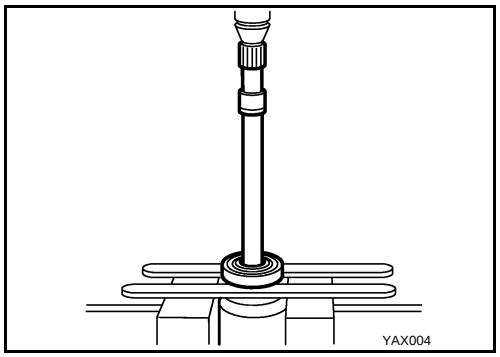
6. Install new larger and smaller boot bands securely.
   CAUTION:
   Never reuse boot band.
7. Put boot band in the groove on drive shaft boot. Then fit pawls (⬅) into holes to temporary installation.
   NOTE:
   For the large diameter side, fit projection (A) and guide slit (B) at first.



2. Remove snap ring (1).

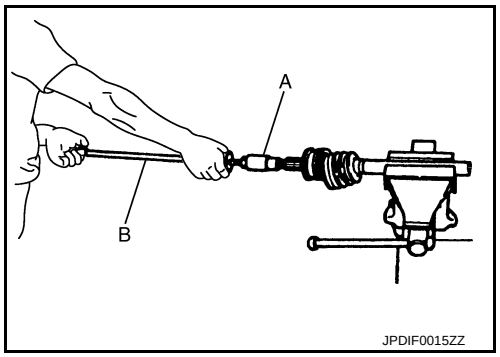


3. Press out support bearing from housing.
4. Remove dust shield.



Wheel Side

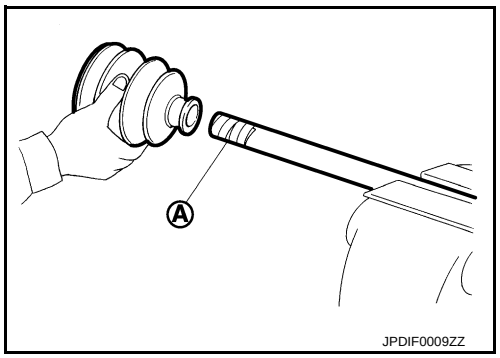
1. Fix shaft with a vise.
   CAUTION:
   Protect shaft using aluminum or copper plates when fixing with a vise.
2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly 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 forcibly.**
4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper waste while rotating ball cage.



ASSEMBLY

Transaxle Assembly Side

1. 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.
2. Remove the tape wrapped around the serration on shaft.



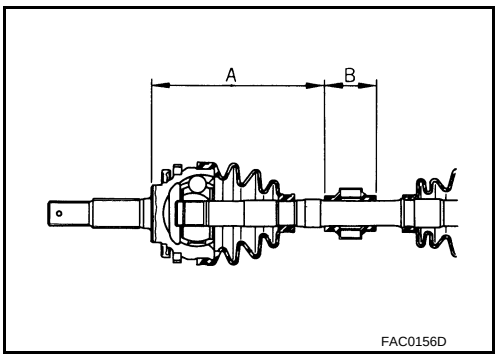
Secure dynamic damper with bands in the following specified position when removing.

CAUTION:

Never reuse bands.

Standard

Demission : FAX-37, "Drive Shaft".



Wheel Side

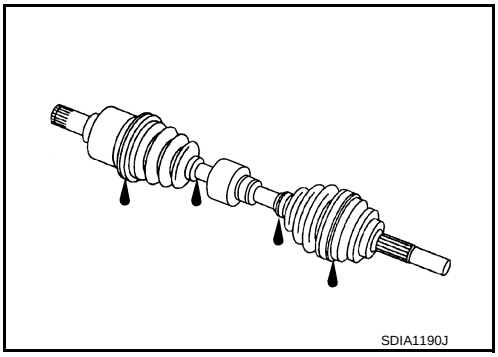
For further details, refer to the installation procedure of "FAX-18, "WHEEL SIDE : Removal and Installation"" for the drive shaft boot.

Inspection

INFOID:0000000011722645

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 any non-standard condition.



INSPECTION AFTER DISASSEMBLY

Shaft

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

Dynamic Damper

Check damper for cracks or wear. Replace if necessary.

Joint Sub-Assembly (Wheel Side)

Check the following:

- Joint sub-assembly for rough rotation and excessive axial looseness
- The inside of the joint sub-assembly for entry of foreign material
- Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly

Replace joint sub-assembly if there are any non-standard conditions of components.

Housing and Spider assembly (Transaxle Side)

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

NOTE:

Housing and spider assembly are used in a set.

Support Bearing (Right Side)

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

Support Bearing Bracket (Right Side)

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

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000010297322

Item	Standard
Axial end play	0.0 mm (0.0 in)
Rotating torque	1.9 N.m (0.19 kg-m, 17 in-lb) or less
Spring balance measurement	13.7 N (1.40 kg-f, 3.08 lb-f) or less

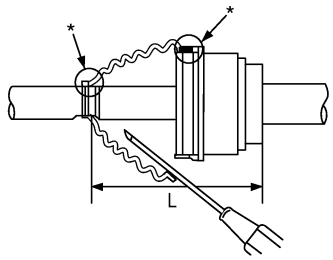
Drive Shaft

INFOID:0000000010436944

HRA2DDT

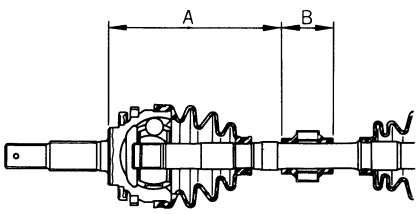
M/T models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	100 – 120 g (3.53 – 4.23 oz)	155 – 175 g (5.47 – 6.17 oz)
	Right side		
Boots installed length (L)	Left side	131 mm (5.16 in)	180.4 mm (7.10 in)
	Right side		172.4 mm (6.79 in)



JPDIF0031ZZ

Dynamic damper		A	B
Dimension	Left side	287 – 291 mm (11.30 – 11.46 in)	70 mm (2.76 in)
	Right side		



FAC0156D

MR20DD

M/T models

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000010297322

Item	Standard
Axial end play	0.0 mm (0.0 in)
Rotating torque	1.9 N.m (0.19 kg-m, 17 in-lb) or less
Spring balance measurement	13.7 N (1.40 kg-f, 3.08 lb-f) or less

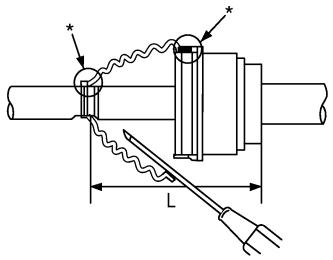
Drive Shaft

INFOID:0000000010436944

HRA2DDT

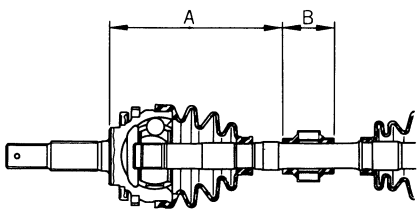
M/T models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	100 – 120 g (3.53 – 4.23 oz)	155 – 175 g (5.47 – 6.17 oz)
	Right side		
Boots installed length (L)	Left side	131 mm (5.16 in)	180.4 mm (7.10 in)
	Right side		172.4 mm (6.79 in)



JPDIF0031ZZ

Dynamic damper		A	B
Dimension	Left side	287 – 291 mm (11.30 – 11.46 in)	70 mm (2.76 in)
	Right side		



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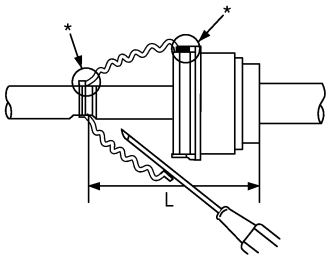
MR20DD

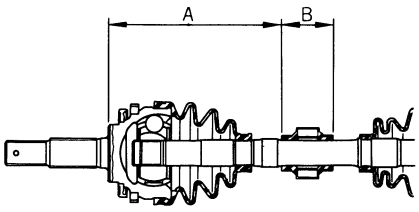
M/T models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	115 – 135 g (4.06 – 4.76 oz)	200 – 220 g (7.05 – 7.76 oz)
	Right side		
Boots installed length (L)	Left side	133.5 mm (5.26 in)	190.8 mm (7.51 in)
	Right side		177.6 mm (6.99 in)



JPDIF0031ZZ

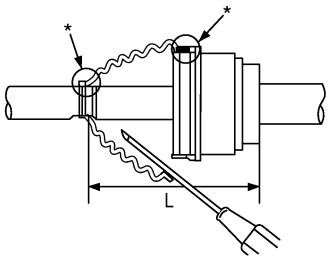
Dynamic damper		A	B
Dimension	Left side	269 – 273 mm (10.59 – 10.75 in)	70 mm (2.76 in)
	Right side		



FAC0156D

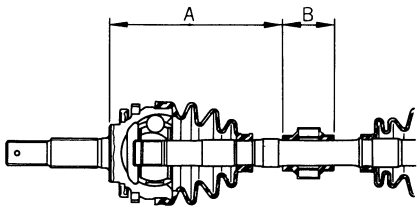
CVT models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	115 – 135 g (4.06 – 4.76 oz)	200 – 220 g (7.05 – 7.76 oz)
	Right side		
Boots installed length (L)	Left side	133.5 mm (5.26 in)	185.6 mm (7.31 in)
	Right side		177.6 mm (6.99 in)



JPDIF0031ZZ

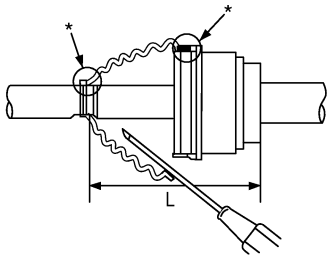
Dynamic damper		A	B
Dimension	Left side	282 – 286 mm (11.10 – 11.26 in)	70 mm (2.76 in)
	Right side		



FAC0156D

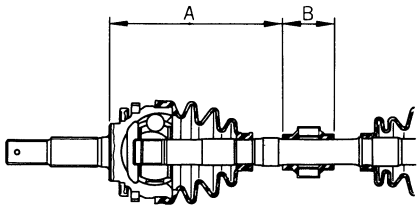
K9K

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	115 – 135 g (4.06 – 4.76 oz)	215 – 235 g (7.58 – 8.29 oz)
	Right side		
Boots installed length (L)	Left side	133.5 mm (5.26 in)	186.3 mm (7.33 in)
	Right side		173.1 mm (6.81 in)



JPDIF0031ZZ

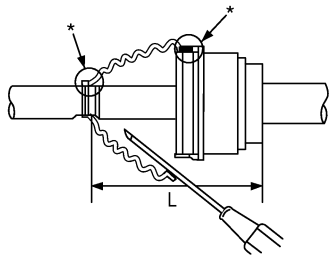
Dynamic damper		A	B
Dimension	Left side	281 – 285 mm (11.06 – 11.22 in)	70 mm (2.76 in)
	Right side		



FAC0156D

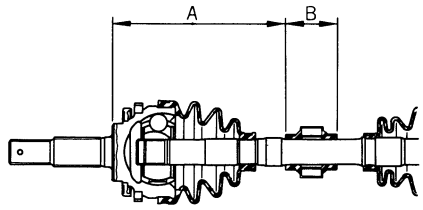
R9M

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	175 – 205 g (6.17 – 7.23 oz)	165 – 175 g (5.82 – 6.17 oz)
	Right side		
Boots installed length (L)	Left side	163.4 mm (6.43 in)	173.1 mm (6.81 in)
	Right side		181.1 mm (7.13 in)



JPDIF0031ZZ

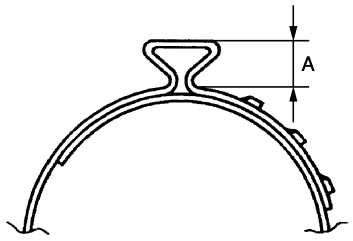
Dynamic damper		A	B
Dimension	Left side	229.5 – 235.5 mm (9.04 – 9.27 in)	70 mm (2.76 in)



FAC0156D

Boot Band Specification

Unit: mm (in)



JPDIF0268ZZ

Dimension (A) - maximum	7.0 (0.28)

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000010297856

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

Reference page			—	FAX-65	—	FAX-49	—	FAX-47	NVH in FAX and FSU sections	Refer to Front axle in this chart	NVH in WT section	NVH in WT section	Refer to DRIVE SHAFT in this chart	NVH in BR section	NVH in ST section
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	DRIVE SHAFT	Noise	×	×				×	×	×	×	×		×	×
		Shake	×		×			×	×	×	×	×		×	×
	FRONT AXLE	Noise				×	×	×	×		×	×	×	×	×
		Shake				×	×	×	×		×	×	×	×	×
		Vibration				×	×	×	×		×		×		×
		Shimmy				×	×		×		×	×		×	×
		Judder				×			×		×	×		×	×
		Poor quality ride or handling				×	×		×		×	×			

×: Applicable

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010297857

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 “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.**

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010297858

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- **This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).**
- **Remove and install all control units after disconnecting both battery cables with the ignition switch in the LOCK position.**
- **Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.**

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, 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. Use the Intelligent Key or mechanical key to turn the ignition switch to the ACC position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

5. When the repair work is completed, return the ignition switch to the LOCK position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT.

Precautions for Drive Shaft

INFOID:0000000010297859

CAUTION:

Note 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 dust-free location.**
- **Before disassembling and assembling, clean the parts.**
- **Prevent the entry of foreign objects 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.**
- **When disassembling a joint or disassembling the drive shaft from the transaxle, when exists, replace the circlip.**

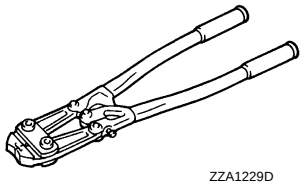
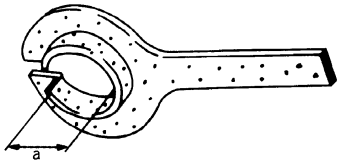
PREPARATION

PREPARATION

Special Service Tool

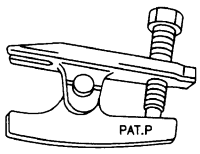
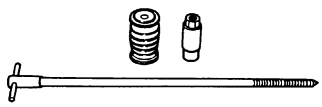
INFOID:0000000010450966

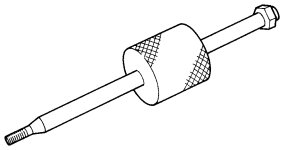
The actual shape of the tools may differ from those illustrated here.

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  PDIA1183J	Installing drive shaft **a: 32 mm (1.26 in) dia.**

Commercial Service Tools

INFOID:0000000010450967

Tool name	Description
Ball joint remover  NT146	Removing wheel stud
Drive shaft puller  JPDIG0152ZZ	Removing drive shaft joint sub assembly

Tool name	Description
Sliding hammer  ZZA0023D	Removing drive shaft
Power tool  PIIB1407E	Loosening nuts, screws and bolts

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000010297861

Refer to FAX-49, "Exploded View".

Inspection

INFOID:0000000010297862

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-73, "Wheel Bearing".

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

FRONT DRIVE SHAFT

Inspection

INFOID:0000000010297863

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

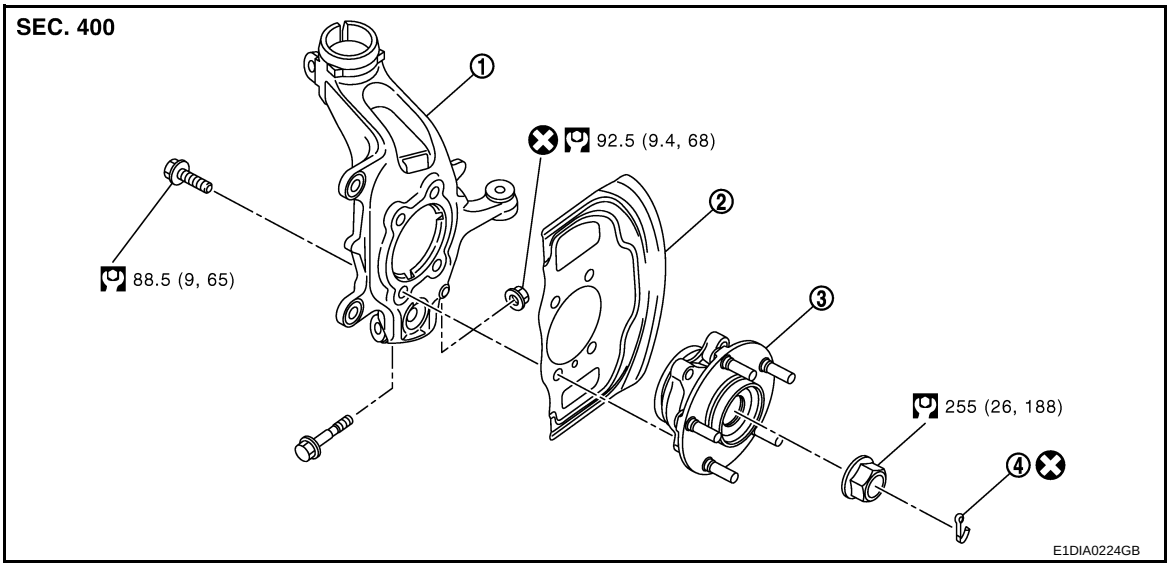
CAUTION:
Replace entire drive shaft assembly when noise or vibration occur from drive shaft.

REMOVAL AND INSTALLATION

FRONT WHEEL HUB AND KNUCKLE

Exploded View

INFOID:0000000010297864



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

Refer to GI-4, "Components" for symbols in the figure.

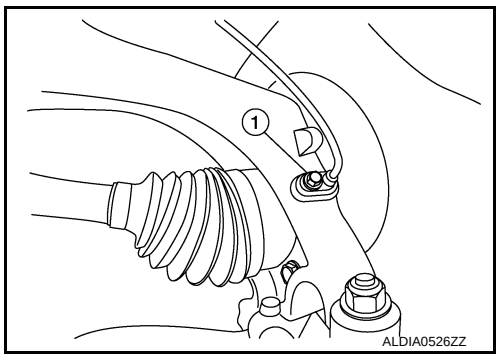
Removal and Installation

INFOID:0000000010297865

REMOVAL

Wheel hub

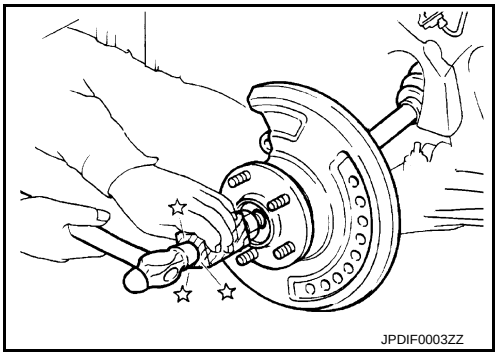
1. emove tires from vehicle.
2. Remove wheel sensor (1) from steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Exploded View".
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Never pull on wheel sensor harness.**



3. Remove lock plate from strut assembly. Refer to BR-19, "FRONT : Exploded View" (LHD), BR-63, "FRONT : Exploded View" (RHD).
4. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
5. Remove disc rotor.
6. Remove cotter pin, and then loosen hub lock nut.

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

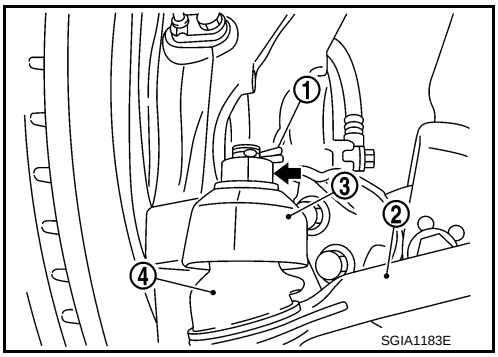
   NOTE:
   Use suitable puller, if wheel hub and bearing assembly and drive shaft cannot be separated even after performing the above procedure.



8. Remove the wheel hub lock nut.
9. Remove the engine side cover.
10. Remove the lower nut and bolt from the steering knuckle. Refer to FAX-49, "Exploded View".
11. Separate transverse link from steering knuckle.
12. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire.
13. Remove the wheel hub and bearing bolts using power tool.
14. Remove the splash guard and the wheel hub and bearing from the steering knuckle.

Steering knuckle

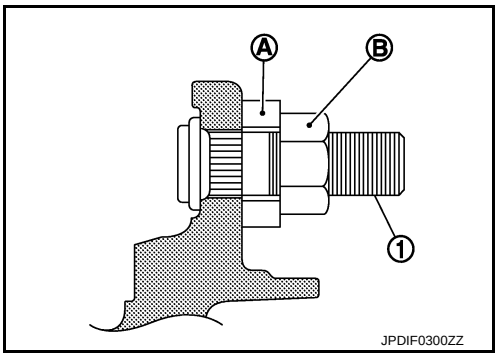
1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove cotter pin (1) of steering outer socket, and then loosen the nut.
3. Remove steering outer socket (2) from steering knuckle (3) using the ball joint remover so as not damage ball joint boot (4).
   CAUTION:
   Temporarily tighten the nut to prevent damage to threads and to prevent the ball joint remover from suddenly coming off.
4. Remove transverse link from steering knuckle.
5. Remove steering knuckle from strut assembly.
6. Remove steering knuckle from vehicle.



INSTALLATION

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

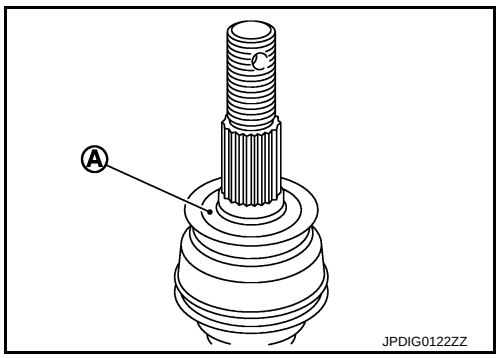
CAUTION:
- **Never reuse the wheel stud.**
- **Never reuse the cotter pin.**
- Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).
  CAUTION:
  Check that there is no clearance between the wheel stud and the wheel hub and bearing.



- Clean the mating surfaces of the wheel hub lock nut and the wheel hub and bearing.
  CAUTION:
  Never apply lubricating oil to these mating surfaces.

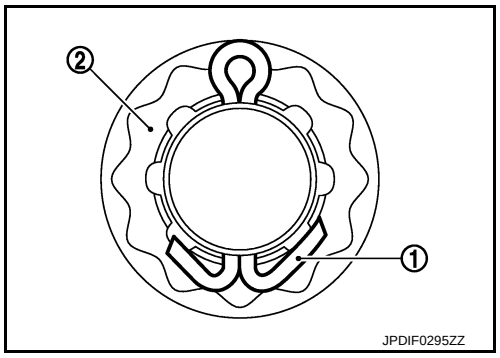
- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.
  CAUTION:
  Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

  Amount of lubricant **FAX-73, "Drive Shaft"**

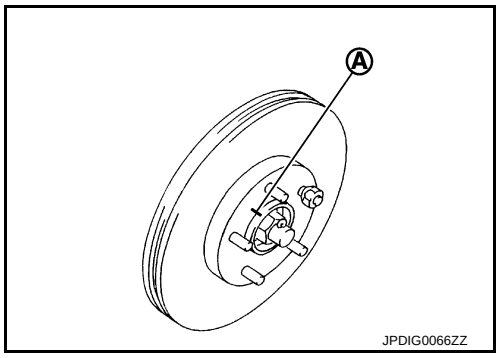


NOTE:
Always check with the Parts Department for the latest parts information.

- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
  CAUTION:
  - **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
  - **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- When installing a the cotter pin (1) and the nut retainer (2), securely bend the cotter pin to prevent rattles.



- Align the matching marks (A) on the disc brake rotor and on the wheel hub and bearing.



- Complete the inspection. Refer to FAX-51, "Inspection".

Inspection

INFOID:0000000010297866

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-6, "Inspection" and ST-14, "Inspection".

INSPECTION AFTER INSTALLATION

- Check the wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".
- Adjust neutral position of steering angle sensor after checking the wheel alignment. Refer to BRC-66, "Work Procedure".

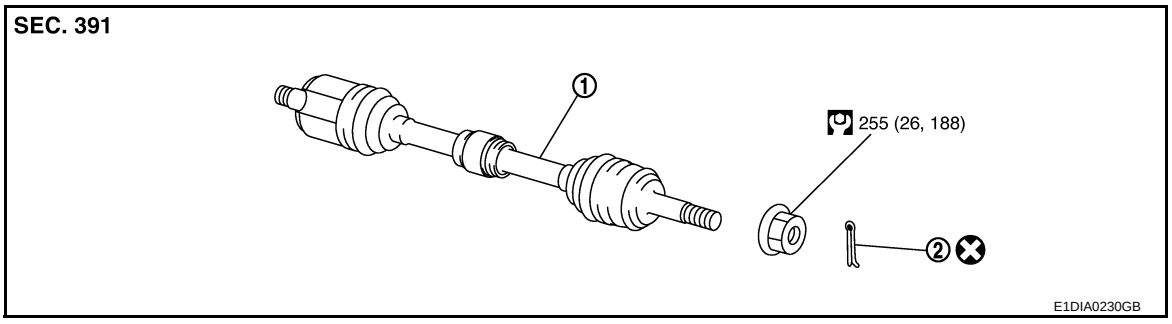
FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:0000000010435905

REMOVAL

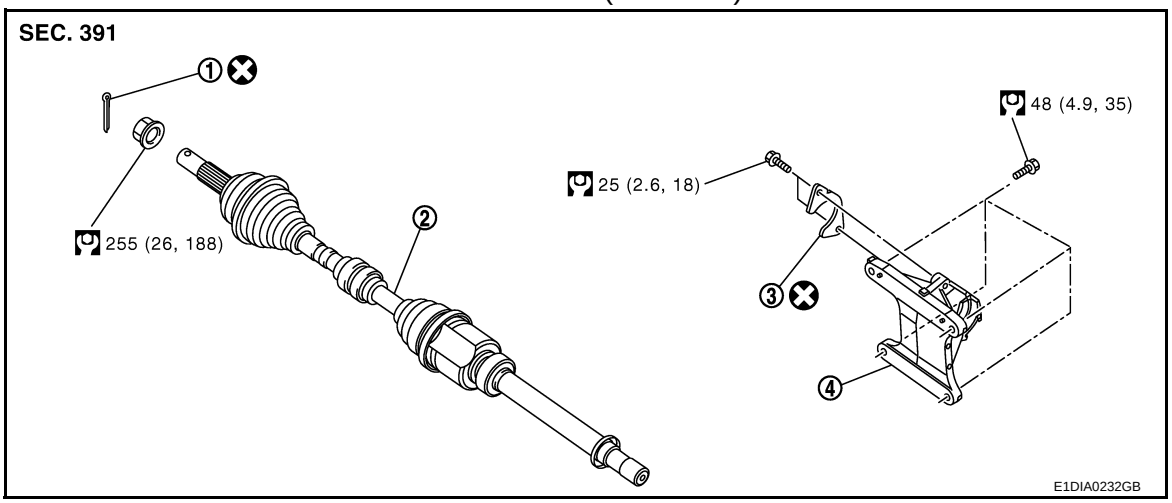
LEFT SIDE



1. Drive shaft
2. Cotter pin

Refer to GI-4, "Components" for symbols in the figure.

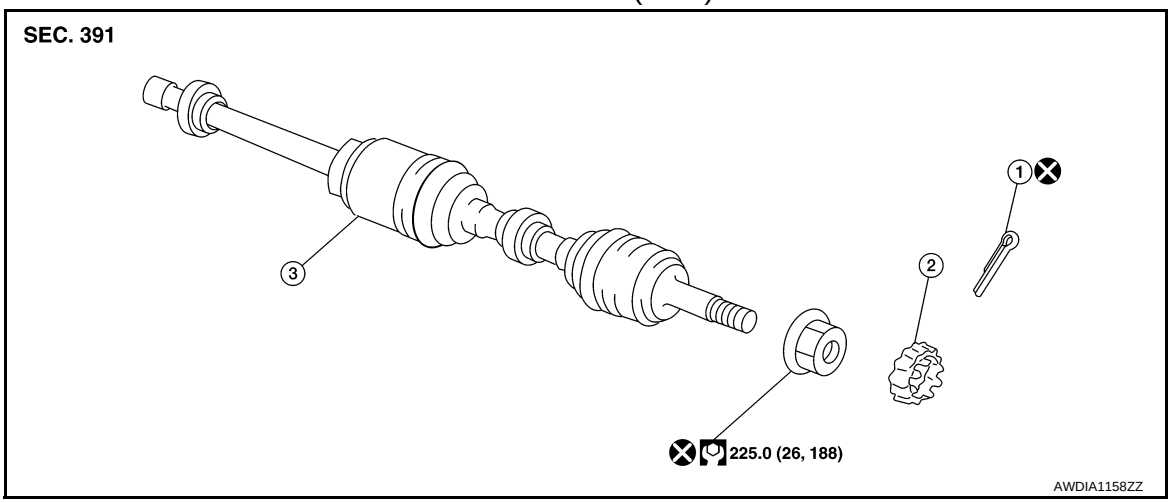
RIGHT SIDE (MR20DD)



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure.

RIGHT SIDE (R9M)

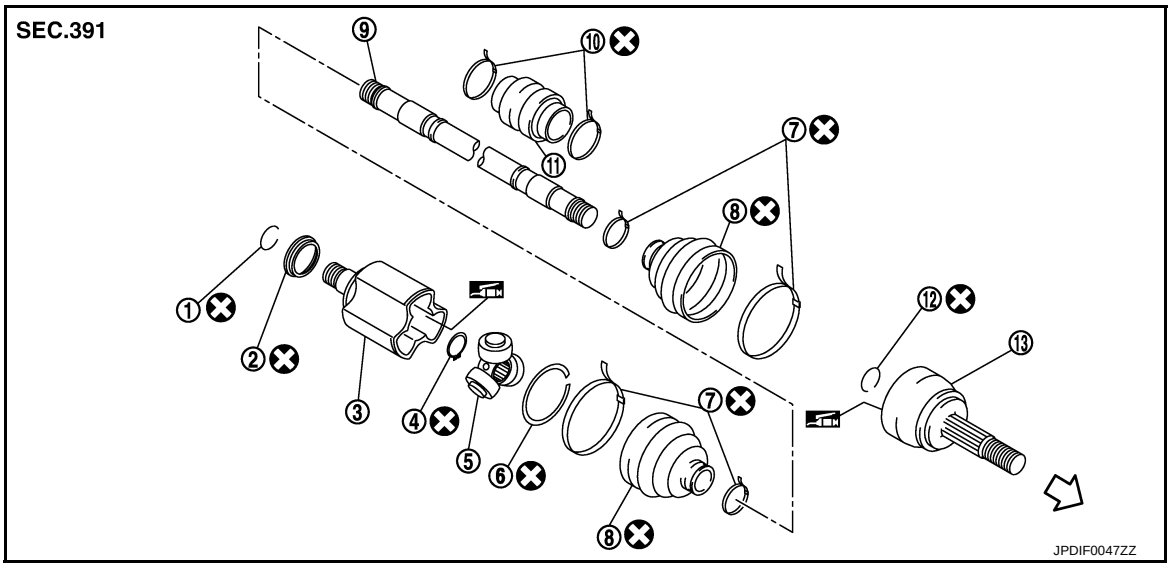


1. Cotter pin
2. Nut retainer
3. Drive shaft

Refer to GI-4, "Components" for symbols in the figure.

DISASSEMBLY

LEFT SIDE



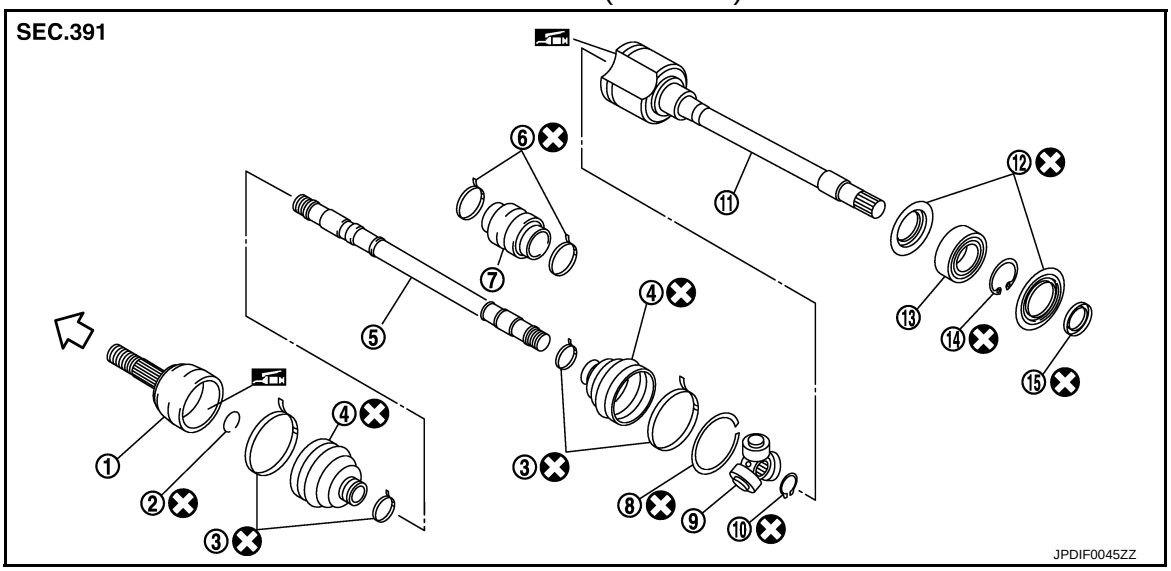
1. Circular clip
2. Dust shield
3. Housing
4. Snap ring
5. Spider assembly
6. stopper ring
7. Boot band
8. Boot
9. Shaft
10. Damper band
11. Dynamic damper
12. Circular clip
13. Joint sub-assembly

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

RIGHT SIDE (MR20DD)



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

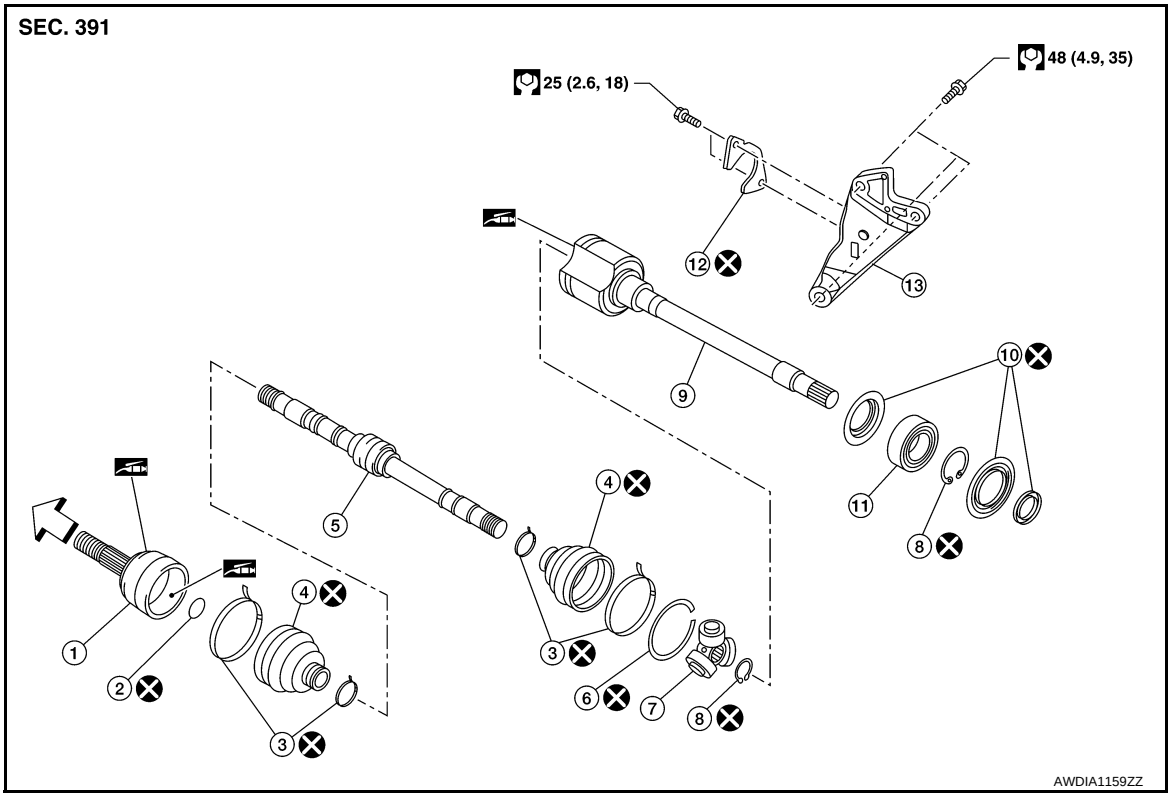
13. Support bearing
14. Snap ring
15. Dust shield

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

RIGHT SIDE (R9M)



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

⇦ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

Refer to GI-4, "Components" for symbols not described on the above.

WHEEL SIDE

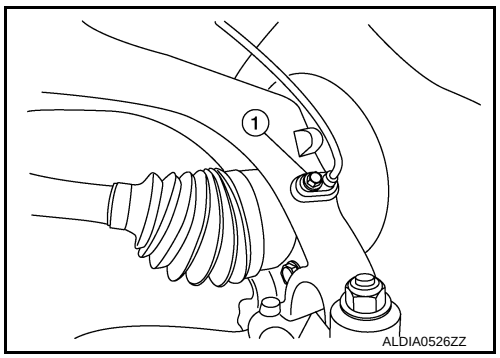
WHEEL SIDE : Removal and Installation

INFOID:0000000010435907

REMOVAL

1. Remove tires from vehicle.

2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Removal and Installation".

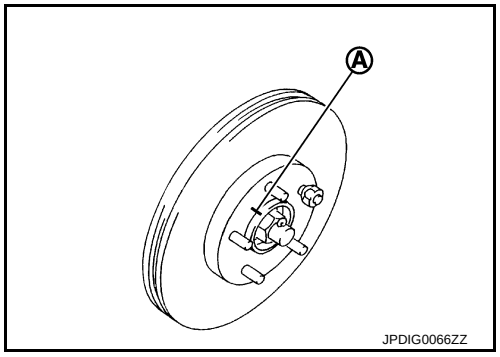


CAUTION:
- **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
- **Never pull on wheel sensor harness.**

3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).

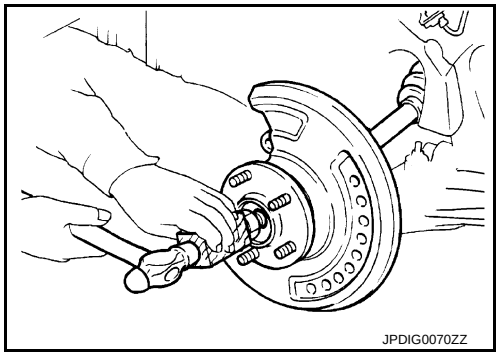
CAUTION:
Never depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.



CAUTION:
Never drop the disc brake rotor.

5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.

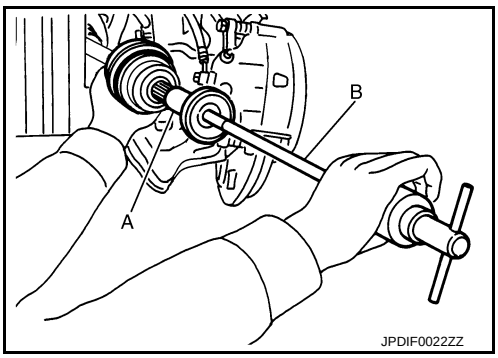


CAUTION:
- **Never place the drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.**
- **Never allow the drive shaft to hang down without support-for housing (or joint sub-assembly), shaft and the other parts.**

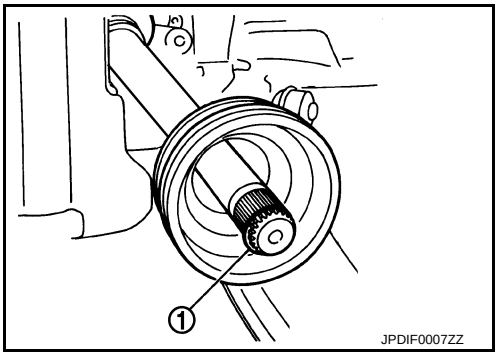
NOTE:
Use suitable puller if wheel hub and drive shaft cannot be separated even after performing the above procedure.

9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FAX-49, "Exploded View".
10. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to FAX-49, "Exploded View".
11. Remove boot bands.
12. Remove boot from joint sub-assembly.

13. 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.**



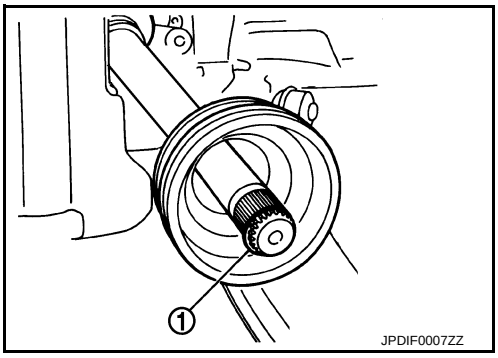
14. Remove circular clip (1) from shaft (exept for R9M) our housing assembly (R9M).



15. Remove outer boot from shaft.
16. Inspect the components. Refer to FAX-58, "Inspection".

INSTALLATION

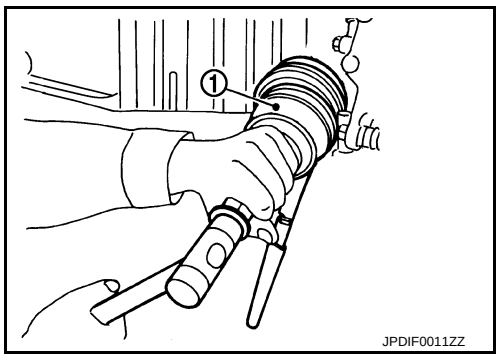
1. Clean the old grease on joint sub-assembly with paper shop cloth.
2. Fill serration slot joint sub-assembly with NISSAN genuine grease or equivalent.
CAUTION:
After applying grease, use a paper shop cloth to wipe off old grease that has oozed out.
NOTE:
Always check with the Parts Department for the latest parts information.
3. Install boot and boot bands to shaft.
CAUTION:
- **Wrap serration on shaft with tape to protect the boot from damage.**
- **Never reuse boot and boot band.**
4. Remove the tape wrapped around the serration on shaft.
5. Position the circular clip (1) on groove at the shaft edge.
CAUTION:
Never reuse circular clip.
NOTE:
A drive joint inserter is recommended when installing the circular clip.



6. Align of the shaft and joint sub-assembly. Assemble the shaft with joint sub-assembly while holding the circular clip.

7. Install joint sub-assembly (1) to housing assembly using suitable tool.

CAUTION:
Confirm that joint sub-assembly is correctly engaged while rotating drive housing assembly.



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

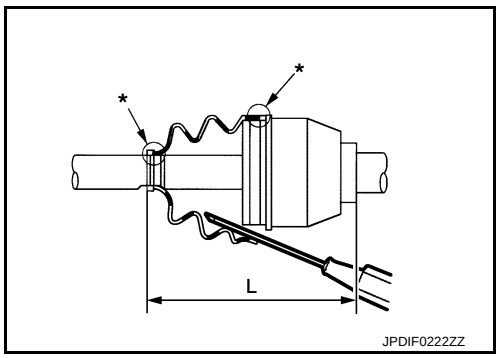
Grease amount : Refer to FAX-73, "Drive Shaft".

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 the joint sub-assembly, boot may come off. Remove all grease from the boot mounting surface.

10. Make sure boot installation length (L) is the specified length. Insert a suitable tool into the large end of boot. Bleed air from boot to prevent boot deformation.

Boot installation length (L) : Refer to FAX-73, "Drive Shaft".

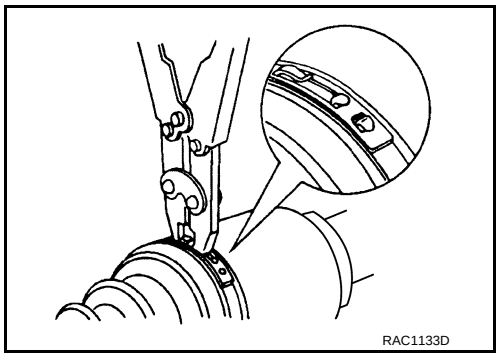


CAUTION:
- **Boot may break if boot installation length is not within standard value.**
- **Be careful that suitable tool does not contact inside surface of boot.**

11. Install new large and small boot bands securely using Tool.

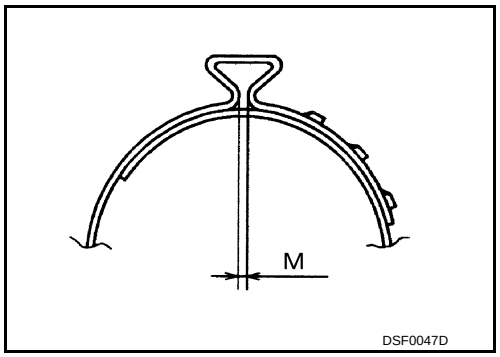
Tool number : KV40107300 (—)

CAUTION:
Never reuse boot band.



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

Dimension (M) : Refer to FAX-54, "WHEEL SIDE : Removal and Installation".

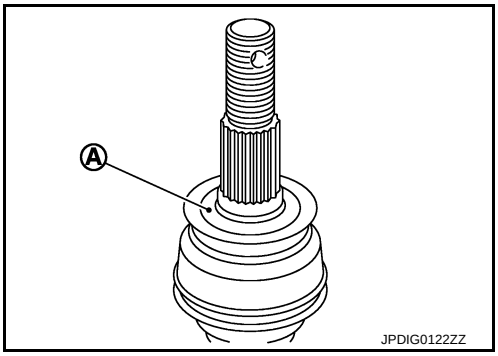


13. Attempt to rotate the boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.

14. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant FAX-73, "Drive Shaft"

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



15. Clean the mating surface of the drive shaft (A) and the wheel hub and bearing.
16. Insert drive shaft to wheel hub and bearing.
17. Temporarily install the wheel hub lock nut.
CAUTION:
Never reuse the wheel hub lock nut.
18. Install the transverse link to the steering knuckle. Tighten the steering knuckle nut and bolt to the specification. Refer to FSU-14, "Exploded View".
19. Align the marks on the disc brake rotor and on the wheel hub and bearing. Install the disc brake rotor.
20. Install caliper to steering knuckle. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Removal and Installation".
21. Install the front wheel sensor to the steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Removal and Installation".
CAUTION:
- **Before installling, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the front wheel sensor.**
- **When installing, make sure there is no foreign material such as iron fragments on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and then install the front wheel sensor.**

22. Hold the wheel hub and bearing. tighten the wheel hub lock nut. Refer to FAX-49, "Exploded View".
CAUTION:
- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. too little torque causes wheel bearing loosness. Tighten the wheel hub lock nut to the specification.**

23. Install the nut retainer.
24. Install a new cotter pin. Refer to FAX-49, "Exploded View".
CAUTION:
- **Never reuse cotter pin.**
- **Bend cotter pin securely to prevent any looseness.**

25. Install the front wheel and tire. Refer to WT-60, "Wheel Balance Adjustment (Aluminum Wheel)".

TRANSAXLE SIDE

TRANSAXLE SIDE : Removal and Installation

INFOID:0000000010435908

NOTE:
Remove boot after removing drive shaft.
- For drive shaft removal and installation, refer to FAX-60, "Removal and Installation (LH)".
- For drive shaft disassembly and assembly, refer to FAX-68, "Disassembly and Assembly".

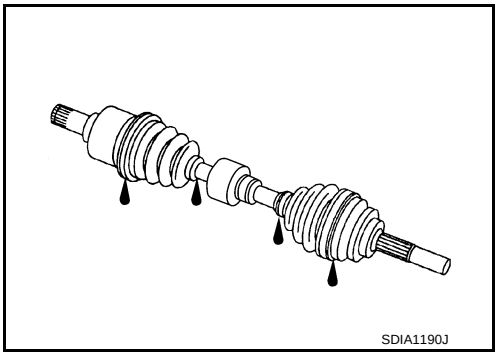
Inspection

INFOID:0000000010435909

INSPECTION AFTER INSTALLATION

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

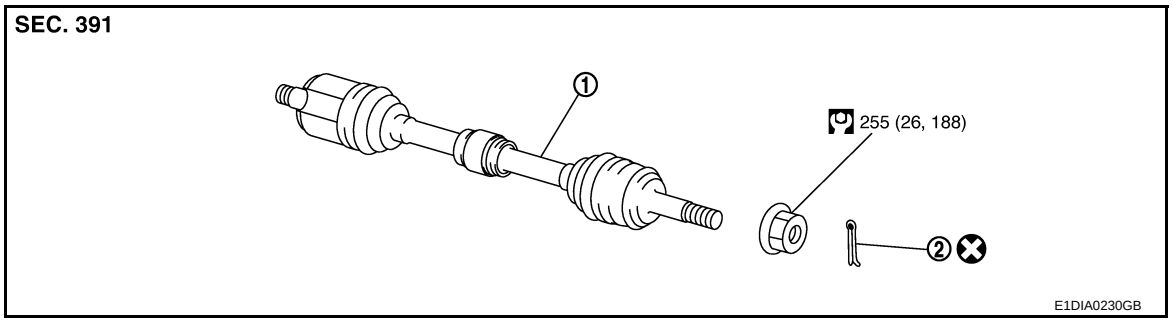
- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Check the wheel sensor harness to be sure the connectors are fully seated.
- Check the wheel alignment. Refer to FSU-7, "Wheel Alignment Inspection".


SDIA1190J

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:0000000010435950



1. Drive shaft
2. Cotter pin

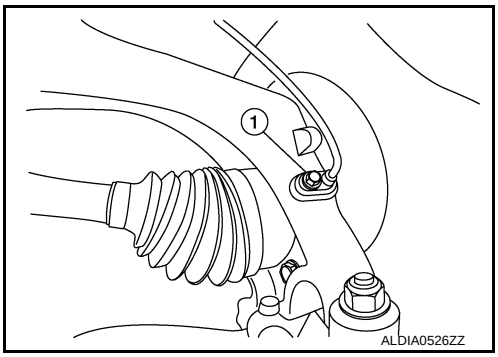
Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation (LH)

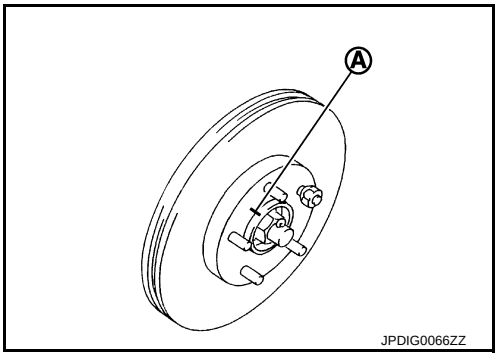
INFOID:0000000010435951

REMOVAL

1. Remove tires from vehicle.
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Removal and Installation".
   CAUTION:
   - **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
   - **Never pull on wheel sensor harness.**

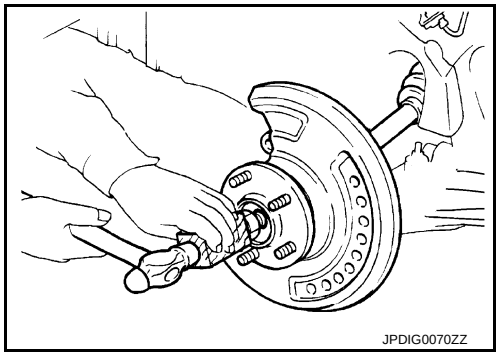


3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).
   CAUTION:
   Never depress brake pedal while brake caliper is removed.
4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.
   CAUTION:
   Never drop the disc brake rotor.



5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.

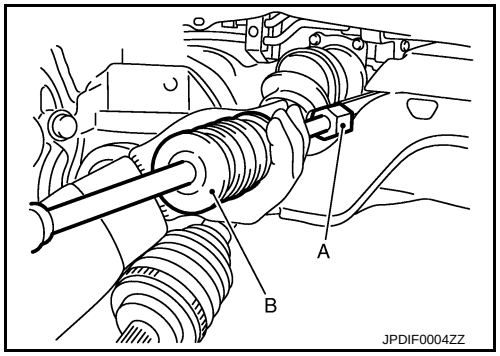
8. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.



CAUTION:
- **Never place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
- **Never allow drive shaft to hangdown without support for housing (or joint sub-assembly), shaft and the other parts.**

NOTE:
Use a suitable puller iff drive shaft cannot be separated from the wheel hub and bearing.

9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FSU-14, "Exploded View".
10. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire.
11. Remove drive shaft from transaxle assembly.
    - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.



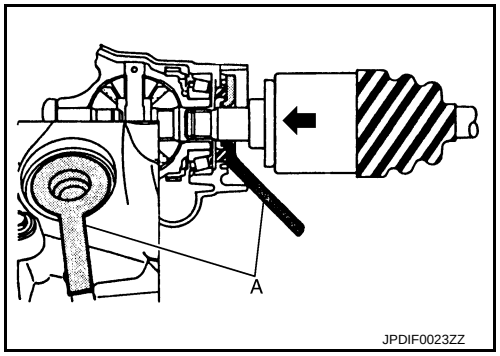
CAUTION:
- **Never place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**
- **Confirm that the circular clip is attached to the drive shaft.**

Tool (A) : KV40107500 (––)

INSTALLATION

Installation is in the reverse order of removal.
- Install a new differential side oil seal.

CAUTION:
Never reuse the differential side oil seal.
- Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.

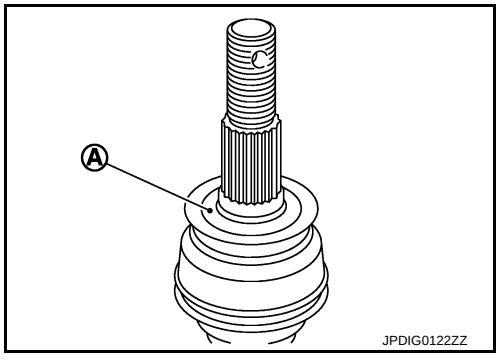


CAUTION:
Check that circular clip is completely engaged.

Tool (A) : KV38107900 (––)

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

CAUTION:
Never apply lubricating oil to these matching surface.
- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.



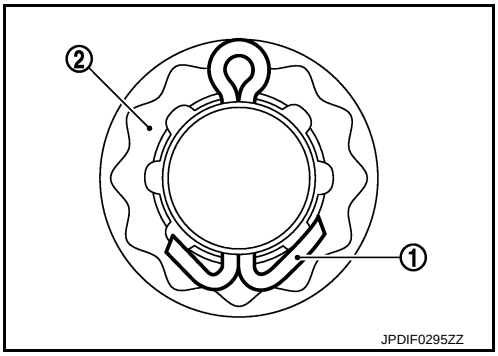
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : FAX-73, "Drive Shaft"

NOTE:

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

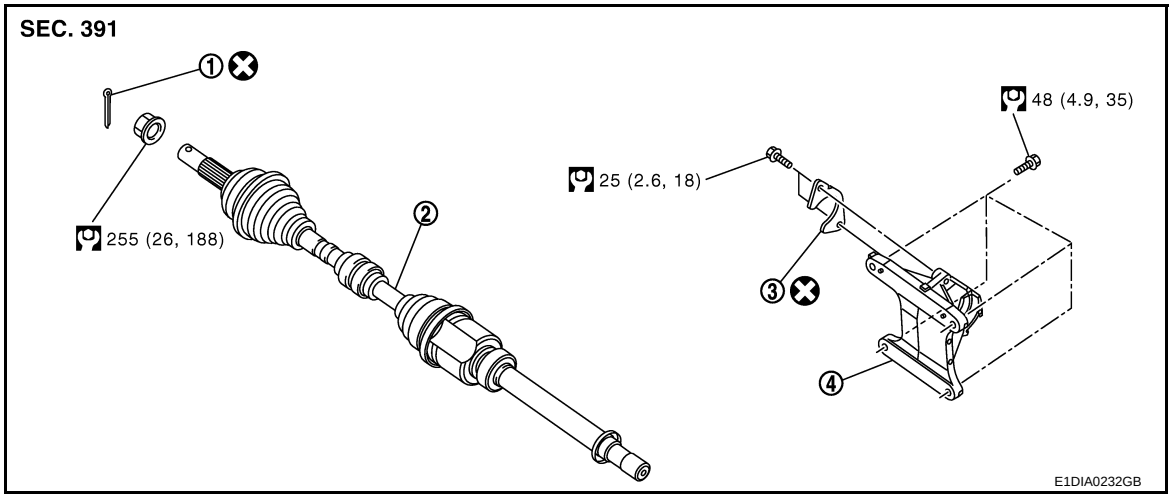
- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
  CAUTION:
  - **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
  - **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- Align the matching marks that have been made during removal when reusing the disc brake rotor.
- When installing a cotter pin (1) and nut retainer (2), securely bend the cotter pin to prevent rattles.
  CAUTION:
  Never reuse cotter pin.
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.



Exploded View (RH)

INFOID:0000000010435952

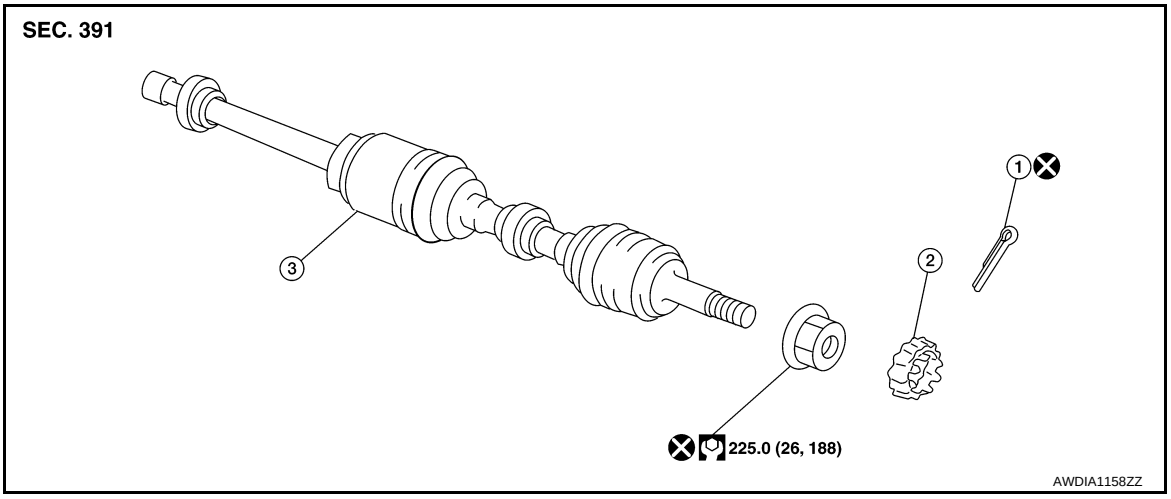
MR20DD :



1. Cotter pin
2. Drive shaft
3. Plate
4. Support bearing bracket

Refer to GI-4, "Components" for symbols in the figure

R9M :



1. Cotter pin
2. Nut retainer
3. Drive shaft

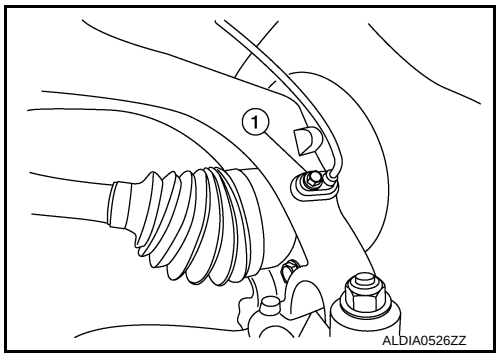
Refer to GI-4, "Components" for symbols in the figure

Removal and Installation (RH)

INFOID:0000000010435953

REMOVAL

1. Remove tires from vehicle.
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to BRC-138, "FRONT WHEEL SENSOR : Removal and Installation".

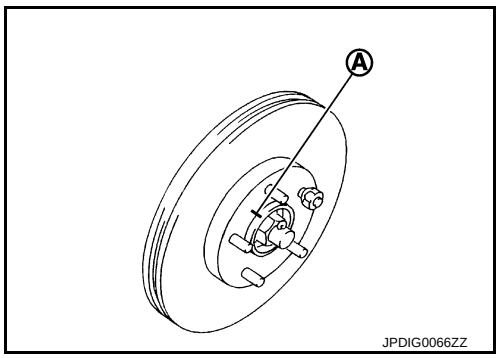


CAUTION:
- **Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.**
- **Never pull on wheel sensor harness.**

3. Remove torque member mounting bolts. Hang torque member not to interfere with work. Refer to BR-37, "BRAKE CALIPER ASSEMBLY : Exploded View" (LHD), BR-80, "BRAKE CALIPER ASSEMBLY : Exploded View" (RHD).

CAUTION:
Never depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

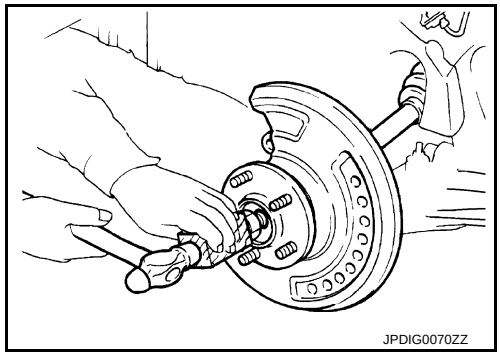


CAUTION:
Never drop the disc brake rotor.

5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.

8. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.
   CAUTION:
   - **Never place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
   - **Never allow drive shaft to hangdown without support for housing (or joint sub-assembly), shaft and the other parts.**

   NOTE:
   Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.


JPDIG0070ZZ

9. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to FSU-14, "Exploded View".
10. Separate drive shaft from wheel hub and bearing and reposition drive shaft aside with wire.
11. Remove retainer mounting bolts and retainer.
12. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
13. Remove drive shaft from transaxle assembly.
    - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.

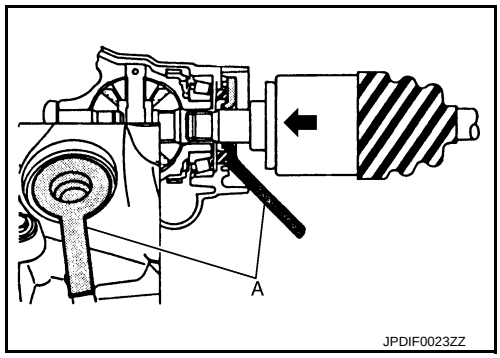
    CAUTION:
    - **Never place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**

    Tool : KV40107500 (––)

INSTALLATION

1. Install a new differential side oil seal.
   CAUTION:
   Never reuse the differential side oil seal.
2. Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.
   CAUTION:
   Check that circular clip is completely engaged.

   Tool : KV38107900 (––)

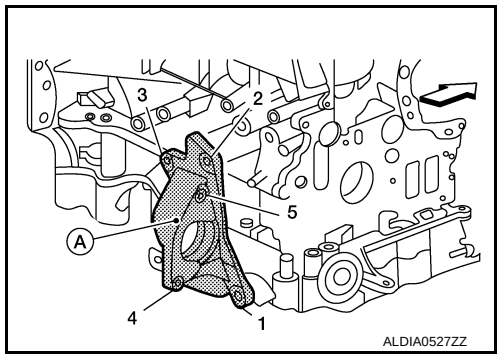


JPDIF0023ZZ

Support bearing bracket

1. Install front drive shaft and bearing retainer with notch (A) facing upward.
2. Tighten bolts in the numerical order as shown.
   - Refer to the following for the installation positions of bolts.

   ⇦ : Front



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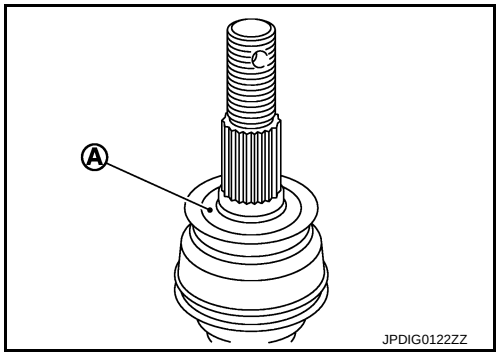
M12 bolts	**: No. 1**	**97.1 N·m (9.9 kg-m, 72 ft-lb)**
M10 bolts	**: No. 2, 3**	**48.0 N·m (4.9 kg-m, 35 ft-lb)**
M8 bolts	**: No. 4, 5**	**25.0 N·m (2.6 kg-m, 18 ft-lb)**

3. Clean the matching surface of wheel hub lock nut and wheel hub and bearing.
CAUTION:
Never apply lubricating oil to these matching surface.

4. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.
CAUTION:
Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : **FAX-73, "Drive Shaft"**

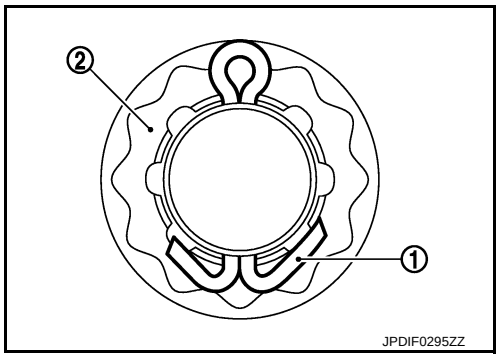
NOTE:
Always check with the Parts Department for the latest parts information.



5. Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
CAUTION:
- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**

6. Align the matching marks that have been made during removal when reusing the disc brake rotor.

7. When installing a cotter pin (1) and adjusting cap (2), securely bend the cotter pin to prevent rattles.
CAUTION:
Never reuse cotter pin.



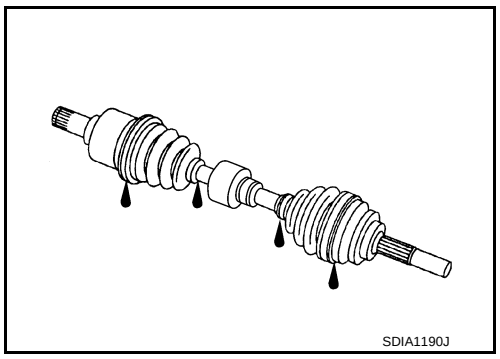
8. Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.
9. Installation of the remaining components is in the reverse order of removal.

Inspection

INFOID:0000000010435954

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.

Dynamic Damper
Check damper for cracks or wear. Replace if necessary.

Joint Sub-Assembly (Wheel Side)
Check the following:
- Joint sub-assembly for rough rotation and excessive axial looseness
- The inside of the joint sub-assembly for entry of foreign material
- Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly

Replace joint sub-assembly if there are any non-standard conditions of components.

Housing and Spider assembly (Transaxle Side)
Replace housing and spider assembly if there is scratching or wear of housing roller contact surface or spider roller contact surface.
NOTE:
Housing and spider assembly are used in a set.

Support Bearing (Right Side)
Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear. Replace support bearing if there are any non-standard conditions.

Support Bearing Bracket (Right Side)
Check for bending, cracks, or damage. Replace support bearing bracket if there are any non-standard conditions.

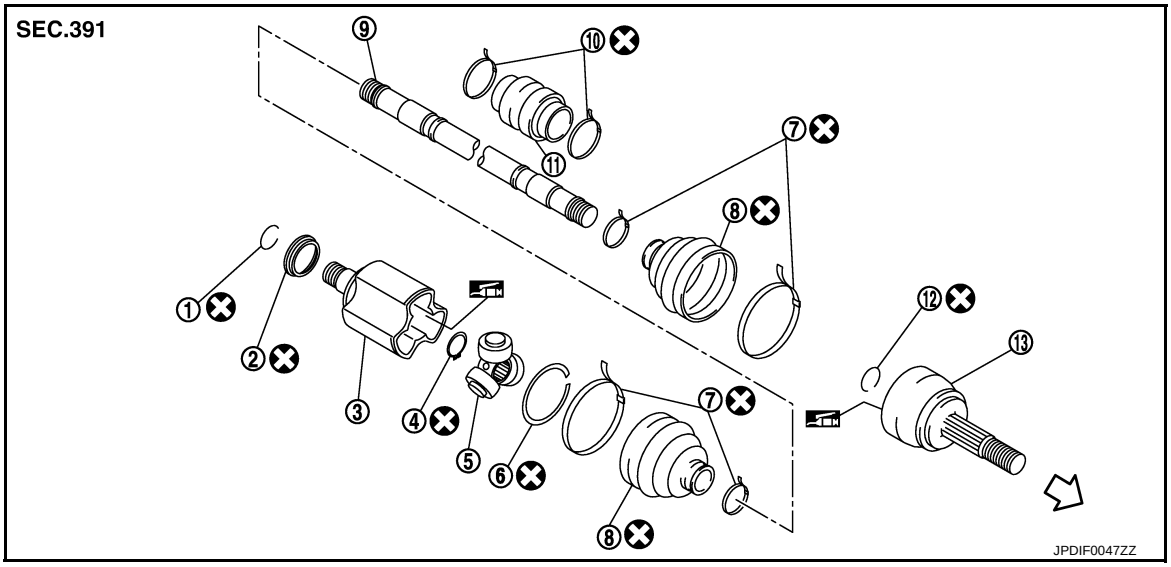
UNIT DISASSEMBLY AND ASSEMBLY

FRONT DRIVE SHAFT

Exploded View

INFOID:0000000011722646

LHD models

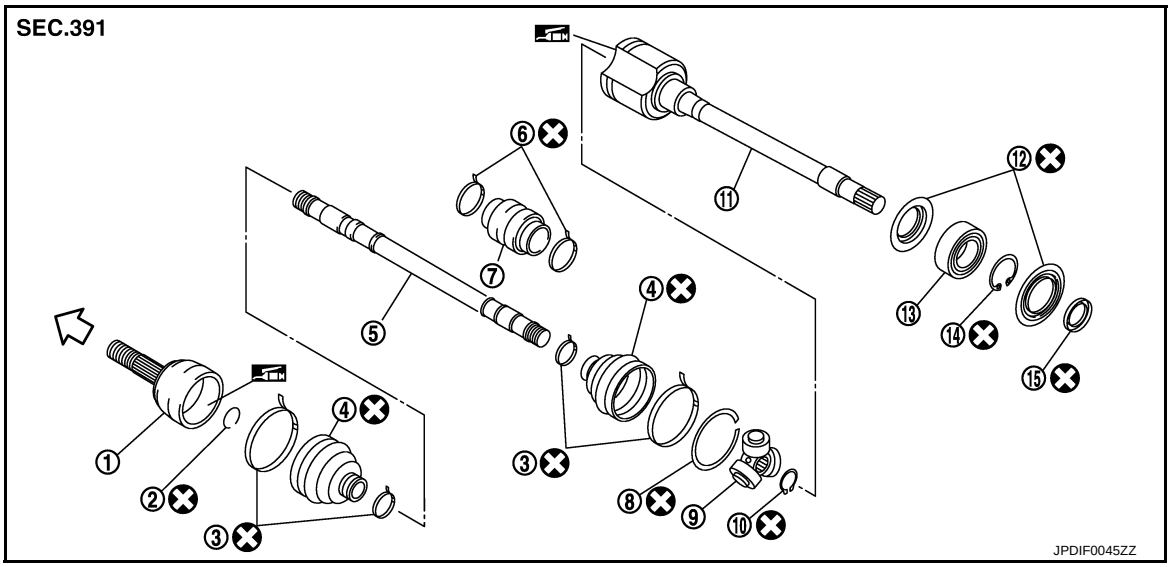


1. Circular clip
2. Dust shield
3. Housing
4. Snap ring
5. Spider assembly
6. Stopper ring
7. Boot band
8. Boot
9. Shaft
10. Damper band
11. Dynamic damper
12. Circular clip
13. Joint sub-assembly

⇦ Wheel side

Refer to GI-4, "Components" for symbols in the figure.

RHD models - MR20DD



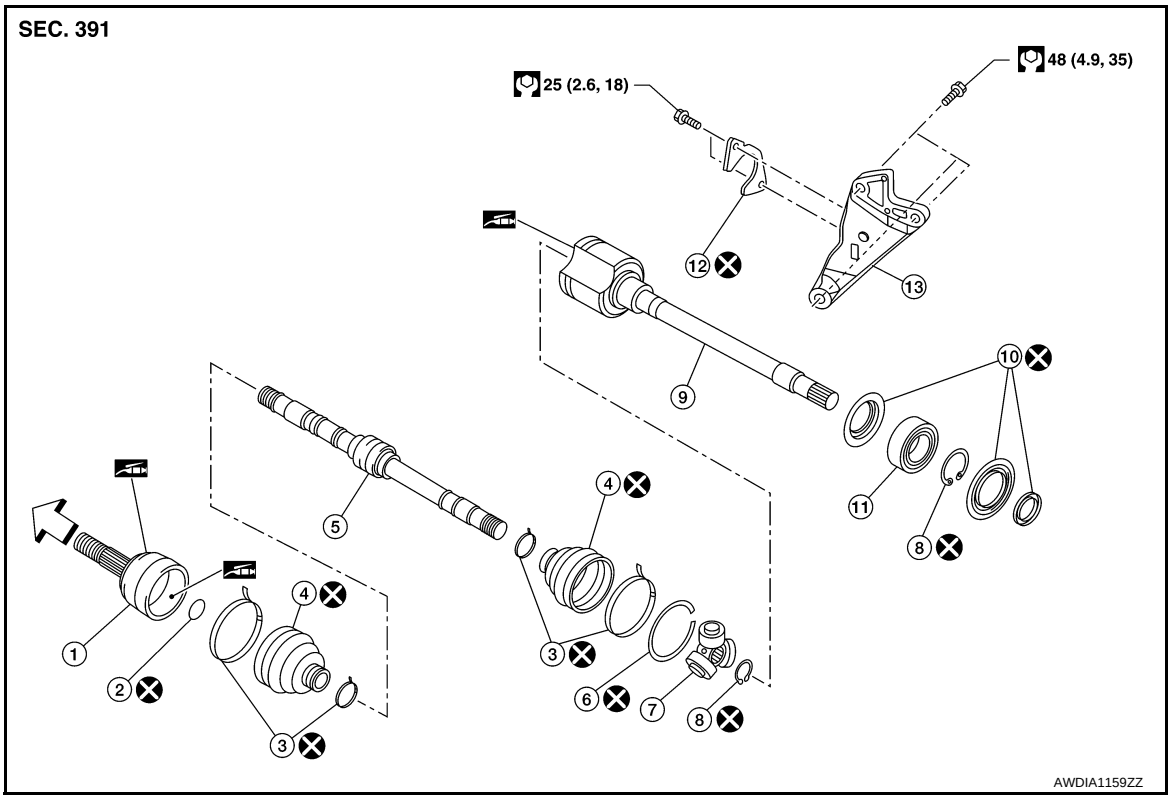
1. Joint sub-assembly
2. Circular clip
3. Boot band
4. Boot
5. Shaft
6. Damper band
7. Dynamic damper
8. Stopper ring
9. Spider assembly
10. Snap ring
11. Housing assembly
12. Dust shield

13. Support bearing
14. Snap ring
15. Dust shield

⇦ : Wheel side

Refer to GI-4, "Components" for symbols in the figure.

RHD models - R9M



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

⇦ : Wheel side

Refer to GI-4, "Components" for symbols in the figure.

Disassembly and Assembly

INFOID:0000000011722647

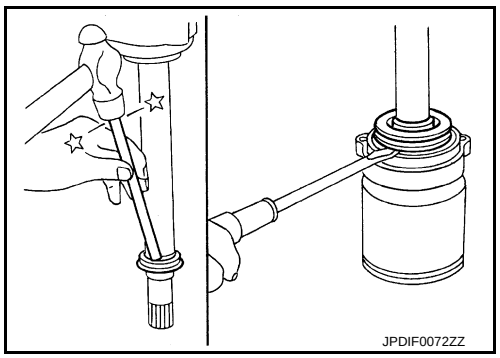
DISASSEMBLY

Transaxle Side

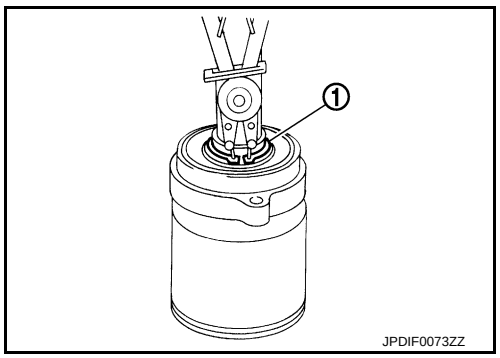
1. Housing on the side of transaxle cannot be disassembled. When removing boot, perform procedure 1 to 5 on the wheel side first. And then remove dynamic damper and band (left side).
2. Remove boot bands, then remove boots from housing assembly, and remove boot from shaft after the above service.
3. Remove dust shield from housing assembly.
4. Remove circular clip from housing assembly (left side).
5. Clean old grease on housing assembly with paper towels.

Support Bearing

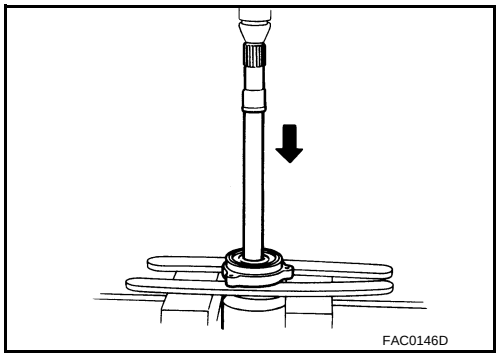
1. Remove dust shields from housing assembly.



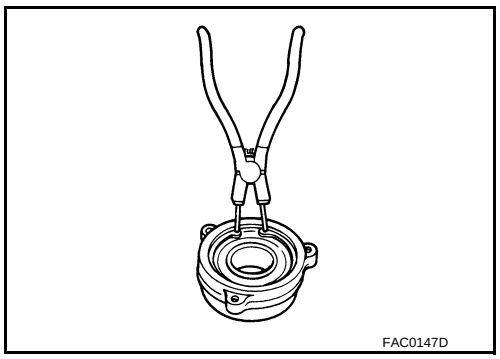
2. Remove snap ring (1).



3. Press out retainer and support bearing from housing assembly.



4. Remove snap ring.
5. Remove support bearing from retainer.



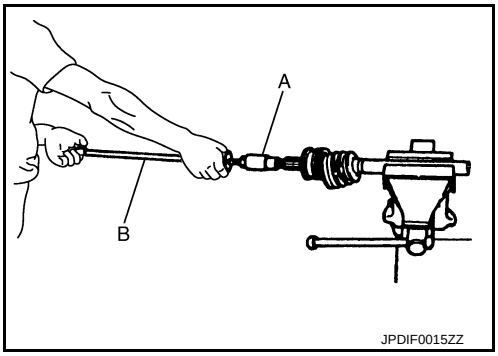
Dynamic Damper

Remove damper bands, then remove dynamic damper from shaft.

Wheel Side

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

3. 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.**
4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper towels while rotating ball cage.



ASSEMBLY

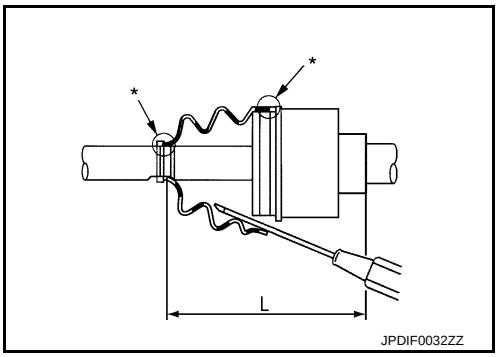
Transaxle Assembly Side

1. Wrap serration on housing assembly with tape to protect boot from damage. Install new boot and boot bands to housing assembly.
   CAUTION:
   Never reuse boot and boot band.
2. Remove the tape wrapped around the serration on housing assembly.
3. Apply specified amount grease to the housing assembly.

Standard

Grease amount : Refer to FAX-73, "Drive Shaft".

4. Install boot securely into grooves (indicated by “*” marks) shown in the figure.
   CAUTION:
   If grease adheres to the boot mounting surface (with “*” mark) on shaft or housing, boot may be removed. Remove all grease from the surface.
5. 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.

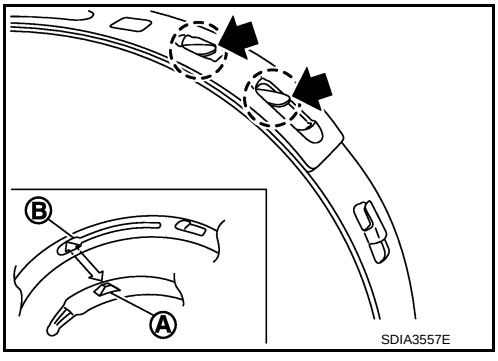


Standard

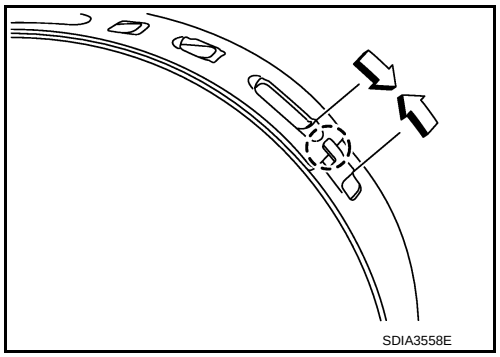
Boots installed length (L) : Refer to FAX-73, "Drive Shaft".

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

6. Install new larger and smaller boot bands securely.
   CAUTION:
   Never reuse boot band.
7. 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.



8. Pinch projection on the band with suitable pliers to tighten band.
9. Insert tip of band below end of the pawl.
10. 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.
11. Install dust shield.
    CAUTION:
    Never reuse dust shield.
12. Install circular clip to housing (left side).
    CAUTION:
    Never reuse circular clip.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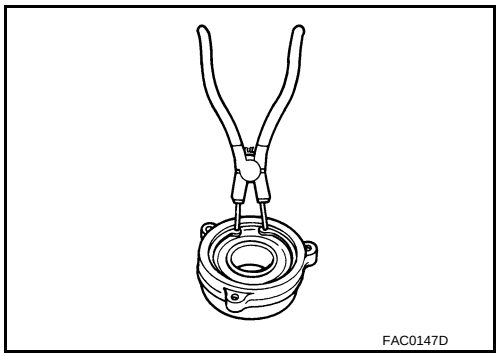
Support Bearing

1. Install dust shield on housing assembly.
   CAUTION:
   Never reuse dust shield.
2. Install support bearing into retainer.
3. Install snap ring to retainer.
   CAUTION:
   Never reuse snap ring.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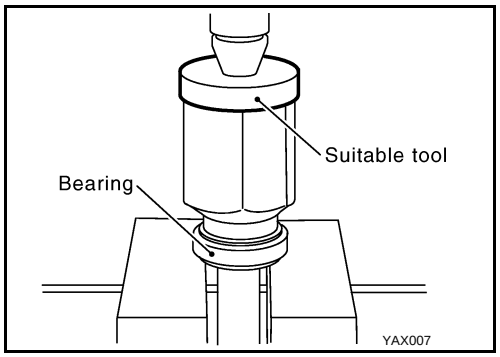
4. Install retainer and support bearing to housing assembly.
5. Install snap ring.
   CAUTION:
   Never reuse snap ring.



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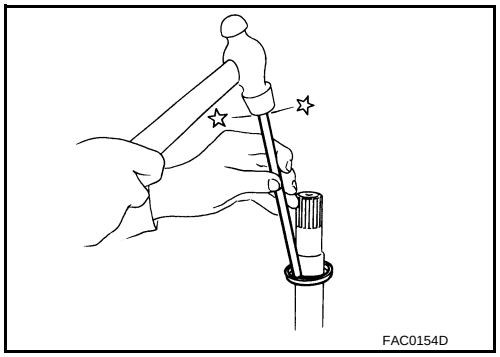
6. Install dust shields.
   CAUTION:
   Never reuse dust shields.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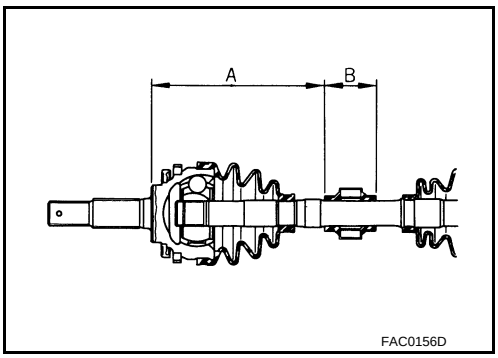
Dynamic Damper

Secure dynamic damper with bands in the following specified position when removing.

CAUTION:
Never reuse bands.

Standard
Demission : FAX-73, "Drive Shaft".



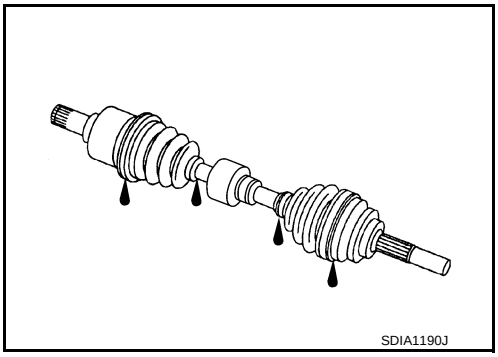
Wheel Side
For further details, refer to the installation procedure of "FAX-54, "WHEEL SIDE : Removal and Installation"" for the drive shaft boot.

Inspection

INFOID:0000000011722648

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 any non-standard condition.



INSPECTION AFTER DISASSEMBLY

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

Dynamic Damper
Check damper for cracks or wear. Replace if necessary.

Joint Sub-Assembly (Wheel Side)
Check the following:
- Joint sub-assembly for rough rotation and excessive axial looseness
- The inside of the joint sub-assembly for entry of foreign material
- Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly

Replace joint sub-assembly if there are any non-standard conditions of components.

Housing and Spider assembly (Transaxle Side)
Replace housing and spider assembly if there is any scratching or wear of housing on roller contact surface or spider roller contact surface.
NOTE:
Housing and spider assembly are used in a set.

Support Bearing (Right Side)
Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear. Replace support bearing if there are any non-standard conditions.

Support Bearing Bracket (Right Side)
Check for bending, cracks, or damage. Replace support bearing bracket if there are any non-standard conditions.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000010436941

Item	Standard
Axial end play	0.0 mm (0.0 in)
Rotating torque	1.9 N.m (0.19 kg-m, 17 in-lb) or less
Spring balance measurement	13.7 N (1.40 kg-f, 3.08 lb-f) or less

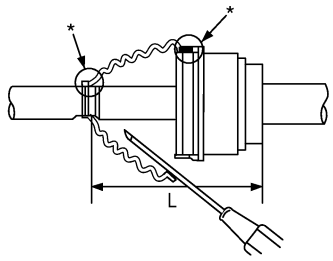
Drive Shaft

INFOID:0000000010297882

MR20DD

M/T models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	115 – 135 g (4.06 – 4.76 oz)	200 – 220 g (7.05 – 7.76 oz)
	Right side		
Boots installed length (L)	Left side	133.5 mm (5.26 in)	189.6 mm (7.46 in)
	Right side		177.6 mm (6.99 in)



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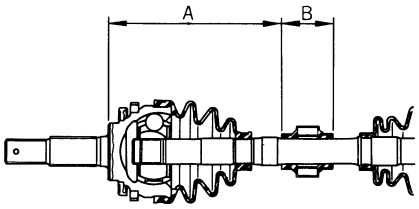
Dynamic damper		A	B
Dimension	Right side	219 – 223 mm (8.62 – 8.78 in)	70 mm (2.76 in)



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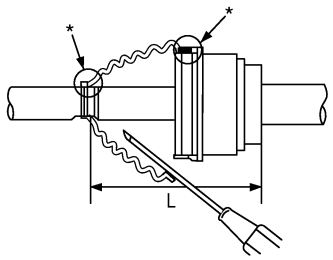
CVT models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	115 – 135 g (4.06 – 4.76 oz)	200 – 220 g (7.05 – 7.76 oz)
	Right side		

Boots installed length (L)	Left side	133.5 mm (5.26 in)	185.6 mm (7.31 in)
	Right side		177.6 mm (6.99 in)



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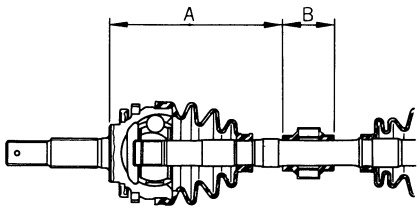
Dynamic damper		A	B
Dimension	Right side	238 – 242 mm (9.37 – 9.53 in)	70 mm (2.76 in)



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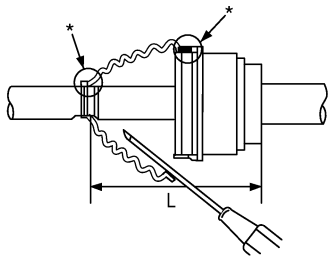
R9M

M/T models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	175 – 205 g (6.17 – 7.23 oz)	165 – 175 g (5.82 – 6.17 oz)
	Right side		
Boots installed length (L)	Left side	163.4 mm (6.43 in)	173.1 mm (6.81 in)
	Right side		181.1 mm (7.13 in)



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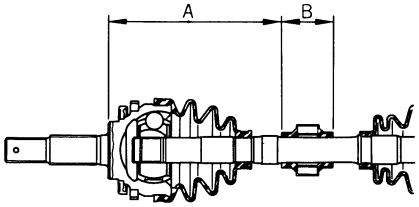
Dynamic damper	A	B

Dimension	Left side	194 – 200 mm (7.64 – 7.87 in)	70 mm (2.76 in)



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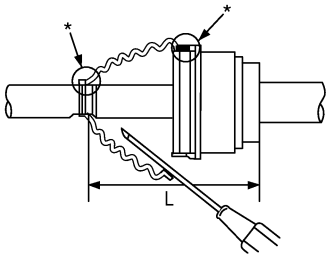
CVT models

Joint		Wheel side	Transaxle assembly side
Grease quantity	Left side	175 – 205 g (6.17 – 7.23 oz)	165 – 175 g (5.82 – 6.17 oz)
	Right side		
Boots installed length (L)	Left side	163.4 mm (6.43 in)	178.1 mm (7.01 in)
	Right side		181.1 mm (7.13 in)



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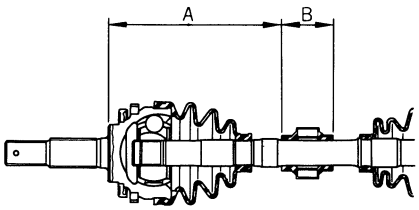
Dynamic damper		A	B
Dimension	Left side	236.8 – 242.8 mm (9.32 – 9.56 in)	70 mm (2.76 in)



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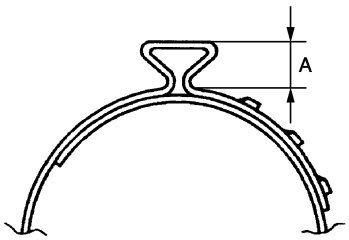
Boot Band Specification

Unit: mm (in)



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Dimension (A) - maximum	7.0 (0.28)