

SECTION **FAX**  
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FAX

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# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[2WD]

## SYMPTOM DIAGNOSIS

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

#### NVH Troubleshooting Chart

INFOID:000000001730107

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

Reference page			—	<a href="#">FAX-24</a>	—	<a href="#">FAX-10</a>	—	<a href="#">FAX-8</a>	NVH in FAX and FSU sections	Refer to Front axle in this chart	NVH in WT section	NVH in WT section	Refer to DRIVE SHAFT in this chart	NVH in BR section	NVH in ST section	
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING	
Symptom	DRIVE SHAFT	Noise	x	x				x	x	x	x	x	x	x	x	
		Shake	x		x			x	x	x	x	x		x	x	
	FRONT AXLE	Noise				x	x	x	x		x	x	x	x	x	x
		Shake				x	x	x	x		x	x	x	x	x	x
		Vibration				x	x	x	x		x		x			x
		Shimmy				x	x		x		x	x		x	x	x
		Judder				x			x		x	x		x	x	x
		Poor quality ride or handling				x	x		x		x	x				

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FAX

&lt; PRECAUTION &gt;

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

INFOID:000000003248017

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.

Information necessary to service the system safely is included in the "SRS AIRBAG" and "SEAT BELT" of this Service Manual.

**WARNING:**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

**FOR USA AND CANADA : Precaution Necessary for Steering Wheel Rotation After Battery Disconnect**

INFOID:000000003302746

**NOTE:**

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III 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 NVIS/IVIS, 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-III.

**FOR USA AND CANADA : Precautions for Drive Shaft**

INFOID:000000001730110

**CAUTION:**

# PRECAUTIONS

[2WD]

< PRECAUTION >

Note the following precautions when disassembling and assembling drive shaft.

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a 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 waste must be used. Never use fabric shop cloths 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 waste.

FOR MEXICO

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

INFOID:000000003248018

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 AIRBAG" and "SEAT BELT" of this Service Manual.

## WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

FOR MEXICO : Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000003302747

## NOTE:

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III 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 NVIS/IVIS, 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.)

## PRECAUTIONS

< PRECAUTION >

[2WD]

6. Perform a self-diagnosis check of all control units using CONSULT-III.

FOR MEXICO : Precautions for Drive Shaft

INFOID:000000003248020

### **CAUTION:**

Note the following precautions when disassembling and assembling drive shaft.

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a 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 waste must be used. Never use fabric shop cloths 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 waste.

# PREPARATION

< PREPARATION >

[2WD]

## PREPARATION

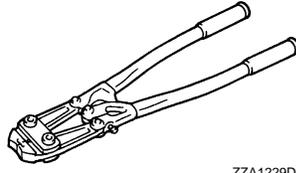
### PREPARATION

#### Special Service Tool

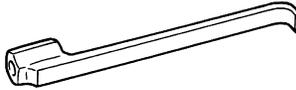
INFOID:000000001730111

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

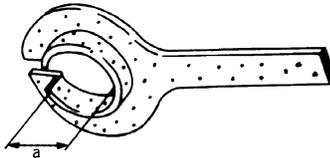
Tool number (Kent-More No.) Tool name	Description
KV40107300 ( — ) Boot band crimping tool	Installing boot band
KV40107500 ( — ) Drive shaft attachment	Removing drive shaft
KV38107900 ( — ) Protector a: 32 mm (1.26 in) dia.	Installing drive shaft



ZZA1229D



ZZA1230D

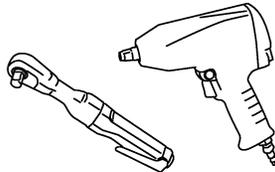


PDIA1183J

#### Commercial Service Tool

INFOID:000000001731620

Tool name	Description
Power tool	Loosening bolts and nuts



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# FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE MAINTENANCE >

[2WD]

## ON-VEHICLE MAINTENANCE

### FRONT WHEEL HUB AND KNUCKLE

#### Inspection

INFOID:000000001730112

#### 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-26, "Wheel Bearing"](#).

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

# FRONT DRIVE SHAFT

< ON-VEHICLE MAINTENANCE >

[2WD]

## FRONT DRIVE SHAFT

### Inspection

INFOID:000000001730113

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

**CAUTION:**

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

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# FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE REPAIR >

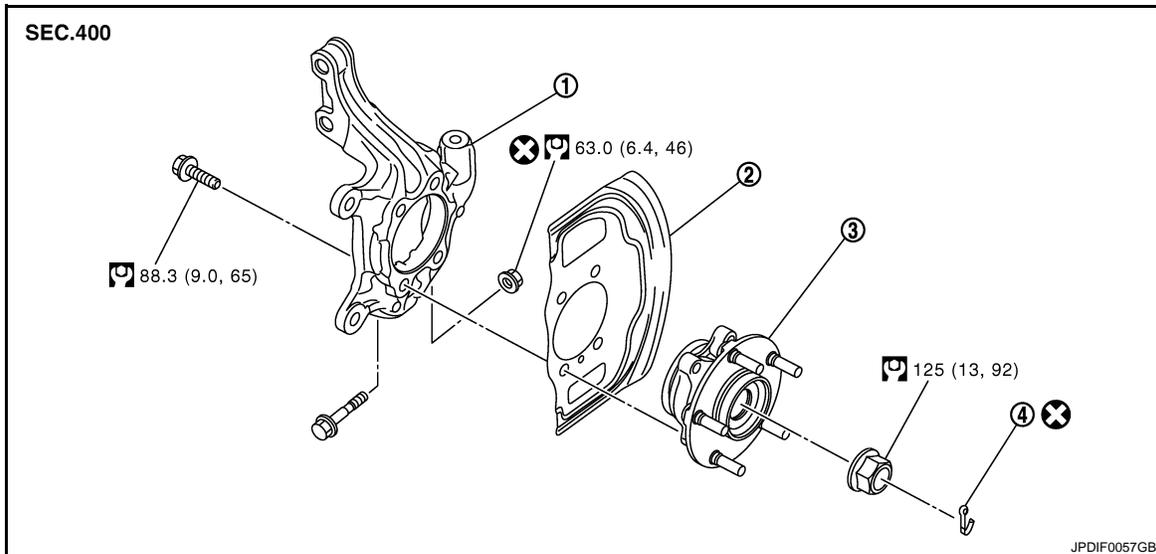
[2WD]

## ON-VEHICLE REPAIR

### FRONT WHEEL HUB AND KNUCKLE

#### Exploded View

INFOID:000000001730114



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:000000001730115

### REMOVAL

#### Wheel Hub and Bearing Assembly

1. Remove tires with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).  
**CAUTION:**  
**Never pull on wheel sensor harness.**
3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove torque member mounting bolts with power tool. Hang torque member not to interfere with work. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).  
**CAUTION:**  
**Never depress brake pedal while brake caliper is removed.**
5. Remove disc rotor.  
**CAUTION:**
  - Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.
  - Never drop disc rotor.
6. Remove cotter pin, and then loosen hub lock nut with power tool.

# FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE REPAIR >

[2WD]

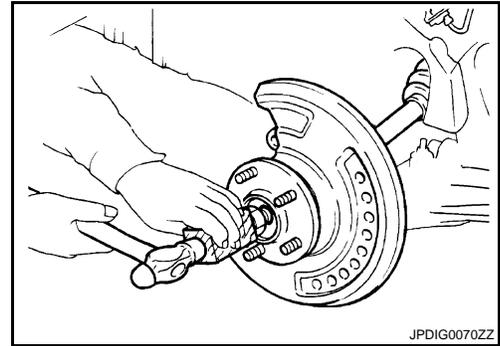
7. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.

**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 wheel hub and bearing assembly.

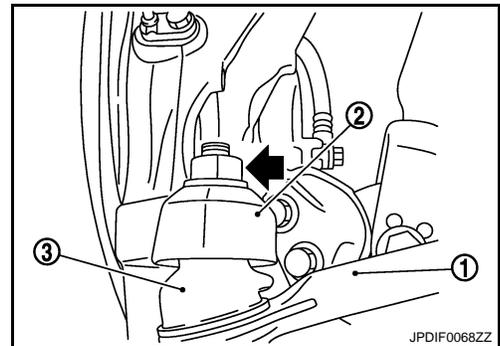
## Steering Knuckle

1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove transverse link from steering knuckle.
3. Remove steering knuckle from strut assembly.
4. Loosen the nut (←) of steering outer socket.
5. Remove steering outer socket (1) from steering knuckle (2) using the ball joint remover so as not to damage ball joint boot (3).

**CAUTION:**

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

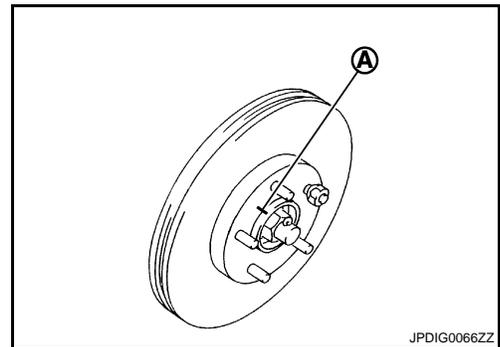
6. Remove steering knuckle from vehicle.



## INSTALLATION

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

- Align the matching marks made (A) during removal when reusing the disc rotor.
- Install removed wheel hub and bearing assembly and steering knuckle and perform the final tightening of each part under unladen conditions on the level surface.



## Inspection

INFOID:000000001730116

### 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-14, "Inspection"](#) and [ST-16, "Inspection"](#).

### INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-8, "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-76, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#) (with VDC).

# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[2WD]

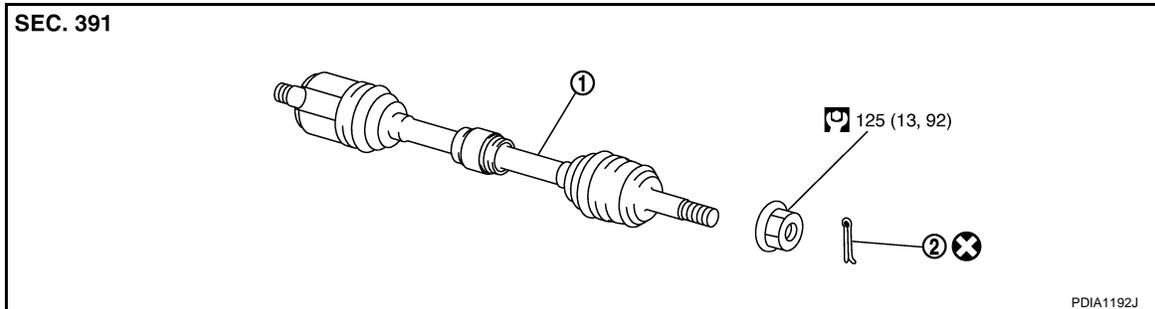
## FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:000000001730117

REMOVAL

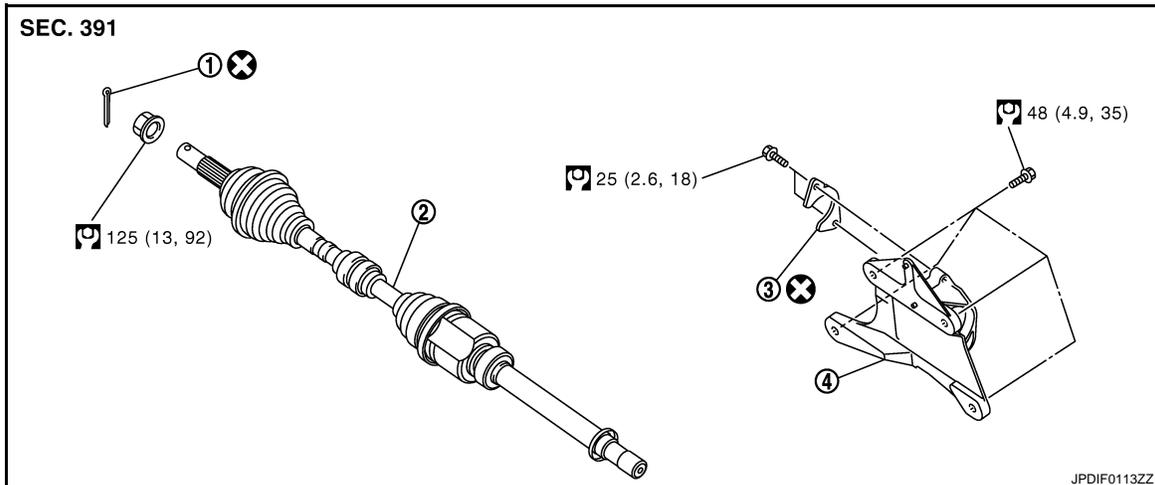
LEFT SIDE



1. Drive shaft
2. Cotter pin

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

RIGHT SIDE



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

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

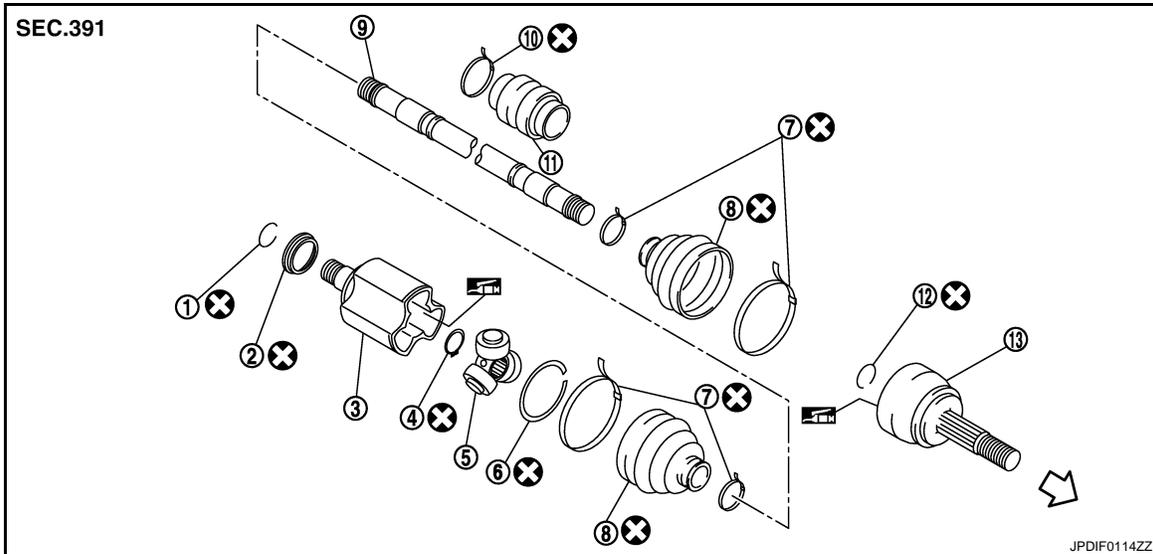
DISASSEMBLY

# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[2WD]

## LEFT SIDE



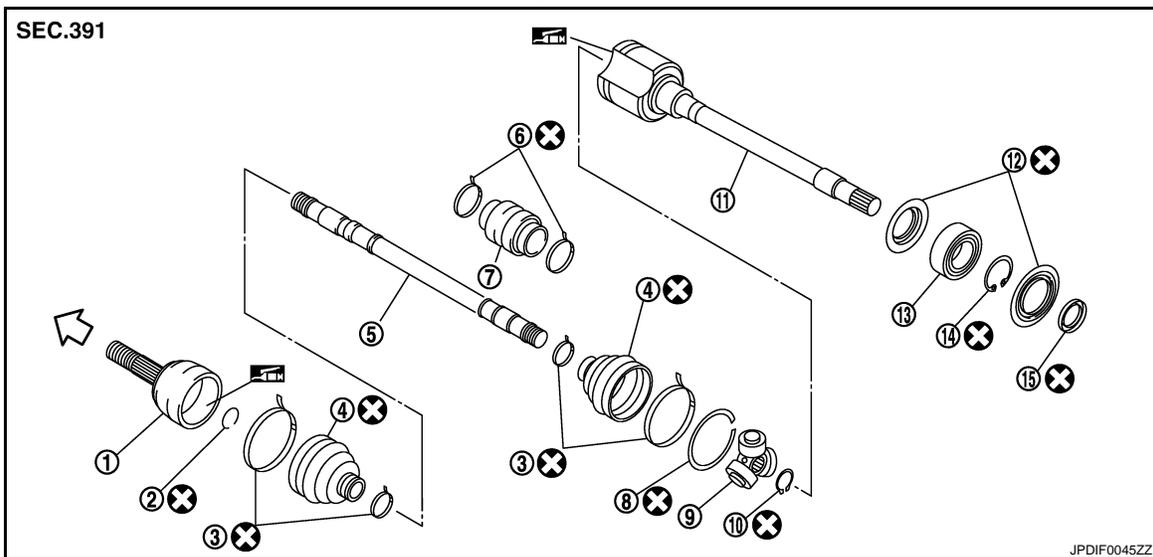
- |                        |                    |                   |
|------------------------|--------------------|-------------------|
| 1. Circular clip       | 2. Dust shield     | 3. Housing        |
| 4. Snap ring           | 5. Spider assembly | 6. Stopper ring   |
| 7. Boot band           | 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



- |                       |                  |                    |
|-----------------------|------------------|--------------------|
| 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   | 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.

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# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[2WD]

## Replacement

INFOID:000000001730118

### WHEEL SIDE

1. Remove tires with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).

**CAUTION:**

**Never pull on wheel sensor harness.**

3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove torque member mounting bolts with power tool. Hang torque member not to interfere with work. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

**CAUTION:**

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

5. Remove disc rotor. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).

**CAUTION:**

- Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.
- Never drop disc rotor.

6. Remove cotter pin, and then loosen 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.

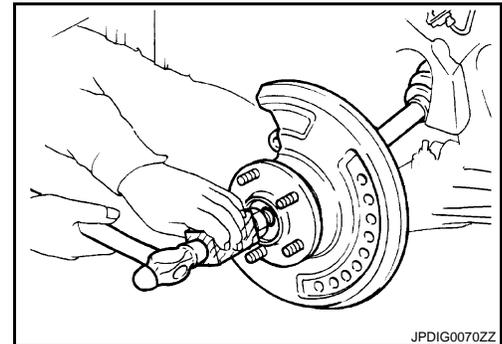
**CAUTION:**

- 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 drive shaft cannot be separated even after performing the above procedure.

8. Remove the hub lock nut.
9. Remove transverse link from steering knuckle.

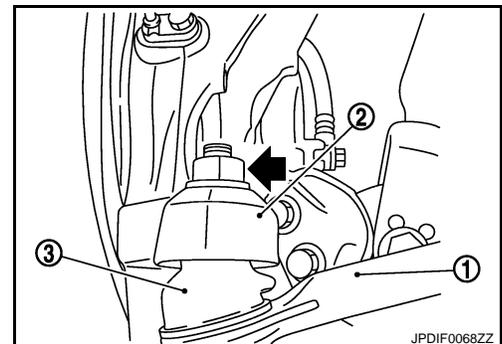


10. Loosen the nut (←) of steering outer socket.
11. Remove steering outer socket (1) from steering knuckle (2) using the ball joint remover so as not to damage ball joint boot (3).

**CAUTION:**

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

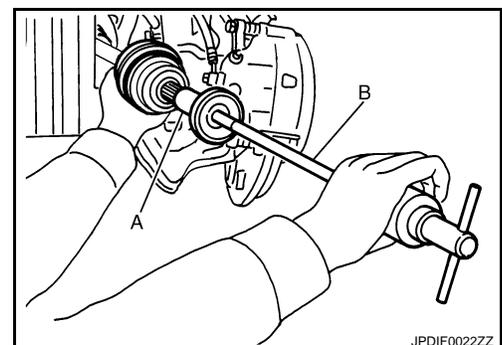
12. Remove drive shaft from wheel hub and bearing assembly.
13. Remove boot bands, and then remove boot from joint sub-assembly.



14. Screw a drive shaft puller (A) into joint sub-assembly screw part to a length of 30 mm (1.18 in) or more. Support drive shaft with one hand and pull out joint sub-assembly with a sliding hammer (B) from shaft.

**CAUTION:**

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

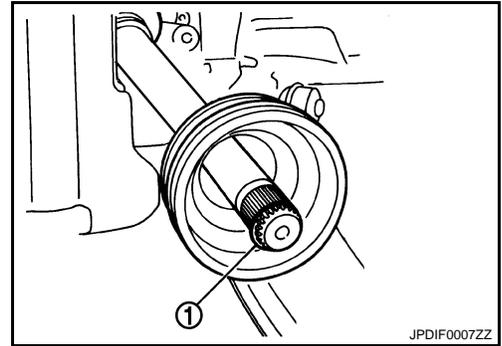


# FRONT DRIVE SHAFT BOOT

[2WD]

## < ON-VEHICLE REPAIR >

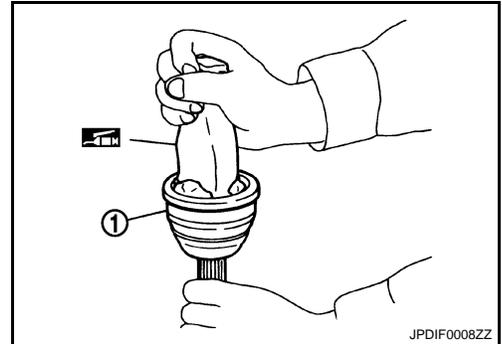
15. Remove circular clip (1) from shaft.
16. Remove boot from shaft.
17. Clean the old grease on joint sub-assembly with paper cloth.



18. Fill serration slot joint sub-assembly (1) with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.

**CAUTION:**

After applying grease, use a paper waste to wipe off old grease that has oozed out.

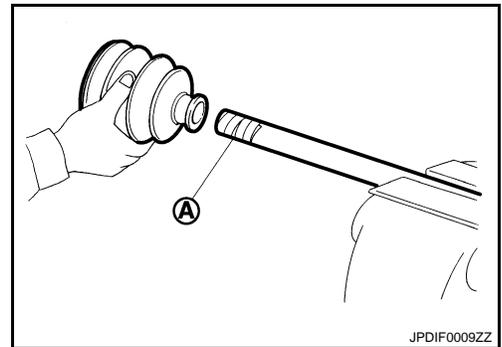


19. Wrap serration on shaft with tape (A) to protect the boot from damage. Install boot and boot bands to shaft.

**CAUTION:**

Never reuse boot and boot band.

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



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

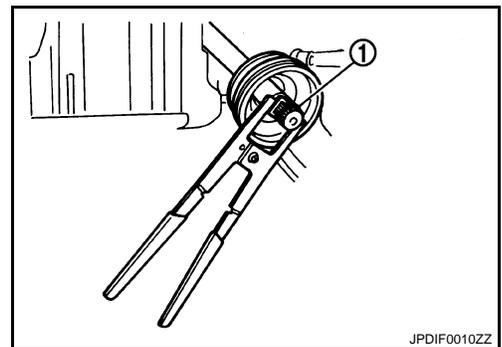
**CAUTION:**

Never reuse circular clip.

**NOTE:**

Drive joint inserter is recommended when installing circular clip.

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



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# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[2WD]

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

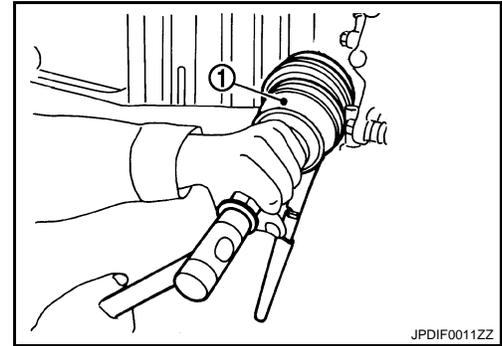
**CAUTION:**

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

24. Fill into the boot inside with the specified amount of grease from large diameter side of boot.

**Standard**

**Grease amount** : Refer to [FAX-26, "Drive Shaft"](#).



JPDIF0011ZZ

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

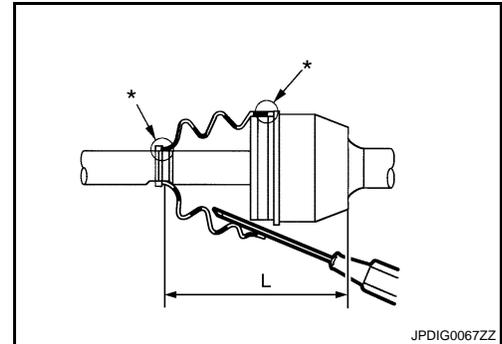
**CAUTION:**

**If grease adheres to the boot mounting surface (indicated "\*" mark) on the shaft or joint sub-assembly, boot may be removed. Remove all grease from the boot mounting surface.**

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

**Standard**

**Boots installed length (L)** : Refer to [FAX-26, "Drive Shaft"](#).



JPDIG0067ZZ

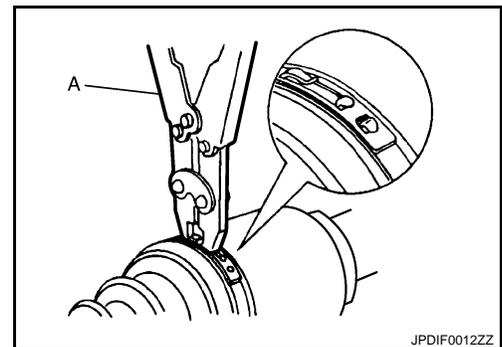
**CAUTION:**

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

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

**CAUTION:**

**Never reuse boot band.**



JPDIF0012ZZ

**NOTE:**

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

**Dimension (M)** : 1.0 – 4.0 mm (0.039 – 0.157 in)

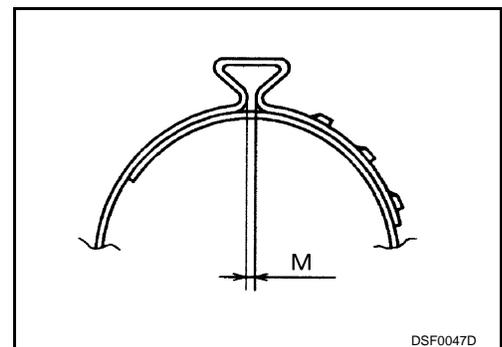
28. Secure joint sub-assembly and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them using new boot bands when boot installation positions become incorrect.

29. Insert drive shaft to wheel hub and bearing assembly, and then temporarily tighten hub lock nut.

**CAUTION:**

**The drive shaft is press-fit. When assembling the shaft, never press it, but pull it until fully seated by tightening the hub lock nut.**

30. Install transverse link to steering knuckle. Refer to [FAX-10, "Exploded View"](#).



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# FRONT DRIVE SHAFT BOOT

[2WD]

< ON-VEHICLE REPAIR >

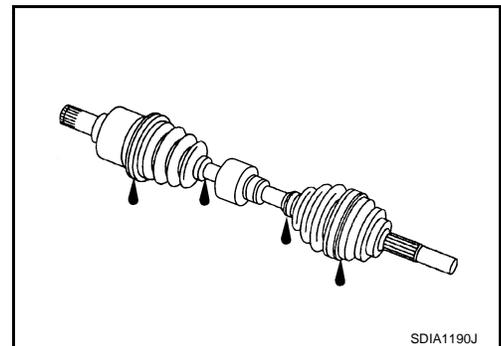
31. Install steering outer socket to steering knuckle. Refer to [ST-14, "Exploded View"](#).
32. Install disc rotor.  
**CAUTION:**  
**Align the matching marks made during removal when reusing the disc rotor.**
33. Install torque member to steering knuckle. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
34. Install lock plate to strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
35. Install wheel sensor to steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).
36. Tighten the hub lock nut to the specified torque.
37. Install cotter pin.  
**CAUTION:**
  - **Never reuse cotter pin.**
  - **Bend cotter pin at the root sufficiently to prevent any looseness.**
38. Install tires to vehicle.

## Inspection

INFOID:000000002988772

### 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.

# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[2WD]

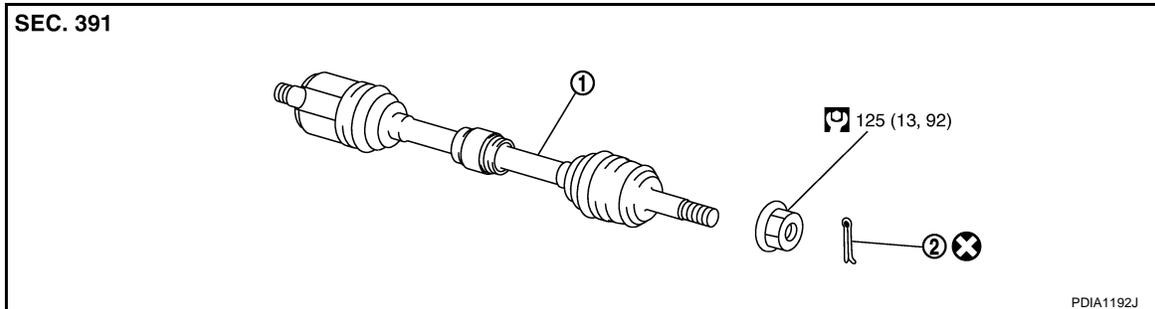
## FRONT DRIVE SHAFT

Exploded View

INFOID:000000001731621

REMOVAL

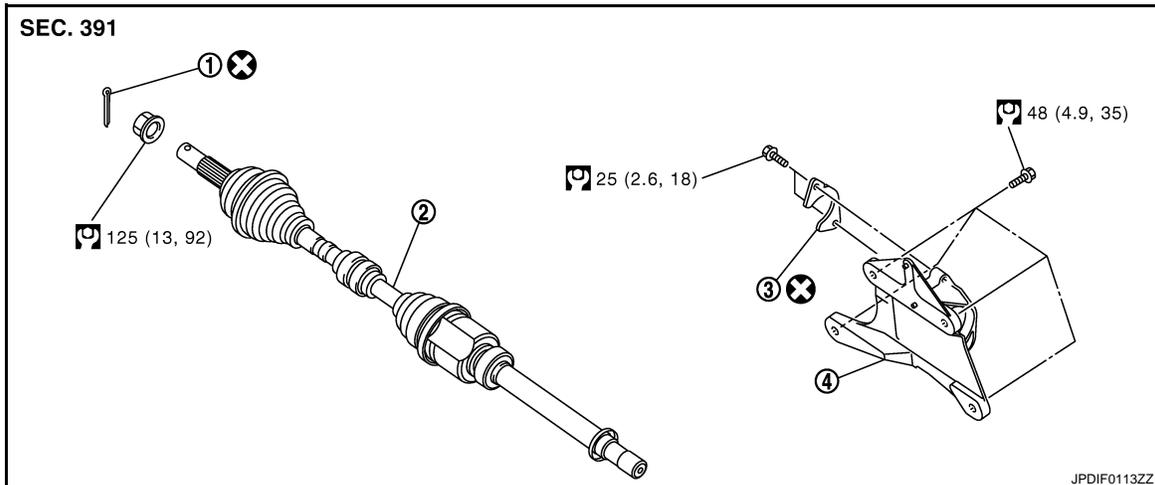
### LEFT SIDE



1. Drive shaft
2. Cotter pin

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

### RIGHT SIDE



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

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

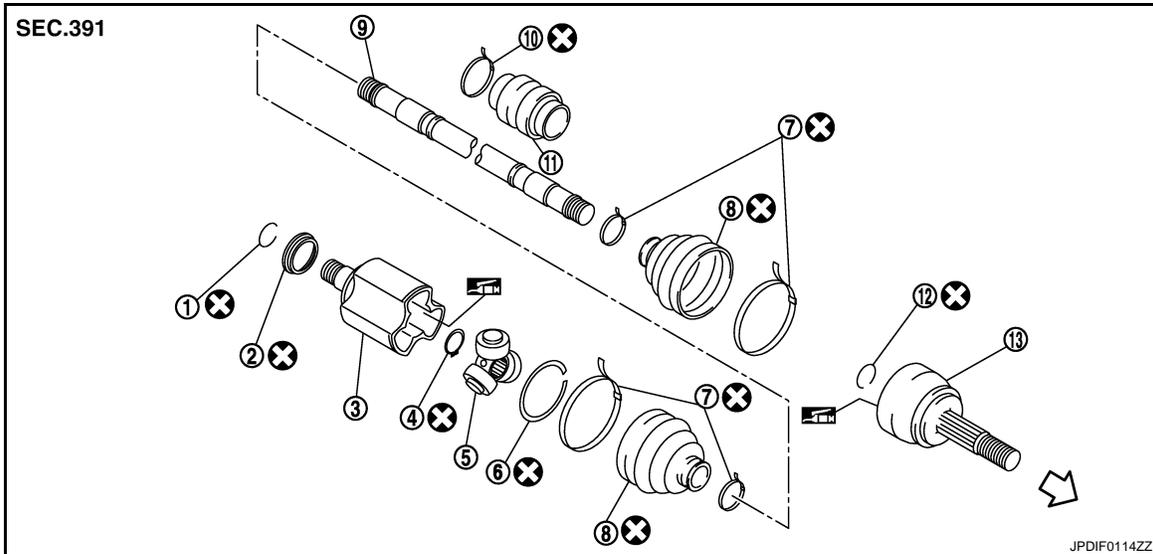
DISASSEMBLY

# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[2WD]

## LEFT SIDE



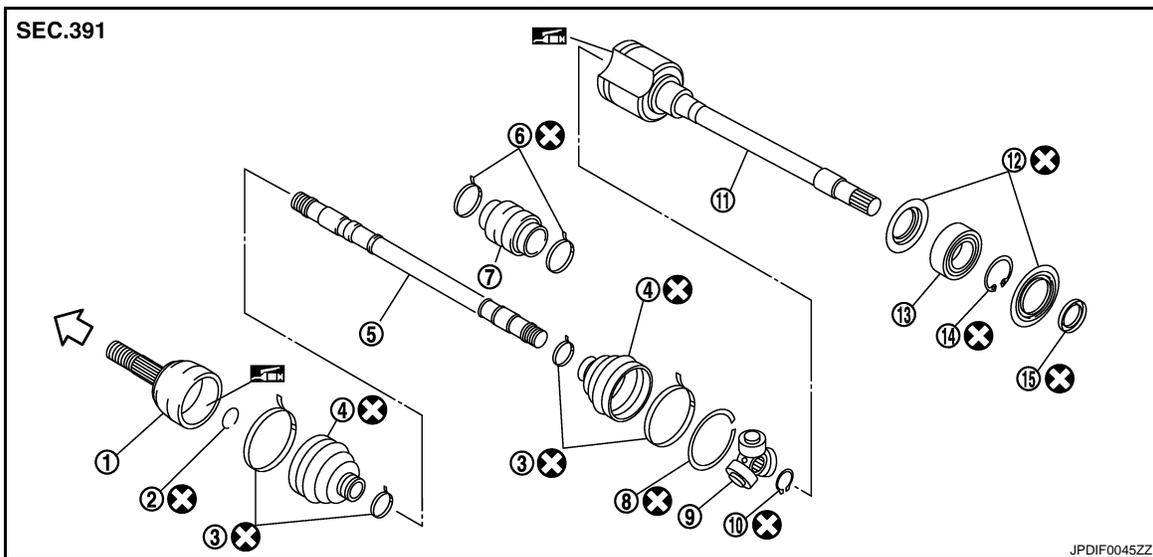
- |                        |                    |                   |
|------------------------|--------------------|-------------------|
| 1. Circular clip       | 2. Dust shield     | 3. Housing        |
| 4. Snap ring           | 5. Spider assembly | 6. Stopper ring   |
| 7. Boot band           | 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



- |                       |                  |                    |
|-----------------------|------------------|--------------------|
| 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   | 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.

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# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[2WD]

## Removal and Installation

INFOID:000000001730120

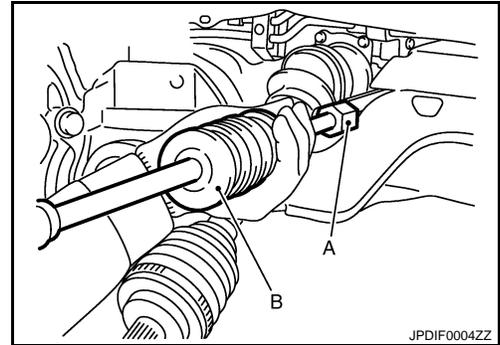
### REMOVAL

#### Left Side

1. Refer to the procedure from 1 to 11 in [FAX-14, "Replacement"](#).
2. Remove drive shaft from transaxle assembly.
  - Use the drive shaft attachment (A) [SST: KV40107500 ( — )] and a sliding hammer (B) while inserting tip of the drive shaft attachment 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.**



#### Right Side

1. Refer to the procedure from 1 to 11 in [FAX-14, "Replacement"](#).
2. Remove plate mounting bolts and plate.
3. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
4. Remove drive shaft from transaxle assembly.
  - Use the drive shaft attachment [SST: KV40107500 ( — )] and a sliding hammer while inserting tip of the drive shaft attachment 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.**

### INSTALLATION

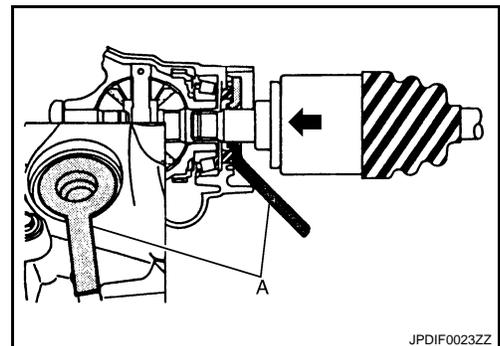
#### Left Side

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

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

**CAUTION:**

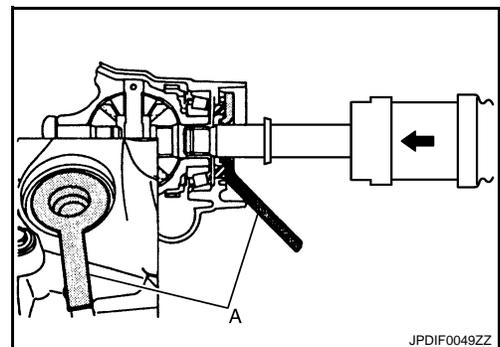
**Make sure that circular clip is completely engaged.**



#### Right Side

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

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



# FRONT DRIVE SHAFT

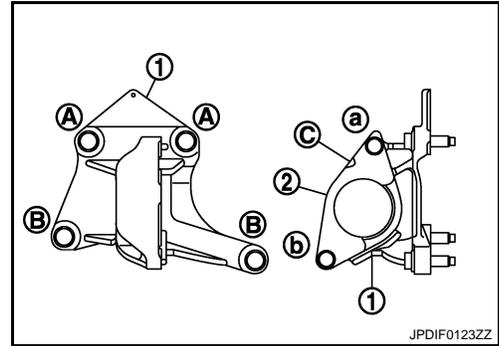
< ON-VEHICLE REPAIR >

[2WD]

- When installing support bearing bracket (1).
- (Temporarily) tighten mounting bolts in the order of (A), (B).
- Set plate (2) so that notch (C) becomes upper side. (Temporarily) tighten mounting bolts in the order of (a), (b).

**CAUTION:**

**Never reuse plate.**



## Disassembly and Assembly

### 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.

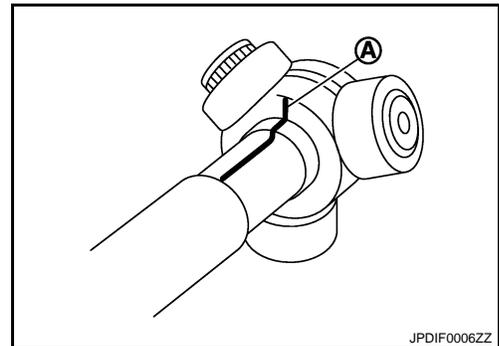
**CAUTION:**

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

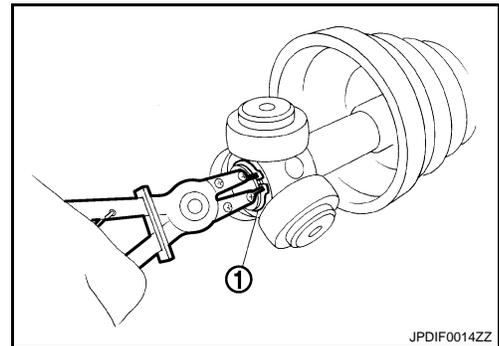
5. Put matching marks (A) on the spider assembly and shaft.

**CAUTION:**

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



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



Support Bearing

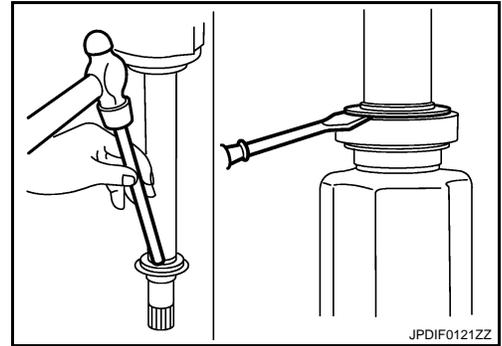
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# FRONT DRIVE SHAFT

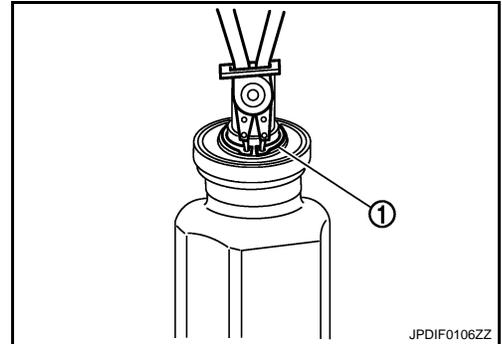
< ON-VEHICLE REPAIR >

[2WD]

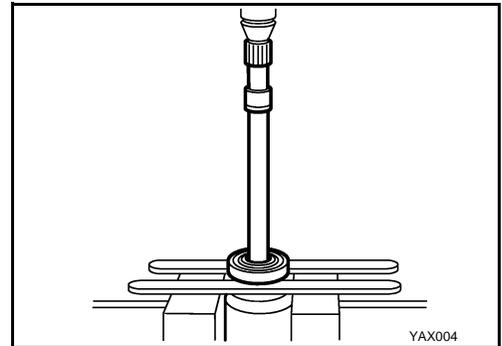
1. Remove dust shield from housing.



2. Remove snap ring (1).



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



Dynamic Damper

Remove damper bands, then remove dynamic damper from shaft.

Wheel Side

1. Fix shaft with a vise.

**CAUTION:**

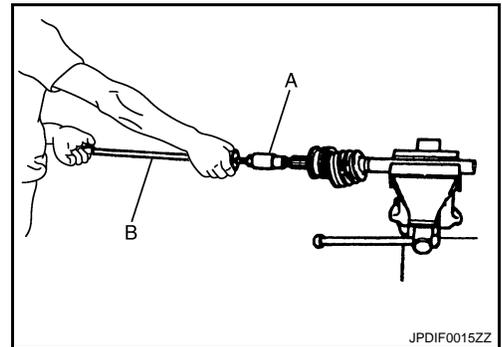
**Protect shaft using aluminum or copper plates when fixing with a vise.**

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 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

# FRONT DRIVE SHAFT

[2WD]

< ON-VEHICLE REPAIR >

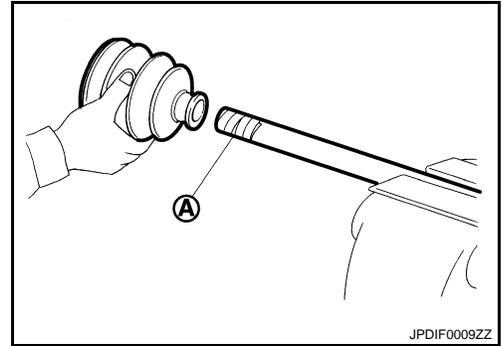
Transaxle Assembly Side

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

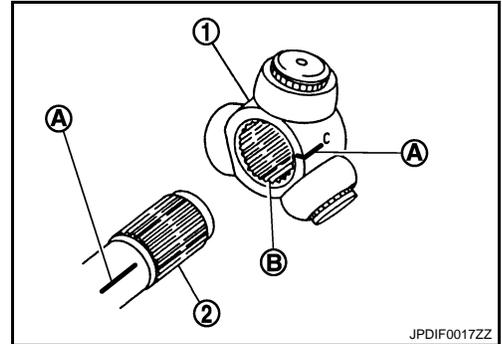
**CAUTION:**

**Never reuse boot and boot band.**

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



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

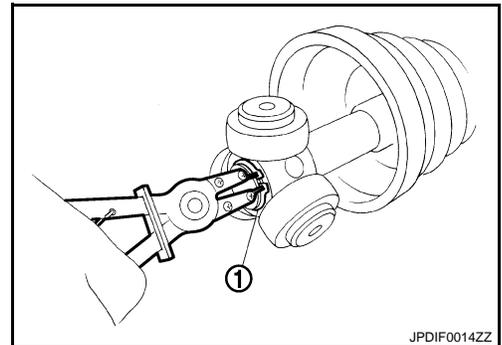


4. Secure spider assembly onto shaft with snap ring (1).

**CAUTION:**

**Never reuse snap ring.**

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



**Standard**

**Grease amount** : Refer to [FAX-26, "Drive Shaft"](#).

7. Align matching marks put during the removal of housing.
8. Install stopper ring.

**CAUTION:**

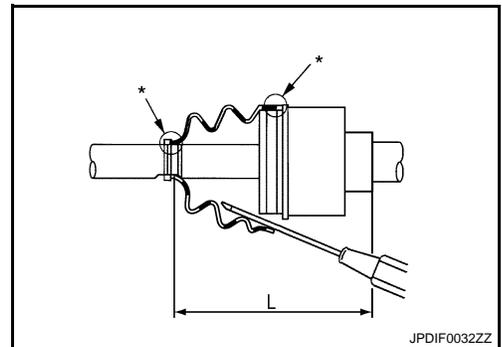
**Never reuse stopper ring.**

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

**CAUTION:**

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

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



**Standard**

**Boots installed length (L)** : Refer to [FAX-26, "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.

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# FRONT DRIVE SHAFT

[2WD]

## < ON-VEHICLE REPAIR >

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

**CAUTION:**

**Never reuse boot band.**

12. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them with new boot bands when the mounting positions become incorrect.

13. Install dust shield to housing (left side).

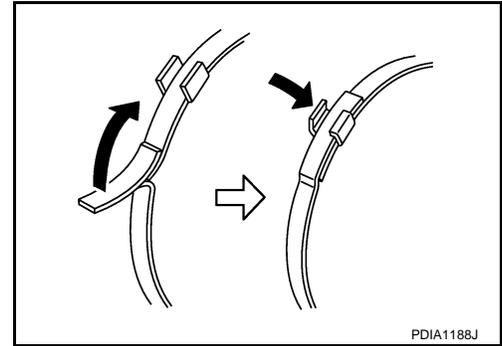
**CAUTION:**

**Never reuse dust shield.**

14. Install circular clip to housing (left side).

**CAUTION:**

**Never reuse circular clip.**



### Support Bearing

1. Install dust shield on housing.

**CAUTION:**

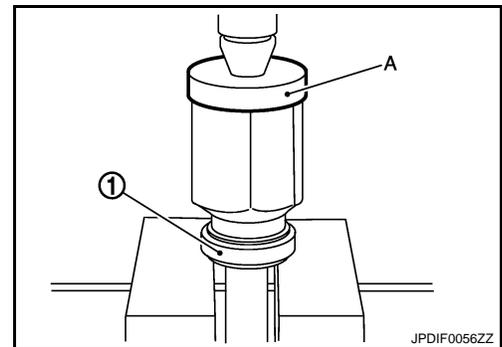
**Never reuse dust shield.**

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

3. Install snap ring.

**CAUTION:**

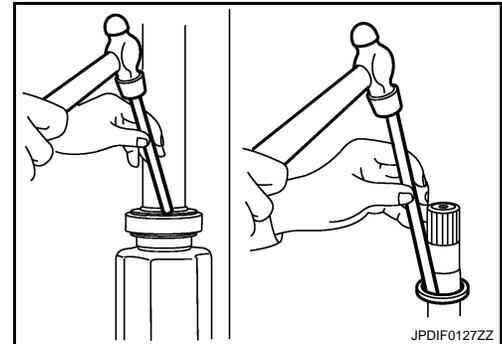
**Never reuse snap ring.**



4. Install dust shields.

**CAUTION:**

**Never reuse dust shields.**



### Dynamic Damper

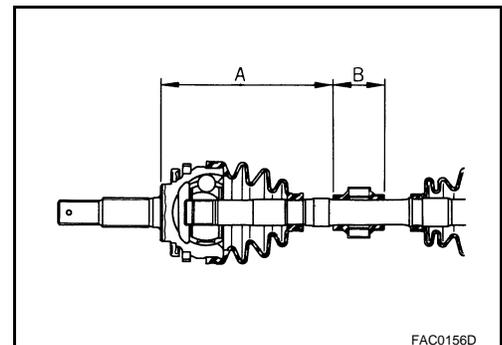
Secure dynamic damper with bands in the following specified position when installing.

**CAUTION:**

**Never reuse bands.**

**Standard**

**Demission** : [FAX-26, "Drive Shaft"](#).



### Wheel Side

For further details, refer to the installation procedure of ["FAX-14, "Replacement" for the drive shaft boot.](#)

## Inspection

INFOID:000000001730122

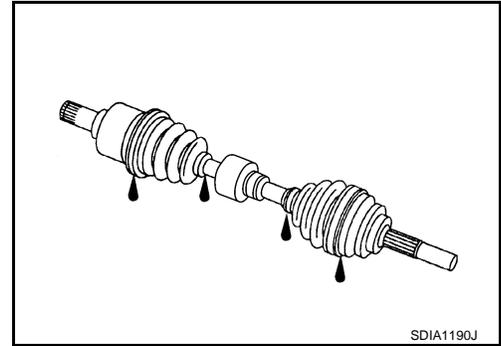
## INSPECTION AFTER REMOVAL

# FRONT DRIVE SHAFT

[2WD]

## < ON-VEHICLE REPAIR >

- 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.

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# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[2WD]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

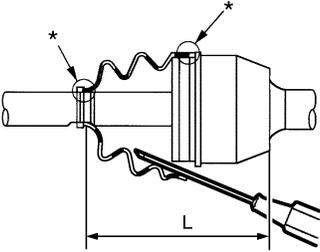
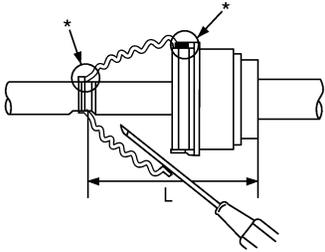
#### Wheel Bearing

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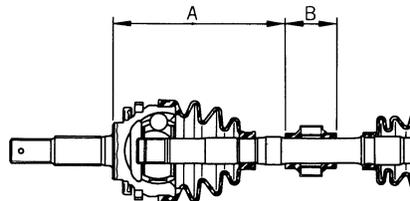
Axial end play	0.05 mm (0.002 in) or less
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#### Drive Shaft

INFOID:000000001730128

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)	165.8 mm (6.53 in)
	Right side		
Measurement part		 <p style="text-align: right;">JPDIG0067ZZ</p>	 <p style="text-align: right;">JPDIF0031ZZ</p>

Dynamic damper		A	B
Dimension	Left side	207 – 213 mm (8.15 – 8.39 in)	70 mm (2.76 in)
	Right side		



FAC0156D

# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[AWD]

## SYMPTOM DIAGNOSIS

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

#### NVH Troubleshooting Chart

INFOID:000000001730129

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

Symptom		Possible cause and SUSPECTED PARTS	Reference page											
			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
DRIVE SHAFT	Noise		x	x				x	x	x	x		x	x
	Shake		x		x			x	x	x	x		x	x
FRONT AXLE	Noise				x	x	x	x		x	x	x	x	x
	Shake				x	x	x	x		x	x	x	x	x
	Vibration				x	x	x	x		x		x		x
	Shimmy				x	x		x		x	x		x	x
	Judder				x			x		x	x		x	x
	Poor quality ride or handling				x	x		x		x	x			

x: Applicable

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FAX

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS FOR USA AND CANADA

#### FOR USA AND CANADA : Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000003248021

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.

Information necessary to service the system safely is included in the "SRS AIRBAG" and "SEAT BELT" of this Service Manual.

**WARNING:**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

#### FOR USA AND CANADA : Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000003302748

**NOTE:**

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III 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 NVIS/IVIS, 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-III.

#### FOR USA AND CANADA : Precautions for Drive Shaft

INFOID:000000001730132

**CAUTION:**

# PRECAUTIONS

[AWD]

< PRECAUTION >

Note the following precautions when disassembling and assembling drive shaft.

- Never disassemble joint sub-assembly 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 waste must be used. Never use fabric shop cloths 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 waste.

FOR MEXICO

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

INFOID:000000003248024

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 AIRBAG" and "SEAT BELT" of this Service Manual.

## WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

FOR MEXICO : Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000003302749

## NOTE:

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III 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 NVIS/IVIS, 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.)

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# PRECAUTIONS

< PRECAUTION >

[AWD]

6. Perform a self-diagnosis check of all control units using CONSULT-III.

## FOR MEXICO : Precautions for Drive Shaft

INFOID:000000003248031

### **CAUTION:**

Note the following precautions when disassembling and assembling drive shaft.

- Never disassemble joint sub-assembly 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 waste must be used. Never use fabric shop cloths 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 waste.

# PREPARATION

[AWD]

< PREPARATION >

## PREPARATION

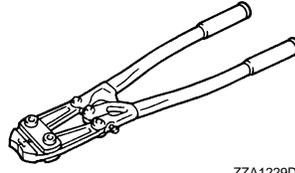
### PREPARATION

#### Special Service Tool

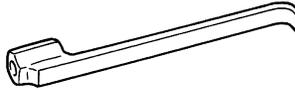
INFOID:000000001731648

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

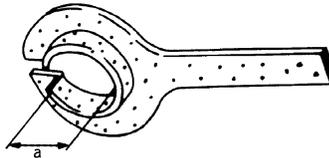
Tool number (Kent-More No.) Tool name	Description
KV40107300 ( — ) Boot band crimping tool	Installing boot band
KV40107500 ( — ) Drive shaft attachment	Removing drive shaft
KV38107900 ( — ) Protector a: 32 mm (1.26 in) dia.	Installing drive shaft



ZZA1229D



ZZA1230D

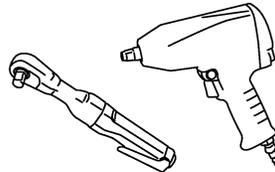


PDIA1183J

#### Commercial Service Tool

INFOID:000000001731649

Tool name	Description
Power tool	Loosening bolts and nuts



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# FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE MAINTENANCE >

[AWD]

## ON-VEHICLE MAINTENANCE

### FRONT WHEEL HUB AND KNUCKLE

#### Inspection

INFOID:000000001730134

#### 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-50, "Wheel Bearing"](#).

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

# FRONT DRIVE SHAFT

< ON-VEHICLE MAINTENANCE >

[AWD]

## FRONT DRIVE SHAFT

### Inspection

INFOID:000000001730135

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

**CAUTION:**

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

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# FRONT WHEEL HUB AND KNUCKLE

< ON-VEHICLE REPAIR >

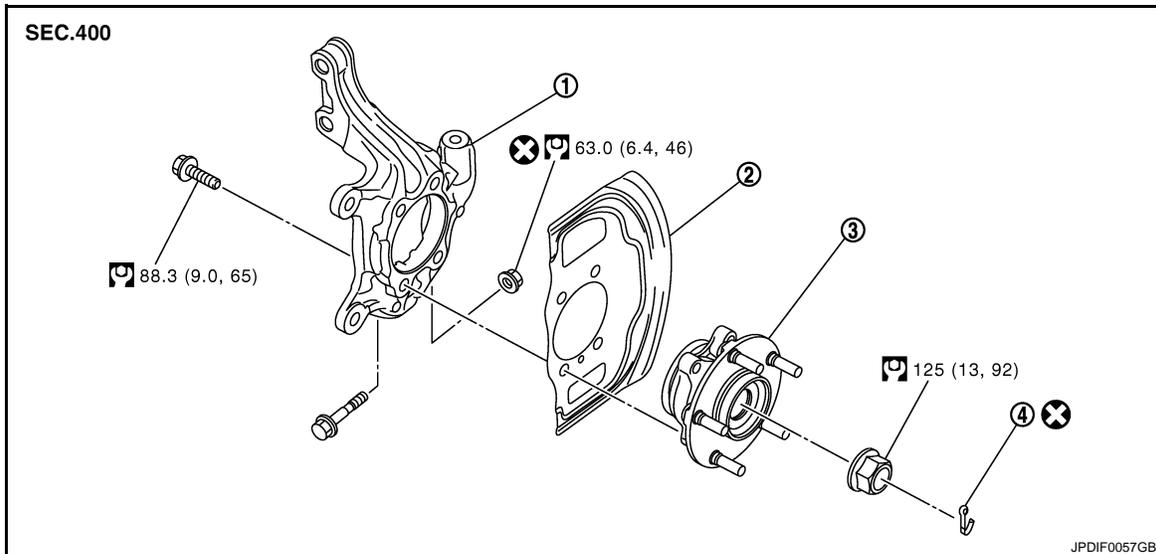
[AWD]

## ON-VEHICLE REPAIR

### FRONT WHEEL HUB AND KNUCKLE

#### Exploded View

INFOID:000000001730136



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:000000001730137

### REMOVAL

#### Wheel Hub and Bearing Assembly

1. Remove tires with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).  
**CAUTION:**  
**Never pull on wheel sensor harness.**
3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
4. Remove torque member mounting bolts with power tool. Hang torque member not to interfere with work. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).  
**CAUTION:**  
**Never depress brake pedal while brake caliper is removed.**
5. Remove disc rotor.  
**CAUTION:**
  - Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.
  - Never drop disc rotor.
6. Remove cotter pin, and then loosen hub lock nut with power tool.

# FRONT WHEEL HUB AND KNUCKLE

[AWD]

## < ON-VEHICLE REPAIR >

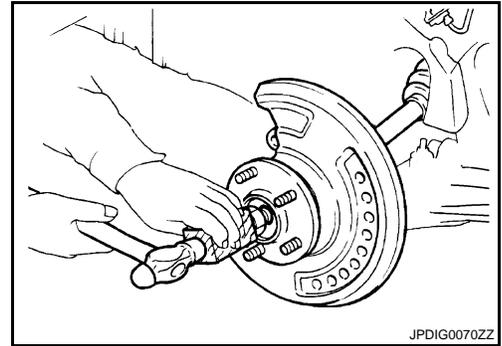
7. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft. Remove the hub lock nut.

### 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 wheel hub and bearing assembly.

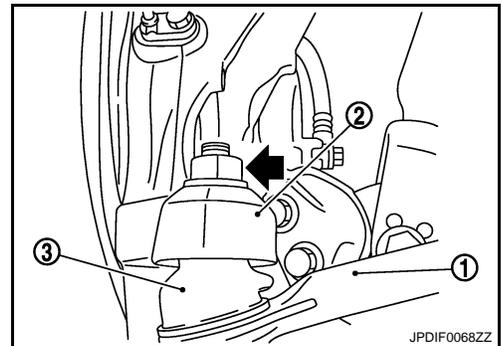
## Steering Knuckle

1. Remove wheel hub and bearing assembly, and then remove splash guard.
2. Remove transverse link from steering knuckle.
3. Remove steering knuckle from strut assembly.
4. Loosen the nut (←) of steering outer socket.
5. Remove steering outer socket (1) from steering knuckle (2) using the ball joint remover so as not to damage ball joint boot (3).

### CAUTION:

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

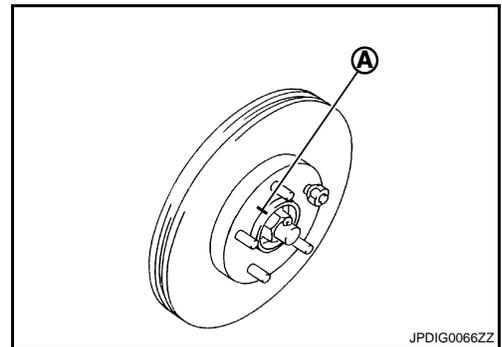
6. Remove steering knuckle from vehicle.



## INSTALLATION

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

- Align the matching marks (A) made during removal when reusing the disc rotor.
- Install removed wheel hub and bearing assembly and steering knuckle and perform the final tightening of each part under unladen conditions on the level surface.



## Inspection

INFOID:000000001730138

### 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-14, "Inspection"](#) and [ST-16, "Inspection"](#).

### INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-8, "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-76, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#) (with VDC).

# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[AWD]

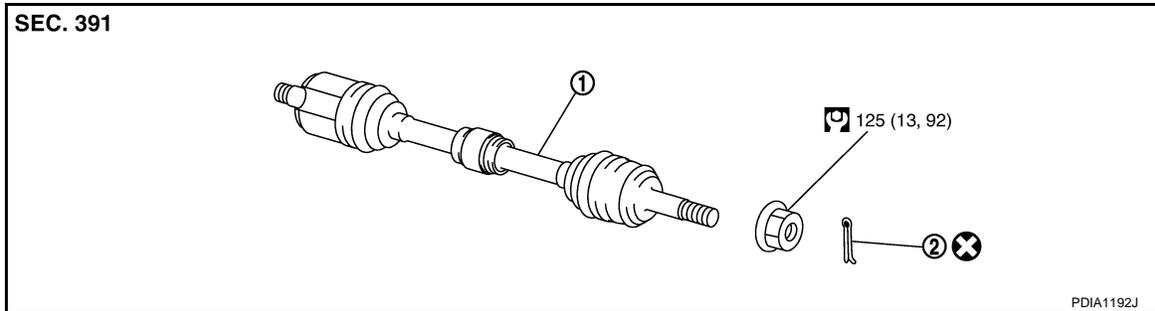
## FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:000000001730139

REMOVAL

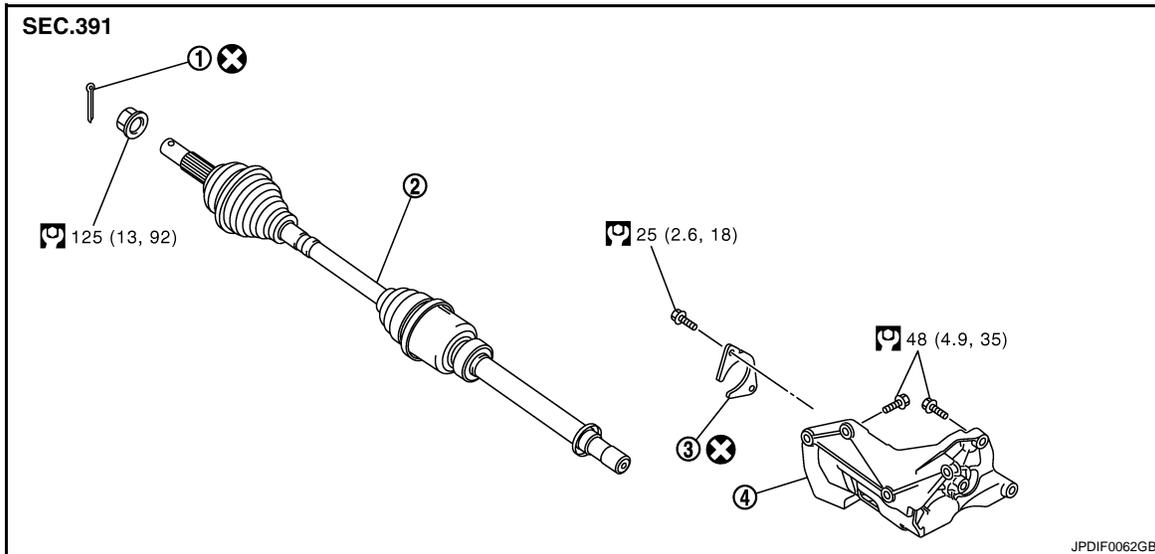
LEFT SIDE



1. Drive shaft
2. Cotter pin

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

RIGHT SIDE



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

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

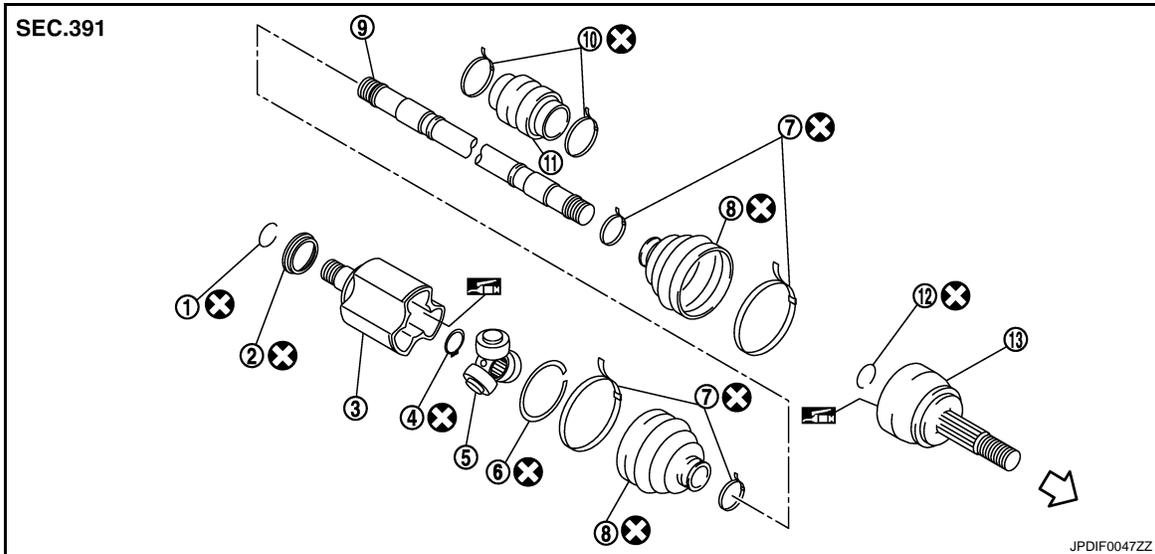
DISASSEMBLY

# FRONT DRIVE SHAFT BOOT

< ON-VEHICLE REPAIR >

[AWD]

## LEFT SIDE



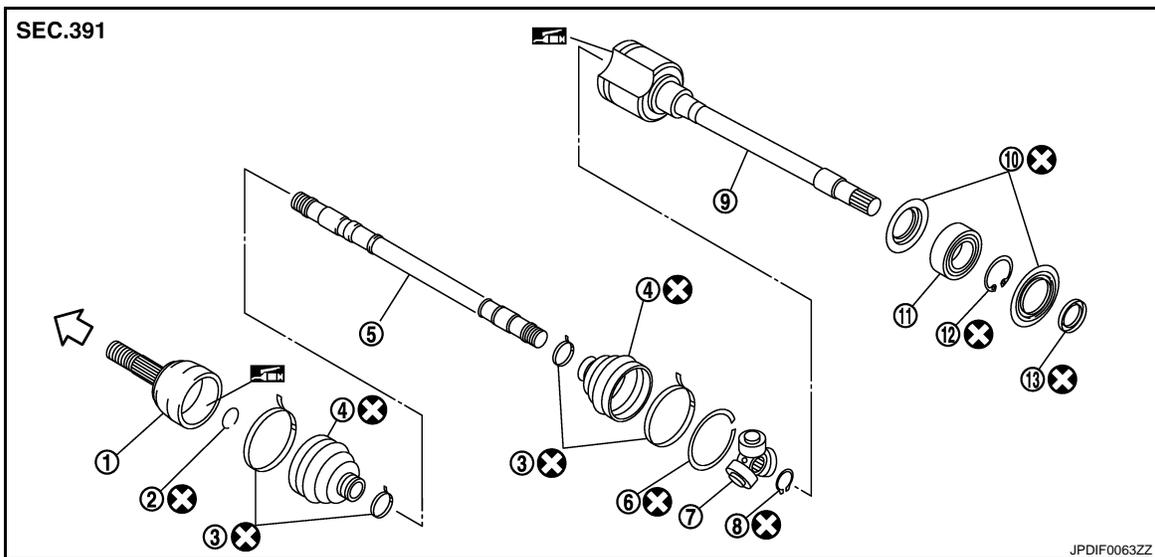
- |                        |                    |                   |
|------------------------|--------------------|-------------------|
| 1. Circular clip       | 2. Dust shield     | 3. Housing        |
| 4. Snap ring           | 5. Spider assembly | 6. Stopper ring   |
| 7. Boot band           | 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



- |                       |                     |                 |
|-----------------------|---------------------|-----------------|
| 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      |
| 10. Dust shield       | 11. Support bearing | 12. Snap ring   |
| 13. Dust shield       |                     |                 |

⇐ : Wheel side

 : Fill NISSAN Genuine grease or equivalent.

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

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# FRONT DRIVE SHAFT BOOT

[AWD]

< ON-VEHICLE REPAIR >

## Replacement

INFOID:000000001730140

### WHEEL SIDE

1. Remove tires with power tool.
2. Remove wheel sensor from steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).

**CAUTION:**

**Never pull on wheel sensor harness.**

3. Remove lock plate from strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#)
4. Remove torque member mounting bolts with power tool. Hang torque member not to interfere with work. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).

**CAUTION:**

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

5. Remove disc rotor.

**CAUTION:**

- Put matching marks on the wheel hub and bearing assembly and the disc rotor before removing the disc rotor.
- Never drop disc rotor.

6. Remove cotter pin, and then loosen hub lock nut with power tool.
7. Patch hub lock nut with a piece of wood. Hammer the wood to disengage wheel hub and bearing assembly from drive shaft.

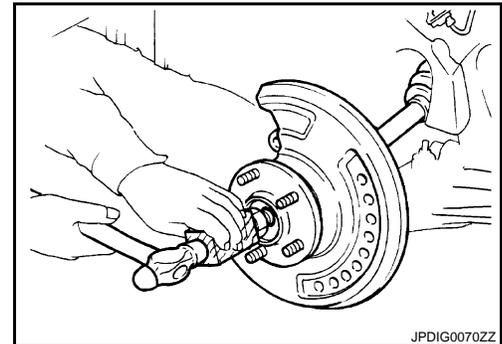
**CAUTION:**

- Never place drive shaft joint at an extreme angle. Also be careful not to overextend slide joint.
- Never allow drive shaft to hang down without support for 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.

8. Remove the hub lock nut.
9. Remove transverse link from steering knuckle.

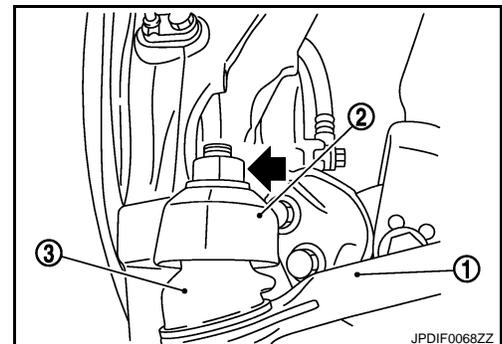


10. Loosen the nut (←) of steering outer socket.
11. Remove steering outer socket (1) from steering knuckle (2) using the ball joint remover so as not to damage ball joint boot (3).

**CAUTION:**

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

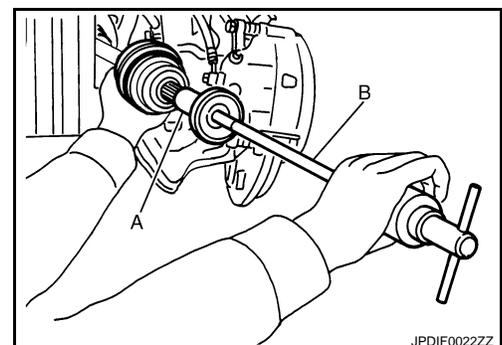
12. Remove drive shaft from wheel hub and bearing assembly.
13. Remove boot bands, and then remove boot from joint sub-assembly.



14. Screw a drive shaft puller (A) into joint sub-assembly screw part to a length of 30 mm (1.18 in) or more. Support drive shaft with one hand and pull out joint sub-assembly with a sliding hammer (B) from shaft.

**CAUTION:**

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

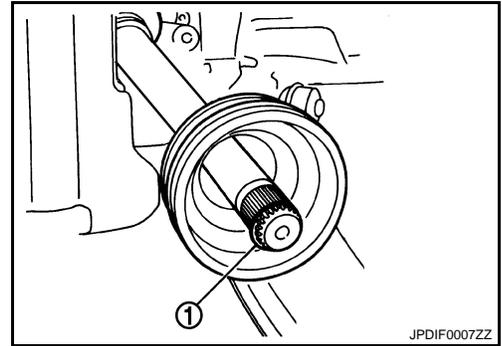


# FRONT DRIVE SHAFT BOOT

[AWD]

## < ON-VEHICLE REPAIR >

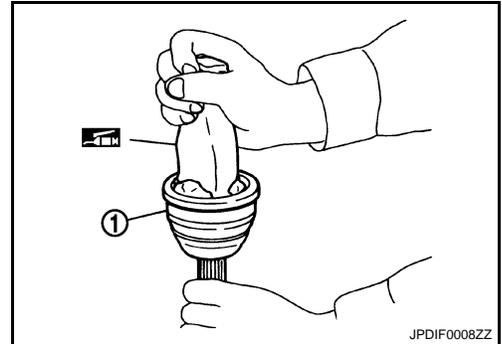
15. Remove circular clip (1) from shaft.
16. Remove boot from shaft.
17. Clean the old grease on joint sub-assembly with paper waste.



18. Fill serration slot joint sub-assembly (1) with NISSAN genuine grease or equivalent until the serration slot and ball groove become full to the brim.

**CAUTION:**

After applying grease, use a paper waste to wipe off old grease that has oozed out.

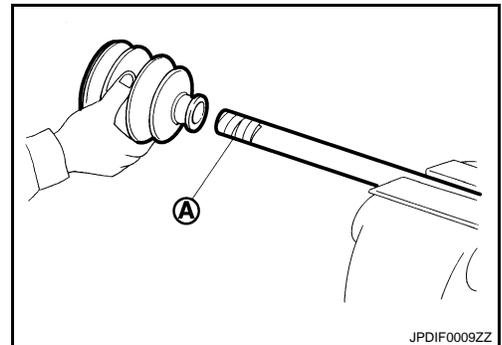


19. Wrap serration on shaft with tape (A) to protect the boot from damage. Install boot and boot bands to shaft.

**CAUTION:**

Never reuse boot and boot band.

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



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

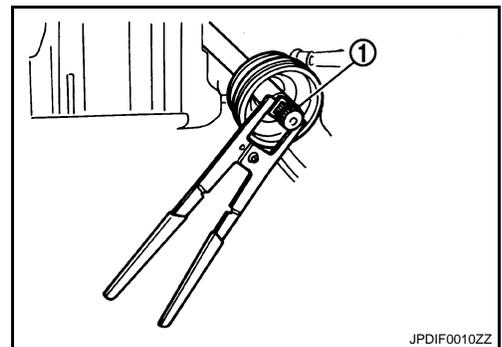
**CAUTION:**

Never reuse circular clip.

**NOTE:**

Drive joint inserter is recommended when installing circular clip.

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



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# FRONT DRIVE SHAFT BOOT

[AWD]

< ON-VEHICLE REPAIR >

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

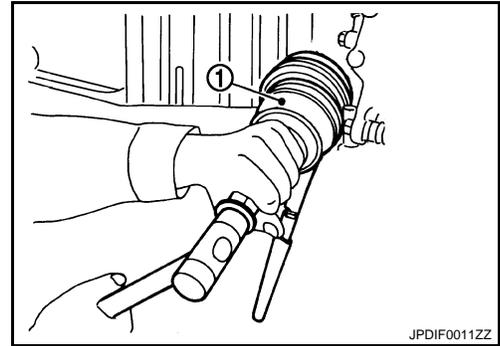
**CAUTION:**

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

24. Fill into the boot inside with the specified amount of grease from large diameter side of boot.

**Standard**

**Grease amount** : Refer to [FAX-50, "Drive Shaft"](#).



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

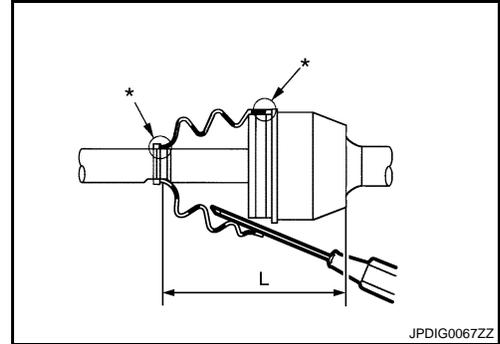
**CAUTION:**

**If grease adheres to the boot mounting surface (indicated "\*" mark) on the shaft or joint sub-assembly, boot may be removed. Remove all grease from the boot mounting surface.**

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

**Standard**

**Boots installed length (L)** : Refer to [FAX-50, "Drive Shaft"](#).

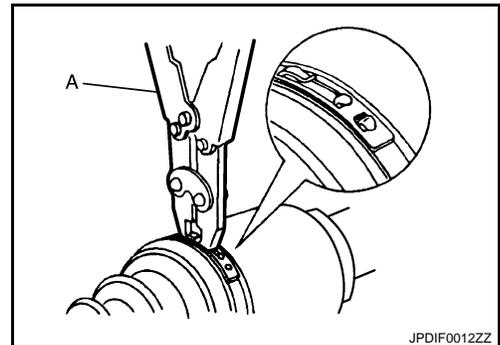


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**CAUTION:**

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

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



JPDIF0012ZZ

**NOTE:**

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

**Dimension (M)** : 1.0 – 4.0 mm (0.039 – 0.157 in)

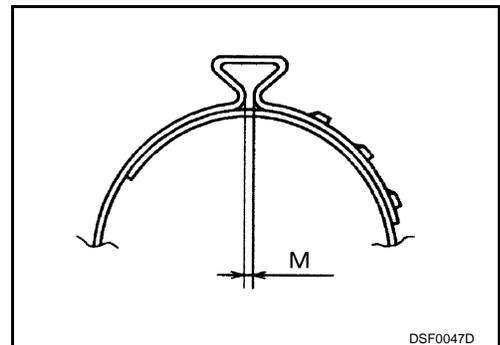
28. Secure joint sub-assembly and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them using new boot bands when boot installation positions become incorrect.

29. Insert drive shaft to wheel hub and bearing assembly, and then temporarily tighten hub lock nut.

**CAUTION:**

**The drive shaft is press-fit. When assembling the shaft, never press it, but pull it until fully seated by tightening the hub lock nut.**

30. Install transverse link to steering knuckle. Refer to [FAX-34, "Exploded View"](#).



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# FRONT DRIVE SHAFT BOOT

[AWD]

< ON-VEHICLE REPAIR >

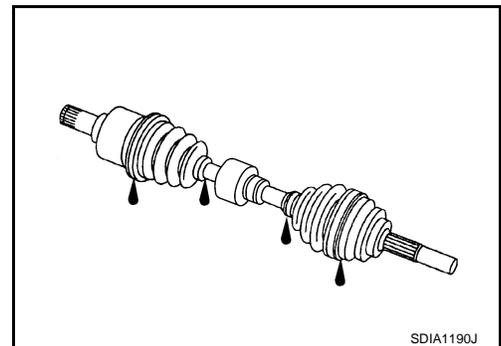
31. Install steering outer socket to steering knuckle. Refer to [ST-14, "Exploded View"](#).
32. Install disc rotor.  
**CAUTION:**  
**Align the matching marks made during removal when reusing the disc rotor.**
33. Install torque member to steering knuckle. Refer to [BR-36, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
34. Install lock plate to strut assembly. Refer to [BR-20, "FRONT : Exploded View"](#).
35. Install wheel sensor to steering knuckle. Refer to [BRC-66, "FRONT WHEEL SENSOR : Exploded View"](#) (without VDC), [BRC-169, "FRONT WHEEL SENSOR : Exploded View"](#) (with VDC).
36. Tighten the hub lock nut to the specified torque.
37. Install cotter pin.  
**CAUTION:**
  - **Never reuse cotter pin.**
  - **Bend cotter pin at the root sufficiently to prevent any looseness.**
38. Install tires to vehicle.

## Inspection

INFOID:000000002988784

### 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.

# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[AWD]

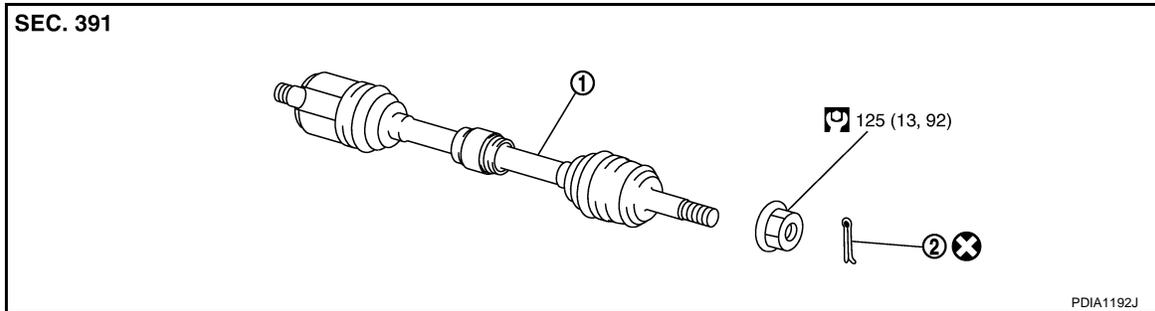
## FRONT DRIVE SHAFT

Exploded View

INFOID:000000001731650

### REMOVAL

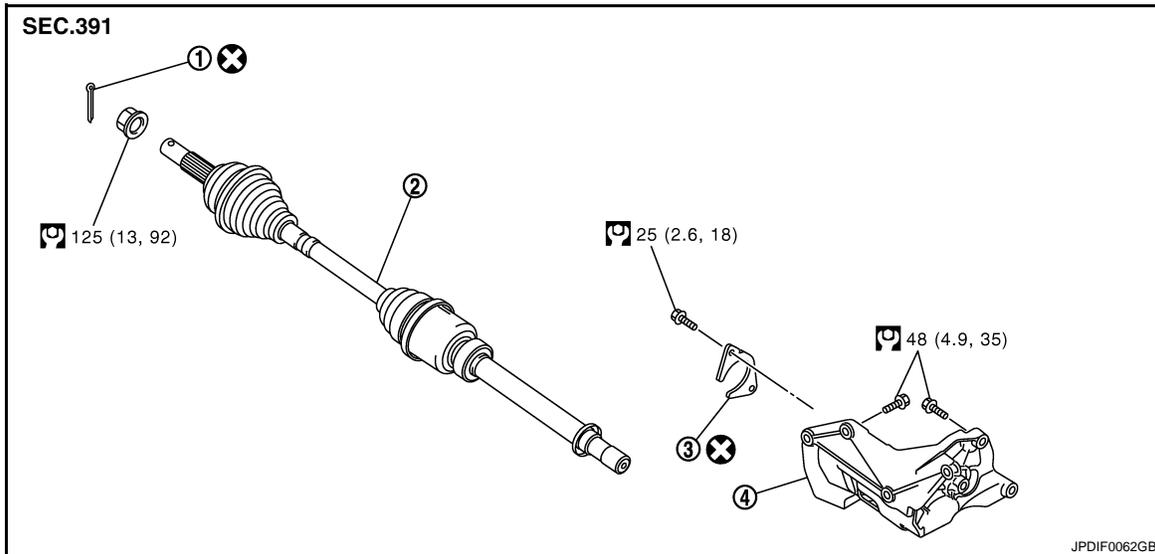
#### LEFT SIDE



1. Drive shaft
2. Cotter pin

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

#### RIGHT SIDE



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

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

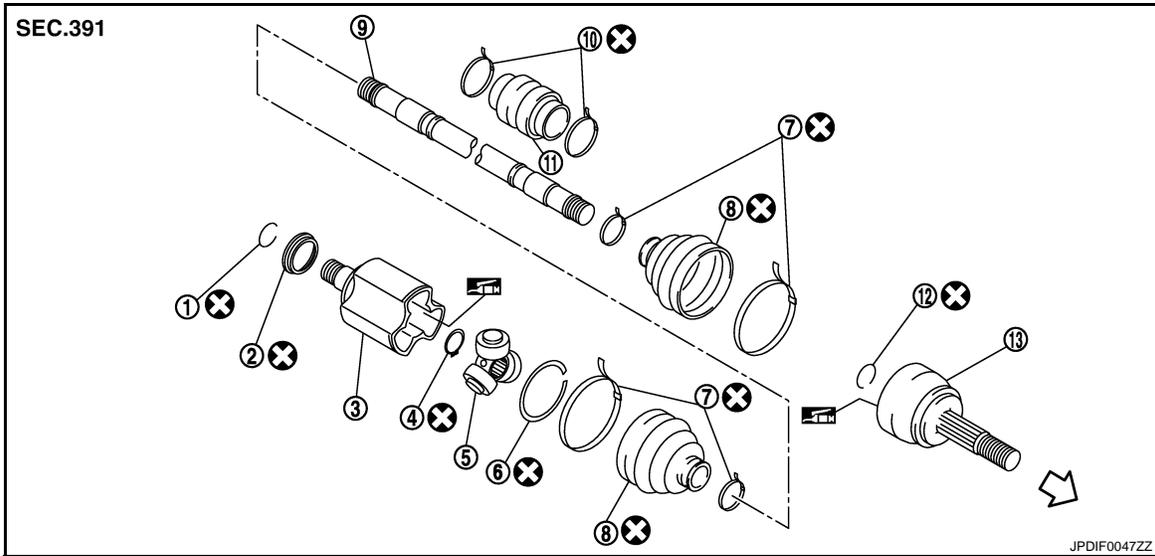
### DISASSEMBLY

# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[AWD]

## LEFT SIDE



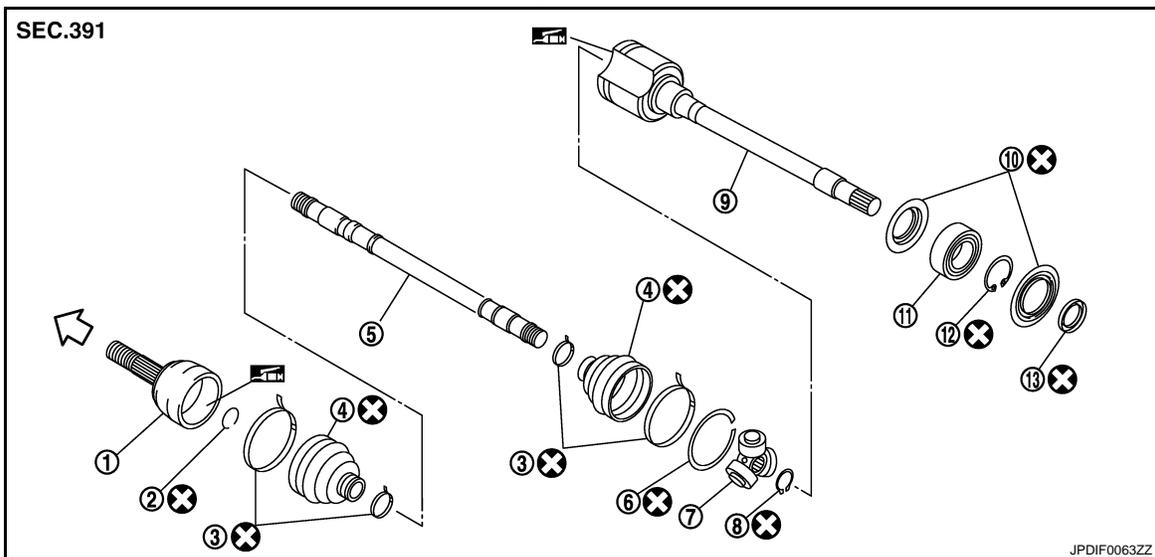
- |                        |                    |                   |
|------------------------|--------------------|-------------------|
| 1. Circular clip       | 2. Dust shield     | 3. Housing        |
| 4. Snap ring           | 5. Spider assembly | 6. Stopper ring   |
| 7. Boot band           | 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



- |                       |                     |                 |
|-----------------------|---------------------|-----------------|
| 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      |
| 10. Dust shield       | 11. Support bearing | 12. Snap ring   |
| 13. Dust shield       |                     |                 |

⇐ : Wheel side

: Fill NISSAN Genuine grease or equivalent.

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

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# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[AWD]

## Removal and Installation

INFOID:000000001730146

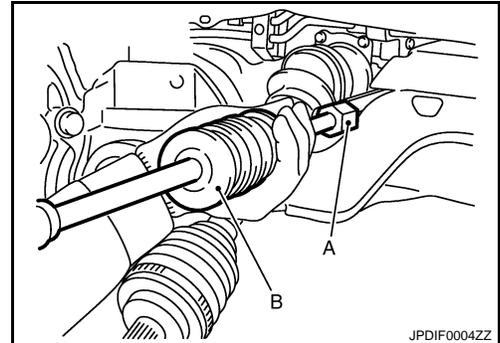
### REMOVAL

#### Left Side

1. Refer to the procedure from 1 to 11 in [FAX-38. "Replacement"](#).
2. Remove drive shaft from transaxle assembly.
  - Use the drive shaft attachment (A) [SST: KV40107500 ( — )] and a sliding hammer (B) while inserting tip of the drive shaft attachment 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.**



#### Right Side

1. Refer to the procedure from 1 to 11 in [FAX-38. "Replacement"](#).
2. Remove plate mounting bolts and plate.
3. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
4. Remove drive shaft from transaxle assembly.
  - Use the drive shaft attachment [SST: KV40107500 ( — )] and a sliding hammer while inserting tip of the drive shaft attachment 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.**

### INSTALLATION

#### Left Side

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

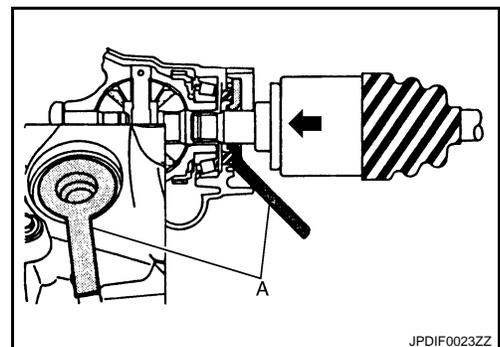
**CAUTION:**

**Always replace differential side oil seal with new one when installing drive shaft. Refer to [TM-194. "AWD : Exploded View"](#).**

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

**CAUTION:**

**Make sure that circular clip is completely engaged.**



#### Right Side

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

**CAUTION:**

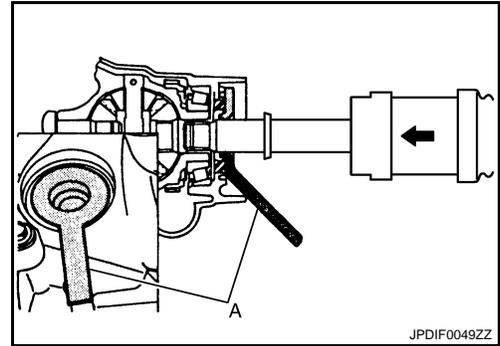
**Always replace differential side oil seal with new one when installing drive shaft. Refer to [TM-194. "AWD : Exploded View"](#).**

# FRONT DRIVE SHAFT

[AWD]

## < ON-VEHICLE REPAIR >

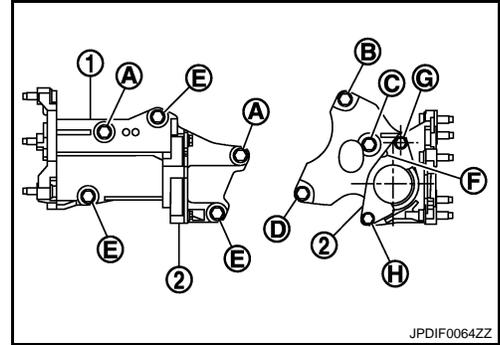
- Place the protector (A) [SST: KV38107900 ( — )] onto transaxle assembly to prevent damage to the oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a hammer to install securely.



- When installing support bearing bracket (1).
  - Temporarily tighten mounting bolts in the order of (A).
  - Tighten mounting bolts in the order of (B), (C), (D), (E), (A).
  - Set plate (2) so that notch (F) becomes upper side. (Temporarily tighten mounting bolts in the order of (G), (H).

**CAUTION:**

**Never reuse plate.**



## Disassembly and Assembly

INFOID:000000001730147

### 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.

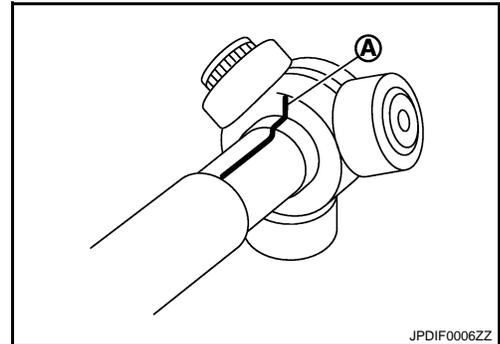
**CAUTION:**

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

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

**CAUTION:**

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

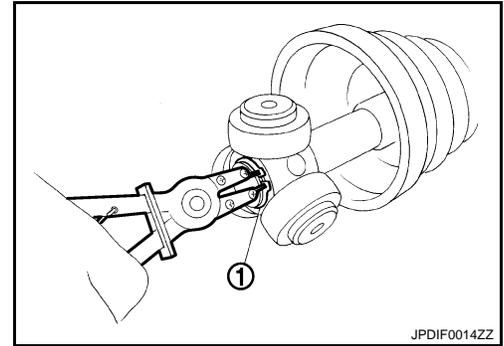


# FRONT DRIVE SHAFT

[AWD]

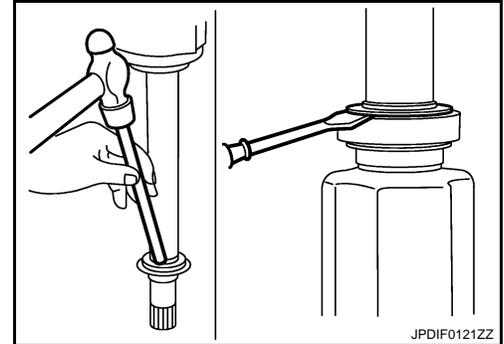
## < ON-VEHICLE REPAIR >

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

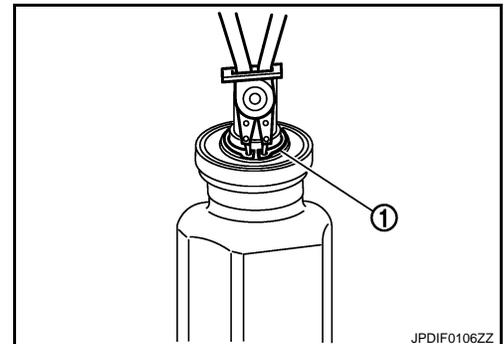


## Support Bearing

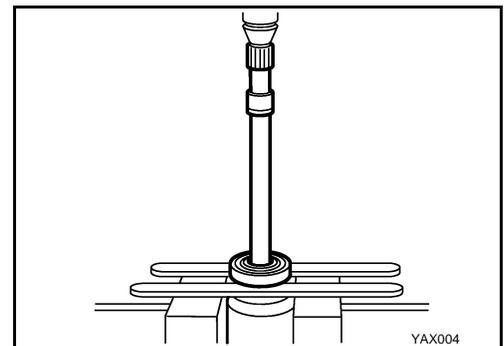
1. Remove dust shield from housing.



2. Remove snap ring (1).



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



## 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.

# FRONT DRIVE SHAFT

[AWD]

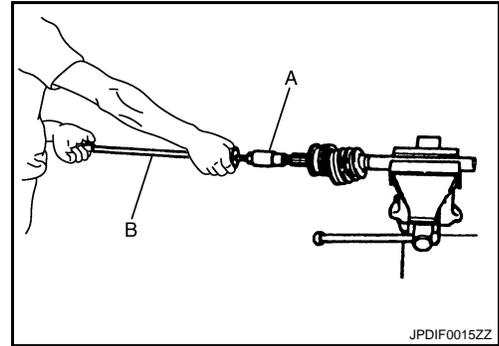
## < ON-VEHICLE REPAIR >

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.



A

B

C

FAX

## ASSEMBLY

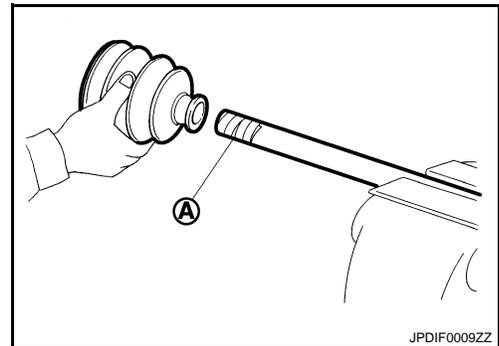
### Transaxle Assembly Side

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.



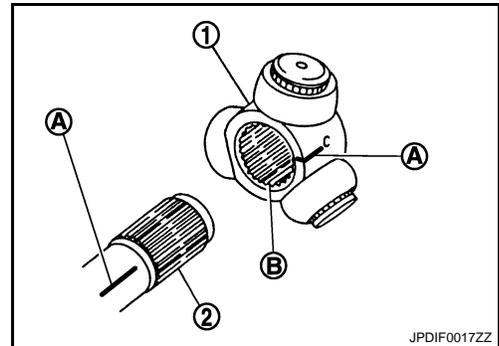
E

F

G

H

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



I

J

K

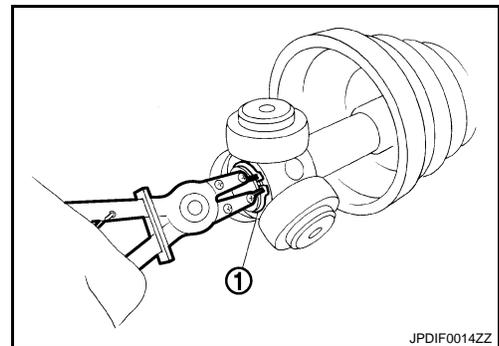
L

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

**CAUTION:**

**Never reuse snap ring.**

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



M

N

O

**Standard**

**Grease amount** : Refer to [FAX-50, "Drive Shaft"](#).

7. Align matching marks put during the removal of housing.
8. Install stopper ring.

**CAUTION:**

**Never reuse stopper ring.**

P

# FRONT DRIVE SHAFT

[AWD]

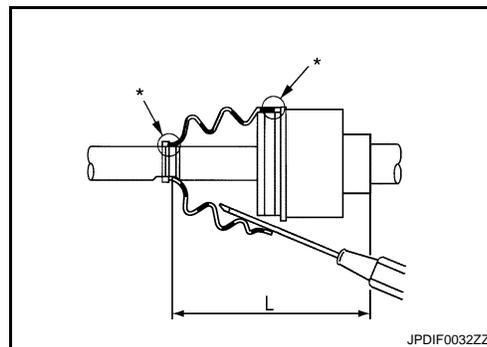
## < ON-VEHICLE REPAIR >

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

**CAUTION:**

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

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



**Standard**

Boots installed : Refer to [FAX-50, "Drive Shaft"](#).  
length (L)

**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.

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

**CAUTION:**

Never reuse boot band.

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

13. Install dust shield (left side).

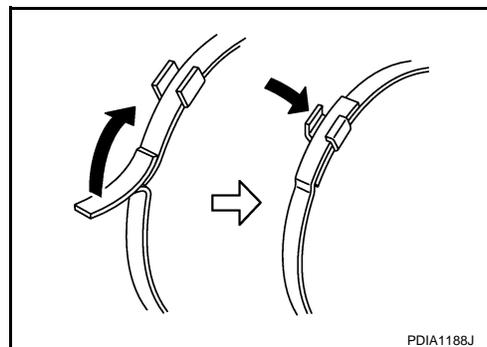
**CAUTION:**

Never reuse dust shield.

14. Install circular clip to housing (left side).

**CAUTION:**

Never reuse circular clip.



### Support Bearing

1. Install dust shield on housing.

**CAUTION:**

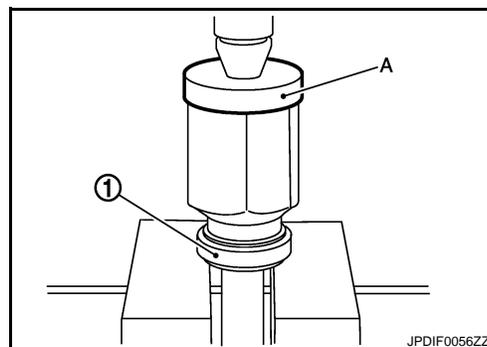
Never reuse dust shield.

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

3. Install snap ring.

**CAUTION:**

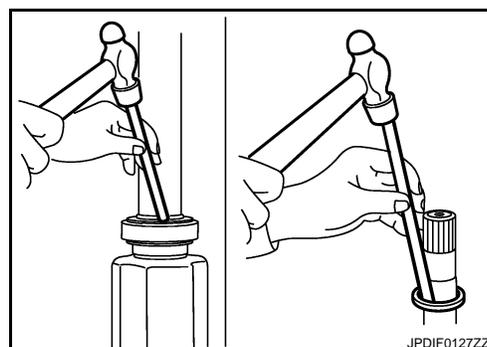
Never reuse snap ring.



4. Install dust shields.

**CAUTION:**

Never reuse dust shields.



# FRONT DRIVE SHAFT

< ON-VEHICLE REPAIR >

[AWD]

## Dynamic Damper

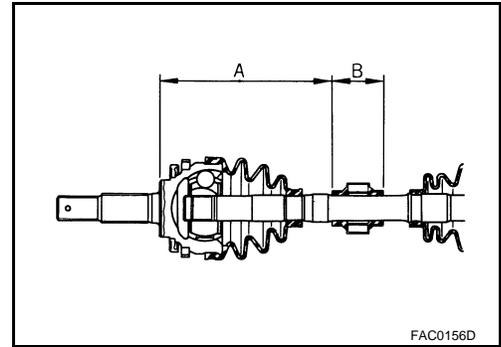
Secure dynamic damper with bands in the following specified position when installing.

### CAUTION:

Never reuse bands.

Standard

Demission : [FAX-50, "Drive Shaft"](#).



## Wheel Side

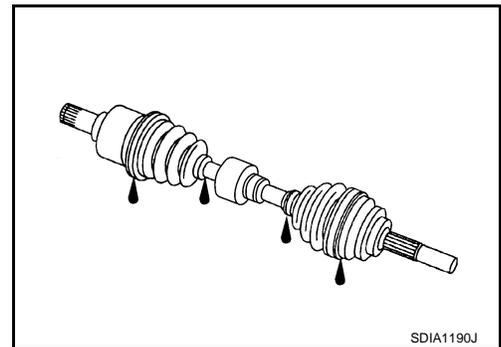
For further details, refer to the installation procedure of "[FAX-38, "Replacement"](#)" for the drive shaft boot.

## Inspection

INFOID:000000001730148

### 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.

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[AWD]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

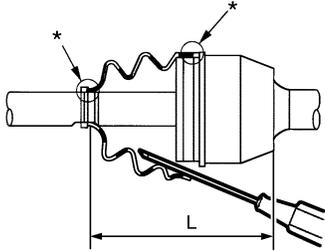
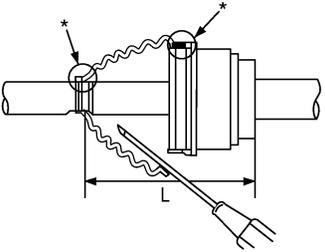
#### Wheel Bearing

INFOID:000000001730153

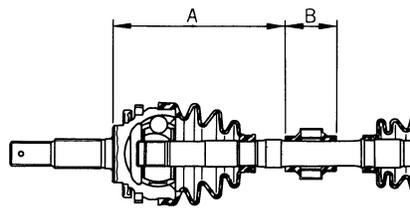
Axial end play	0.05 mm (0.002 in) or less
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#### Drive Shaft

INFOID:000000001730154

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)	165.8 mm (6.53 in)
	Right side		
Measurement part		 <p>JPDIG0067ZZ</p>	 <p>JPDIF0031ZZ</p>

Dynamic damper		A	B
Dimension	Left side	207 – 213 mm (8.15 – 8.39 in)	70 mm (2.76 in)



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