

SECTION **FAX**  
FRONT AXLE

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# PREPARATION

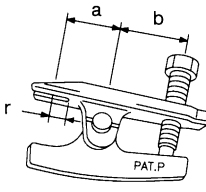
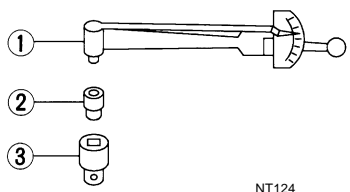
## PREPARATION

PFP:00002

### Special Service Tools (SST)

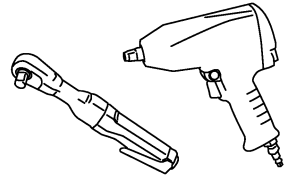
ADS00098

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

Tool number (Kent-Moore No.) Tool name	Description
HT72520000 (J25730-A) Ball joint remover a: 33 mm (1.30 in) b: 50 mm (1.97 in) r: 11.5 mm (0.453 in)	 <p style="text-align: center;">NT546</p> Removing steering outer socket
ST3127S000 (See J25742-1) Preload Gauge 1. GG91030000 Torque wrench (J25765) 2. HT62940000 ( — ) Socket adapter (1/2") 3. HT62900000 ( — ) Socket adapter (3/8")	 <p style="text-align: center;">NT124</p> Measuring rotating torque of ball joint

### Commercial Service Tools

ADS00099

Tool name	Description
Power tool	 <p style="text-align: center;">PBIC0190E</p> <ul style="list-style-type: none"> <li>● Removing wheel nuts</li> <li>● Removing undercover</li> <li>● Removing brake caliper assembly</li> </ul>

# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

## NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

### NVH Troubleshooting Chart

ADS0009A

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

Reference page		FAX-4		FAX-4		NVH in WT section.		NVH in PS section.					
		Improper installation, looseness		Parts interference		Wheel bearing damage		TIRES		ROAD WHEEL		STEERING	
Possible cause and SUSPECTED PARTS													
Symptom	FRONT AXLE	Noise	x	x		x	x	x					
		Shake	x	x		x	x	x					
		Vibration	x	x		x							
		Shimmy	x	x		x	x	x					
		Judder	x			x	x	x					
		Poor quality ride or handling	x	x	x	x	x	x					

x: Applicable

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# FRONT WHEEL HUB AND KNUCKLE

## FRONT WHEEL HUB AND KNUCKLE

PFP:40202

### On-Vehicle Inspection and Service

ADS0009B

Make sure the mounting conditions (looseness, back lash) of each component and component status (wear, damage) are normal.

### WHEEL BEARING INSPECTION

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

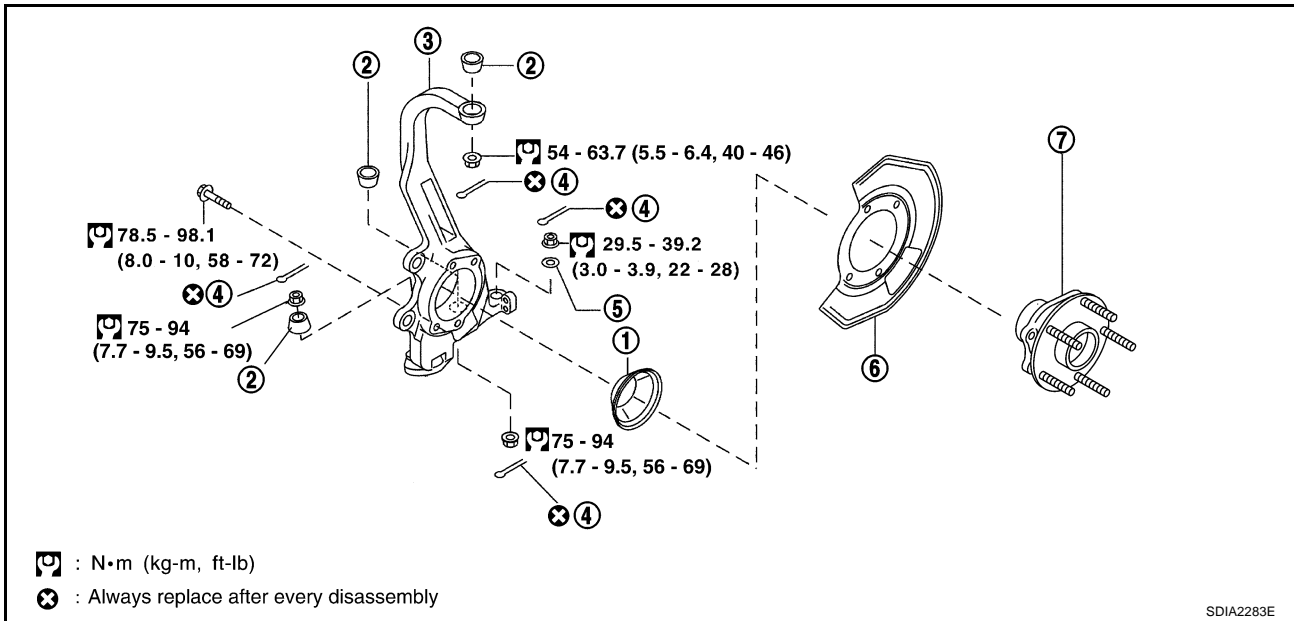
#### Standard value

**Axial end play limit : 0.05 mm (0.002 in) or less**

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

### Removal and Installation

ADS0009C



- |                                   |              |                     |
|-----------------------------------|--------------|---------------------|
| 1. Hub cap                        | 2. Ball seat | 3. Steering knuckle |
| 4. Cotter pin                     | 5. Washer    | 6. Splash guard     |
| 7. Wheel hub and bearing assembly |              |                     |

### REMOVAL

1. Remove tire from vehicle with power tool.
2. Remove undercover with power tool.
3. Remove brake caliper with power tool. Hang it in a place where it will not interfere with work. Refer to [BR-23, "FRONT DISC BRAKE \(CLZ25VD TYPE\)"](#), [BR-30, "FRONT DISC BRAKE \(OPB27VA TYPE\)"](#).

#### NOTE:

Avoid depressing brake pedal while brake caliper is removed.

4. Remove disc rotor.
5. Remove wheel sensor from steering knuckle. Refer to [BRC-61, "WHEEL SENSORS"](#).

#### CAUTION:

**Do not pull on wheel sensor harness.**

6. Remove brake hose bracket from steering knuckle. Refer to [BR-11, "BRAKFE PIPING AND HOSE"](#).
7. Remove cotter pin at steering outer socket, then loosen mounting nut.

# FRONT WHEEL HUB AND KNUCKLE

8. Use a ball joint remover (SST) to remove steering outer socket from steering knuckle. Be careful not to damage ball joint boot.

**CAUTION:**

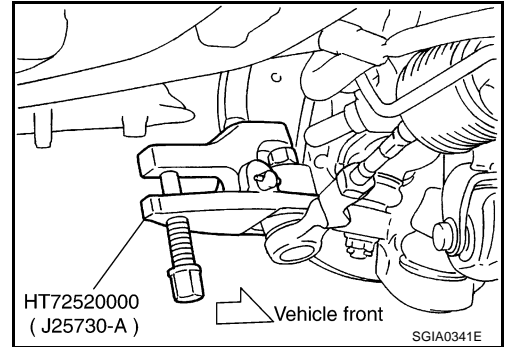
**Tighten temporarily mounting nut to prevent damage to threads and to prevent ball joint remover (SST) from coming off.**

9. After removing upper link, transverse link, compression rod and cotter pin at steering knuckle, loosen mounting nut.
10. Use a ball joint remover (suitable tool) to remove upper link, transverse link and compression rod from steering knuckle. Be careful not to damage ball joint boot.

**CAUTION:**

**Tighten temporarily mounting nut to prevent damage to threads and to prevent ball joint remover (suitable tool) from coming off.**

11. Remove steering knuckle and wheel hub and bearing assembly fixing bolt.
12. Remove wheel hub and bearing assembly from steering knuckle.



## INSPECTION AFTER REMOVAL

- About the inspection for upper link, compression rod, steering outer socket, refer to [FSU-14, "UPPER LINK"](#) , [FSU-16, "COMPRESSION ROD"](#) , [PS-14, "POWER STEERING GEAR AND LINKAGE"](#) .

## Visual Inspection

- Check steering knuckle and ball seat for deformation, cracks, and other damage. Replace steering knuckle and ball seat if cracks, deformation or other damage is found.
- Check ball joint boot for deformation, damage, and also for grease leakage. Replace steering knuckle assembly if cracks, deformation or also for grease leakage is found.

## Steering Knuckle Ball Joint Inspection

- Manually move ball stud to confirm it moves smoothly with no binding.

## Swing Torque Inspection

**CAUTION:**

**Before measurement, move ball joint at least ten times by hand to check for smooth movement.**

- Hook spring scale at cotter pin mounting hole. Confirm spring scale measurement value is within specifications when ball stud begins moving.

**Standard value**

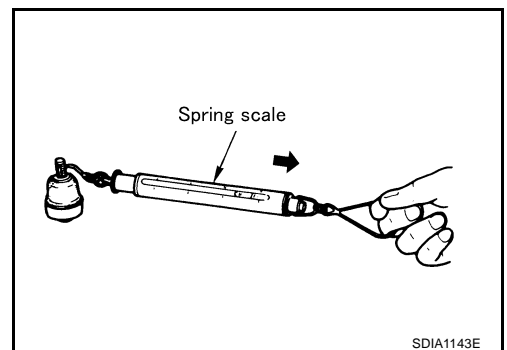
**Swing force:**

**0.147 - 1.4 N·m (0.02 - 0.14 kg·m, 2 - 12 in·lb)**

**Measurement force:**

**2.23 - 21.2 N (0.22 - 2.16 kg, 0.50 - 4.77 lb)**

- If the value is outside the standard, replace steering knuckle.



## Rotating Torque Inspection

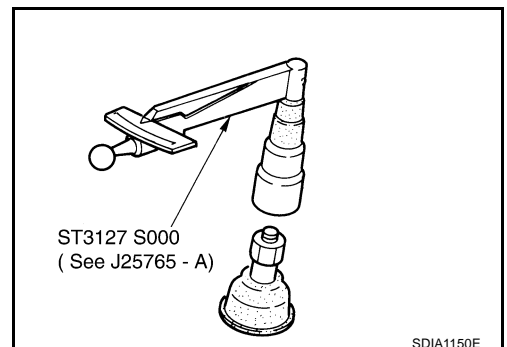
- Attach mounting nut to ball stud. Check that rotating torque is within specifications with a preload gauge (SST).

**Standard value**

**Rotating torque:**

**0.147 - 1.4 N·m (0.02 - 0.14 kg·m, 2 - 12 in·lb)**

- If the value is outside the standard, replace steering knuckle.



# FRONT WHEEL HUB AND KNUCKLE

## Axial End Play Inspection

- Move tip of ball joint in axial direction to check for looseness.

**Standard value**

**Axial end play : 0 mm (0 in)**

- If the value is outside the standard, replace steering knuckle.

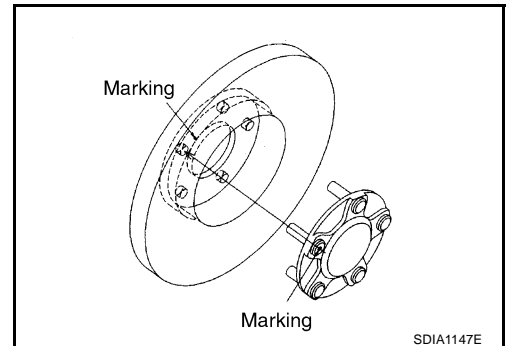
## INSTALLATION

- Refer to [FAX-4, "Removal and Installation"](#) for tightening torque. Install in the reverse order of removal.

### NOTE:

Refer to component parts location and do not reuse non-reusable parts.

- Wheel hub and bearing assembly and disc must be installed to fit the marked position each other.



# SERVICE DATA

## SERVICE DATA

PFP:00030

### Wheel Bearing

ADS0009D

Axial end play limit	0.05 mm (0.002 in) or less
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### BALL JOINT

Swing force	0.147 - 1.4 N·m (0.02 - 0.14 kg-m, 2 - 12 in-lb)
Measurement on spring balance (Spring scale hooking position: cotter pin mounting hole)	2.23 - 21.2 N (0.22 - 2.16 kg, 0.50 - 4.77 lb)
Rotating torque	0.147 - 1.4 N·m (0.02 - 0.14 kg-m, 2 - 12 in-lb)
Axial end play limit	0 mm (0 in)

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## SERVICE DATA

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