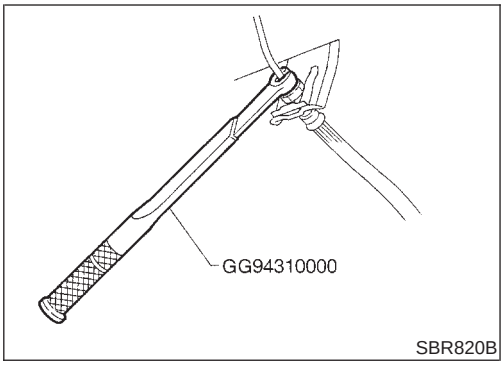
FRONT & REAR AXLE

SECTION AX

CONTENTS



Precautions

PRECAUTIONS

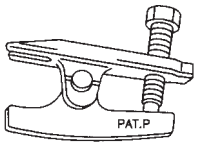
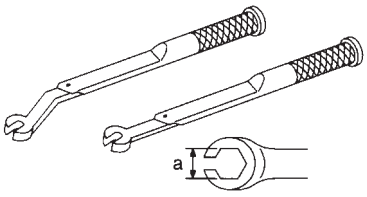
NMAX0001

- **When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.**
  ***: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**
- **After installing removed suspension parts, check wheel alignment and adjust if necessary.**
- **Use flare nut wrench when removing or installing brake tubes.**
- **Always torque brake lines when installing.**

Preparation

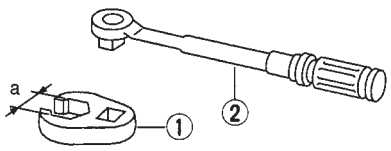
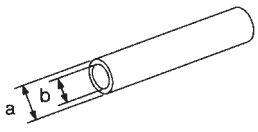
SPECIAL SERVICE TOOLS

NMAX0002

Tool number Tool name	Description	
HT72520000 Ball joint remover	 NT146	Removing tie-rod outer end and lower ball joint
GG94310000 Flare nut torque wrench	 NT406	Removing and installing brake piping **a: 10 mm (0.39 in) dia.**

COMMERCIAL SERVICE TOOLS

NMAX0003

Tool name	Description	
1 Flare nut crowfoot 2 Torque wrench	 NT360	Removing and installing each brake piping **a: 10 mm (0.39 in)**
Baffle plate drift	 NT065	Installing baffle plate **a: 88 mm (3.46 in) dia.** **b: 68 mm (2.68 in) dia.**

Noise, Vibration and Harshness (NVH) Troubleshooting

=NMAX0004

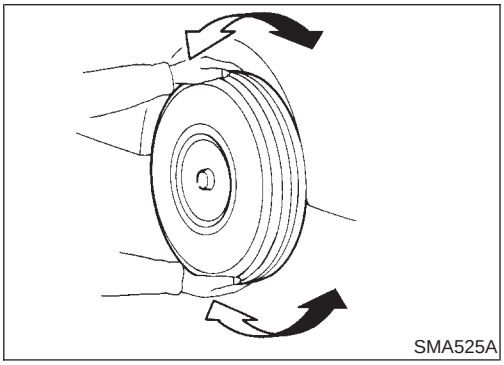
NVH TROUBLESHOOTING CHART

NMAX0004S01

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

Reference page			—	AX-17	—	AX-5, 11	—	AX-4, 10	PD-3	PD-3	Refer to DRIVE SHAFT in this chart.	Refer to AXLE in this chart.	SU-4	SU-4	SU-4	BR-5	ST-5
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	PROPELLER SHAFT	DIFFERENTIAL	DRIVE SHAFT	AXLE	SUSPENSION	TIRES	ROAD WHEEL	BRAKES	STEERING
Symptom	DRIVE SHAFT	Noise, Vibration	×	×					×	×		×	×	×	×	×	×
		Shake	×		×				×			×	×	×	×	×	×
	AXLE	Noise				×	×		×	×	×		×	×	×	×	×
		Shake				×	×		×		×		×	×	×	×	×
		Vibration				×	×		×		×		×	×			×
		Shimmy				×	×						×	×	×	×	×
		Judder				×							×	×	×	×	×
		Poor quality ride or handling				×	×	×					×	×	×		

×: Applicable


SMA525A

On-vehicle Service

FRONT AXLE PARTS

NMAX0005

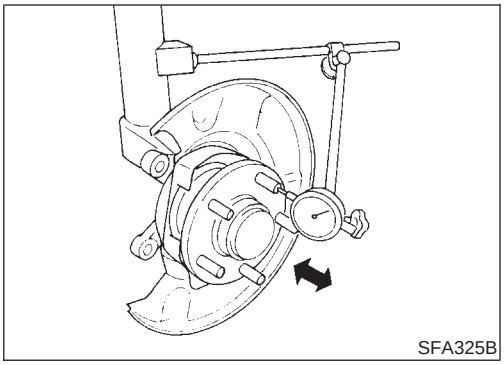
Check front axle and front suspension parts for excessive play, cracks, wear or other damage.

- Shake each front wheel to check for excessive play.
- Make sure that cotter pin is inserted.
- Retighten all axle and suspension nuts and bolts to the specified torque.

Tightening torque:

Refer to SU-9, “FRONT SUSPENSION”.

On-vehicle Service (Cont'd)


SFA325B

FRONT WHEEL BEARING

NMAX0006

- Check that wheel bearings operate smoothly.
- Check axial end play.

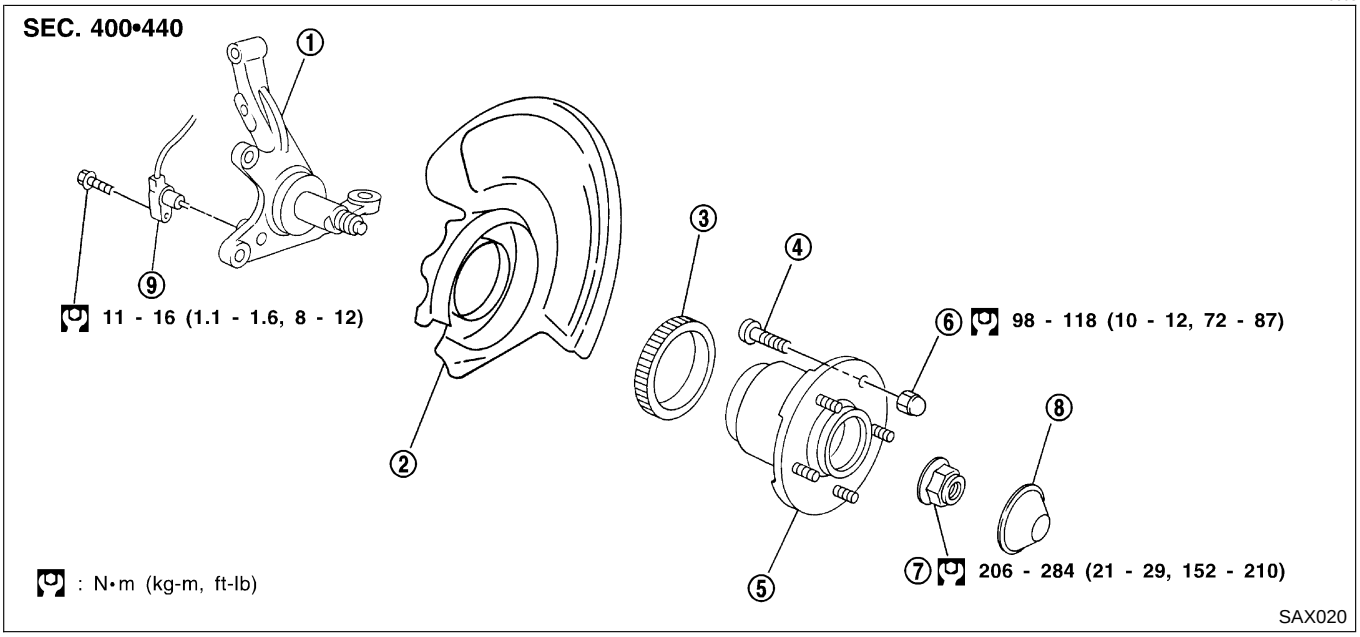
Axial end play:
0.05 mm (0.0020 in)

If out of specification or wheel bearing does not turn smoothly, replace wheel bearing assembly.
Refer to "Wheel Hub and Knuckle", "FRONT AXLE", AX-5.

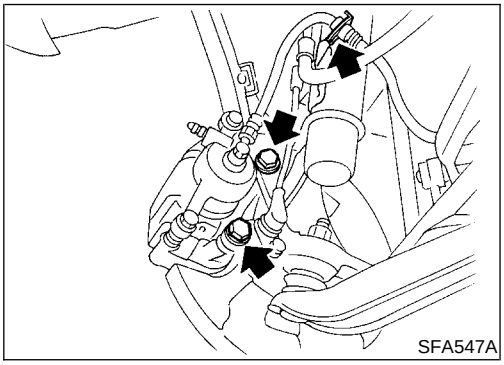
Wheel Hub and Knuckle

COMPONENTS

=NMAX0008



1. Knuckle spindle
2. Baffle plate
3. ABS sensor rotor
4. Hub bolt
5. Wheel hub
6. Wheel nut
7. Wheel bearing lock nut
8. Hub cap
9. ABS sensor



REMOVAL

NMAX0009

CAUTION:

Wheel hub bearing usually does not require maintenance. If any of the following symptoms are noted, replace wheel hub bearing assembly.

- Growling noise is emitted from wheel hub bearing during operation.
- Wheel hub bearing drags or turns roughly. This occurs when turning hub by hand after bearing lock nut is tightened to specified torque.
- If the wheel hub bearing assembly is removed, it must be renewed. The old assembly must not be re-used.

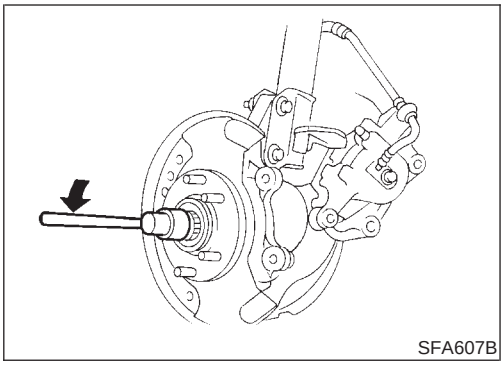
Remove brake caliper assembly and rotor.

Before removing the front axle assembly, disconnect the ABS wheel sensor from the assembly. Then move it away from the front axle assembly area.

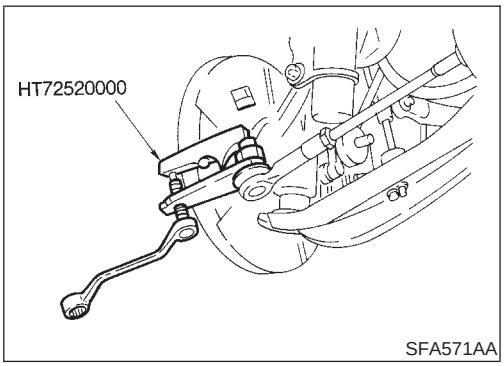
Failure to do so may result in sensor wires being damaged and the sensor becoming inoperative.

Suspend caliper assembly with wire so as not to stretch brake hose.

Be careful not to depress brake pedal, or piston will pop out.

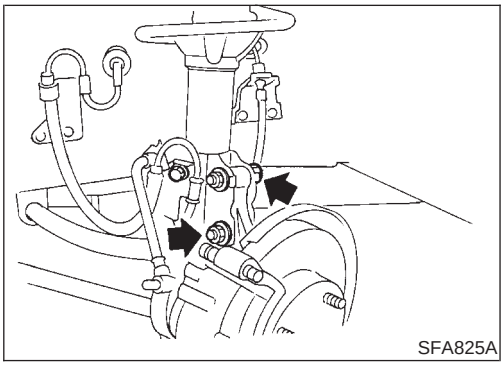

SFA607B

1. Remove wheel bearing lock nut. Remove wheel hub from spindle.



SFA571AA

2. Remove tie-rod ball joint and lower ball joint.


SFA825A

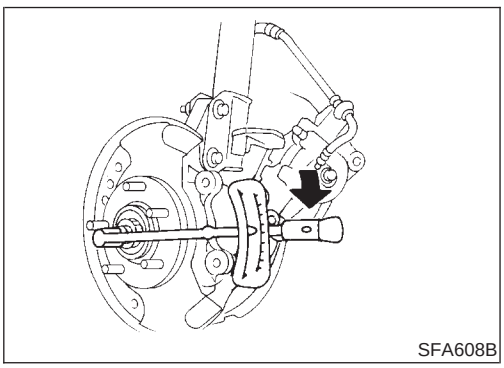
3. Disconnect knuckle from strut.

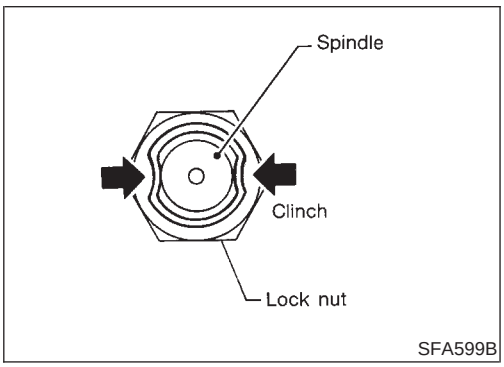
INSTALLATION

NMAX0010

1. Install wheel hub.
2. Tighten wheel bearing lock nut.

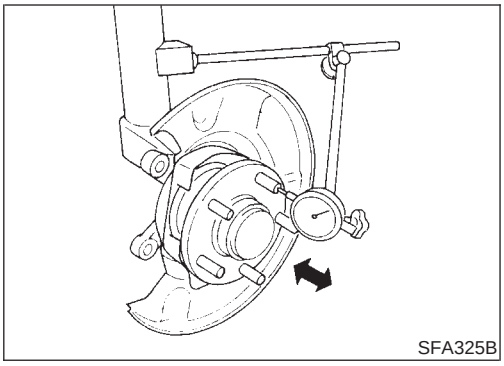
: 206 - 284 N·m (21 - 29 kg-m, 152 - 210 ft-lb)


SFA608B



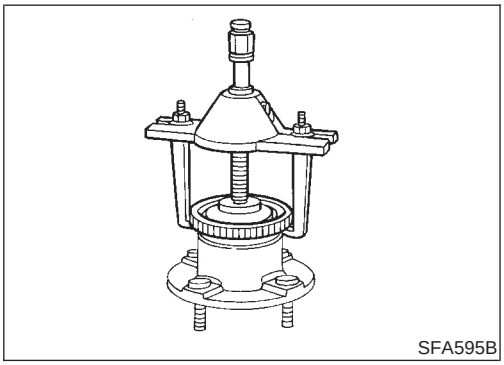
SFA599B

3. Clinch two places of lock nut.


SFA325B

4. Check wheel bearing axial end play.

Axial end play: 0.05 mm (0.0020 in) or less

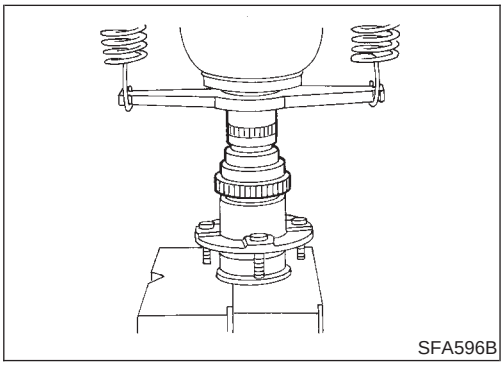

SFA595B

ABS Sensor Rotor

REMOVAL

NMAX0034

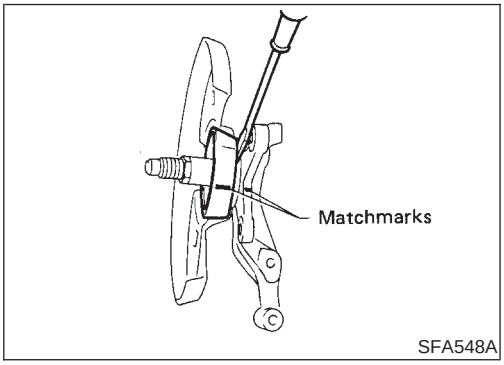
Remove ABS sensor rotor (models equipped with ABS) or labyrinth plate (models without ABS) with suitable tool.


SFA596B

INSTALLATION

NMAX0035

Press-fit ABS sensor rotor or labyrinth plate.



SFA548A

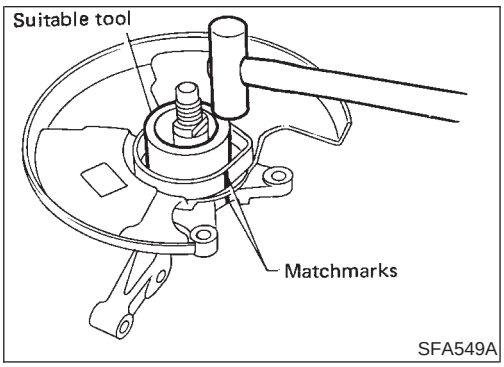
Baffle Plate

REMOVAL

NMAX0036

- Mark matchmarks on baffle plate before removing.
- If baffle plate replacement requires removal of knuckle spindle, separate it equally using a screwdriver.

Be careful not to scratch knuckle spindle.



SFA549A

INSTALLATION

NMAX0037

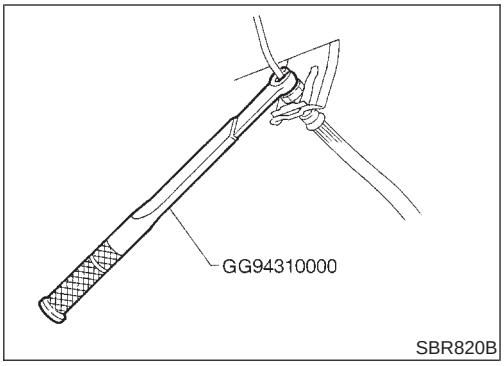
With matchmarks aligned, install baffle plate by tapping it with a copper hammer and a suitable tool.

Service Data and Specifications (SDS)

WHEEL BEARING (FRONT)

NMAX0021

Wheel bearing axial end play limit mm (in)	0.05 (0.0020)
Wheel bearing lock nut tightening torque N·m (kg-m, ft-lb)	206 - 284 (21 - 29, 152 - 210)



SBR820B

Precautions

PRECAUTIONS

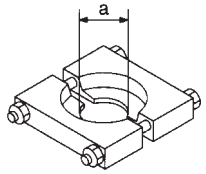
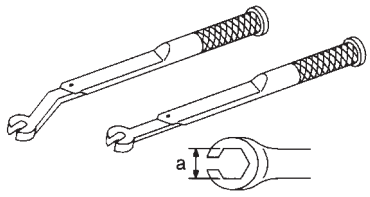
NMAX0022

- **When installing each rubber part, final tightening must be carried out under unladen condition* with tires on ground. *: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**
- **Use flare nut wrench when removing or installing brake tubes.**
- **After installing removed suspension parts, check wheel alignment.**
- **Do not jack up at the trailing arm and lateral link.**
- **Always torque brake lines when installing.**

Preparation

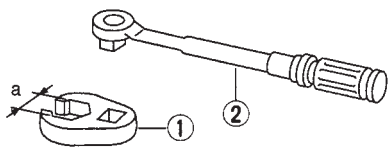
SPECIAL SERVICE TOOLS

NMAX0032

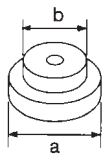
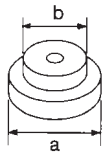
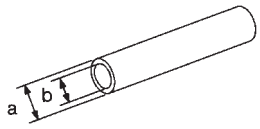
Tool number Tool name	Description	
ST30031000 Bearing puller	 NT412	Removing inner race of wheel bearing **a: 50 mm (1.97 in) dia.**
GG94310000 Flare nut torque wrench	 NT406	Removing and installing brake piping **a: 10 mm (0.39 in) dia.**

COMMERCIAL SERVICE TOOLS

NMAX0024

Tool name	Description	
GG94310000 1 Flare nut crowfoot 2 Torque wrench	 NT360	Removing and installing brake piping **a: 10 mm (0.39 in)**

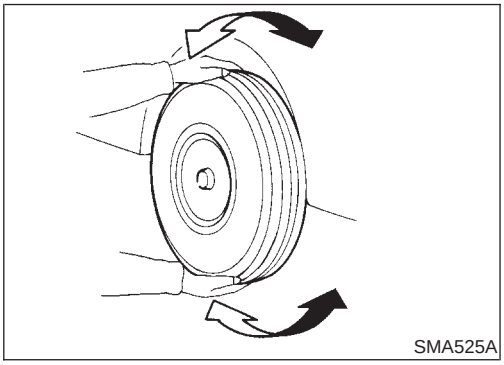
Preparation (Cont'd)

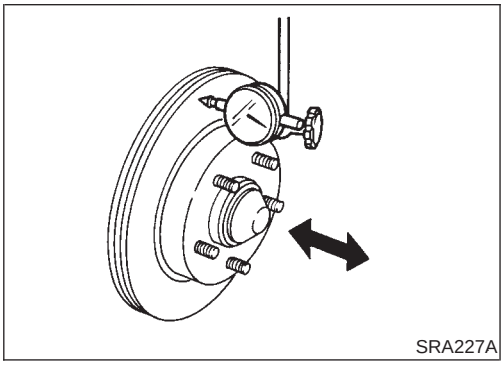
Tool name	Description	
Rear wheel hub drift	 NT073	Installing wheel bearing **a: 49 mm (1.93 in) dia.** **b: 41 mm (1.61 in) dia.**
Wheel bearing drift	 NT073	Removing rear wheel hub **a: 40 mm (1.57 in) dia.** **b: 26 mm (1.02 in) dia.**
Rear drive shaft plug seal drift	 NT065	Installing rear drive shaft plug seal **a: 85 mm (3.35 in) dia.** **b: 67 mm (2.64 in) dia.**

Noise, Vibration and Harshness (NVH) Troubleshooting

NMAX0025

Refer to "Noise, Vibration and Harshness (NVH) Troubleshooting", "FRONT AXLE", AX-3.


SMA525A


SRA227A

On-vehicle Service

REAR AXLE PARTS

NMAX0026

Check axle and suspension parts for looseness, wear or damage.

- Shake each rear wheel.
- Retighten all axle and suspension nuts and bolts to the specified torque.

  Tightening torque:

  Refer to REAR SUSPENSION (SU-18).
- Make sure that cotter pins are inserted.

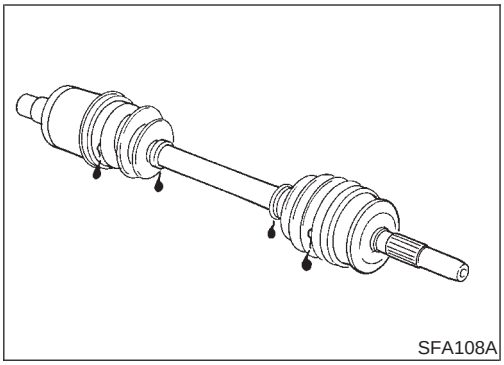
REAR WHEEL BEARING

NMAX0027

- Check wheel bearings smooth operation.
- Check axial end play.

  Axial end play:

  0.05 mm (0.0020 in) or less
- If out of specification or wheel bearing does not turn smoothly, replace wheel bearing assembly.
  Refer to REAR AXLE — Wheel Hub and Axle Housing (AX-11).


SFA108A

DRIVE SHAFT

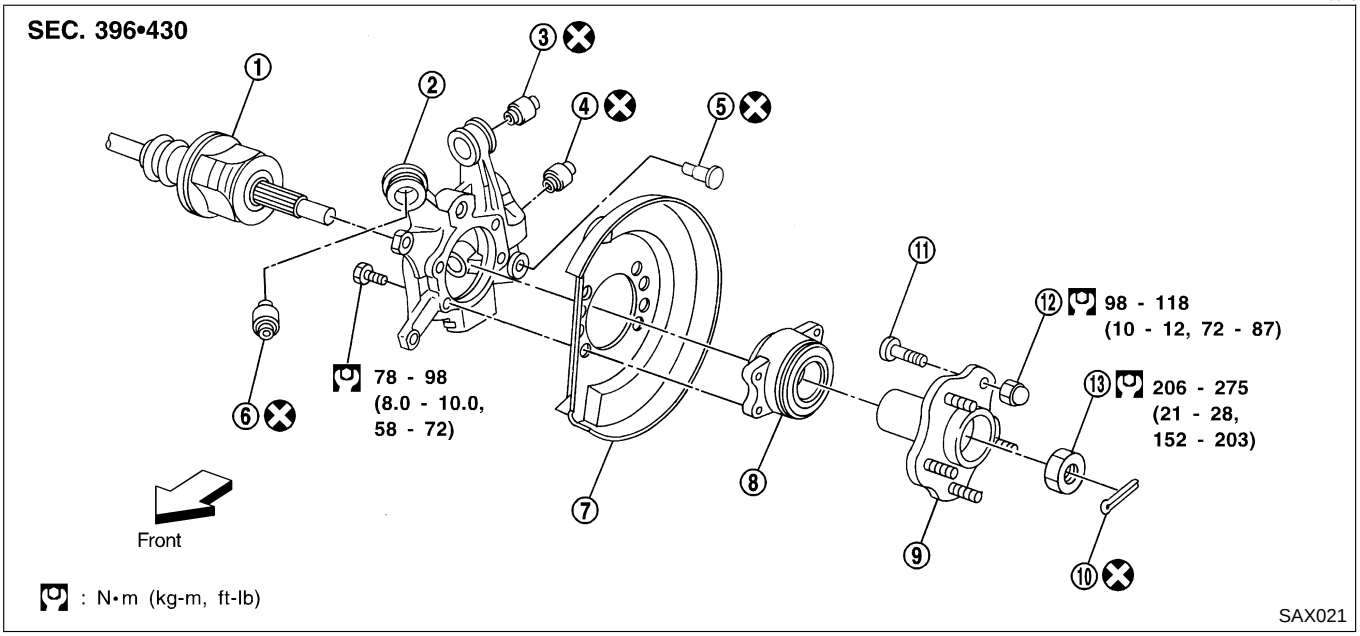
NMAX0007

Check for grease leakage or other damage.

Wheel Hub and Axle Housing

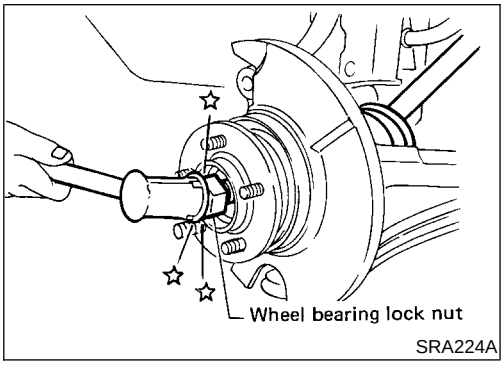
COMPONENTS

NMAX0028



SAX021

1. Drive shaft
2. Axle housing
3. Bushing
4. Bushing
5. Shock absorber pin
6. Bushing
7. Baffle plate
8. Wheel bearing with flange
9. Wheel hub
10. Cotter pin
11. Hub bolt
12. Wheel nut
13. Wheel bearing lock nut



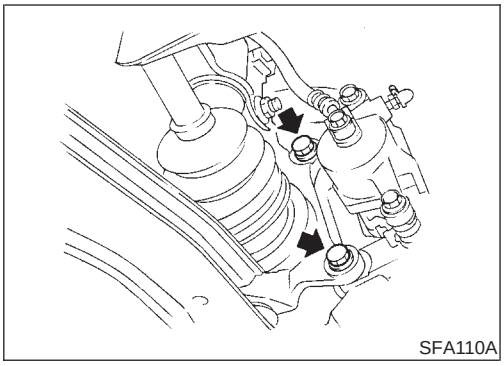
SRA224A

REMOVAL

NMAX0029

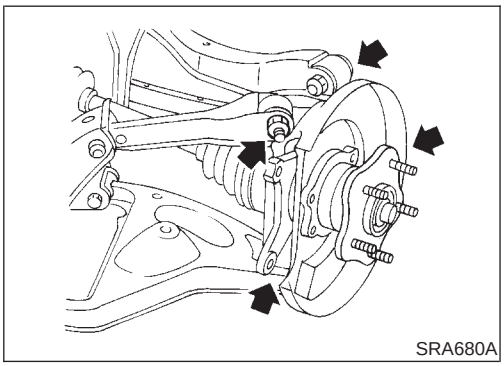
1. Remove wheel bearing lock nut.
2. Separate drive shaft from axle housing by lightly tapping it. If it is hard to remove use puller.

When removing drive shaft, cover boots with shop towel to prevent them from being damaged.

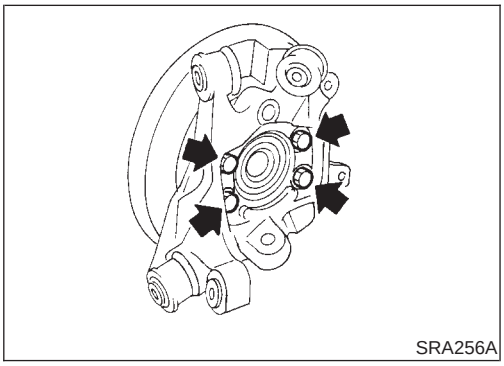

SFA110A

3. Remove brake caliper assembly and rotor.

Suspend caliper assembly with wire so as not to stretch brake hose.
Be careful not to depress brake pedal or piston will pop out.


SRA680A

4. Remove axle housing.

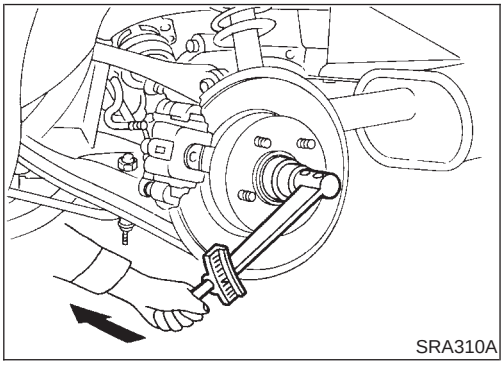

SRA256A

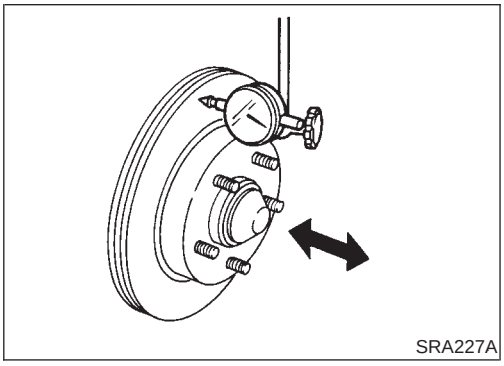
5. Remove wheel bearing with flange, and wheel hub from axle housing.

INSTALLATION

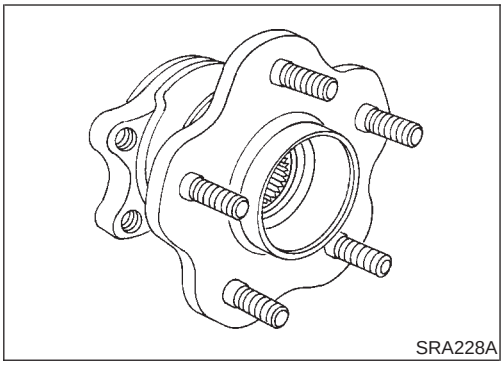
NMAX0030

1. Install axle housing with wheel hub.
2. Tighten wheel bearing lock nut.
   Before tightening, apply oil to threaded portion of rear spindle and both sides of plain washer.
   : 206 - 275 N·m (21 - 28 kg-m, 152 - 203 ft-lb)


SRA310A


SRA227A

3. Check wheel bearing axial end play.
   Axial end play: 0.05 mm (0.0020 in) or less
   Make sure that wheel bearings operate smoothly.
4. Check toe-in — Refer to ON-VEHICLE SERVICE (SU-17).


SRA228A

DISASSEMBLY

NMAX0038

CAUTION:

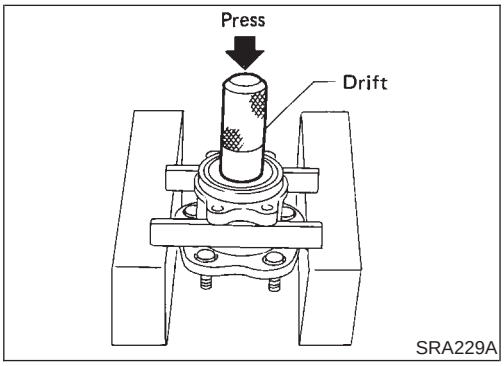
Wheel bearing with flange usually does not require maintenance. If any of the following symptoms are noted, replace wheel bearing assembly (including flange, and inner and outer seals).

- **Growling noise is emitted from wheel bearing during operation.**
- **Wheel hub bearing drags or turns roughly. This occurs when turning hub by hand after bearing lock nut is tightened to specified torque.**
- **After wheel bearing is removed from hub.**

Wheel Hub

NMAX0038S01

Remove wheel bearing (with flange) and wheel hub as one unit from axle housing before disassembling.

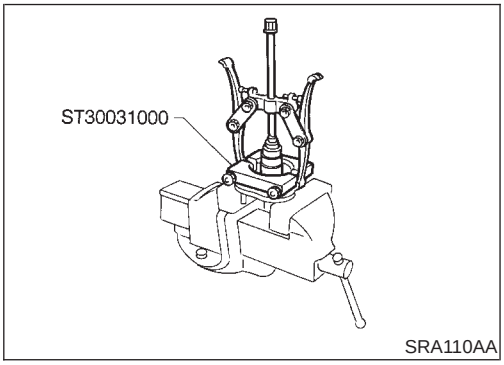


SRA229A

Wheel Bearing

NMAX0038S02

1. Using a press and drift as shown in figure at left, press wheel bearing out.
2. Discard old wheel bearing assembly. Replace with a new one.

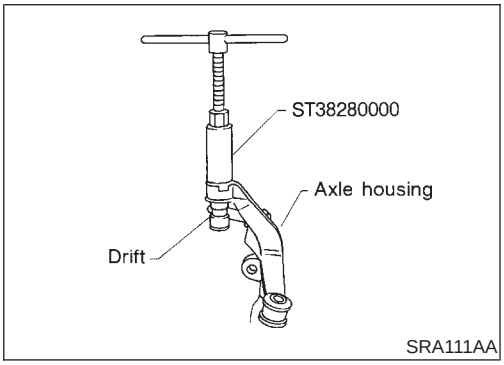


SRA110AA

3. Remove inner race from hub using a bearing replacer/puller.

CAUTION:

- **Do not reuse old inner race although it is of the same brand as the bearing assembly.**
- **Do not replace grease seals as single parts.**



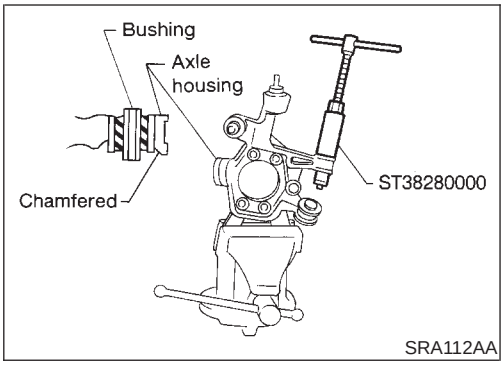
SRA111AA

Axle Housing

NMAX0038S03

1. Attach a drift on outer shell of bushing as shown in figure at left. Remove bushing using arm bushing remover.

When placing axle housing in a vise, use wooden blocks or copper plates as pads.



2. Ensure axle housing bore is free from scratches or deformities before pressing bushing into it.
3. Attach bushing to chamfered bore end of axle housing. Then press it until it is flush with end face of axle housing.

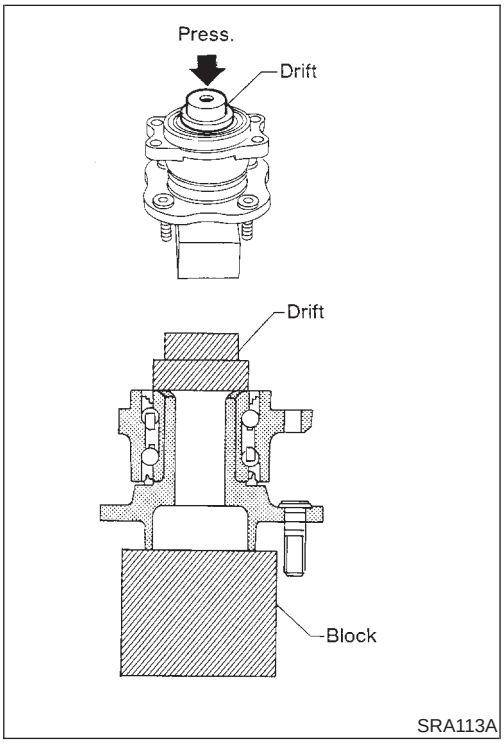
INSPECTION

NMAX0039

Wheel Hub and Axle Housing

NMAX0039S01

- Check wheel hub and axle housing for cracks by using a magnetic exploration or dyeing test.
- Check wheel bearing for damage, seizure, rust or rough operation.
- Check rubber bushing for wear or other damage. Replace if necessary.



ASSEMBLY

NMAX0040

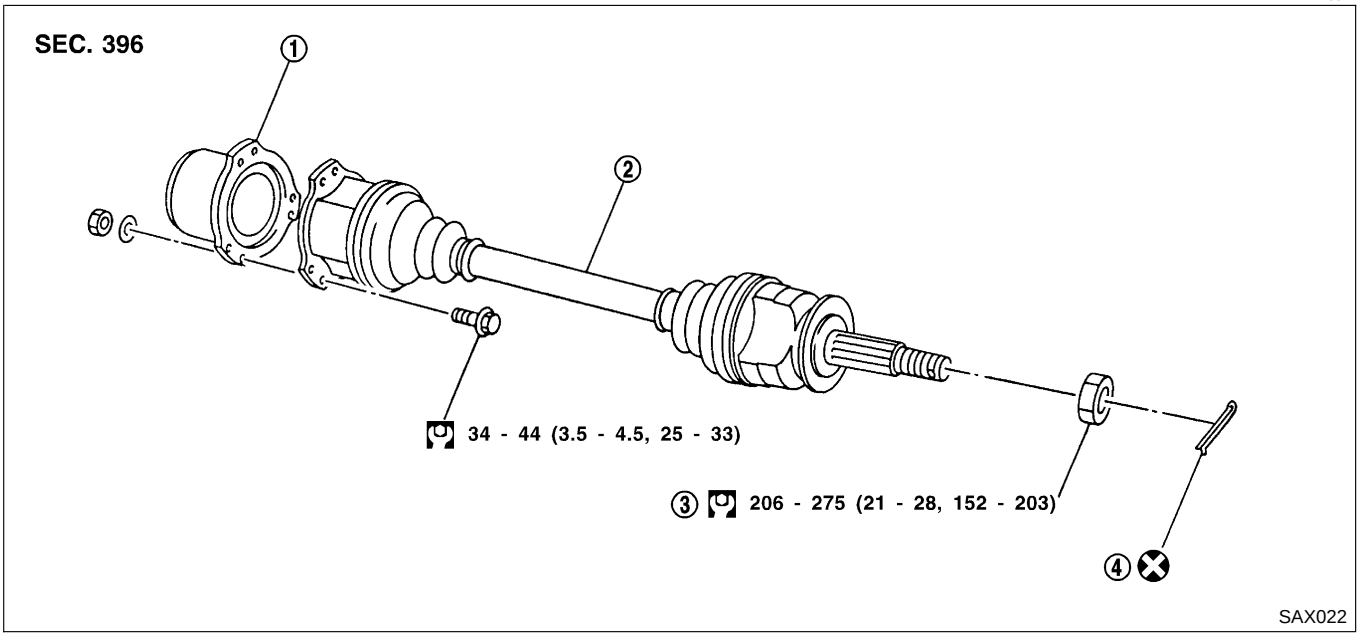
Place hub on a block. Attach a drift to inner race of wheel bearing and press it into hub as shown.

Be careful not to damage grease seal.

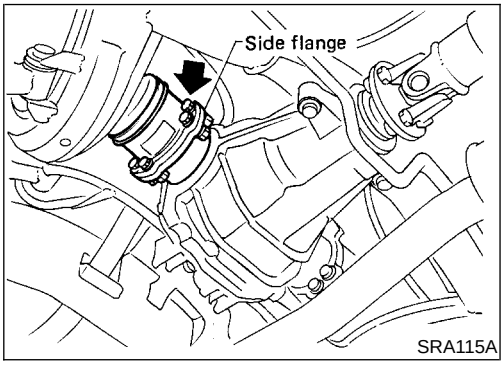
Drive Shaft

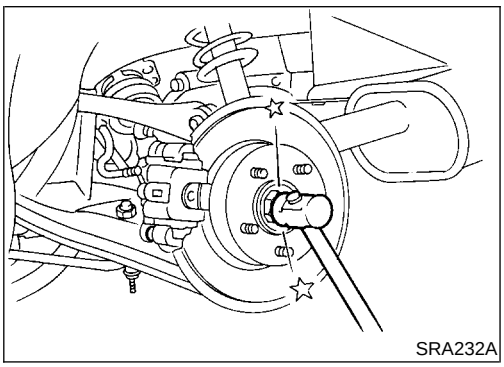
COMPONENTS

NMAX0041



1. Side flange
2. Drive shaft
3. Wheel bearing lock nut
4. Cotter pin





REMOVAL

NMAX0042

When removing drive shaft, cover boots with shop towel to prevent damage to them.

Final drive side

NMAX0042S01

Remove side flange mounting bolt and separate shaft.

Wheel Side

NMAX0042S02

Remove drive shaft by lightly tapping it with a copper hammer. If it is hard to remove, use puller.

To avoid damaging threads of drive shaft, install a nut while removing drive shaft.

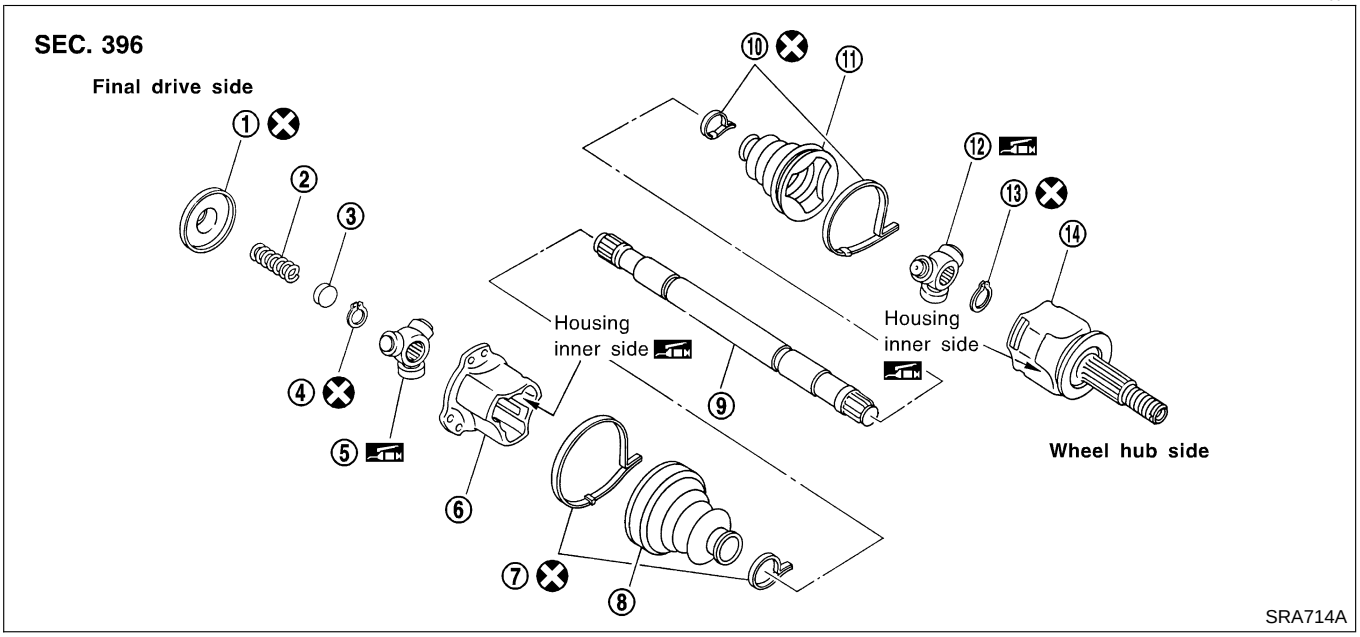
INSTALLATION

NMAX0043

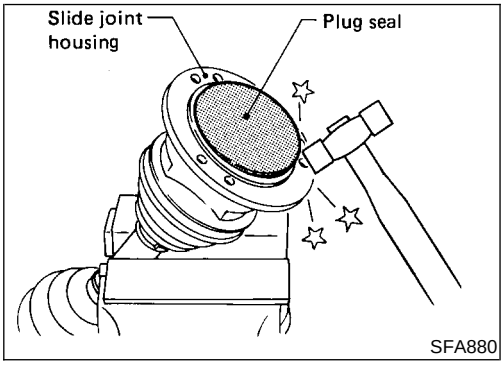
1. Insert drive shaft from wheel hub and temporarily tighten wheel bearing lock nut.
2. Tighten side flange mounting bolts to specified torque.
3. Tighten wheel bearing lock nut to specified torque.

COMPONENTS

NMAX0044



1. Plug seal
2. Spring
3. Spring cap
4. Snap ring
5. Spider assembly
6. Slide joint housing
7. Boot band
8. Boot
9. Drive shaft
10. Boot band
11. Boot
12. Spider assembly
13. Snap ring
14. Housing with shaft



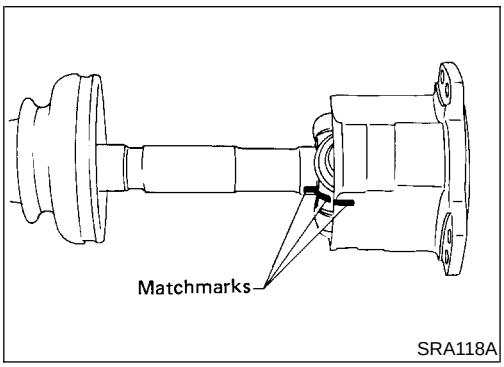
DISASSEMBLY

NMAX0045

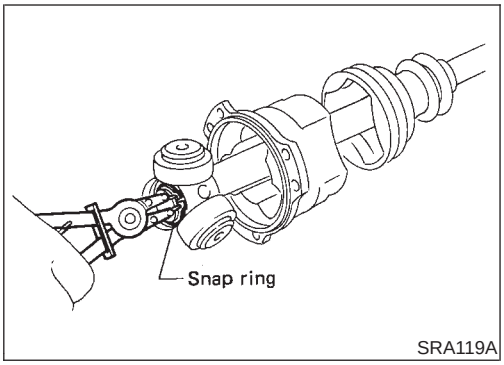
Final Drive Side

NMAX0045S01

1. Remove plug seal from slide joint housing by lightly tapping around slide joint housing.



2. Remove boot bands.
3. Put matchmarks on slide joint housing and drive shaft before separating joint assembly.
4. Put matchmarks on spider assembly and drive shaft.



SRA119A

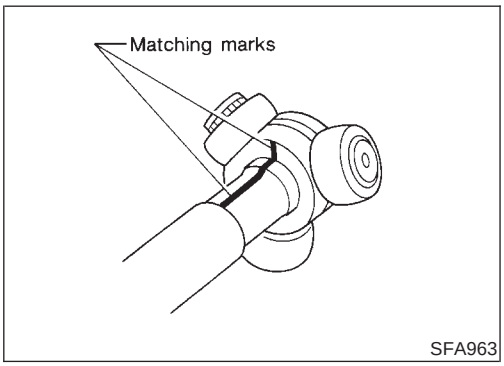
5. Pry off snap ring, then remove spider assembly.

CAUTION:

Do not disassemble spider assembly.

6. Draw out slide joint housing.
7. Draw out boot.

Cover drive shaft serration with tape to prevent damage to the boot.

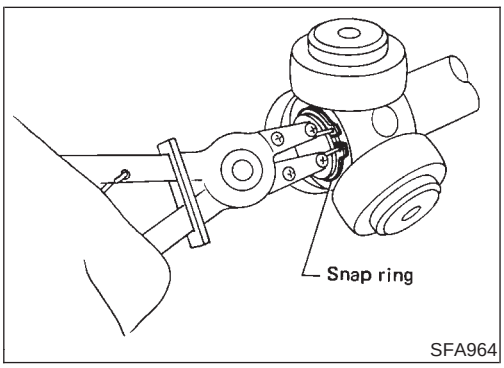


SFA963

Wheel Side

NMAX0045S02

1. Remove boot bands.
2. Put matchmarks on housing together with shaft and drive shaft before separating joint assembly.
3. Put matchmarks on spider assembly and drive shaft.



SFA964

4. Pry off snap ring, then remove spider assembly.

CAUTION:

Do not disassemble spider assembly.

5. Draw out boot.

Cover drive shaft serration with tape to prevent damage to the boot.

INSPECTION

NMAX0046

Thoroughly clean all parts in cleaning solvent, and dry with compressed air. Check parts for deformation or other damage.

Drive Shaft

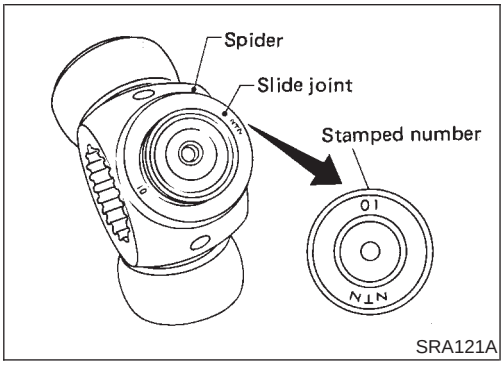
NMAX0046S01

Replace drive shaft if it is twisted or cracked.

Boot

NMAX0046S02

Check boot for fatigue, cracks, or wear. Replace boot with new boot bands.



SRA121A

Joint Assembly

NMAX0046S03

- Check spider assembly for bearing, roller and washer damage. Replace spider assembly if necessary.
- Check housing for any damage. Replace housing set and spider assembly, if necessary.
- When replacing only spider assembly, select a new spider assembly from among those listed in table below. Ensure the number stamped on sliding joint is the same as that stamped on new part.

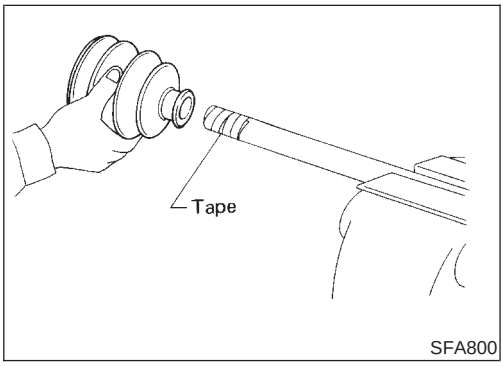
Housing alone cannot be replaced. It must be replaced together with spider assembly.

Stamped number	Part No.
00	39720 10V10
01	39720 10V11
02	39720 10V12

ASSEMBLY

NMAX0047

- **After drive shaft has been assembled, ensure it moves smoothly over its entire range without binding.**
- **Use NISSAN GENUINE GREASE or equivalent after every overhaul.**

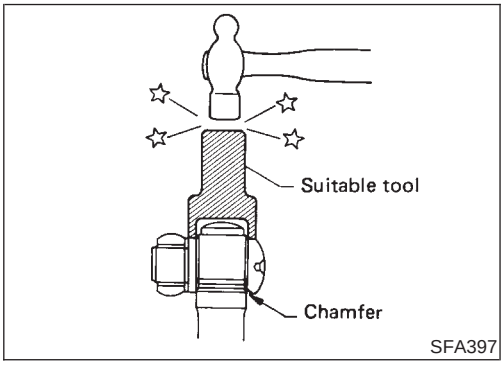


Wheel Side

NMAX0047S01

1. Install new small boot band and boot on drive shaft.

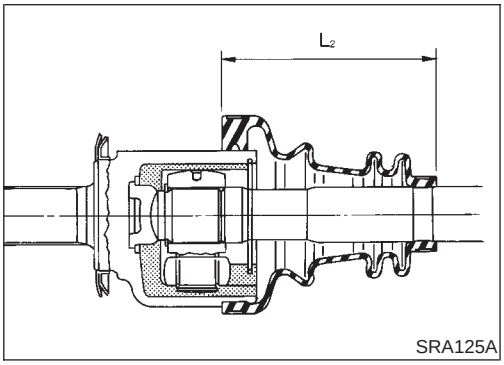
Cover drive shaft serration with tape to prevent damage to boot during installation.



2. Install spider assembly securely, making sure marks are properly aligned.

Press-fit with spider assembly serration chamfer facing shaft.

3. Install new snap ring.



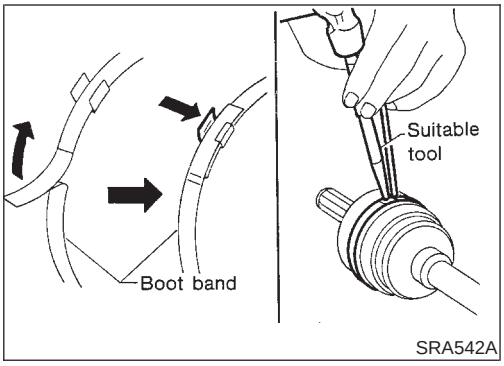
4. Pack drive shaft with specified amount of grease.

Specified amount of grease:
102 - 112 g (3.60 - 3.95 oz)

5. Install slide joint housing, then install new snap ring.
6. Set boot so that it does not swell and deform when its length is "L_2".

Length "L_2":
95 - 97 mm (3.74 - 3.82 in)

Make sure that boot is properly installed on the drive shaft groove.



SRA542A

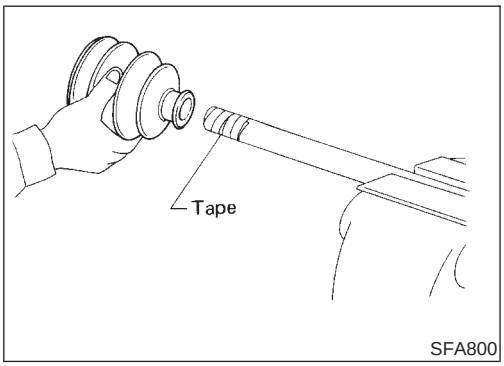
7. Lock new larger and smaller boot bands securely with a suitable tool.

Final Drive Side

NMAX0047S02

1. Install new small boot band, boot and slide joint housing to drive shaft.

Cover drive shaft serration with tape to prevent damage to boot during installation.

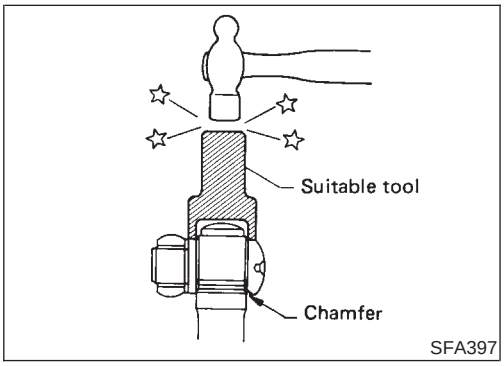


SFA800

2. Install spider assembly securely, making sure marks are properly aligned.

Press-fit with spider assembly serration chamfer facing shaft.

3. Install new snap ring.



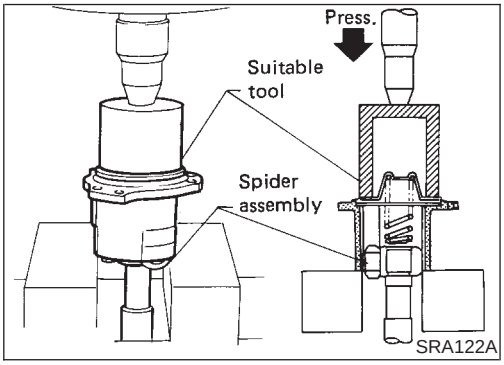
SFA397

4. Install coil spring, spring cap and new plug seal to slide joint housing. Press plug seal.

Apply sealant to mating surface of plug seal.

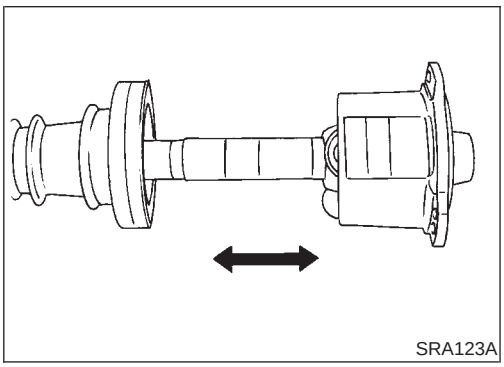
CAUTION:

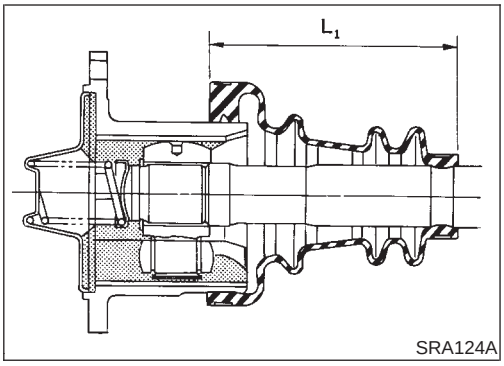
1) When pressing plug seal into place, hold it horizontally. This prevents spring inside it from tilting or falling down.



SRA122A

2) Move shaft in axial direction to ensure that spring is installed properly. If shaft drags or if spring is not properly installed, replace plug seal with a new one.

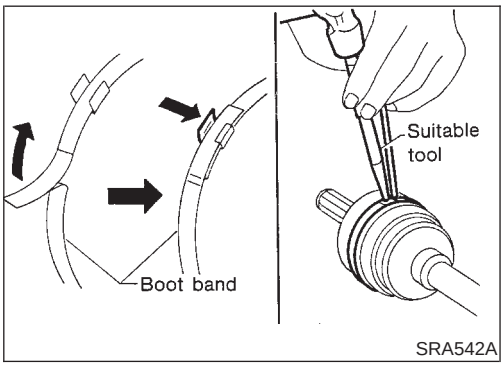

SRA123A



SRA124A

5. Pack drive shaft with specified amount of grease.
   Specified amount of grease:
   128 - 138 g (4.51 - 4.87 oz)
6. Set boot so that it does not swell and deform when its length is "L_1".
   Length "L_1":
   95 - 97 mm (3.74 - 3.82 in)

Make sure that boot is properly installed on the drive shaft groove.



SRA542A

7. Lock new larger boot band securely with a suitable tool, then lock new smaller boot band.

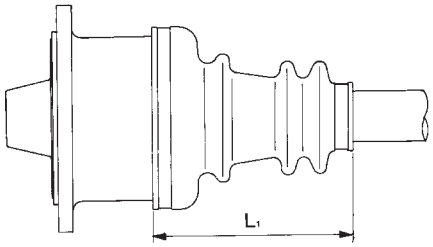
Service Data and Specifications (SDS)

DRIVE SHAFT

NMAX0033

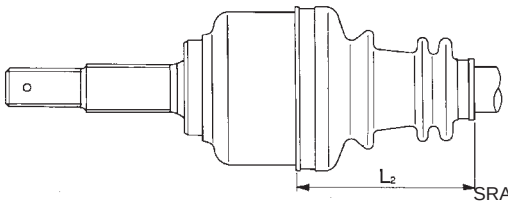
Joint type	Final drive side	TS82F
	Wheel side	TS82C
Grease name	Final drive side	Nissan genuine grease or equivalent
	Wheel side	Nissan genuine grease or equivalent
Specified amount of grease g (oz)	Final drive side	128 - 138 (4.51 - 4.87)
	Wheel side	102 - 112 (3.60 - 3.95)
Boot length mm (in)	Final drive side (L_1)	95 - 97 (3.74 - 3.82)
	Wheel side (L_2)	

Final drive side



SRA133A

Wheel side



SRA543A

WHEEL BEARING (REAR)

NMAX0031

Wheel bearing axial end play mm (in)	0.05 (0.0020)
Wheel bearing lock nut tightening torque N·m (kg-m, ft-lb)	206 - 275 (21 - 28, 152 - 203)