

SECTION

RAX

REAR AXLE

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RAX

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SERVICE INFORMATION

PRECAUTIONS

Precaution

INFOID:000000005444692

- When installing the rubber bushings, the final tightening must be done under unladen condition and with the tires on level ground. Oil will shorten the life of the rubber bushings, so wipe off any spilled oil immediately.
- Unladen condition means the fuel tank, engine coolant and lubricants are at the full specification. The spare tire, jack, hand tools, and mats are in their designated positions.
- Lock nuts are not reusable. Always use new lock nuts for installation. New lock nuts are pre-oiled, do not apply any additional lubrication.

PREPARATION

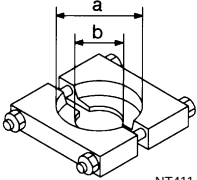
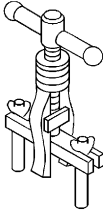
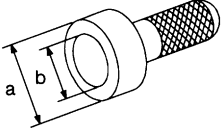
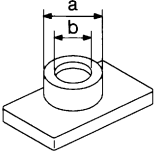
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[M226]

PREPARATION

Special Service Tool

INFOID:000000005444693

Tool number Tool name	Description
ST30031000 Bearing puller a: 90 mm (3.54 in) b: 50 mm (1.85 in)	Removing axle shaft bearing
 NT411	
ST33290001 Puller	Removing axle shaft bearing cup Removing rear oil seal
 NT713	
ST35271000 Rear axle oil seal drift a: 72 mm (2.83 in) b: 63 mm (2.84 in)	Installing rear oil seal
 NT115	
ST30022000 Rear axle shaft bearing inserter a: 110 mm (4.33 in) b: 46 mm (1.18 in)	Installing axle shaft bearing ring retainer
 NT509	

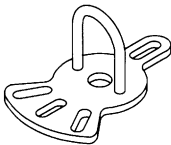
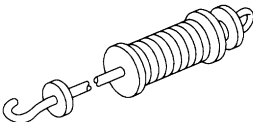
Commercial Service tools

INFOID:000000005444694

PREPARATION

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Tool name	Description
Axle stand  NT159	Removing axle shaft
Slide hammer  NT126	Removing axle shaft

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

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[M226]

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

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

Reference page										
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Parts interference	Wheel bearing damage	PROPELLER SHAFT	REAR FINAL DRIVE	SUSPENSION	TIRES	ROAD WHEEL	BRAKES
Symptom	Noise	x	x		x	x	x	x	x	x
	Shake	x	x		x		x	x	x	x
	Vibration	x	x		x		x	x		
	Shimmy	x	x				x	x	x	x
	Shudder	x					x	x	x	x
	Poor quality ride or handling	x	x	x			x	x	x	
		RAX-7 (M226 all)	RAX-7 (M226 all)	RAX-7 (M226 all)	PR-2, "NVH Troubleshooting Chart"	RFD-7 (STANDARD DIFFERENTIAL) RFD-39 (WITH LIMITED SLIP DIFFERENTIAL) RFD-76 (WITH ELECTRONIC LOCKING DIFFERENTIAL)	RSU-3, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	WT-2, "NVH Troubleshooting Chart"	BR-4, "NVH Troubleshooting Chart"

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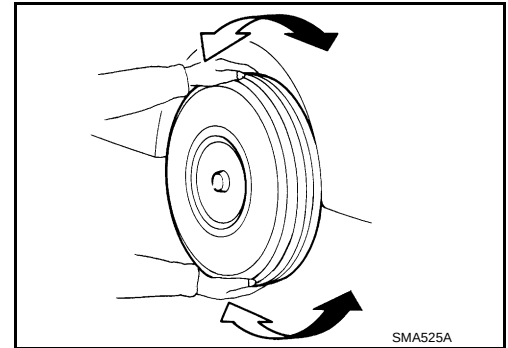
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ON-VEHICLE SERVICE

Rear Axle Parts

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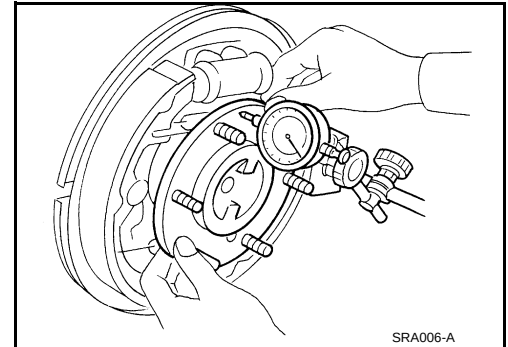
- Check the axle parts for excessive play, wear, and damage. Replace as necessary.
- Shake each rear wheel to check for excessive play. Repair as necessary
- Retighten all nuts and bolts to the specified torque. Refer to [RAX-7](#).



Rear Axle Bearing

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- Check that the axle shaft bearing operates smoothly. Replace as necessary.
- Check axial end play. Refer to [RAX-12](#).



AXLE SHAFT

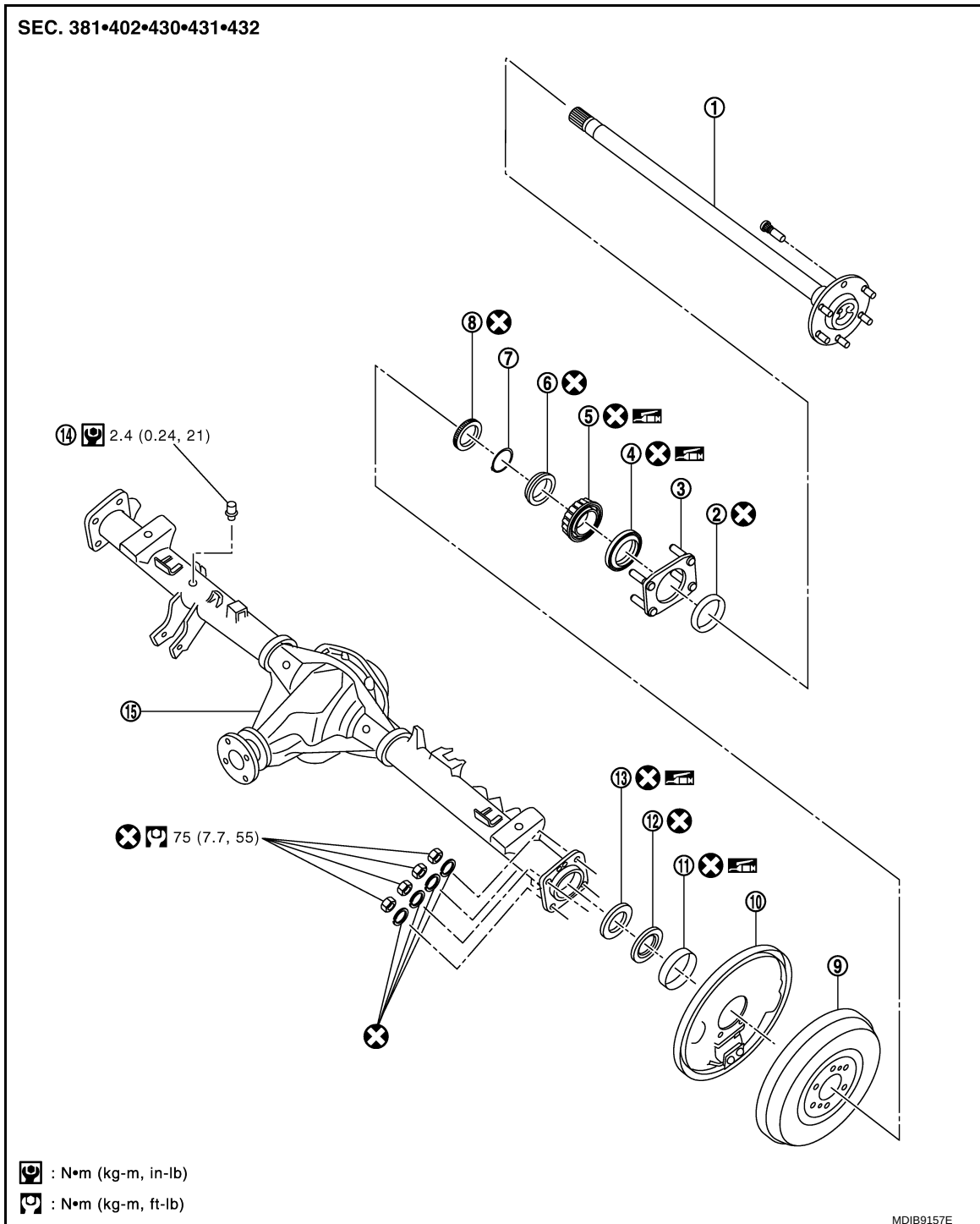
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AXLE SHAFT

Removal and Installation

INFOID:000000005444698



- | | | |
|-------------------------|------------------------------------|--------------------------|
| 1. Axle shaft | 2. Grease catcher | 3. Axle shaft retainer |
| 4. Axle shaft seal lip* | 5. Axle shaft bearing* | 6. Bearing ring retainer |
| 7. Snap ring | 8. ABS sensor rotor (where fitted) | 9. Brake drum |
| 10. Baffle plate | 11. Bearing cup* | 12. Axle shaft guide |
| 13. Oil seal* | 14. Breather | 15. Rear axle case |

*: Apply lithium high temperature grease Shell Retinax LX2.

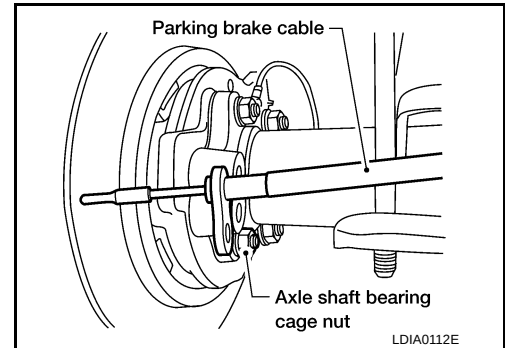
AXLE SHAFT

< SERVICE INFORMATION >

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REMOVAL

1. Remove the wheel.
2. Remove the rear brake drum. Refer to [BR-25, "Removal and Installation of Drum Brake Assembly"](#).
3. Remove four lock nuts and spring washers securing the axle shaft retainer to the rear axle case.



4. Using a wire, suspend the baffle plate to the sub frame.

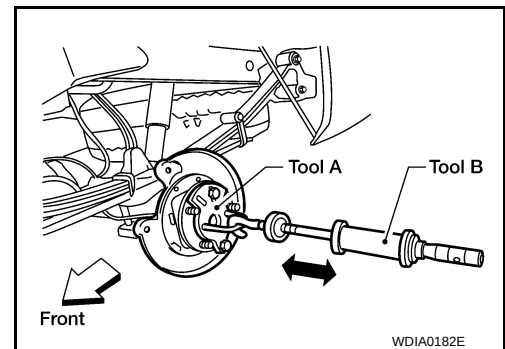
NOTE:

Brake hose and brake cable do not need to be disconnected from the baffle plate and wheel cylinder.

CAUTION:

- Be careful not to deform brake tube.
- Do not bend the parking brake cable.
- While removing drum, never depress brake pedal because the piston will pop out.

5. Remove the axle shaft assembly from the rear axle case as shown.



6. Using a puller remove the bearing cup from the rear axle case.

Tool number : ST33290001

CAUTION:

- The axle shaft bearing cup may stay in place in the axle shaft housing. Remove the cup carefully so as not to damage the inner surface of the axle shaft housing.

7. Using a puller, remove the axle shaft guide and oil seal from the rear axle case.

Tool number : ST33290001

NOTE:

Rear final drive oil will spill while removing the oil seal. Use a drain pan under the rear axle case to drain oil.

8. Make sure the oil seal spring has not remained in the axle case.

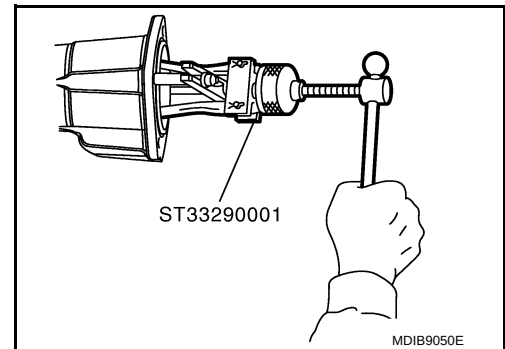
INSPECTION AFTER REMOVAL

Axle Shaft Bearing and Cup

- Check that the axle shaft bearing and cup roll freely and are free from noise, cracks, pitting and wear. Replace if necessary.

Axle Shaft Retainer

- Check for deformation and cracks. Replace if necessary.



AXLE SHAFT

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Rear Axle Case

- Check the exterior and inner machined surfaces for deformation and cracks. Replace if necessary.

INSTALLATION

Installation is in the reverse order of removal.

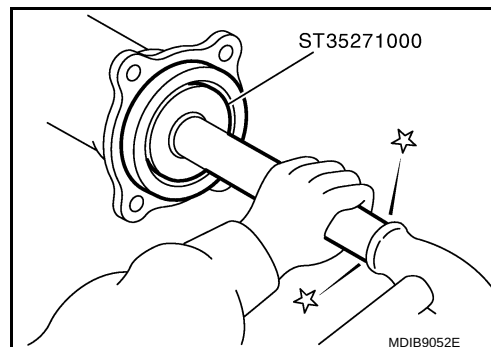
When installing pay attention to following points:

- Install a new shaft guide and a new oil seal into the rear axle case.

Tool number: ST35271000

CAUTION:

- **Do not reuse the axle oil seal. The axle oil seal must be replaced every time the axle shaft assembly is removed from the axle shaft housing.**
- When installing oil seals, apply a lithium high temperature grease Shell Retinax LX2 to the oil seal lip.
- When installing the axle shaft to the axle case, take precaution to not damage the oil seal.
- Install four new lock nuts to secure the axle shaft assembly to the rear axle case. Ensure the axle shaft is located squarely, and cross tighten lock nuts in few steps to reach the specified torque. Refer to "Removal and Installation".
- Reinstall the rear brake drum. Refer to [BR-25, "Removal and Installation of Drum Brake Assembly"](#).
- Adjust the differential gear oil level.
Refer to [RFD-9](#) (STANDARD DIFFERENTIAL).
Refer to [RFD-41](#) (WITH LIMITED SLIP DIFFERENTIAL).
Refer to [RFD-77](#) (WITH ELECTRONIC LOCKING DIFFERENTIAL).
- Reinstall the wheel. Refer to [WT-5, "Rotation"](#).

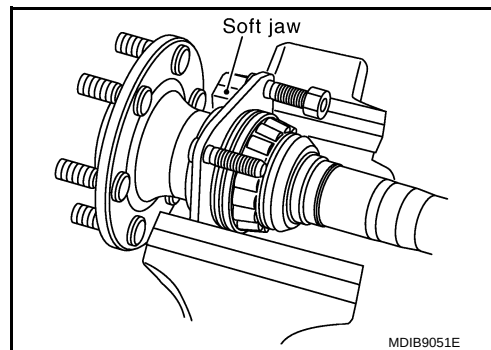


DISASSEMBLY

1. Remove the ABS sensor rotor (where fitted). Refer to [BRC-38, "Removal and Installation"](#).
2. Remove the snap ring from the axle shaft using a suitable snap ring pliers.
3. Secure the axle shaft in a suitable vise as shown, and use a brass hammer to remove studs (4) from the axle shaft retainer.

CAUTION:

- **Mount the axle shaft using a soft jaw vise to avoid damaging the axle shaft retainer.**



AXLE SHAFT

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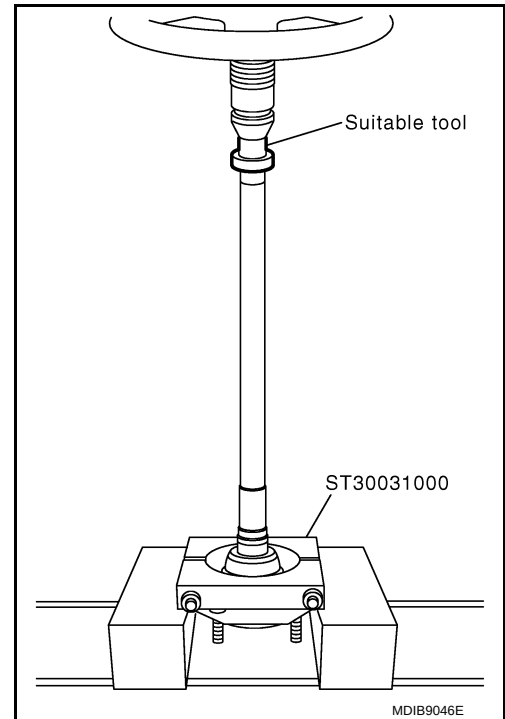
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4. Install a bearing puller under the bearing ring retainer, and using a suitable press, push the axle shaft out of the bearing ring retainer.

Tool number : ST30031000

CAUTION:

- The axle shaft will fall while released from the bearing ring retainer. Place a wooden pad under the axle shaft to hold the axle shaft.
 - Do not tighten the tool against the axle shaft.
 - Do not heat or cut the axle shaft bearing or bearing ring retainer with a torch during removal, doing so will damage the axle shaft.
5. Remove the bearing from the axle shaft and discard.
 6. Remove the seal lip from the axle shaft and discard.
 7. Remove the axle shaft retainer.
 8. Remove the grease catcher from the axle shaft and discard.



INSPECTION AFTER DISASSEMBLY

Axle Shaft

- Clean and remove all nicks and burrs.
- Check for straightness and distortion. Replace if necessary.
- Inspect machined surfaces for evidence of overheating, damage and wear. Replace if necessary.
- Measure the bearing ring retainer axle journal diameter. Replace if necessary.

Bearing ring retainer axle journal diameter (minimum)

: 45.027 mm (1.7727 in)

ASSEMBLY

1. Install a new grease catcher onto the axle shaft.
2. Reinstall studs on the axle shaft retainer, and install the axle shaft retainer on the axle shaft.

AXLE SHAFT

< SERVICE INFORMATION >

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3. Apply 14 - 18g (0.49 - 0.63 oz) lithium high temperature grease Shell Retinax LX2 into the new axle shaft seal lip (3), and install the seal lip onto the axle shaft.

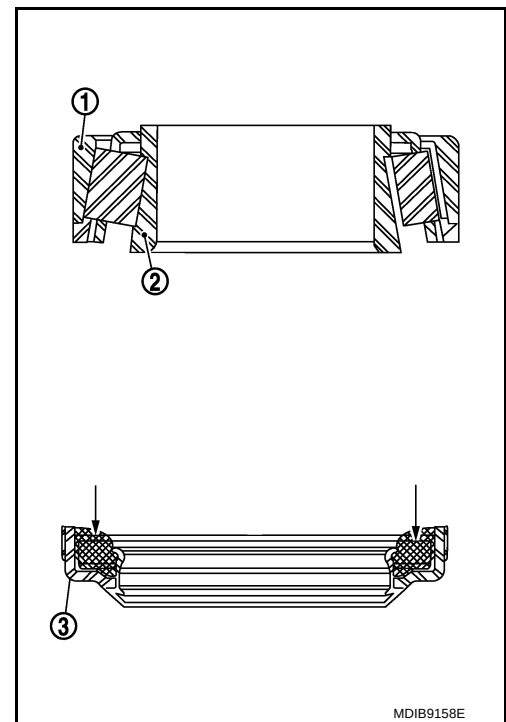
CAUTION:

- Seal lip can not be reused. Do not attempt to reuse it.
- When installing oil seals, apply a lithium high temperature grease Shell Retinax LX2 to the oil seal.

4. Install a new bearing on the axle shaft.

CAUTION:

- Wheel bearing can not be reused. Do not attempt to reuse it.

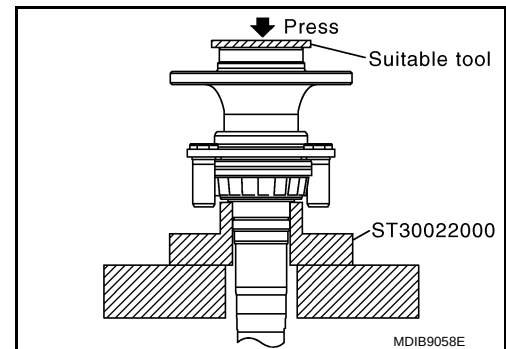


5. Using a bearing inserter, and a suitable press, press fit the axle shaft to the new bearing ring retainer, until the snap ring groove.

Tool number: ST30022000

CAUTION:

- Make sure the bearing ring retainer, axle shaft bearing, axle shaft lip seal, and axle shaft retainer are installed facing in the correct direction.
- Bearing ring retainer can not be reused. Do not attempt to reuse it.



6. Apply 26 - 32g (0.92 - 1.13 oz) lithium high temperature grease Shell Retinax LX2 between the bearing cup (1) and axle shaft bearing (2), and insert axle shaft bearing into the bearing cup.

7. Install a new snap ring using a suitable snap ring pliers.

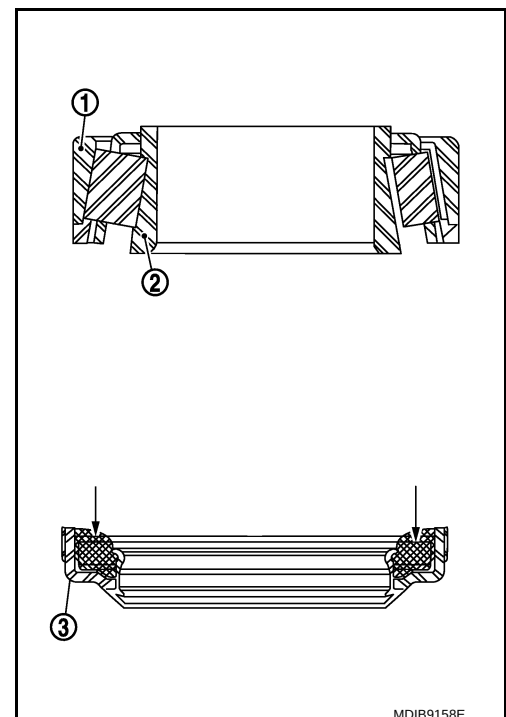
CAUTION:

Discard the old snap ring; replace with new ones.

8. Install the new ABS rotor sensor (where fitted). Refer to [BRC-38, "Removal and Installation"](#).

CAUTION:

Discard the old sensor rotor; replace with a new one.



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AXLE BEARING

Removal and Installation

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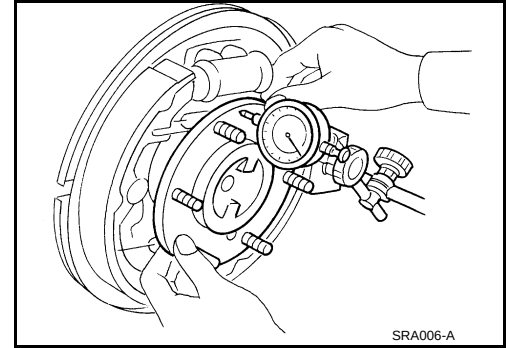
For removal and installation, refer to [RAX-7](#).

Axial End Play Inspection

INFOID:000000005444700

Standard value

Axial end play: 0.0254 - 0.381 mm (0.0010 - 0.0150 in)



AXLE OIL SEAL

Removal and Installation

INFOID:000000005444701

The axle oil seal and axle shaft guide must be replaced every time the axle shaft is removed and installed. Refer to [RAX-7, "Removal and Installation"](#).

CAUTION:

- Do not reuse the axle oil seal. The axle oil seal must be replaced every time the axle shaft assembly is removed from the axle shaft housing.
- After installing new oil seal, coat sealing lip with a lithium high temperature grease Shell Retinax LX2 .

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

[M226]

SERVICE DATA AND SPECIFICATIONS (SDS)

Axle Bearing

INFOID:000000005444702

Bearing ring retainer axle journal diameter (minimum)	45.027 mm (1.7727 in) minimum
Axial end play	0.0254 - 0.381 mm (0.0010 - 0.0150 in)