

# REAR AXLE & REAR SUSPENSION

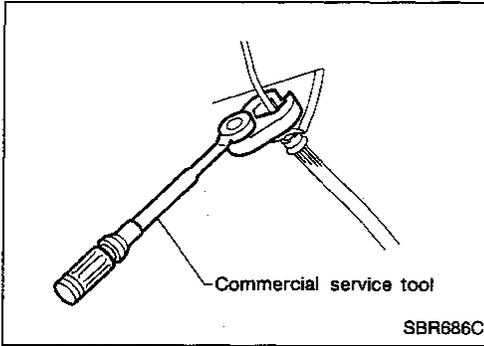
## SECTION **RA**

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## PRECAUTIONS AND PREPARATION

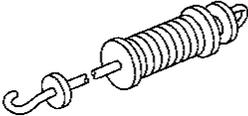
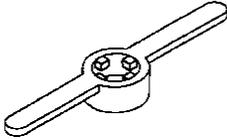
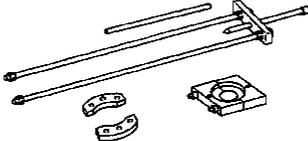
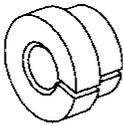


### Precautions

- 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.
- Use flare nut wrench when removing and installing brake tubes.
- After installing removed suspension parts, check wheel alignment and adjust if necessary.
- Always torque brake lines when installing.

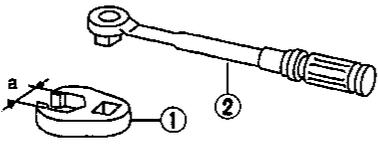
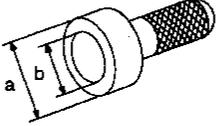
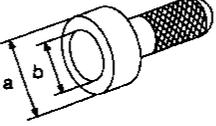
### Special Service Tools

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
KV40101000 (J25604-01) Axle stand	 NT159
ST36230000 (J25840-A) Sliding hammer	 NT126
ST38020000 ( — ) Bearing lock nut wrench	 NT160
KV40106500 (J25852-B) Rear axle shaft bearing puller	 NT683
ST37840000 ( — ) Rear axle shaft guide	 NT162

# PRECAUTIONS AND PREPARATION

## Commercial Service Tools

Tool name	Description
① Flare nut crowfoot ② Torque wrench	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 60%;"> <p>Removing and installing each brake piping</p> <p>NT360</p> <p>a: 10 mm (0.39 in)</p> </div> </div>
Bearing cage oil seal drift	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 60%;"> <p>Installing oil seal</p> <p>NT115</p> <p>a: 74 mm (2.91 in) dia. b: 68 mm (2.68 in) dia.</p> </div> </div>
Rear axle oil seal drift	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 60%;"> <p>Installing oil seal</p> <p>NT115</p> <p>a: 54.5 mm (2.15 in.) b: 34.5 mm (1.36 in.)</p> </div> </div>

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# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

## NVH Troubleshooting Chart

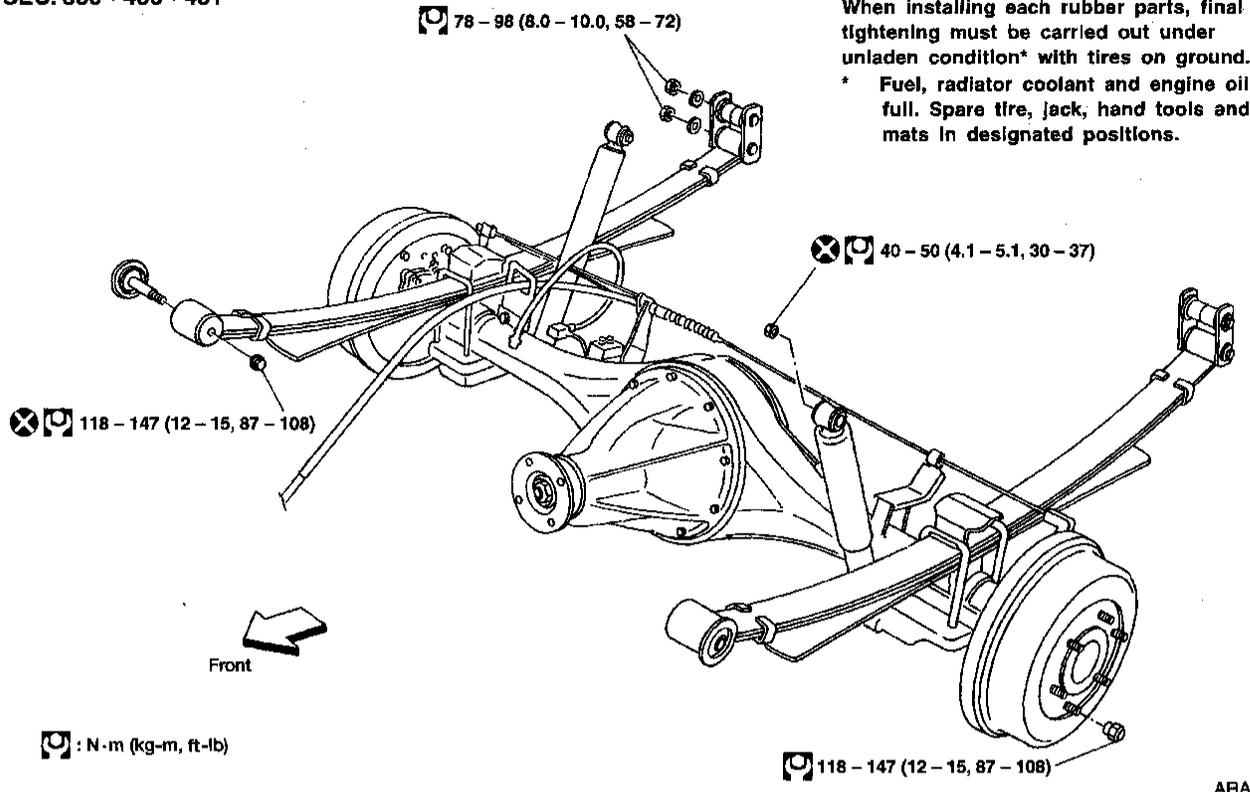
Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Symptom		Possible cause and SUSPECTED PARTS														
		RA-5	RA-14	—	—	—	RA-13	RA-6	NVH in PD section	NVH in PD section	NVH in FA section	NVH in FA section	NVH in FA section	NVH in FA section	NVH in BR section	NVH in ST section
		Improper installation, Looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Wheel bearing damage	PROPELLER SHAFT	DIFFERENTIAL	DRIVE SHAFT	FRONT AXLE AND FRONT SUSPENSION	TIRES	ROAD WHEEL	BRAKES	STEERING
REAR AXLE AND REAR SUSPENSION	Noise	X	X	X	X	X	X		X	X	X	X	X	X	X	X
	Shake	X	X	X	X		X		X		X	X	X	X	X	X
	Vibration	X	X	X	X	X			X		X	X	X			X
	Shimmy	X	X	X	X							X	X	X	X	X
	Judder	X	X	X								X	X	X	X	X
	Poor quality ride or handling	X	X	X	X	X		X					X	X	X	

X : Applicable

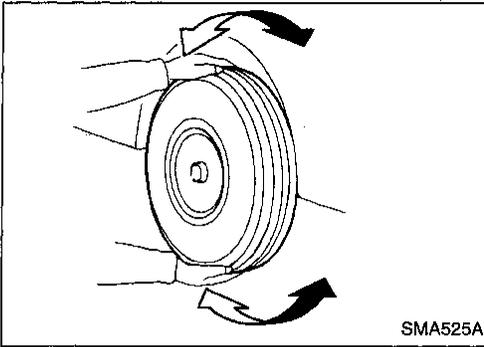
# REAR AXLE AND REAR SUSPENSION

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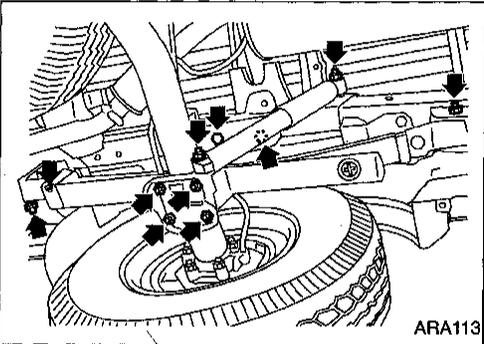
## ON-VEHICLE SERVICE



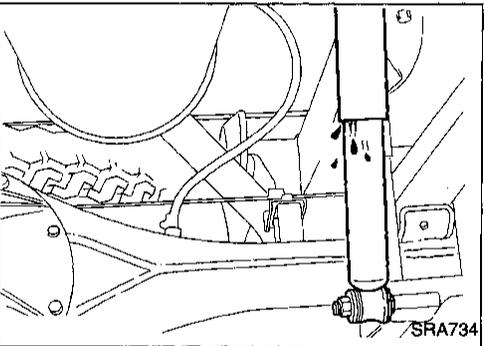
### Rear Axle and Rear Suspension Parts

Check rear axle and rear suspension parts for excessive play, wear and damage.

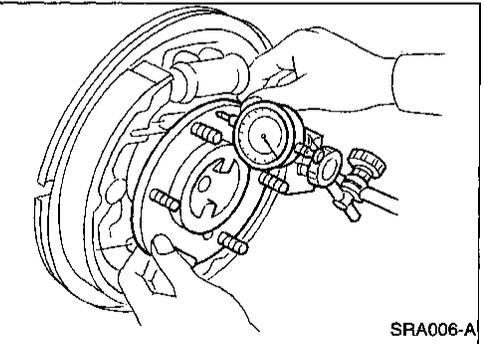
- Shake each rear wheel to check for excessive play.



- Retighten all nuts and bolts to the specified torque.  
☞: Refer to REAR SUSPENSION, RA-13.



- Check shock absorber for oil leakage and other damage.
- Check shock absorber bushing for excessive wear and other damage.



### Rear Wheel Bearing

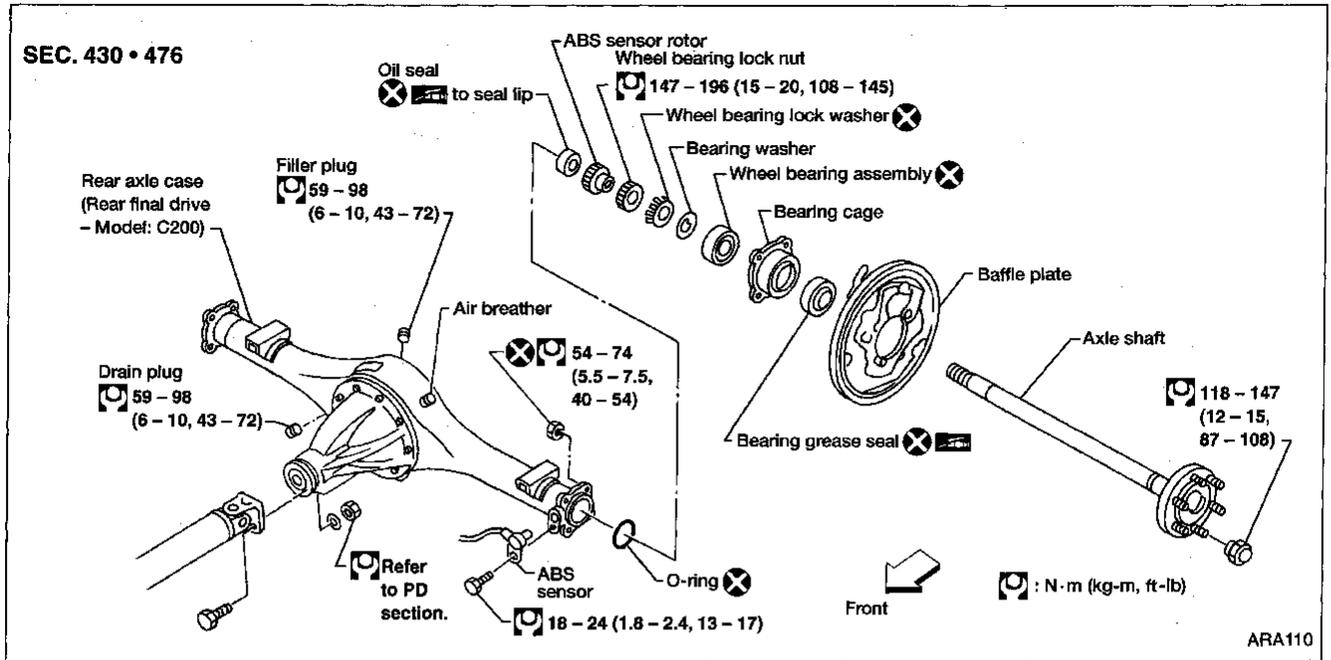
- Check that wheel bearings operate smoothly.
- Check axial end play.

**Axial end play:**

Refer to SDS, RA-16.

# REAR AXLE

## Components

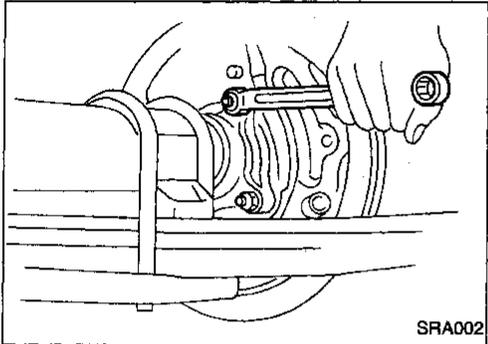


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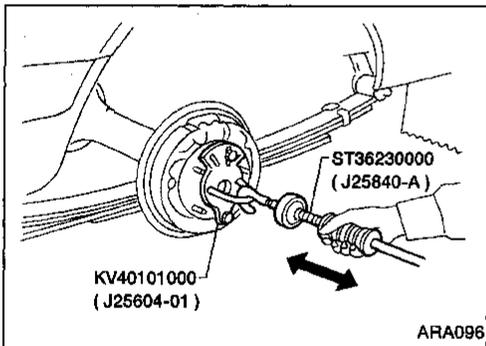
## REAR AXLE

### Removal

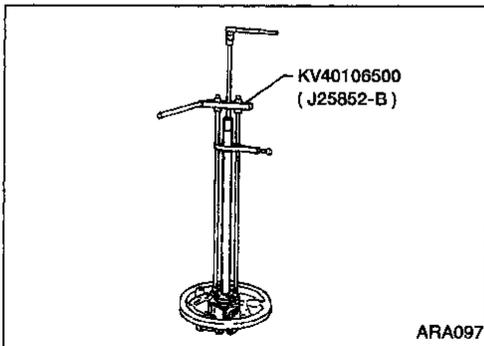
- Before removing the rear axle, disconnect the ABS wheel sensor from the assembly. Then move it away from the axle. Failure to do so may result in damage to the sensor wires and the sensor becoming inoperative.
- Wheel bearing does not require maintenance.
- If growling noise is emitted from wheel bearing during operation, replace wheel bearing assembly.
- If the wheel bearing assembly is removed, it must be replaced. The old assembly must not be re-used.



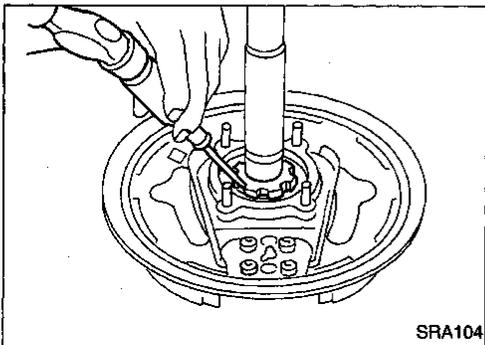
1. Disconnect parking brake cable and brake tube.
2. Remove nuts securing wheel bearing cage with baffle plate.



3. Draw out axle shaft with Tool.  
**When drawing out axle shaft, be careful not to damage oil seal.**
4. Remove O-ring.
5. Remove oil seal.  
**Do not reuse oil seal once it is removed. Always install new one.**



6. Remove ABS sensor rotor.

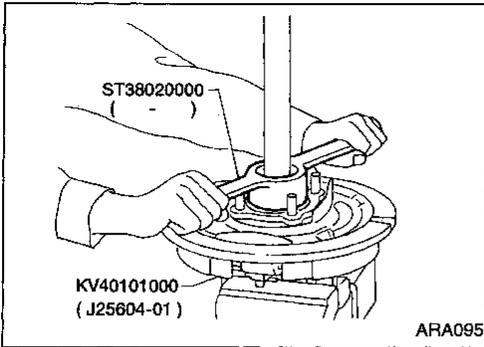


7. Unbend lock washer with a screwdriver.

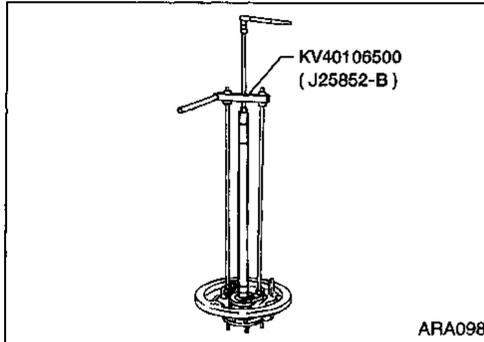
## REAR AXLE

### Removal (Cont'd)

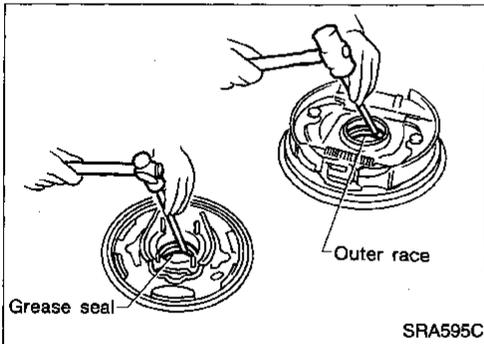
8. Remove bearing lock nut with Tool.



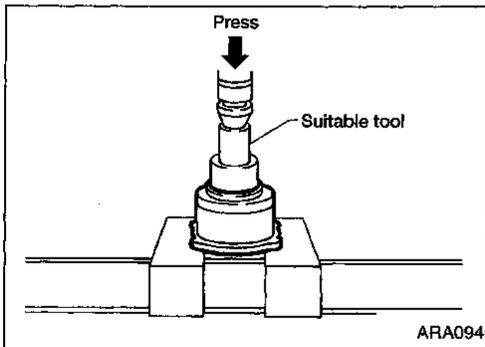
9. Remove wheel bearing together with bearing cage and baffle plate from axle shaft.



10. Remove grease seal in bearing cage with suitable bar.



11. Remove wheel bearing assembly.



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# REAR AXLE

## Inspection

### AXLE SHAFT

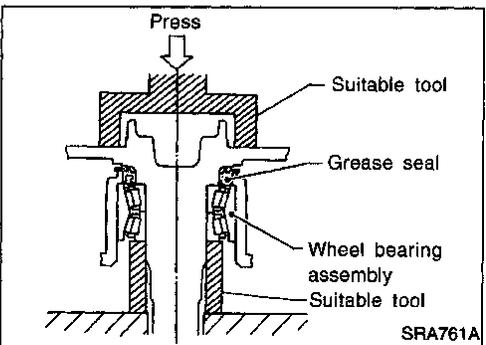
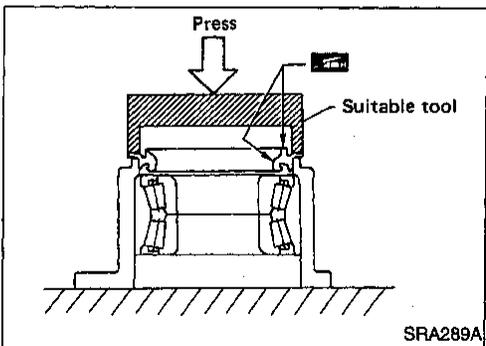
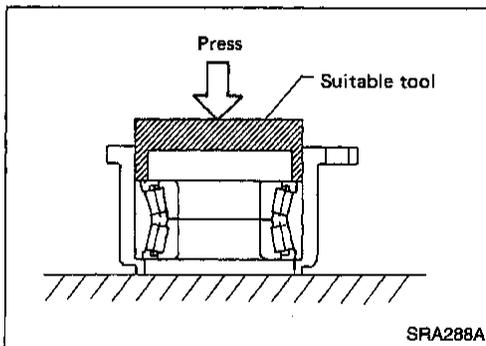
- Check axle shaft for straightness, cracks, damage, wear and distortion. Replace if necessary.

### WHEEL BEARING

- Make sure wheel bearing rolls freely and is free from noise, cracks, pitting and wear.

### AXLE CASE

- Check axle case for yield, deformation and cracks. Replace if necessary.



## Installation

1. Press new wheel bearing until it bottoms end face of bearing cage.

**Maximum load P:**

**78 kN (8 ton, 8.8 US ton, 7.9 Imp ton)**

**Always press outer race of wheel bearing during installation.**

2. Press new grease seal until it bottoms end face of bearing cage.

**After installing new grease seal, coat sealing lip with multi-purpose grease.**

3. Press axle shaft into inner race of wheel bearing.

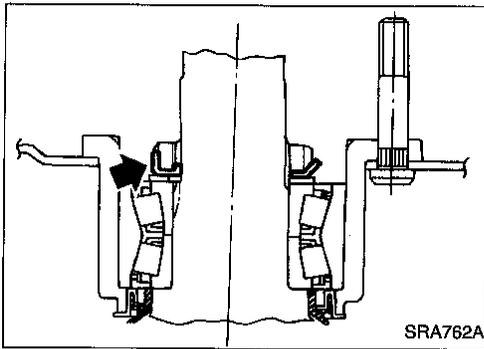
**Maximum load P:**

**47.1 kN (4.8 ton, 5.3 US ton, 4.72 Imp ton)**

**Be careful not to damage or deform grease seal.**

## REAR AXLE

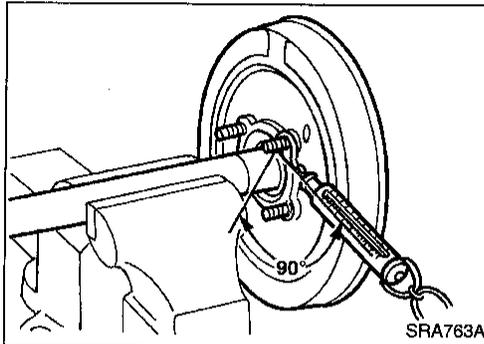
### Installation (Cont'd)



4. Install plain washer and a new wheel bearing lock washer.
5. Tighten wheel bearing lock nut to specified torque.

☞: 147 - 196 N·m (15 - 20 kg·m, 108 - 145 ft·lb)

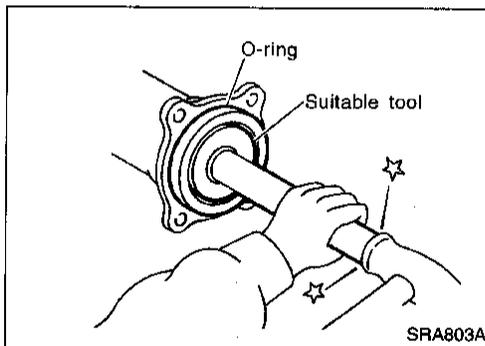
Fit wheel bearing lock washer lip in wheel bearing lock nut groove correctly by tightening lock nut. Be sure to bend it up.



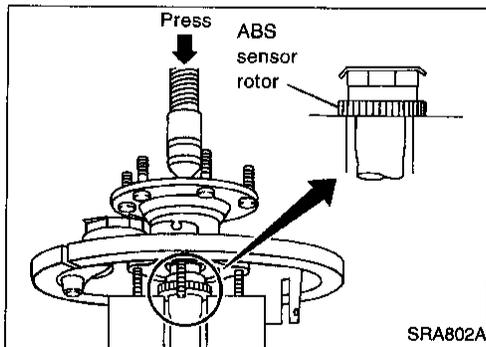
6. Check wheel bearing preload.
  - a. Turn bearing cage (with respect to axle shaft) two or three times. It must turn smoothly.
  - b. Attach spring gauge to bearing cage bolt (as shown at left) and pull it at a speed of 10 rpm to measure preload.

**Spring gauge indication:**

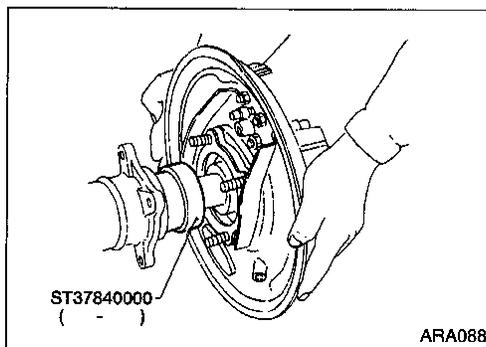
**6.9 - 48.1 N (0.7 - 4.9 kg, 1.5 - 10.8 lb)**



7. Install new oil seal to rear axle housing using a suitable tool. **After installing new oil seal, coat sealing lip with multi-purpose grease.**
8. Install new O-ring to rear axle housing.



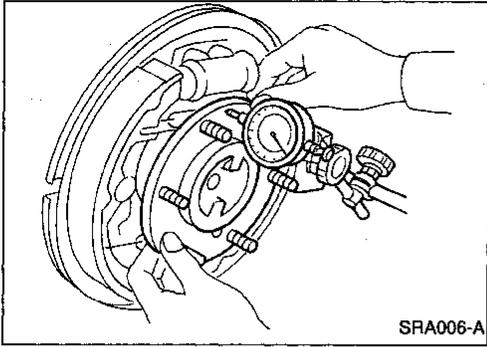
9. Press ABS sensor rotor onto axle shaft until it contacts wheel bearing lock nut.



10. Position axle shafts in rear axle housing with Tool as a guide. **Be careful not to damage oil seal.**

## REAR AXLE

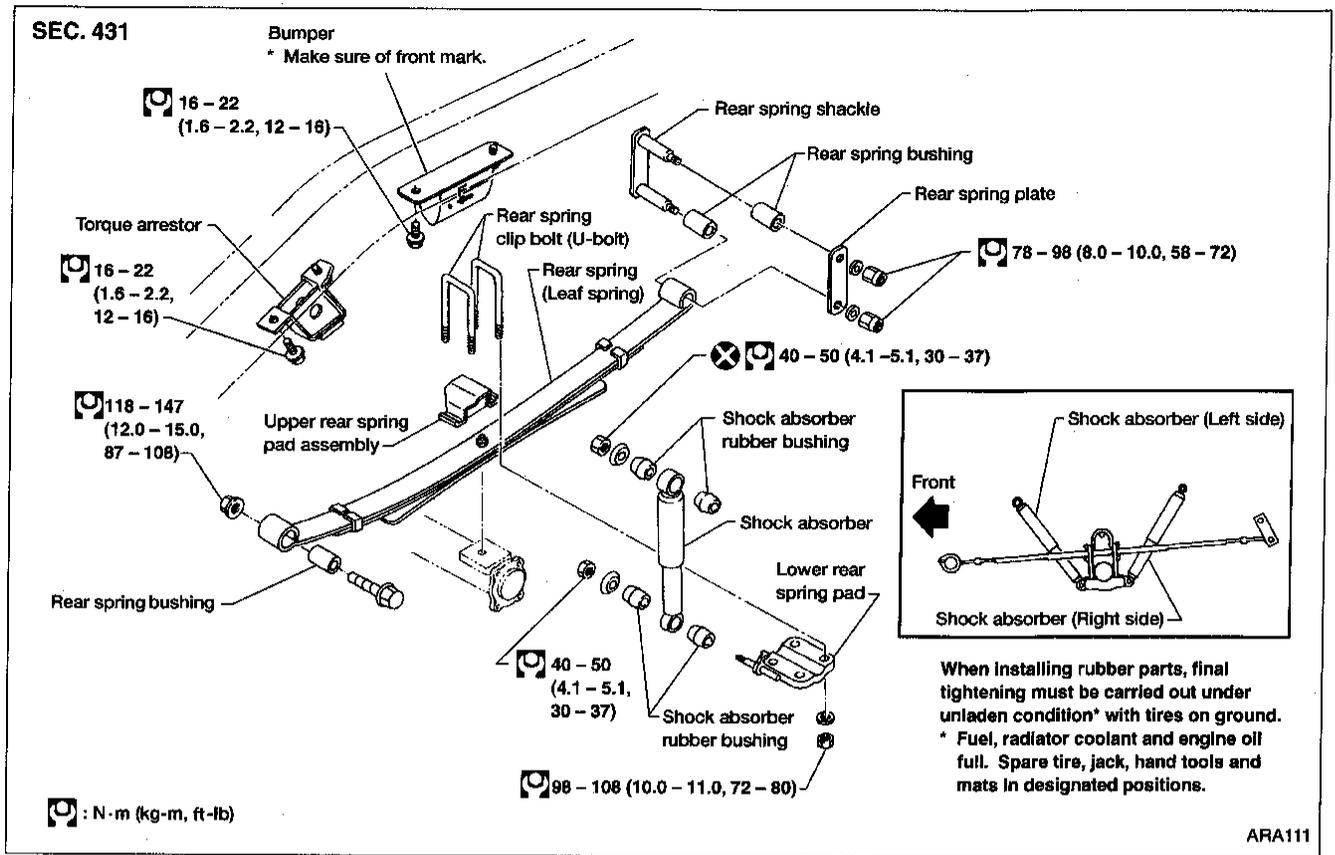
### Installation (Cont'd)



11. Check axial end play.
  - a. Check that wheel bearings operate smoothly.
  - b. Check axial end play.

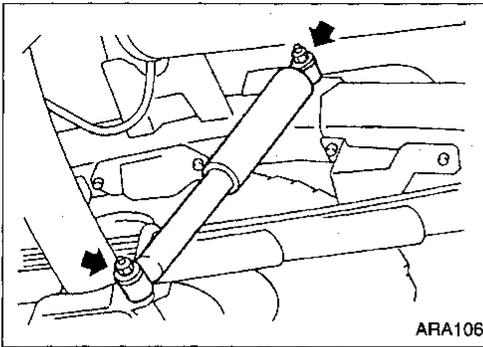
**Axial end play:**  
**0 mm (0 in)**

# REAR SUSPENSION



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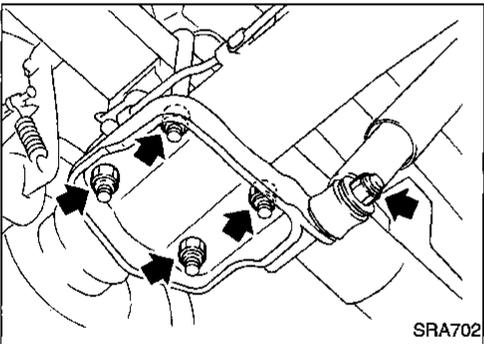
### Shock Absorber

#### REMOVAL AND INSTALLATION

- Remove shock absorber by disconnecting upper and lower end.

#### INSPECTION

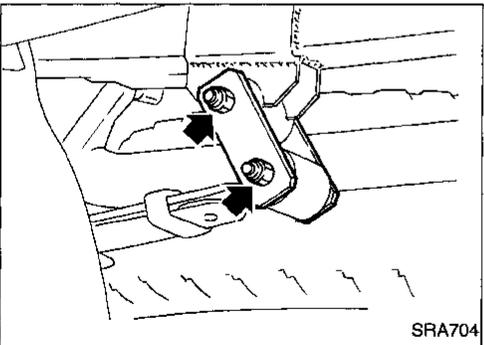
- If oil leakage, cracks and deformation occurs, replace shock absorber assembly.
- If rubber bushings are cracked and deformed, replace rubber bushings.



### Leaf Spring

#### REMOVAL AND INSTALLATION

1. Disconnect shock absorber lower end, and remove U-bolts.

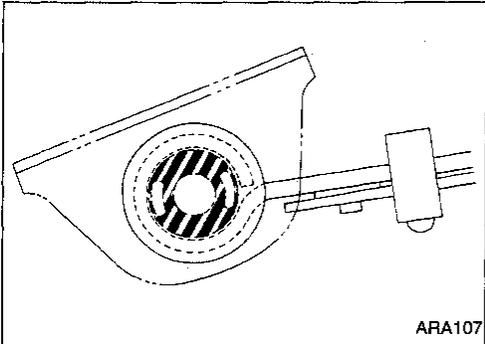
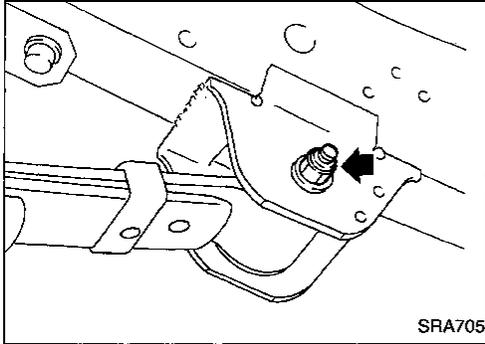


2. Disconnect spring shackle.

## REAR SUSPENSION

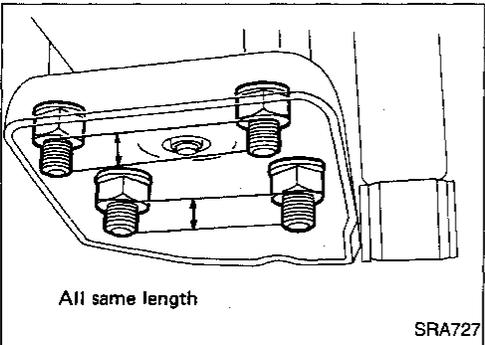
### Leaf Spring (Cont'd)

3. Disconnect front pin.



#### INSPECTION

- Check leaf spring for cracks. Replace if necessary.
- Check front bracket and pin, shackle, U-bolts and spring pad for wear, cracks, straightness and damaged threads. Replace if necessary.
- Check all bushings for deformation and cracks. Replace if necessary.  
(Rear spring front bushing)  
Make sure that front bushing is properly installed.

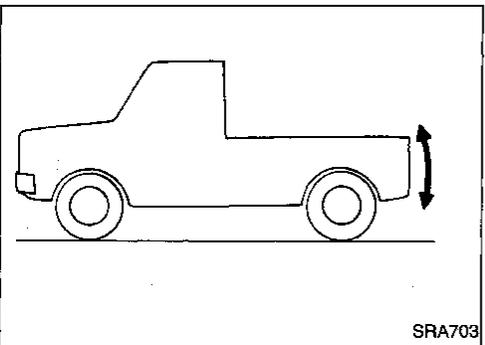


#### INSTALLATION

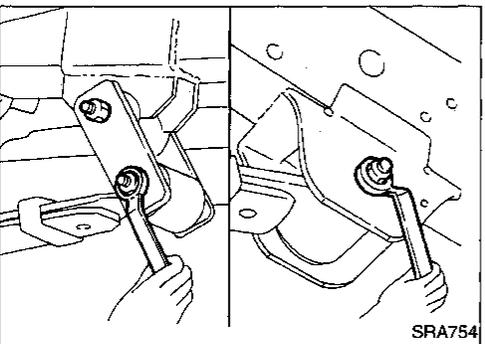
1. Apply soapsuds to rubber bushing.
2. Install spring shackle and front pin, and finger tighten the nuts.
3. Install spring pad and nuts under leaf spring or axle case.
4. Tighten U-bolt mounting nuts diagonally.

**Tighten U-bolts so that the lengths of all U-bolts under spring pad are the same.**

5. Install shock absorber, and finger tighten the nuts.



6. Remove stands and bounce the vehicle to stabilize suspension. (Unladen)



7. Tighten spring shackle nuts, front pin nuts and shock absorber nuts.

**When installing rubber parts, final tightening must be carried out under unladen condition\* with tires on the ground.**

\* Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

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# SERVICE DATA AND SPECIFICATIONS (SDS)

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## General Specifications

Suspension type	Rigid axle with semi-elliptic leaf spring
Shock absorber type	Double-acting hydraulic

## Inspection and Adjustment

### WHEEL BEARING

Total end play	mm (in)	0 (0)
Wheel bearing preload at bearing cage bolt	N (kg, lb)	6.9 - 48.1 (0.7 - 4.9, 1.5 - 10.8)