

# REAR AXLE & REAR SUSPENSION

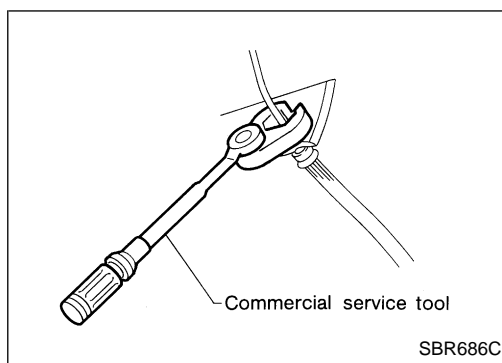
## SECTION **RA**

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## PRECAUTIONS AND PREPARATION

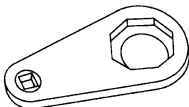


### Precautions

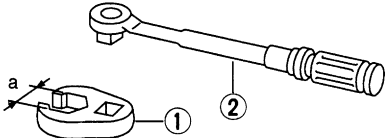
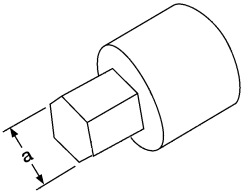
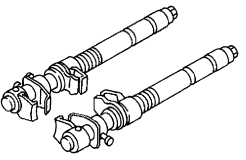
- When installing rubber parts, final tightening must be carried out under unladen condition\* with tires on ground.
- \*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- After installing removed suspension parts, check wheel alignment and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

### Special Service Tool

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	
ST35490000 (J26083) Gland packing wrench	 NT158	Removing and installing gland packing

### Commercial Service Tools

Tool name	Description	
① Flare nut crowfoot ② Torque wrench	 NT360	Removing and installing brake tubes  <b>a: 10 mm (0.39 in)</b>
Hexagon socket	 ARA079	Removing and installing strut damper  <b>a: 17 mm (0.67 in)</b>
Spring compressor	 NT717	Removing and installing coil spring

# 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.

### REAR AXLE AND REAR SUSPENSION

Reference page		RA-4, 10	RA-13	RA-5	RA-5	RA-5	RA-5	NVH in FA section	NVH in FA section	NVH in FA section	NVH in FA section	NVH in ST section	NVH in BR section	RA-6	RA-5	RA-6
Possible cause and SUSPECTED PARTS		Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	DRIVE SHAFT	FRONT AXLE AND FRONT SUSPENSION	TIRE	ROAD WHEEL	STEERING	BRAKE	Incorrect wheel alignment	Stabilizer bar fatigue	Wheel bearing damage
Symptom	Noise	X	X	X	X	X			X							
	Shake	X	X	X	X		X	X	X	X	X	X	X			
	Vibration	X	X	X	X	X			X							
	Shimmy	X	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	X

X: Applicable

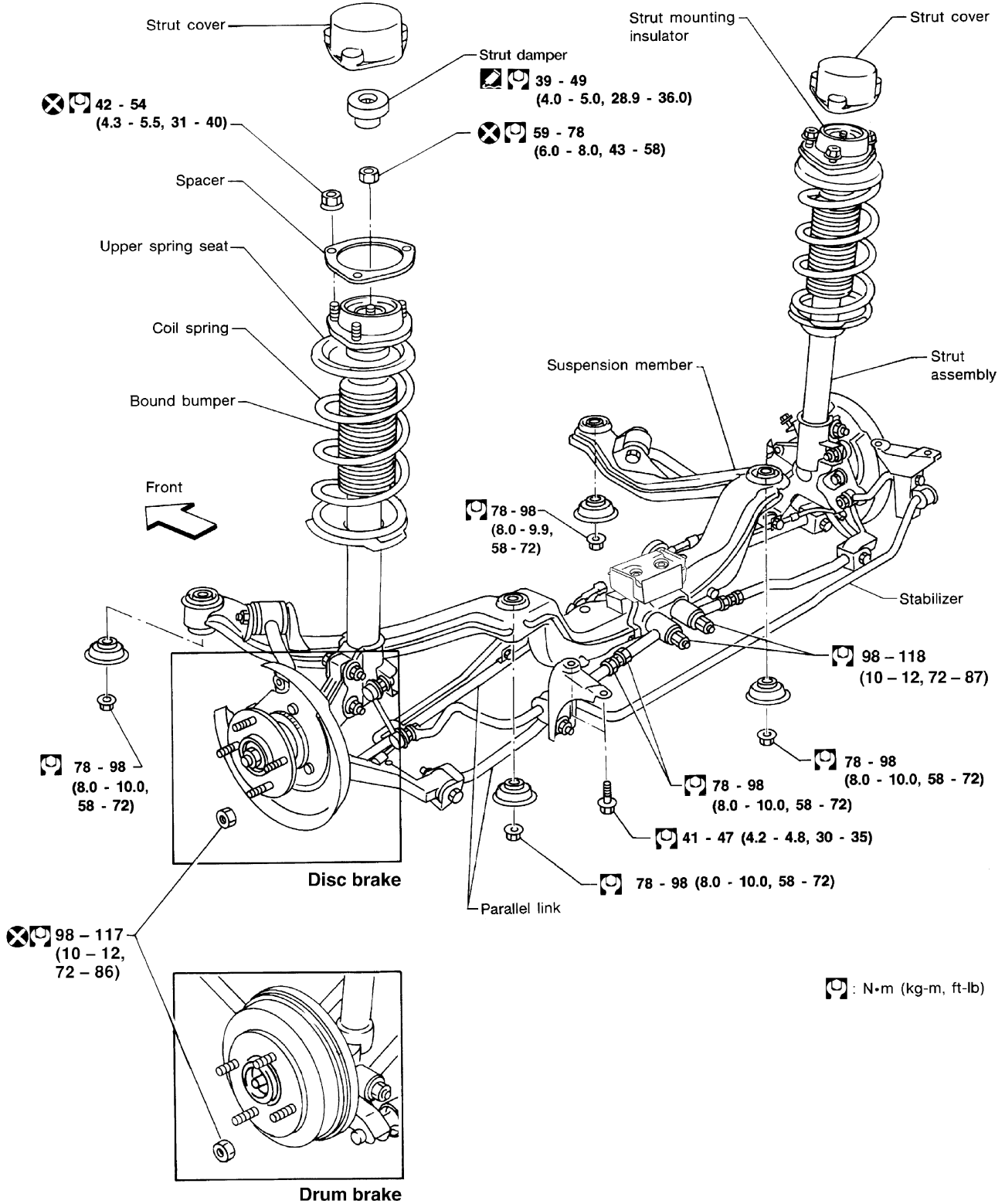
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# REAR SUSPENSION SYSTEM

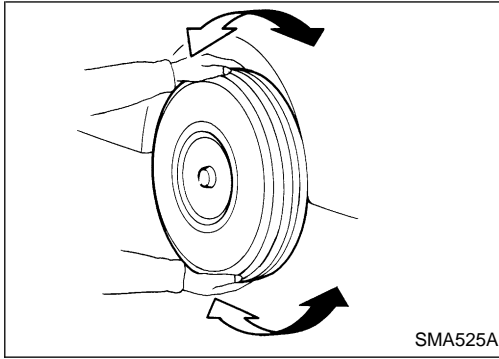
## SEC. 431

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.



# ON-VEHICLE SERVICE

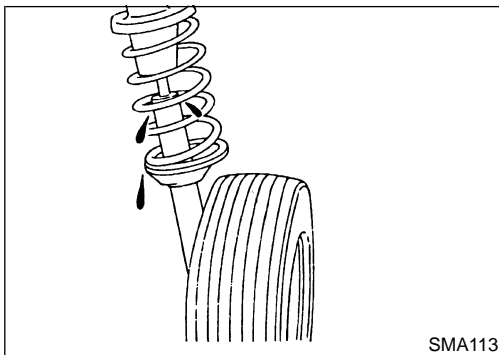
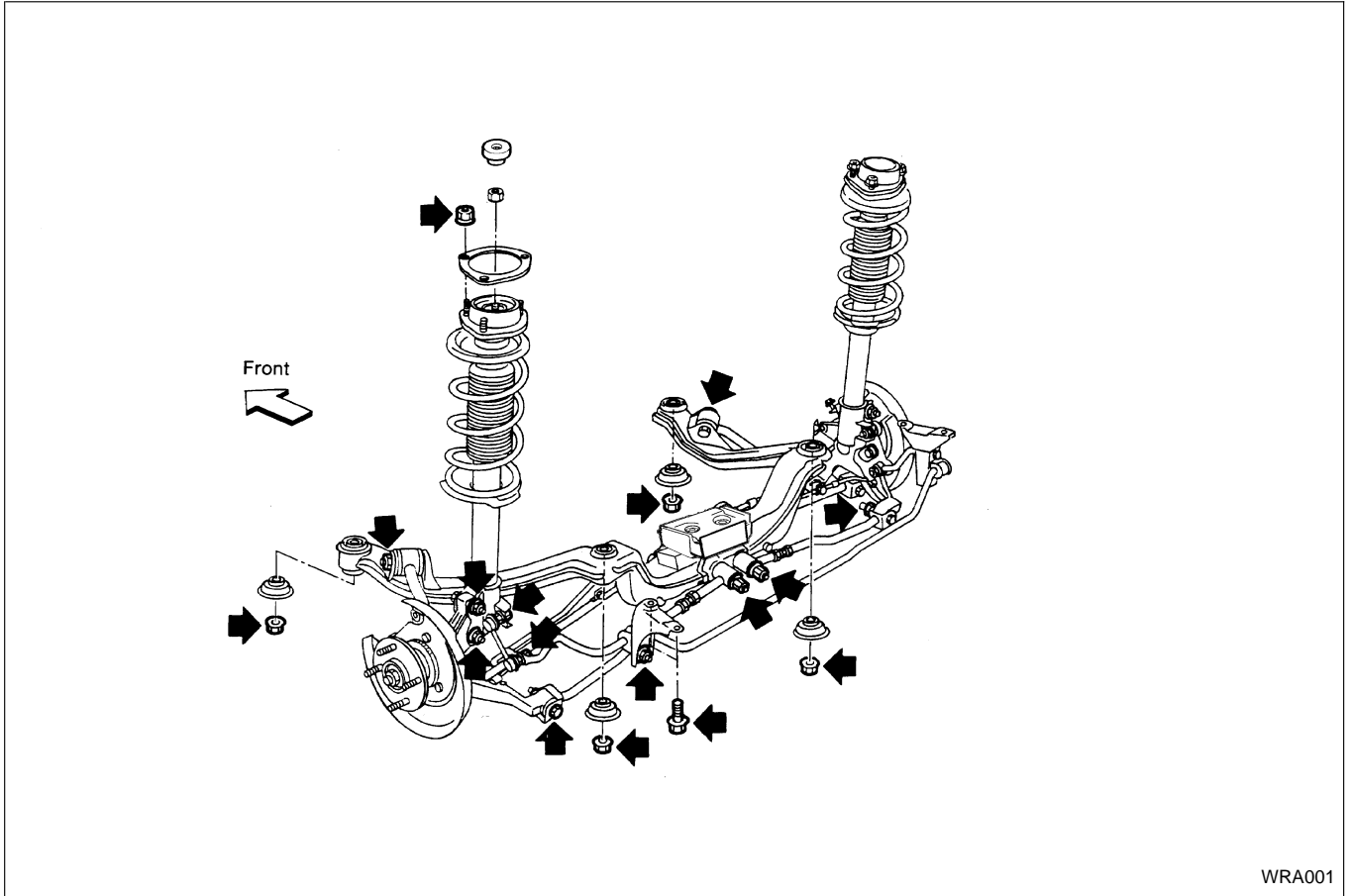


## Rear Axle and Rear Suspension Parts

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

- Shake each rear wheel to check excessive play.

- Retighten all nuts and bolts to the specified torque.  
**Tightening torque: Refer to RA-10.**



- Check strut (shock absorber) for oil leakage and damage.
- Check wheelarch height. Refer to FA section ("Front Axle and Front Suspension Parts", "ON-VEHICLE SERVICE").

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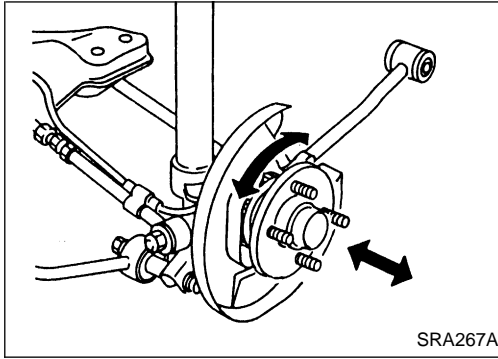
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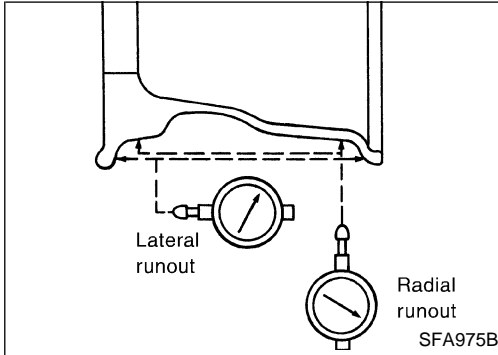
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## ON-VEHICLE SERVICE



### Rear Wheel Bearing

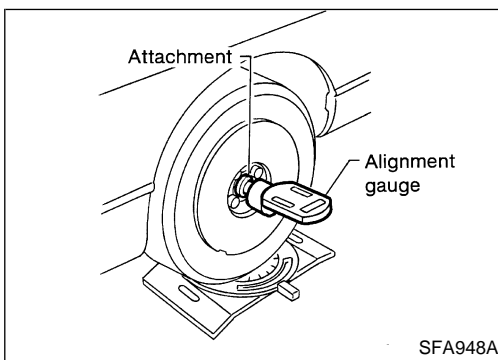
- Check axial end play.  
**Axial end play:**  
**0.05 mm (0.0020 in) or less**
- Check that wheel bearings operate smoothly.
- Check tightening torque of wheel bearing lock nut.  
**ⓘ: 186 - 255 N·m**  
**(19 - 26 kg-m, 137 - 188 ft-lb)**
- If axial end play is not within specification or wheel bearing does not turn smoothly, replace wheel bearing assembly. Refer to RA-8.



### Rear Wheel Alignment

#### PRELIMINARY INSPECTION

1. Check tires for wear and improper inflation.
  2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check runout.
    - a. Remove tire from wheel and mount wheel on a tire balance machine.
    - b. Set dial indicator as shown in the illustration.
- Wheel runout:**  
**(Dial indicator value): Refer to SDS, RA-15.**
3. Check rear wheel bearings for looseness.
  4. Check rear suspension for looseness.
  5. Check that rear shocks work properly.
  6. Check vehicle posture (unladen).



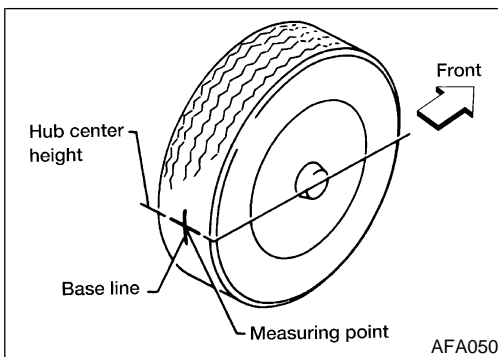
### CAMBER

**Camber is preset at factory and cannot be adjusted.**

**Camber:**

**Refer to SDS, RA-15.**

- If the camber is not within specification, inspect and replace any damaged or worn rear suspension parts.



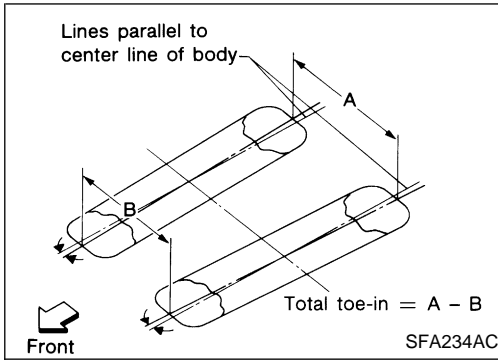
### TOE-IN

#### **WARNING:**

- **Always perform following procedure on a flat surface.**
  - **Make sure that no one is in front of the vehicle before pushing it.**
1. Bounce rear of vehicle up and down to stabilize the posture.
  2. Push the vehicle straight ahead about 5 m (16 ft).
  3. Put a mark on base line of the tread (rear side) of both rear tires at the same height of hub center. This mark is a measuring point.
  4. Measure distance "A" (rear side).

## ON-VEHICLE SERVICE

### Rear Wheel Alignment (Cont'd)



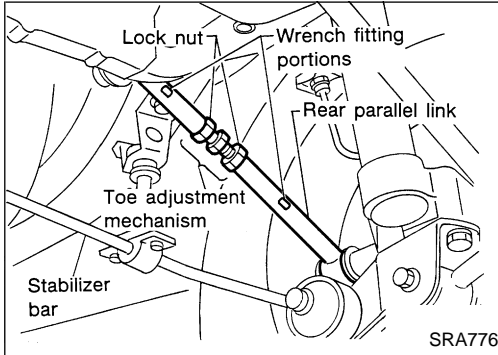
5. Push the vehicle slowly ahead to rotate the wheels 180 degrees (1/2 turn).

- If the wheels have rotated more than 180 degrees (1/2 turn), try the above procedure again from the beginning. Never push vehicle backward.

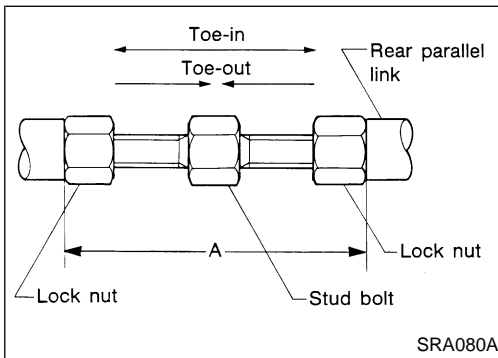
6. Measure distance "B" (front side).

**Total toe-in (A - B):**

**Refer to SDS, RA-15.**



7. Adjust toe-in by varying the lengths of rear parallel links.



- Adjust left and right rear parallel links to the same length "A".
- Tighten lock nut while holding rear parallel link with wrench to prevent bushing from twisting.

**Standard length "A":**

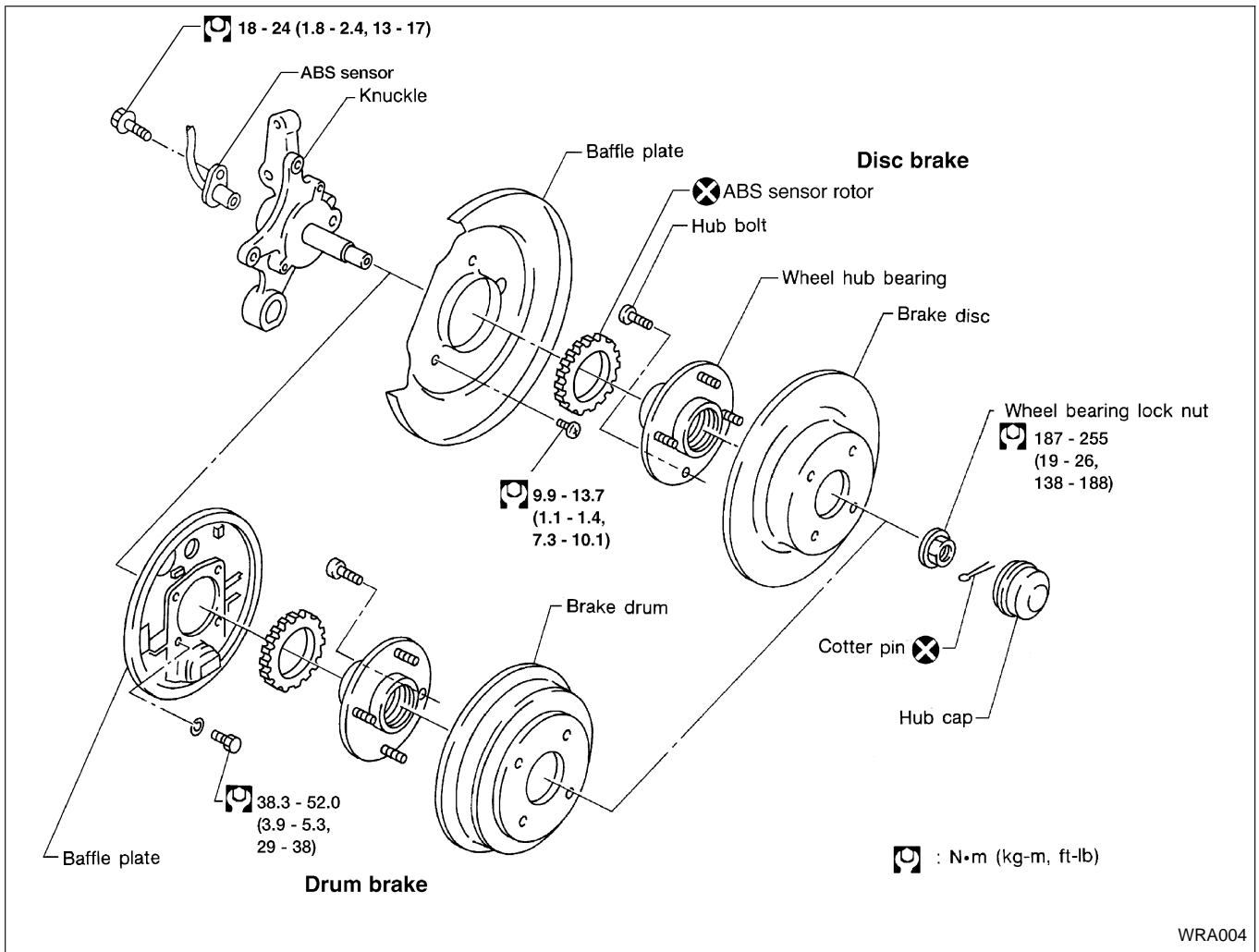
**50 - 55 mm (1.97 - 2.17 in)**

**⚙️: 78 - 98 N·m (8.0 - 10.0 kg·m, 58 - 72 ft·lb)**

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# REAR AXLE

## Wheel Hub



### REMOVAL

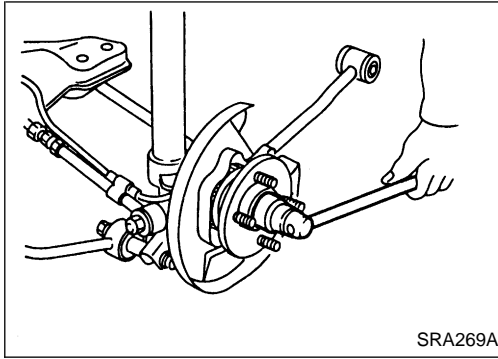
#### CAUTION:

- Before removing the rear wheel hub assembly, disconnect the ABS wheel sensor from the assembly. Move it away from the hub assembly. Failure to do so may result in damaged sensor wires and the sensor becoming inoperative.
- Wheel hub bearing does not require maintenance. If any of the following occurs, replace wheel hub bearing assembly.
  - (1) Growling noise is emitted from wheel hub bearing during operation.
  - (2) Wheel hub bearing drags or turns roughly. This occurs when turning hub by hand after bearing lock nut is tightened to specified torque.
  - (3) Wheel hub bearing is removed from knuckle spindle.

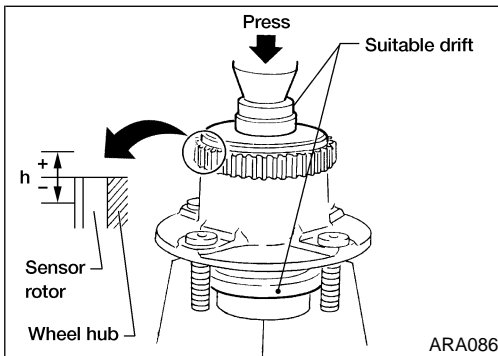
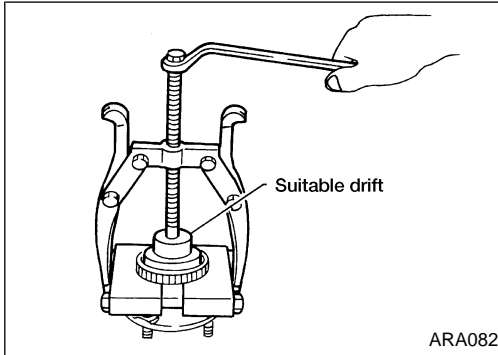


## REAR AXLE

### Wheel Hub (Cont'd)

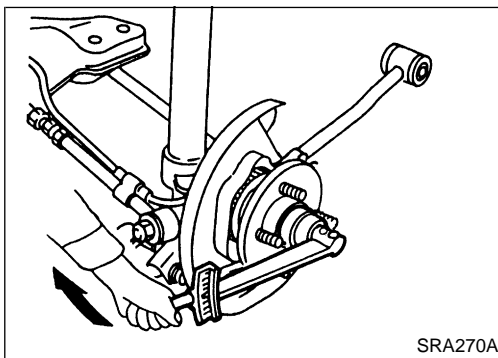


1. Remove brake caliper assembly.
2. Remove cotter pin.
3. Remove wheel bearing lock nut.
4. Remove brake rotor (models with disc brake) or brake drum (models with drum brakes).
5. Remove wheel hub bearing from spindle.
  - Brake hose does not need to be disconnected from brake caliper.
  - Be careful not to depress brake pedal, or caliper piston will pop out.
  - Make sure brake hose is not twisted.
6. Remove the sensor rotor using suitable puller, drift and bearing replacer.



### INSTALLATION

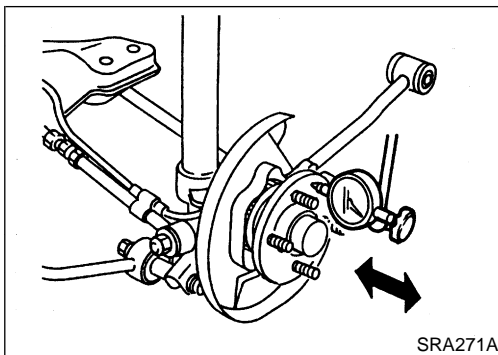
1. Install the sensor rotor. Use suitable drift and press.
  - Always replace sensor rotor with new one.
2. Pay attention to the dimension of rear sensor rotor as shown in figure.
  - h:  $\pm 0.3 \text{ mm}$  ( $\pm 0.012 \text{ in}$ )**
3. Install brake rotor (models with disc brake) or brake drum (models with drum brakes).
  - Make sure brake hose is not twisted.



4. Install wheel hub bearing.
5. Tighten wheel bearing lock nut.

Before tightening, apply oil to threaded portion of rear spindle.

: 186 - 255 N·m  
(19 - 26 kg-m, 137 - 188 ft-lb)
6. Check that wheel bearings operate smoothly.
7. Install cotter pin.

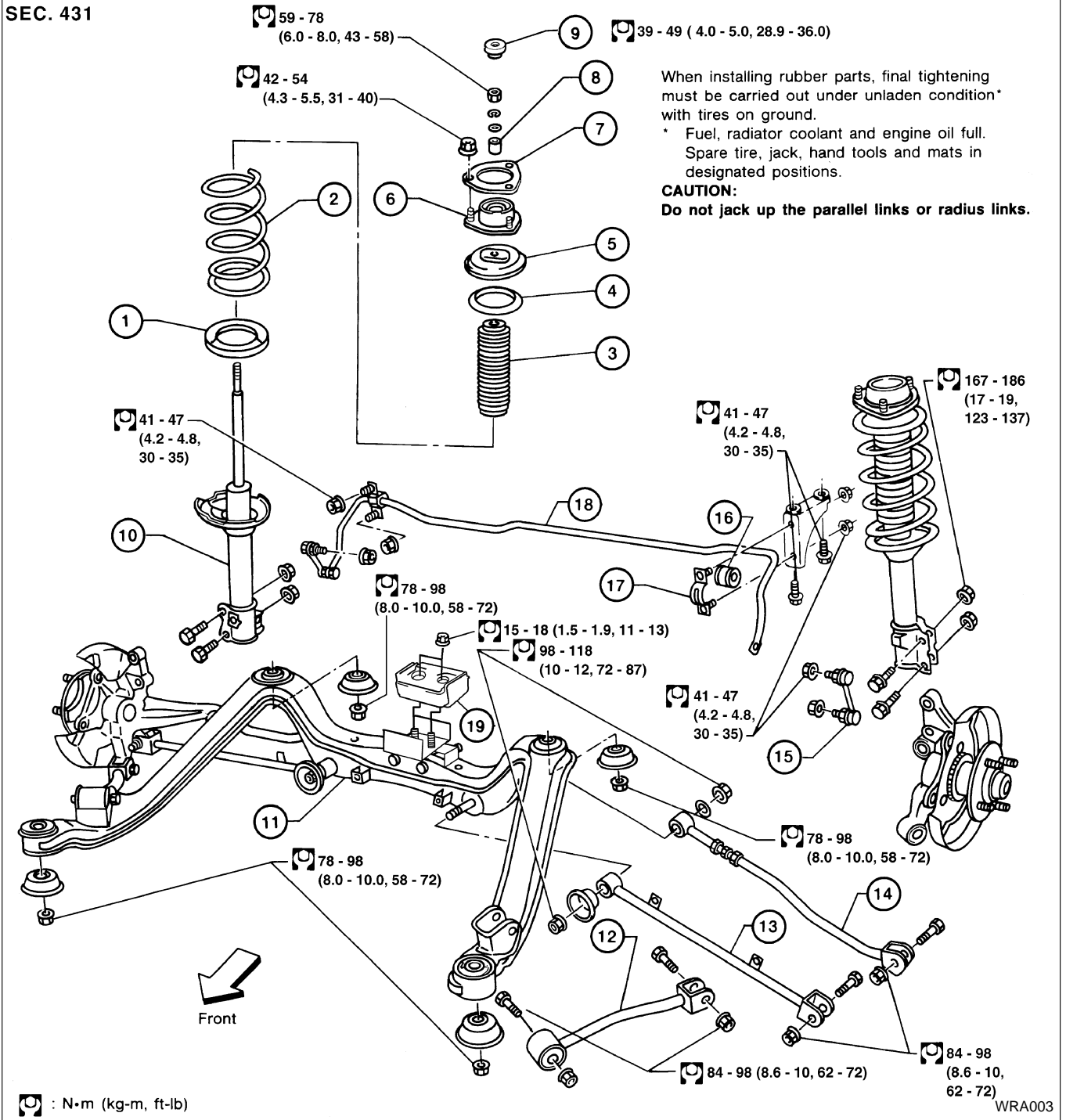


8. Check wheel bearing axial end play.

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

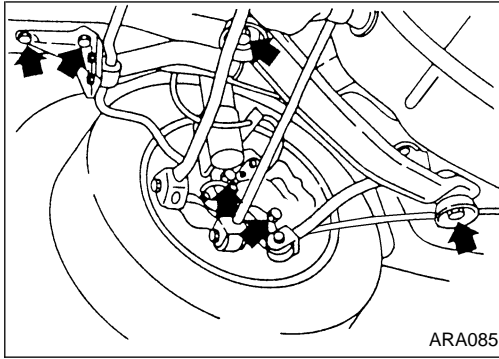
# REAR SUSPENSION

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- |                                |                         |                                |
|--------------------------------|-------------------------|--------------------------------|
| ① Lower spring rubber seat     | ⑦ Spacer                | ⑬ Front parallel link          |
| ② Coil spring                  | ⑧ Strut mounting collar | ⑭ Rear parallel link           |
| ③ Bound bumper with dust cover | ⑨ Strut damper          | ⑮ Connecting rod               |
| ④ Upper spring rubber seat     | ⑩ Strut assembly        | ⑯ Bushing                      |
| ⑤ Upper spring seat            | ⑪ Suspension member     | ⑰ Clamp                        |
| ⑥ Strut mounting insulator     | ⑫ Radius link           | ⑱ Stabilizer bar               |
|                                |                         | ⑲ Dynamic damper (if equipped) |

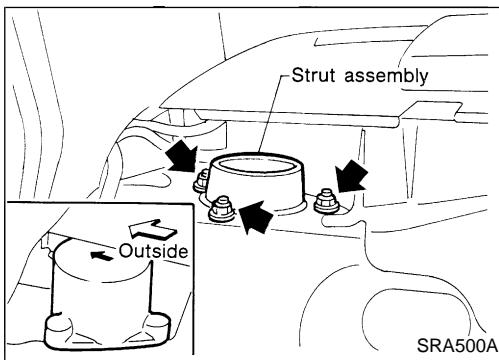
## REAR SUSPENSION



### Removal and Installation

#### CAUTION:

- Do not jack up at the parallel links or radius links.
  - Before removing the rear suspension assembly, disconnect the ABS wheel sensor from the assembly. Failure to do so may result in damaged sensor wires and the sensor becoming inoperative.
1. Disconnect brake hydraulic line and parking brake cable at equalizer. (Models with rear drum brake.)
    - Drain brake fluid before disconnecting brake lines.
  2. Disconnect parking brake cable from caliper and remove brake caliper and rotor. (Models with rear disc brake.)
    - Suspend caliper assembly with wire so as not to stretch brake hose.
    - Brake hose need not be disconnected from brake caliper.
    - Be careful not to depress brake pedal, or caliper piston will pop out.
    - Make sure brake hose is not twisted.
  3. Remove parking brake cable fixing bolts. (Models with rear drum brake.)
  4. Remove stabilizer fixing bolts and suspension member fixing bolts.
  5. Remove rear seat. Refer to BT section ("Rear Seat", "SEAT").
  6. Remove rear parcel shelf. Refer to BT section ("Side and Floor Trim", "INTERIOR TRIM").



7. Remove strut securing nuts (upper side). Then pull out strut assembly.

#### WARNING:

- Do not remove piston rod lock nut on vehicle.
8. Install in reverse order of removal.

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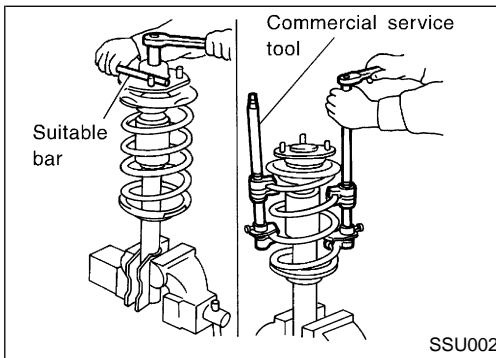
# REAR SUSPENSION

## Coil Spring and Strut Assembly

### REMOVAL AND INSTALLATION

#### CAUTION:

- Before removing the rear strut (shock absorber) assembly, disconnect the ABS wheel sensor from the assembly. Failure to do so may result in damaged sensor wires and the sensor becoming inoperative.
- Do not remove piston rod lock nut.
  1. Remove brake hose bracket.
  2. Remove stabilizer bar connecting rod.
  3. Remove strut (shock absorber) fixing bolts (lower side) and nuts (upper side).



### DISASSEMBLY

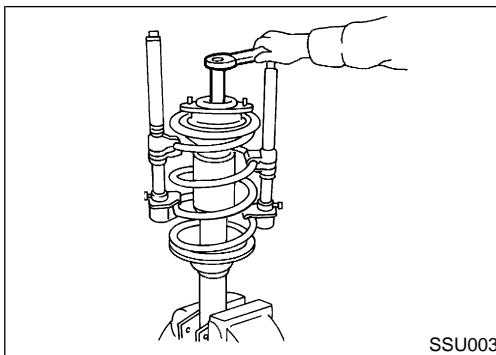
1. Set strut assembly in vise, then remove strut damper with hexagon socket (17 mm (0.67 in)) and **loosen** piston rod lock nut.

#### WARNING:

- Do not remove piston rod lock nut at this time.
2. Compress spring with Tool so that the strut mounting insulator can be turned by hand.

#### WARNING:

**Make sure that the pawls of the two spring compressors are firmly hooked on the spring. The spring compressors must be tightened alternately so as not to tilt the spring.**



3. Remove piston rod lock nut.

## REAR SUSPENSION

### Coil Spring and Strut Assembly (Cont'd) INSPECTION

#### Strut assembly

- Check both compression and extension for smooth operation through a full stroke.
- Check for oil leakage on welded or gland packing portions.
- Check piston rod for cracks, deformation and other damage. Replace if necessary.

#### Upper rubber seat and bushing

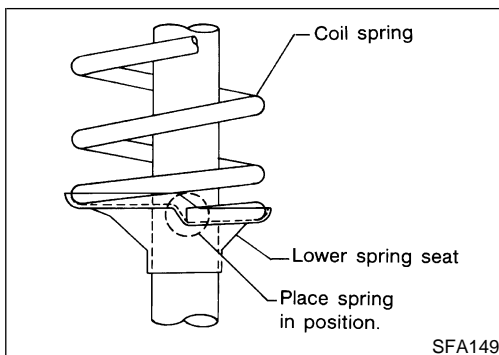
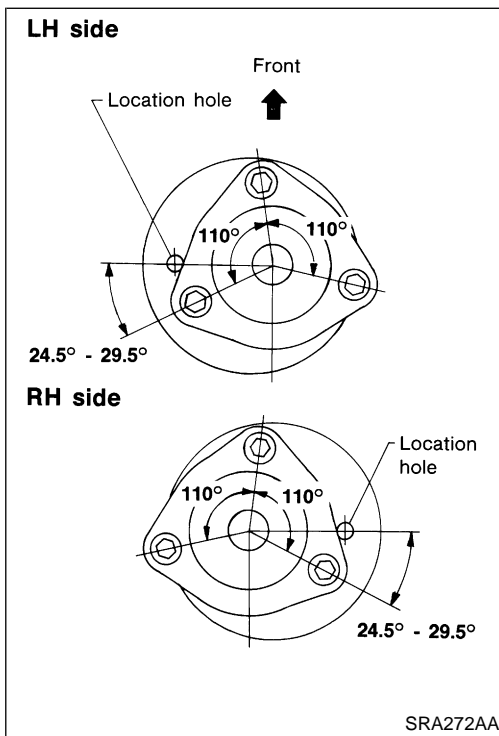
- Check rubber parts for deterioration and cracks. Replace if necessary.

#### Strut mounting insulator

- Check cemented rubber-to-metal portion for melting and cracks.
- Check rubber parts for deterioration. Replace if necessary.

#### Coil spring

- Check for cracks, deformation and other damage. Replace if necessary.

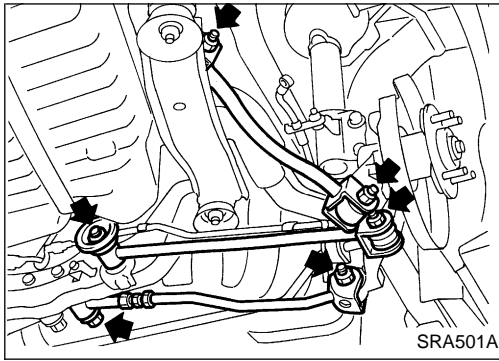


#### ASSEMBLY

1. Locate upper spring seat as shown.

2. After placing coil spring in position on lower spring seat, tighten lock nut. Then gradually release spring compressor. Install strut damper.

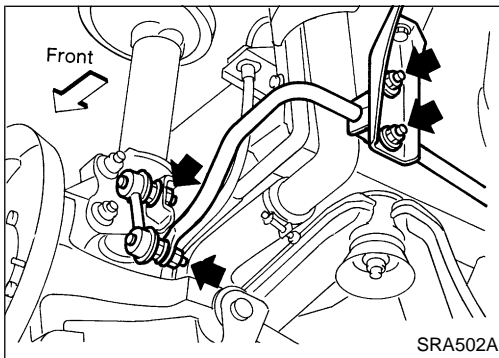
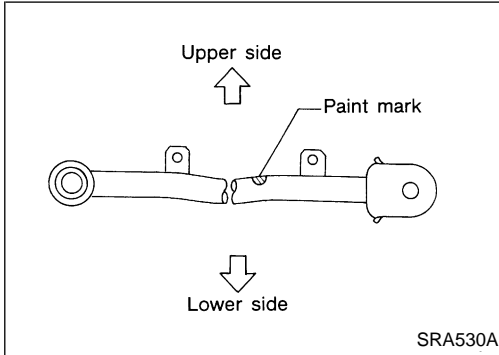
## REAR SUSPENSION



### Parallel Link, Radius Link and Stabilizer Bar REMOVAL AND INSTALLATION

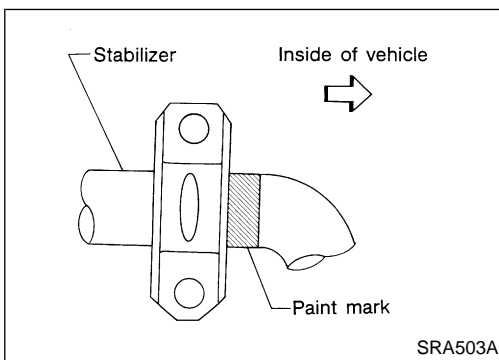
#### Parallel link and radius link

- Remove parallel link and radius link.
- **Models without ABS** —
- When installing front parallel link, make sure that paint mark faces in the correct direction.
- During installation, final tightening must be carried out at curb weight with tires on the ground.
- After installation, check wheel alignment. Refer to RA-15.
- **Check parallel link for cracks, deformation and other damage. Replace if necessary.**
- **Check radius link for cracks, deformation and other damage. Replace if necessary.**

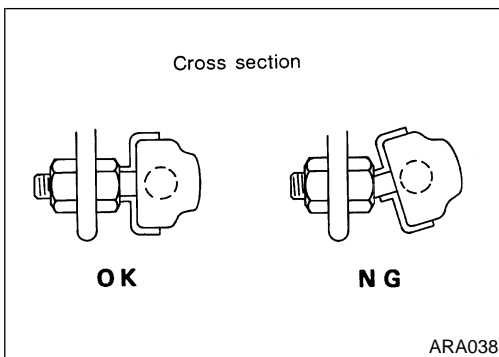


#### Stabilizer bar

- Remove stabilizer bar.



- When installing stabilizer, align paint marks with inside edge of clamps.



- Install stabilizer bar with ball joint socket properly placed.

# SERVICE DATA AND SPECIFICATIONS (SDS)

## General Specifications

Suspension type	Independent struts and parallel link, radius link with coil spring
Shock absorber type	Double-acting hydraulic
Stabilizer	Standard equipment

## Inspection and Adjustment

### WHEEL ALIGNMENT (Unladen\*)

Camber	Minimum	-2°00' (-2.00°)
	Nominal	-1°15' (-1.25°)
	Maximum	-0°30' (-0.50°)
Total toe-in	Minimum	1 (0.04)
	Nominal	2 (0.08)
	Maximum	3 (0.12)
Distance (A - B) mm (in)	Minimum	6' (0.10°)
	Nominal	12' (0.20°)
	Maximum	18' (0.30°)

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

### WHEEL BEARING

Applied model	All
Wheel bearing axial end play mm (in)	0.05 (0.0020) or less
Wheel bearing lock nut tightening torque N·m (kg·m, ft·lb)	186 - 255 (19 - 26, 137 - 188)

### WHEEL RUNOUT

Unit: mm (in)

Wheel type	Aluminum wheel	Steel wheel	
		Inside	Outside
Maximum radial runout limit	0.3 (0.12) or less	0.8 (0.031) or less	0.4 (0.016) or less
Maximum lateral runout limit	0.3 (0.012) or less	1.0 (0.039) or less	0.9 (0.035) or less

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## NOTES