

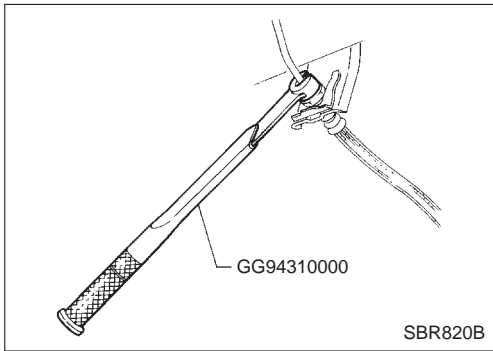
REAR AXLE & REAR SUSPENSION

SECTION **RA**

CONTENTS

PRECAUTIONS AND PREPARATION	2	Rear Wheel Alignment.....	6
Precautions	2	REAR AXLE	7
Special Service Tools	2	Wheel Hub.....	7
Commercial Service Tools	2	REAR SUSPENSION	9
NOISE, VIBRATION AND HARSHNESS (NVH)		Removal and Installation	10
TROUBLESHOOTING	3	Coil Spring and Shock Absorber	11
NVH Troubleshooting Chart.....	3	Torsion Beam, Lateral Link and Control Rod	12
REAR SUSPENSION SYSTEM	4	SERVICE DATA AND SPECIFICATIONS (SDS)	14
ON-VEHICLE SERVICE	5	General Specifications.....	14
Rear Axle and Rear Suspension Parts	5	Inspection and Adjustment	14
Rear Wheel Bearing	5		

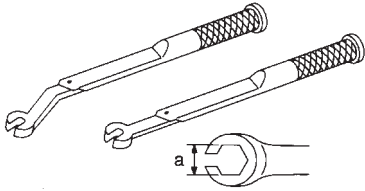
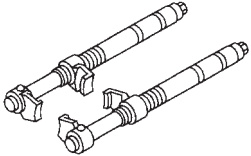
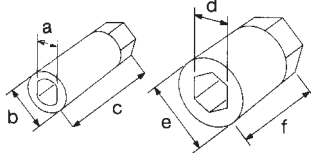
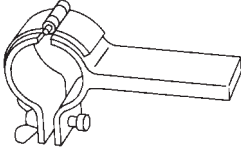
PRECAUTIONS AND PREPARATION



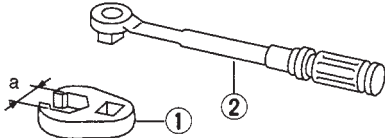
Precautions

- 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.

Special Service Tools

Tool number Tool name	Description
GG94310000 Flare nut torque wrench	 <p style="text-align: center;">NT406</p> <p style="text-align: right;">a : 10 mm (0.39 in)</p>
HT71780000 Spring compressor	 <p style="text-align: center;">NT144</p>
KV40106400 Piston rod lock nut wrench	 <p style="text-align: center;">NT369</p> <p style="text-align: right;"> a : 5 mm (0.20) b : 16.2 mm (0.64 in) DIA c : 52 mm (2.05 in) d : 14 mm (0.55 in) e : 25.4 mm (1.00 in) DIA f : 55 mm (2.17 in) </p>
ST35652000 Shock absorber attachment	 <p style="text-align: center;">NT145</p>

Commercial Service Tools

Tool name	Description
Equivalent to GG94310000 ① Flare nut crows foot ② Torque wrench	 <p style="text-align: center;">NT360</p> <p style="text-align: right;">a : 10 mm (0.39 in)</p>

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

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

Reference page	Possible cause and SUSPECTED PARTS					
	Noise	Shake	Vibration	Shimmy	Judder	Poor quality ride or handling
RA-9	X	X	X	X	X	X
RA-11	X	X	X	X	X	X
RA-11	X	X	X	X	X	X
—	X		X	X		X
—	X		X			X
RA-9	X	X				
RA-14	X			X		
RA-5	X					
NVH in FA section	X	X	X			
NVH in FA section	X	X	X	X	X	X
NVH in FA section	X	X	X	X	X	X
NVH in FA section	X	X		X	X	X
NVH in BR section	X	X		X	X	
NVH in ST section	X	X	X	X	X	

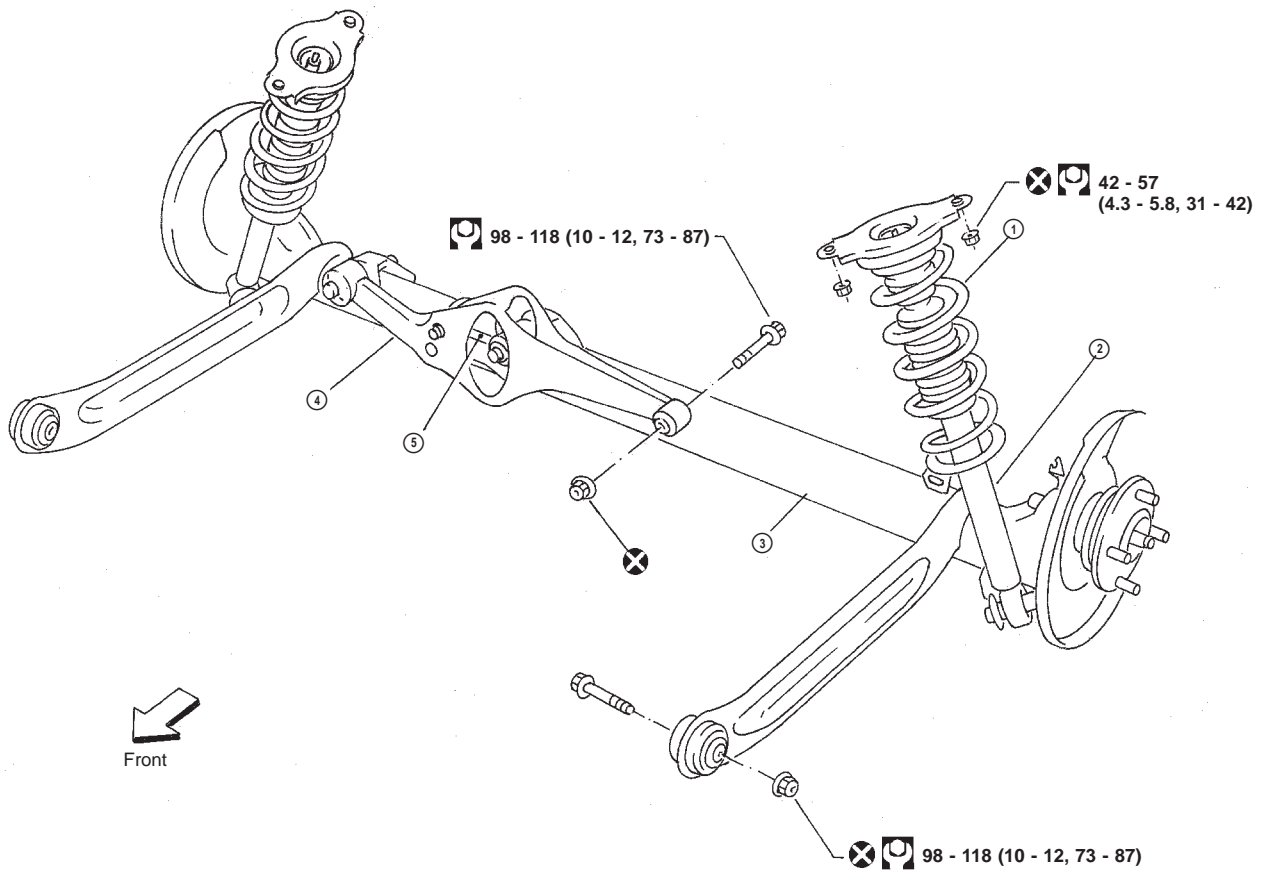
X: Applicable

REAR SUSPENSION SYSTEM

SEC. 431

When installing each rubber part, final tightening must be carried out under unladen condition* with tires on ground.

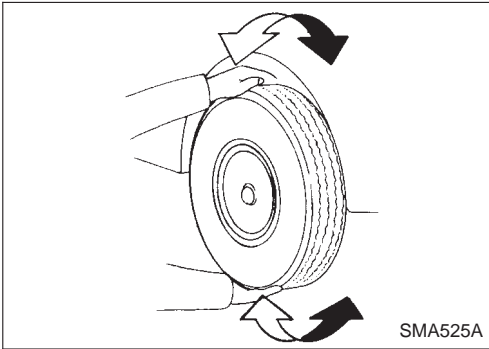
* Fuel, radiator coolant and engine oil full.
Spare tire, jack, hand tools and mats in designated positions.



⊗ : Do not re-use
 □ : N-m (kg-m, ft-lb)

NRA004

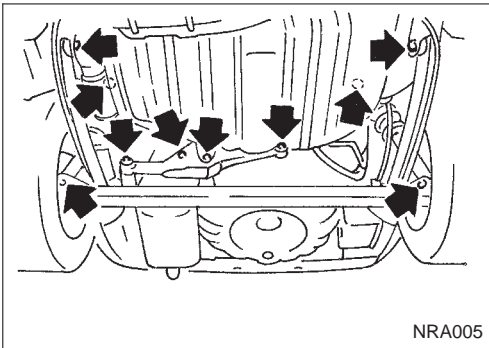
- | | | |
|------------------|----------------|---------------|
| ① Coil spring | ③ Torsion beam | ⑤ Control rod |
| ② Shock absorber | ④ Lateral link | |



Rear Axle and Rear Suspension Parts

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

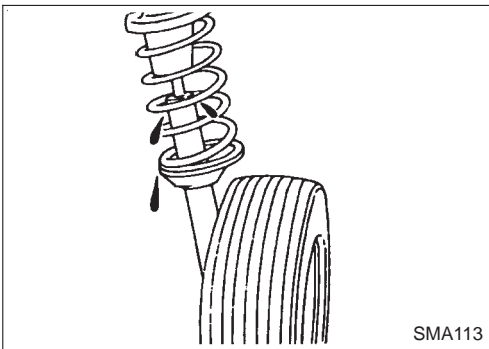
- Shake each rear wheel to check for excessive play.



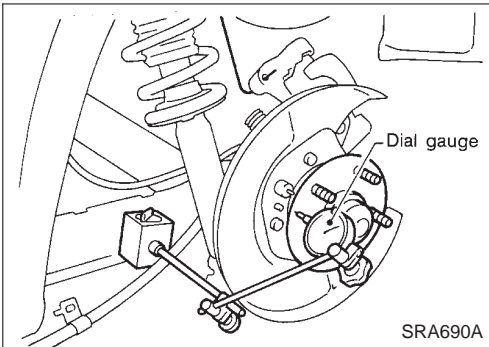
- Retighten all nuts and bolts to the specified torque.

Tightening torque:

Refer to REAR SUSPENSION (RA-9).



- Check shock absorber for oil leakage or other damage.



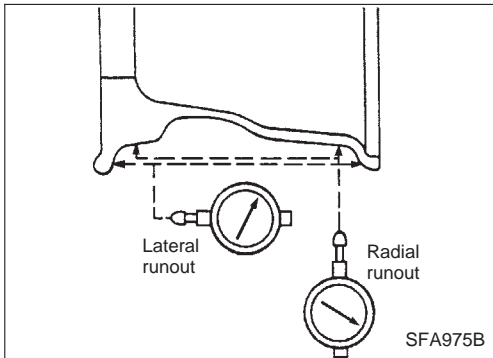
Rear Wheel Bearing

- Check axial end play.

Axial end play:

0.00 mm (0.0000 in)

- Check that wheel hub bearings operate smoothly.
- Check tightening torque of wheel bearing lock nut.
⚙️: 187 - 255 N·m (19 - 26 kg-m, 138 - 188 ft-lb)
- Replace wheel bearing assembly if there is axial end play or wheel bearing does not turn smoothly.
Refer to REAR AXLE — Wheel Hub (RA-7).



Rear Wheel Alignment

PRELIMINARY INSPECTION

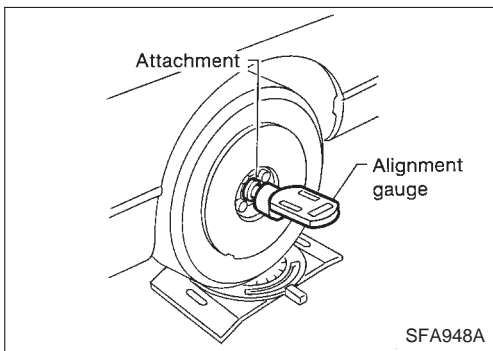
Make following checks. Adjust, repair or replace if necessary.

- Check tires for wear and for improper inflation.
- Check rear wheel bearings for excessive play.
- Check wheels for deformation, cracks and other damage. If deformed, remove tire and check wheel runout.

Wheel runout: Refer to SDS in FA section.

- Check that rear shock absorber functions correctly.
- Check rear axle and rear suspension parts for excessive play.
- Check vehicle posture (Unladen*).

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



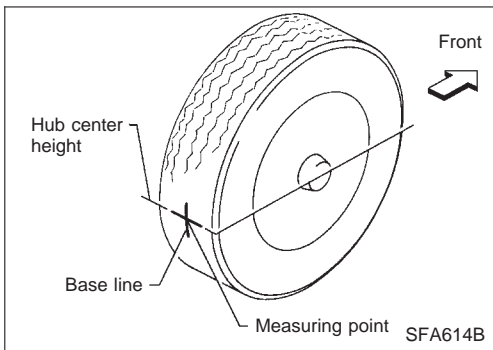
CAMBER

Camber is preset at factory and cannot be adjusted.

Camber:

Refer to SDS (RA-14).

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



TOE-IN

Toe-in is preset at factory and cannot be adjusted.

Measure toe-in using following procedure. If out of specification, inspect and replace any damaged or worn rear suspension parts.

WARNING:

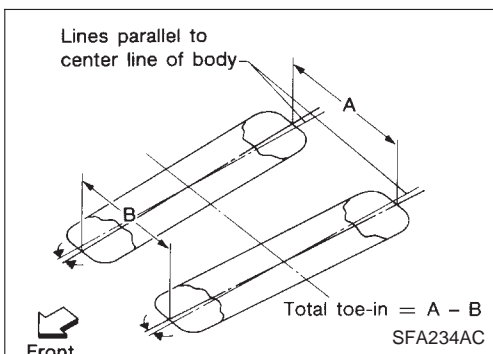
- Always perform following procedure on a flat surface.
 - Make sure that no person is in front of the vehicle before pushing it.
1. Bounce rear of vehicle up and down to stabilize the posture.
 2. Push the vehicle straight ahead about 5 m (16 ft).
 3. Put a mark on base line of the tread (rear side)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

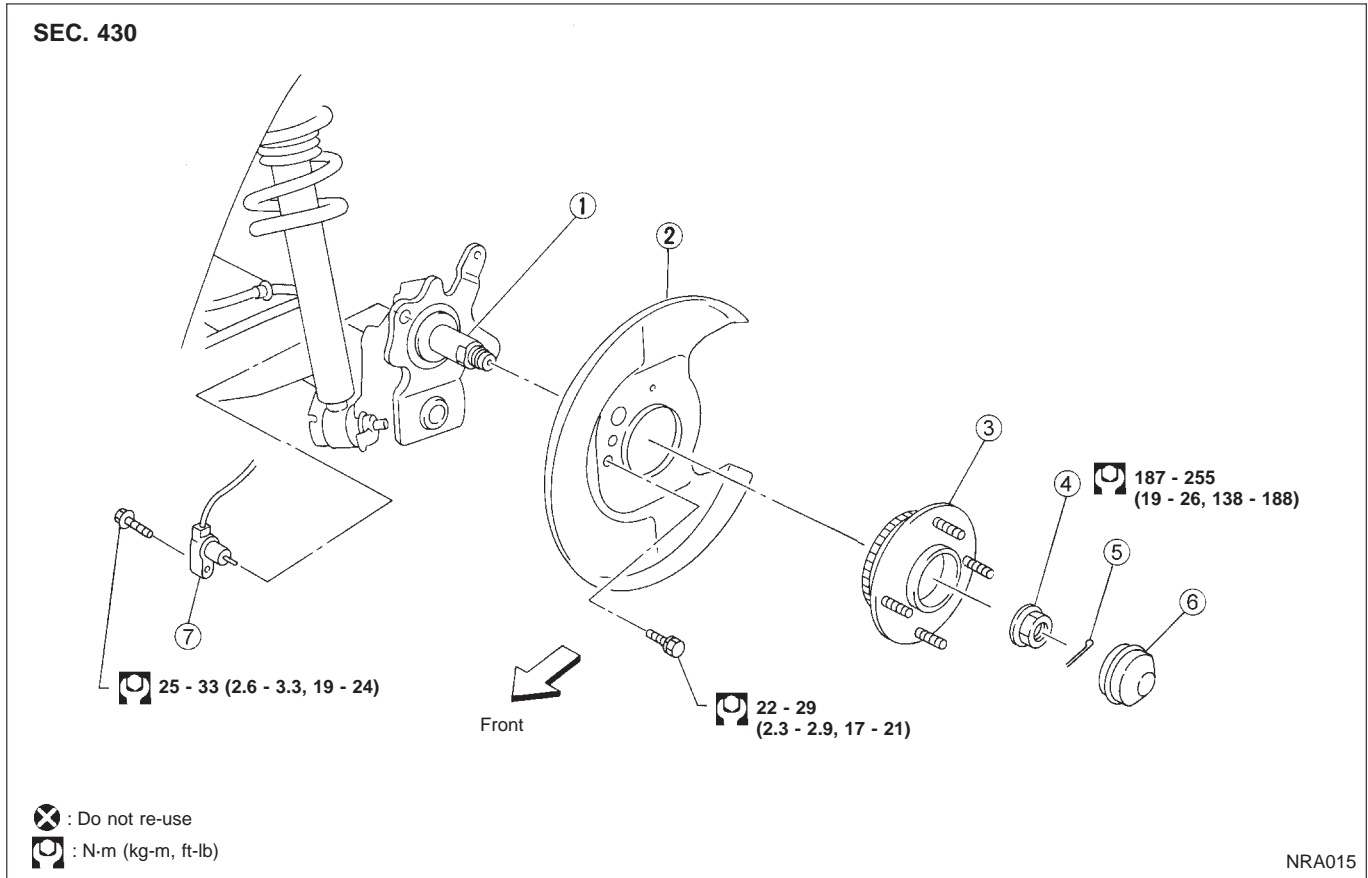
Total toe-in:

Refer to SDS, RA-14.



REAR AXLE

Wheel Hub



- ① Spindle
- ② Baffle plate
- ③ Wheel hub bearing

- ④ Wheel bearing lock nut
- ⑤ Cotter pin

- ⑥ Hub cap
- ⑦ ABS sensor

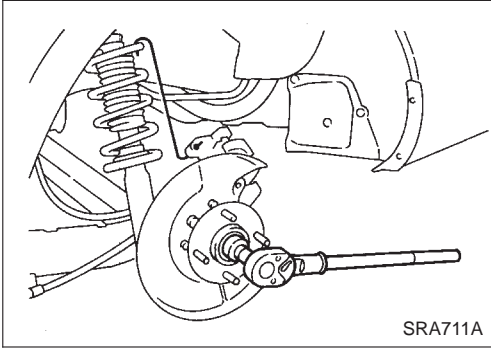
REMOVAL

CAUTION:

- Before removing the rear wheel hub assembly, disconnect the ABS wheel sensor from the assembly. Then move it away from the hub assembly. Failure to do so may result in damage to the sensor wires and the sensor becoming inoperative.
- Wheel hub bearing 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.

REAR AXLE

Wheel Hub (Cont'd)

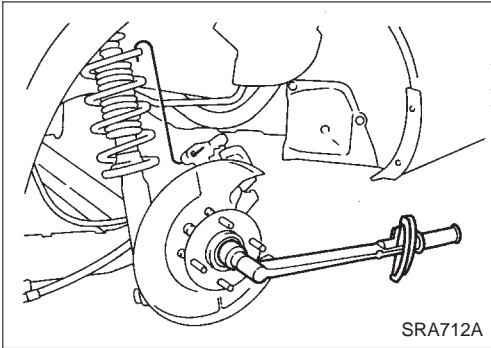


1. Remove brake caliper assembly.
2. Remove brake rotor.
3. Remove wheel bearing lock nut.
4. Remove wheel hub bearing from spindle.

Brake hose does not need to be disconnected from brake caliper.

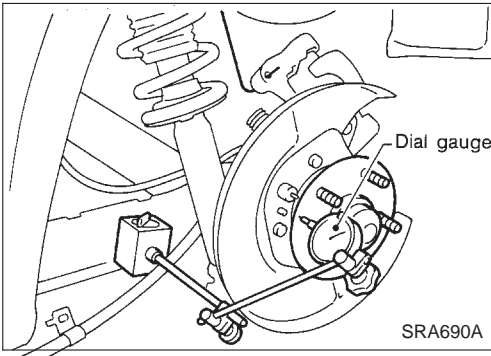
Suspend caliper assembly with wire so as not to stretch brake hose.

Be careful not to depress brake pedal, or piston will pop out. Make sure brake hose is not twisted.



INSTALLATION

- Install wheel hub bearing.
- Tighten wheel bearing lock nut.
Before tightening, apply oil to threaded portion of rear spindle and both sides of plain washer.
- **⚙️: 187 - 255 N·m (19 - 26 kg-m, 138 - 188 ft-lb)**
- Check that wheel bearings operate smoothly.



- Check wheel hub bearing axial end play.

Axial end play:

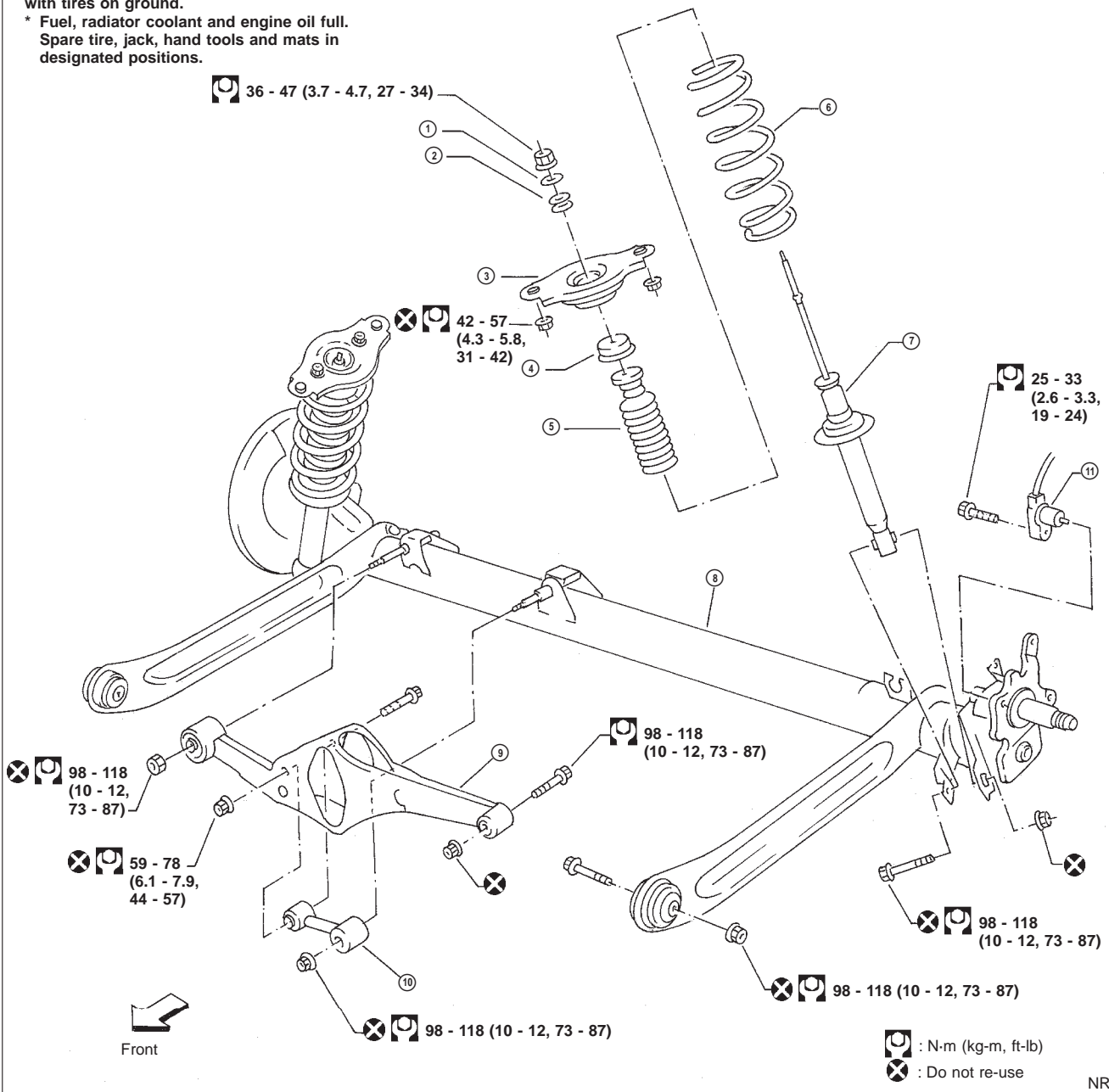
0.00 mm (0.0000 in)

REAR SUSPENSION

SEC. 431

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.



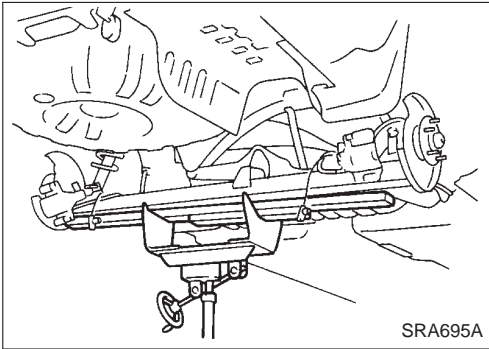
NRA018

- ① Washer
- ② Bushing
- ③ Shock absorber mounting bracket
- ④ Bound bumper cover

- ⑤ Bound bumper
- ⑥ Coil spring
- ⑦ Shock absorber
- ⑧ Torsion beam

- ⑨ Lateral link
- ⑩ Control rod
- ⑪ ABS sensor

REAR SUSPENSION

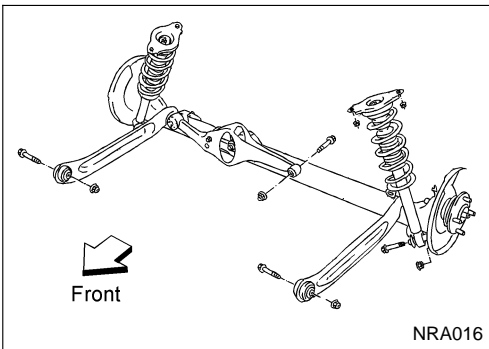


Removal and Installation

CAUTION:

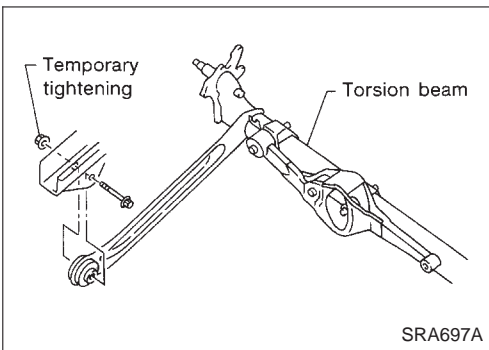
- Before removing the rear suspension assembly, disconnect the ABS wheel sensor and headlamp leveling sensor from the assembly. Failure to do so may result in damage to the sensor wires and the sensor becoming inoperative.
- Remove suspension assembly.
 1. Disconnect parking brake cable from caliper and remove brake caliper 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. Make sure brake hose is not twisted.

2. Using a transmission jack, raise torsion beam a little, and remove nuts and bolts from the trailing arm, shock absorber assembly (lower side) and lateral link.
3. Lower transmission jack, and remove suspension.
4. Remove shock absorber assembly.



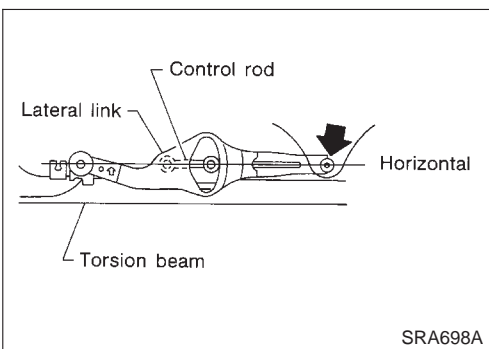
- Install suspension assembly.

CAUTION:

Refill with new brake fluid "DOT 4". Never reuse drained brake fluid.

- After installation of the suspension assembly the headlamp leveling sensor has to be recalibrated. Refer to EL section (models equipped with xenon headlamps only).

1. Attach torsion beam, at trailing arm and lateral link, to vehicle. Do not tighten bolts at this time.



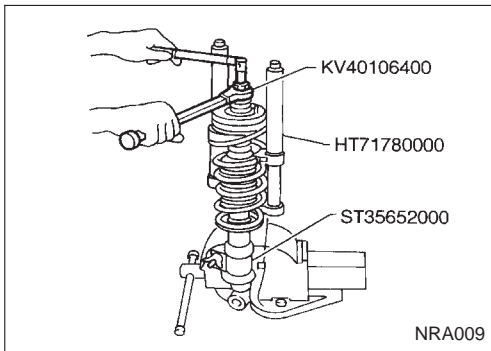
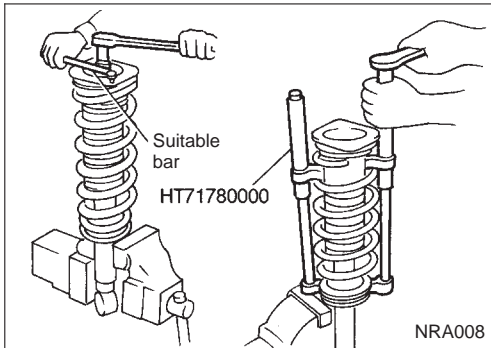
2. Using a transmission jack, place lateral link and control rod horizontally against torsion beam. Tighten lateral link on vehicle.
3. Attach shock absorber assembly to vehicle. Then tighten the lower side of shock absorber assembly.
4. Lower torsion beam to fully extended position. Remove transmission jack and tighten torsion beam, at trailing arm, to specified torque. **Refer to RA-9.**
5. Install ABS-wheel sensor.

REAR SUSPENSION

Coil Spring and Shock Absorber

REMOVAL

Remove shock absorber upper and lower fixing nuts.
Do not remove piston rod lock nut on vehicle.



DISASSEMBLY

1. Set shock absorber in vise with attachment, then **loosen** piston rod lock nut.

WARNING:

Do not remove piston rod lock nut at this time.

2. Compress spring with Tool so that the shock absorber upper spring seat can be turned by hand.

3. Remove piston rod lock nut.

INSPECTION

Shock absorber assembly

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

Upper rubber seat and bushing

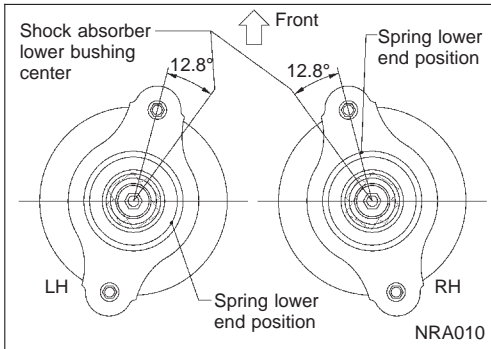
Check rubber parts for deterioration or cracks.
Replace if necessary.

Coil spring

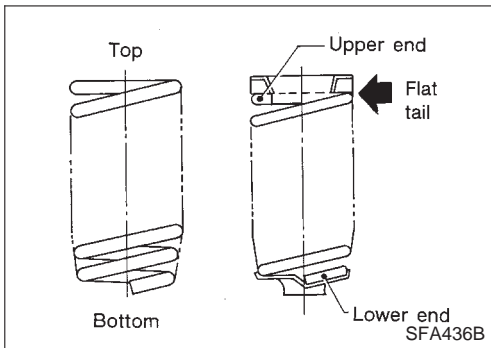
Check for cracks, deformation or other damage. Replace if necessary.

REAR SUSPENSION

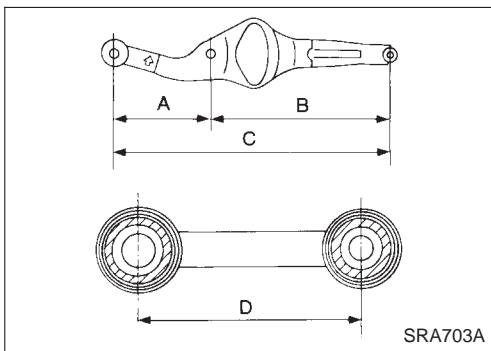
Coil Spring and Shock Absorber (Cont'd) ASSEMBLY



- Locate upper spring seat as shown.



- When installing coil spring, be careful not to reverse top and bottom direction. (Top end is flat.)
- When installing coil spring on shock absorber, it must be positioned as shown in figure at left.



Torsion Beam, Lateral Link and Control Rod DISASSEMBLY

- Remove torsion beam assembly. Refer to Removal and Installation in REAR SUSPENSION (RA-10).
- Remove lateral link and control rod from torsion beam.

INSPECTION

- Check for cracks, distortion or other damage. Replace if necessary.

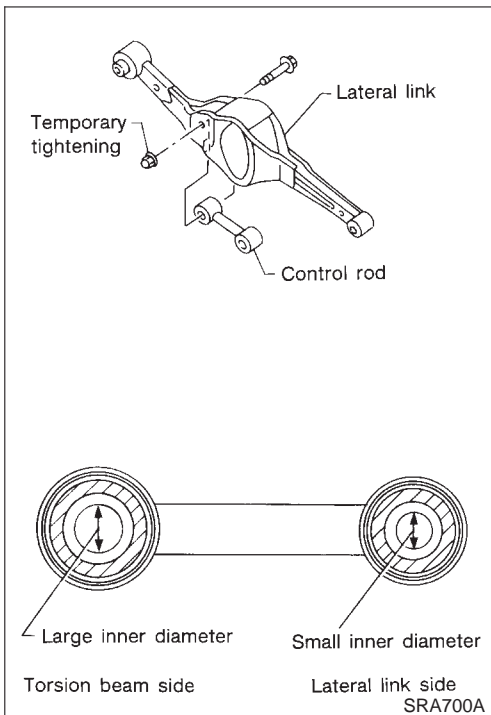
Standard length:

- A 207 - 208 mm (8.15 - 8.19 in)
- B 394 - 395 mm (15.51 - 15.55 in)
- C 601 - 603 mm (23.66 - 23.74 in)
- D 106 - 108 mm (4.17 - 4.25 in)

- Check all rubber parts for wear, cracks or deformation. Replace if necessary.

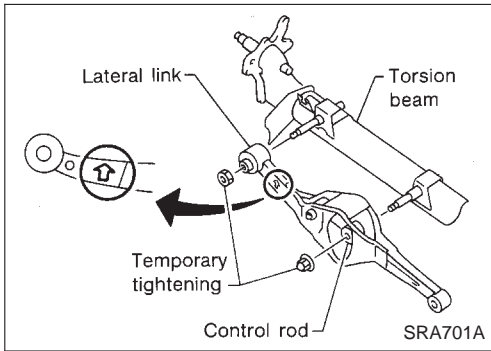
ASSEMBLY

1. Temporarily assemble lateral link and control rod.
- When installing the control rod, connect the bush with the smaller inner diameter to the lateral link.

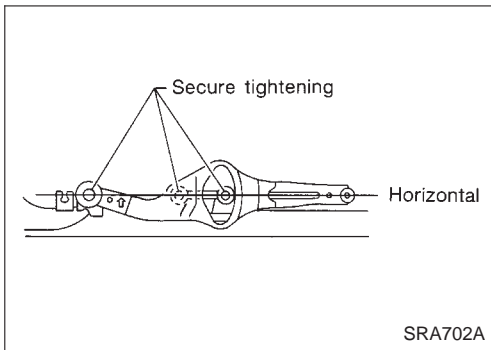


REAR SUSPENSION

Torsion Beam, Lateral Link and Control Rod (Cont'd)



2. Temporarily install lateral link and control rod on torsion beam.
 - When installing, place lateral link with the arrow topside.



3. Place lateral link and control rod horizontally against torsion beam, and tighten to the specified torque.
4. Install torsion beam assembly. Refer to Removal and Installation in REAR SUSPENSION (RA-10).

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

Suspension type	Multi-link beam suspension
Shock absorber type	Double-acting hydraulic
Stabilizer	Standard equipment

Inspection and Adjustment

WHEEL ALIGNMENT (Unladen*)

Camber	Minimum	-2°9' (-2.15°)
	Nominal	-1°24' (-1.4°)
	Maximum	-0°39' (-0.65°)
Degree minute (Decimal degree)		
Total toe-in	Minimum	-1.8 (-0.07)
	Nominal	2.2 (0.09)
	Maximum	6.2 (0.24)
Distance (A-B) mm (in)		
Angle (left plus right)	Minimum	-0°11'24" (-0.19°)
	Nominal	0°12'36" (0.21°)
	Maximum	0°36'36" (0.61°)
Degree minute (Decimal degree)		

WHEEL BEARING

Wheel bearing axial end play mm (in)	0.0 (0.00)
Wheel bearing lock nut tightening torque N-m (kg-m, ft-lb)	187 - 255 (19 - 26, 138 - 188)

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