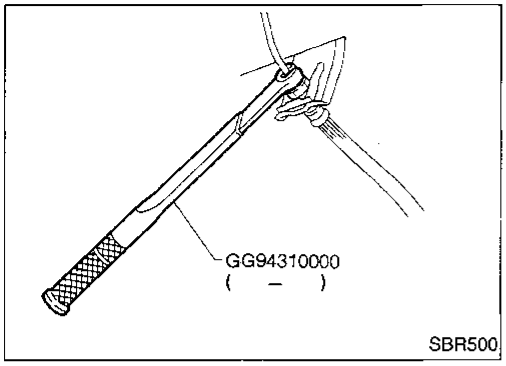
REAR AXLE AND REAR SUSPENSION

SECTION RA

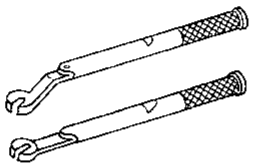
CONTENTS



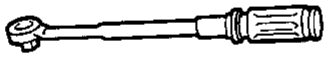
Precautions

- **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.**
- **When installing each suspension part, check wheel alignment and adjust if necessary.**
- **Use flare nut wrench when removing or installing brake tubes.**
- **Always torque brake lines when installing.**

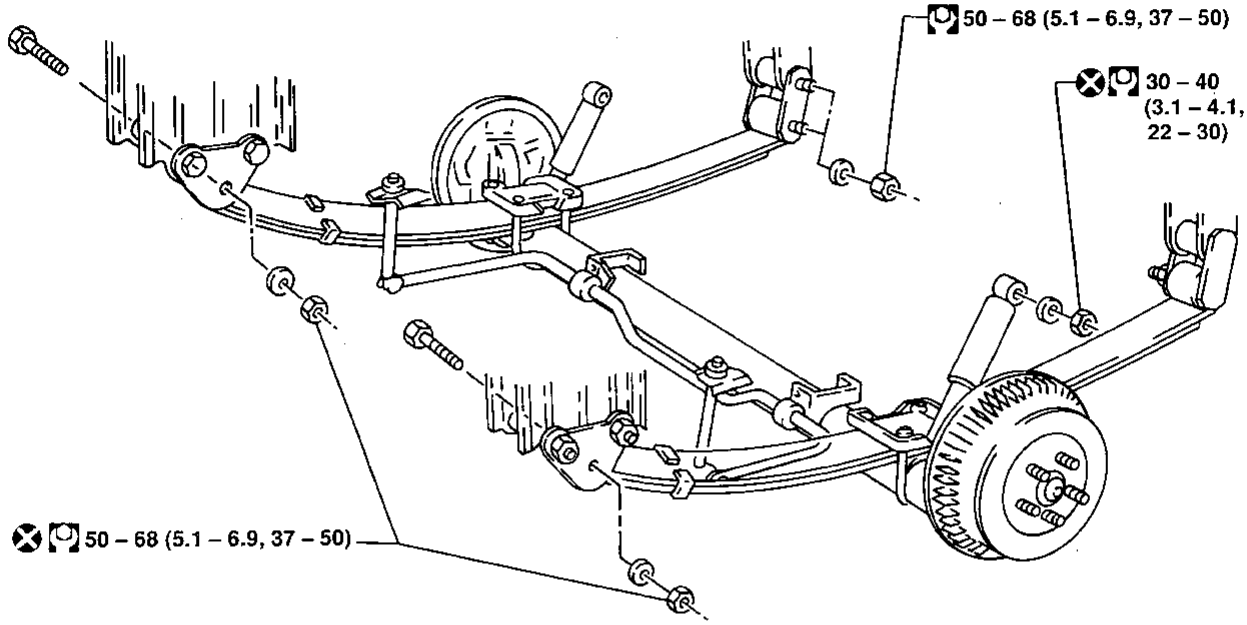
Special Service Tool

Tool number (Kent-Moore No.) Tool name	Description
GG94310000 (–) Flare nut wrench	Removing and installing brake piping 

Commercial Service Tools

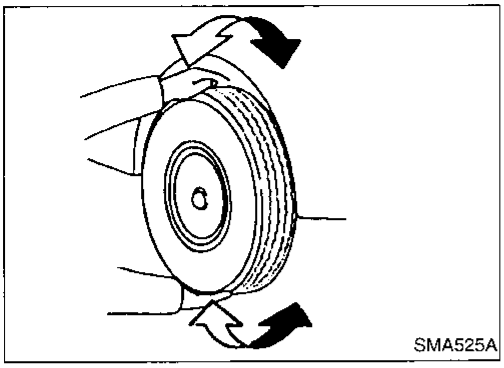
Tool name	Description
Flare nut crows foot	
Torque wrench	

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.



: N·m (kg-m, ft-lb) : Always replace

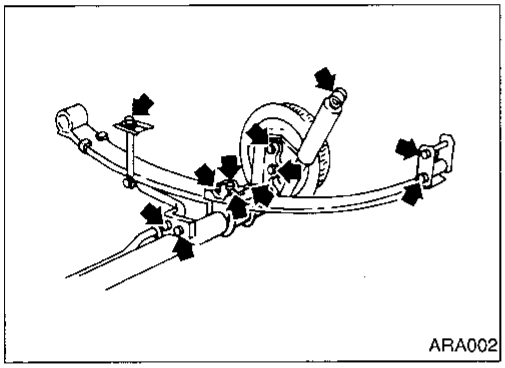
ARA001


SMA525A

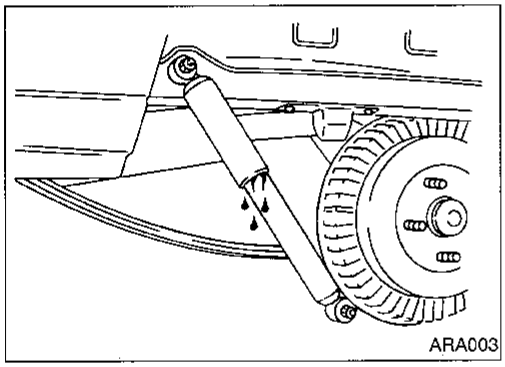
Rear Axle and Rear Suspension Parts

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

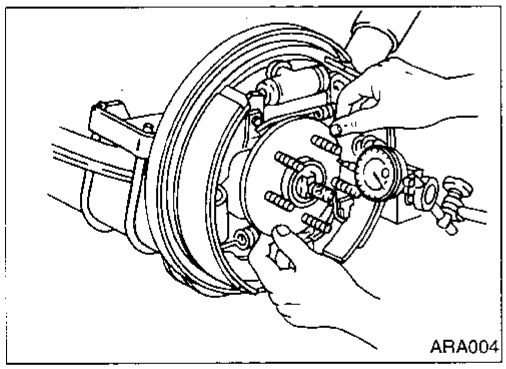
- Shake each rear wheel to check for excessive play.


ARA002

- Retighten all nuts and bolts to the specified torque.
  Tightening torque:
  Refer to drawing in REAR SUSPENSION, RA-9.
- Make sure that all cotter pins are inserted.


ARA003

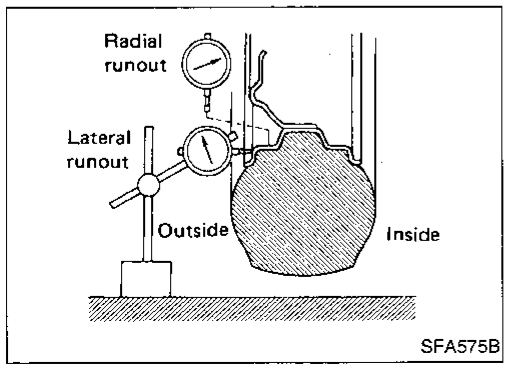
- Check shock absorber for oil leakage or other damage. Large amounts of oil indicate shock absorber may need to be replaced.
- Check shock absorber bushing for excessive wear or other damage.
- Check wheelarch height. Refer to FA section ("Front Axle and Front Suspension Parts", "ON-VEHICLE SERVICE").


ARA004

Rear Wheel Bearing

- Check that wheel bearings operate smoothly.
- Check axial end play.
  Axial end play:
  Refer to SDS, RA-16.

If axial end play is not within specification or wheel bearing does not turn smoothly, replace wheel bearing assembly.
Refer to RA-7.



SFA575B

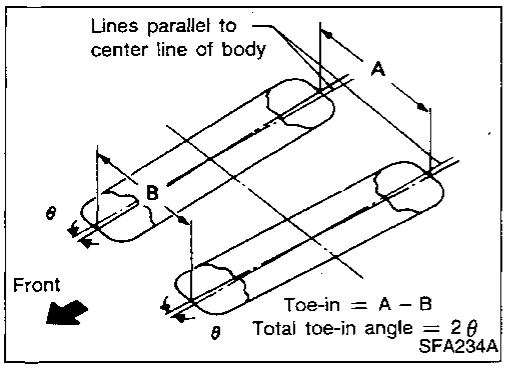
Rear Wheel Alignment

PRELIMINARY INSPECTION

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

- Check tires for wear and for improper inflation.
- Check rear wheel bearings for looseness.
- Check wheel runout.
  Wheel runout: Refer to FA section ("Inspection and Adjustment", "SDS").
- Check that rear shock absorber works properly.
- Check rear axle and rear suspension parts for looseness.

Rear Wheel Alignment (Cont'd)

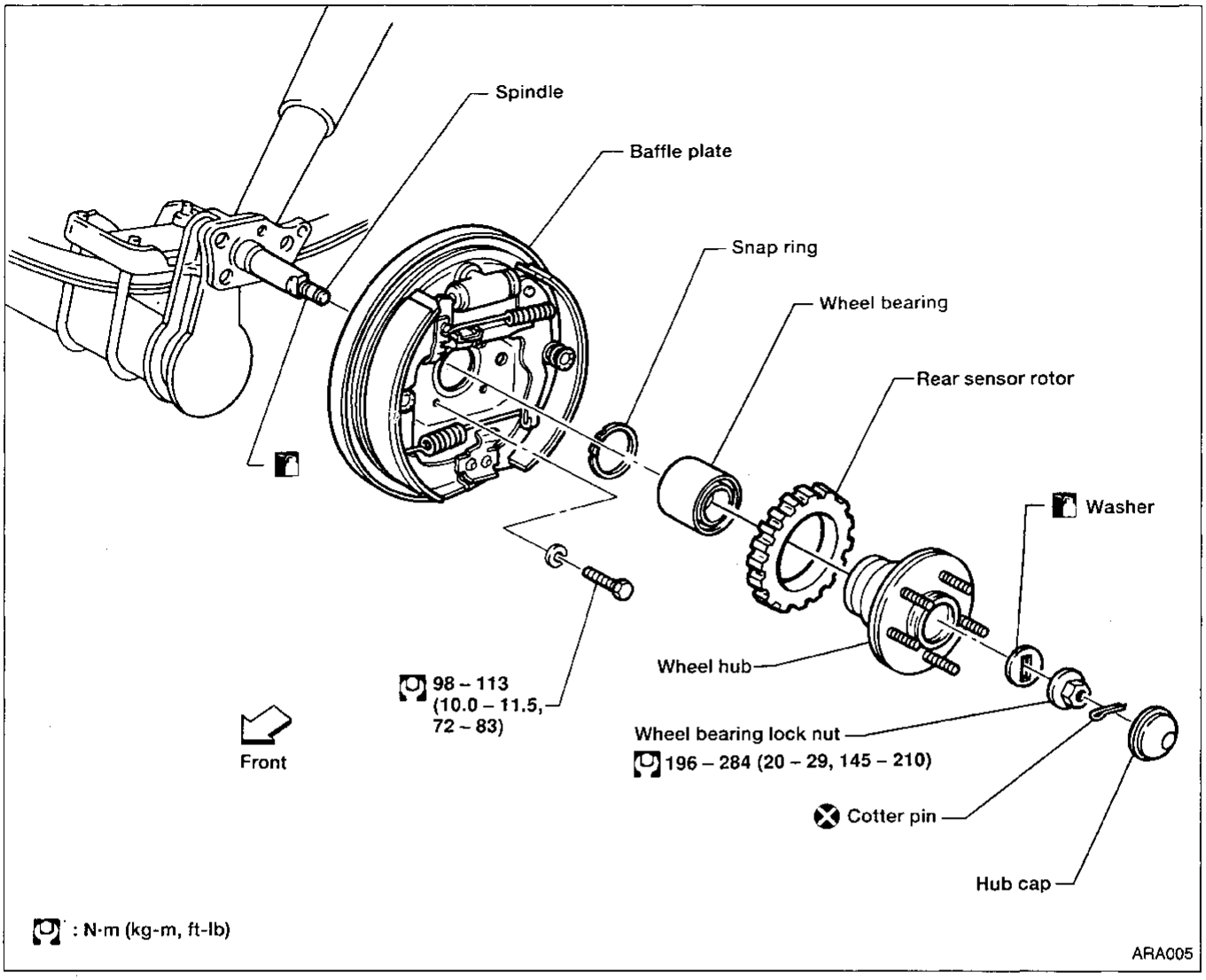


CAMBER AND TOE-IN

Camber and toe-in are preset at factory and cannot be adjusted.

Camber and Toe-in:
Refer to SDS, RA-16.

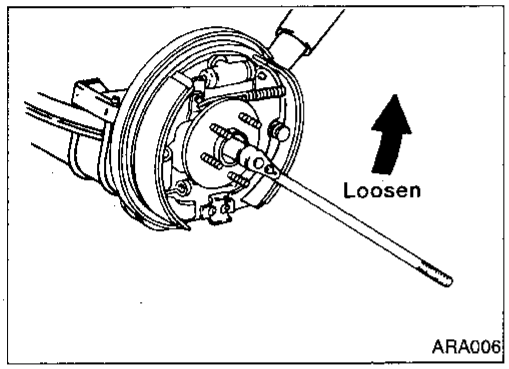
- If the camber and toe-in are not within specifications, inspect and replace any damaged or worn rear suspension parts.


Spindle
Baffle plate
Snap ring
Wheel bearing
Rear sensor rotor
Washer
Wheel hub
98 – 113
(10.0 – 11.5,
72 – 83)
Front
Wheel bearing lock nut
196 – 284 (20 – 29, 145 – 210)
Cotter pin
Hub cap
: N·m (kg-m, ft-lb)
ARA005

Removal

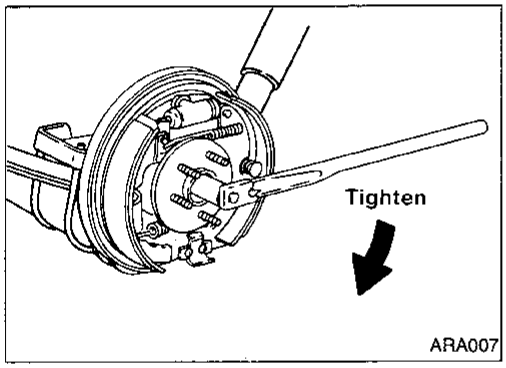
CAUTION:
Wheel hub bearing usually does not require maintenance. If any of the following occur, replace wheel hub bearing assembly.

- Growling noise is emitted from wheel hub bearing during operation.
- Wheel hub bearing drags or turns roughly when hub is turned with your hand after bearing lock nut is tightened to specified torque.
- After wheel hub bearing is removed from spindle.

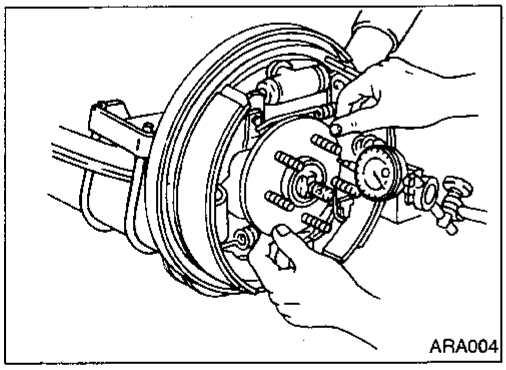


1) Remove brake drum.
2) Remove wheel bearing lock nut.
3) Remove wheel hub assembly.

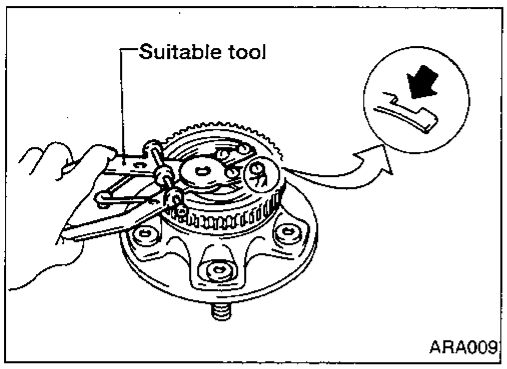
Installation



- Install wheel hub and bearing assembly.
- Tighten wheel bearing lock nut.
  Before tightening wheel bearing lock nut, apply oil to threaded portion of rear spindle and to both sides of plain washer.
  [O]: 196 - 284 N·m
  (20 - 29 kg-m, 145 - 210 ft-lb)
- Check that wheel bearings operate smoothly.



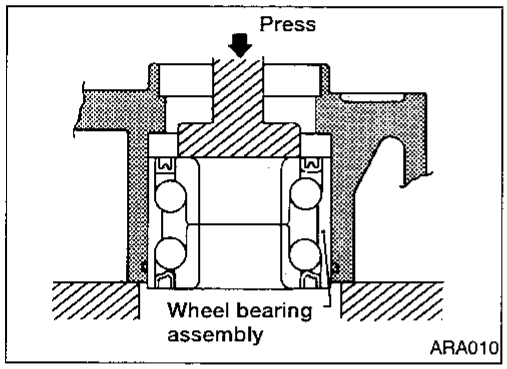
- Check wheel hub bearing axial end play.
  Axial end play:
  0.05 mm (0.0020 in) or less



Disassembly

CAUTION:
When removing wheel bearing from wheel hub, replace wheel bearing assembly with new one.

- Remove snap ring with suitable tool.



CAUTION:
To aid installation, observe orientation of inner and outer wheel bearing grease seals.

- Press out wheel bearing assembly from wheel hub.

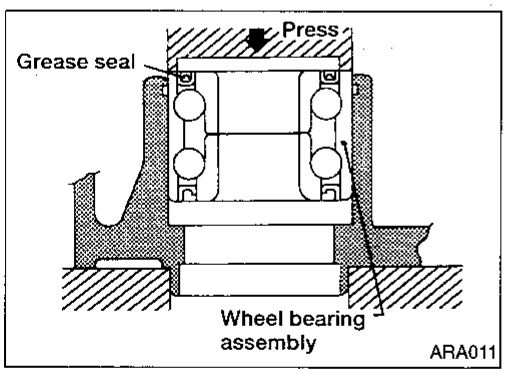
Inspection

WHEEL HUB

Check wheel hub for cracks by using a magnetic exploration or dye test.

SNAP RING

Check snap ring for wear, cracks or distortion. Replace if necessary.



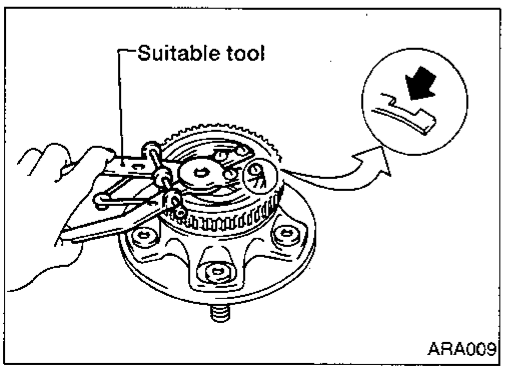
Assembly

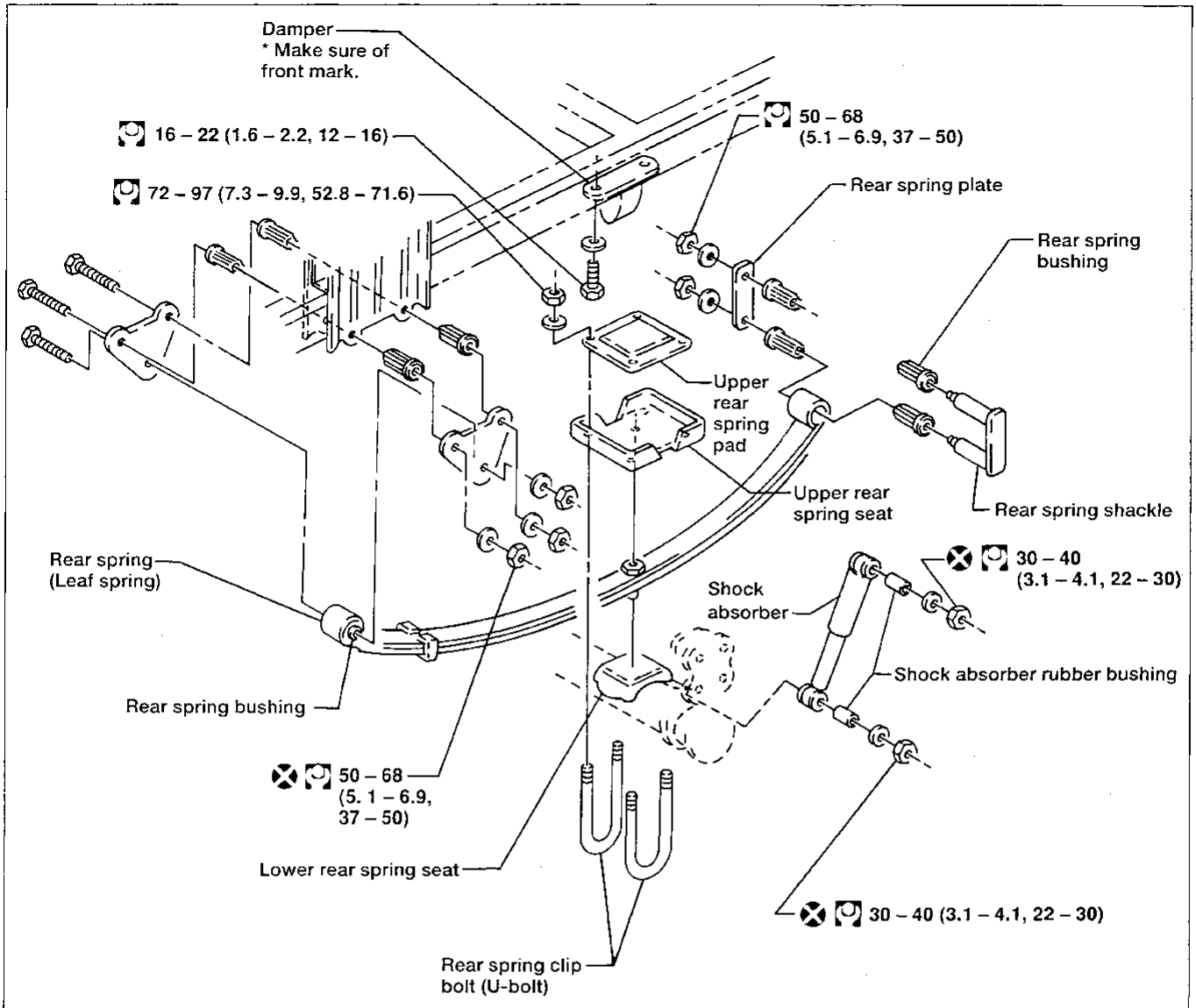
1. Press new wheel bearing assembly into wheel hub.
   Press only on outer race of wheel bearing assembly.
   Maximum load P:
   29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)

CAUTION:

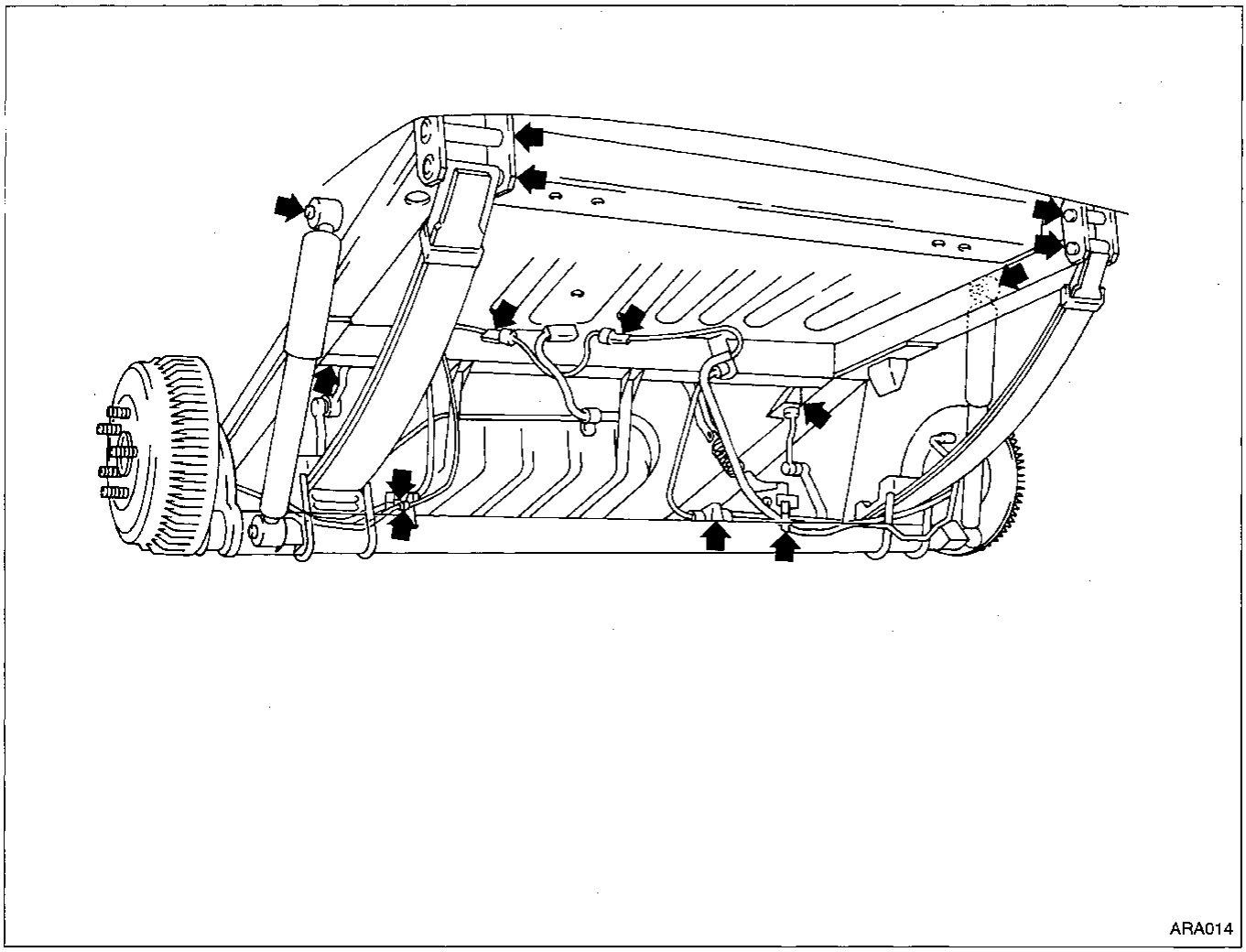
- **Do not press inner race of wheel bearing assembly.**
- **Do not apply oil or grease to mating surfaces of wheel bearing outer race and hub.**
- **Before pressing, check for correct bearing grease seal orientation, as inner and outer seals are different.**

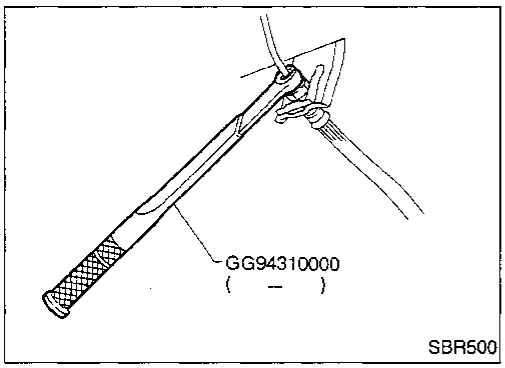
2. Install snap ring into groove of wheel hub.

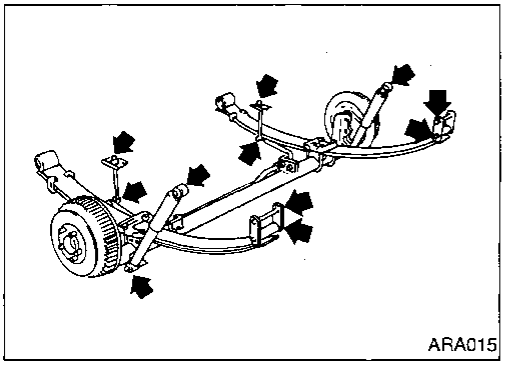



Damper
* Make sure of front mark.
16 – 22 (1.6 – 2.2, 12 – 16)
72 – 97 (7.3 – 9.9, 52.8 – 71.6)
50 – 68 (5.1 – 6.9, 37 – 50)
Rear spring plate
Rear spring bushing
Upper rear spring pad
Upper rear spring seat
Rear spring shackle
30 – 40 (3.1 – 4.1, 22 – 30)
Shock absorber
Shock absorber rubber bushing
Rear spring (Leaf spring)
Rear spring bushing
50 – 68 (5. 1 – 6.9, 37 – 50)
Lower rear spring seat
30 – 40 (3.1 – 4.1, 22 – 30)
Rear spring clip bolt (U-bolt)
Front (Left side shown)
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.
: Always replace
: N·m (kg-m, ft-lb)
ARA013

Removal and Installation





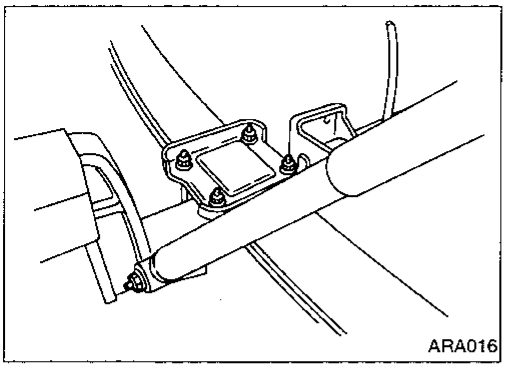


- Support axle and suspension components with a suitable jack and block.
- Disconnect brake hydraulic lines and parking brake cables at back plates.

CAUTION:
Use Tool when removing or installing brake tubes.

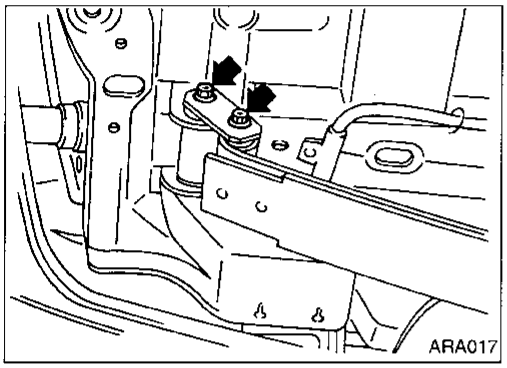
- Remove A.B.S. harness and sensor.
- Remove L.S.V. spring bracket.
- Remove upper end nuts of shock absorber.
- Remove stabilizer bar from body.
- Remove leaf spring from body.

Final tightening for rubber parts must be carried out under unladen condition with tires on ground.

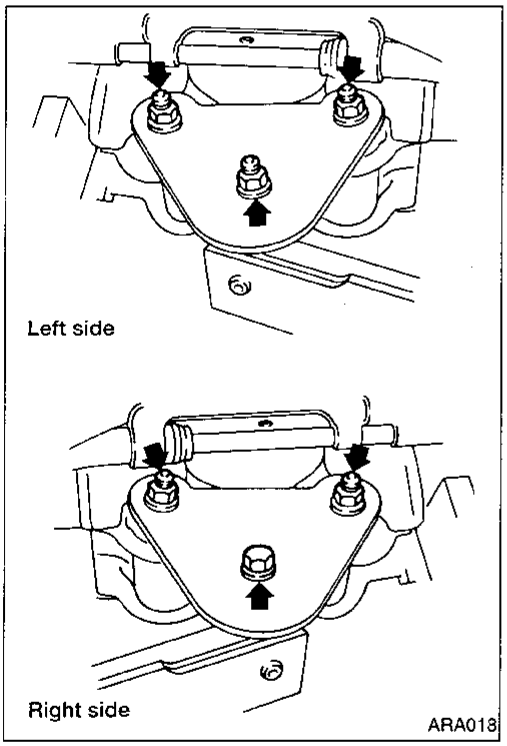


Removal

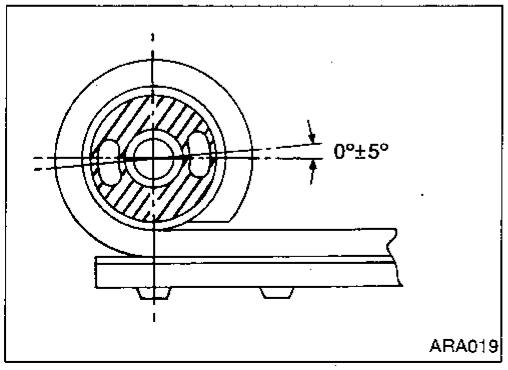
- Disconnect shock absorber lower end, and remove U-bolts.



- Disconnect spring shackle.

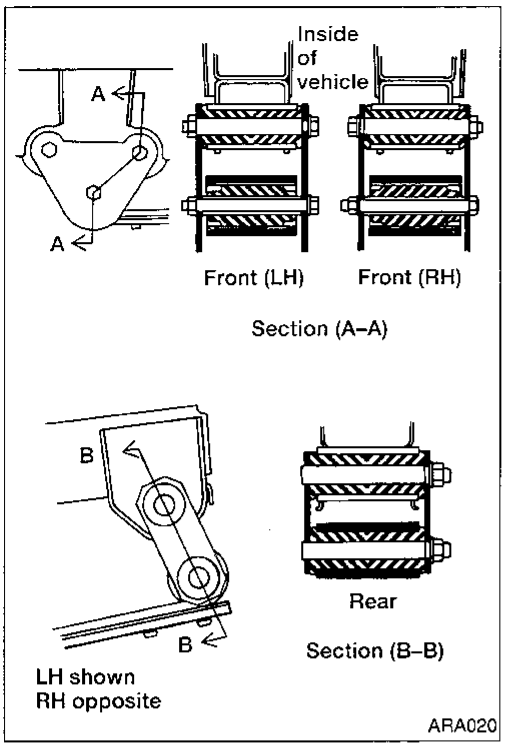


- Loosen upper pin nuts.
- Disconnect front eye bolt.



Inspection

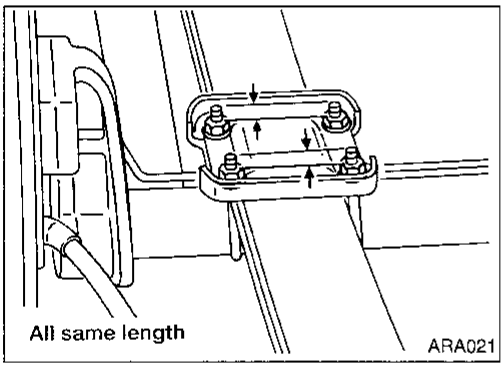
- Check leaf spring for cracks. Replace if necessary.
- Check front spring plates, front eye bolt, upper pins, shackle, U-bolts and spring seat for wear, cracks, straightness or damaged threads. Replace if necessary.
- Check rubber bushings for deformation or cracks. Replace if necessary.
- When installing front eye bushing, make sure that it is positioned as shown at left.



Installation

- Apply soapsuds to rubber bushing.
- Install rubber bushing, spring shackle and front eye bolt, and finger tighten the nuts.

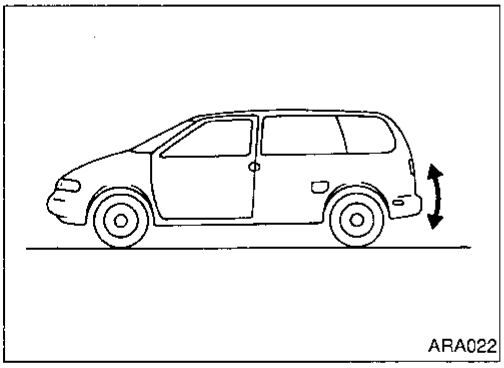
When installing the nuts, they must be positioned as shown.



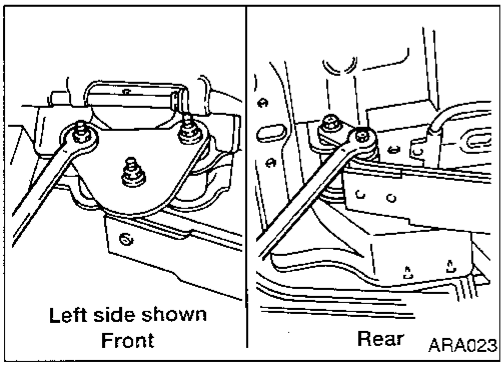
- Install leaf spring assembly aligning spring center bolt with the hole in lower seat.
- Install upper seat and pad on top of leaf spring assembly aligning the hole in upper seat with spring center bolt.
- Tighten U-bolt mounting nuts diagonally.
- Install shock absorber, and finger tighten the nut.

Tighten U-bolts so that the lengths of all U-bolts upper spring seat are the same.

: 72 - 97 N·m
(7.3 - 9.9 kg-m, 53 - 72 ft-lb)



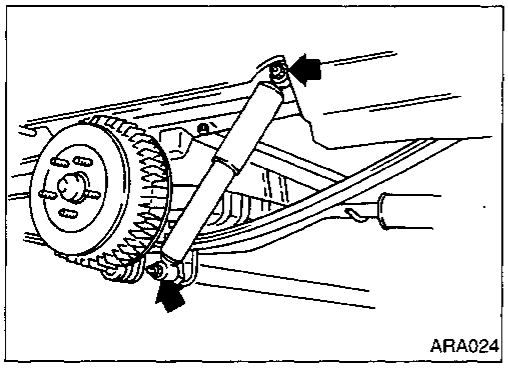
- Remove stands and bounce the vehicle to stabilize suspension. (Unladen)



- Tighten spring shackle nuts, front eye bolt nuts and upper pin nuts and shock absorber nuts. Refer to RA-9.

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.



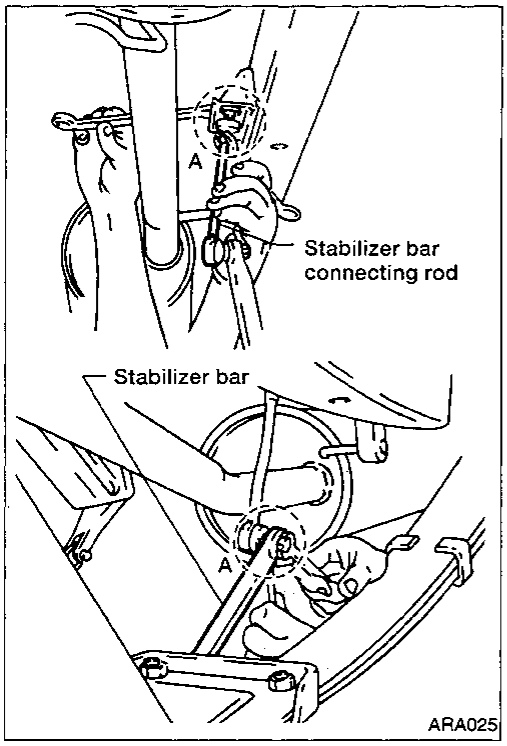
Removal and Installation

- Remove shock absorber by disconnecting upper and lower end.

WARNING:
Do not heat. Shock absorbers are gas charged.

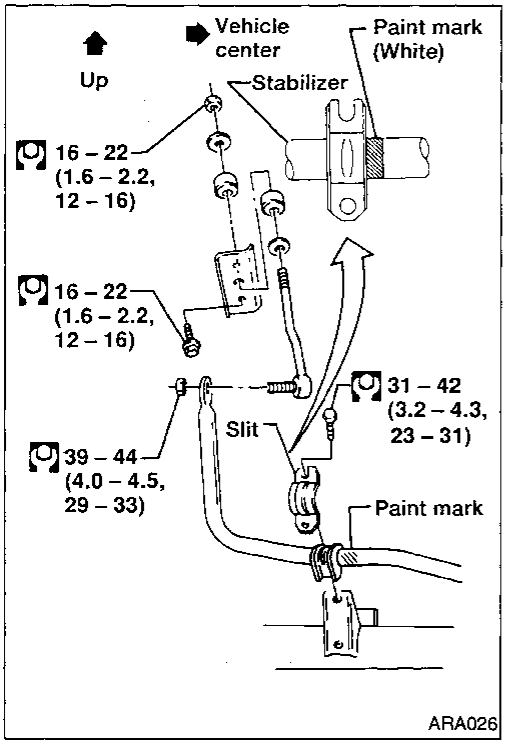
Inspection

- Check for smooth operation through a full stroke, both compression and extension.
- If oil leakage, cracks or deformation occurs, replace shock absorber assembly.
- If rubber bushings are cracked or deformed, replace rubber bushings.

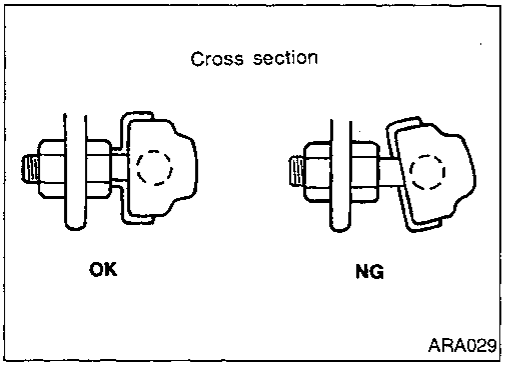


Removal and Installation

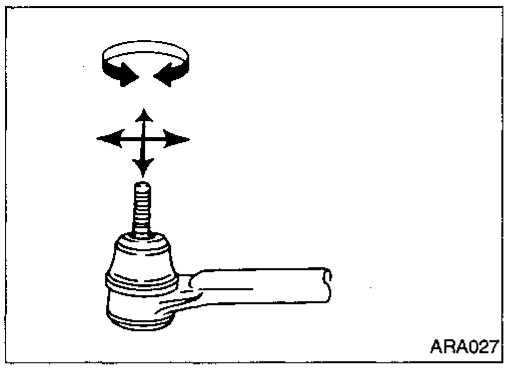
- When removing and installing stabilizer bar, fix portion A.



- When installing stabilizer, it must be positioned as shown.



- Install stabilizer bar with ball joint socket properly placed.



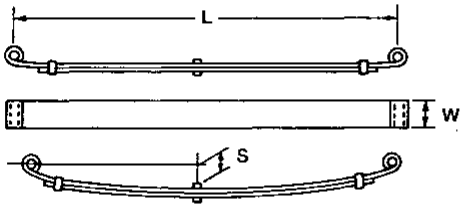
Inspection

- Check stabilizer bar and stabilizer connecting rod for deformation or cracks. Replace if necessary.
- Check rubber bushings for deterioration or cracks. Replace if necessary.
- Check ball joint can rotate in all directions. If movement is not smooth and free, replace stabilizer connecting rod.
- Check ball joint dust boot for damage. Replace stabilizer connecting rod if necessary.
- Use care not to damage ball joint dust boot.

General Specifications

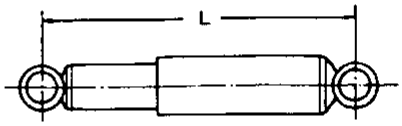
LEAF SPRING AND SHOCK ABSORBER

Suspension type		Standard suspension	Handling suspension (option)
Leaf spring			
Spring length*1 x width (L x W)	mm (in)	1,320 x 88.9 (51.97 x 3.500)	
Spring thickness (number of leaves)	mm (in)	Tapered leaf profile (2 Leaves)	
Free camber*2 "S"	mm (in)	183.0 (7.20)	194.0 (7.64)
Spring constant	N/mm (kg/mm, lb/in)	30.4 (3.1, 174)	27.5 (2.8, 157)
Shock absorber			
Shock absorber type		Non-adjustable (Twin tube type)	
Maximum length "L"	mm (in)	462.0 (18.19)	
Damping force [at 0.3 m (1.0 ft)/sec.]	N (kg, lb)		
Expansion		1,010 - 1,363 (103 - 139, 227 - 306)	1,108 - 1,481 (113 - 151, 249 - 333)
Compression		382 - 579 (39 - 59, 86 - 130)	402 - 598 (41 - 61, 90 - 135)



*1 Spring length is measured when main leaf is flat

*2 Free camber is measured when spring is unloaded



ARA028

STABILIZER BAR

Suspension type		Handling suspension (option)
Stabilizer diameter	mm (in)	20 (0.79) (Solid)
Identification color		White

Inspection and Adjustment

WHEEL ALIGNMENT (Unladen*)

Applied model		All
Camber	degree	0° ± 15′
Toe-in	mm (in)	
A – B		0 ± 4.0 (0 ± 0.157)

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

WHEEL BEARING

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)	196 - 284 (20 - 29, 145 - 210)