

# REAR AXLE & REAR SUSPENSION

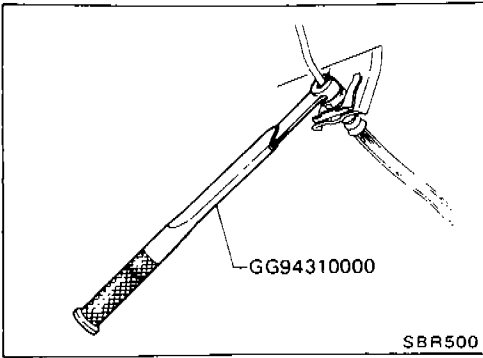
## SECTION **RA**

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**RA**

## PRECAUTIONS AND PREPARATION



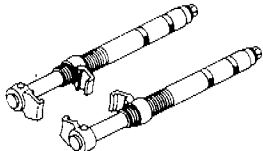
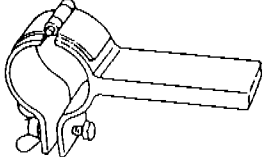
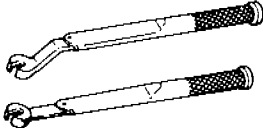
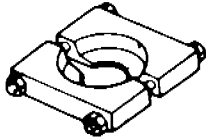
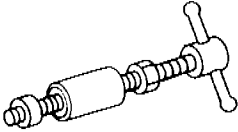
### Precautions

- 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 Tool when removing or installing brake tubes.
- When removing each suspension part, check wheel alignment and adjust if necessary.
- Do not jack up at the lower arm.

### Preparation

#### SPECIAL SERVICE TOOLS

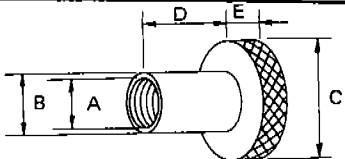
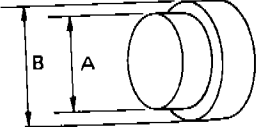
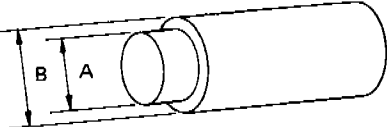
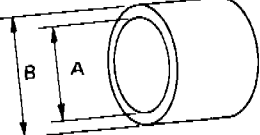
\*: Special tool or commercial equivalent

Tool number Tool name	Description	
HT71780000* Spring compressor		Removing and installing coil spring
ST35652000* Strut attachment		Fixing strut assembly
GG94310000* Flare nut torque wrench		Removing and installing brake piping
ST30031000* Bearing puller		Removing inner race of wheel bearing
ST38280000 Arm bushing remover		Removing and installing bushing of rear axle housing

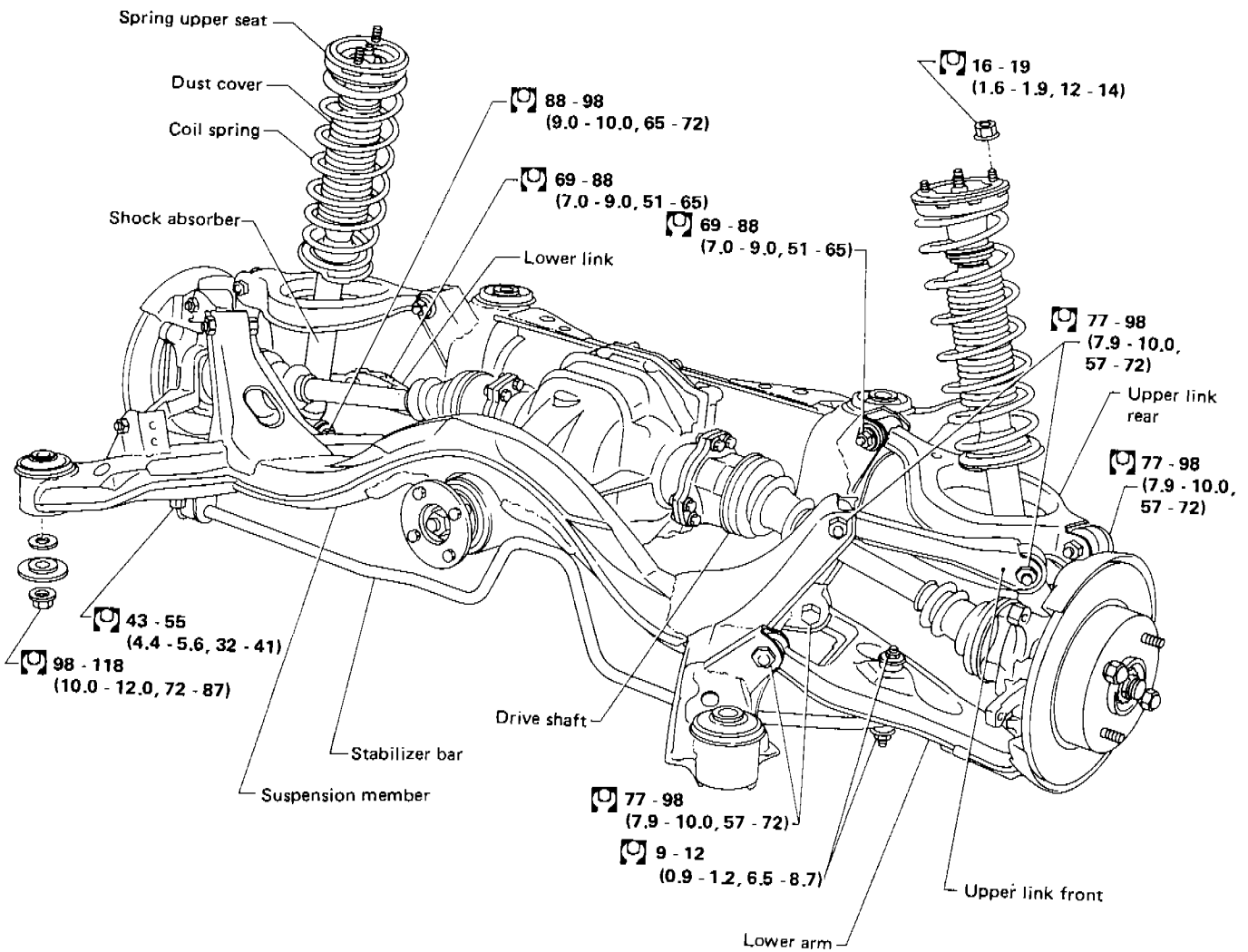
# PRECAUTIONS AND PREPARATION

## Preparation (Cont'd)

### COMMERCIAL SERVICE TOOLS


Tool name	Description
Attachment Wheel alignment	 <p style="text-align: right;">Measure rear wheel alignment</p> <p>A: Screw M24 x 1.5            B: 35 (1.38) dia.            C: 65 (2.56) dia.            D: 56 (2.20)            E: 12 (0.47)      Unit: mm (in)</p>
Rear wheel hub drift	 <p style="text-align: right;">Installing wheel bearing</p> <p>A: 41 mm (1.61 in) dia.            B: 49 mm (1.93 in) dia.</p>
Wheel bearing drift	 <p style="text-align: right;">Removing rear wheel hub</p> <p>A: 26 mm (1.02 in) dia.            B: 40 mm (1.57 in) dia.</p>
Rear drive shaft plug seal drift	 <p style="text-align: right;">Installing rear drive shaft plug seal</p> <p>A: 67 mm (2.64 in) dia.            B: 85 mm (3.35 in) dia.</p>

# REAR AXLE AND REAR SUSPENSION



Final tightening for rubber parts requires to 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.

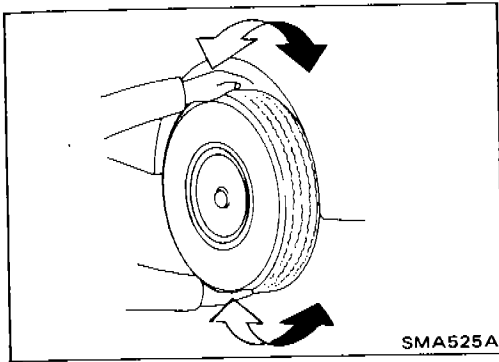
 : N·m (kg·m, ft·lb)

SRA093A

### Rear Axle and Rear Suspension Parts

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

(1) Shake each rear wheel.



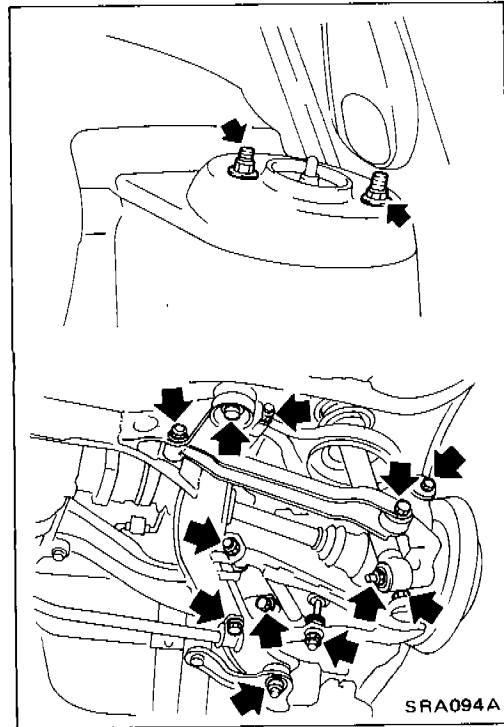
(2) Retighten all nuts and bolts to the specified torque.

**Tightening torque:**

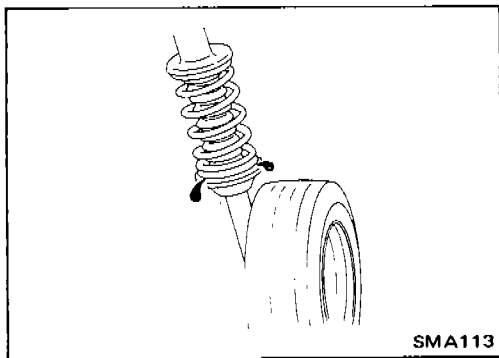
**Refer to pages RA-4, 19.**

(3) Make sure that cotter pin is inserted.

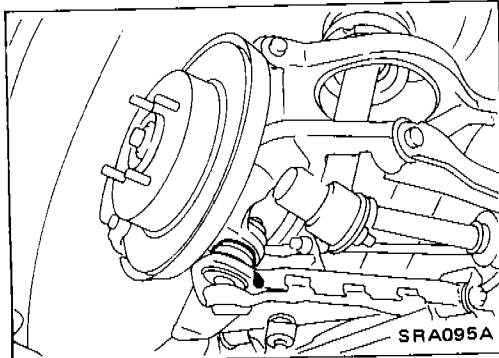
(4) Check rear axle and rear suspension parts for wear, cracks or other damage.

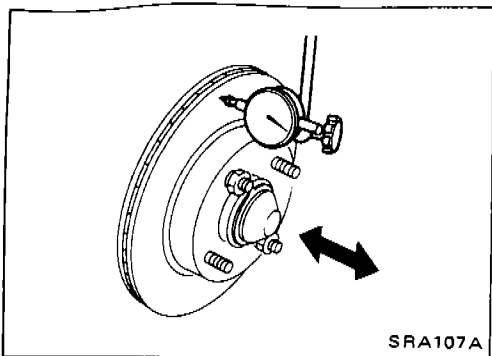


(5) Check shock absorber for oil leakage or other damage.



- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.



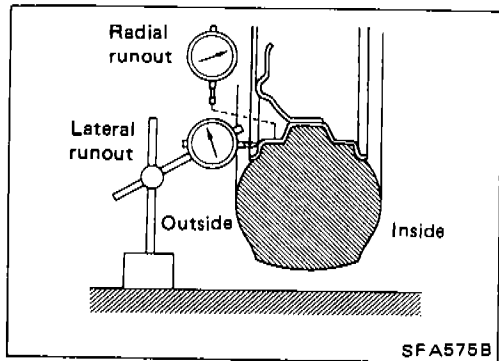


### Rear Wheel Bearing

- Check tightening torque of wheel bearing lock nut.  
 $\square$ : 235 - 314 N·m  
 (24 - 32 kg-m, 174 - 231 ft-lb)
- Check that wheel bearings operates smoothly.
- Check axial end play.

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

If axial end play is not within specification or wheel bearing does not turn smoothly, replace wheel bearing assembly. Refer to REAR AXLE — Wheel Hub and Axle Housing.



### Rear Wheel Alignment

Before checking rear wheel alignment, be sure to make a preliminary inspection.

#### PRELIMINARY INSPECTION

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

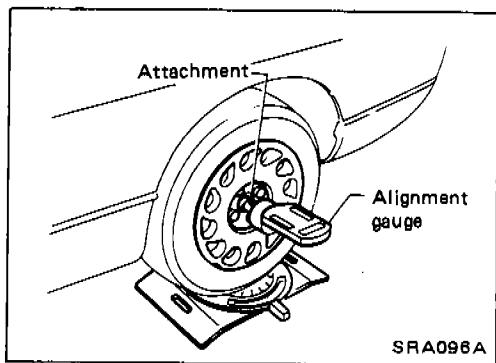
- Check tires for wear and for improper inflation.
- Check rear wheel bearings for looseness.
- Check wheel runout.

**Refer to S.D.S.**

- Check that rear shock absorber works properly.
- Check rear axle and rear suspension parts for looseness.
- Check vehicle posture (Unladen).

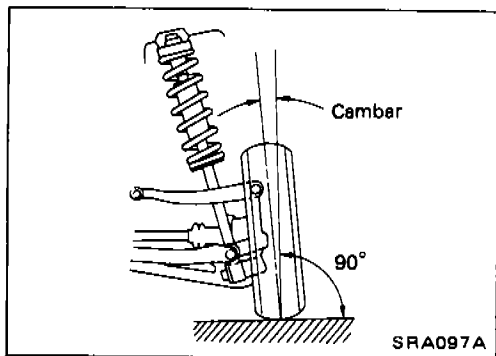
"Unladen":

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



### CAMBER

- Measure camber of both right and left wheels with a suitable alignment gauge and adjust in accordance with the following procedures.



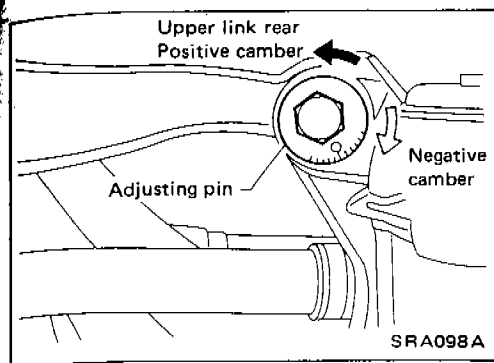
**Camber:**  
 $-1^{\circ}40'$  to  $-0^{\circ}40'$

## CHECK AND ADJUSTMENT — On-vehicle

### Rear Wheel Alignment (Cont'd)

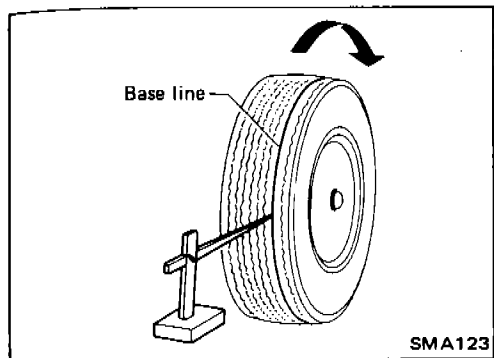
If camber is not within specification, adjust by turning the adjusting pin.

- (1) Turn the adjusting pin to adjust.  
**Camber changes about 5' with each graduation of the adjusting pin.**
- (2) Tighten to the specified torque.  
☐: 69 - 88 N·m  
(7.0 - 9.0 kg-m, 51 - 65 ft-lb)

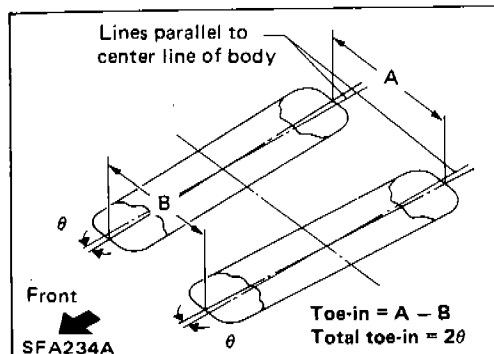


### TOE-IN

1. Draw a base line across the tread.  
**After lowering rear of vehicle, move it up and down to eliminate friction.**



2. Measure toe-in.  
**Measure distance "A" and "B" at the same height as hub center.**

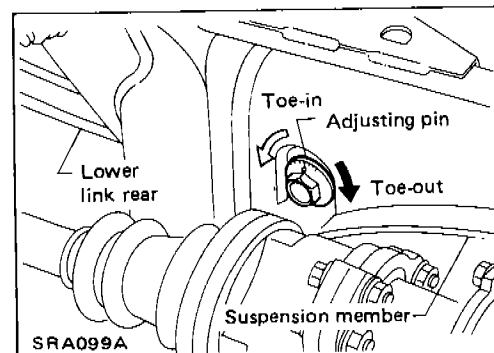


Toe-in:

$$A - B$$
$$0 - 5 \text{ mm (0 - 0.20 in)}$$
$$2\theta \text{ (Total toe-in)}$$
$$0' - 28'$$

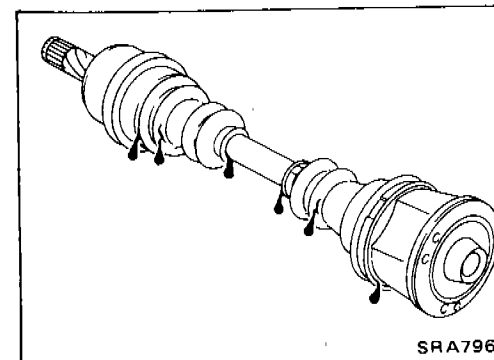
3. Adjust toe-in by turning adjusting pins.  
**Toe changes about 1.5 mm (0.059 in) [One side] with each graduation of the adjusting pin.**
4. Tighten to the specified torque.

☐: 69 - 88 N·m  
(7.0 - 9.0 kg-m, 51 - 65 ft-lb)



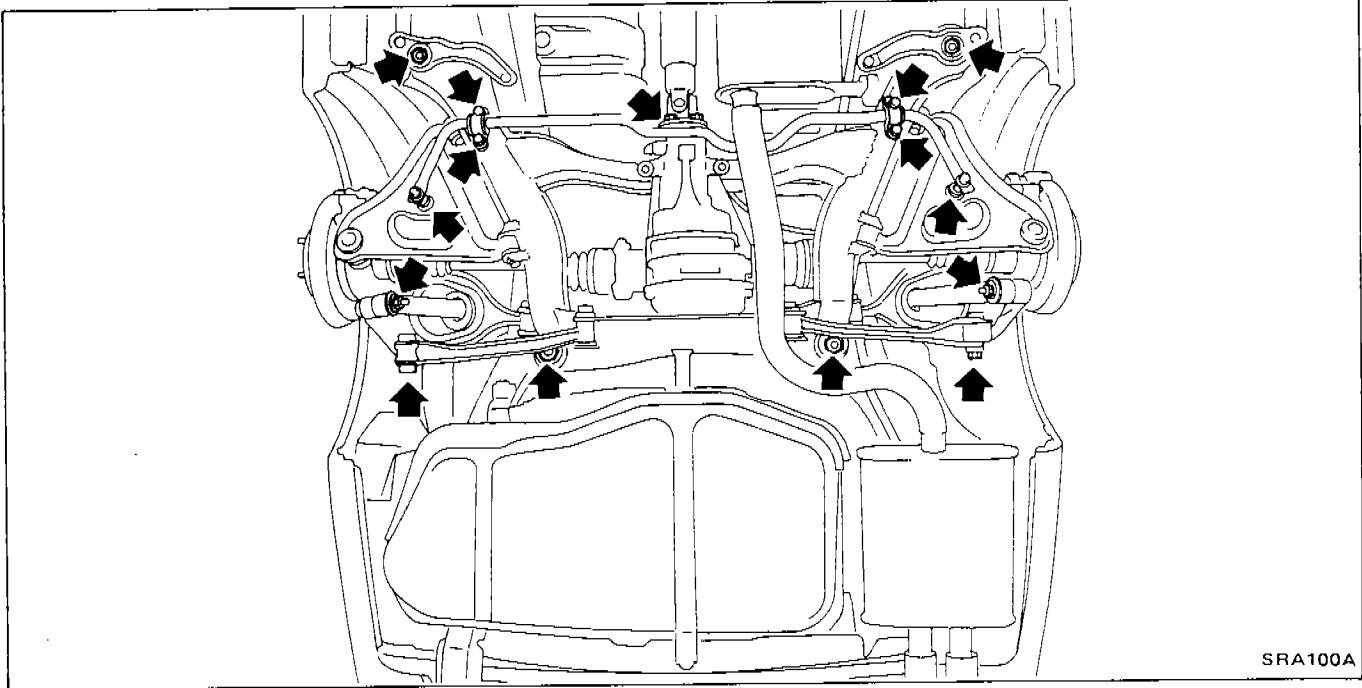
### Drive Shaft

Check boot and drive shaft for cracks, wear, damage or grease leakage.



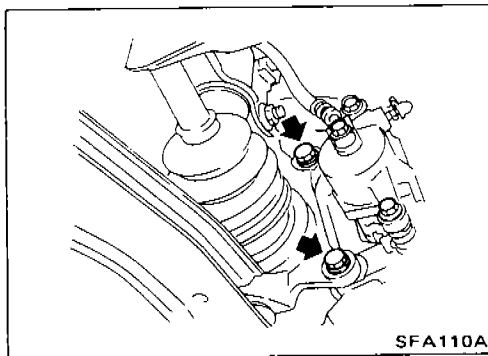
# REAR AXLE AND REAR SUSPENSION ASSEMBLY

## Removal and Installation



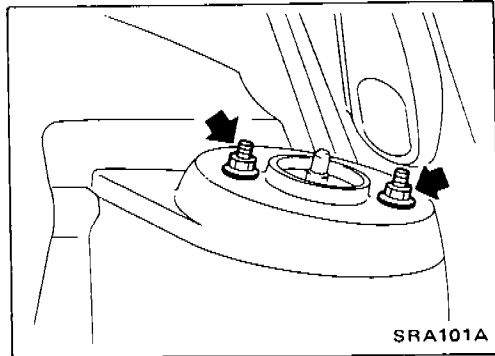
SRA100A

- Remove exhaust tube.
- Disconnect propeller shaft rear end.



SFA110A

- Remove brake caliper assembly.  
**Brake hose need not be disconnected from brake caliper.**  
**Be careful not to depress brake pedal, or piston will pop out.**  
**Make sure brake hose is not twisted.**

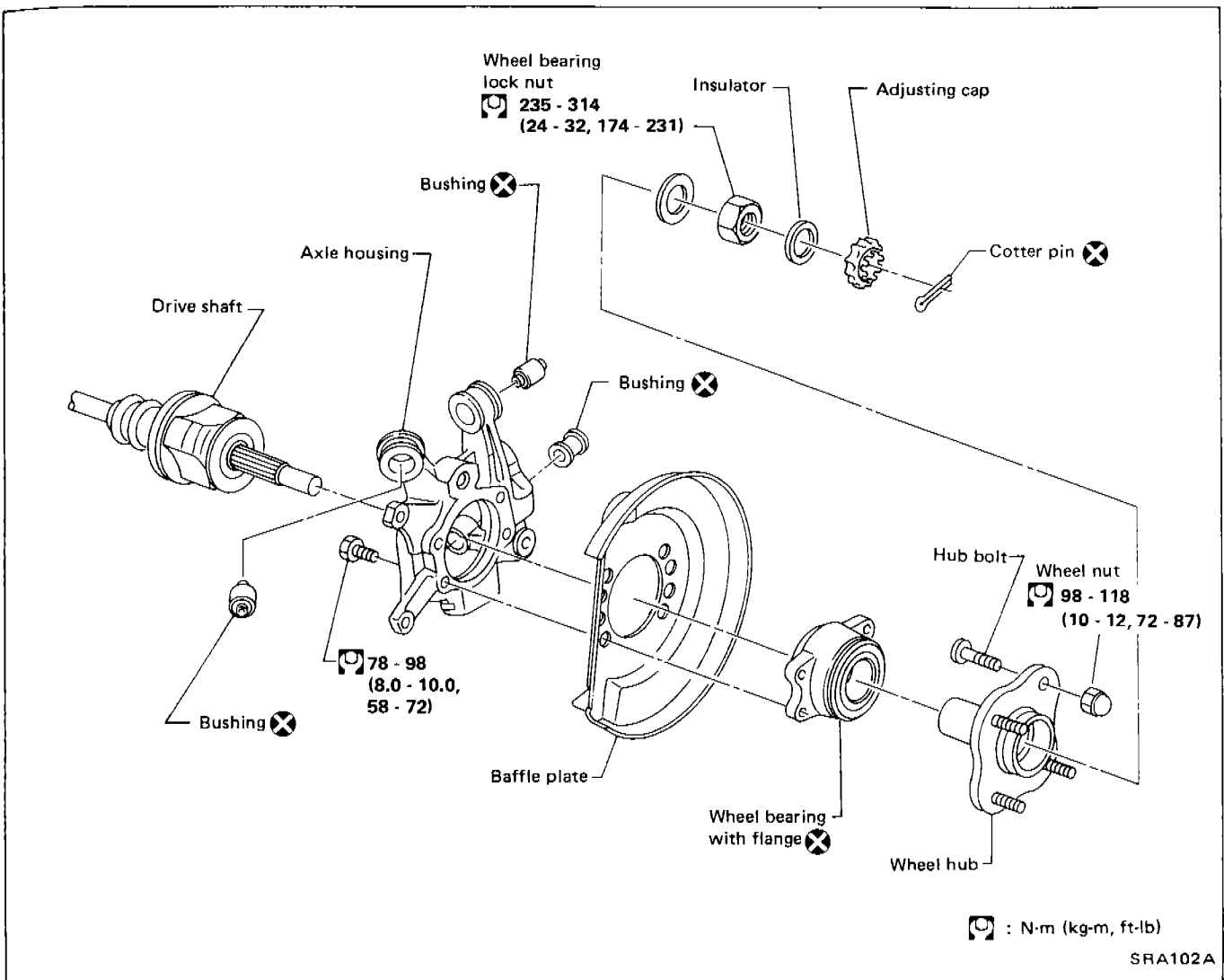


SRA101A

- Remove upper end nuts of shock absorber.  
**Do not remove piston rod lock nut.**
- Remove suspension member fixing nuts. Then draw out rear axle and rear suspension assembly.

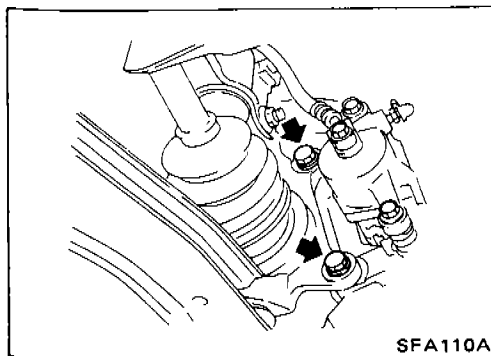


# REAR AXLE — Wheel Hub and Axle Housing



## Removal

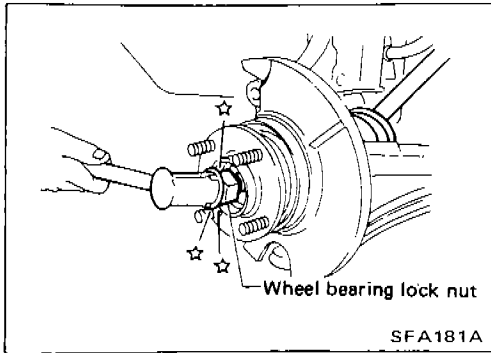
- Remove wheel bearing lock nut.



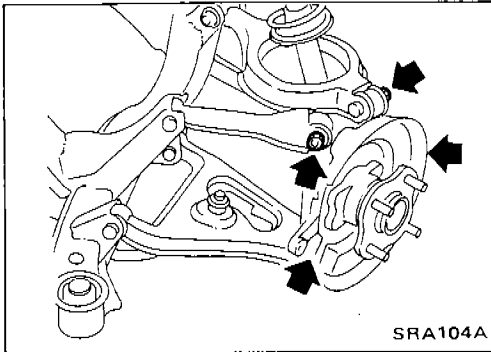
- Remove brake caliper assembly and rotor. Brake hose need not be disconnected from brake caliper. Be careful not to depress brake pedal, or piston will pop out. Make sure brake hose is not twisted.

## REAR AXLE — Wheel Hub and Axle Housing

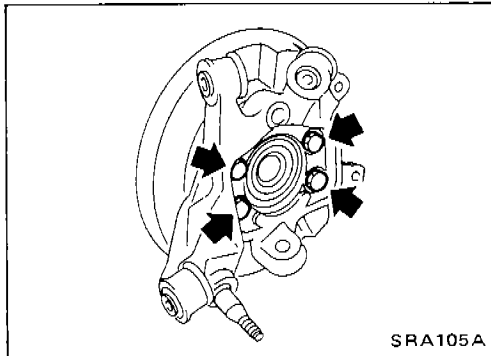
### Removal (Cont'd)



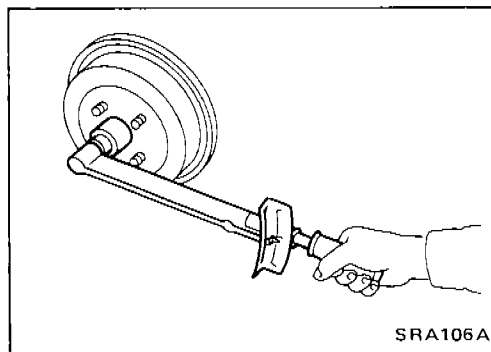
- Separate drive shaft from axle housing by slightly tapping it. When removing drive shaft, cover boots with waste cloth to prevent them from being damaged.



- Remove axle housing.

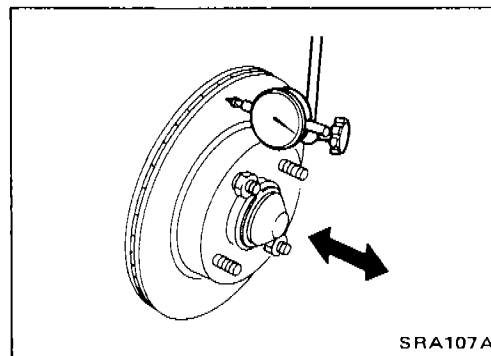


- Remove wheel bearing with flange, and wheel hub from axle housing.



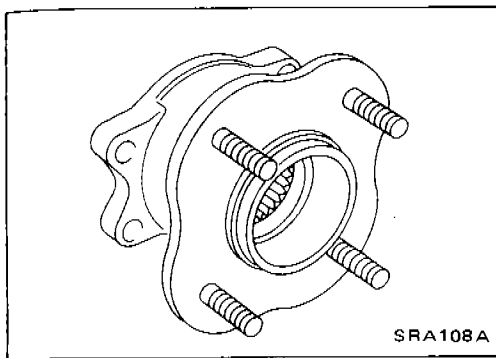
### Installation

- Install axle housing with wheel hub.
- Tighten wheel bearing lock nut.  
□: 235 - 314 N·m  
(24 - 32 kg-m, 174 - 231 ft-lb)



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

## REAR AXLE — Wheel Hub and Axle Housing



### Disassembly

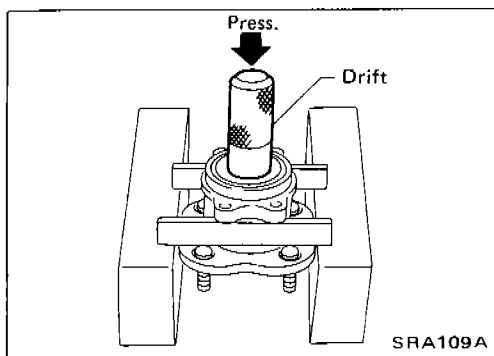
#### CAUTION:

Wheel bearing with flange usually does not require maintenance. If any of the following symptoms are noted, replace wheel bearing assembly (including flange, and inner and outer seals).

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

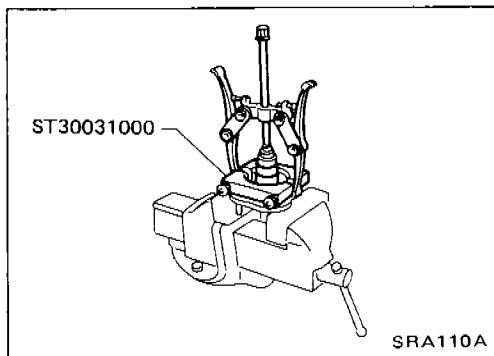
### WHEEL HUB

- Remove wheel bearing (with flange) and wheel hub as one unit from axle housing before disassembling.



### WHEEL BEARING

- Using a press and drift as shown in figure at left, press wheel bearing out.
- Discard old wheel bearing assembly. Replace with a new wheel assembly.



- Remove inner race from hub using a bearing replacer/puller.

#### CAUTION:

- Do not reuse old inner race although it is of the same brand as the bearing assembly.
- Do not replace grease seals as single parts.

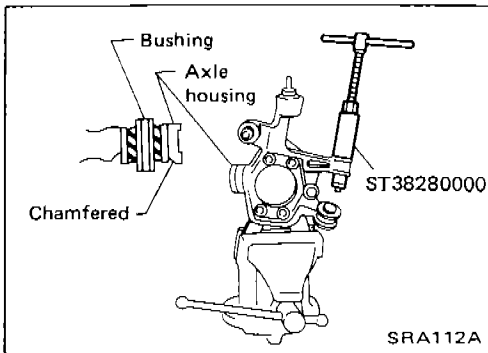
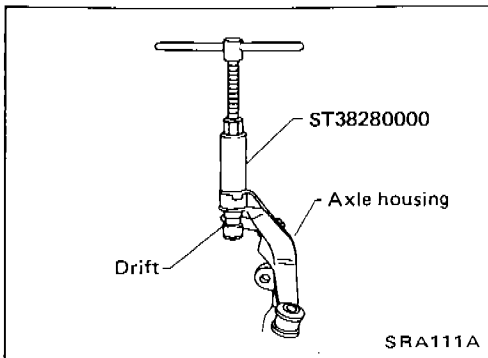
## REAR AXLE — Wheel Hub and Axle Housing

### Disassembly (Cont'd)

#### AXLE HOUSING

- Attach a drift on outer shell of bushing as shown in figure at left, remove bushing using arm bushing remover.

When placing axle housing in a vise, use wooden blocks or copper plates as pads.



- Ensure axle housing bore is free from scratches or deformities before pressing bushing into it.
- Attach bushing to chamfered bore end of axle housing and press it until it is flush with end face of axle housing.

### Inspection

#### WHEEL HUB AND AXLE HOUSING

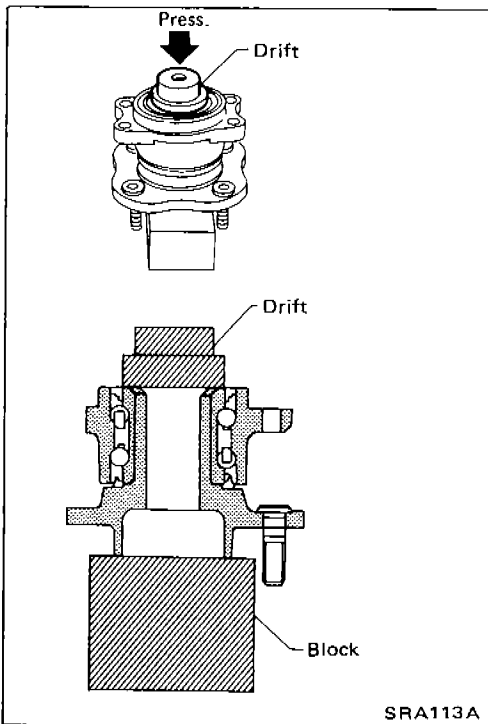
- Check wheel hub and axle housing for cracks by using a magnetic exploration or dyeing test.
- Check wheel bearing for damage, seizure, rust or rough operation.
- Check rubber bushing for wear or other damage.

Replace if necessary.

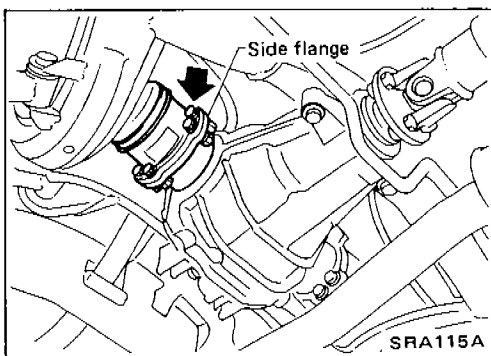
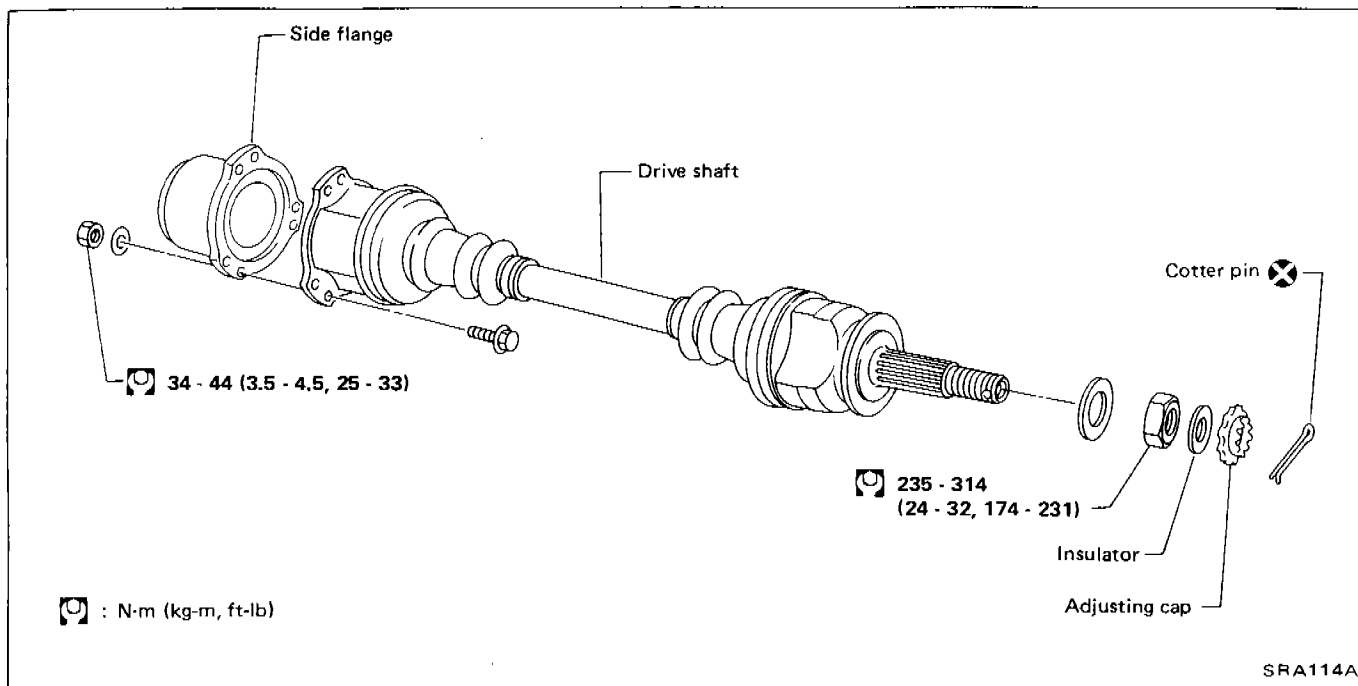
### Assembly

- Place hub on a block. Attach a drift to inner race of wheel bearing and press it into hub as shown in figure at left.

Be careful not to damage grease seal.



## REAR AXLE — Drive Shaft



### Removal

When removing drive shaft, cover boots with waste cloth to prevent damage to them.

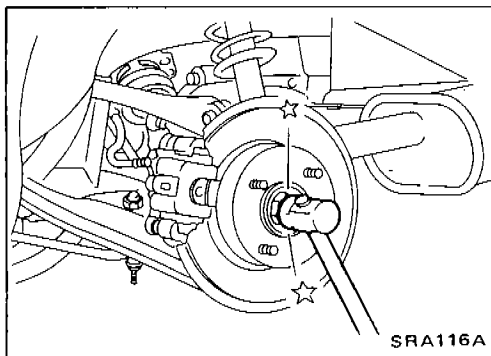
### FINAL DRIVE SIDE

- Remove side flange mounting bolt and separate shaft.

### WHEEL SIDE

- Remove drive shaft by lightly tapping it with a copper hammer.

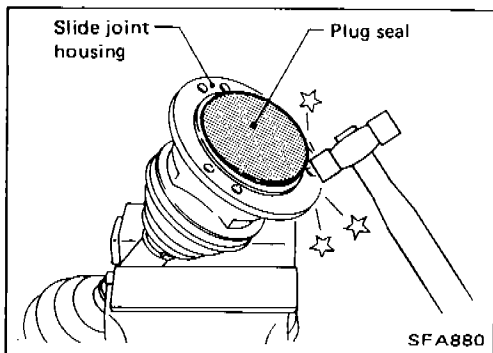
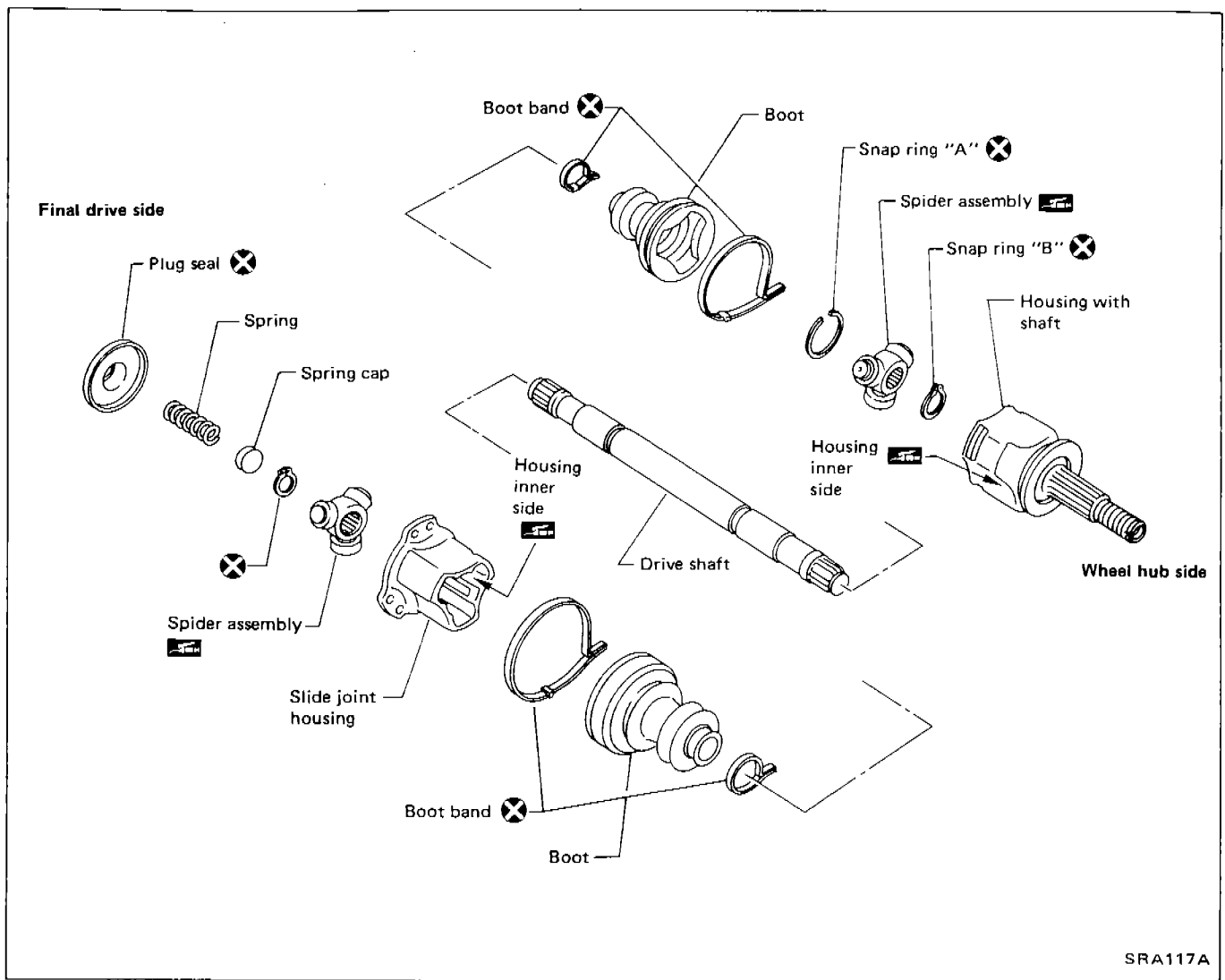
To avoid damaging threads of drive shaft, install a nut while removing drive shaft.



### Installation

- Insert drive shaft from wheel hub and temporarily tighten wheel bearing lock nut.
- Tighten side flange mounting bolts to specified torque.
- Tighten wheel bearing lock nut to specified torque.

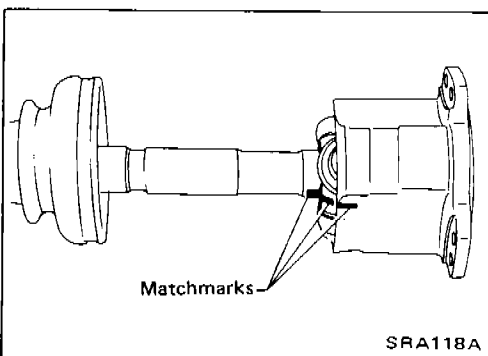
# REAR AXLE — Drive Shaft



## Disassembly

### FINAL DRIVE SIDE

1. Remove plug seal from slide joint housing by lightly tapping around slide joint housing.



2. Remove boot bands.
3. Put matchmarks on slide joint housing and drive shaft before separating joint assembly.
4. Put matchmarks on spider assembly and drive shaft.

## REAR AXLE — Drive Shaft

### Disassembly (Cont'd)

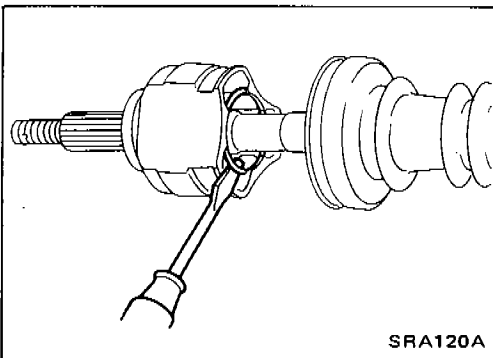
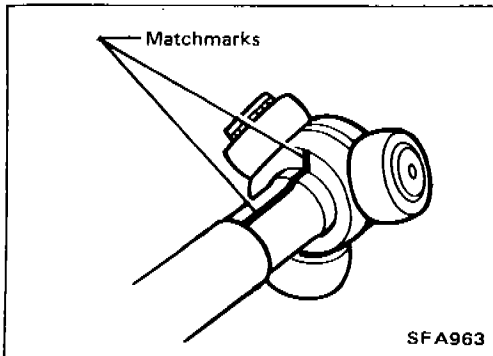
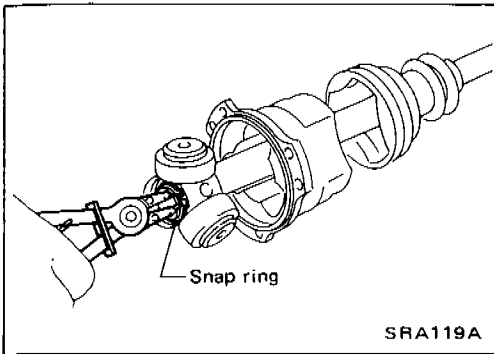
5. Pry off snap ring, then remove spider assembly.

**CAUTION:**

**Do not disassemble spider assembly.**

6. Draw out slide joint housing.
7. Draw out boot.

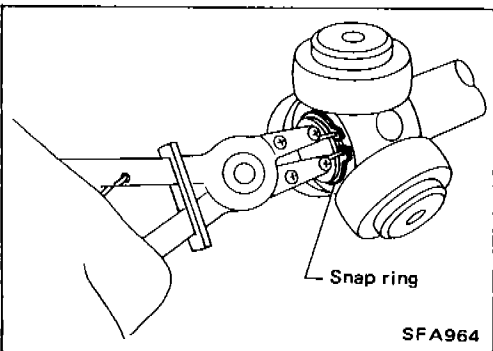
**Cover drive shaft serration with tape to prevent damage to the boot.**



### WHEEL SIDE

1. Remove boot bands.
2. Put matchmarks on housing together with shaft and drive shaft before separating joint assembly.
3. Put matchmarks on spider assembly and drive shaft.

4. Pry off snap ring "A" with a screwdriver, and pull out slide joint housing.



5. Pry off snap ring "B", then remove spider assembly.

**CAUTION:**

**Do not disassemble spider assembly.**

6. Draw out boot.

**Cover drive shaft serration with tape to prevent damage to the boot.**

### Inspection

Thoroughly clean all parts in cleaning solvent, and dry with compressed air. Check parts for deformation or other damage.

#### DRIVE SHAFT

Replace drive shaft if it is twisted or cracked.

#### BOOT

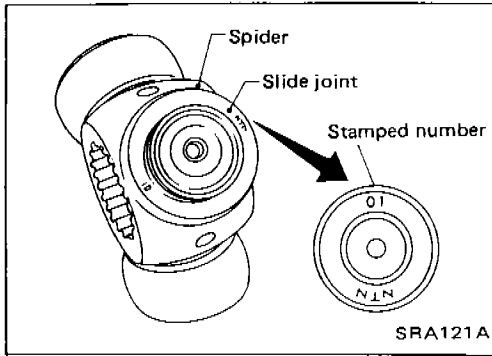
Check boot for fatigue, cracks, or wear. Replace boot with new boot bands.

## REAR AXLE — Drive Shaft

### Inspection (Cont'd)

#### JOINT ASSEMBLY

- Check spider assembly for bearing, roller and washer damage. Replace spider assembly if necessary.
- Check housing for any damage. Replace housing set and spider assembly, if necessary.



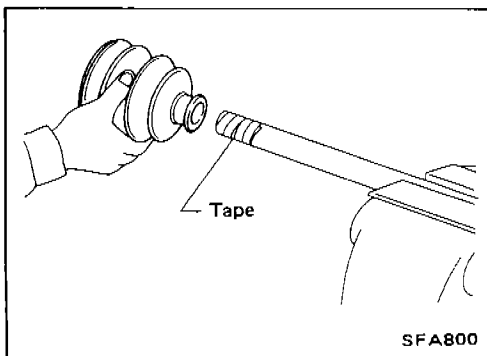
- When replacing only spider assembly, select a new spider assembly from among those listed in table below. Ensure the number stamped on sliding joint is the same as that stamped on new part.

**Housing alone cannot be replaced. It must be replaced together with spider assembly.**

Stamped number	Part No.
00	39720 10V10
01	39720 10V11
02	39720 10V12

#### Assembly

- After drive shaft has been assembled, make sure it moves smoothly over its entire range without binding.
- Use Nissan Genuine Grease or equivalent after every overhaul.



#### FINAL DRIVE SIDE

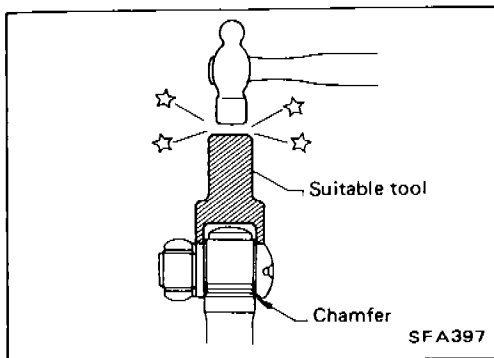
1. Install new small boot band, boot and slide joint housing to drive shaft.

**Cover drive shaft serration with tape to prevent damage to boot during installation.**

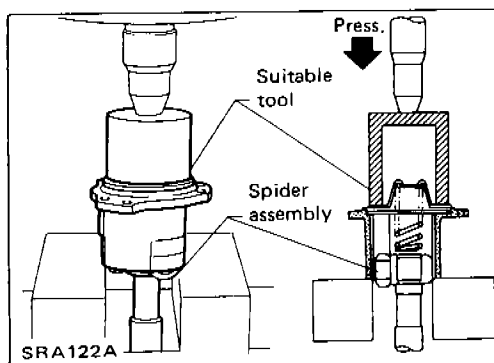


## REAR AXLE — Drive Shaft

### Assembly (Cont'd)



2. Install spider assembly securely, making sure marks are properly aligned.
  - Press-fit with spider assembly serration chamfer facing shaft.
3. Install new snap ring.

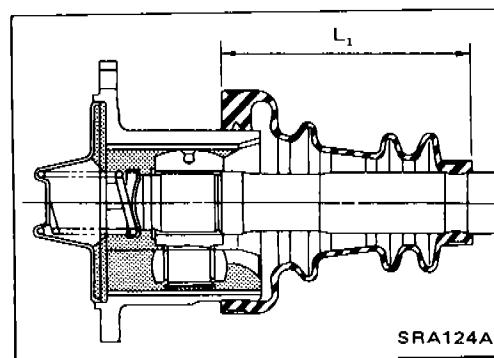
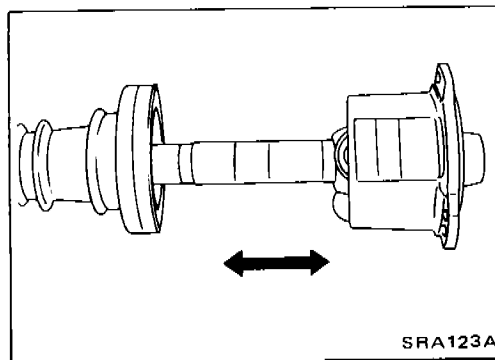


4. Install coil spring, spring cap and new plug seal to slide joint housing. Press plug seal.

Apply sealant to mating surface of plug seal.

#### CAUTION:

- a. When pressing plug seal into place, hold it horizontal so that spring inside it does not tilt or fall down.
- b. Move shaft in axial direction to ensure that spring is installed properly. If shaft drags or if spring is not installed properly, remove plug seal and install a new one. Discard plug seal after removal.



5. Pack drive shaft with specified amount of grease.

#### Specified amount of grease:

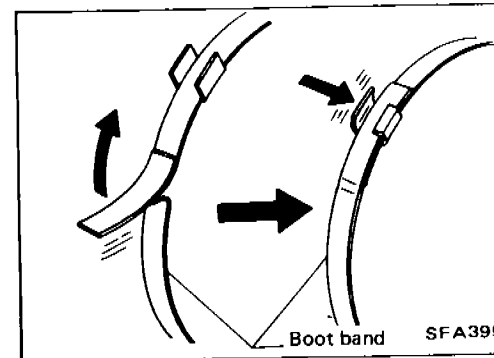
185 - 195 g (6.52 - 6.88 oz)

6. Set boot so that it does not swell and deform when its length is " $L_1$ ".

#### Length " $L_1$ ":

110.5 - 112.5 mm (4.35 - 4.43 in)

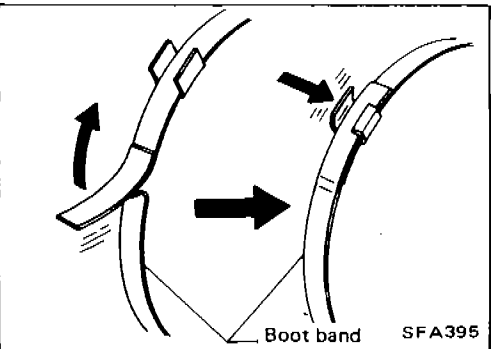
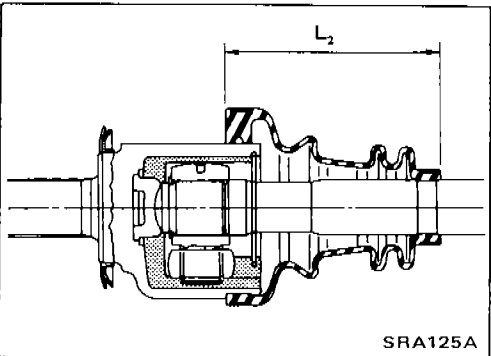
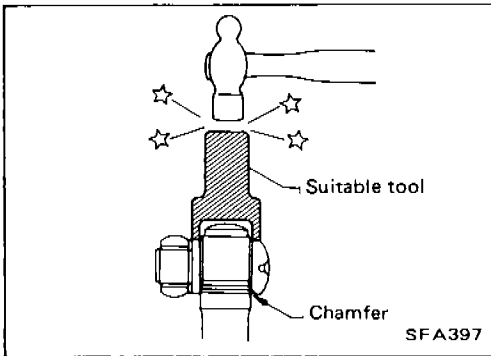
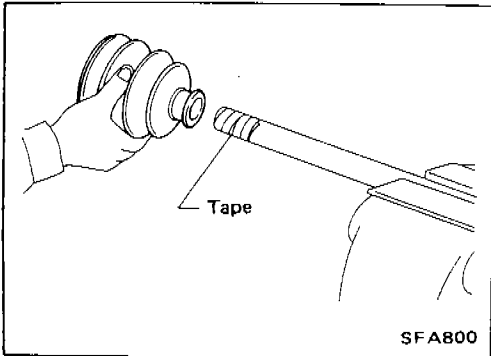
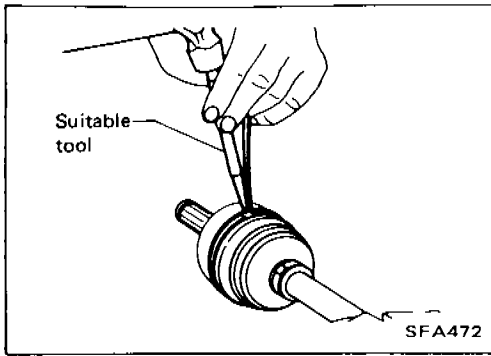
Make sure that boot is properly installed on the drive shaft groove.



## REAR AXLE — Drive Shaft

### Assembly (Cont'd)

7. Lock new larger boot band securely with a suitable tool, then lock new smaller boot band.



### WHEEL SIDE

1. Install new small boot band and boot on drive shaft.  
**Cover drive shaft serration with tape to prevent damage to boot during installation.**

2. Install spider assembly securely, making sure marks are properly aligned.
  - Press-fit with spider assembly serration chamfer facing shaft.
3. Install new snap ring.

4. Pack drive shaft with specified amount of grease.

#### Specified amount of grease:

145 - 155 g (5.11 - 5.47 oz)

5. Install slide joint housing, then install new snap ring "A".
6. Set boot so that it does not swell and deform when its length is "L<sub>2</sub>".

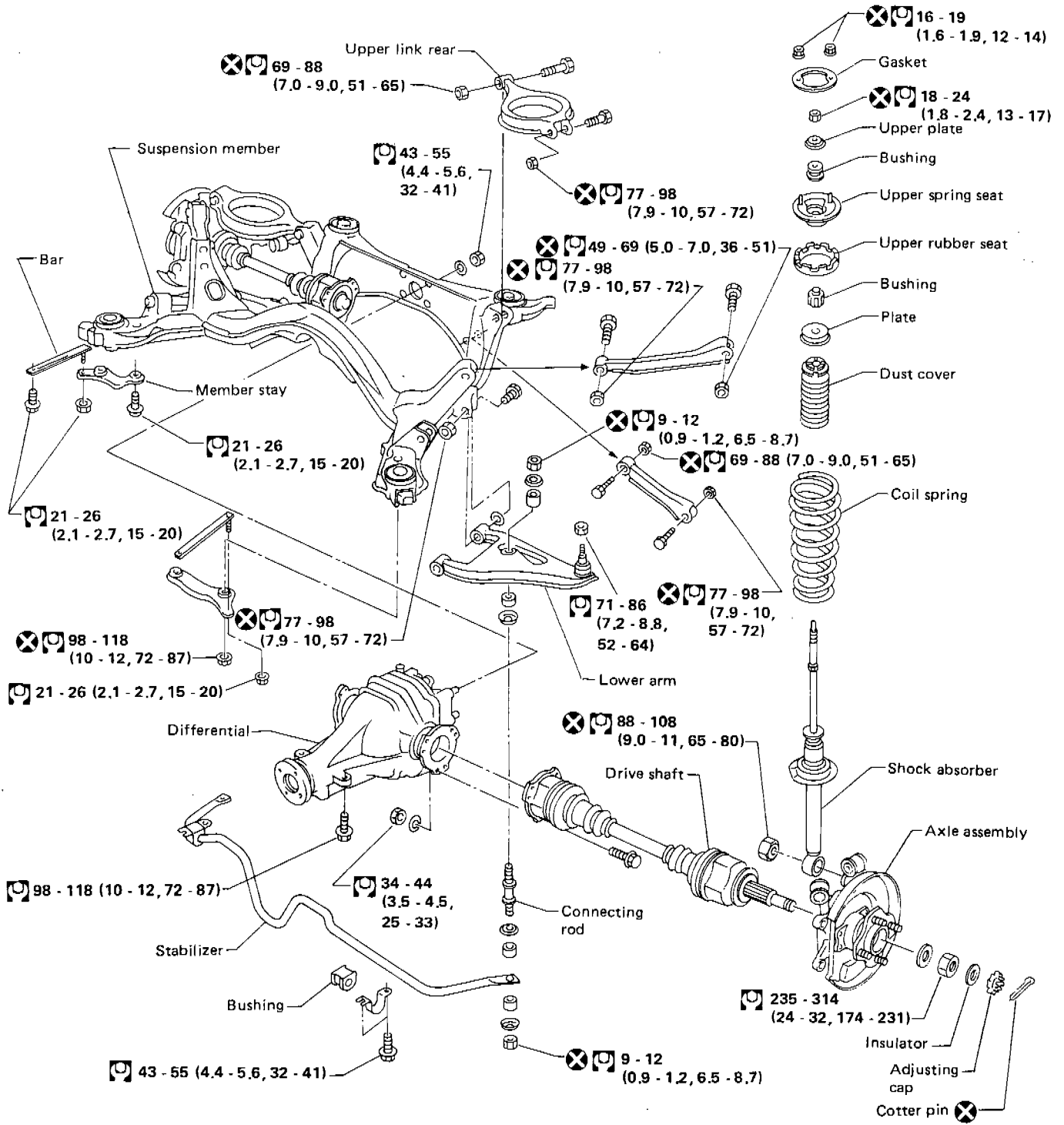
#### Length "L<sub>2</sub>":

110.5 - 112.5 mm (4.35 - 4.43 in)

**Make sure that boot is properly installed on the drive shaft groove.**

7. Lock new larger and smaller boot bands securely with a suitable tool.

# REAR SUSPENSION



**CAUTION:**  
 Do not jack up at lower arm.  
 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.

: N.m (kg-m, ft-lb)

SRA144A

## Removal

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

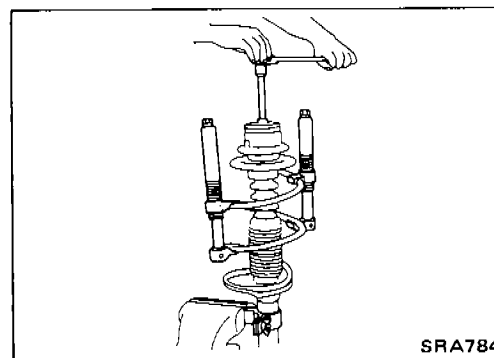
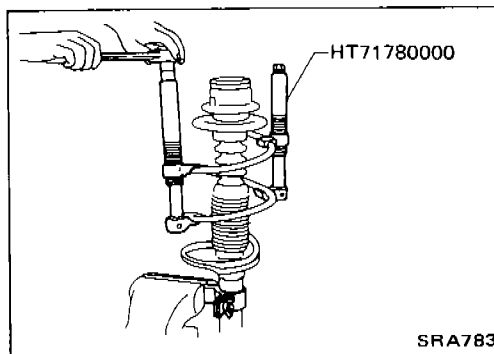
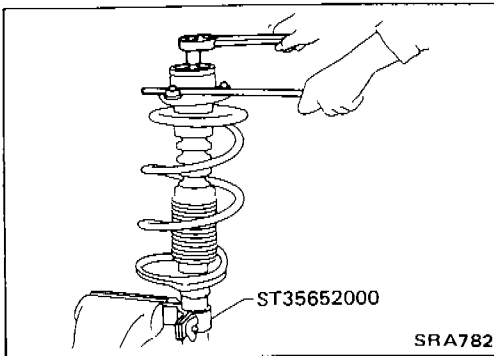
## Disassembly

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

- Do not remove piston rod lock nut.

2. Compress spring with Tool so that the strut 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 occurring on welded or gland packing portion.
- Check piston rod for cracks, deformation or other damage. Replace if necessary.

### UPPER RUBBER SEAT AND BUSHING

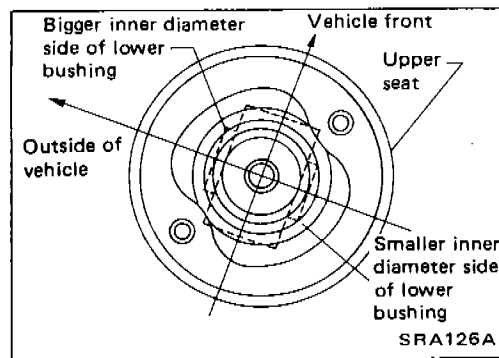
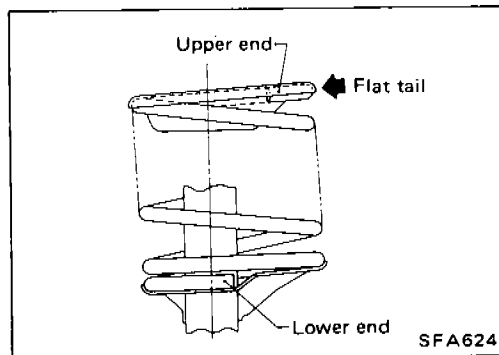
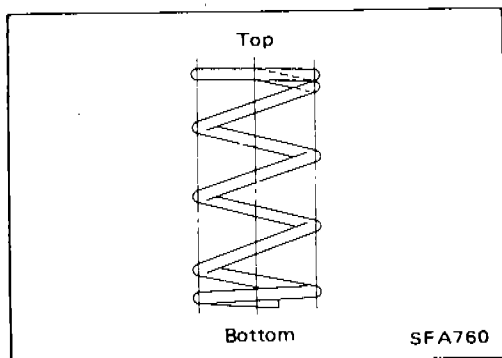
- Check rubber parts for deterioration or cracks. Replace if necessary.

## REAR SUSPENSION — Coil Spring and Shock Absorber

### Inspection (Cont'd)

#### COIL SPRING

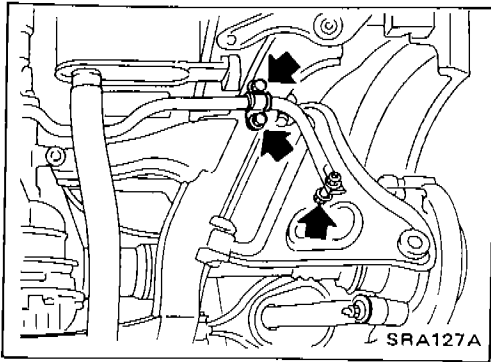
- Check for cracks, deformation or other damage. Replace if necessary.



### Assembly

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

## REAR SUSPENSION — Stabilizer Bar

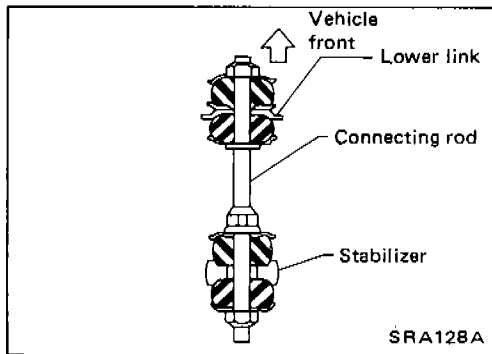


### Removal

- Remove connecting rod and clamp.

### Inspection

- Check stabilizer bar for deformation or cracks. Replace if necessary.
- Check rubber bushings for deterioration or cracks. Replace if necessary.

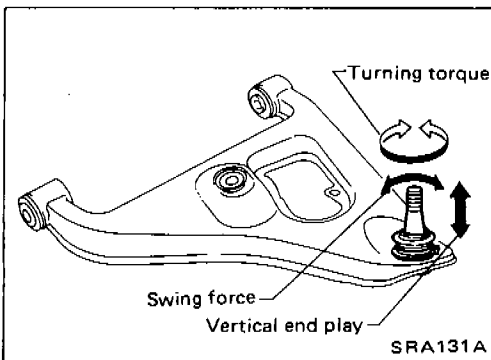
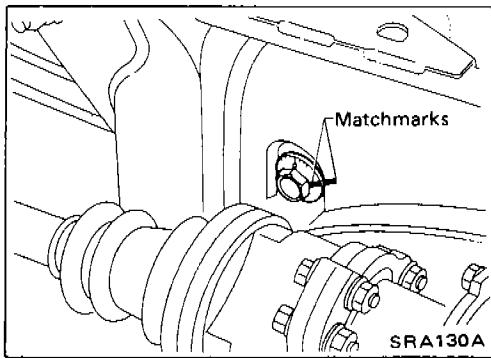
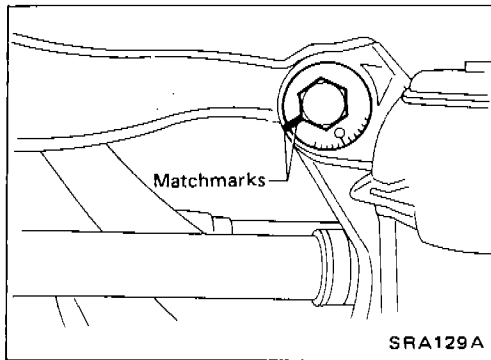


### Installation

- When installing connecting rod, make sure direction is correct (as shown at left).

## Removal and Installation

- Refer to "Removal and Installation" of REAR AXLE AND REAR SUSPENSION ASSEMBLY.



### Before removing, put matchmarks on adjusting pin.

- When installing, final tightening must be carried out at curb weight with tires on ground.
- After installation, check wheel alignment. Refer to "Rear Wheel Alignment" of CHECK AND ADJUSTMENT — On vehicle.

## Inspection

### REAR SUSPENSION MEMBER

- Replace suspension member assembly if cracked or deformed or if any part (insulator, for example) is damaged.

### UPPER AND LOWER LINKS

- Replace upper or lower link as required if cracked or deformed or if bushing is damaged.

### SUSPENSION LOWER BALL JOINT

- Measure swing force, turning torque and vertical end play in axial direction. (Use same measurement procedures as that of FA section.)
- If ball stud is worn, play in axial direction is excessive, or joint is hard to swing, replace lower arm.

Ball joint specifications	Swing force	12.7 - 90.2 N (1.3 - 9.2 kg, 2.9 - 20.3 lb)
	Turning torque	0.5 - 3.4 N·m (5 - 35 kg·cm, 4.3 - 30.4 in·lb)
	Vertical end play	0 mm (0 in)

# SERVICE DATA AND SPECIFICATIONS (S.D.S.)

## Inspection and Adjustment

### WHEEL ALIGNMENT (Unladen\*)

Camber	degree	-1° 40' to -0° 40'
Toe-in	mm (in)	0 - 5 (0 - 0.20)
	(Total) degree	0' - 28'

\* Tankful of fuel, radiator coolant and engine oil full.  
Spare tire, jack, hand tools, mats in designated position.

### WHEEL RUNOUT (Radial and lateral)

Wheel type	Radial runout	Lateral runout
Aluminum wheel	0.3 (0.012) or less	
Steel wheel	0.5 (0.020) or less	0.8 (0.031) or less

### 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)	235 - 314 (24 - 32, 174 - 231)

### LOWER BALL JOINT

Swing force (Measuring point: cotter pin hole of ball stud)	N (kg, lb)	12.7 - 90.2 (1.3 - 9.2, 2.9 - 20.3)
Turning torque	N·m (kg-cm, in-lb)	0.5 - 3.4 (5 - 35, 4.3 - 30.4)
Vertical end play	mm (in)	0 (0)



# SERVICE DATA AND SPECIFICATIONS (S.D.S.)

## General Specifications

### COIL SPRING

Wire diameter	mm (in)	11.0 (0.433)
Coil diameter	mm (in)	90 - 100 (3.54 - 3.94)
Free length	mm (in)	367.5 (14.47)
Spring constant	N/mm (kg/mm, lb/in)	19.6 (2.0, 112)
Identification color		Pink x 2

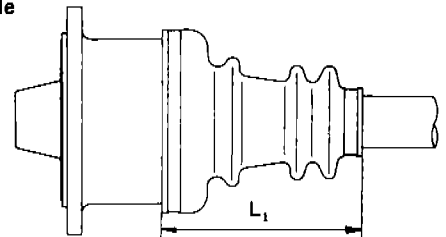
### SHOCK ABSORBER

Item	Model	Europe	Except Europe
		Piston rod diameter	mm (in)
Stroke	mm (in)	155 (6.10)	
Damping force [at 0.3 m (1.0 ft)/sec.]	N (kg, lb)		
Expansion		902 (92, 203)	696 (71, 157)
Compression		539 (55, 121)	333 (34, 75)

### DRIVE SHAFT

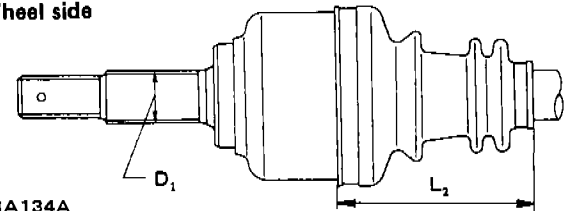
Joint type		TS82F
Final drive side		
Wheel side		TS82C
Diameter	mm (in)	
Wheel side $D_1$		30 (1.18)
Grease name		Nissan genuine grease or equivalent
Specified amount of grease	g (oz)	
Final drive side		185 - 195 (6.52 - 6.88)
Wheel side		145 - 155 (5.11 - 5.47)
Boot length	mm (in)	
Final drive side ( $L_1$ )		110.5 - 112.5 (4.35 - 4.43)
Wheel side ( $L_2$ )		

Final drive side



SRA133A

Wheel side



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### REAR STABILIZER BAR

Stabilizer diameter	mm (in)	16 (0.63)
Identification color		Pink