

FRONT AXLE & FRONT SUSPENSION

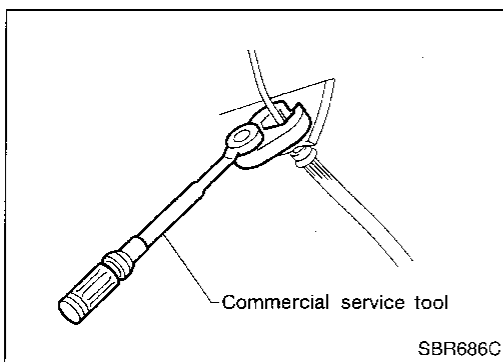
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PRECAUTIONS AND PREPARATION

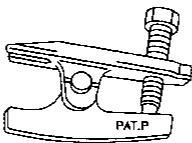
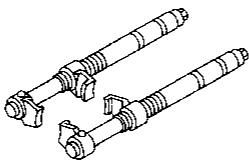
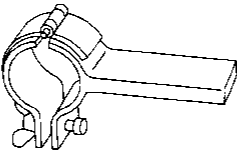
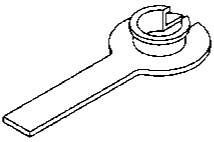


Precautions

- 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.
- Use flare nut wrench when removing or installing brake tubes.
- Always torque brake lines when installing.

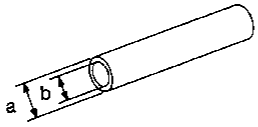
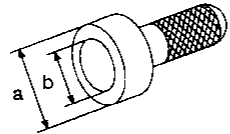
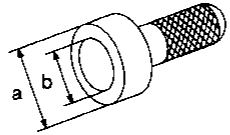
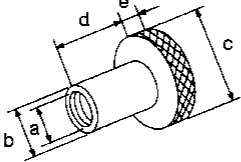
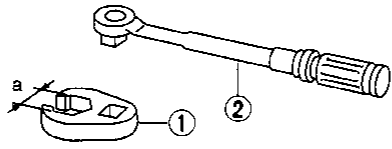
Special Service Tools

*: Special tool or commercial equivalent

| Tool number (Kent-Moore No.) Tool name | Description |
|--|--|
| HT72520000* (J25730-A) Ball joint remover |  <p style="text-align: right;">Removing tie-rod outer end and lower ball joint</p> <p>NT146</p> |
| HT71780000* (—) Spring compressor |  <p style="text-align: right;">Removing and installing coil spring</p> <p>NT144</p> |
| ST35652000* (—) Strut attachment |  <p style="text-align: right;">Fixing strut assembly</p> <p>NT145</p> |
| KV38106700* (J34296) KV38106800* (J34297) Differential side oil seal protector |  <p style="text-align: right;">Installing drive shaft</p> <p>LH: KV38106700 RH: KV38106800</p> <p>NT147</p> |

PRECAUTIONS AND PREPARATION

Commercial Service Tools

| Tool name | Description |
|--|--|
| Front wheel hub drift NT065 |  <p style="text-align: right;">Removing wheel hub</p> <p style="text-align: right;">a: 42 mm (1.65 in) dia. b: 33 mm (1.30 in) dia.</p> |
| Front wheel bearing outer race drift NT115 |  <p style="text-align: right;">Removing and installing wheel bearing outer race</p> <p style="text-align: right;">a: 76 mm (2.99 in) dia. b: 72 mm (2.83 in) dia.</p> |
| Grease seal drift NT115 |  <p style="text-align: right;">Installing outer grease seal</p> <p style="text-align: right;">a: 81 mm (3.19 in) dia. b: 76 mm (2.99 in) dia.</p> |
| Attachment Wheel alignment NT148 |  <p style="text-align: right;">Measuring wheel alignment</p> <p style="text-align: right;">a: Screw M22 x 1.5 b: 35 (1.38) dia. c: 65 (2.56) dia. d: 56 (2.20) e: 12 (0.47)</p> <p style="text-align: right;">Unit: mm (in)</p> |
| ① Flare nut crows foot ② Torque wrench NT360 |  <p style="text-align: right;">Removing and installing brake piping</p> <p style="text-align: right;">a: 10 mm (0.39 in)</p> |

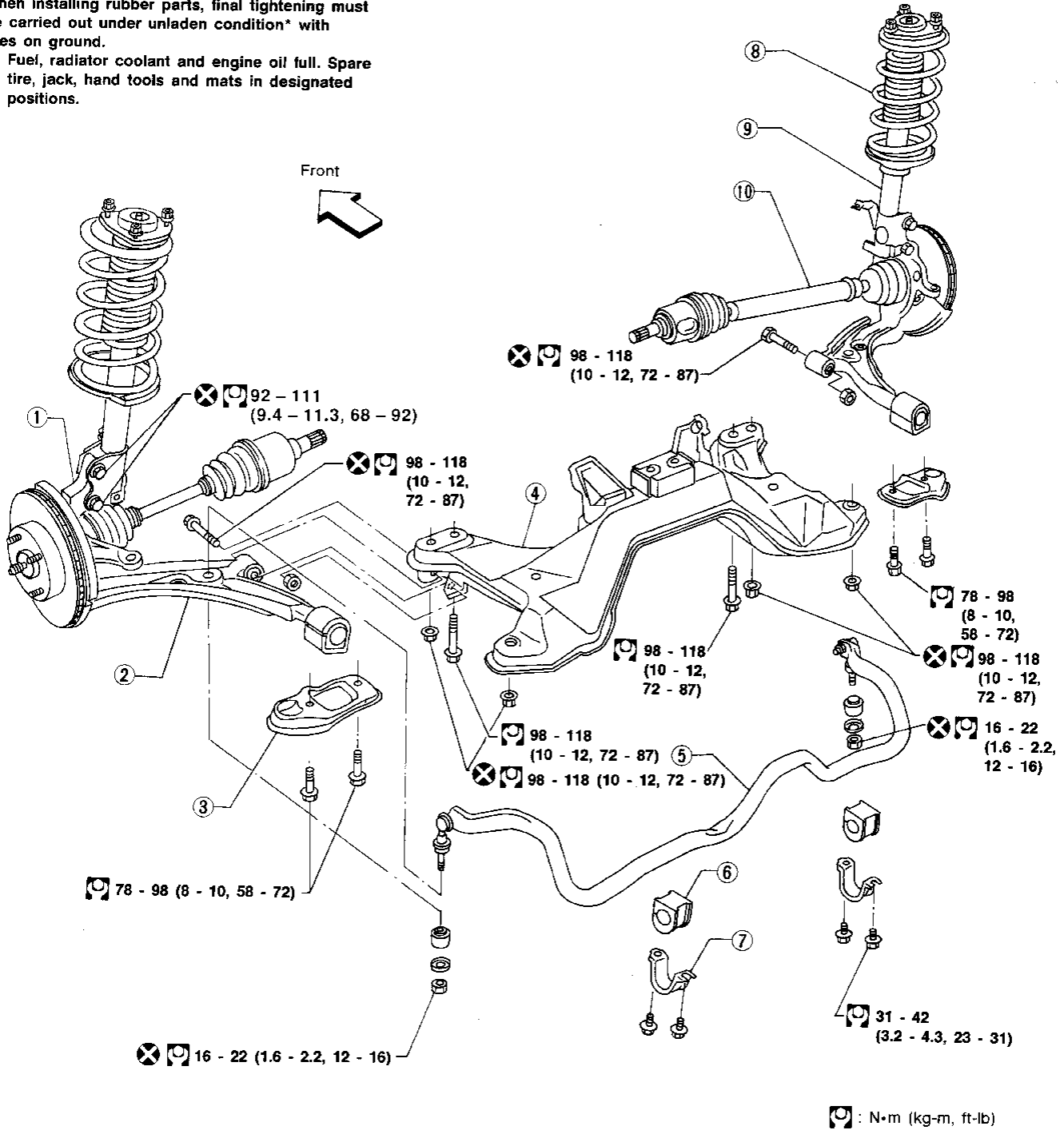
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FRONT AXLE AND FRONT SUSPENSION

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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.

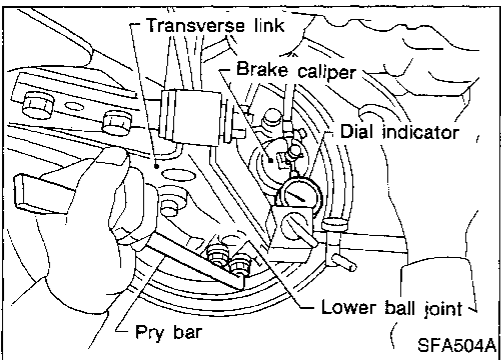
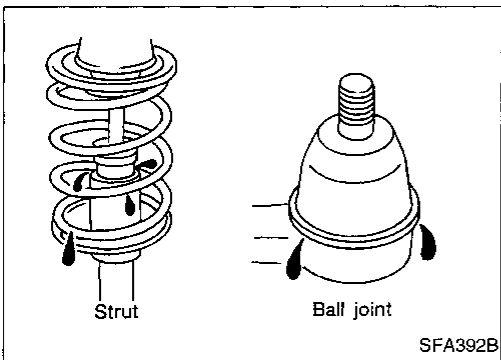
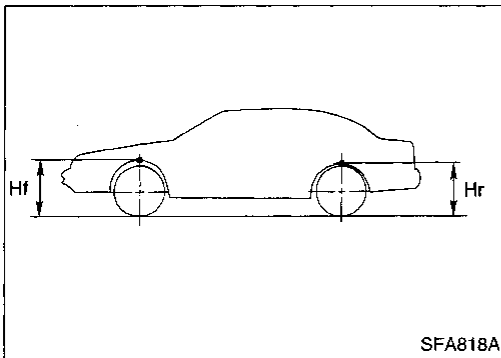
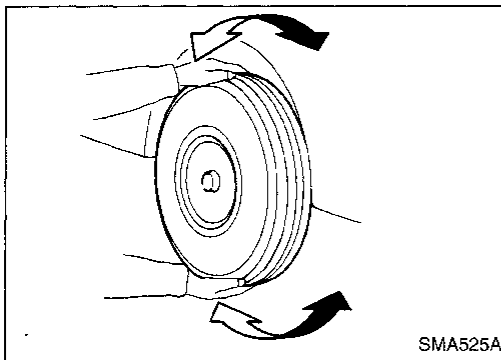


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- ① Knuckle assembly
- ② Transverse link
- ③ Compression rod clamp
- ④ Front suspension member

- ⑤ Stabilizer bar
- ⑥ Bushing
- ⑦ Bracket

- ⑧ Coil spring
- ⑨ Strut assembly
- ⑩ Drive shaft



Front Axle and Front Suspension Parts

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

- Shake each front wheel to check for excessive play.
- Make sure that cotter pin is inserted.
- Retighten all nuts and bolts to the specified torque.

: Refer to FA-24.

- Check spring height from top of wheelarch to ground using the following procedure.

a. Park vehicle on a level surface with vehicle unladen* .
* : Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

b. Check tires for proper inflation and wear (tread wear indicator must not be showing).

c. Bounce vehicle up and down several times and measure dimensions Hf and Hr. Refer to SDS, FA-30.

Spring height is not adjustable. If out of specification, check for worn springs or suspension parts.

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

If ball joint dust cover is cracked or damaged, replace transverse link.

- Check suspension ball joint end play.

a. Jack up front of vehicle and set the stands.

b. Clamp dial indicator onto transverse link and place indicator tip on lower edge of brake caliper.

c. Make sure front wheels are straight and brake pedal is depressed.

d. Place a pry bar between transverse link and inner rim of road wheel.

e. While raising and releasing pry bar, observe maximum dial indicator value.

Vertical end play:

0 mm (0 in)

If ball joint vertical end play exists, remove transverse link and recheck the ball joint. Refer to FA-27.

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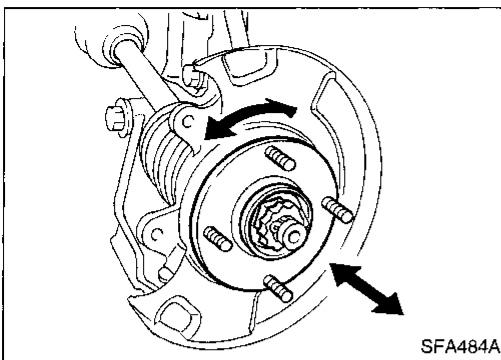
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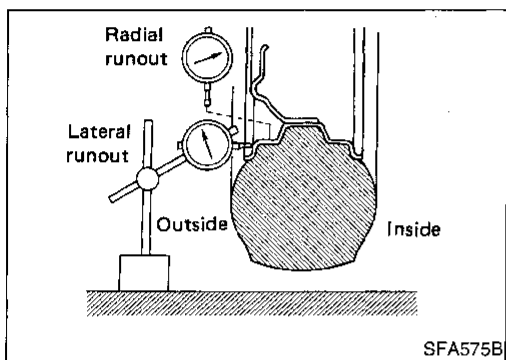
Front Wheel Bearing

- Check that wheel bearings operate 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 FA-8.



Front Wheel Alignment

Before checking front wheel alignment, be sure to make a preliminary inspection with vehicle unladen*.

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

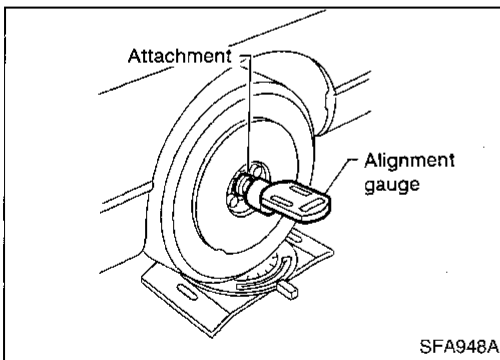
PRELIMINARY INSPECTION

1. Check tires for wear and improper inflation.
2. Check wheel runout.

Wheel runout:

Refer to SDS, FA-31.

3. Check front wheel bearings for looseness.
4. Check front suspension for looseness.
5. Check steering linkage for looseness.
6. Check that front struts work properly by using the standard bounce test.
7. Check vehicle posture (unladen).



CAMBER, CASTER AND KINGPIN INCLINATION

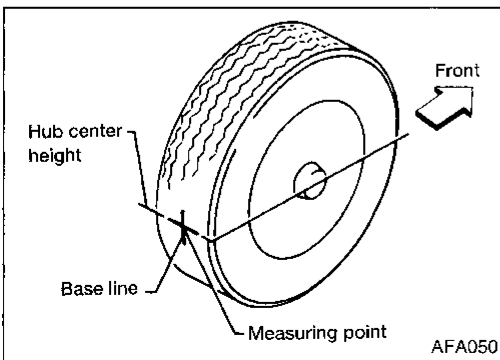
Camber, caster and kingpin inclination are preset at factory and cannot be adjusted.

1. Measure camber, caster and kingpin inclination of both right and left wheels with a suitable alignment gauge.

Camber, Caster and Kingpin inclination:

Refer to SDS, FA-31.

2. If camber, caster and kingpin inclination are not within specification, inspect front suspension parts. Replace any damaged or worn out parts.



TOE-IN

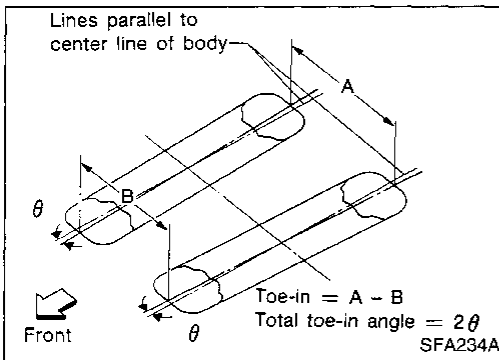
Measure toe-in using the following procedure.

WARNING:

- Always perform the following procedure on a flat surface.
 - Make sure that no person is in front of the vehicle before pushing it.
1. Bounce front 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 tread (rear side) of both tires at the same height as hub center. These are measuring points.

ON-VEHICLE SERVICE

Front Wheel Alignment (Cont'd)



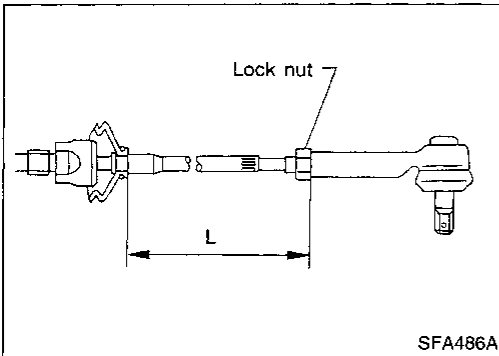
4. Measure distance "A" (rear tires).
5. Push the vehicle slowly ahead to rotate the wheels 180 degrees (1/2 turn).

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 tires).

Toe-in (A - B):

Refer to SDS, FA-31.



7. Adjust toe-in by varying the length of steering tie-rods.

a. Loosen lock nuts.

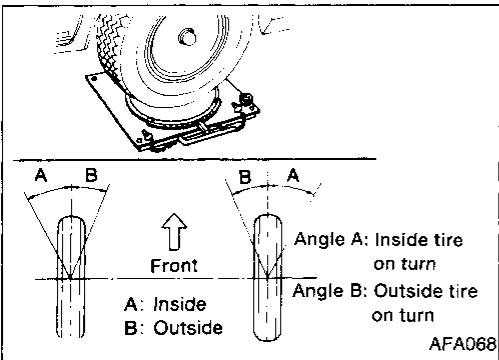
b. Adjust toe-in by screwing tie-rods in and out.

Standard length "L":

Refer to ST section ("General Specifications", "SDS").

c. Tighten lock nuts to specified torque.

⚠️: 37 - 46 N·m (3.8 - 4.7 kg·m, 27 - 34 ft·lb)



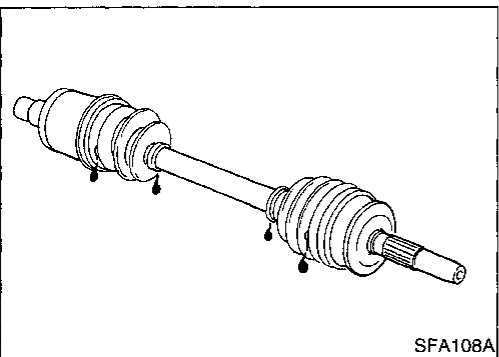
FRONT WHEEL TURNING ANGLE

1. Set wheels in straight-ahead position. Then move vehicle forward until front wheels rest on turning radius gauge properly.
 2. Rotate steering wheel all the way right and left; measure turning angle.
- On power steering models, turn steering wheel to full lock and apply force (at circumference of steering wheel) of 98 to 147 (10 to 15 kg, 22 to 33 lb) with engine at idle.

Do not hold the steering wheel at full lock for more than 15 seconds.

Wheel turning angle (Full turn):

Refer to SDS, FA-31.



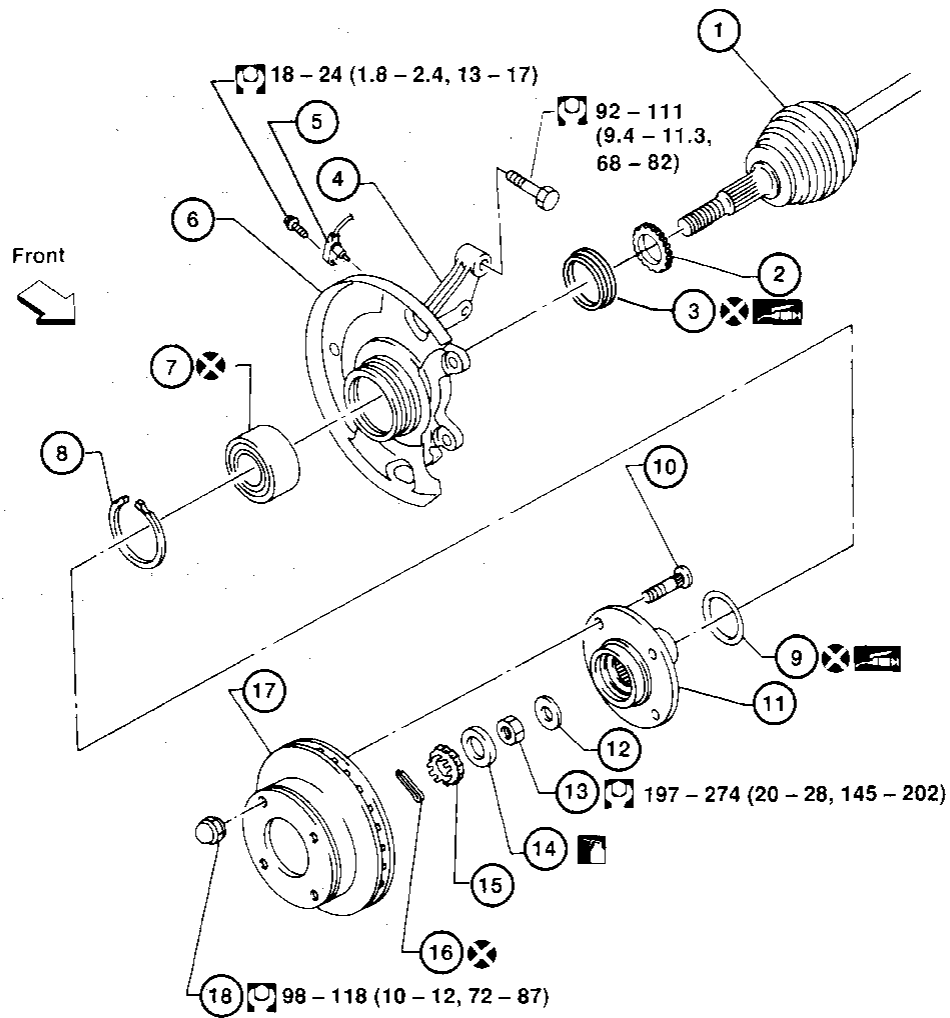
Drive Shaft

Check for grease leakage or other damage.

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: N·m (kg·m, ft·lb)

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|---------------------|--------------------------|--------------------------|
| ① Drive shaft | ⑦ Wheel bearing assembly | ⑬ Wheel bearing lock nut |
| ② ABS sensor rotor | ⑧ Snap ring | ⑭ Insulator |
| ③ Inner grease seal | ⑨ Outer grease seal | ⑮ Adjusting cap |
| ④ Knuckle | ⑩ Wheel bolt | ⑯ Cotter pin |
| ⑤ ABS sensor | ⑪ Wheel hub | ⑰ Disc rotor |
| ⑥ Baffle plate | ⑫ Plain washer | ⑱ Wheel nut |

Wheel Hub and Knuckle

REMOVAL

CAUTION:

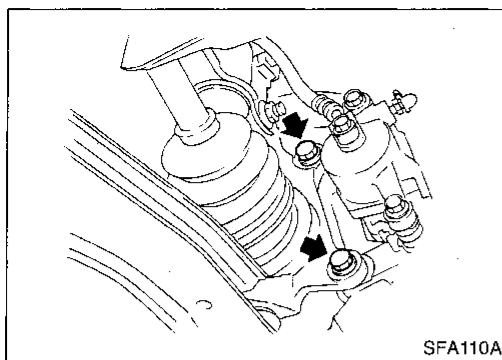
Before removing front axle assembly, disconnect ABS wheel sensor from assembly and move it from front axle assembly area.

Failure to do so may result in damage to sensor wires and the sensor becoming inoperative.

1. Remove wheel bearing lock nut.

FRONT AXLE

Wheel Hub and Knuckle (Cont'd)



2. Remove brake caliper assembly and rotor.
Brake hose need not be disconnected from brake caliper. Suspend brake caliper 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.

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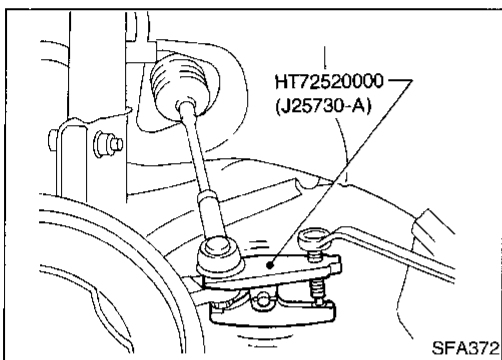
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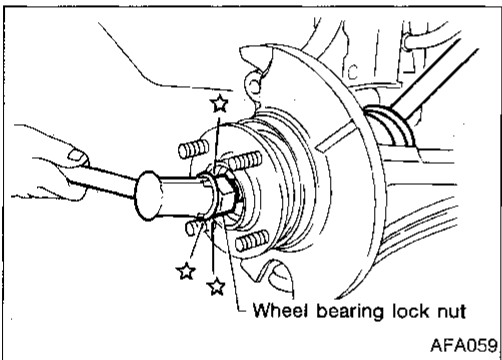
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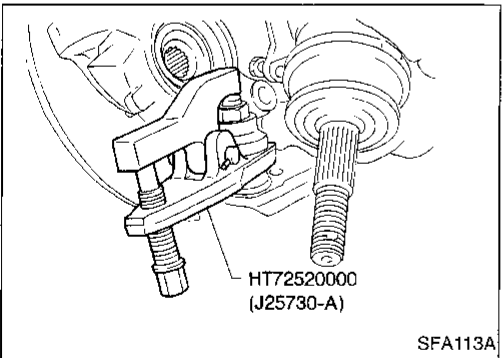
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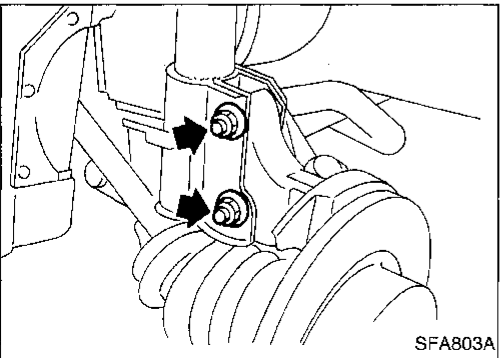
3. Separate tie-rod from knuckle with Tool.
Install stud nut on stud bolt to prevent damage to stud bolt.



4. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.
Cover boots with shop towel so as not to damage them when removing drive shaft.



5. Loosen lower ball joint tightening nut.
6. Separate knuckle from lower ball joint stud with Tool.
7. Remove knuckle from transverse link.



8. Remove strut lower mounting bolts.


FRONT AXLE

Wheel Hub and Knuckle (Cont'd)

INSTALLATION


1. Install knuckle with wheel hub.
 - Replace strut lower mounting nuts.

When installing knuckle to strut, be sure to hold bolts and tighten nuts.

: 92 - 111 N·m
(9 - 11 kg-m, 68 - 82 ft-lb)

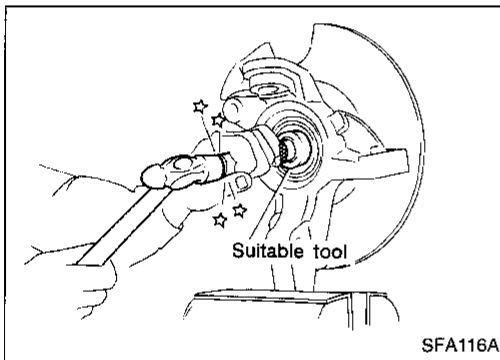
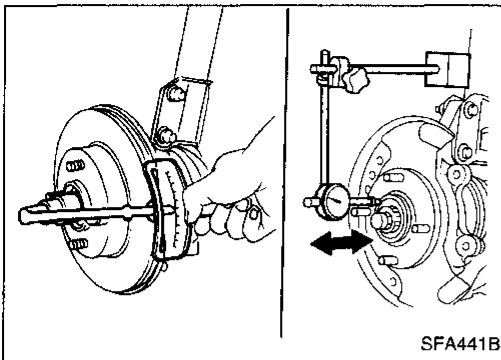
Apply oil to threaded portion of drive shaft and to both sides of plain washer.

2. Tighten wheel bearing lock nut.

: 197 - 274 N·m
(20 - 28 kg-m, 145 - 202 ft-lb)

3. Check wheel bearing axial end play.

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



DISASSEMBLY

CAUTION:

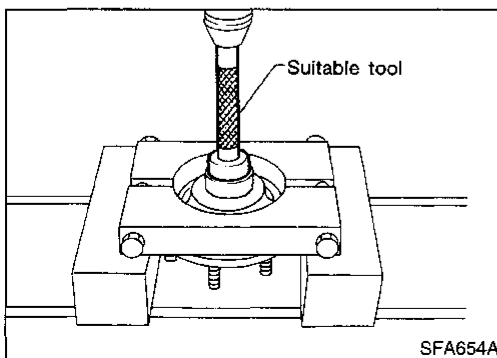
When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly (outer race, inner races and grease seals) with a new one.

Wheel bearing does not require maintenance. If any of the following symptoms are noted, replace wheel bearing assembly.

- Growling noise is emitted from wheel bearing during operation.
- Wheel bearing drags or turns roughly. This occurs when turning hub by hand after bearing lock nut is tightened to specified torque.

Wheel hub

Drive out hub with inner race (outside) from knuckle with a suitable tool.



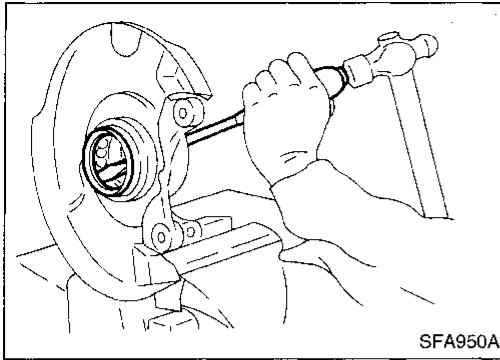
Wheel bearing

When replacing wheel bearing, replace wheel bearing assembly (including inner and outer races).

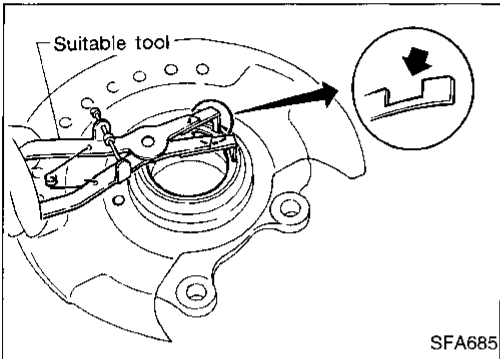
1. Remove bearing inner race (outside), then remove outer grease seal.

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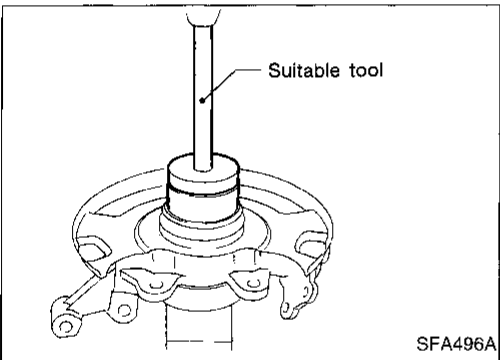
Wheel Hub and Knuckle (Cont'd)



2. Remove inner and outer grease seals from knuckle.



3. Remove snap ring.



4. Press out bearing outer race.

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INSPECTION

Wheel hub and knuckle

Check wheel hub and knuckle for cracks by using a magnetic exploration or dyeing test.

Snap ring

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

ASSEMBLY

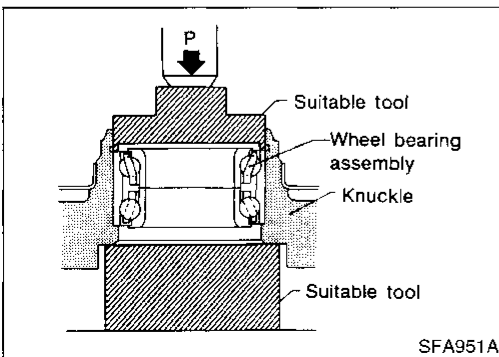
1. Press new wheel bearing assembly into knuckle.

Maximum load P:

29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)

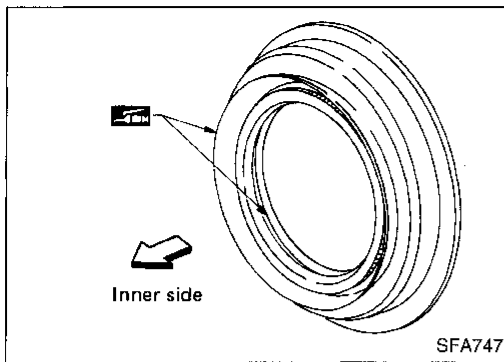
CAUTION:

- Do not press inner race of wheel bearing assembly.
 - Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.
2. Install snap ring into groove of knuckle.

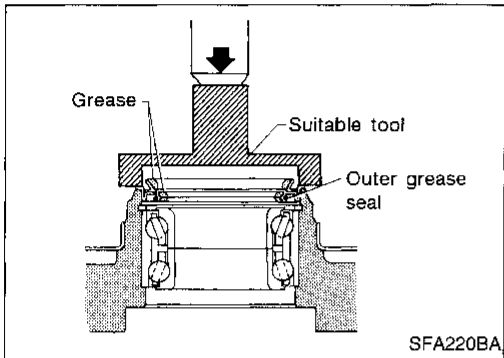


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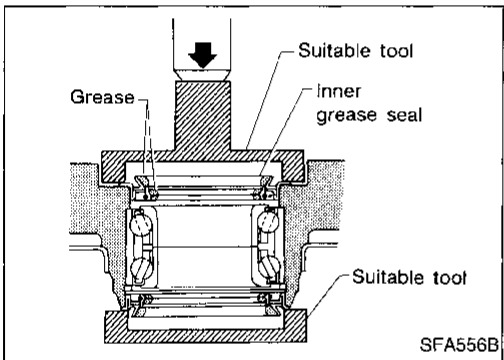
Wheel Hub and Knuckle (Cont'd)



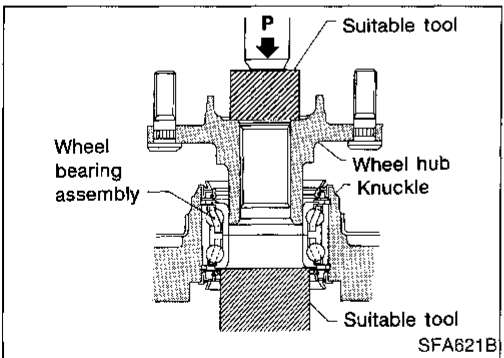
3. Pack grease seal lip with multi-purpose grease.



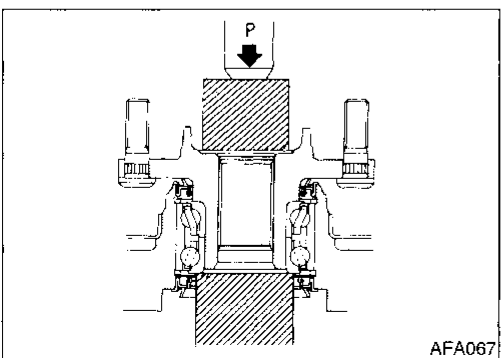
4. Install outer grease seal.
Maximum load P:
10 kN (1 ton, 1.1 US ton, 1.0 Imp ton)



5. Install inner grease seal.
Maximum load P:
10 kN (1 ton, 1.1 US ton, 1.0 Imp ton)



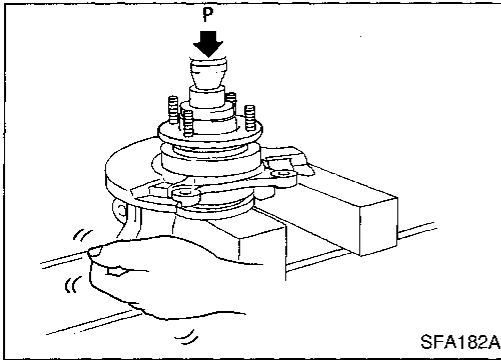
6. Press wheel hub into knuckle.
Maximum load P:
29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)
Be careful not to damage grease seal.



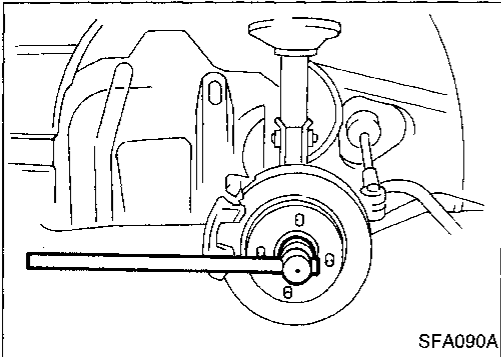
7. Check bearing operation.
 - a. Add load P with press.
Load P:
34.3 - 49.0 kN
(3.5 - 5.0 ton, 3.9 - 5.5 US ton, 3.44 - 4.92 Imp ton)

FRONT AXLE

Wheel Hub and Knuckle (Cont'd)



- b. Spin knuckle several turns in both directions.
- c. Make sure that wheel bearings operate smoothly.



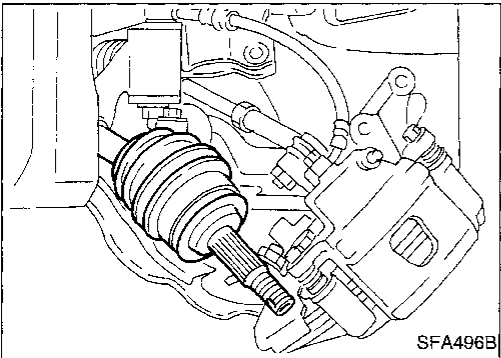
Drive Shaft

REMOVAL

1. Remove wheel bearing lock nut.

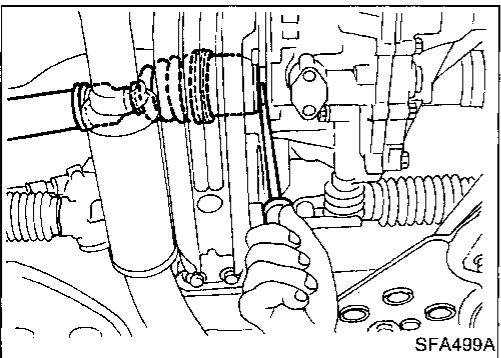
Tie-rod does not need to be disconnected from knuckle. Suspend knuckle with wire so as not to stretch brake hose. Do not pull or twist brake hose.

2. Remove clip and separate brake hose from strut.
3. Remove strut lower mounting bolts.

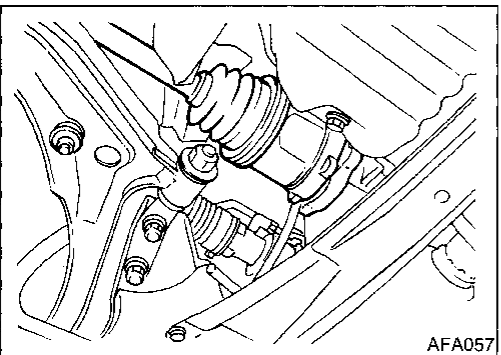


4. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.

When removing drive shaft, cover boots with shop towel to prevent damage to them.



5. Remove right drive shaft from transaxle.
— **Models without support bearing** —
 - Pry drive shaft from transaxle as shown.



— **Models with support bearing** —

- Remove support bearing bolts and pull drive shaft from transaxle.

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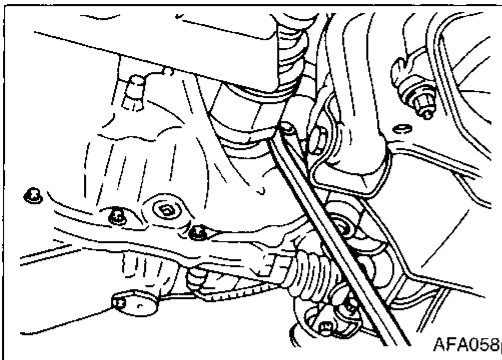
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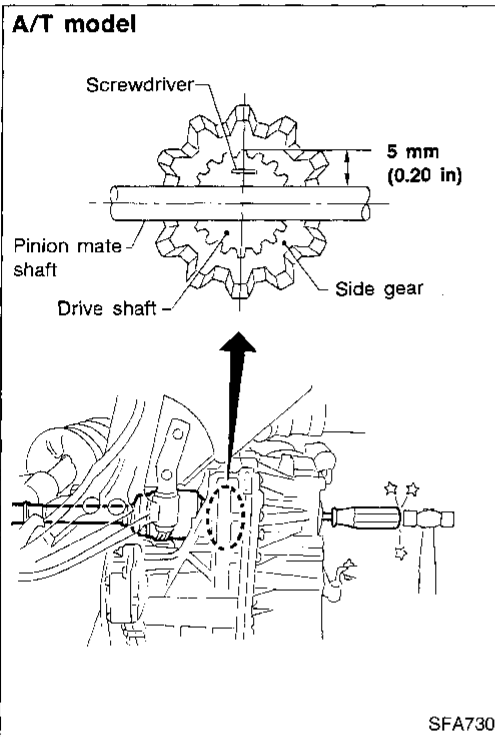
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FRONT AXLE

Drive Shaft (Cont'd)



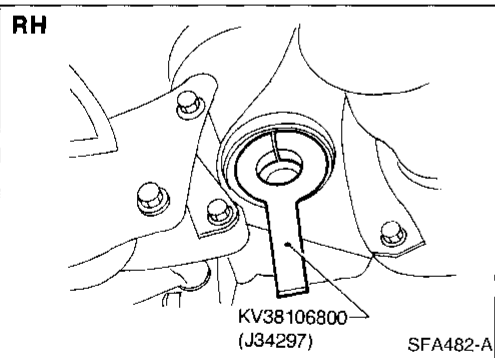
6. Remove left drive shaft from transaxle.
— For M/T models —
 - Pry drive shaft from transaxle as shown.



— For A/T models —

- Insert screwdriver into transaxle opening for right drive shaft and strike with a hammer.

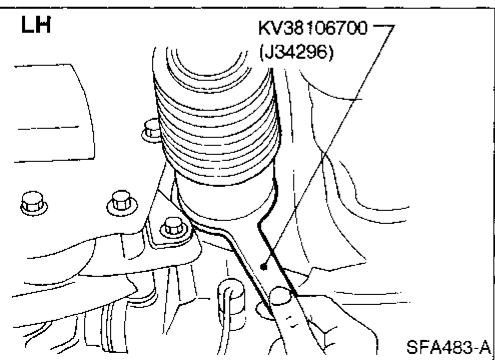
Be careful not to damage pinion mate shaft and side gear.



INSTALLATION

Transaxle side

1. Drive a new oil seal to transaxle. Refer to MT or AT section ("Differential Side Oil Seal Replacement", "ON-VEHICLE SERVICE").
2. Set Tool along the inner circumference of oil seal.



3. Insert drive shaft into transaxle. Be sure to properly align the serrations and then withdraw Tool.
4. Push drive shaft, then press-fit circular clip on the drive shaft into circular clip groove of side gear.
5. After its insertion, try to pull the flange out of the slide joint by hand. If it pulls out, the circular clip is not properly meshed with the side gear.

Wheel side

1. Install drive shaft into knuckle.
2. Tighten wheel bearing lock nut. Refer to FA-8.

FRONT AXLE

Drive Shaft (Cont'd) COMPONENTS

CAUTION:

- Circular clips should be properly meshed with differential side gear (transaxle side) and with joint assembly (wheel side). Make sure they will not come out.
- Be careful not to damage boots. Use suitable protector or cloth during removal and installation.

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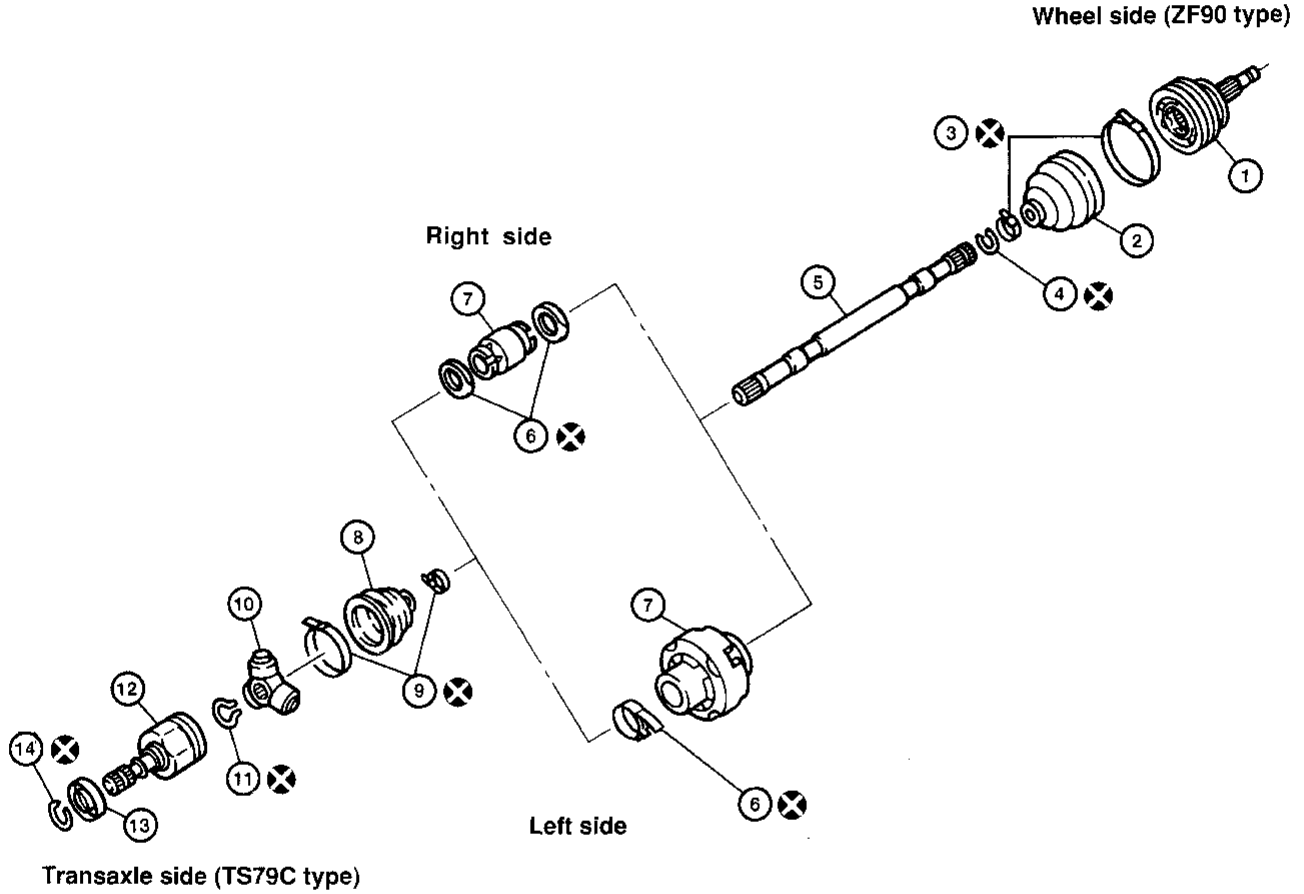
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GA16DE model

SEC. 391



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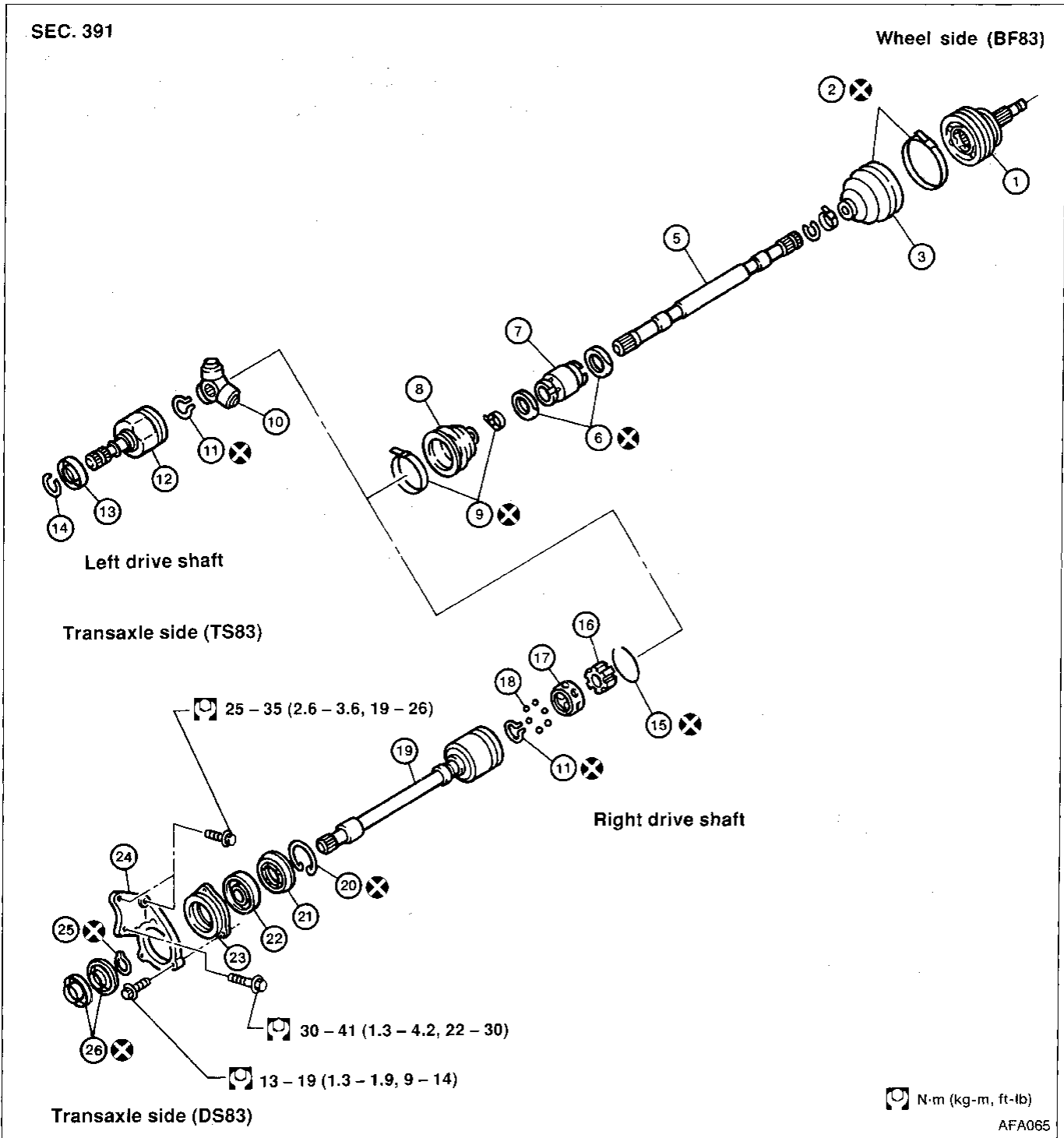
- ① Joint assembly
- ② Boot
- ③ Boot band
- ④ Circular clip
- ⑤ Drive shaft

- ⑥ Dynamic damper band
- ⑦ Dynamic damper
- ⑧ Boot
- ⑨ Boot band
- ⑩ Spider assembly

- ⑪ Snap ring
- ⑫ Slide joint housing
- ⑬ Dust shield
- ⑭ Circular clip

FRONT AXLE Drive Shaft (Cont'd)

SR20DE model



- | | | |
|-------------------|-----------------------|--|
| ① Joint assembly | ⑩ Spider assembly | ⑲ Slide joint housing with extension shaft |
| ② Boot band | ⑪ Snap ring C | ⑳ Snap ring E |
| ③ Boot | ⑫ Slide joint housing | ㉑ Dust shield |
| ④ Circular clip B | ⑬ Dust shield | ㉒ Support bearing |
| ⑤ Drive shaft | ⑭ Circular clip A | ㉓ Support bearing retainer |
| ⑥ Band | ⑮ Snap ring A | ㉔ Bracket |
| ⑦ Dynamic damper | ⑯ Inner race | ㉕ Snap ring D |
| ⑧ Boot | ⑰ Cage | ㉖ Dust shield |
| ⑨ Boot band | ⑱ Ball | |

FRONT AXLE

Drive Shaft (Cont'd) DISASSEMBLY

Transaxle side (TS79C, TS83 type)

1. Remove boot bands.
2. Put matching marks on slide joint housing and drive shaft before separating joint assembly.
3. Put matching marks on spider assembly and drive shaft.

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4. Remove snap ring, then remove spider assembly.

CAUTION:

Do not disassemble spider assembly.

5. Draw out boot.

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

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Transaxle side (DS83 type)

1. Remove boot bands.
2. Put matching marks on slide joint housing and inner race, before separating joint assembly.
3. Pry off snap ring "A" with a screwdriver, and pull out slide joint housing.

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4. Put matching marks on inner race and drive shaft.

5. Remove snap ring "C", then remove ball cage, inner race and balls as a unit.

6. Draw out boot.

Cover drive shaft serrations with tape so as not to damage the boot.

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Wheel side

CAUTION:

The joint on the wheel side cannot be disassembled.

1. Before separating joint assembly, put matching marks on drive shaft and joint assembly.
2. Separate joint assembly with a suitable tool.

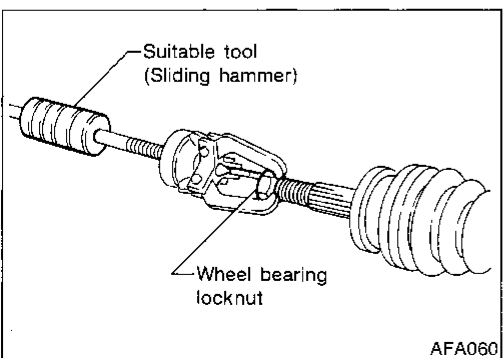
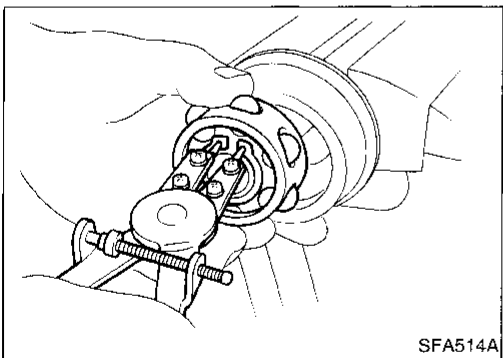
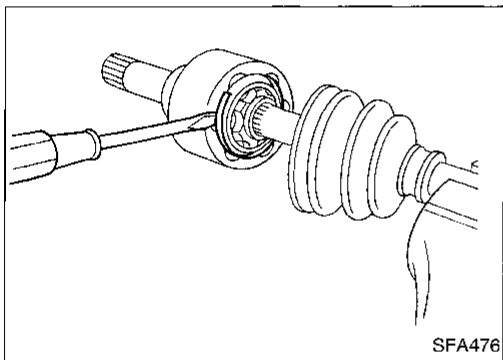
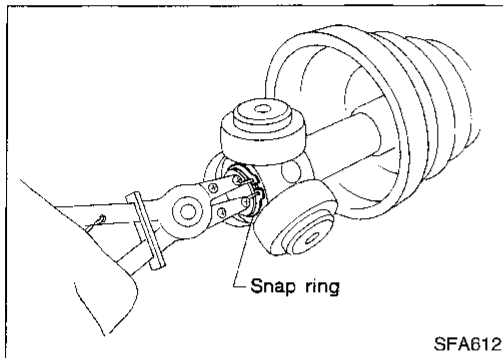
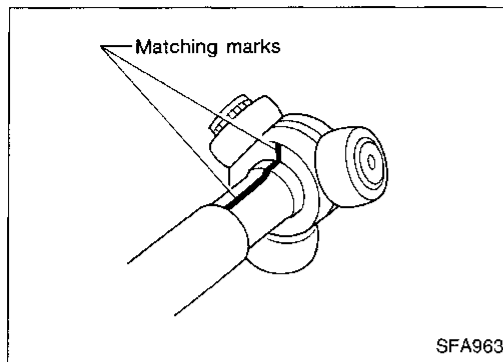
2. Separate joint assembly with a suitable tool.

Be careful not to damage threads on drive shaft.

3. Remove boot bands.

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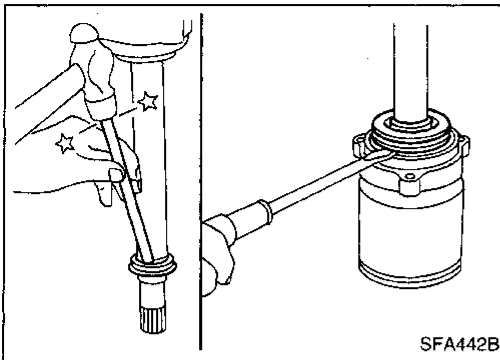


FRONT AXLE

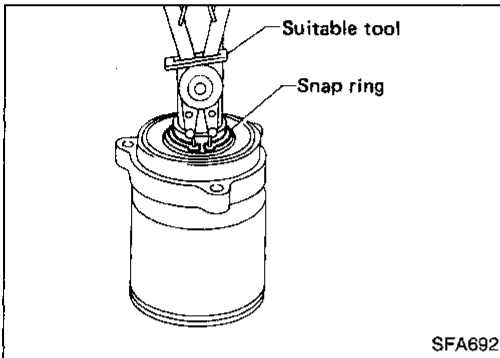
Drive Shaft (Cont'd)

Support bearing

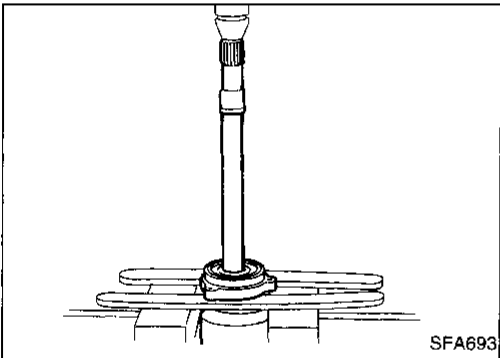
1. Remove dust shield.



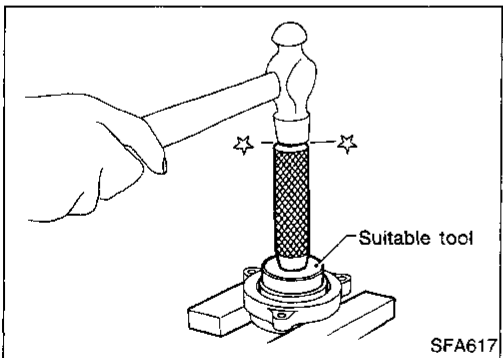
2. Remove snap ring.



3. Press support bearing assembly off of drive shaft.



4. Separate support bearing from retainer.



FRONT AXLE

Drive Shaft (Cont'd)

INSPECTION

Thoroughly clean all parts in cleaning solvent, and dry with compressed air. Check parts for evidence of 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.

Joint assembly (Transaxle side)

- Check spider assembly for needle bearing and washer damage. Replace if necessary. (TS79C, TS83 type)
- Check roller surfaces for scratches, wear or other damage. Replace if necessary. (TS79C, TS83 type)
- Replace any parts of double offset joint which show signs of scorching, rust, wear or excessive play. (DS83 type)
- Check serration for deformation. Replace if necessary.
- Check slide joint housing for any damage. Replace if necessary.

Joint assembly (Wheel side)

Replace joint assembly if it is deformed or damaged.

Support bearing

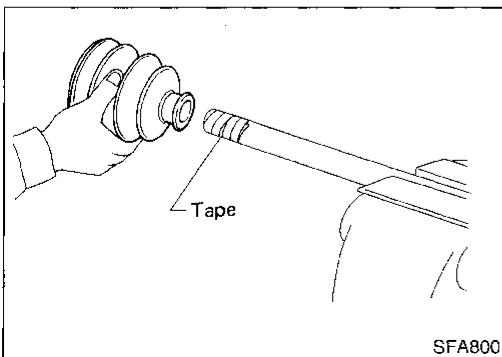
Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear.

Support bearing bracket

Check support bearing bracket for cracks with a magnetic exploration or dyeing test.

ASSEMBLY

- After drive shaft has been assembled, ensure that it moves smoothly over its entire range without binding.
- Use NISSAN GENUINE GREASE or equivalent after every overhaul.



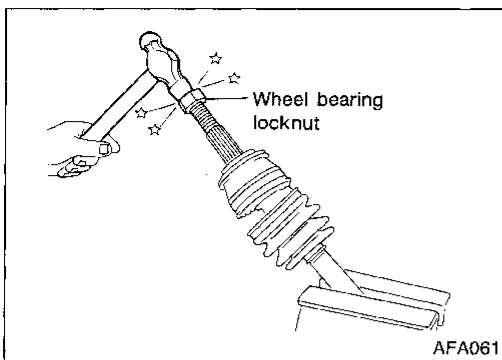
Wheel side

1. Install boot and new small boot band on drive shaft.

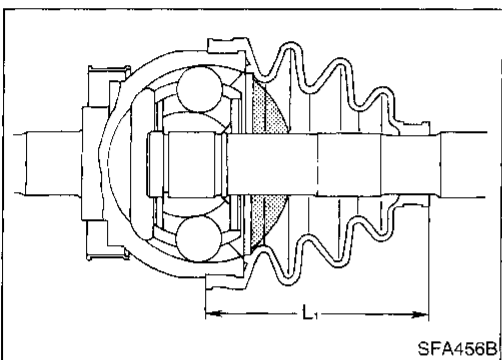
Cover drive shaft serration with tape so as not to damage boot during installation.

FRONT AXLE

Drive Shaft (Cont'd)



- Set joint assembly onto drive shaft by lightly tapping it. Secure joint assembly ensuring marks which were made during disassembly are properly aligned.



- Pack drive shaft with specified amount of grease.

Specified amount of grease:

ZF90 115 - 125 g (4.06 - 4.41 oz)

BF83 105 - 125 g (3.70 - 4.41 oz)

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

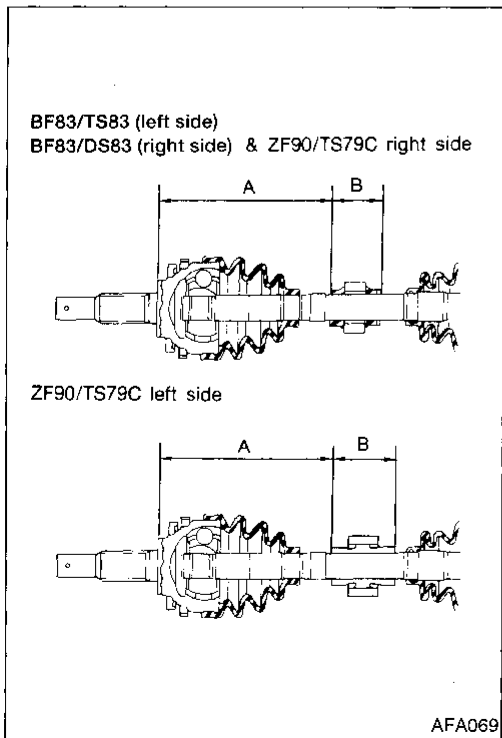
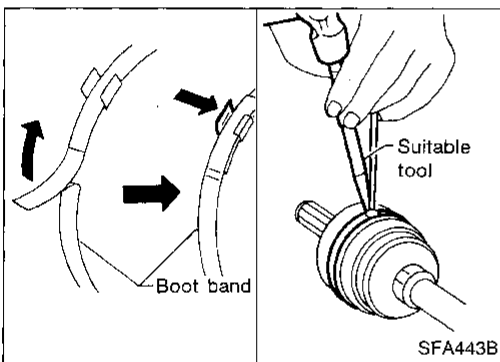
Set boot so that it does not swell and deform when its length is "L₁".

Length "L₁":

ZF90 96 - 98 mm (3.78 - 3.86 in)

BF83 95 mm (3.74 in)

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



Dynamic damper

- Use a new damper band when reinstalling.
- Install dynamic damper from stationary-joint side while holding it securely:

Length:

Unit: mm (in)

| | ZF90/TS79C | | BF83/TS83, DS83 | | |
|-----|------------------------------|--------------------------------|----------------------------|--------------------------------|--------------|
| | RH | LH | RH | LH | |
| | | | | A/T | M/T |
| "A" | 432 - 442 (17.01 - 17.40) | 175.3 - 185.3 (6.90 - 7.30) | 169 - 175 (6.65 - 6.89) | 154.8 - 100.8 (6.09 - 6.33) | |
| "B" | 66 (2.60) | 58 (2.28) | 70 (2.76) | 50 (1.97) | 70 (2.76) |

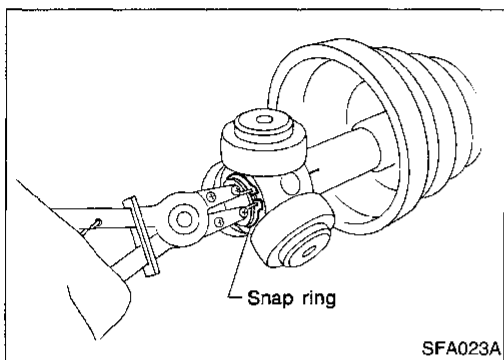
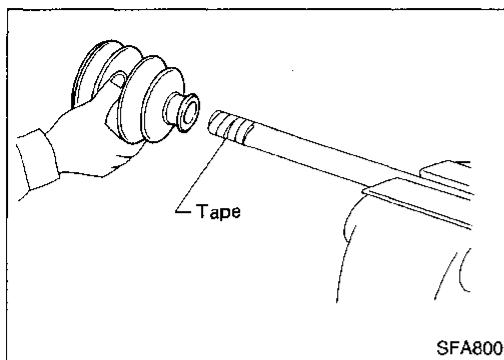
FRONT AXLE

Drive Shaft (Cont'd)

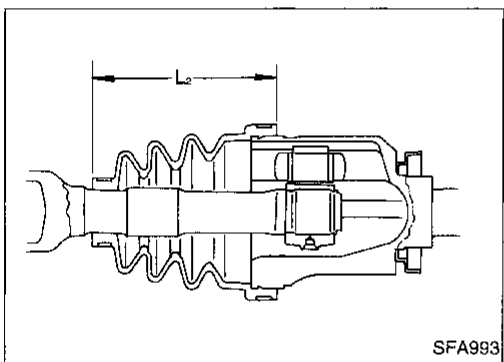
Transaxle side (TS79C, TS83 type)

1. Install boot and new small boot band on drive shaft.

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



2. Install spider assembly securely, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring.



4. Pack drive shaft with specified amount of grease.

Specified amount of grease:

TS79C 155 - 165 g (5.47 - 5.82 oz)

TS83 130 - 150 g (4.59 - 5.29 oz)

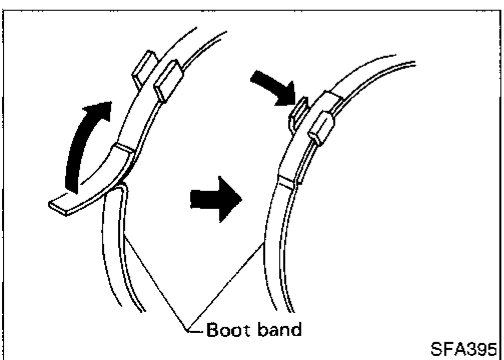
5. Install slide joint housing.
6. Set boot so that it does not swell and deform when its length is "L₂".

Length "L₂":

TS79C 101.5 - 103.5 mm (4.00 - 4.07 in)

TS83 99 mm (3.90 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.

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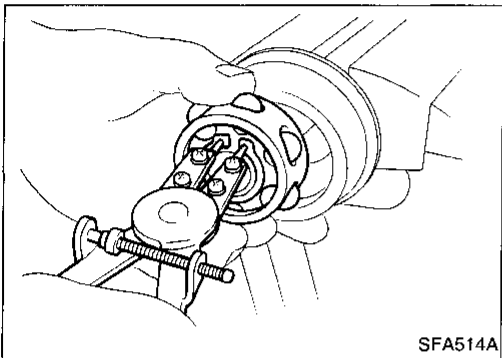
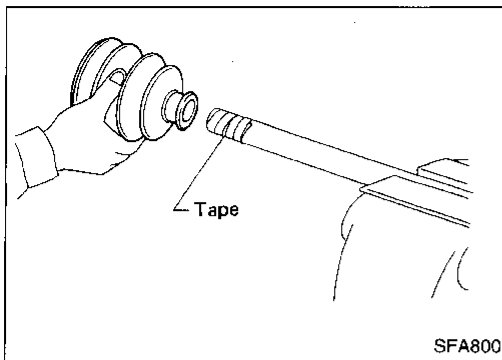
FRONT AXLE

Drive Shaft (Cont'd)

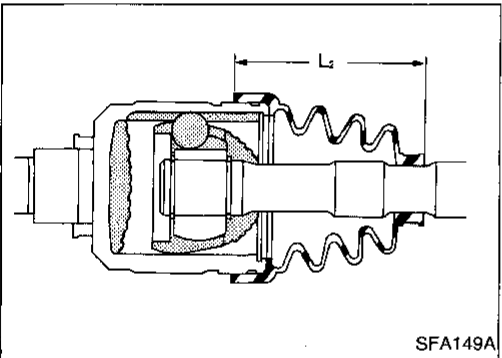
Transaxle side (DS83 type)

1. Install boot and new small boot band on drive shaft.

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



2. Install ball cage, inner race and balls as a unit, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring "C".



4. Pack drive shaft with specified amount of grease.

Specified amount of grease:

115 - 135 g (4.06 - 4.76 oz)

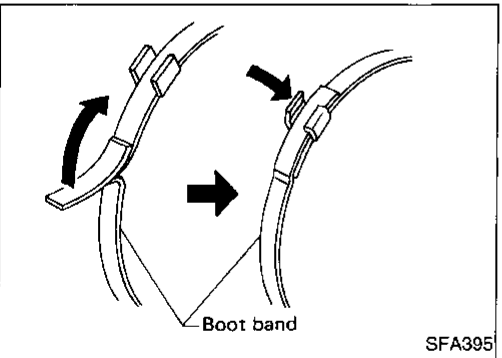
5. Install slide joint housing, then install new snap ring "A".

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

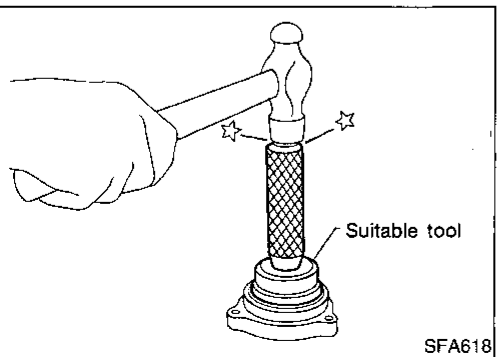
Set boot so that it does not swell and deform when its length is "L₂".

Length "L₂":

98 mm (3.86 in)



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

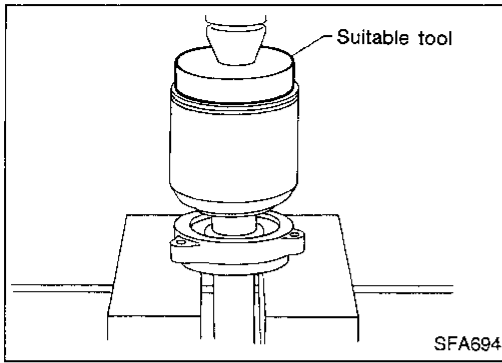


Support bearing

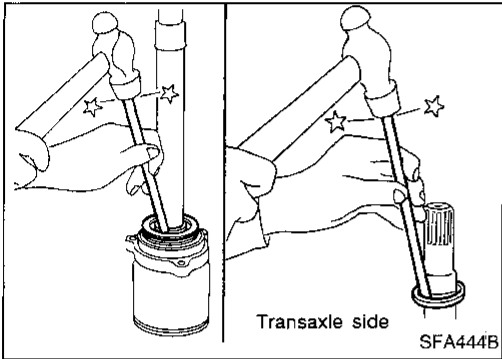
1. Install bearing into retainer.

FRONT AXLE

Drive Shaft (Cont'd)



2. Press drive shaft into bearing.



3. Install snap ring.

4. Install new dust shield.

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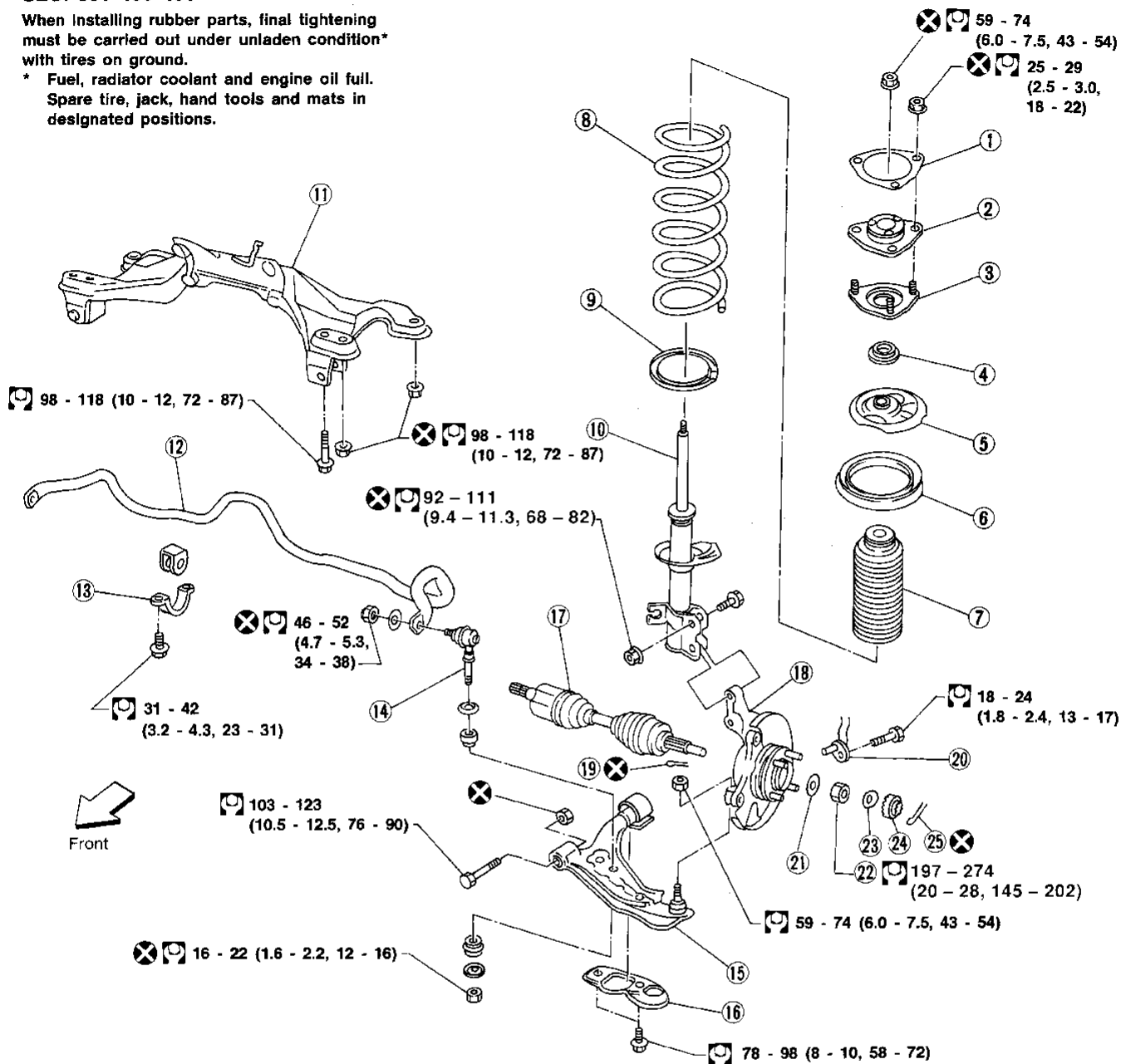
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FRONT SUSPENSION

SEC. 391-400-401

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.

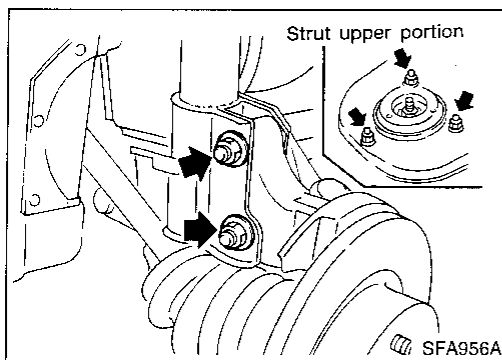


□: N·m (kg-m, ft-lb)

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- | | | |
|------------------------------------|-------------------------|--------------------------|
| ① Spacer | ⑩ Strut assembly | ⑲ Cotter pin |
| ② Strut mounting insulator | ⑪ Suspension member | ⑳ ABS sensor |
| ③ Strut mounting insulator bracket | ⑫ Stabilizer bar | ㉑ Plain washer |
| ④ Thrust bearing | ⑬ Stabilizer clamp | ㉒ Wheel bearing lock nut |
| ⑤ Upper spring seat | ⑭ Connecting rod | ㉓ Insulator |
| ⑥ Upper spring rubber seat | ⑮ Transverse link | ㉔ Adjusting cap |
| ⑦ Bumper rubber | ⑯ Compression rod clamp | ㉕ Cotter pin |
| ⑧ Coil spring | ⑰ Drive shaft | |
| ⑨ Lower spring rubber seat | ⑱ Knuckle | |

FRONT SUSPENSION



Coil Spring and Strut Assembly

REMOVAL AND INSTALLATION

- Remove strut assembly fixing bolts and nuts (to hood ledge).

Do not remove piston rod lock nut on vehicle.

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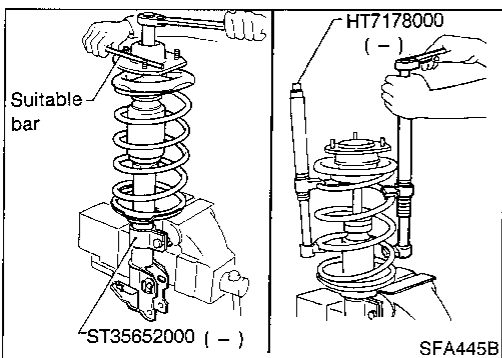
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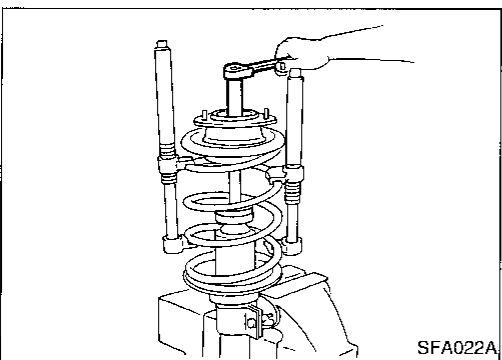


DISASSEMBLY

1. Set strut assembly on vise with Tool, then **loosen** piston rod lock nut.

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.



3. Remove piston rod lock nut.

INSPECTION

Strut 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.

Strut mounting insulator

- Check cemented rubber-to-metal portion for separation or cracks.
- Check rubber parts for deterioration.

Thrust bearing

- Check thrust bearing parts for abnormal noise or excessive rattle in axial direction.
- Replace if necessary.

Coil spring and insulator

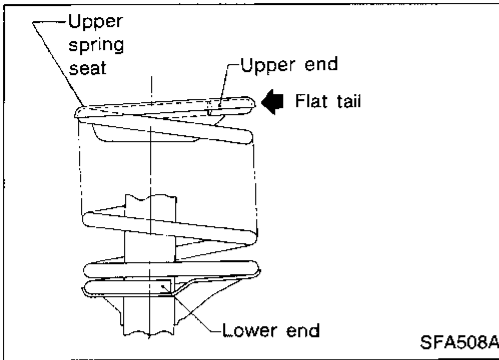
- Check for cracks, deformation or other damage. Replace if necessary.

FRONT SUSPENSION

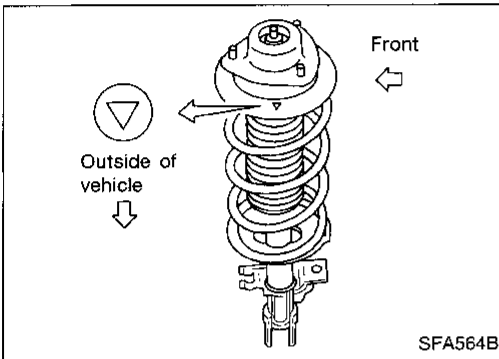
Coil Spring and Strut Assembly (Cont'd)

ASSEMBLY

- When installing coil spring on strut, it must be positioned as shown in the figure at left.



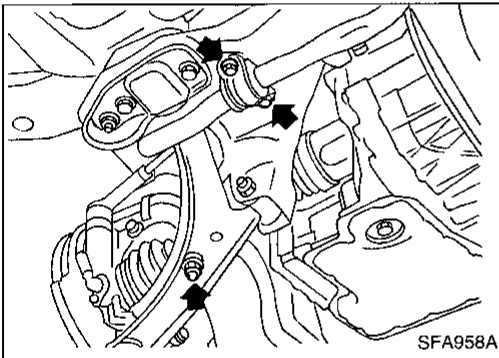
- Install upper spring seat with alignment mark facing outside of vehicle, in line with strut-to-knuckle attachment points.



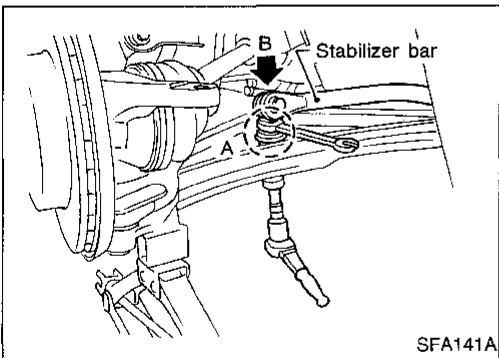
Stabilizer Bar

REMOVAL AND INSTALLATION

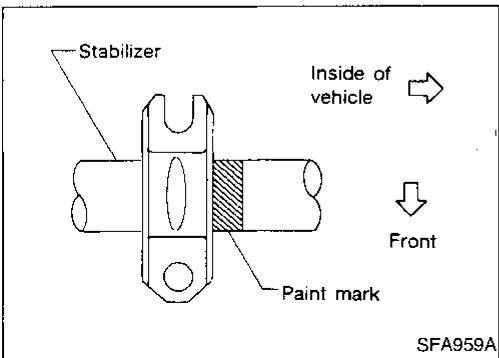
- Remove stabilizer bar.



- When removing or installing stabilizer bar, secure portion A with wrench as shown.



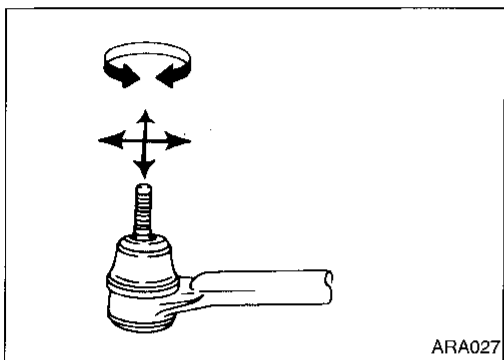
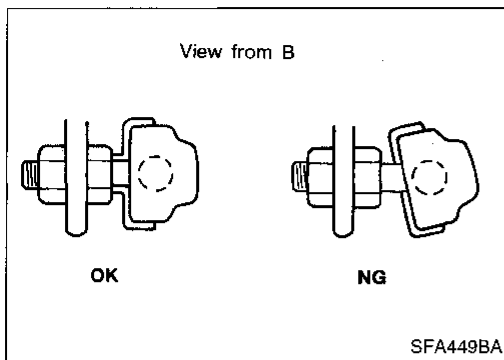
- When installing stabilizer, make sure that paint mark and clamp face in their correct directions.



FRONT SUSPENSION

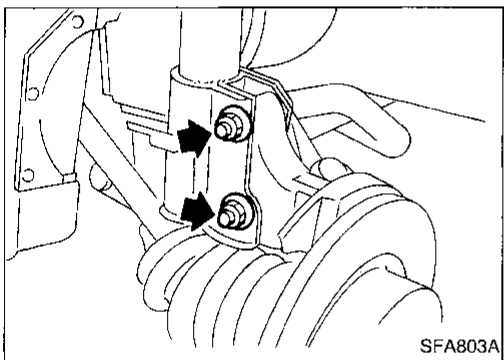
Stabilizer Bar (Cont'd)

- Install stabilizer bar with ball joint socket properly placed.



INSPECTION

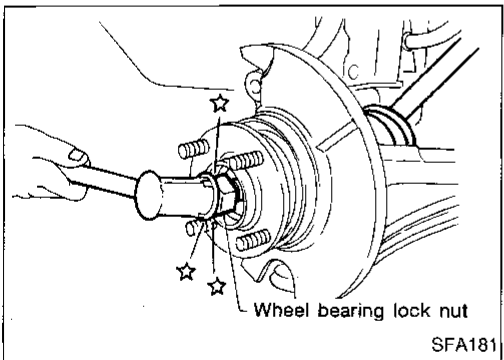
- Check stabilizer for deformation or cracks. Replace if necessary.
- Check rubber bushings for deterioration or cracks. Replace if necessary.
- Check ball joint can rotate in all directions. If movement is not smooth and free, replace stabilizer bar link.



Transverse Link and Lower Ball Joint

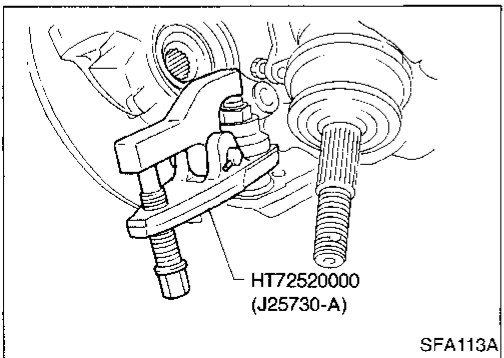
REMOVAL AND INSTALLATION

1. Remove wheel bearing lock nut.
2. Remove strut lower mounting bolts.



3. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.

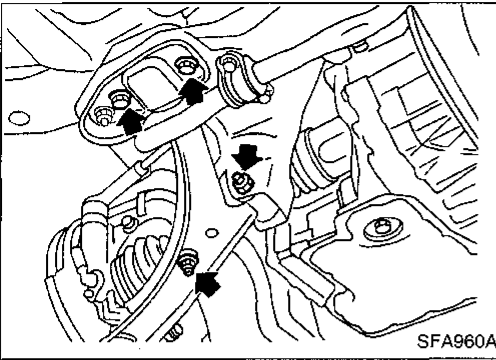
Cover boots with shop towel so as not to damage them when removing drive shaft.




4. Separate lower ball joint stud from knuckle with Tool.

FRONT SUSPENSION

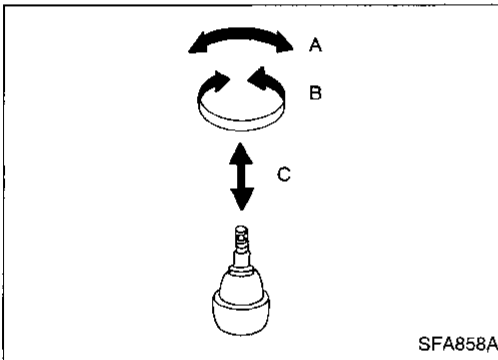
Transverse Link and Lower Ball Joint (Cont'd)



5. Remove bolts and nuts as shown at left.
6. During installation, final tightening must be carried out at curb weight with tires on the ground.
: Refer to FA-24.
7. After installation, check wheel alignment. Refer to FA-6.

INSPECTION

- Check transverse link for damage, cracks or deformation. Replace if necessary.
- Check rubber bushing for damage, cracks and deformation. Replace transverse link if necessary.



- Check ball joint for excessive play. Replace transverse link assembly if any of the following exists:
 - Ball stud is worn.
 - Joint is hard to swing.
 - Play in axial direction is excessive.Before checking, turn ball joint at least 10 revolutions so that ball joint is properly broken in.
 - Swinging force "A":**
(measuring point: cotter pin hole of ball stud)
8.2 - 57.3 N (0.8 - 5.9 kg, 1.8 - 12.9 lb)
 - Turning torque "B":**
0.5 - 3.4 N·m (5 - 35 kg-cm, 4.3 - 30.4 in-lb)
 - Vertical end play "C":**
0 mm (0 in)
- Check dust cover for damage. Replace it and cover clamp if necessary.

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

SUSPENSION

| | |
|-----------------|-----------------------------------|
| Suspension type | Strut type independent suspension |
|-----------------|-----------------------------------|

COIL SPRING

| Applied model | 4-door | | | | 2-door | | | |
|--------------------------------|------------------|--------------|------------------|--------------|------------------|--------------|--------------|--------------------|
| | GA16DE | | | | GA16DE | | SR20DE | |
| | E-XE-GLE | | GXE | | Base-SE* | | SE-R | |
| | M/T | A/T | M/T | A/T | M/T | A/T | M/T | A/T |
| Wire diameter mm in | 12.0 (0.472) | 12.1 (0.476) | 12.0 (0.472) | 12.3 (0.484) | 12.0 (0.472) | 12.1 (0.476) | 12.3 (0.484) | 12.4 (0.488) |
| Coil outer diameter mm (in) | 142 (5.59) | 142.2 (5.60) | 142 (5.59) | 142.6 (5.61) | 142 (5.59) | 142.2 (5.60) | 142.6 (5.61) | 142.8 (5.62) |
| Free length mm (in) | 370.5 (14.59) | 380 (14.96) | 370.5 (14.59) | 390 (15.35) | 370.5 (14.59) | 380 (14.96) | 390 (15.35) | 400 (15.75) |
| Identification color | White x 2 | Yellow x 2 | White x 2 | Pink x 2 | White x 2 | Yellow x 2 | Pink x 2 | Light green x 2 |

*Canada SE models, coil spring specification for M/T same as A/T.

STRUT

| | |
|--------------------|-------------------------|
| Strut type | Double-acting hydraulic |
| Piston rod mm (in) | |
| Rod diameter | 20 (0.79) |

STABILIZER BAR

| Applied model | 2-door | |
|-----------------------------|---------------------------|----------------|
| | GA16DE SE | SR20DE SE-R |
| | Optional with 14" tire | Standard |
| Stabilizer diameter mm (in) | 25.4 (1.000) | |
| Identification color | Orange | |

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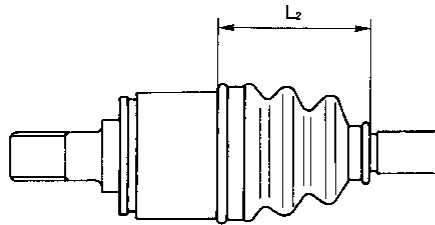
SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

DRIVE SHAFT

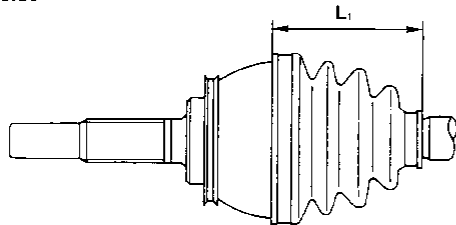
| Applied model | GA16DE | SR20DE | |
|----------------------------------|-------------------------------------|----------------------------|----------------------------|
| | | RH | LH |
| Joint type | | | |
| Transaxle side | TS79C | DS83 | TS83 |
| Wheel side | ZF90 | BF83 | |
| Applied grease | | | |
| Quality | Nissan genuine grease or equivalent | | |
| Capacity g (oz) | | | |
| Transaxle side | 155 - 165 (5.47 - 5.82) | 115 - 135 (4.06 - 4.76) | 130 - 150 (4.59 - 5.29) |
| Wheel side | 115 - 125 (4.06 - 4.41) | 105 - 125 (3.10 - 4.41) | |
| Boot length mm (in) | | | |
| Transaxle side "L ₂ " | 101.5 - 103.5 (4.00 - 4.07) | 98 (3.86) | 99 (3.90) |
| Wheel side "L ₁ " | 96 - 98 (3.78 - 3.86) | 95 (3.74) | |

Transaxle side



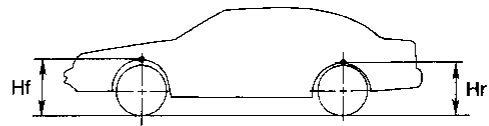
SFA961A

Wheel side



SFA962A

WHEELARCH HEIGHT (Unladen*)



SFA818A

| Applied model | 155SR13 | 175/70R13 | 175/65/R14 | 195/55R15 |
|---------------------------------|-------------|-------------|-------------|-------------|
| Front (H _f) mm (in) | 659 (25.94) | | 666 (26.22) | 669 (26.34) |
| Rear (H _r) mm (in) | 640 (25.20) | 642 (25.28) | 648 (25.51) | 650 (25.59) |

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

SERVICE DATA AND SPECIFICATIONS (SDS)

Inspection and Adjustment

WHEEL ALIGNMENT (Unladen*1)

| | | | |
|---------------------------|---------|-----------------------|----------------------|
| Camber | degree | -1°20' to 0°10' | |
| Caster | degree | 0°40' - 2°10' | |
| Kingpin inclination | degree | 14°00' - 15°30' | |
| Toe-in | mm (in) | 0 - 4 (0 - 0.16) | |
| A - B | | | |
| Total angle 2θ | degree | 0' - 24' | |
| Front wheel turning angle | | Manual steering model | Power steering model |
| Full turn*2 | degree | | |
| Inside tire | | 38° - 42° | 34° - 38° |
| Outside tire | | 34° | 31° |

- *1: Fuel, radiator coolant and engine oil full.
Spare tire, jack, hand tools and mats in designated positions.
- *2: On power steering models, turn steering wheel to full lock and apply force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine at idle.

WHEEL BEARING

| | | |
|----------------------------|--------------------|-------------------------|
| Applied model | All | |
| Axial end play | mm (in) | Less than 0.05 (0.0020) |
| Lock nut tightening torque | 197 - 274 | |
| | N-m (kg-m, ft-lb) | (20 - 28, 145 - 202) |
| Preload | N-m (kg-cm, in-lb) | 1.4 (14.2, 12.3) |
| At hub bolt | N (kg, lb) | 27.8 (2.8, 6.3) |

LOWER BALL JOINT

| | | |
|-----------------------|--------------------|---------------------------------------|
| Swinging force "A" | N (kg, lb) | 8.2 - 57.3 (0.8 - 5.9, 1.8 - 12.9) |
| At cotter pin hole | | |
| Turning torque "B" | N-m (kg-cm, in-lb) | 0.5 - 3.4 (5 - 35, 4.3 - 30.4) |
| Vertical end play "C" | mm (in) | 0 (0) |

WHEEL RUNOUT

| Unit: mm (in) | | |
|------------------------------|-------------|-------------|
| Wheel type | Aluminum | Steel wheel |
| Maximum radial runout limit | 0.3 (0.012) | 0.5 (0.020) |
| Maximum lateral runout limit | 0.3 (0.012) | 0.8 (0.031) |