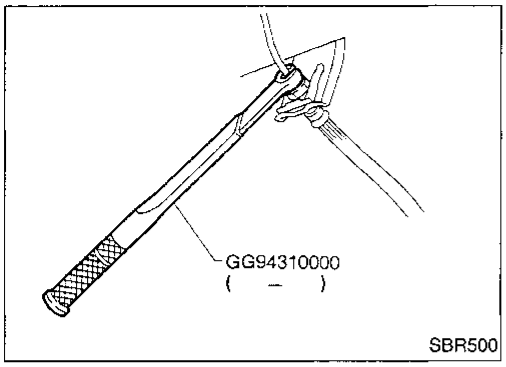
FRONT AXLE AND FRONT SUSPENSION

SECTION FA

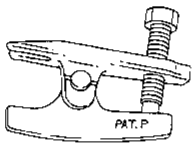
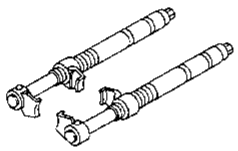
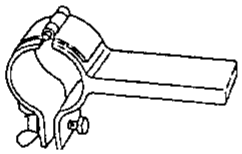
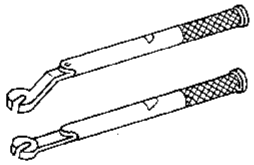
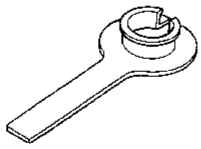
CONTENTS



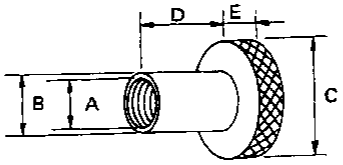
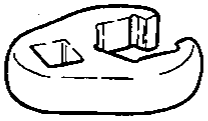
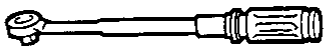
Precautions

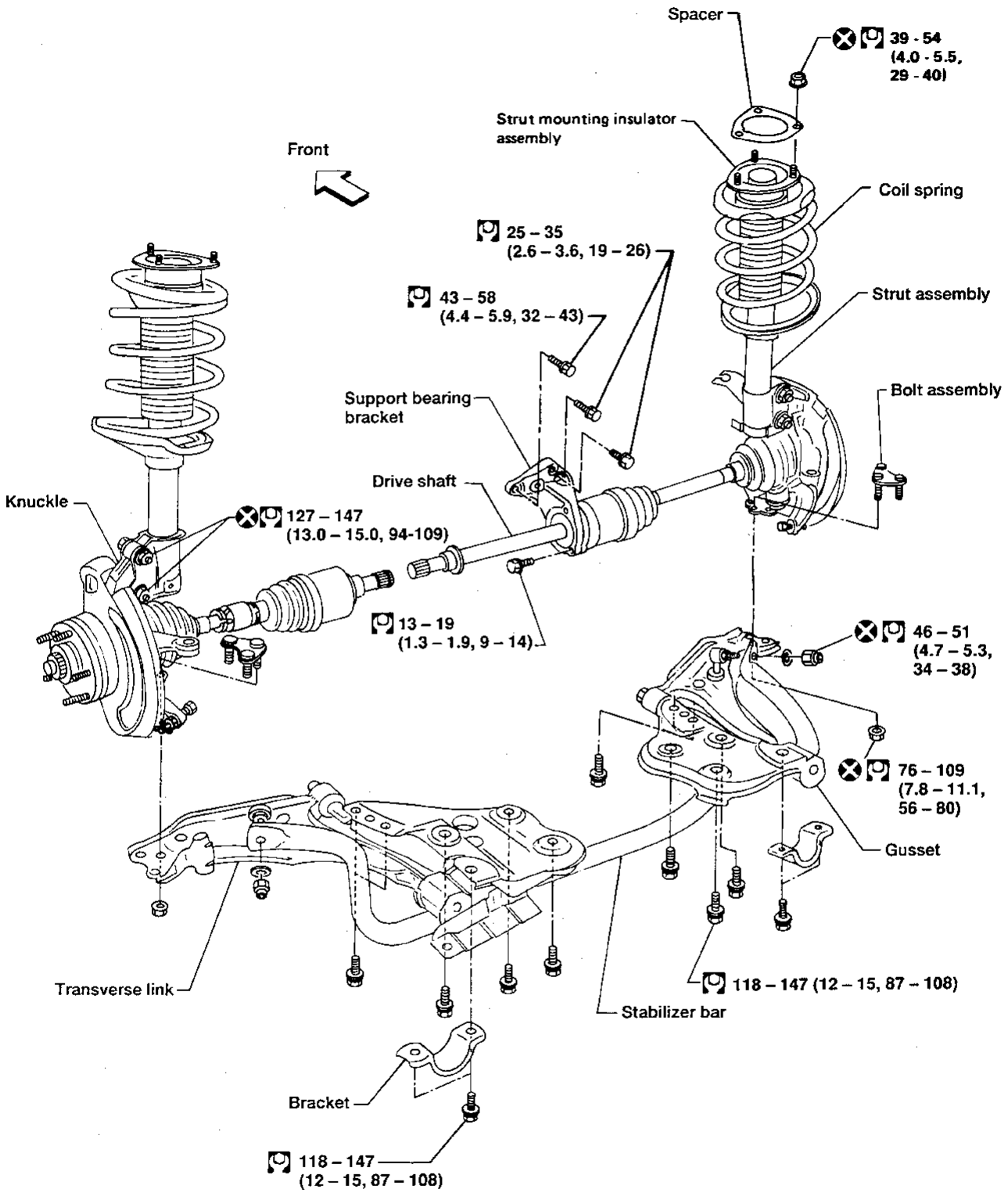
- **When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.**
  ***: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**
- **When removing each suspension part, check wheel alignment and adjust if necessary.**
- **Use flare nut wrench when removing or installing brake tubes.**
- **Always torque brake lines when installing.**

Special Service Tools

Tool number (Kent-Moore No.) Tool name	Description	
(J25730-A) Ball joint remover		Removing tie-rod outer end and lower ball joint
HT71780000 (—) Spring compressor		Removing and installing coil spring
ST35652000 (—) Strut attachment		Fixing strut assembly
GG94310000 (—) Flare nut wrench		Removing and installing brake piping
(J34296) (J34297) Differential side oil seal protector	 LH: J34296 RH: J34297	Installing drive shaft

Commercial Service Tools

Tool name	Description
Attachment Wheel alignment	 Measure wheel alignment **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)
Flare nut crows foot	
Torque wrench	

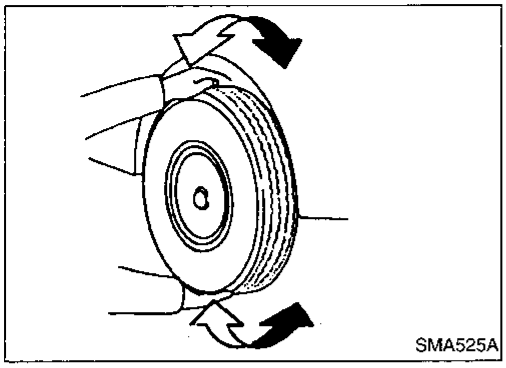


When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.

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

: N·m (kg-m, ft-lb)

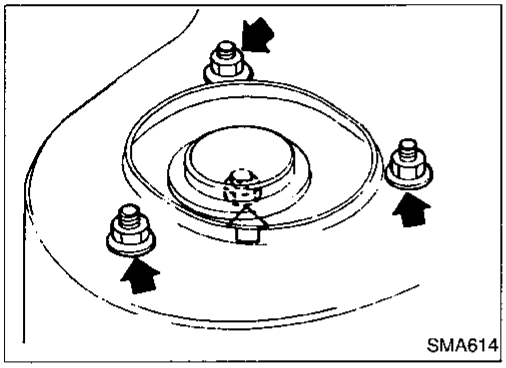
AFA043


SMA525A

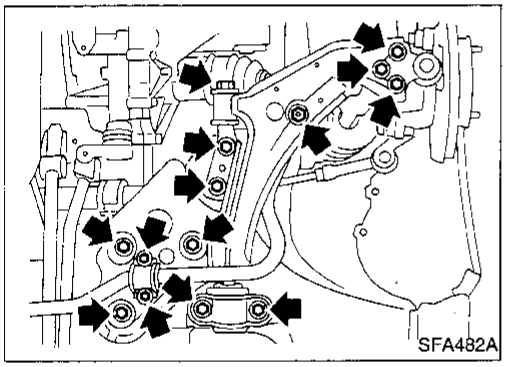
Front Axle and Front Suspension Parts

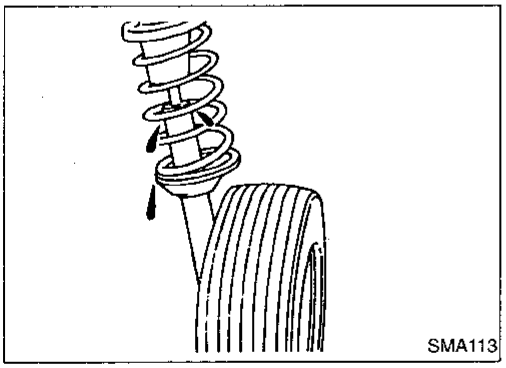
Check front axle and front suspension parts for looseness, cracks, wear or other damage.

- Shake each front wheel to check for excessive play.

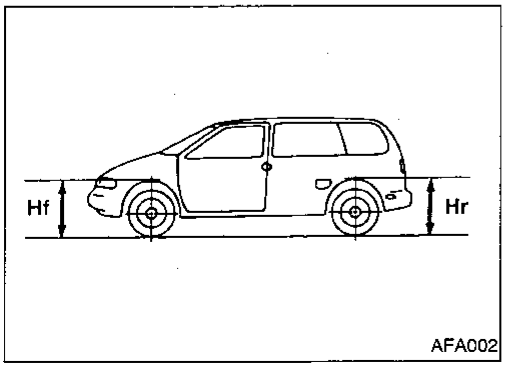

SMA614

- Make sure that all cotter pins are installed.
- Tighten all nuts and bolts to the specified torque.
  Tightening torque:
  Refer to FA-23.


SFA482A


SMA113

- Check strut (shock absorber) for oil leakage or other damage. Large amounts of oil indicate strut may need to be replaced.



AFA002

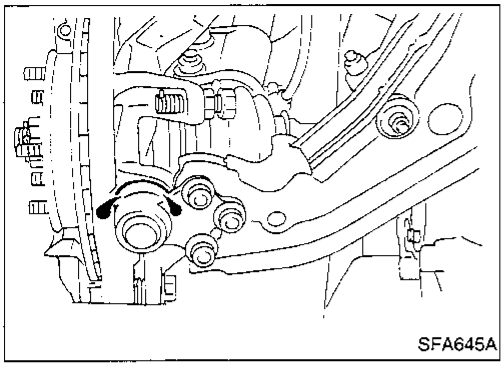
- Check wheelarch height from the ground.

(1) Vehicle must be unladen*, parked on a level surface, and tires checked for proper inflation and wear (tread wear indicator must not be showing).
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

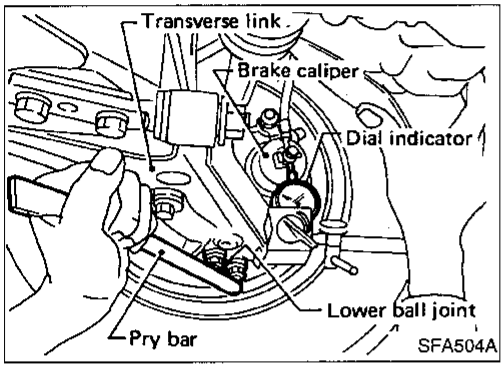
(2) Bounce vehicle up and down several times before measuring.
Standard height: Refer to FA-29.

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

Front Axle and Front Suspension Parts (Cont'd)


SFA645A

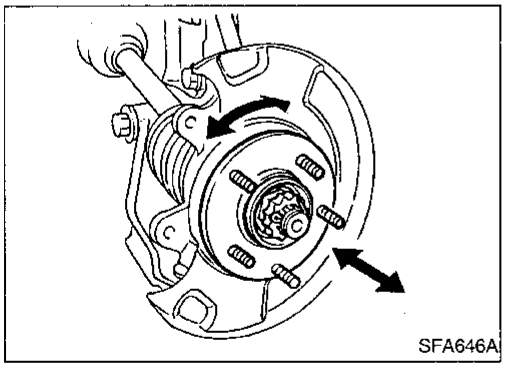
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.
  If ball joint dust cover is cracked or damaged, replace ball joint assembly.



SFA504A

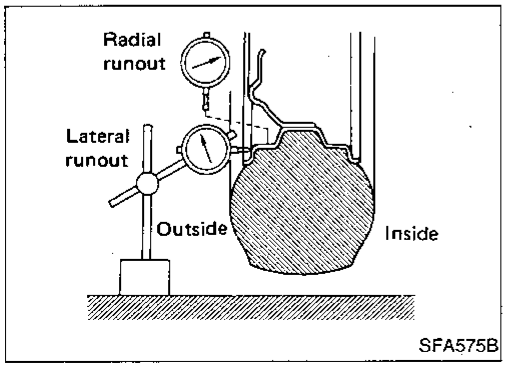
- Check suspension ball joint end play.

(1) Raise the front of vehicle and set the jack stands in place.
(2) Mount dial indicator onto transverse link and place indicator tip on lower edge of brake caliper.
(3) Make sure front wheels are straight and brake pedal is depressed.
(4) Place a pry bar between transverse link and inner rim of the wheel.
(5) While raising and lowering pry bar, observe maximum dial indicator reading.
    Vertical end play: 0 mm (0 in)
(6) If ball joint movement is beyond specifications, replace suspension ball joint and recheck vertical end play.


SFA646A

Front Wheel Bearing

- Check wheel bearings for smooth operation.
- 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-10.



SFA575B

Front Wheel Alignment

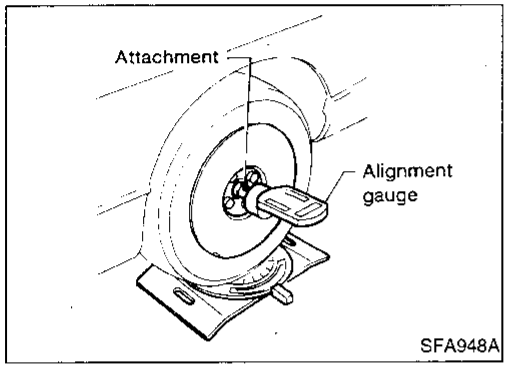
Before checking front wheel alignment, be sure to make a preliminary inspection (Unladen*).
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, handtools and mats in designated positions.

PRELIMINARY INSPECTION

1. Check tires for wear and proper inflation.
2. Check wheel runout.
   Wheel runout: Refer to FA-30.

Front Wheel Alignment (Cont'd)

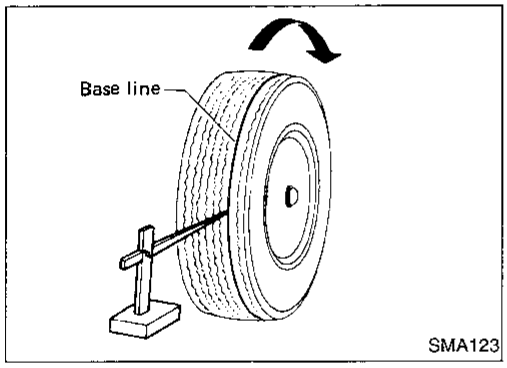
3. Check front wheel bearings for looseness.
4. Check front suspension for looseness.
5. Check steering linkage for looseness.
6. Check that front shock absorbers work properly.
7. Check wheelarch height (Unladen).



CAMBER, CASTER AND KINGPIN INCLINATION

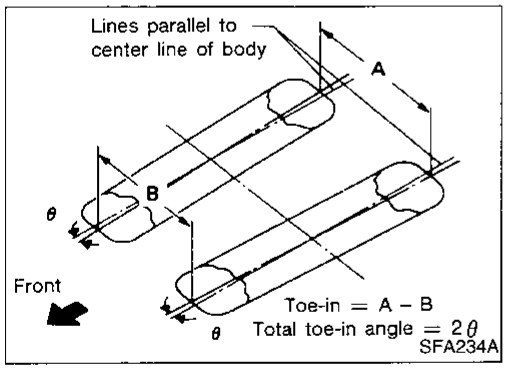
Camber, caster and kingpin inclination are preset at factory and cannot be adjusted.

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 FA-30.
2. If camber, caster and kingpin inclination are not within specification, inspect and replace any damaged or worn front suspension parts.

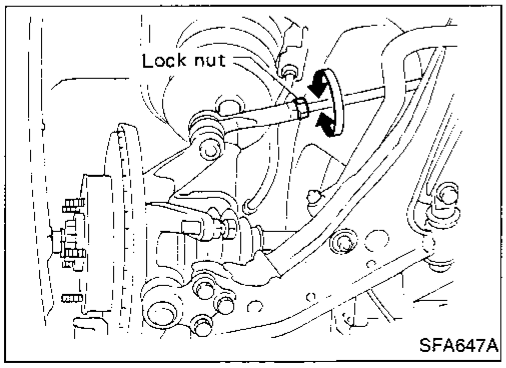


TOE-IN

1. Raise the front of the vehicle and draw a base line around the tread.
2. Lower front of vehicle, bounce vehicle up and down to normalize wheel position, and set wheels in straight-ahead position.

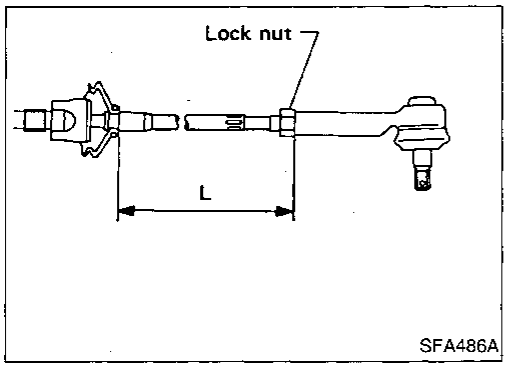


3. Measure toe-in.
- Measure distance "A" and "B" at the same height as wheel hub center.
  Total toe-in:
  Refer to FA-30.



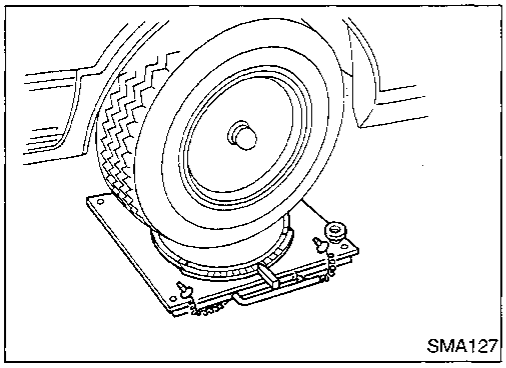
4. Adjust toe-in by varying the length of steering tie-rods.
a. Loosen lock nuts.
b. Adjust toe-in by turning tie-rods in or out.

Front Wheel Alignment (Cont'd)



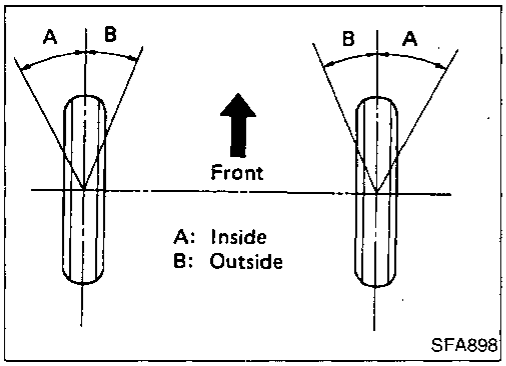
Standard length "L":
Refer to ST section ("Inspection", "STEERING WHEEL AND STEERING COLUMN").

c. Tighten lock nuts to specified torque.
: 41 - 81 N·m (4.2 - 8.3 kg-m, 30 - 60 ft-lb)



FRONT WHEEL TURNING ANGLE

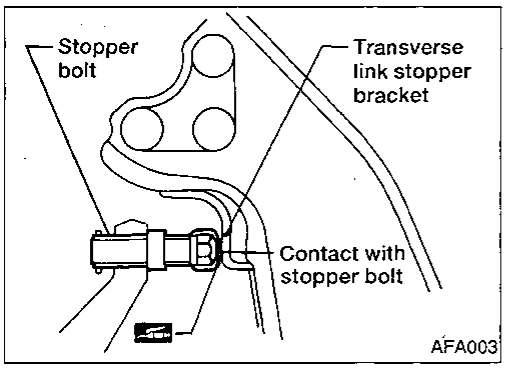
1. Set wheels in straight-ahead position and then move vehicle forward until front wheels rest properly on turning radius gauge.



2. Rotate steering wheel all the way right and left with a force of 98 to 147 N (10 to 15 kg, 22 to 33 lb) while engine is running at idle and measure turning angle.

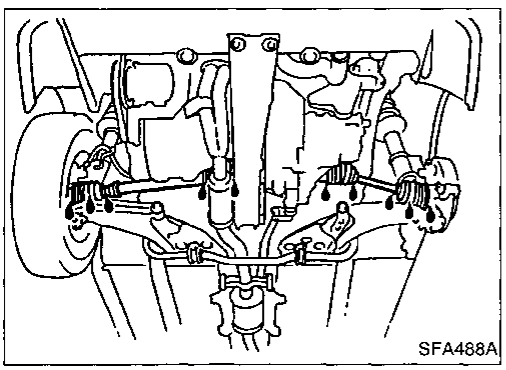
Do not hold the steering wheel on full lock for more than 15 seconds.

Wheel turning angle (Full turn):
Refer to FA-30.



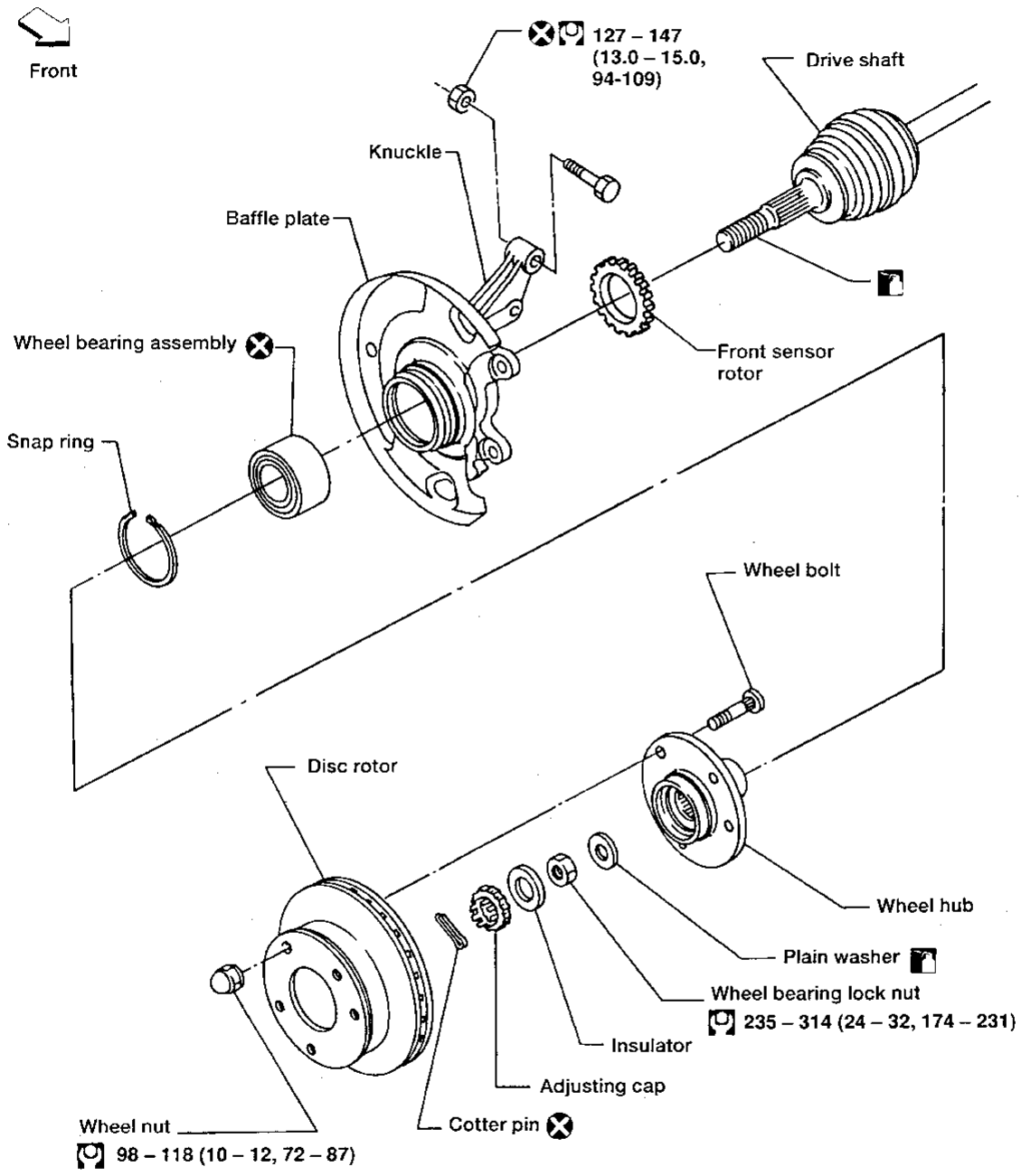
3. If stopper bolt head does not contact stopper bracket at specified outside wheel angle, remove stopper bolt cap, loosen stopper bolt lock nut and adjust stopper bolt to contact stopper bracket at the correct angle.
Install stopper bolt cap.
Apply grease to face of stopper bracket that stopper bolt touches.

Tighten stopper bolt lock nut.
: 54 - 72 N·m (5.5 - 7.3 kg-m, 40 - 53 ft-lb)

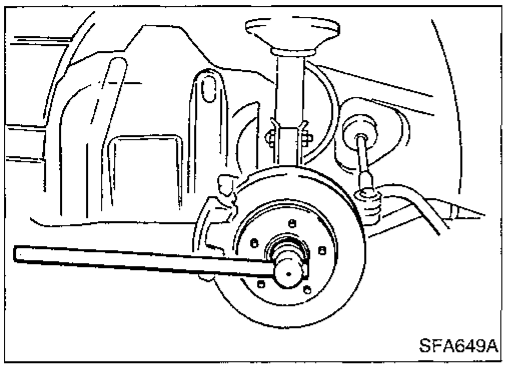


Drive Shaft

Check for grease leakage or other damage.

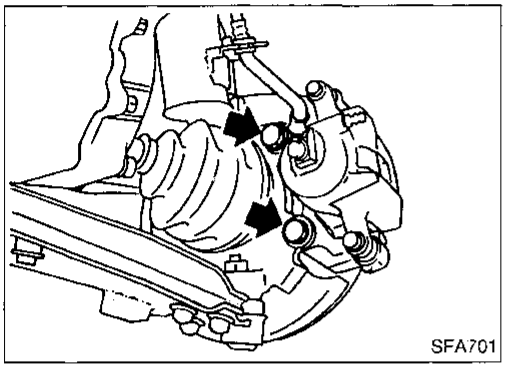

Front
127 – 147 (13.0 – 15.0, 94-109)
Drive shaft
Knuckle
Baffle plate
Wheel bearing assembly
Front sensor rotor
Snap ring
Wheel bolt
Disc rotor
Wheel hub
Plain washer
Wheel bearing lock nut
235 – 314 (24 – 32, 174 – 231)
Insulator
Adjusting cap
Cotter pin
Wheel nut
98 – 118 (10 – 12, 72 – 87)
: N•m (kg-m, ft-lb)

AFA040



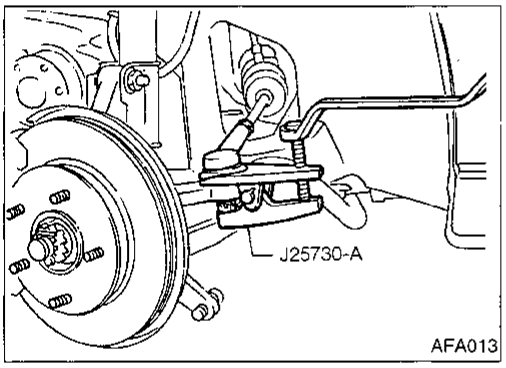
Removal

- Remove wheel bearing lock nut.



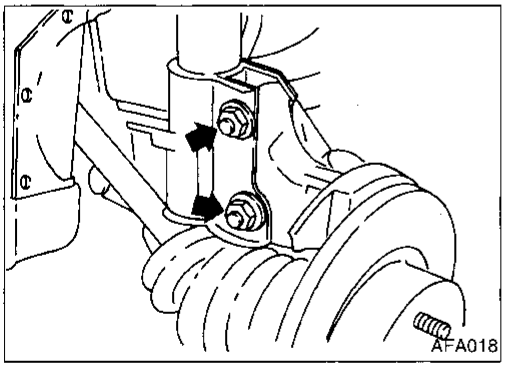
- Remove brake caliper assembly and rotor.

Suspend caliper assembly with wire so as not to stretch brake hose. Make sure brake hose is not twisted.
Be careful not to depress brake pedal, or piston will pop out.

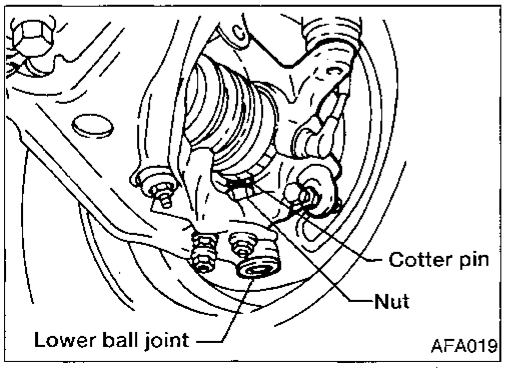


- Separate tie-rod ball joint from knuckle with Tool.

Install stud nut on stud bolt with castellated side facing up to prevent damage to stud bolt.

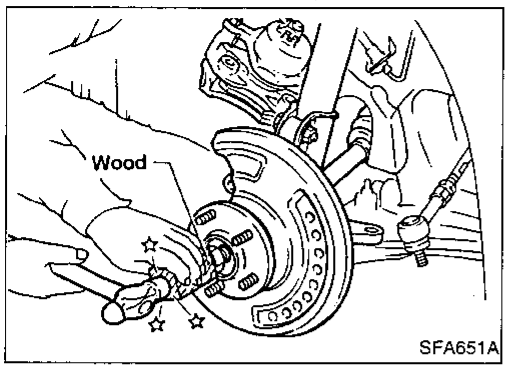


- Remove nuts and bolts shown at left.



- Remove cotter pin and nut securing lower ball joint to knuckle.
- Strike knuckle with a hammer and pull down control arm to separate lower ball joint from knuckle.

Removal (Cont'd)



- 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.

- Remove knuckle with wheel hub.

Installation

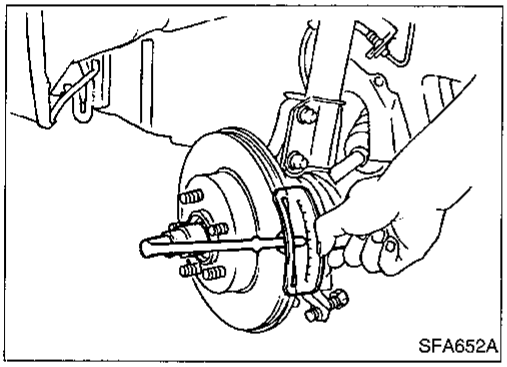
- Install knuckle with wheel hub.
- Replace strut lower mounting nuts.

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

: 127 - 147 N·m (13.0 - 15.0 kg-m, 94 - 108 ft-lb)

- Tighten tie-rod ball joint nut.

: 29 - 39 N·m (3.0 - 4.0 kg-m, 22 - 29 ft-lb)

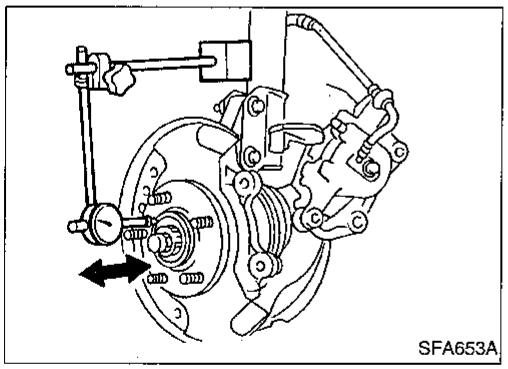


Before tightening wheel bearing lock nut, apply oil to threaded portion of drive shaft and to both sides of plain washer.

- Tighten wheel bearing lock nut.

: 235 - 314 N·m (24 - 32 kg-m, 174 - 231 ft-lb)

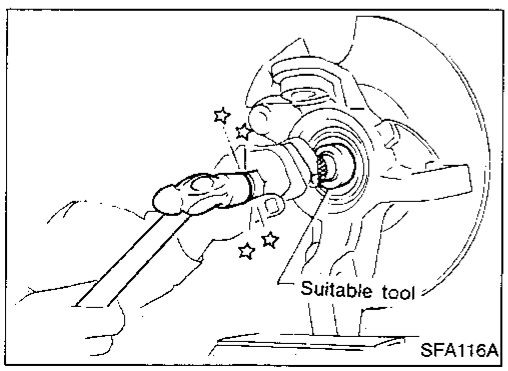
- Check that wheel bearings operate smoothly.



- Check wheel bearing axial end play.

Axial end play:

0.05 mm (0.0020 in) or less



Disassembly

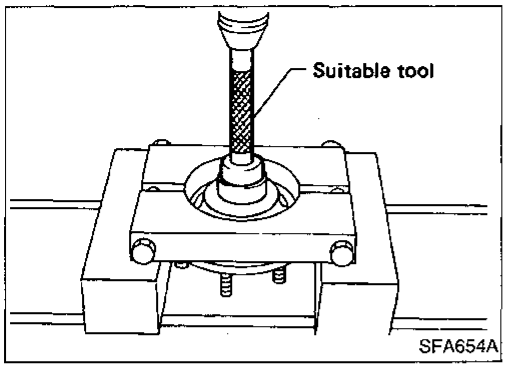
CAUTION:

When removing wheel hub or wheel bearing from knuckle, replace wheel bearing assembly with a new one.

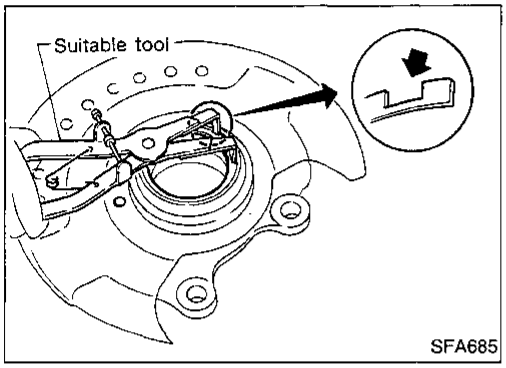
WHEEL HUB

- Remove wheel hub from knuckle with a suitable tool.

Disassembly (Cont'd)

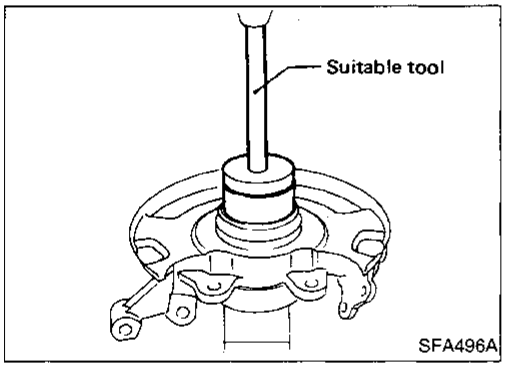


- If wheel bearing inner race (outside) is removed together with wheel hub, press out wheel bearing inner race.



WHEEL BEARING

- Remove snap ring with suitable tool.



- Press out wheel bearing.

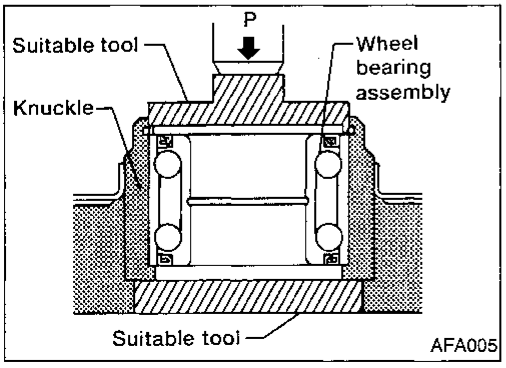
Inspection

WHEEL HUB AND KNUCKLE

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

SNAP RING

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



Assembly

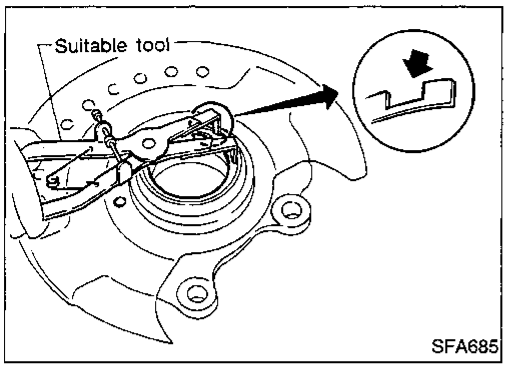
1. Press new wheel bearing assembly into knuckle.

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

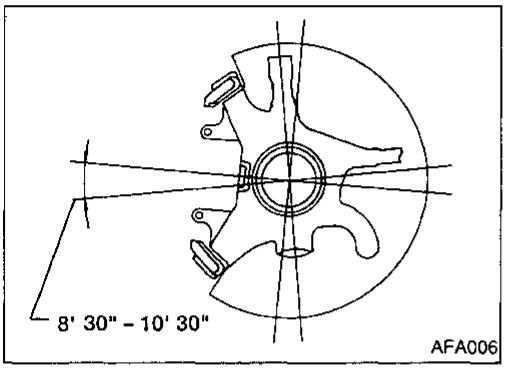
CAUTION:

- **Do not press inner race of wheel bearing assembly.**
- **Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.**

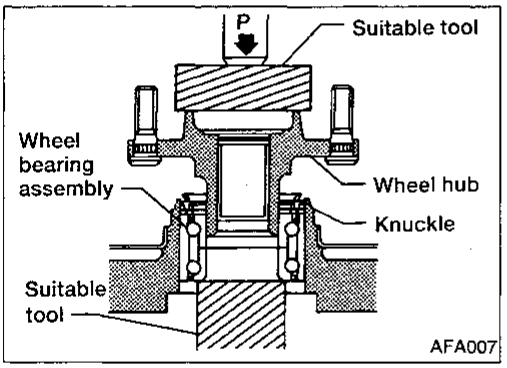
Assembly (Cont'd)



2. Install snap ring into groove of knuckle.

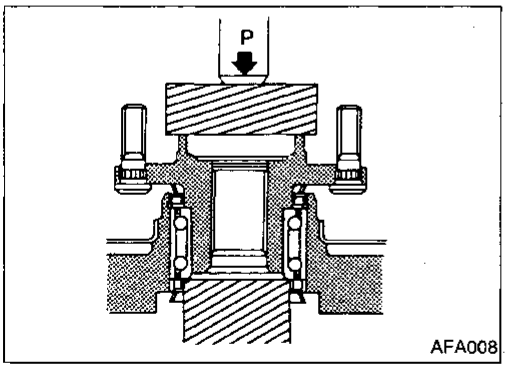


3. Install baffle plate and splash guard onto knuckle.

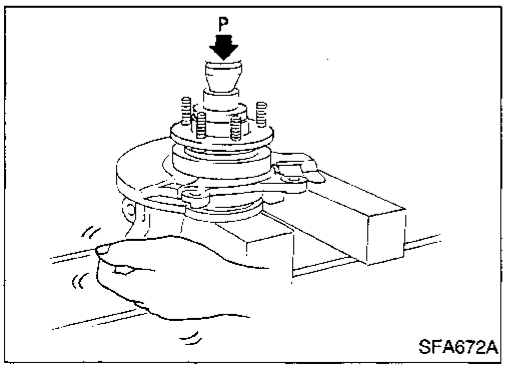


4. Press wheel hub into knuckle.
   Maximum load P:
   29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)

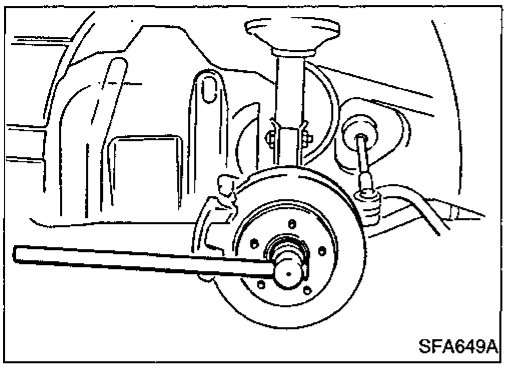
Wheel bearing inner race must be held as shown.



5. Check wheel bearing end play.
(1) Add load P with press.
   Load P:
   39.2 - 82.4 kN
   (4.0 - 8.4 ton, 4.4 - 9.3 US ton, 3.94 - 8.27 Imp ton)



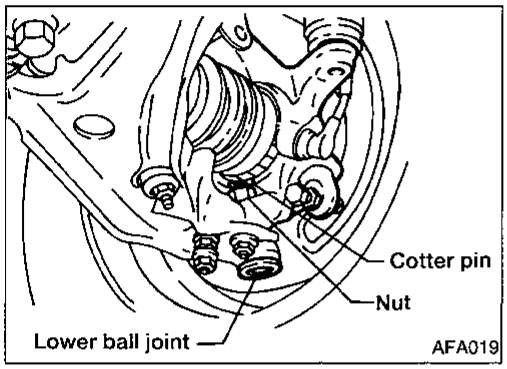
(2) Spin knuckle several turns in both directions.
(3) Make sure that wheel bearings operate smoothly.



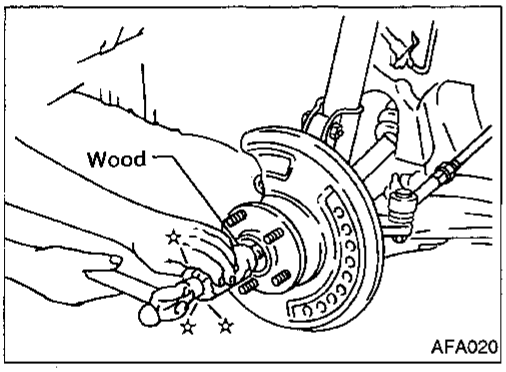
Removal

- Remove wheel bearing lock nut.

Brake caliper need not be disconnected.
Do not twist or stretch brake hose when moving components.

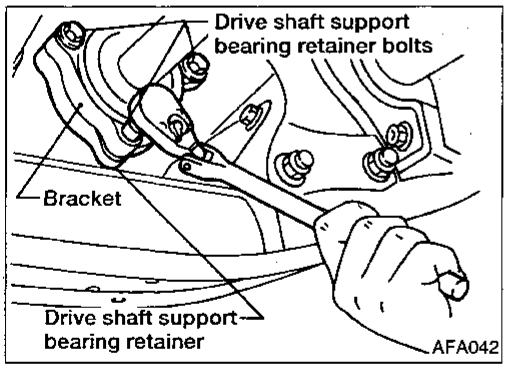


- Remove cotter pin and nut securing lower ball joint to knuckle.
- Strike knuckle with a hammer and pull down control arm to separate lower ball joint from knuckle.



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

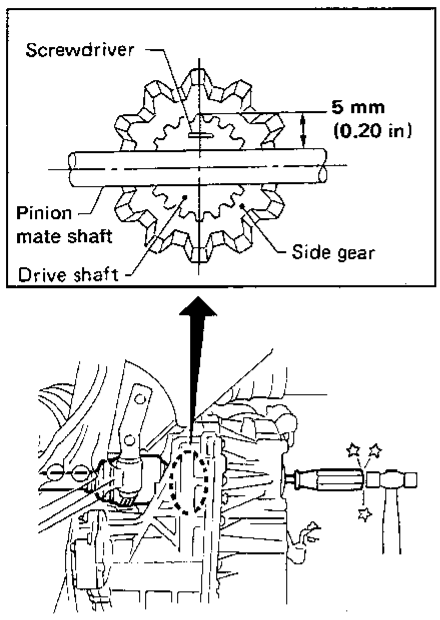
When removing drive shaft, cover boots with shop towel to prevent damage to them.



1. Remove drive shaft support bearing retainer bolts.
2. Remove right drive shaft from transaxle.

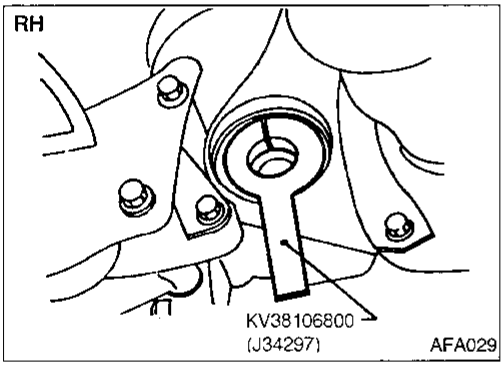
Removal (Cont'd)

A/T model



3. Remove left drive shaft with a suitable tool.
- Insert screwdriver into transaxle opening for right drive shaft and strike with a hammer.

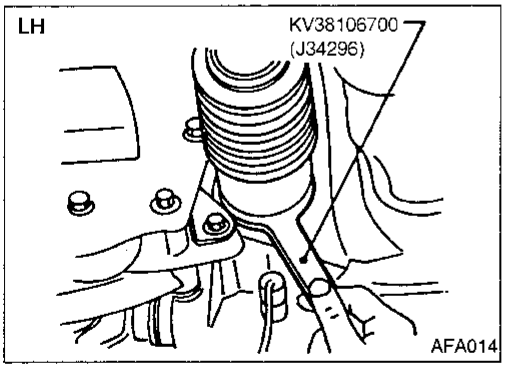
Be careful not to damage pinion mate shaft and side gear.



Installation

TRANSAXLE SIDE

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



3. Insert drive shaft into transaxle. Be sure to properly align the serrations and then remove Tool.
4. Push drive shaft, so circular clip on the drive shaft seats into circular clip groove of side gear.
5. After installing, try to pull the flange out of the slide joint by hand. If it pulls out, the circular clip is not properly seated with the side gear.

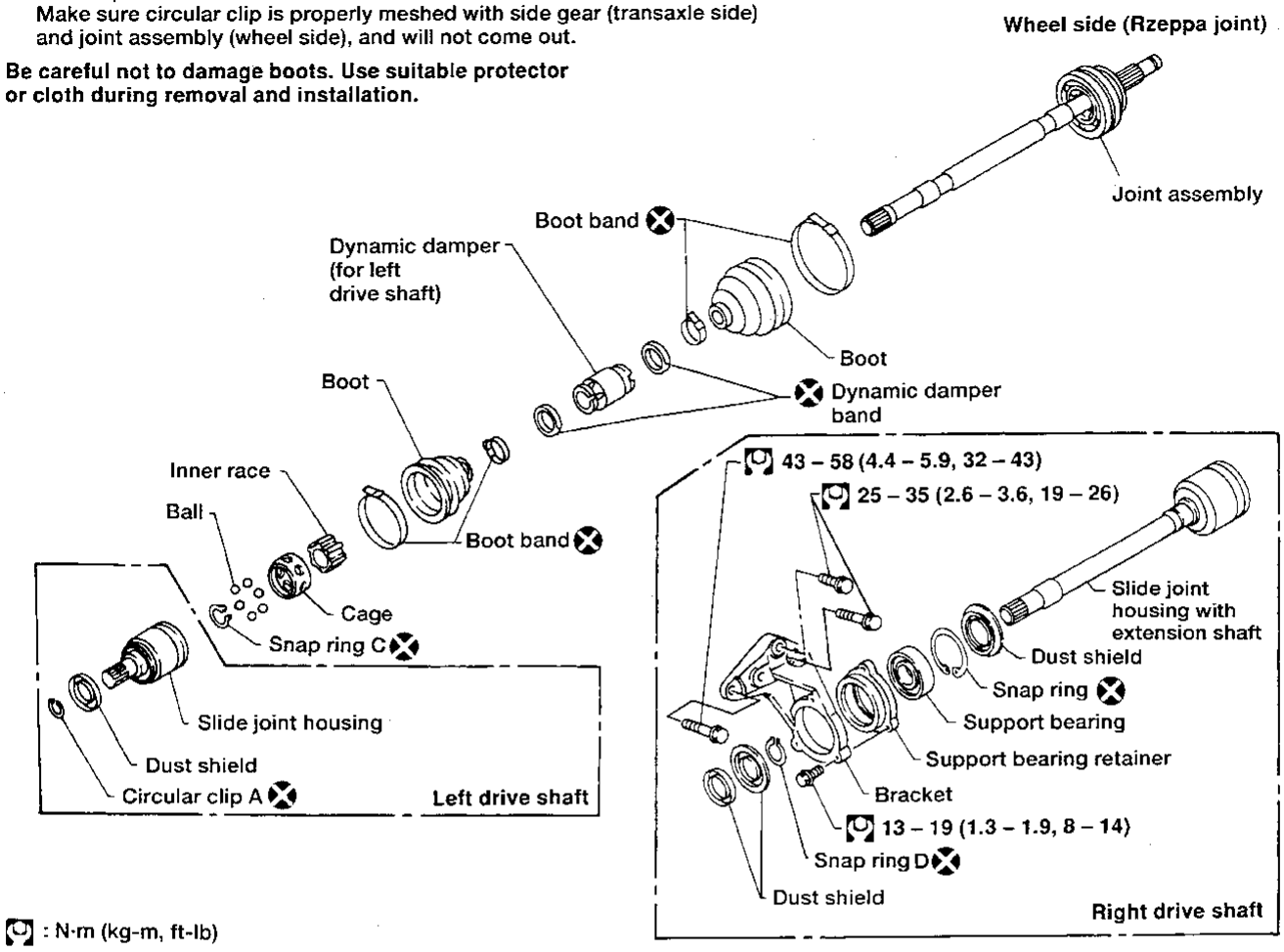
WHEEL SIDE

- Install drive shaft into knuckle.
- Tighten wheel bearing lock nut. Refer to FA-11.

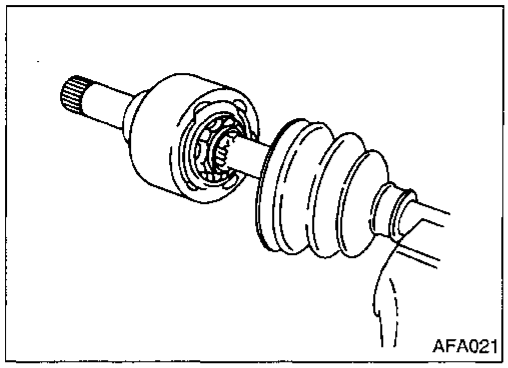
Components

Circular clip:
Make sure circular clip is properly meshed with side gear (transaxle side) and joint assembly (wheel side), and will not come out.

Be careful not to damage boots. Use suitable protector or cloth during removal and installation.



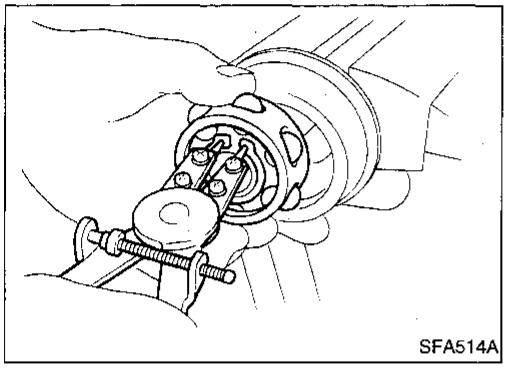
: N·m (kg-m, ft-lb)


AFA021

Disassembly

TRANSAXLE SIDE

1. Remove boot bands.
2. Scribe alignment marks on slide joint housing and inner race, before separating joint assembly.


SFA514A

3. Scribe alignment marks on inner race and drive shaft.
4. Remove snap ring, then remove ball cage, inner race and balls as a unit.

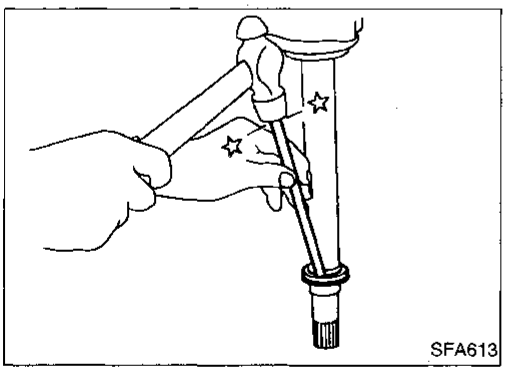
Cover drive shaft serrations with tape so as not to damage the boot.

5. Remove boot from drive shaft.

WHEEL SIDE

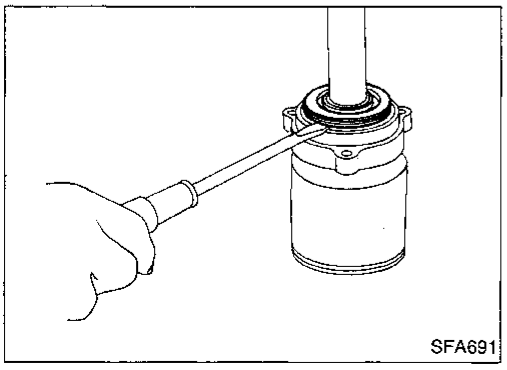
CAUTION:
The joint on the wheel side cannot be disassembled from the shaft.

- Remove boot bands and the boot.

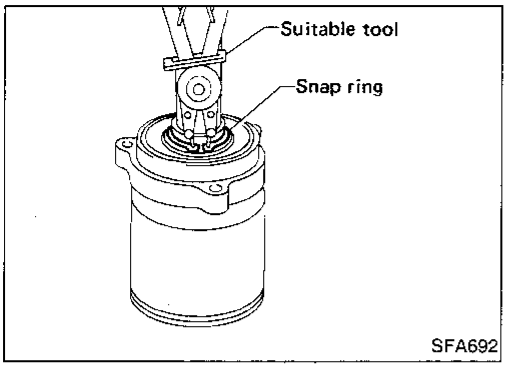

SFA613

SUPPORT BEARING

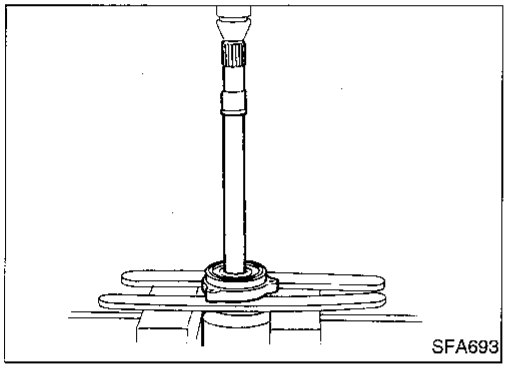
- Remove dust shield.


SFA691

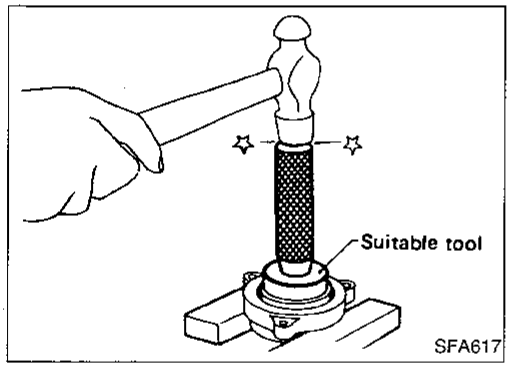
Disassembly (Cont'd)



- Remove snap ring.



- Press support bearing assembly off of drive shaft.



- Remove support bearing from retainer.

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)

Replace joint assembly if it is deformed or damaged.

JOINT ASSEMBLY (Wheel side)

Replace joint assembly with shaft if it is deformed or damaged.

Inspection (Cont'd)

SUPPORT BEARING

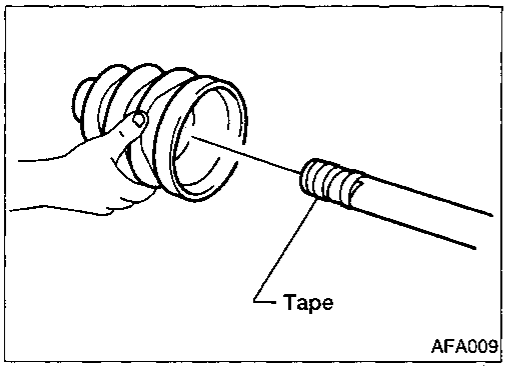
Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear.

SUPPORT BEARING BRACKET

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

Assembly

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

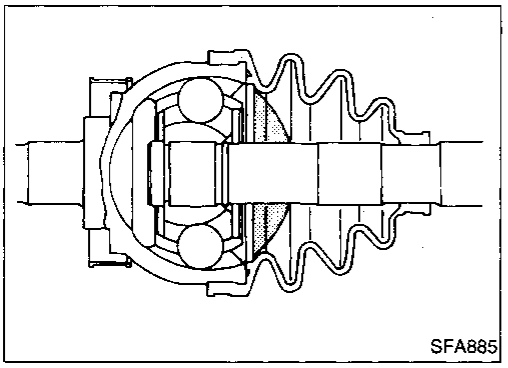


AFA009

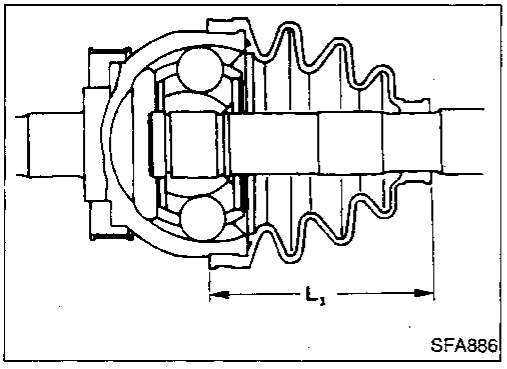
WHEEL SIDE

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

1. Install boot and new small boot band on drive shaft from transaxle joint side.


SFA885

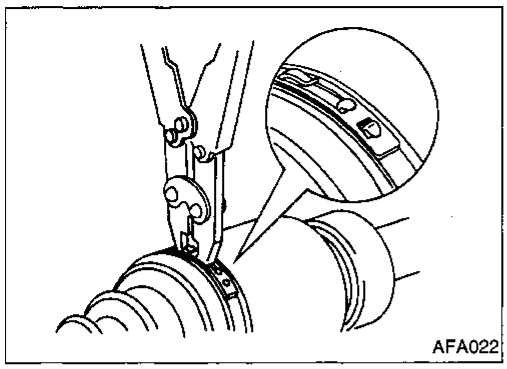
2. Pack drive shaft joint with specified amount of grease.
   Specified amount of grease:
   175 - 195 g (6.17 - 6.88 oz)



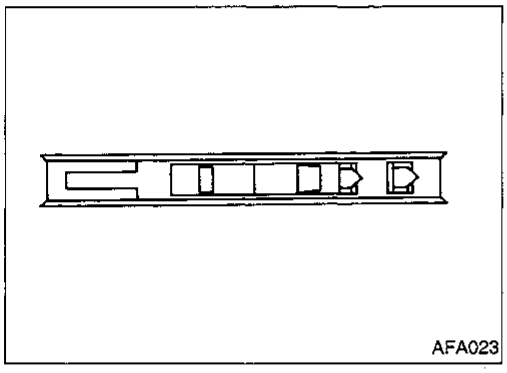
SFA886

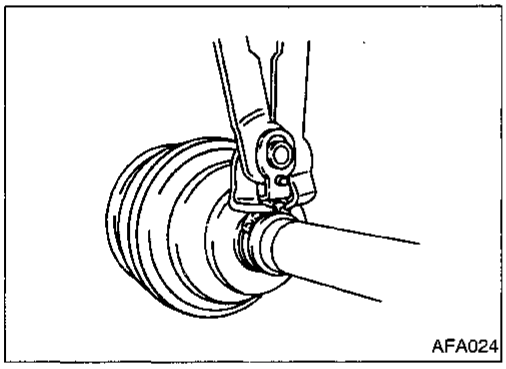
3. Make sure that boot is properly installed in the groove on the wheel side joint.
   Set boot so that it does not swell and deform when its length is "L_1".
   Length "L_1":
   86.5 - 88.5 mm (3.406 - 3.484 in)

Assembly (Cont'd)


AFA022

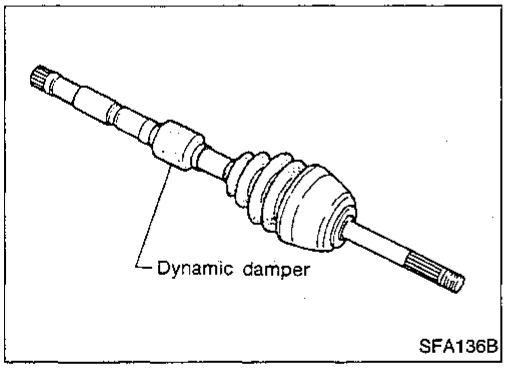
4. Lock new larger and smaller boot bands securely with a suitable tool.


AFA023

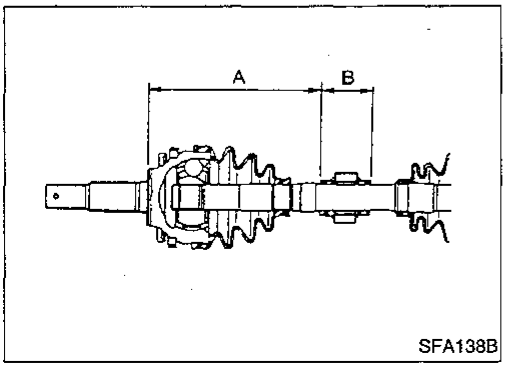

AFA024

DYNAMIC DAMPER

1. Use new damper band when installing.
2. Install dynamic damper from transaxle joint side while holding it securely.



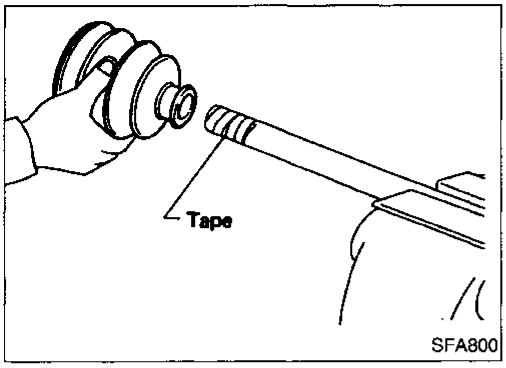
SFA136B



SFA138B

Length:
"A" 199 - 205 mm (7.83 - 8.07 in)
"B" 70 mm (2.76 in)

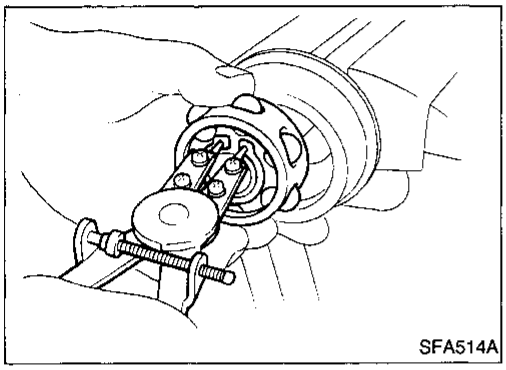
Assembly (Cont'd)



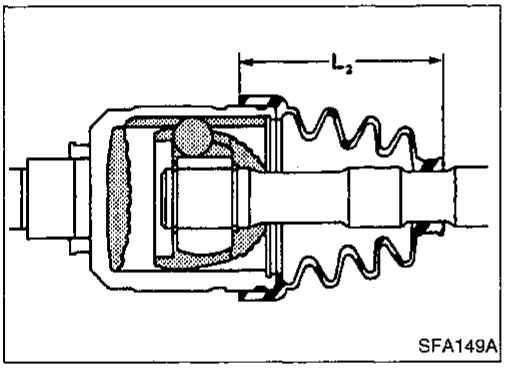
TRANSAXLE SIDE

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

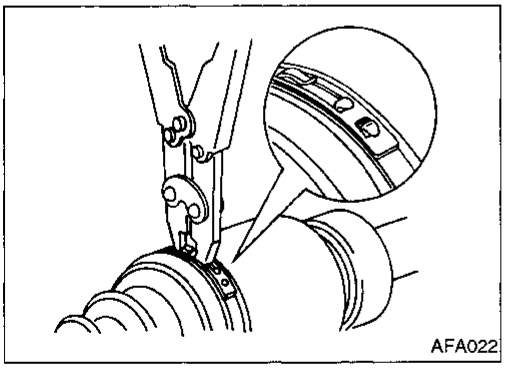
1. Install boot and new small boot band on drive shaft.



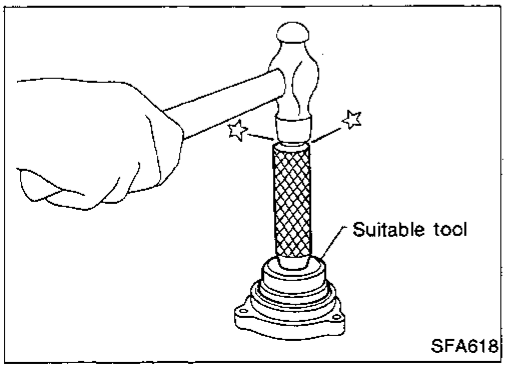
2. Securely install ball cage, inner race and balls as a unit, making sure the alignment marks which were made during disassembly are properly aligned.
3. Install new snap ring.



4. Pack drive shaft joint with specified amount of grease.
   Specified amount of grease:
   210 - 230 g (7.41 - 8.11 oz)
5. Install slide joint housing.
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 "L_2".
   Length "L_2":
   101.4 - 103.4 mm (3.99 - 4.07 in)



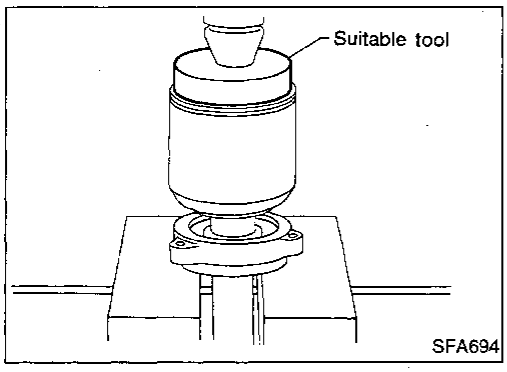
7. Lock new larger and smaller boot bands securely with a suitable tool.



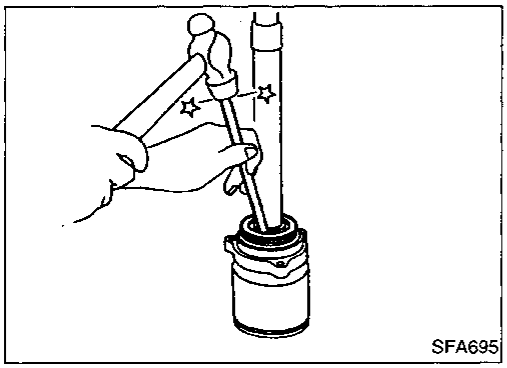
SUPPORT BEARING

- Install bearing into retainer.

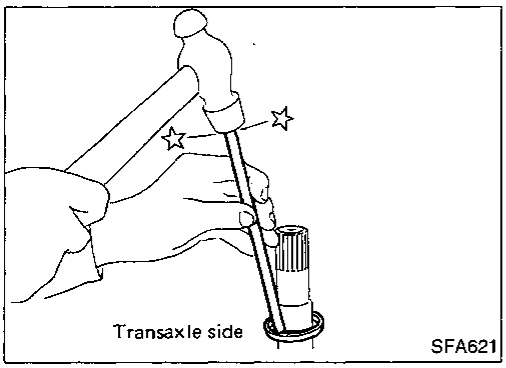
Assembly (Cont'd)



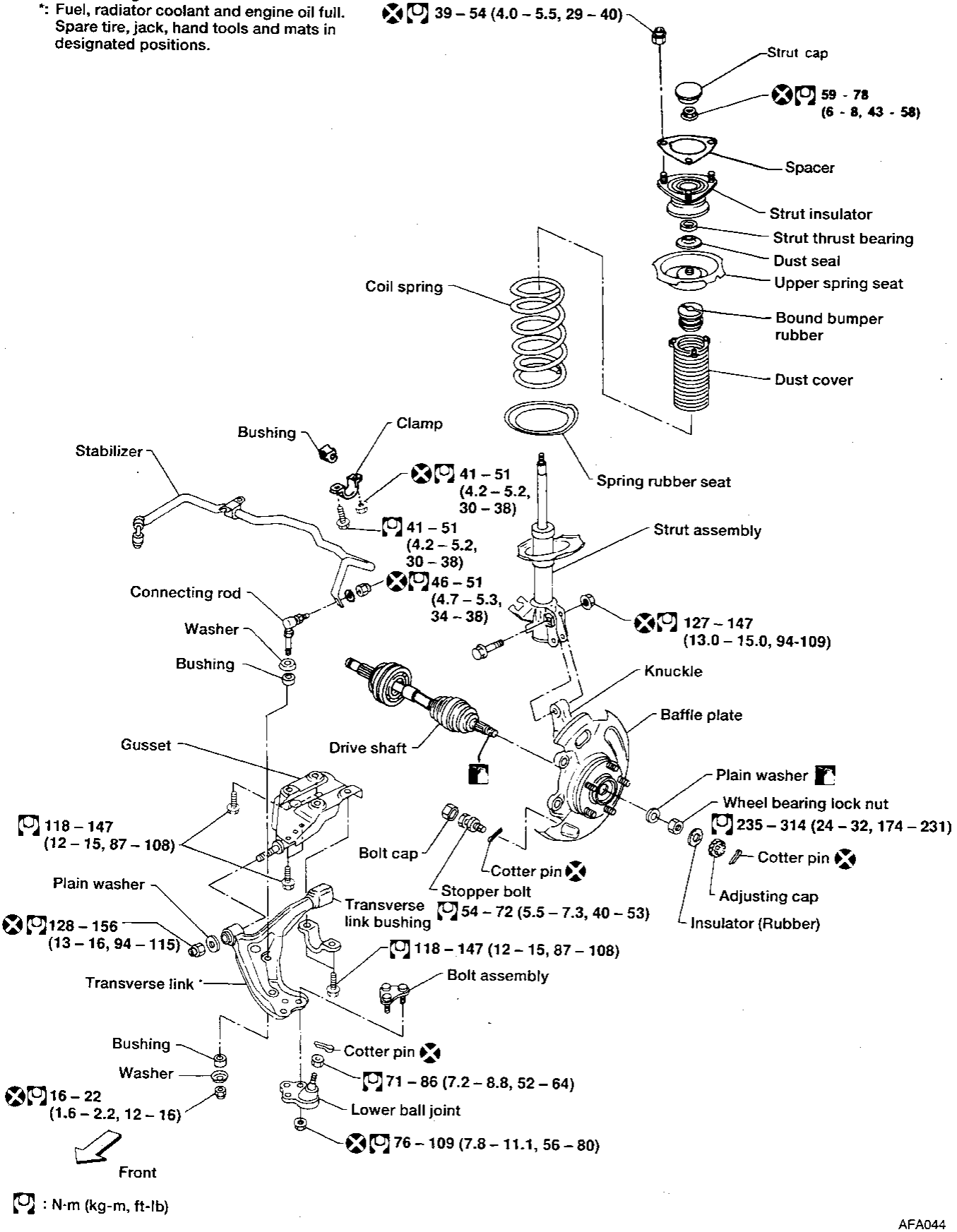
- Press support bearing assembly onto drive shaft.



- Install snap ring.
- Install new dust shield.

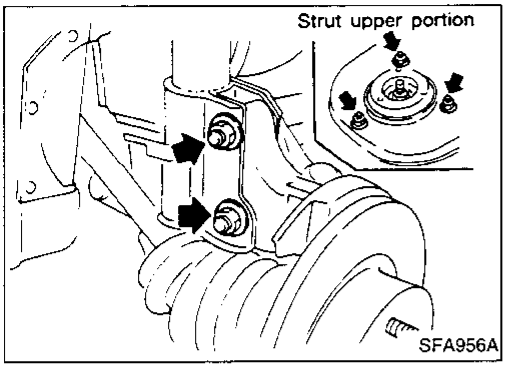


When installing rubber parts, final tightening must be carried out under unladen condition* with tires on ground.
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.



: N·m (kg-m, ft-lb)

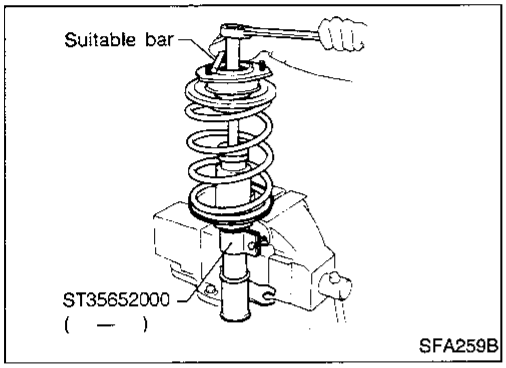
AFA044



Removal and Installation

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

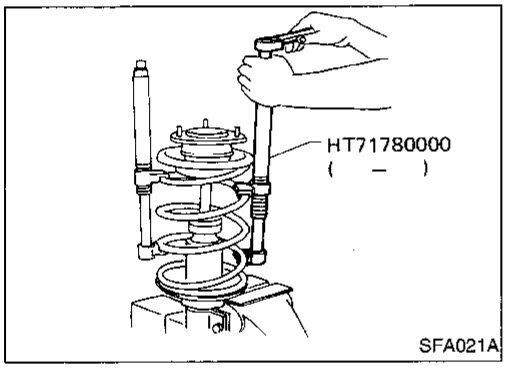
Do not remove piston rod lock nut on vehicle.



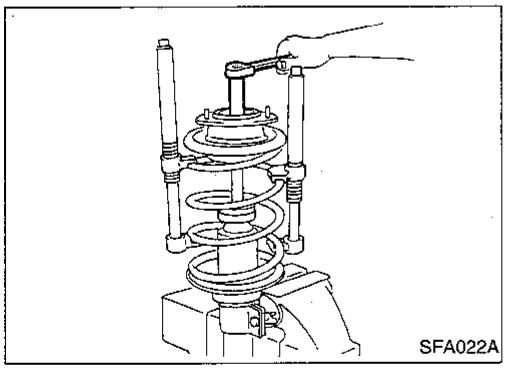
Disassembly

Do not remove piston rod lock nut at this time.
Be careful not to damage brake hose bracket.

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



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 around the strut cap area.
- Check piston rod for cracks, deformation or other damage. Replace if necessary.

Inspection (Cont'd)

MOUNTING INSULATOR

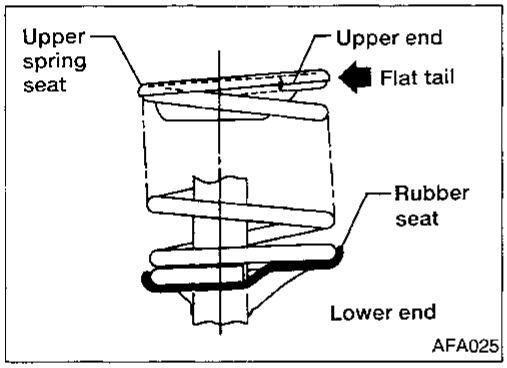
- Check rubber-to-metal bond for separation or cracks. Check rubber parts for deterioration.
  Replace if necessary.

THRUST BEARING

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

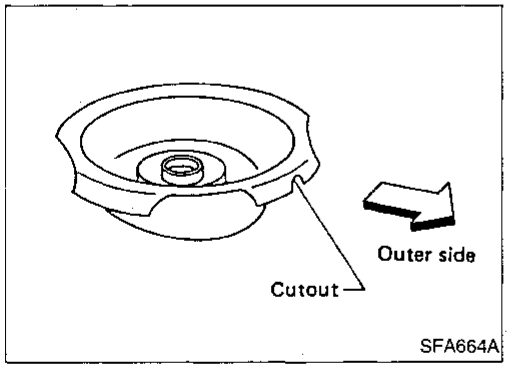
COIL SPRING AND RUBBER SEAT

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



Assembly

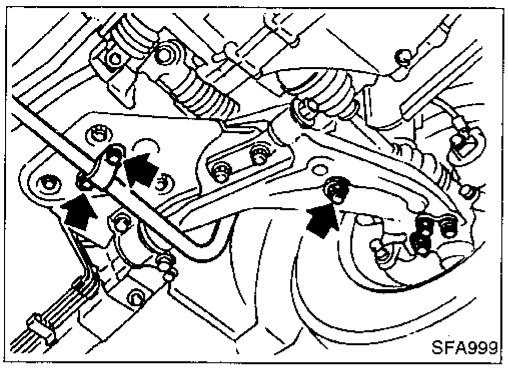
- When installing coil spring on strut, it must be positioned as shown in the figure at left.
- Be sure to match step in rubber seat with step in lower spring seat.



- Installing upper spring seat with its cutout facing the outer side of vehicle, in line with the strut-to-knuckle attachment points (±3°).
- Replace strut lower mounting nuts.

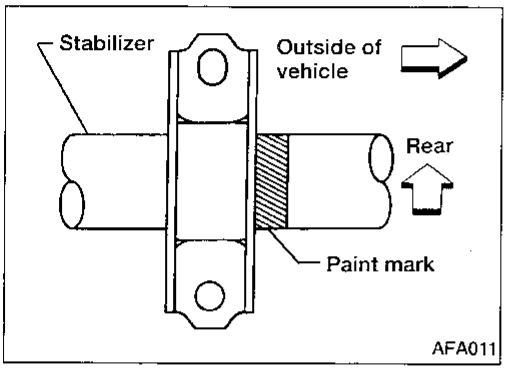
When installing strut to knuckle, be sure to hold bolts and tighten nuts.

: 127 - 147 N·m (13.0 - 15.0 kg-m, 94 - 108 ft-lb)

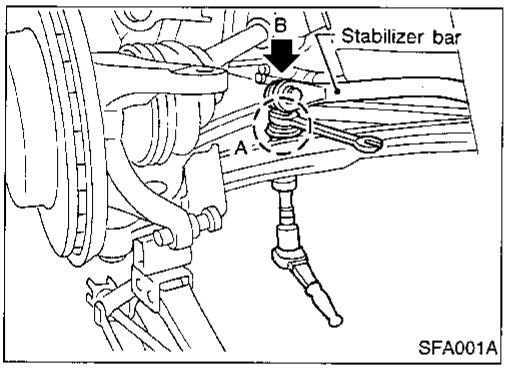


Removal and Installation

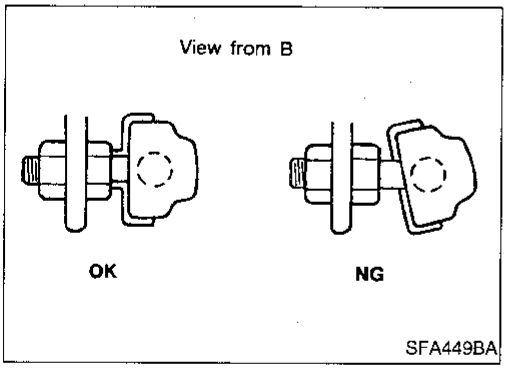
- **Make sure that dust boot is not damaged during removal or installation.**
- Remove stabilizer bar.



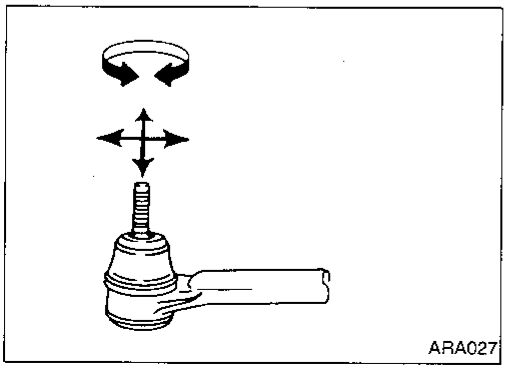
- When installing stabilizer, make sure that paint mark and clamp face in their correct directions.



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

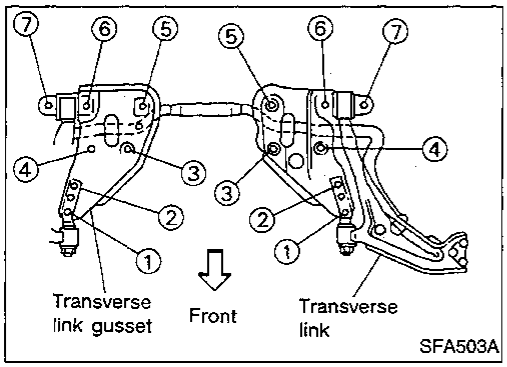


- Install stabilizer bar with ball joint socket properly placed.



Inspection

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

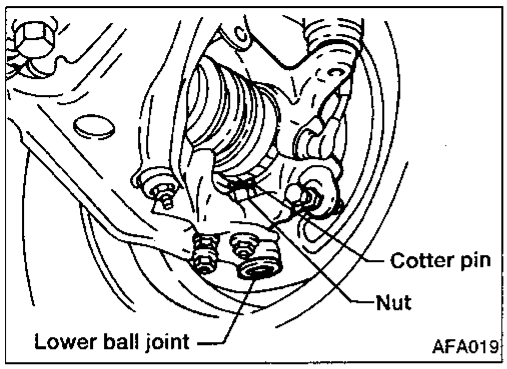


Removal and Installation

- Remove stabilizer bar.
- Remove attaching bolts.
- Install bolts in order of number as shown at left.
  Tightening torque:
  Refer to FA-23.
- During installation, final tightening must be carried out at curb weight with tires on the ground.
- After installation, check wheel alignment. Refer to FA-6.

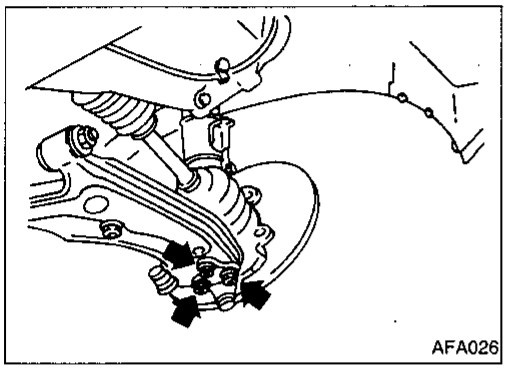
Inspection

- 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 transverse link gusset for damage, cracks or deformation. Replace if necessary.

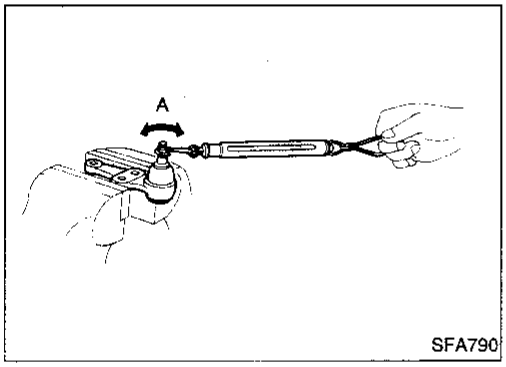


Removal and Installation

1. Remove cotter pin and nut securing lower ball joint to knuckle.
2. Strike knuckle with a hammer and pull down control arm to separate lower ball joint from knuckle.

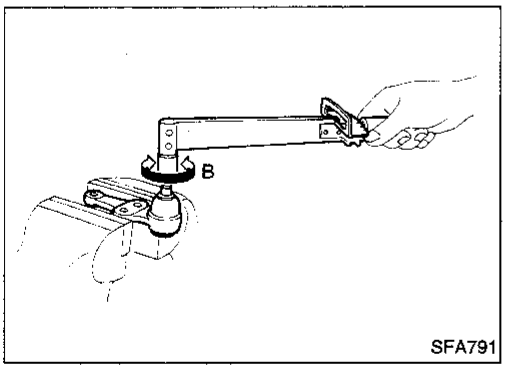


3. Remove nuts as shown at left.



Inspection

- Check ball joint for play. If ball stud is worn, play in axial direction is excessive or joint is hard to swing, replace lower ball joint.
  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)
  7.8 - 51.0 N (0.8 - 5.2 kg, 1.8 - 11.5 lb)
  Turning torque "B":
  0.5 - 3.4 N·m (5 - 35 kg-cm, 4.3 - 30.4 in-lb)
  Vertical end play:
  0 mm (0 in)
- Check dust cover for damage. Replace dust cover and cover clamp if necessary.



General Specifications

COIL SPRING

Applied model		All
Wire diameter	mm (in)	15 (0.59)
Coil diameter	mm (in)	160 (6.30)
Free length	mm (in)	391 (15.39)
Spring constant	N/mm (kg/mm, lb/in)	26.5 (2.7, 151)
Identification		VXE

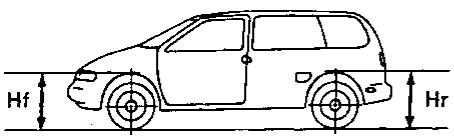
STRUT

Applied model	Standard	Option
Piston rod diameter mm (in)	22 (0.87)	
Damping force [at 0.3 m (1.0 ft)/sec.] N (kg, lb)		
Expansion	902 - 1,216 (92 - 124, 203 - 273)	941 - 1,275 (96 - 130, 212 - 287)
Compression	235 - 373 (24 - 38, 53 - 84)	265 - 402 (27 - 41, 60 - 90)

FRONT STABILIZER BAR

Applied model		All
Stabilizer diameter	mm (in)	33 (1.30) Solid
Identification color		Orange

WHEELARCH HEIGHT (Unladen*)



AFA002

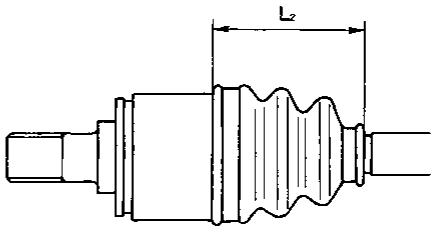
Applied model		All
Front (Hf)	mm (in)	
Standard/Optional suspension		772 ± 10 (30.39 ± 0.39)
Rear (Hr)	mm (in)	
Standard suspension		793 ± 10 (31.22 ± 0.39)
Optional suspension		793 ± 10 (31.22 ± 0.39)

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

DRIVE SHAFT

Applied model		All
Joint type		
Transaxle side		DOJ
Wheel side		Rzeppa
Grease		Nissan genuine grease or equivalent
Capacity	g (oz)	
Transaxle side		210 - 230 (7.41 - 8.11)
Wheel side		175 - 195 (6.17 - 6.88)
Boot length	mm (in)	
Transaxle side "L_2"		101.4 - 103.4 (3.99 - 4.07)
Wheel side "L_1"		86.5 - 88.5 (3.406 - 3.484)

Transaxle side



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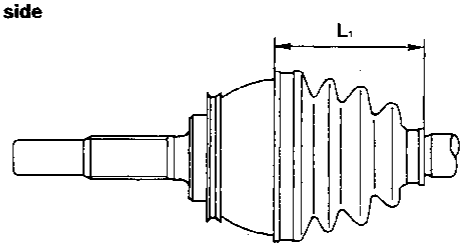
Wheel side



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Inspection and Adjustment

WHEEL ALIGNMENT (Unladen*1)

Applied model		All
Camber	degree	–27′ to 1°03′
Caster	degree	3′ - 1°33′
Kingpin inclination	degree	12°50′ - 14°20′
Toe-in		
A – B	mm (in)	2 - 4 (0.08 - 0.16)
Total angle 2θ	degree	11.0′ - 22.0′
Front wheel turning angle		
Full turn*2 Inside		36° - 40°
Full turn*2 Outside		28° - 32°

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

*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

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

Swinging force (Measured at cotter pin hole) N (kg, lb)	7.8 - 51.0 (0.8 - 5.2, 1.8 - 11.5)
Turning torque N·m (kg-cm, in-lb)	0.5 - 3.4 (5 - 35, 4.3 - 30.4)
Vertical end play limit mm (in)	0 (0)

WHEEL RUNOUT

Unit: mm (in)

Wheel type	Aluminum wheel	Steel wheel
Maximum radial runout limit	0.3 (0.012)	0.8 (0.031)
Maximum lateral runout limit	0.3 (0.012)	0.8 (0.031)