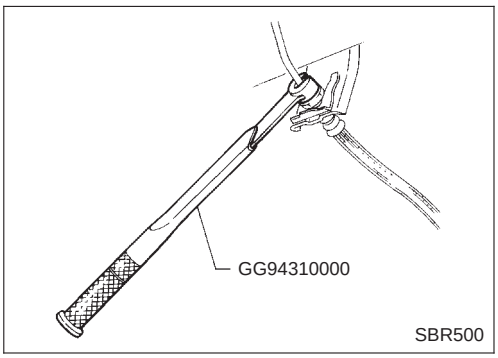
FRONT AXLE & FRONT SUSPENSION

SECTION FA

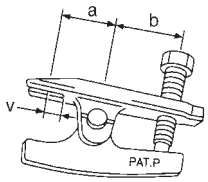
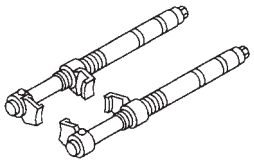
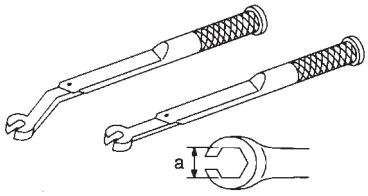
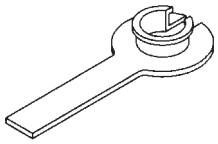
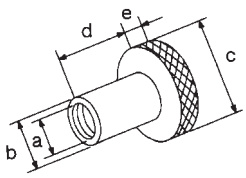
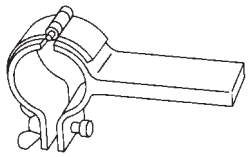
CONTENTS



Precautions

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

Special Service Tools

Tool number Tool name	Description	
HT72520000 Ball joint remover	 NT546	Removing tie-rod outer end and lower ball joint **a: 33 (1.30)** **b: 50 (1.97)** **v: 11.5 (0.453)** **Unit: mm (in)**
HT71780000 Spring compressor	 NT144	Removing and installing coil spring
GG94310000 Flare nut torque wrench	 NT406	Removing and installing brake piping **a: 10 mm (0.39 in)**
KV38106700 KV38106800 Differential side oil seal protector	 NT147	Installing drive shaft LH : KV38106700 RH : KV38106800
IM23600800 Attachment Wheel alignment	 NT148	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)
ST35652000 Strut attachment	 NT145	Fixing strut assembly

NVH Troubleshooting Chart

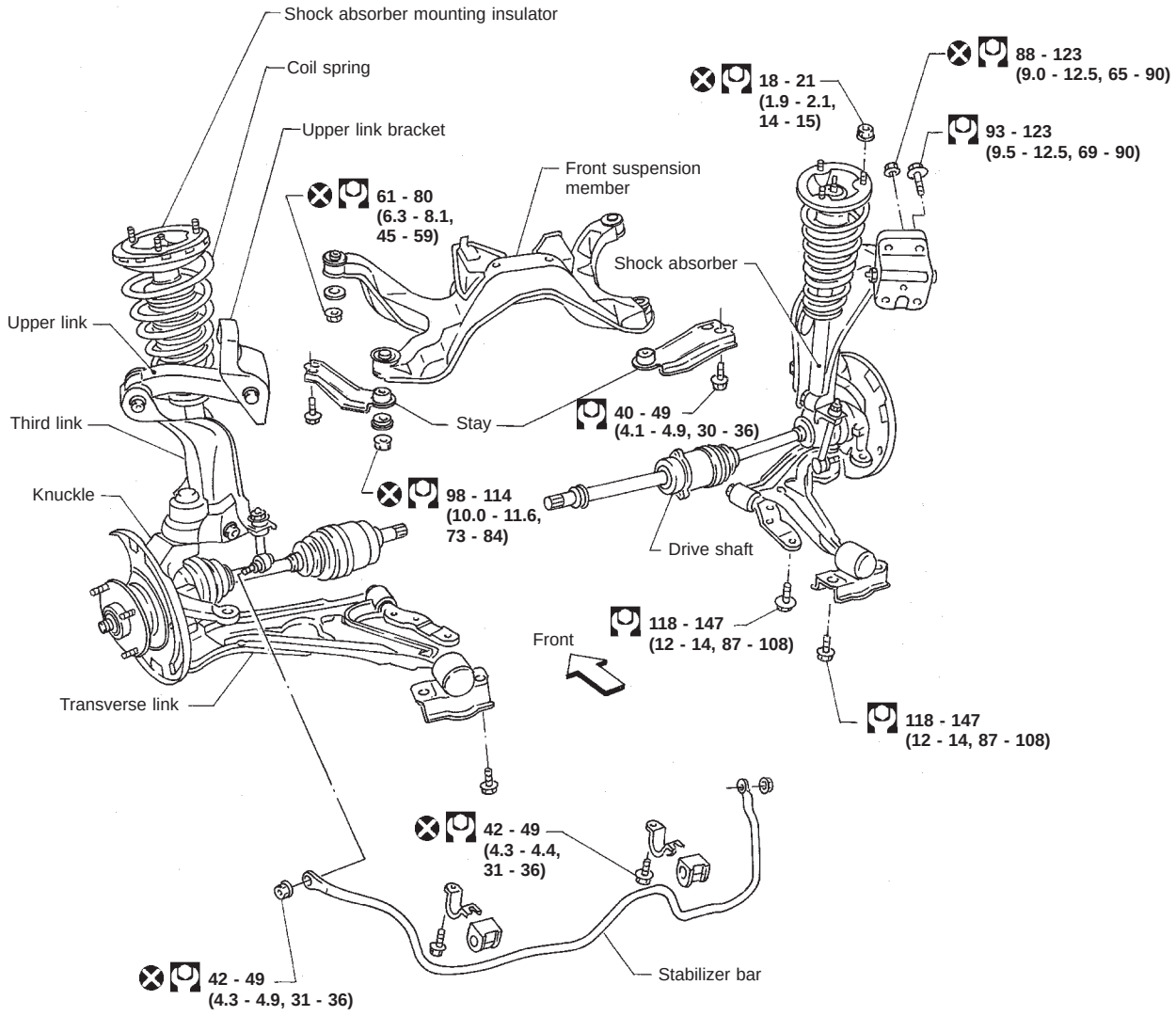
Use the chart below to help you find cause of the symptom. If necessary, repair or replace these parts.

Reference page			—	FA-21	—	FA-5	FA-29	FA-29, FA-29	—	—	FA-5	FA-6	FA-32	FA-6	FA-6	—	—	—	—	—	—	Refer to DRIVE SHAFT in this chart.	Refer to FRONT AXLE AND FRONT SUSPENSION in this chart.	Refer to TIRES in this chart.	Refer to ROAD WHEEL in this chart.	NVH in RA section	NVH in BR section	NHV in ST section
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	Wheel bearing damage	Out-of-round	Incorrect air pressure	Uneven tire wear	Deformation or damage	Non-uniformity	Incorrect tire size	DRIVE SHAFT	FRONT AXLE AND FRONT SUSPENSION	TIRES	ROAD WHEEL	REAR AXLE AND REAR SUSPENSION	BRAKES	STEERING
Symptom	DRIVE SHAFT	Noise, Vibration	X	X																		X	X	X	X	X	X
		Shake	X		X																	X	X	X	X	X	X
	FRONT AXLE AND FRONT SUSPEN-SION	Noise				X	X	X	X	X	X										X		X	X	X	X	X
		Shake				X	X	X	X		X										X		X	X	X	X	X
		Vibration				X	X	X	X	X											X		X		X		X
		Shimmy				X	X	X	X			X											X	X	X	X	X
		Judder				X	X	X															X	X	X	X	X
		Poor quality ride or handling				X	X	X	X	X		X	X	X									X	X	X		
	TIRES	Noise			X	X									X	X	X	X	X		X	X		X	X	X	X
		Shake			X	X									X	X	X	X		X	X	X		X	X	X	X
		Vibration														X				X	X	X			X		X
		Shimmy			X	X									X	X	X	X	X	X		X		X	X	X	X
		Judder			X	X									X	X	X	X		X		X		X	X	X	X
		Poor quality ride or handling			X	X									X	X	X	X		X		X		X	X		
	ROAD WHEEL	Noise			X	X									X			X			X	X	X		X	X	X
		Shake			X	X									X			X			X	X	X		X	X	X
		Shimmy, Judder			X	X									X			X				X	X		X	X	X
		Poor quality ride or handling			X	X									X			X				X	X		X		

X: Applicable

SEC. 391·400·401

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



: N·m (kg-m, ft-lb)

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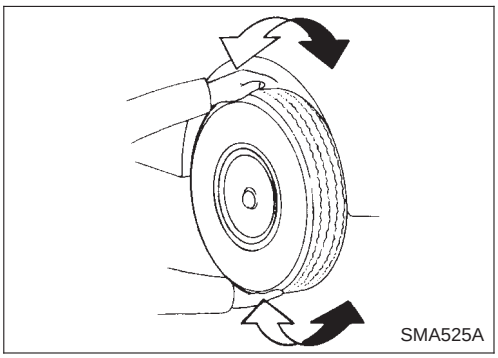
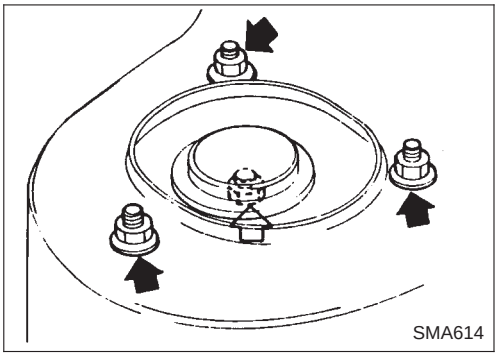

SMA525A

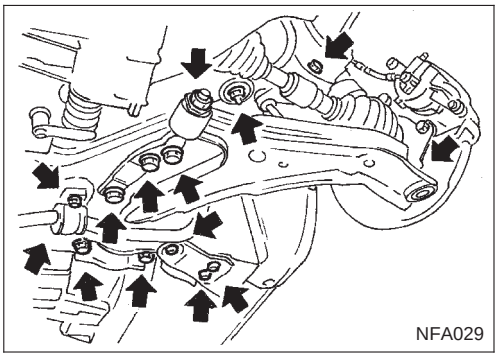
Front Axle and Front Suspension Parts

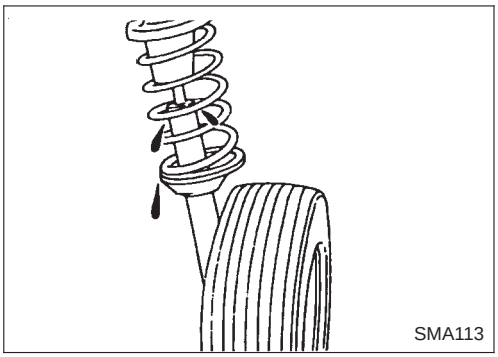
Check front axle and front suspension parts for excessive play, cracks, wear or other damage.

- Shake each front wheel to check for excessive play.
- Ensure that new cotter pins are used, and are correctly fitted.

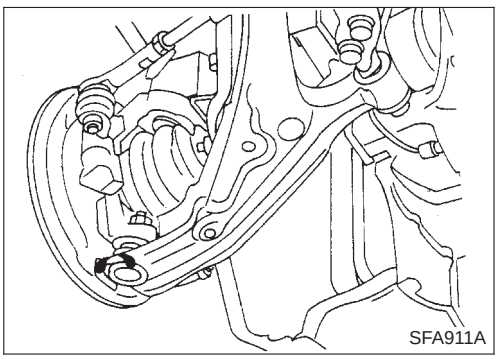

SMA614

- Retighten all axle and suspension nuts and bolts to the specified torque.
  Tightening torque:
  Refer to FRONT SUSPENSION, FA-26.


NFA029


SMA113

- Check strut (shock absorber) for oil leakage or other damage.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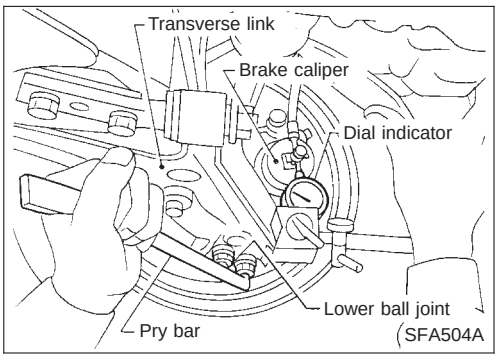
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.
  If ball joint dust cover is cracked or damaged, replace transverse link.

Front Axle and Front Suspension Parts (Cont'd)

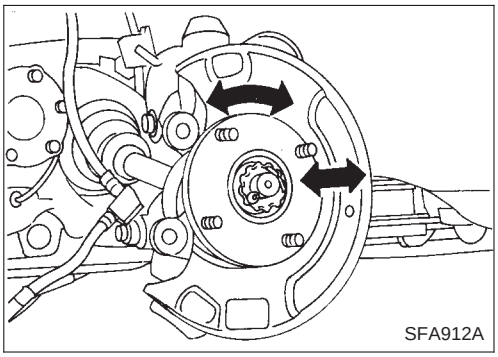


- Check suspension ball joint end play.

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)

f. If ball joint vertical end play exists, remove transverse link and recheck the ball joint. Refer to "FRONT SUSPENSION", FA-32.

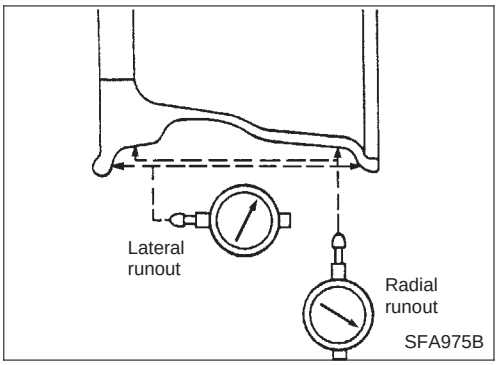


Front Wheel Bearing

- 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 "Wheel Hub and Knuckle", "FRONT AXLE", FA-FA-11.



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, hand tools and mats in designated positions.

PRELIMINARY INSPECTION

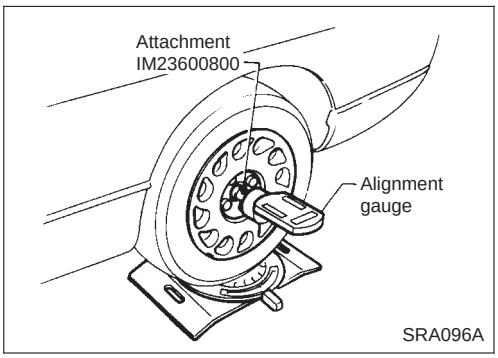
1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove tire and check wheel runout.

Wheel runout:
Refer to SDS, FA-35.

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 correctly by using the standard bounce test.
7. Check vehicle posture (Unladen).

Front Wheel Alignment (Cont'd)

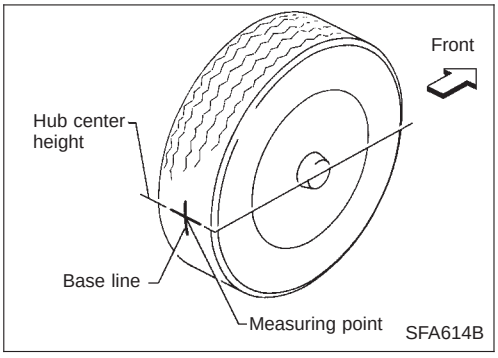
CAMBER, CASTER AND KINGPIN INCLINATION



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-35.
2. If camber, caster and kingpin inclination are not within specification, inspect front suspension parts. Replace any damaged or worn out parts.

TOE-IN

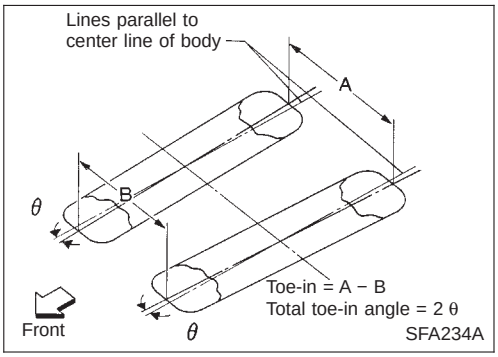


Measure toe-in using following procedure:

WARNING:

- **Always perform following procedure on a flat surface.**
- **Ensure the way in front of the vehicle is clear before pushing it.**

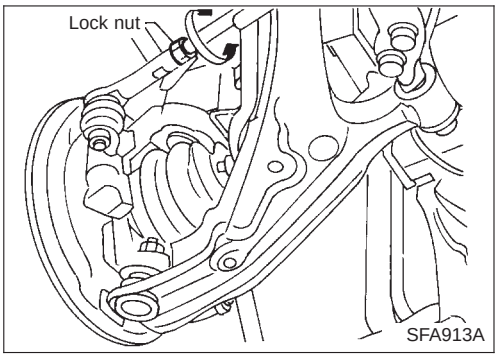
1. Bounce front of vehicle up and down to stabilize the posture.
2. Push the vehicle straight ahead for about 5 m (16 ft).
3. Put a mark on base line of the tread (rear side) of both tires at the same height as hub center. These are measuring points.



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

If the wheels have passed 180 degrees, try the above procedure again from the beginning. Never push vehicle backward.

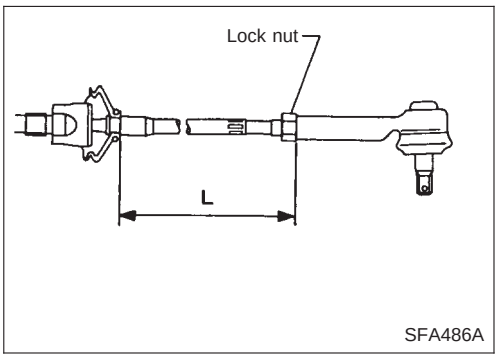
6. Measure distance "B" (front tires).
   Toe-in (A − B):
   Refer to SDS, FA-35.



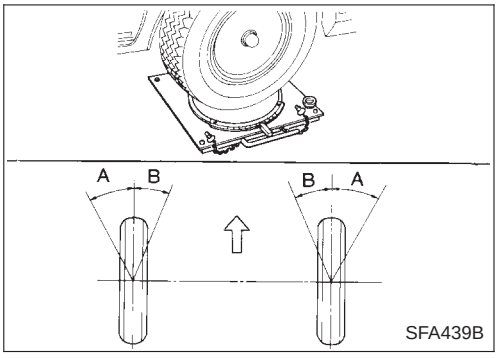
7. Adjust toe-in by varying the length of steering tie-rods.

a. Loosen lock nuts.

Front Wheel Alignment (Cont'd)



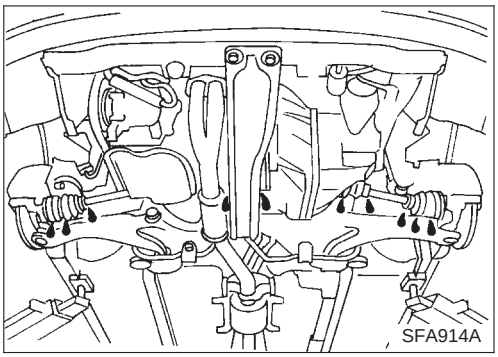
b. Adjust toe-in by screwing tie-rods in and out.
   Standard length "L":
   Refer to ST section ("General Specifications", "SDS").
c. Tighten lock nuts to specified torque.
   : 38 - 47 N·m (3.9 - 4.7 kg-m, 28 - 34 ft-lb)



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 N (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-35.

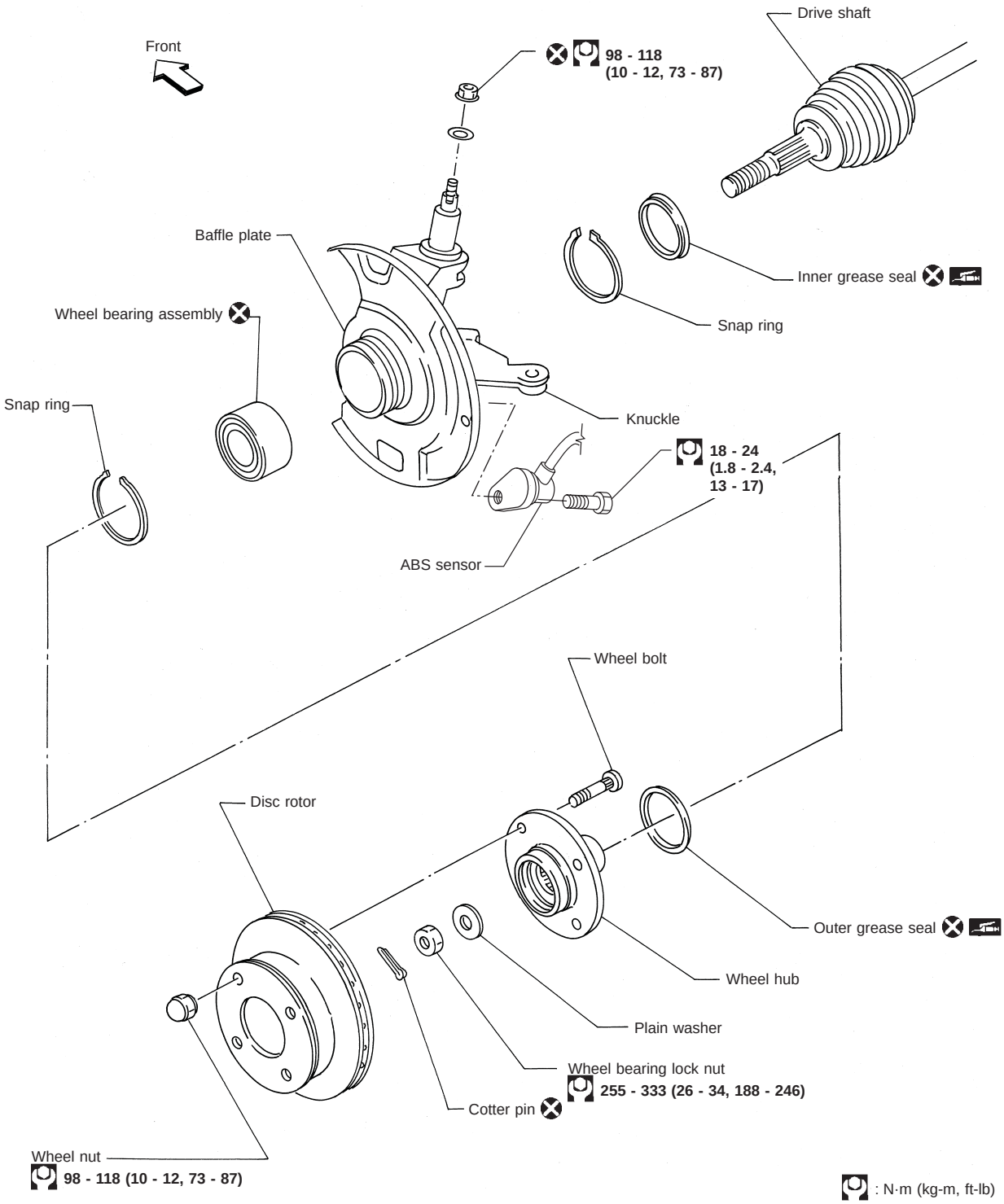


Drive Shaft

Check for grease leakage or other damage.

MODELS BEFORE VIN - P11U0559000

SEC. 400



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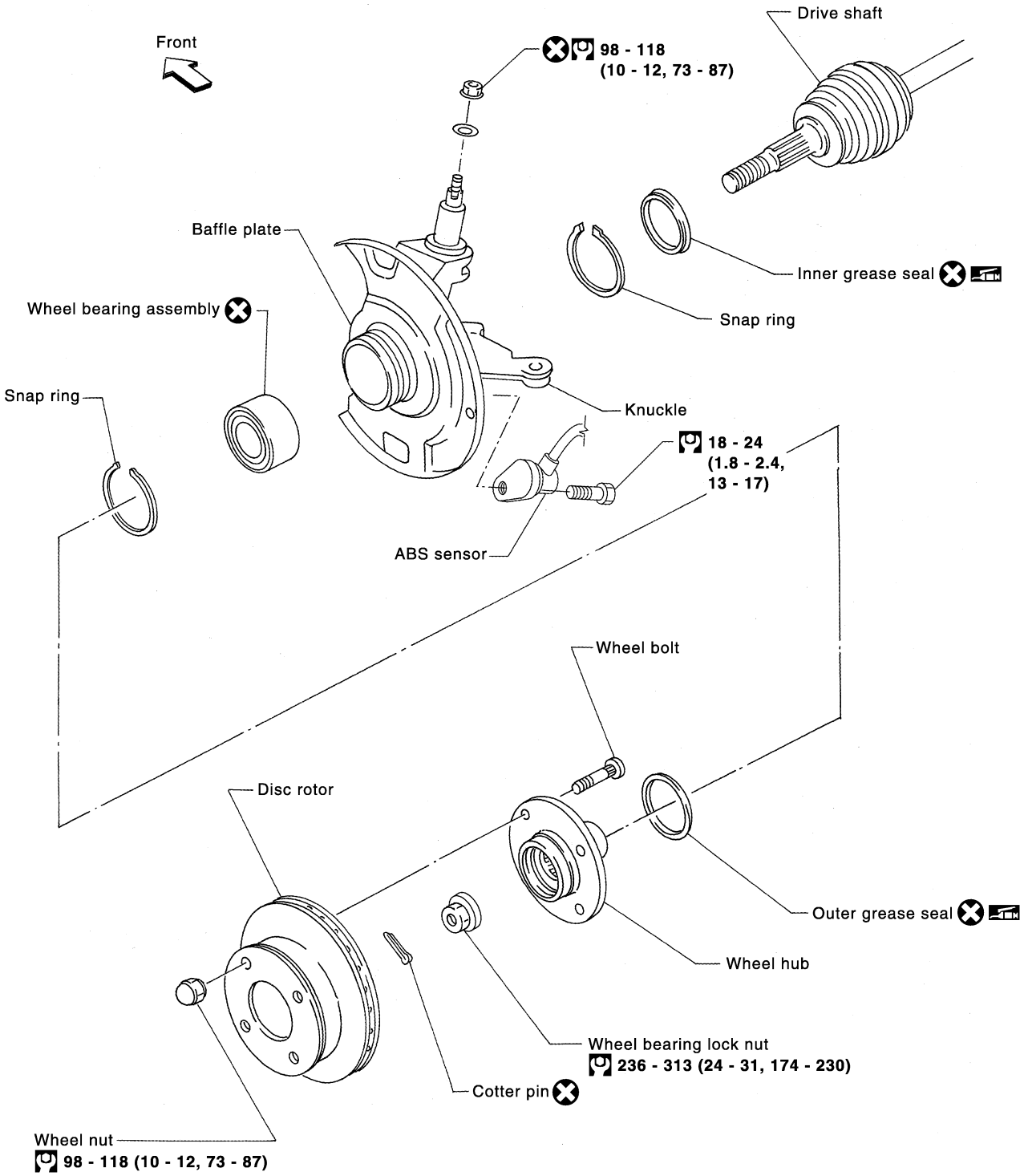
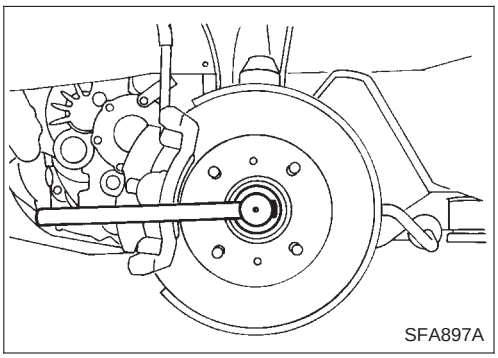
MODELS AFTER VIN - P11U0559000

SEC. 400



: N•m (kg-m, ft-lb)
: Apply grease

YFA001


SFA897A

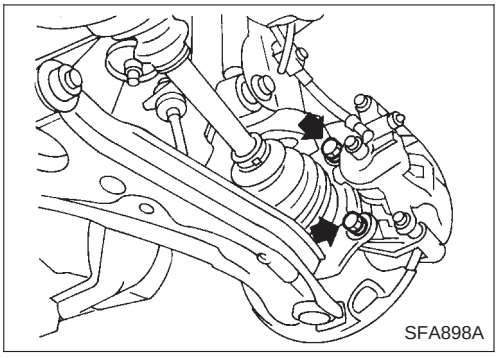
Wheel Hub and Knuckle

REMOVAL

CAUTION:

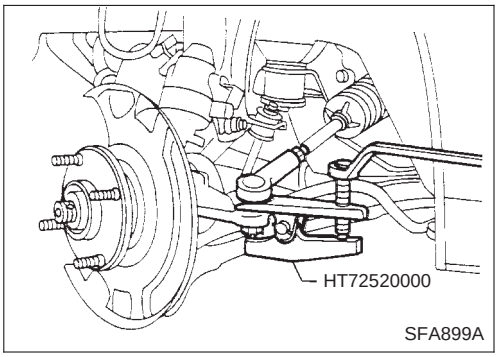
Before removing front axle assembly, disconnect ABS wheel sensor from assembly and move it from front axle assembly area.
Failure to do so may result in damage to sensor wires and the sensor becoming inoperative.

1. Remove wheel bearing lock nut.


SFA898A

2. Remove brake caliper assembly and rotor.

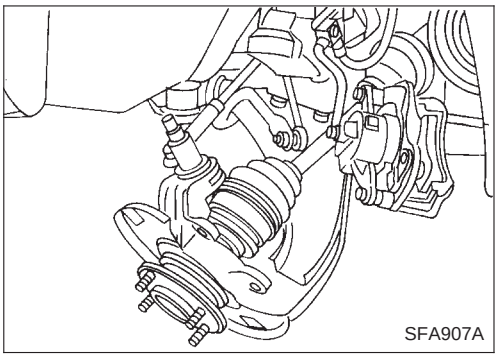
Brake hose need not be disconnected from brake caliper.
In this case, suspend the caliper assembly with a wire so as not to stretch the brake hose.
Be careful not to depress the brake pedal, to prevent the piston from popping out.
Make sure brake hose is not twisted.



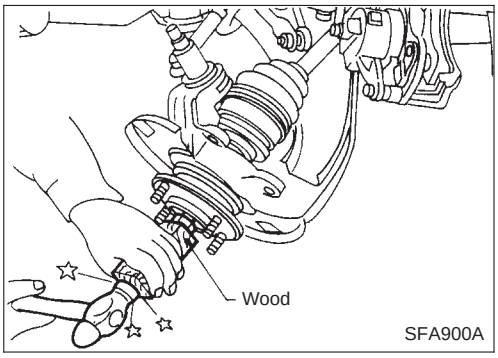
SFA899A

3. Separate tie-rod from knuckle with tool.

Install stud nut inverted on stud bolt to prevent damage to stud bolt.


SFA907A

4. Remove kingpin cap and securing nut. Separate kingpin from knuckle.

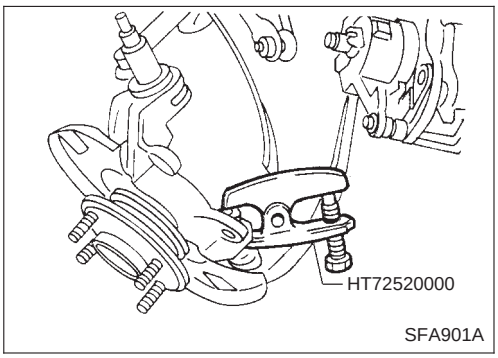


SFA900A

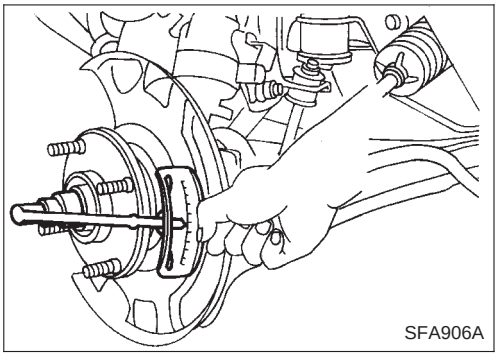
5. Separate drive shaft from knuckle with drift.

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

Wheel Hub and Knuckle (Cont'd)

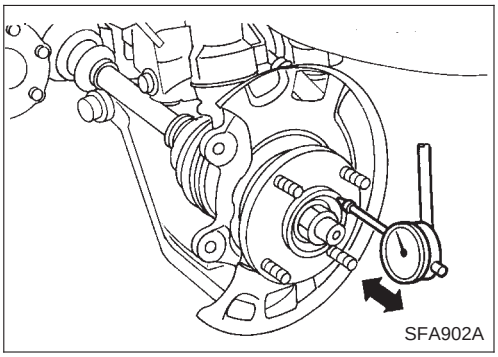


- Remove ball joint securing nut. Separate from knuckle using Tool (as for tie-rod).

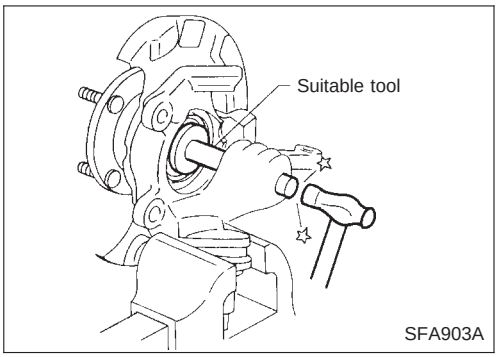


INSTALLATION

- Install knuckle with wheel hub.
- Tighten wheel bearing lock nut.
  : 236 - 313 N·m
  (24 - 32 kg-m, 174 - 230 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.



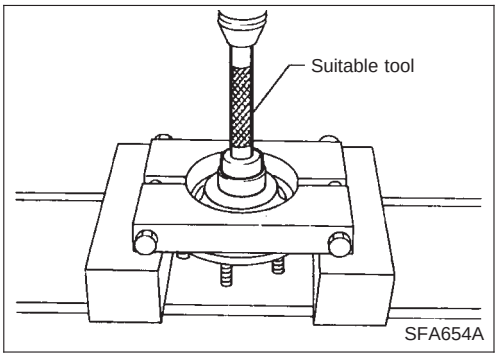
DISASSEMBLY

CAUTION:

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

Wheel Hub

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

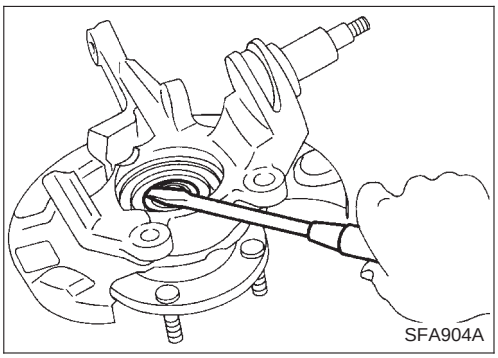


Wheel Bearing

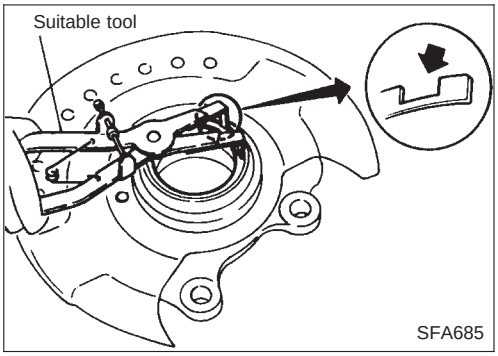
When replacing wheel bearing, replace complete wheel bearing assembly (including inner and outer races).

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

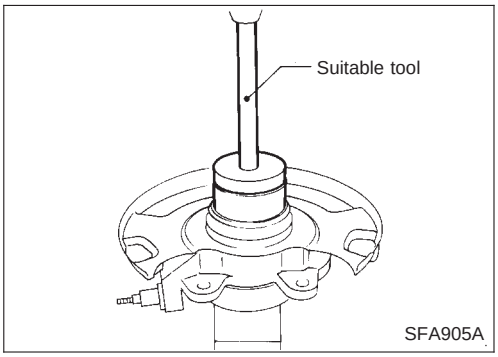
Wheel Hub and Knuckle (Cont'd)



- Remove inner grease seal from knuckle.



- Remove inner and outer snap rings.



- Press out bearing outer race.

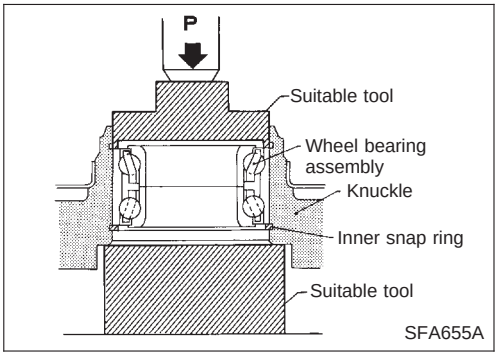
INSPECTION

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. Install inner snap ring into groove of knuckle.
2. Press new wheel bearing assembly into knuckle until it contacts snap ring.

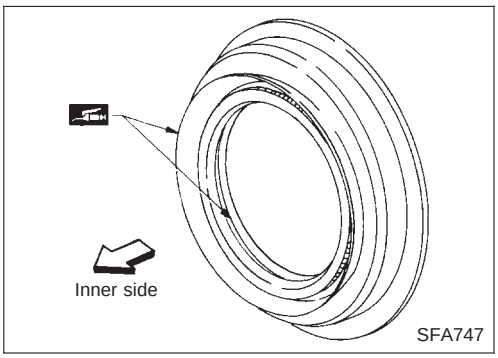
Maximum load P:
49 kN (5 t, 5.5 US ton, 4.9 lmp ton)

CAUTION:

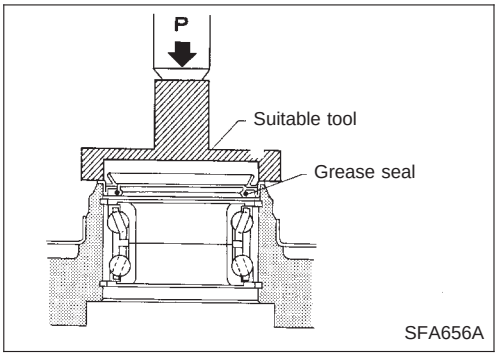
- **Do not press inner race of wheel bearing assembly.**
- **Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.**

3. Install outer snap ring into groove of knuckle.

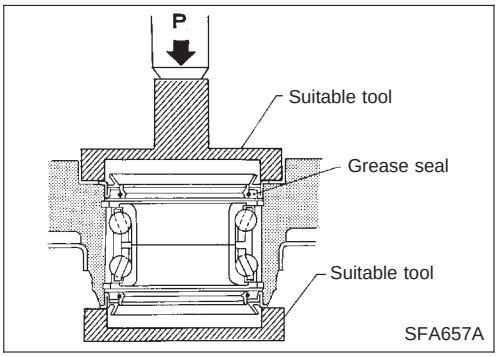
Wheel Hub and Knuckle (Cont'd)



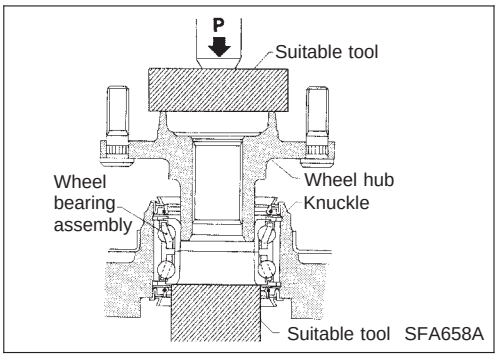
4. Pack grease seal lip with multi-purpose grease.



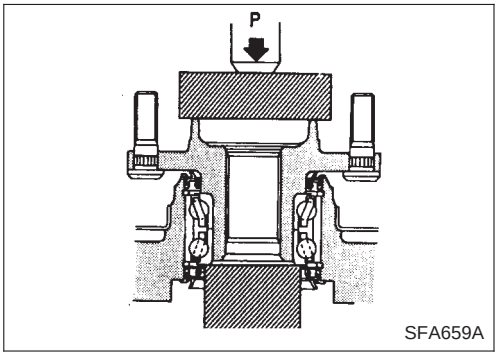
5. Install outer grease seal.
   Maximum load P:
   10 kN (1 ton, 1.1 US ton, 1.0 Imp ton)



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

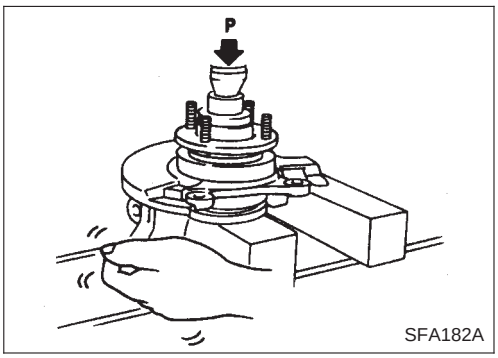


7. Press wheel hub into knuckle.
   Maximum load P:
   29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)
   Be careful not to damage grease seal.



8. Check bearing operation.
(1) 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)

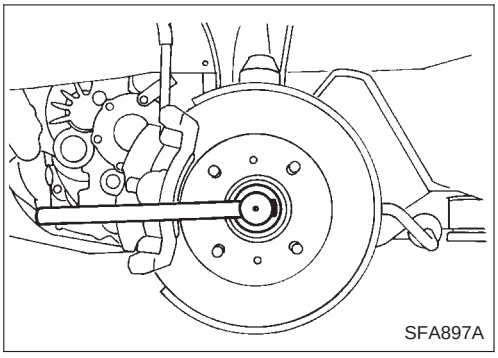
Wheel Hub and Knuckle (Cont'd)



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

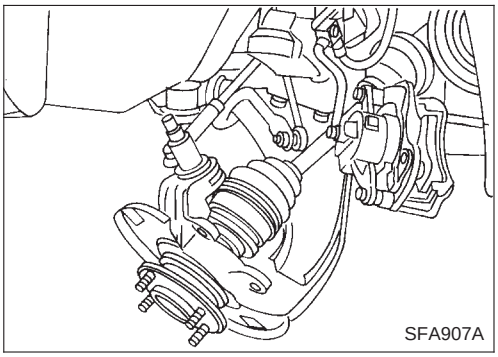
Drive shaft

REMOVAL



1. Remove wheel bearing lock nut.
2. Remove brake caliper assembly and rotor.

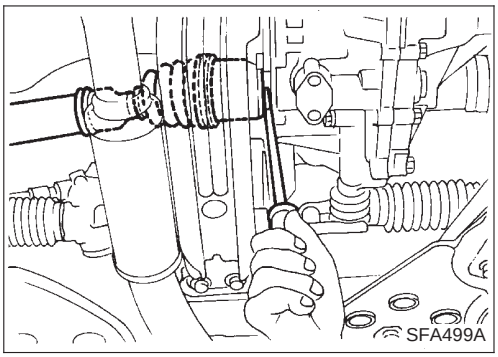
Brake hose need not be disconnected from brake caliper. In this case, suspend caliper assembly with wire so as not to stretch brake hose. Be careful not to depress brake pedal, or piston will pop out.
Make sure brake hose is not twisted.



3. Remove tie-rod ball joint.
4. Remove upper knuckle nut.
5. Separate drive shaft from knuckle by lightly tapping it. If it is hard to remove, use a puller.

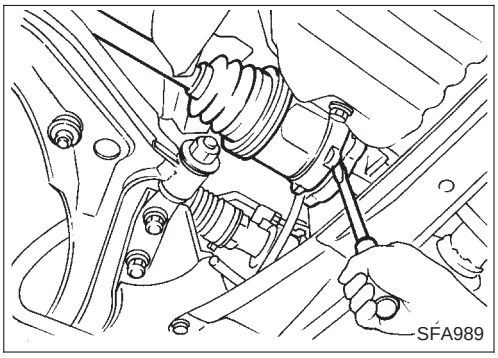
When removing drive shaft, cover drive shaft boots with waste cloth to prevent damage to them.

Refer to "FRONT AXLE", "Wheel Hub and Knuckle", FA-11.



6. Remove right drive shaft from transaxle.

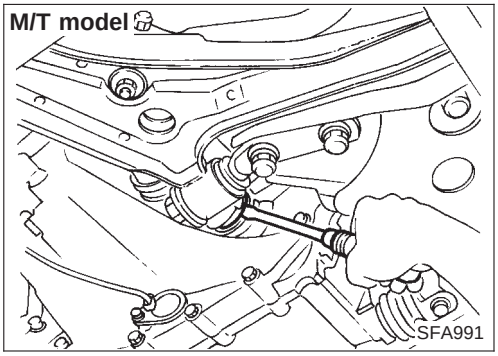
− Models without support bearing −



− Models with support bearing −

Drive shaft (Cont'd)

M/T model

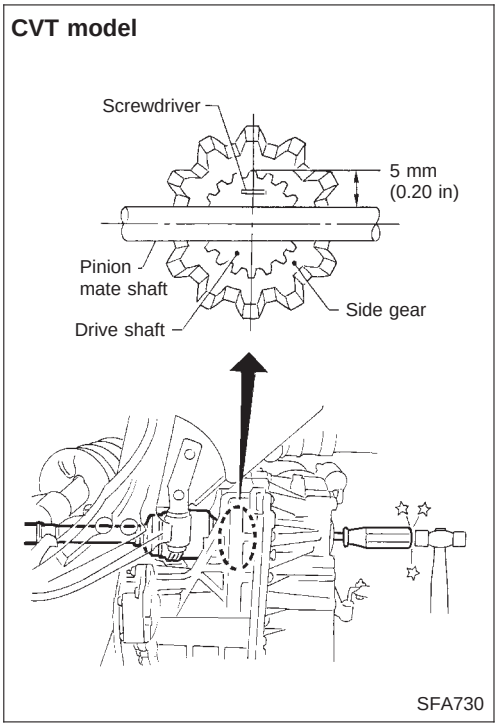


7. Remove left drive shaft from transaxle.

− For M/T models −

- Pry off drive shaft from transaxle as shown.

CVT model



− For CVT models −

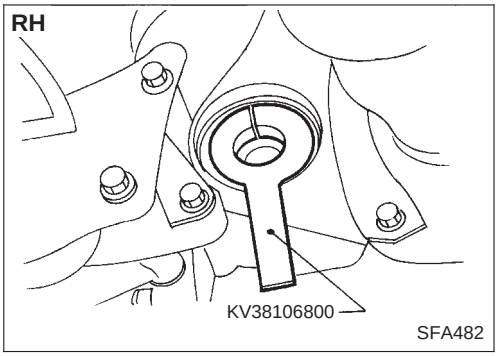
- Insert screwdriver into transaxle opening for right drive shaft and strike with a hammer.

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

INSTALLATION

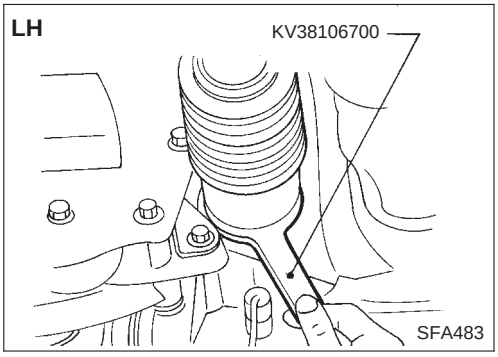
Transaxle side

RH



1. Install 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.

LH



3. Insert drive shaft into transaxle. Be sure to correctly align the splines 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.

Drive shaft (Cont'd)

Wheel side

- Install drive shaft into knuckle.
- Tighten upper knuckle nut and wheel bearing lock nut. Refer to "FRONT AXLE", "Wheel Hub and Knuckle", FA-11.

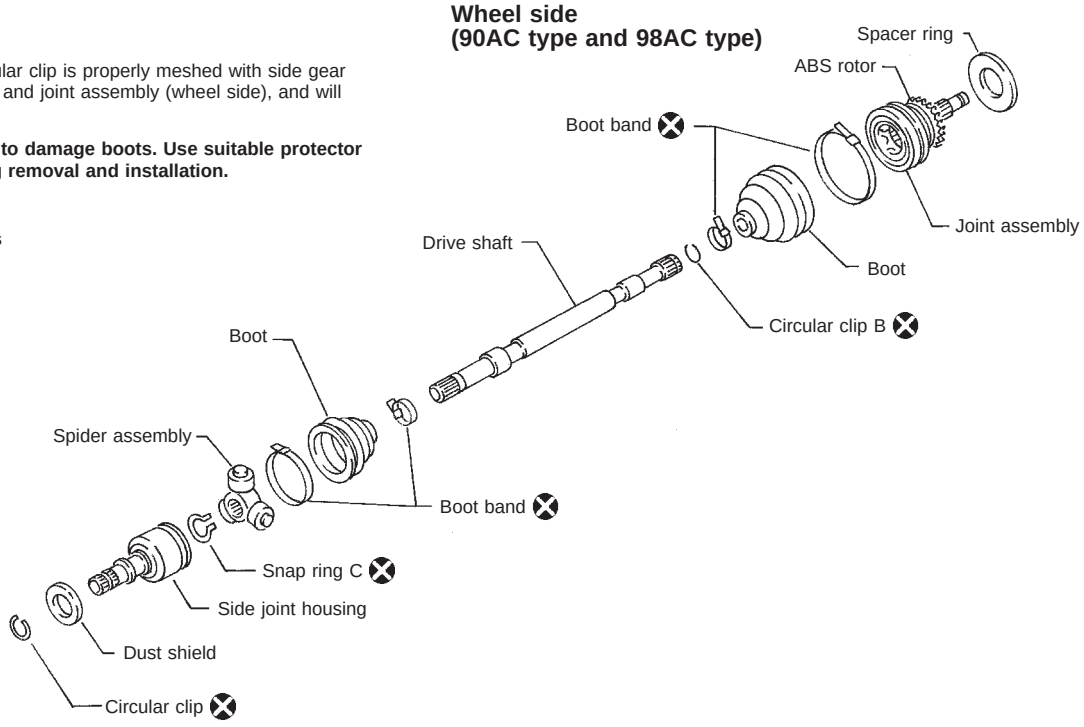
COMPONENTS

SEC. 391

Circulair 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.

All M/T models

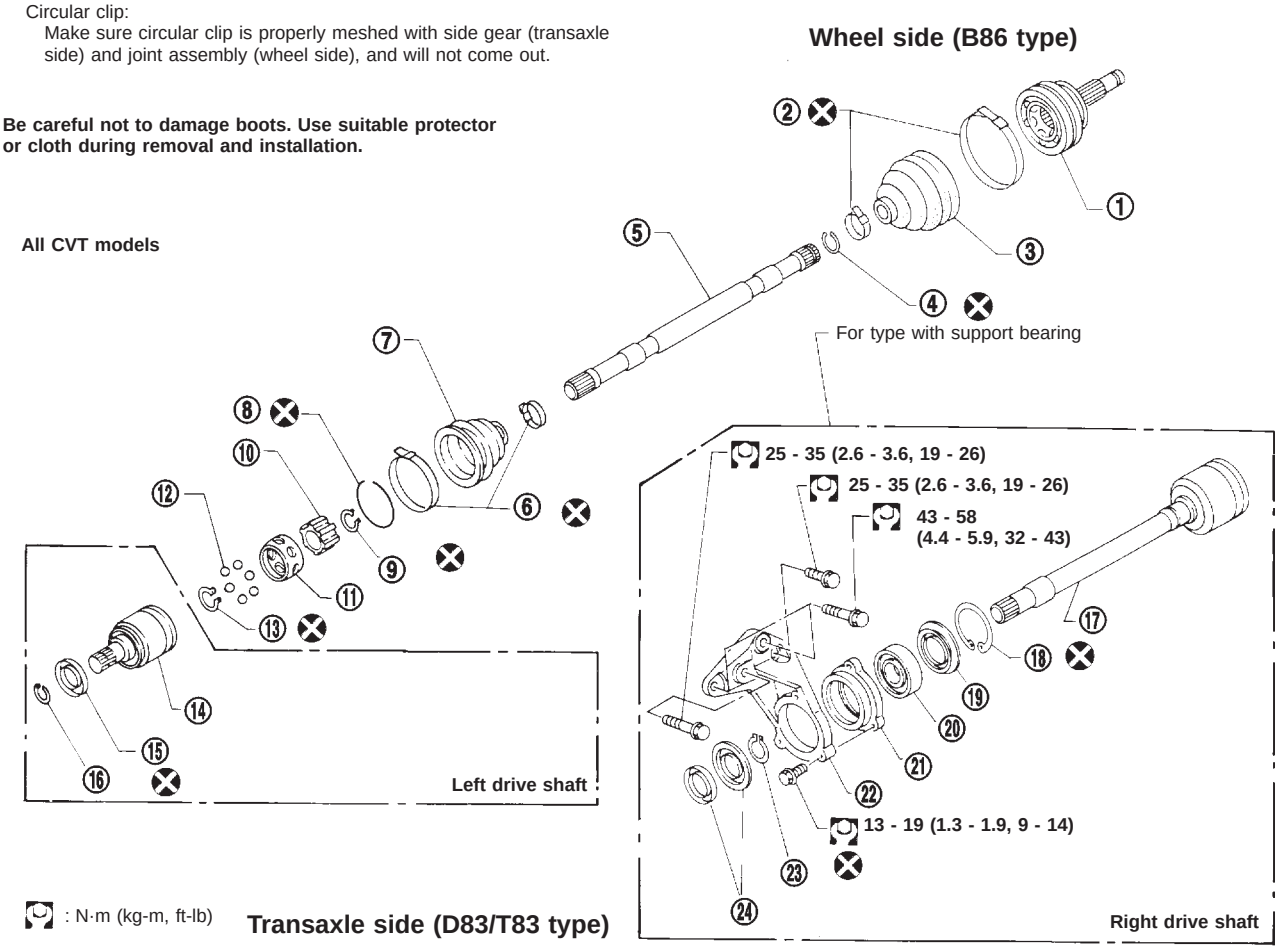


Drive shaft (Cont'd)

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.

All CVT models

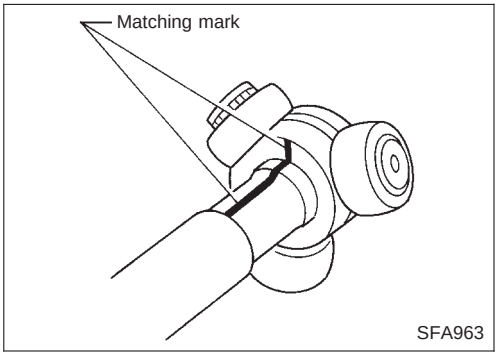


NFA055

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

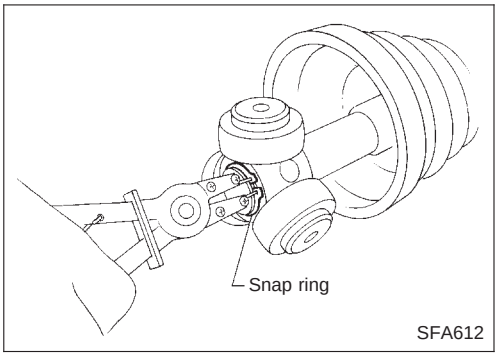
Drive shaft (Cont'd)

DISASSEMBLY



TRANSAXLE SIDE (GI69 type and GI82 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.



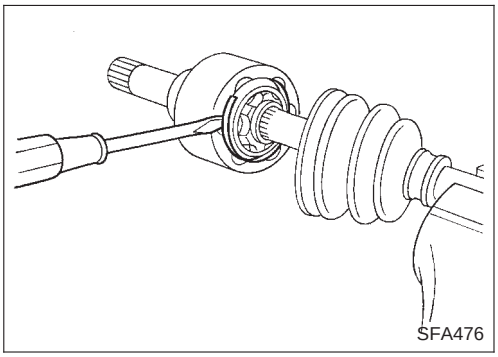
4. Pry off snap ring, then remove spider assembly.

CAUTION:

Do not disassemble spider assembly.

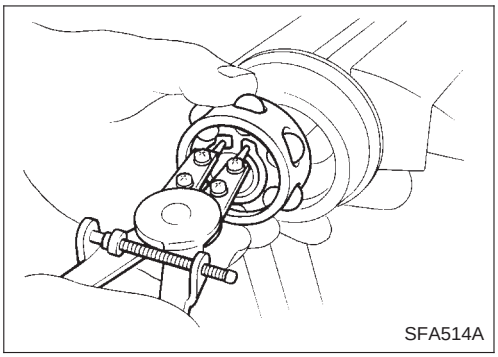
5. Draw out boot.

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



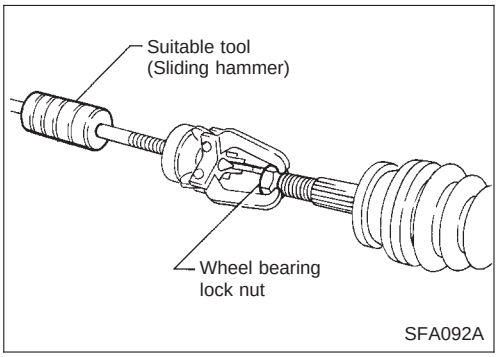
TRANSAXLE SIDE (D83/T83 type)

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



4. Put matchmarks on inner race and drive shaft.
5. Remove snap ring "C", then remove ball cage, inner race and balls as a unit.
6. Remove snap ring "B".
7. Draw out boot.

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



WHEEL SIDE (90AC, 98AC and B86 type)

CAUTION:

The joint on the wheel side cannot be disassembled.

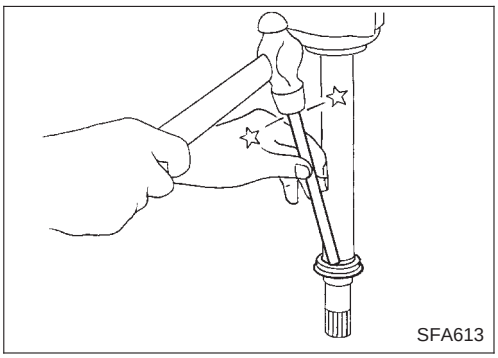
- Before separating joint assembly, put matching marks on drive shaft and joint assembly.
- Separate joint assembly with a suitable tool.

Be careful not to damage threads on drive shaft.

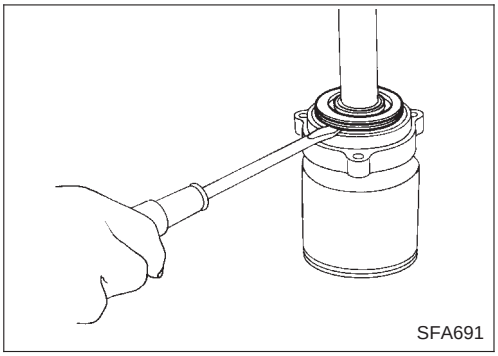
- Remove boot bands and draw out boot.

Drive shaft (Cont'd)

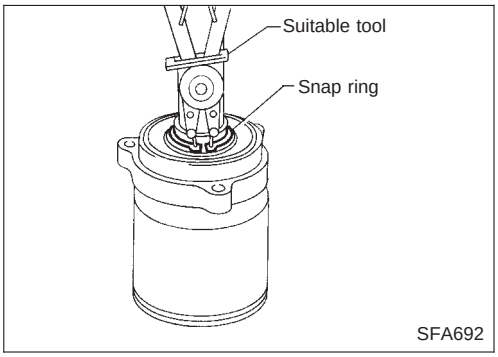
SUPPORT BEARING


SFA613

- Remove outer dust shield.

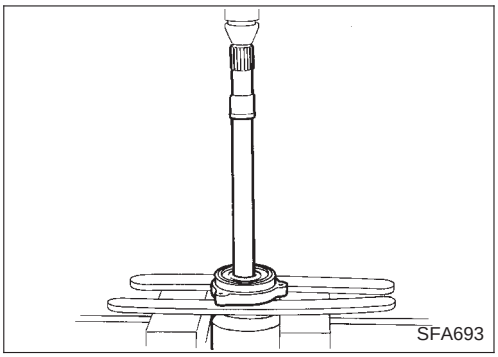

SFA691

- Remove inner dust shield.

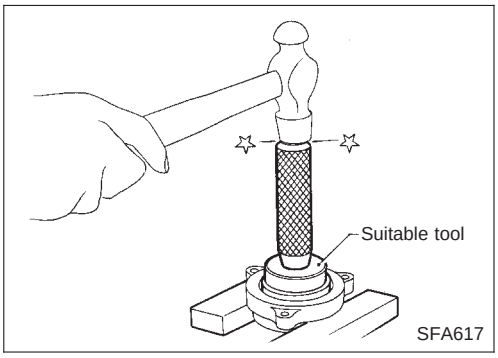


SFA692

- Pry off snap ring.


SFA693

- Press support bearing assembly out of drive shaft.



SFA617

- Press support bearing out of retainer.

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)

GI69 and GI82 type

- Check spider assembly for needle bearing and washer damage. Replace if necessary.
- Check roller surfaces for scratches, wear or other damage. Replace if necessary.
- Check serration for deformation. Replace if necessary.
- Check slide joint housing for any damage. Replace if necessary.

D83/T83 type

- Replace joint assembly if it is deformed or damaged.

Joint assembly (Wheel side)

Replace joint assembly if it is deformed or damaged.

Support bearing

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

Support bearing bracket

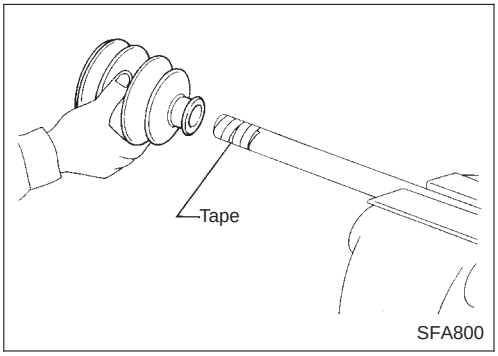
Check support bearing bracket for cracks with a magnetic exploration or dyeing test.

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.**

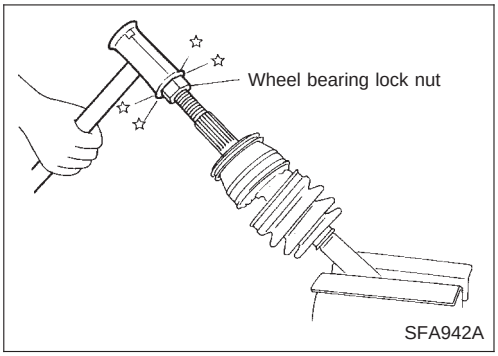
Drive shaft (Cont'd)

Wheel side (90AC, 98AC and B86 type)

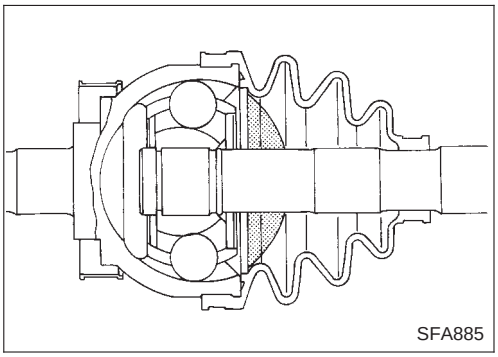


1. Install boot and new small boot band on drive shaft.

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

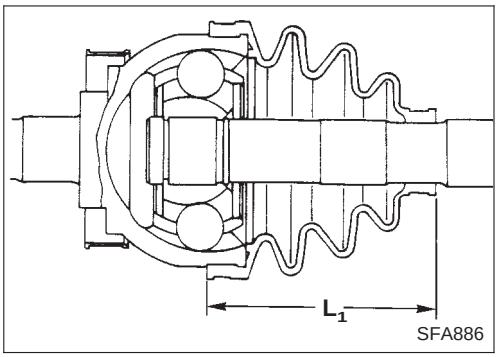


2. Set joint assembly onto drive shaft by lightly tapping it.
   Install joint assembly securely, ensuring marks which were made during disassembly are correctly aligned.



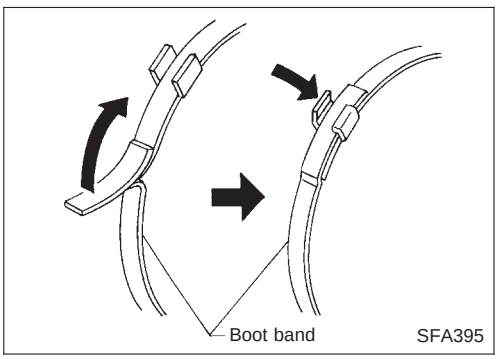
3. Pack drive shaft with specified amount of grease.

Specified amount of grease:
- **90AC type**
  - **80 - 110 mℓ (2.8 - 3.9 Imp fl oz)**
- **98AC type**
  - **110 - 130 mℓ (3.9 - 4.6 Imp fl oz)**
- **B86 type**
  - **95 - 115 mℓ (3.3 - 4.0 Imp fl oz)**



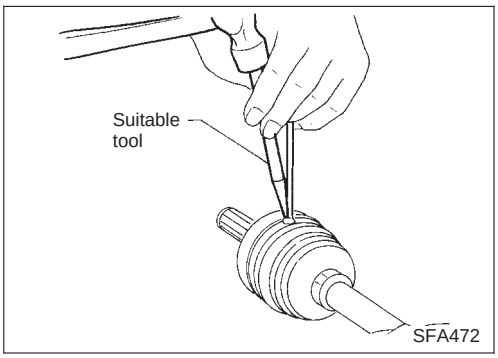
4. Make sure that boot is correctly installed on the drive shaft groove.
   Set boot so that it does not swell and deform when its length is "L_1".

Length "L_1":
- **90AC type**
  - **89 - 91 mm (3.50 - 3.58 in)**
- **98AC type**
  - **96 - 98 mm (3.78 - 3.86 in)**



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

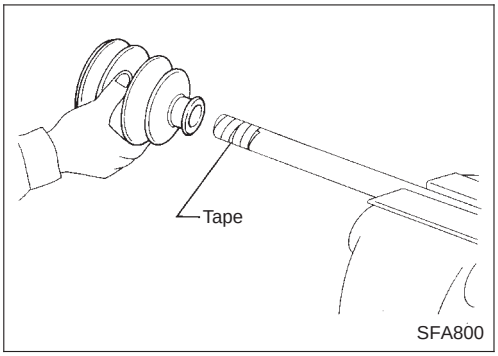
Drive shaft (Cont'd)

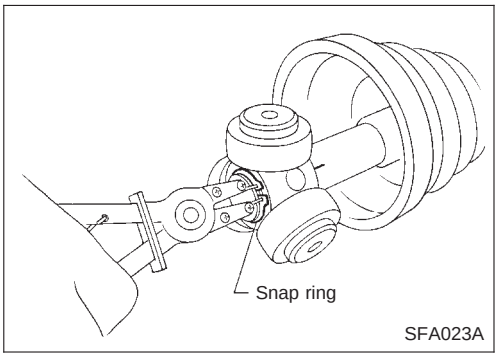


Transaxle side (GI69 type and GI82 type)

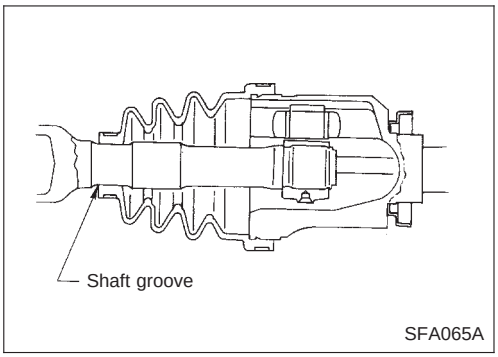
1. Install boot and new small boot band on drive shaft.

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

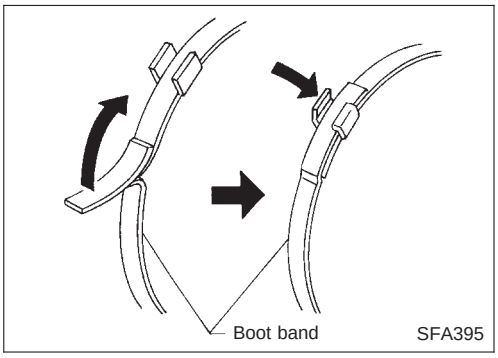




2. Install spider assembly securely, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring.



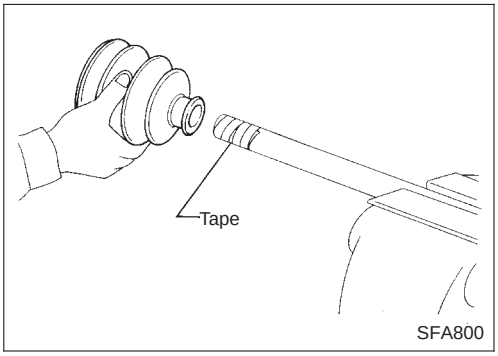
4. Pack drive shaft with specified amount of grease.
   Specified amount of grease:
   GI69 type
   165 - 175 mℓ (5.8 - 6.2 Imp fl. oz)
   GI82 type
   160 - 170 m (5.6 - 6.0 Imp fl. oz)
5. Install slide joint housing.
6. Make sure that boot is properly installed on the drive shaft groove.
   Set boot so that it does not swell and deform.



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

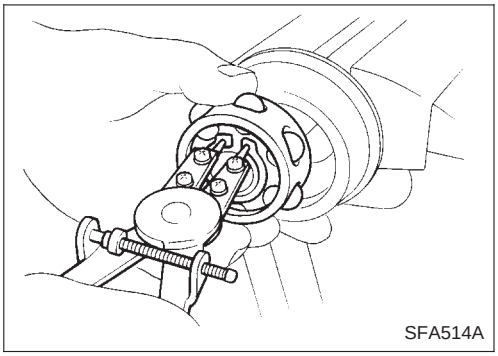
Drive shaft (Cont'd)

Transaxle side (D83/T83 type)

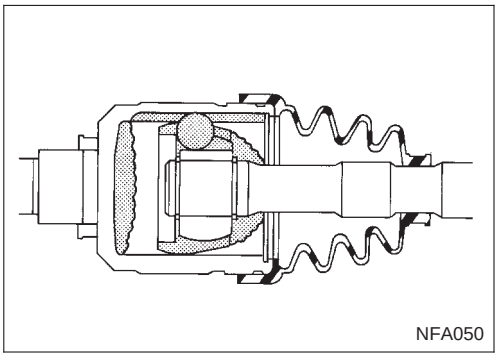


1. Install boot and new small boot band on drive shaft.

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 matching marks which were made during disassembly are properly aligned.
3. Install new snap ring "C".

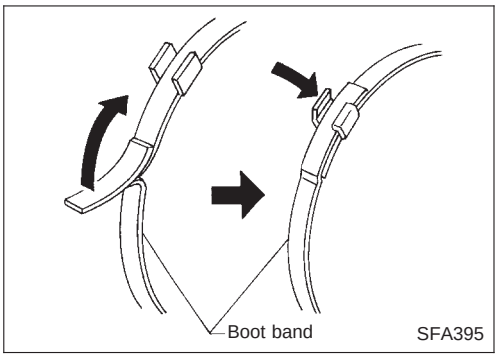


4. Pack drive shaft with specified amount of grease.

   Specified amount of grease:

   115 - 135 mℓ (4.0 - 4.8 Imp fl 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.

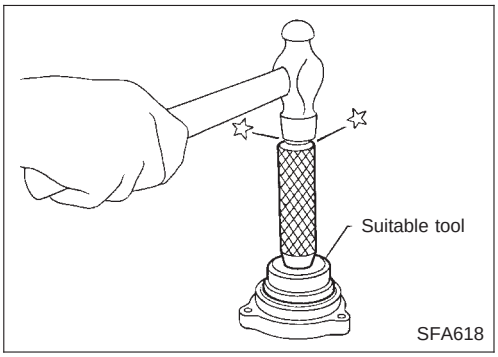
   Set boot so that it does not swell and deform.



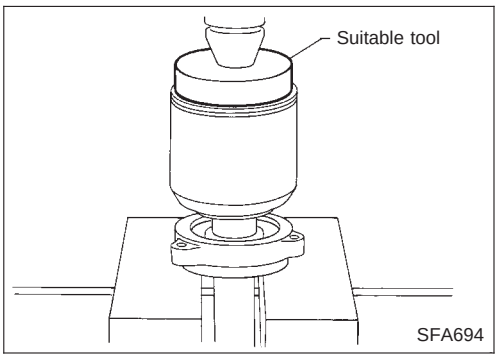
7. Lock new larger and smaller boot bands securely with a suitable tool.

Support bearing

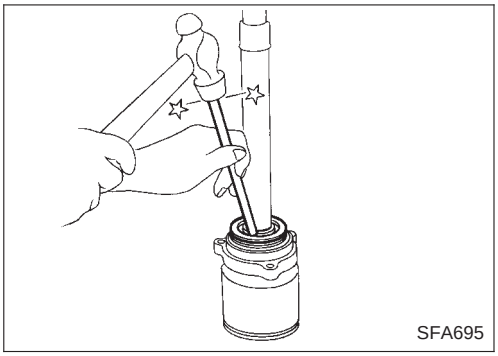
- Press bearing into retainer.



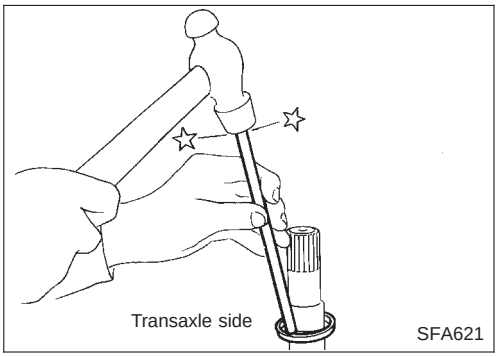
Drive shaft (Cont'd)



- Press drive shaft into bearing.



- Install snap ring.
- Install new dust shield.

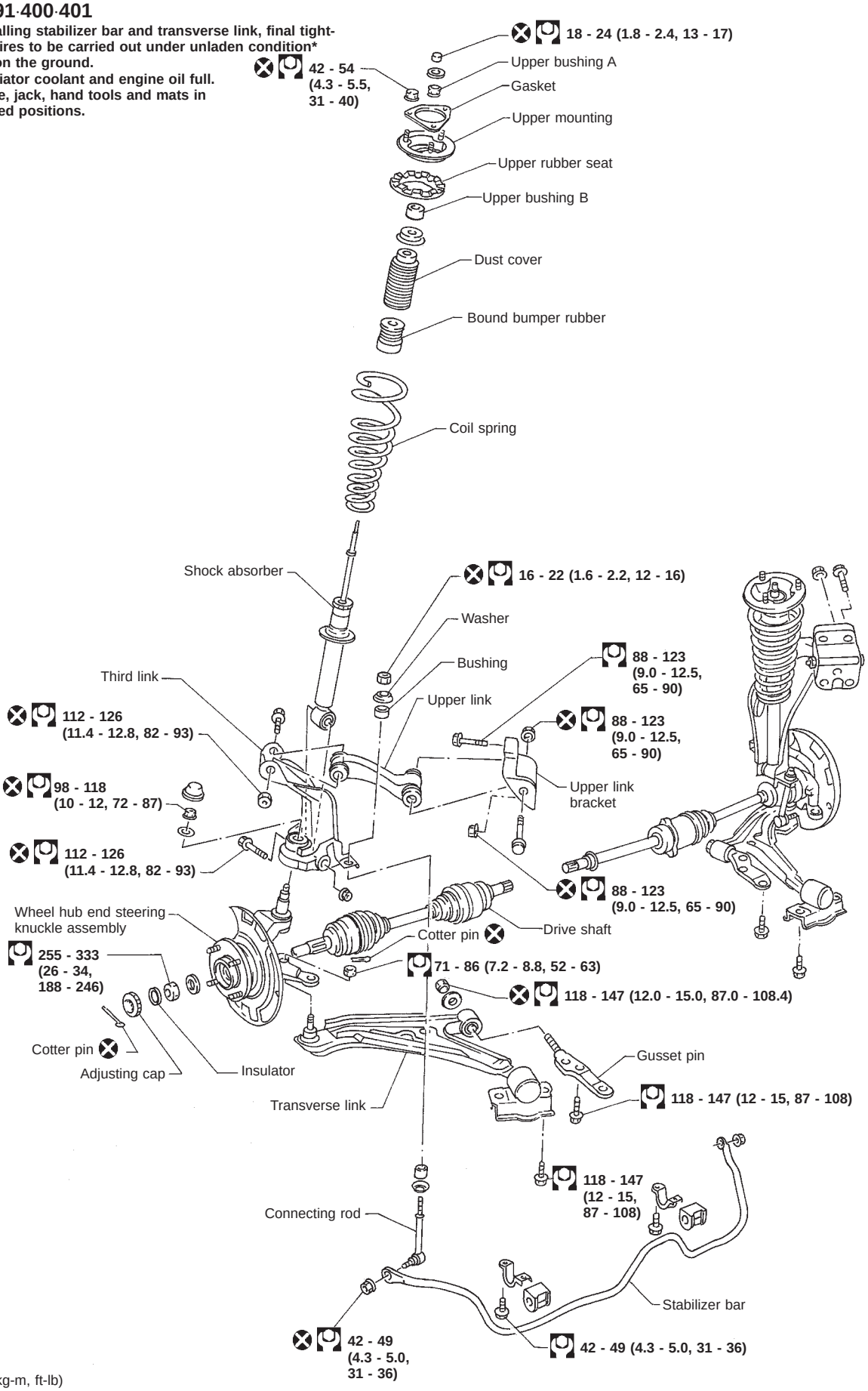


MODELS BEFORE VIN - P11U0559000

SEC. 391·400·401

When installing stabilizer bar and transverse link, final tightening requires to be carried out under unladen condition* with tires on the ground.

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



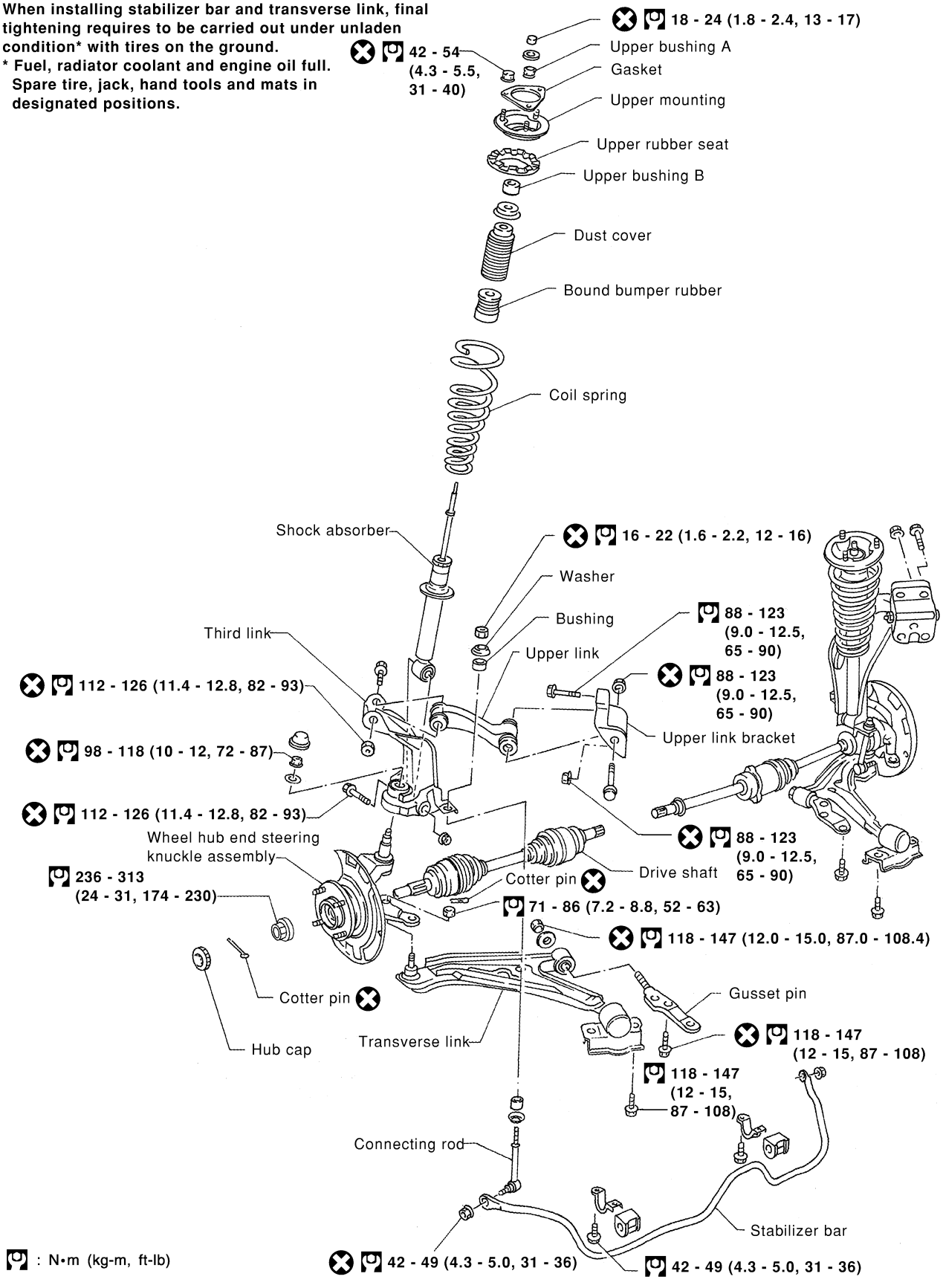
: N·m (kg-m, ft-lb)

NFA057

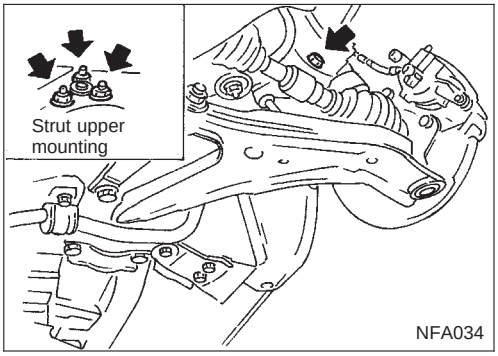
MODELS AFTER VIN - P11U0559000

SEC. 391•400•401

When installing stabilizer bar and transverse link, final tightening requires to be carried out under unladen condition* with tires on the ground.
*** Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.**



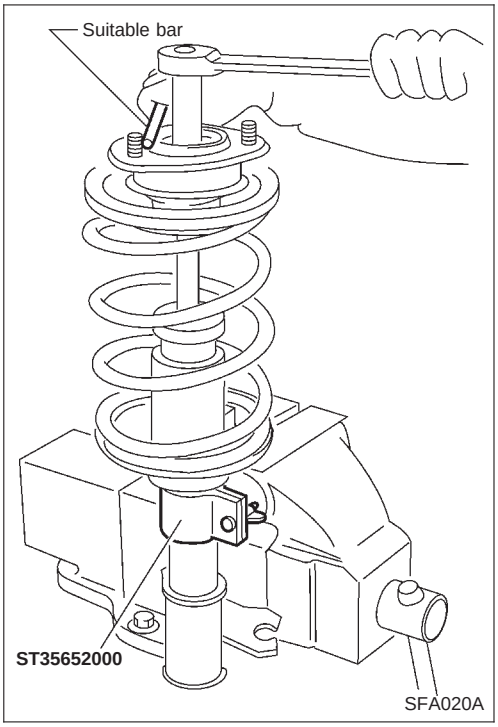
YFA002



Coil Spring and Shock Absorber

REMOVAL AND INSTALLATION

- Remove shock absorber fixing bolt and nut (to hoodledge).
- **Do not remove piston rod lock nut.**

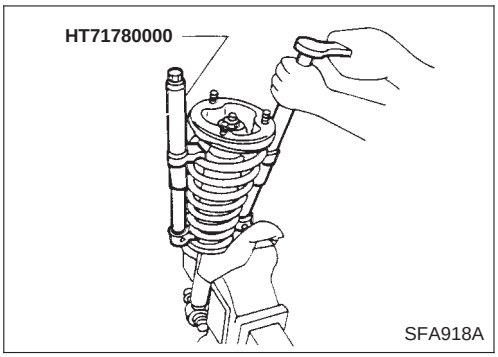


DISASSEMBLY

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

WARNING:

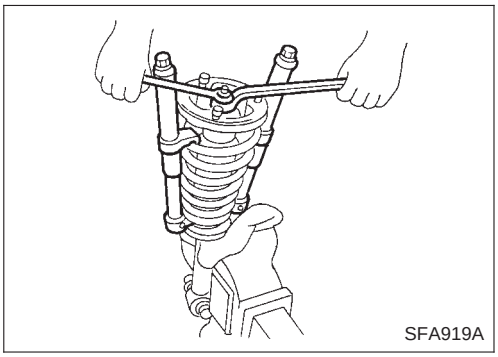
- **Do not remove piston rod lock nut.**



2. Compress spring with Tool so that shock absorber mounting insulator can be turned by hand.

WARNING:

Make sure that the pawls of the two spring compressors are firmly hooked on the spring. The spring compressors must be tightened alternately so as not to tilt the spring.



3. Remove piston rod lock nut.

Coil Spring and Shock Absorber (Cont'd)

INSPECTION

Shock absorber assembly

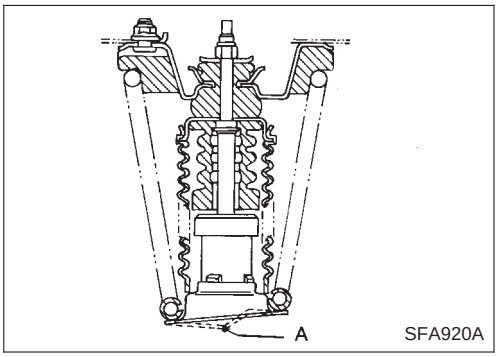
- Check for smooth operation through a full stroke, both compression and extension.
- Check for oil leakage occurring on welded or gland packing portions.
- Check piston rod for cracks, deformation or other damage. Replace if necessary.

Mounting insulator and rubber parts

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

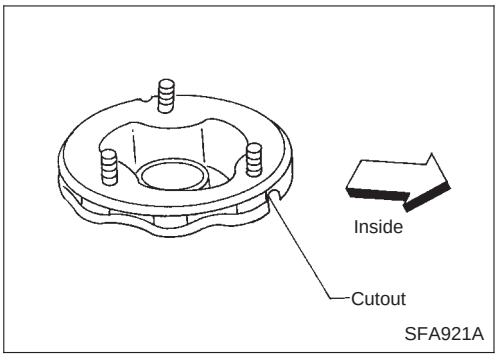
Coil spring

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



ASSEMBLY

- When shock absorber is installed, it must be positioned so that arrow point A faces rearward on LH side, and forward on RH side.



- Install upper spring seat with its cutout facing the inside of the vehicle.

Third Link and Upper Link

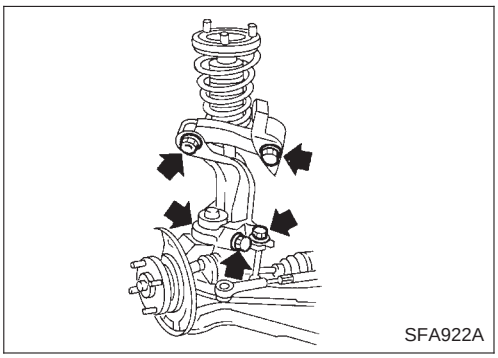
REMOVAL

CAUTION:

Kingpin bearing usually does not require maintenance. If any of the following symptoms are noted, replace kingpin bearing assembly.

- **Growling noise is emitted from kingpin bearing during operation.**
- **Kingpin bearing drags or turns roughly when steering knuckle is turned by hand.**

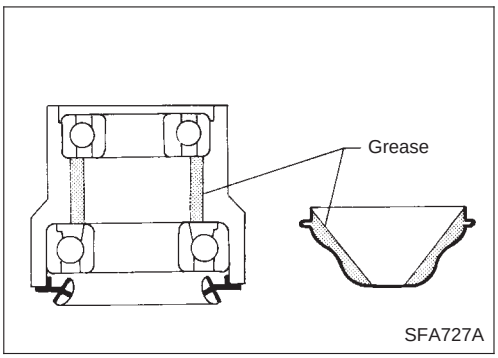
Third Link and Upper Link (Cont'd)


SFA922A

1. Remove cap and kingpin nut.
2. Remove shock absorber fixing nut and upper link fixing bolts.
3. Remove stabilizer connecting rod.
4. Remove third link and upper link.

INSTALLATION

Third link

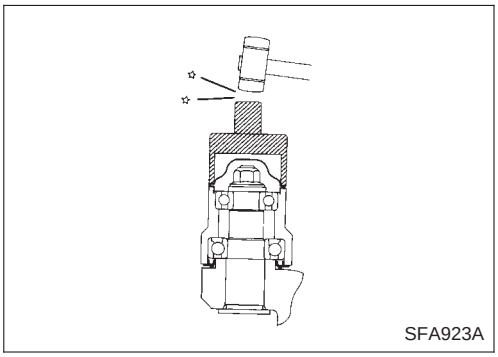


SFA727A

- Pack kingpin housing and cap with multi-purpose grease.

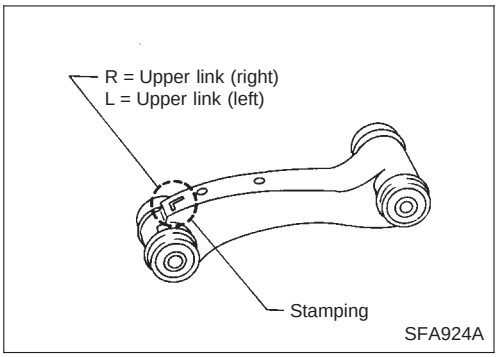
Grease capacity:

Kingpin housing	**4 g (0.14 oz)**
Cap	**10 g (0.35 oz)**


SFA923A

- Install third link and cap.

Upper link



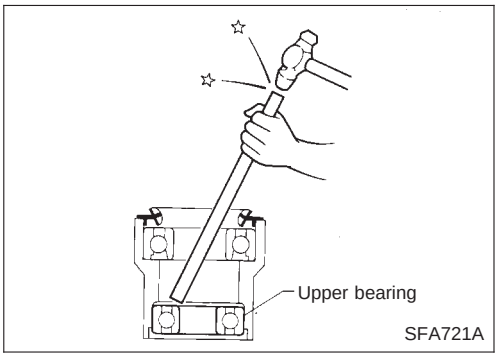
SFA924A

- Upper link has "L" or "R" stamped on it as shown.

Upper link bushings cannot be disassembled.

- When installing upper link, make sure that parts are in their correct positions.
- Bushings have in-built play of between 0.5 to 1.0 mm (0.020 to 0.039 in).

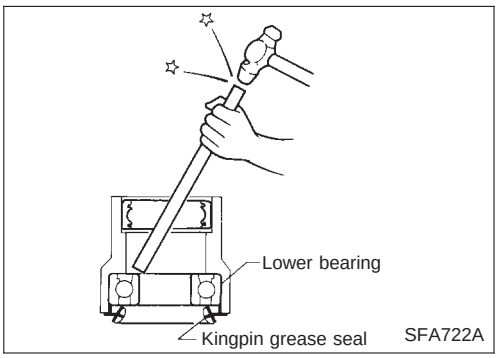
DISASSEMBLY



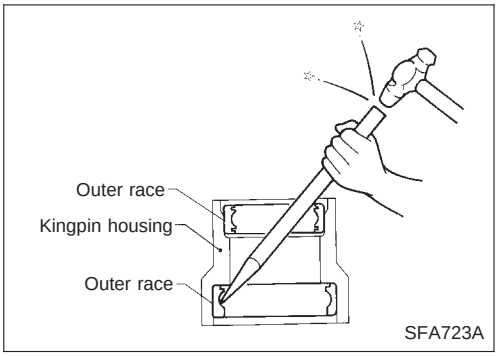
SFA721A

- Remove upper bearing (inner race and ball).

Third Link and Upper Link (Cont'd)

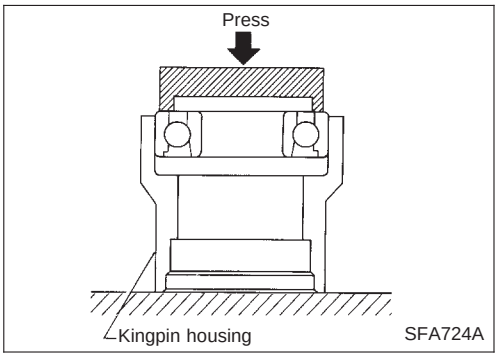


- Remove kingpin grease seal.
- Remove lower bearing (inner race and ball).

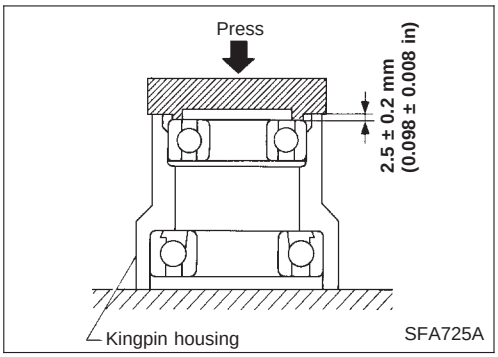


- Remove upper and lower outer race.
- **Be careful not to damage kingpin housing.**

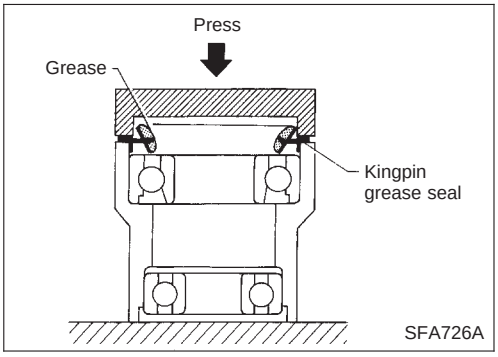
ASSEMBLY



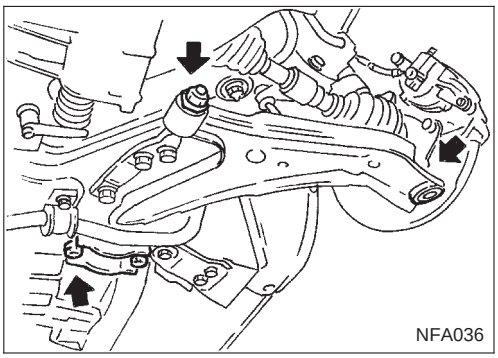
- Install lower bearing.



- Install upper bearing.



- Install lower oil seal.
- Apply multi-purpose grease to oil seal lip.


NFA036

Transverse Link and Lower Ball Joint

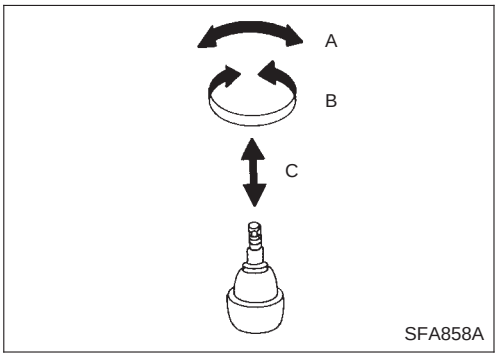
REMOVAL AND INSTALLATION

- Remove tension rod, ball joint and transverse link assembly.
- During installation, final tightening must be done at curb weight with tires on ground.
- After installation, check wheel alignment.
  Refer to “Front Wheel Alignment”, “ON-VEHICLE SERVICE”, FA-6.

INSPECTION

Transverse link

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



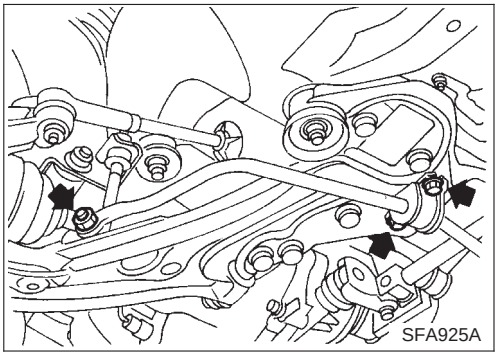
SFA858A

Lower ball joint

- 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)
  7.8 - 57.9 N (0.8 - 5.9 kg, 1.8 - 13.0 lb)
  Turning torque “B”:
  0.5 - 3.4 (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.


SFA925A

Stabilizer Bar

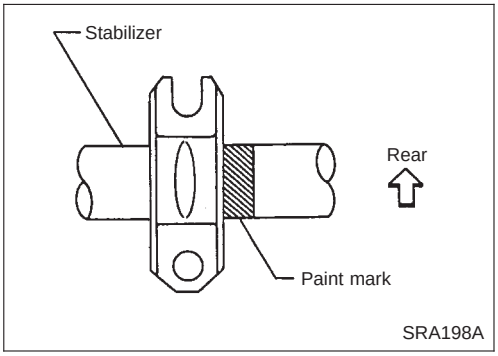
REMOVAL AND INSTALLATION

CAUTION:

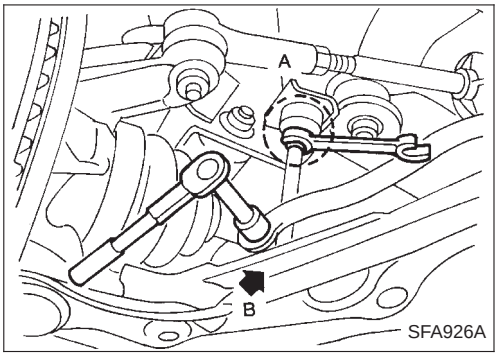
— For models with xenon headlamps only

- **When removing or installing stabilizer bar, take care not to damage headlamp leveling sensor.**
- **After installation of the stabilizer bar, the headlamp sensor has to be recalibrated. Refer to EL-section.**
- Remove stabilizer bar.

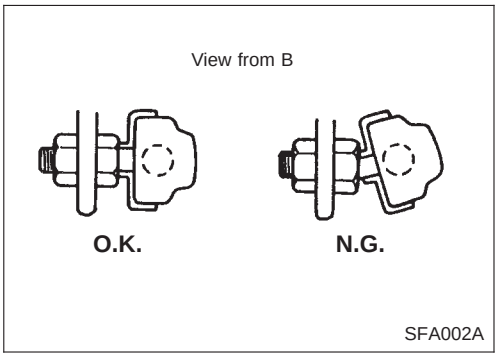
Stabilizer Bar (Cont'd)



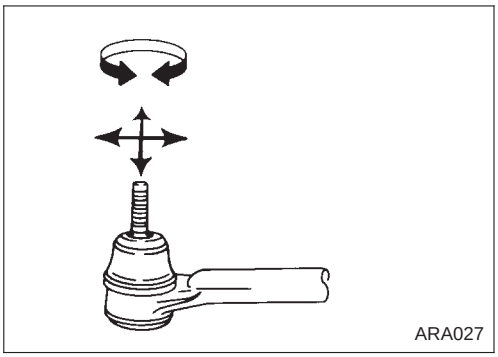
- When installing stabilizer, make sure that paint mark and clamp face in their correct directions.



- When removing and installing stabilizer bar, hold part A as shown.



- Install stabilizer bar with ball joint socket correctly located.



INSPECTION

- Check stabilizer bar 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.

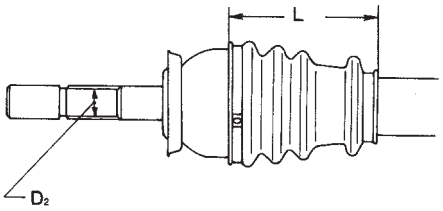
General Specifications

Suspension type	Independent multi-link strut with coil spring
Strut type	Double-acting hydraulic
Stabilizer bar	Standard equipment

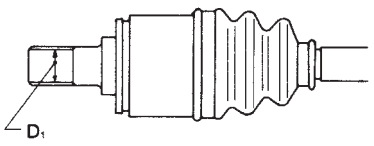
DRIVE SHAFT

Applied model	QG16DE/ QG18DE	CD20T	SR20DE	
			M/T	CVT
Joint type				
Transaxle side	GI82			D83/T83
Wheel side	98AC			B86
Diameter (Serration) mm (in)				
Transaxle side “D_1”	26 (1.02)			25 (0.98)
Wheel side “D_2”	28 (1.10)			27 (1.06)
Grease				
Quality	Nissan Genuine Grease or equivalent			
Capacity mℓ (Imp fl oz)				
Transaxle side	175 - 185 (6.2 - 6.5)			115 - 135 (4.0 - 4.8)
Wheel side	110 - 130 (3.9 - 4.6)			95 - 115 (3.3 - 4.0)
Boot length mm (in)				
Wheel side “L”	96 - 98 (3.78 - 3.86)			96 - 98 (3.78 - 3.86)

Wheel side



Transaxle side



SFA928A

Inspection and Adjustment

WHEEL ALIGNMENT (Unladen*1)

Applied model			195/60 R15 195/60 VR15 185/65 HR15	205/50 R16
Camber	Degree minute	Minimum	−0°45′	
		Nominal	0°	
		Maximum	0°45′	
Caster	Degree minute	Minimum	1°10′	
		Nominal	1°55′	
		Maximum	2°40′	
Kingpin inclination	Degree minute	Minimum	13°45′	
		Nominal	14°30′	
		Maximum	15°15′	
Total toe-in		Minimum	0 (0)	
Distance (A - B)	mm (in)	Nominal	1 (0.04)	
		Maximum	2 (0.08)	
Angle (left plus right)	Degree minute	Minimum	0°	
		Nominal	0°6′	
		Maximum	0°12′	
Wheel turning angle		Minimum	32	31
Full turn *2		Nominal	35	34
Inside	Degree minute	Maximum	36	35
Outside	Degree minute	Nominal	30	29

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

Ball stud swinging force at cotter pin hole N (kg, lb)	7.8 - 57.9 (0.8 - 5.9, 6 - 42)
Ball stud rotating torque N·m (kg-cm, in-lb)	0.5 - 3.4 (5 - 34, 5 - 30)
Ball stud axial end play limit mm (in)	0 (0)

WHEEL RUNOUT

Wheel type		Aluminium	Steel
Radial runout limit	mm (in)	0.3 (0.012)	0.5 (0.020)
Lateral runout limit	mm (in)	0.3 (0.012)	0.8 (0.031)

NOTE