

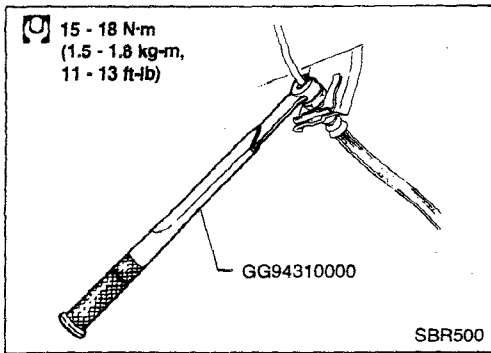
FRONT AXLE & FRONT SUSPENSION

SECTION **FA**

CONTENTS

PRECAUTIONS	2	Inspection	21
PREPARATION	3	Installation	21
FRONT AXLE AND FRONT SUSPENSION	4	FRONT AXLE — Drive Shaft	22
CHECK AND ADJUSTMENT	5	Removal and Installation	22
Front Axle and Front Suspension Parts	5	Removal	22
Front Wheel Bearing	6	Disassembly	23
Front Wheel Alignment	8	Inspection	25
Drive Shaft	12	Assembly	25
FRONT AXLE	13	Installation	28
FRONT AXLE — Auto-lock Free-running		FRONT SUSPENSION	29
Hub	14	Shock Absorber	30
Removal and Installation	14	Torsion Bar	30
Inspection	14	Stabilizer Bar	33
Trouble-shooting	15	Upper Link	33
FRONT AXLE — Wheel Hub and Rotor Disc ..	18	Compression Rod	35
Removal and Installation	18	Lower Link	35
Disassembly	18	Upper Ball Joint and Lower Ball Joint	36
Inspection	19	SERVICE DATA AND SPECIFICATIONS	
Assembly	19	(S.D.S)	38
FRONT AXLE — Knuckle Spindle	20	General Specifications	38
Removal	20	Inspection and Adjustment	39

PRECAUTIONS

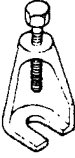
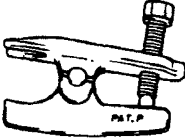
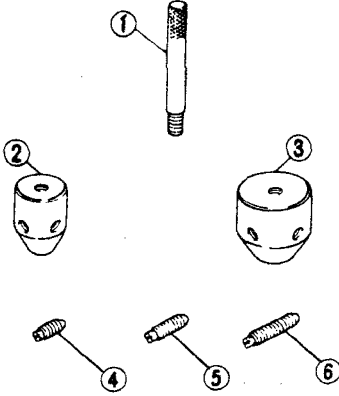
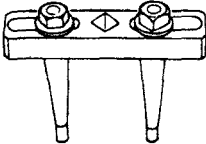
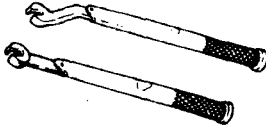


- (1) When installing each rubber part, final tightening must be carried out under unladen condition * with tires on ground.
 - * Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.
- (2) When removing each suspension part, check wheel alignment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

PREPARATION

SPECIAL SERVICE TOOLS

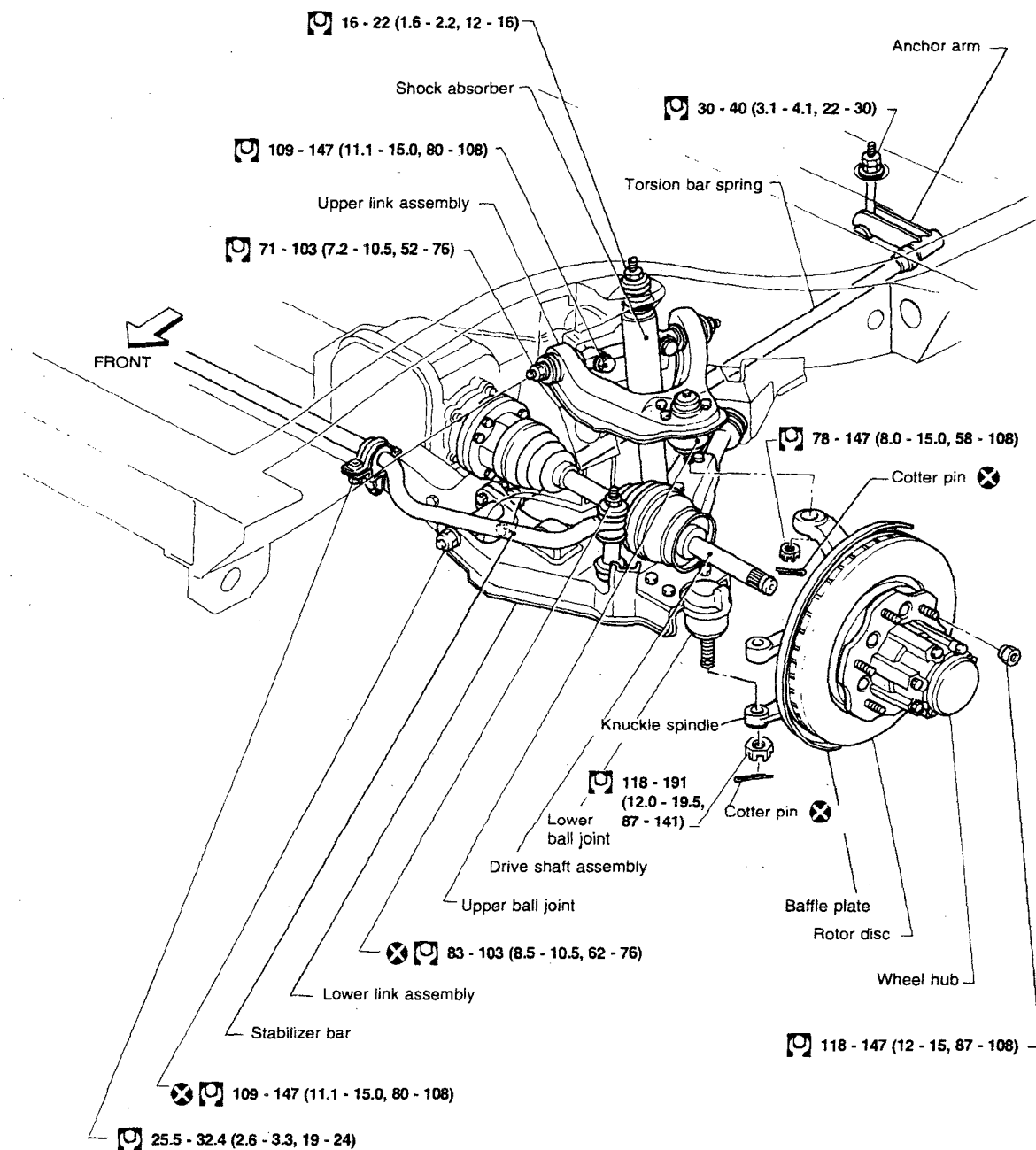
*:Special tool or commercial equivalent

Tool number Tool name	Description
ST29020001* Gear arm puller	 Removing ball joint for knuckle spindle
ST27850000 Ball joint remover	 Removing tie-rod outer end
KV401021S0* Bearing outer race drift ① ST35325000* Drift bar ② KV40102110* Drift (A) ③ KV40102120* Drift (B) ④ KV40102130* Screw (A) ⑤ KV40102140* Screw (B) ⑥ KV40102150* Screw (C)	 Installing wheel bearing outer race
KV40105400 Wheel bearing lock nut wrench	 Removing or installing wheel bearing lock nut
GG94310000* Flare nut torque wrench	 Removing and installing brake piping

FRONT AXLE AND FRONT SUSPENSION

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)

CHECK AND ADJUSTMENT

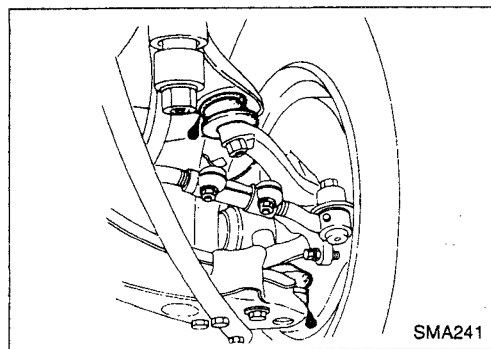
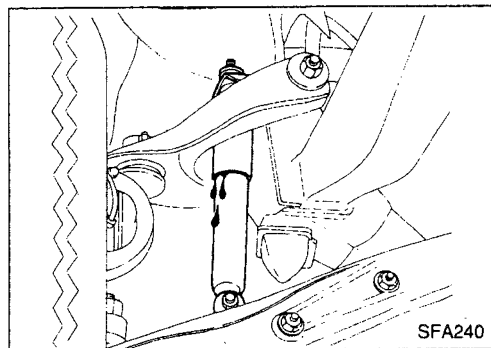
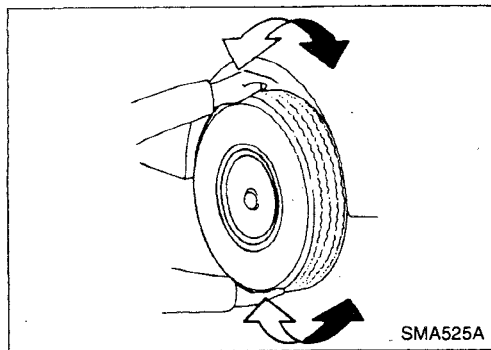
Front Axle and Front Suspension Parts

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

- (1) Shake each front wheel.
- (2) Make sure that cotter pin is inserted.
- (3) Retighten all nuts and bolts to the specified torque.

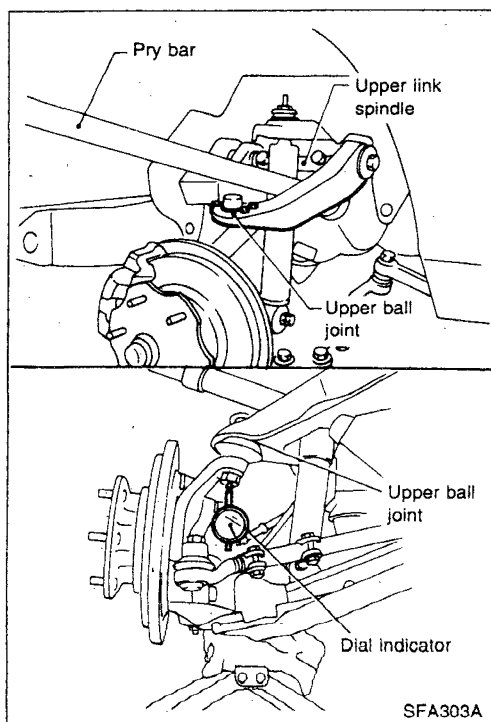
 : Refer to "FRONT SUSPENSION"

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



- Check shock absorber for oil leakage or other damage.

- Check suspension ball joints for grease leakage and dust covers for cracks or other damage.



- Check ball joint for vertical end play.

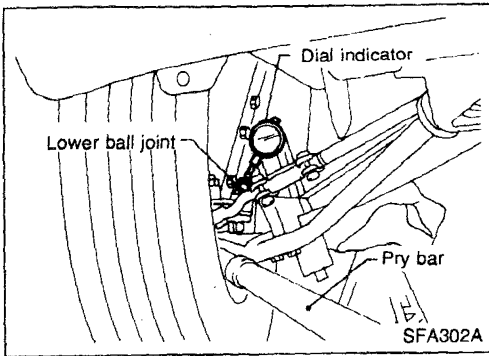
Upper ball joint:

1.6 mm (0.063 in) or less

- (1) Jack up front of vehicle and set the stands.
- (2) Clamp 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 road wheel.
- (5) While pushing and releasing pry bar, observe maximum dial indicator value.
- (6) If ball joint movement is beyond specifications, remove and recheck it.

CHECK AND ADJUSTMENT

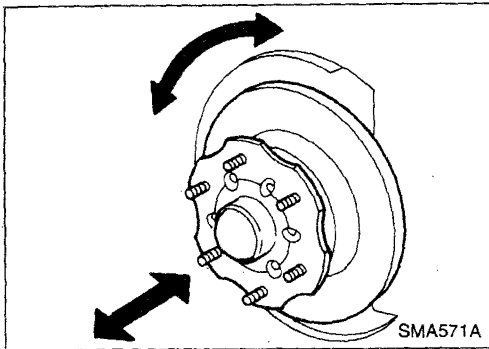
Front Axle and Front Suspension Parts (Cont'd)



Lower ball joint:

0.5 mm (0.020 in) or less

- (1) Jack up front of vehicle and set the stands.
- (2) Remove road wheel.
- (3) Clamp dial indicator onto upper link and place indicator tip on knuckle near ball joint.
- (4) Jack up lower link [Approx. 20 mm (0.79 in)].
- (5) Place a pry bar between upper link and upper link spindle.
- (6) While pushing and releasing pry bar observe maximum dial indicator value.
- (7) If ball joint movement is beyond specifications, remove and recheck it.



Front Wheel Bearing

- Check that wheel bearings operate smoothly.
- Check axial end play.

Axial end play: 0 mm (0 in)

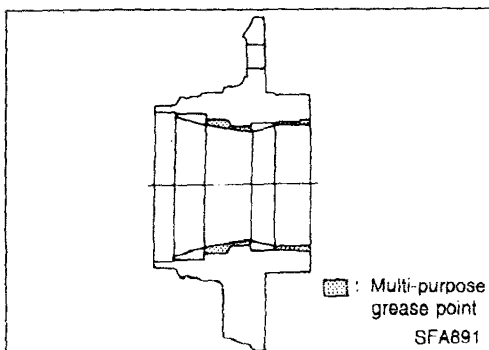
- Adjust wheel bearing preload if there is any axial end play or wheel bearing does not turn smoothly.

PRELOAD ADJUSTMENT

Adjust wheel bearing preload after wheel bearing has been replaced or front axle has been reassembled.

Adjust wheel bearing preload as follows:

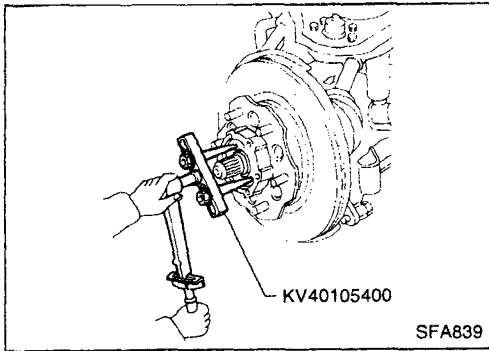
1. Before adjustment, thoroughly clean all parts to prevent dirt entry.



2. Apply multi-purpose grease sparingly to the following parts:
 - Threaded portion of spindle
 - Contact surface between wheel bearing washer and outer wheel bearing
 - Grease seal lip
 - Wheel hub (as shown at left)

CHECK AND ADJUSTMENT

Front Wheel Bearing (Cont'd)

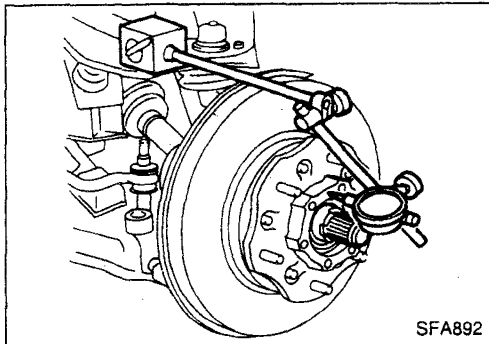


3. Tighten wheel bearing lock nut with Tool.

\square :78 - 98 N·m
(8 - 10 kg-m, 58 - 72 ft-lb)

4. Turn wheel hub several times in both directions.
5. Loosen wheel bearing lock nut so that torque becomes 0 N·m (0 kg-m, 0 ft-lb).
6. Retighten wheel bearing lock nut with Tool.

\square :0.5 - 1.5 N·m
(0.05 - 0.15 kg-m, 0.4 - 1.1 ft-lb)

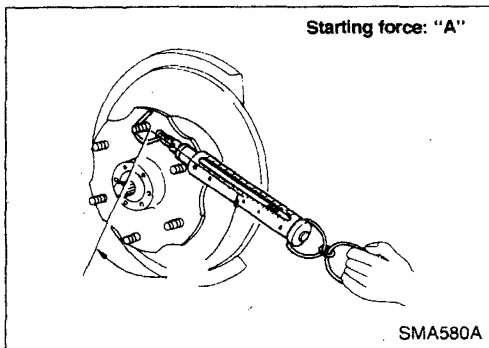


7. Turn wheel hub several times in both directions.
8. Retighten wheel bearing lock nut with Tool.

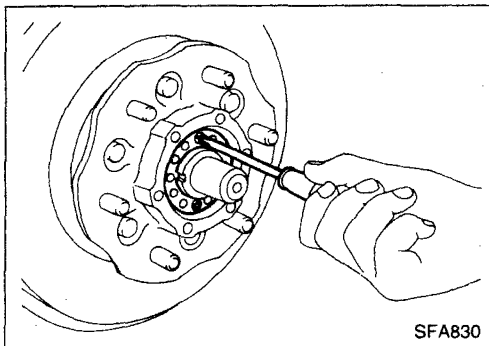
\square :0.5 - 1.5 N·m
(0.05 - 0.15 kg-m, 0.4 - 1.1 ft-lb)

9. Measure wheel bearing axial end play.

Axial end play:
0 mm (0 in)



10. Measure starting force "A" at wheel hub bolt when moving the hub by 90° as shown.



11. Install lock washer by tightening the lock nut within 15 to 30 degrees.
12. Turn wheel hub several times in both directions to seat wheel bearing correctly.
13. Measure starting force "B" at wheel hub bolt. Refer to procedure 10.

14. Wheel bearing preload "C" can be calculated as shown below.

$$C = B - A$$

Wheel bearing preload "C":

7.06 - 20.99 N
(0.72 - 2.14 kg, 1.59 - 4.72 lb)

15. Repeat above procedures until correct axial end play and wheel bearing preload are obtained.
16. Install free-running hub and brake pads.

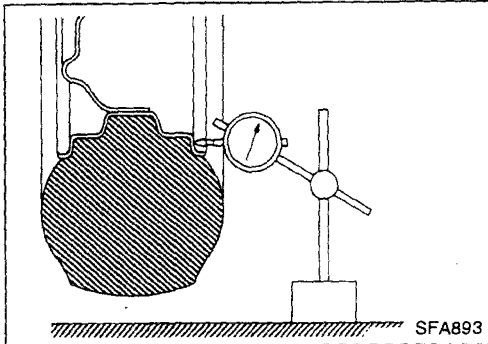
CHECK AND ADJUSTMENT

Front Wheel Alignment

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

PRELIMINARY INSPECTION

1. Check the tires for wear and proper inflation.



2. Check the wheel runout.

Wheel runout:

Refer to S.D.S

3. Check the front wheel bearings for looseness.
4. Check the front suspension for looseness.
5. Check the steering linkage for looseness.
6. Check that the front shock absorbers work properly by using the standard bounce test.
7. Measure vehicle height (Unladen): $H = A - B$ mm (in)

Refer to S.D.S.

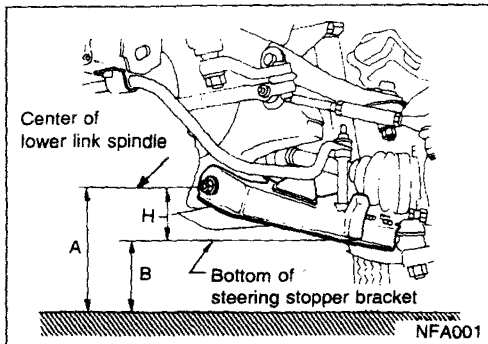
- (1) Exercise the front suspension by bouncing the front of the vehicle 4 or 5 times to ensure that vehicle is in a neutral height attitude.

- (2) Measure wheel alignment.

Refer to S.D.S.

- (3) Measure vehicle posture ... Dimension "H".

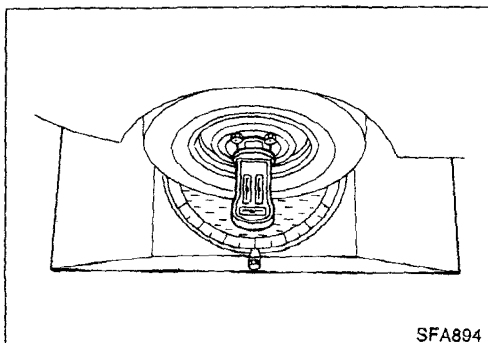
Refer to S.D.S.



If "H" dimension is not within the specified value, readjust vehicle posture using anchor arm adjusting nut.

Refer to "INSTALLATION AND ADJUSTMENT" in "Torsion Bar Spring", section of "FRONT SUSPENSION". Adjust wheel alignment if necessary.

- (4) If wheel alignment is not as specified, but dimension "H" is correct, adjust wheel alignment.



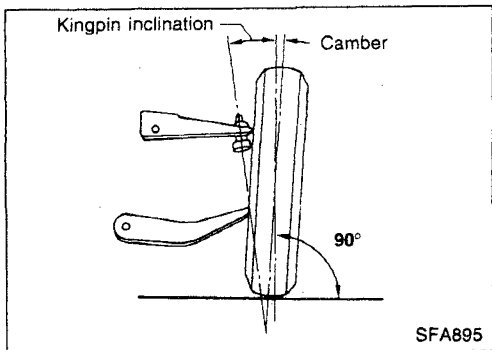
CAMBER, CASTER AND KINGPIN INCLINATION

Before checking camber, caster or kingpin inclination, move vehicle up and down on turning radius gauge to minimize friction. Ensure that vehicle is in correct posture (unladen vehicle).

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

CHECK AND ADJUSTMENT

Front Wheel Alignment (Cont'd)

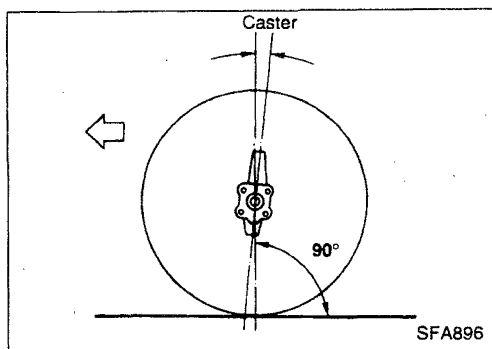


Camber (Unladen):

Refer to S.D.S.

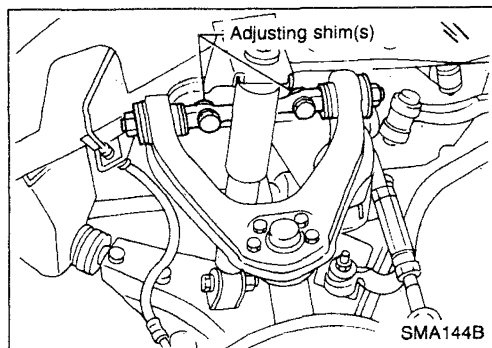
Kingpin inclination (Unladen):

Refer to S.D.S.



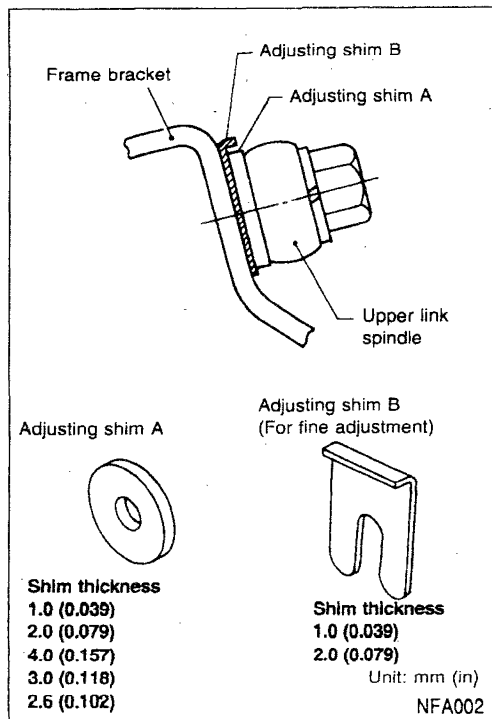
Caster (Unladen):

Refer to S.D.S.



ADJUSTMENT

Both camber and caster angles are adjusted by increasing or decreasing the number of adjusting shims inserted between upper link spindle and frame.



Before removing or installing adjusting shim(s), be sure to place a jack under lower link.

Adjusting shim standard thickness:

4.0 mm (0.157 in)

- Do not use three or more shims at one place.
- When installing shim B, always face the pawl towards spindle and insert them from bracket side. Use only one shim in a place.
- Total thickness of shims must be within 8.0 mm (0.315 in).
- Difference of total thickness of the front and rear must be within 3.0 mm (0.118 in). The caster angle between the opposite sides of the vehicle may not exceed 0°45'.
- Determine thickness and number of shims necessary for adjusting camber and caster, in accordance with the following graph.

CHECK AND ADJUSTMENT

Front Wheel Alignment (Cont'd)

[Example]

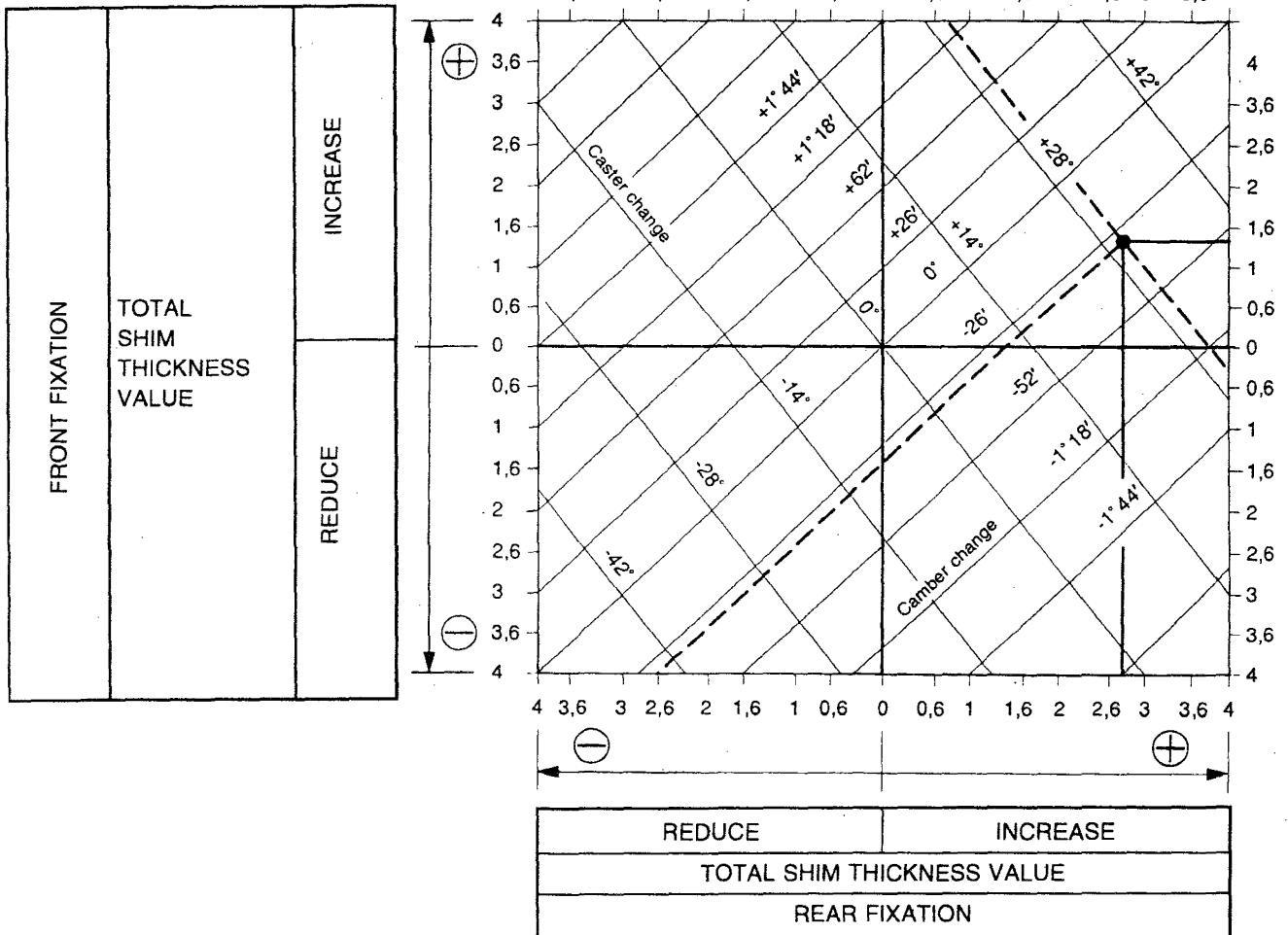
(Measures taken at one side):

(1)

	Angle		
	Specified value	Measured	Change
Camber angle	0°35'	0°5'	+0°30'
Caster angle	1°40'	2°10'	-0°30'

The above values reflect to the below graph as follows:

Shim thickness selection graph



EFA015

- (2) Obtain intersection point of lines in accordance with the graph.

Front: 1.5 mm

Rear: 2.7 mm

- (3) Choose shims which are nearest to the values found in the graph:

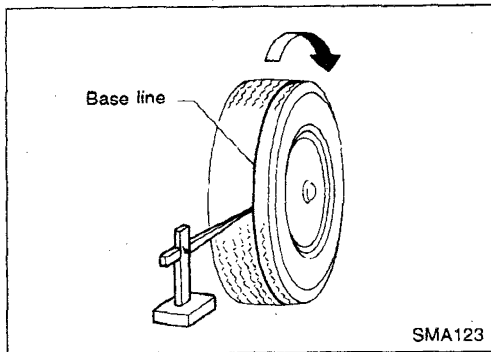
Front: 1.6 mm

Rear: 2.6 mm

- (4) If shim thicknesses as calculated appear not to be available, combinations of different shims should be used to meet the desired total thickness of the shims.

CHECK AND ADJUSTMENT

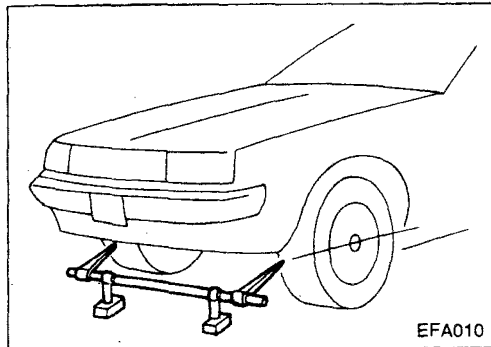
Front Wheel Alignment (Cont'd)



TOE-IN

1. Mark a base line across the tread.

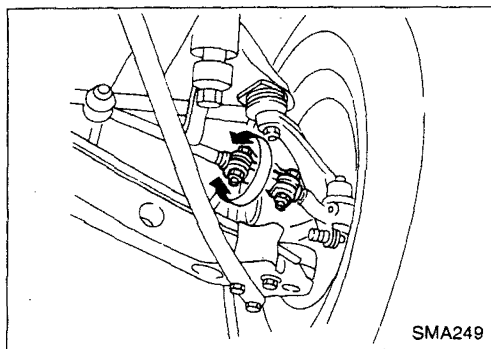
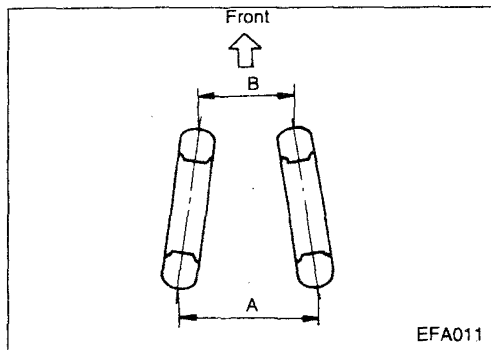
After lowering front of vehicle, move it up and down to eliminate friction, and set steering wheel in straight ahead position.



2. Measure toe-in.

Measure distance "A" and "B" at the same height as hub center.

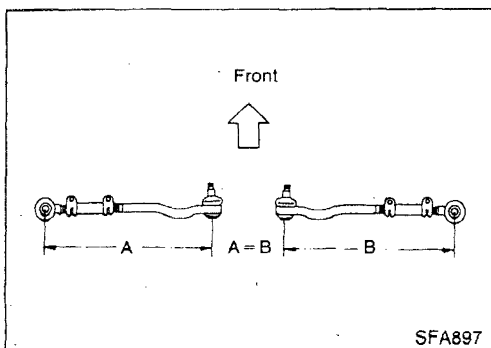
Toe-in (Unladen):
Refer to S.D.S.
Toe-in = A — B



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

(1) Loosen clamp bolts or lock nuts.

(2) Adjust toe-in by turning the left and right tie-rod tubes an equal amount.



Make sure that the tie-rod bars are screwed into the tie-rod tube more than 35 mm (1.38 in).

Make sure that the tie-rods are the same length.

Standard length (A = B):
281 mm (11.06 in)

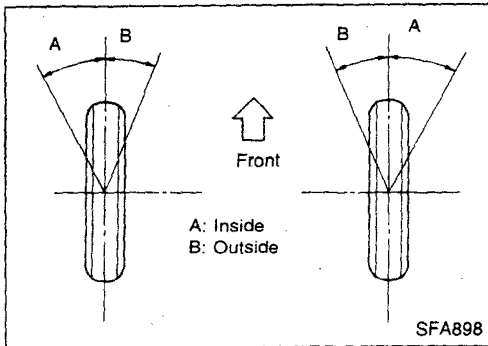
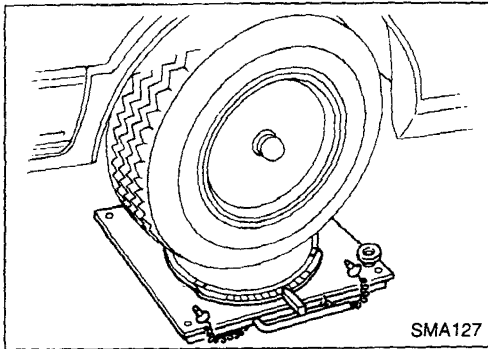
(3) Tighten clamp bolts or lock nuts, to the specified torque.

CHECK AND ADJUSTMENT

Front Wheel Alignment (Cont'd)

FRONT WHEEL TURNING ANGLE

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

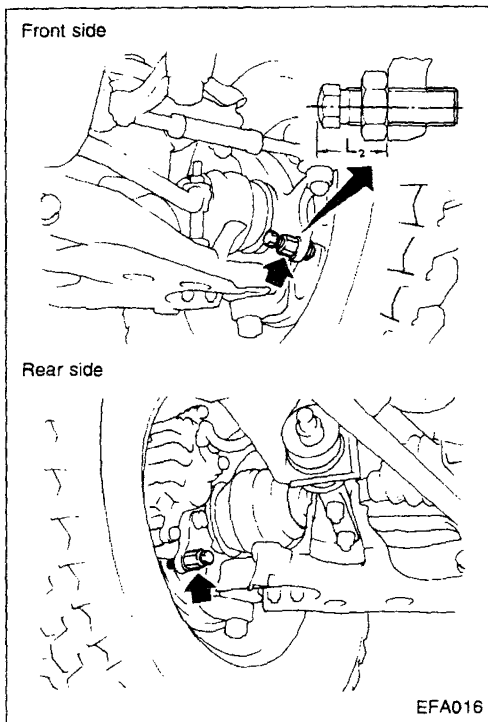


2. Rotate steering wheel all the way right and left; measure turning angle.

Wheel turning angle:
Refer to S.D.S.

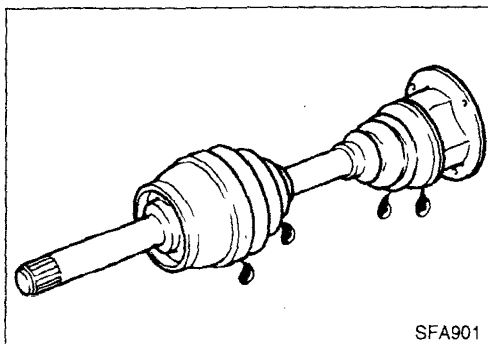
3. Adjust by stopper bolt if necessary.

Standard length "L₂":
26.5 mm (1.043 in)

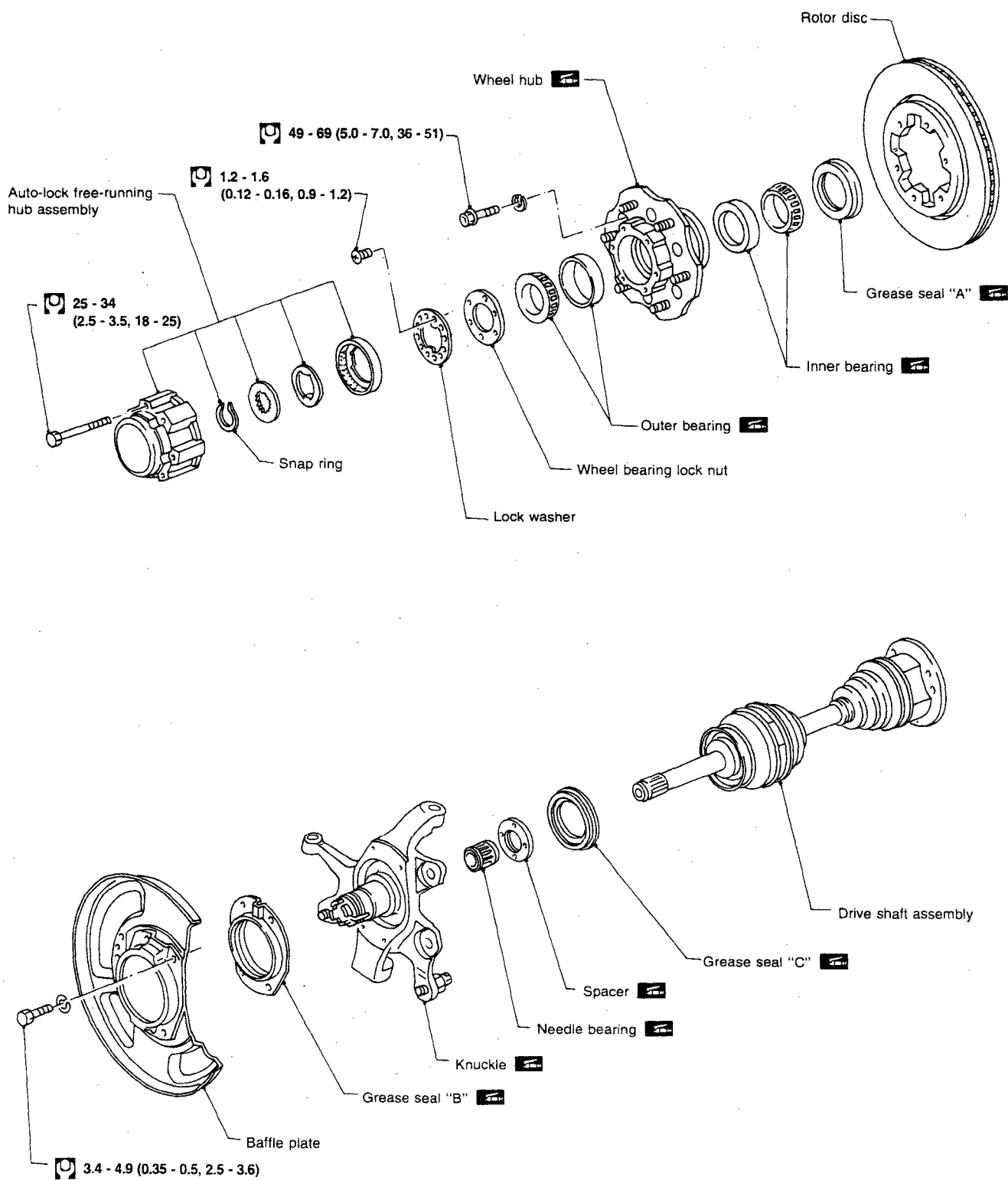


Drive Shaft

- Check for grease leakage or other damage.



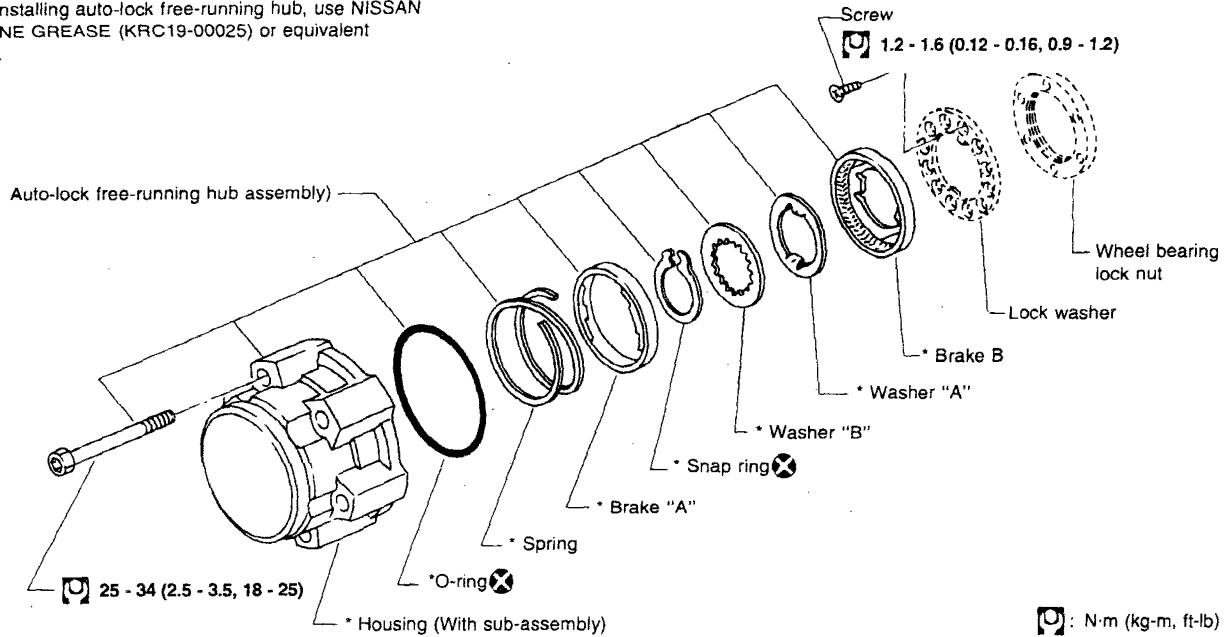
FRONT AXLE



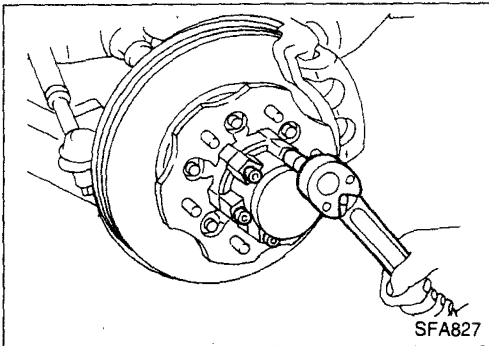
: N·m (kg·m, ft·lb)

FRONT AXLE — Auto-lock Free-running Hub

- * Lubricating parts
When installing auto-lock free-running hub, use NISSAN GENUINE GREASE (KRC19-00025) or equivalent grease.

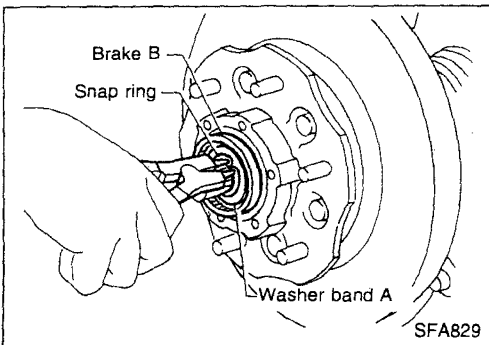


SFA826

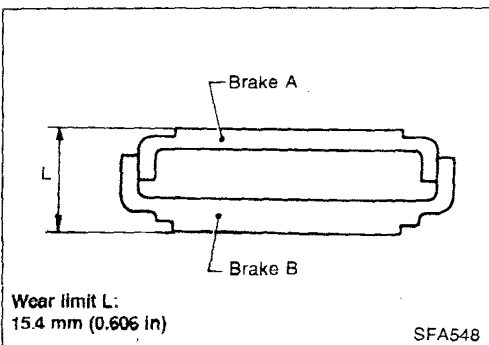


Removal and Installation

- Set the auto-lock free-running hub at the condition "Free".
- Remove auto-lock free-running hub with brake pedal depressed.



- Remove snap ring.
 - Remove washer B, washer A and brake B.
 - After installing auto-lock free-running hub, check operation.
- When installing it, apply recommended grease to drive shaft end.**



Inspection

Thoroughly clean parts and dry with compressed air.

Brake "A" and "B"

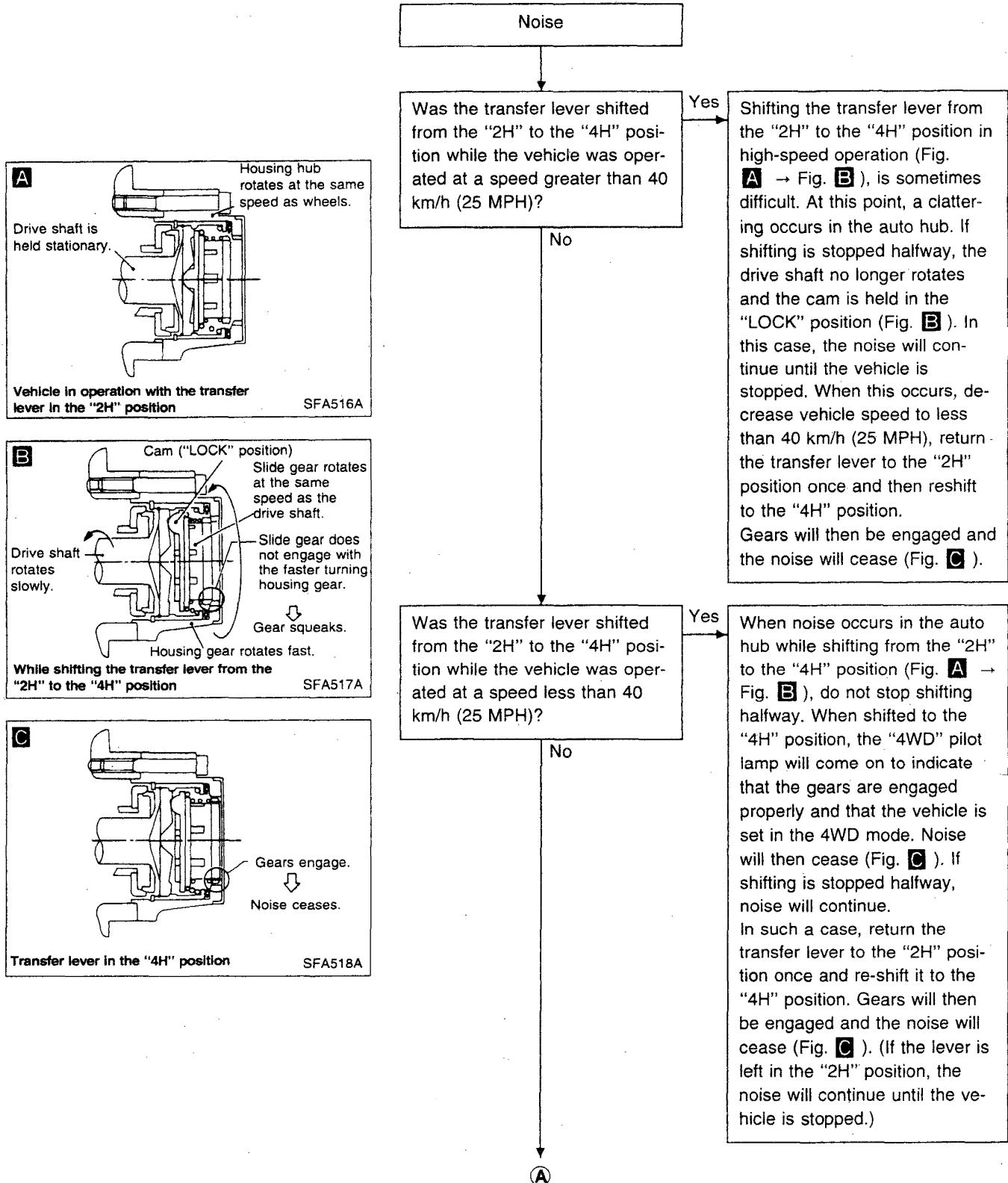
Measure the thickness "L" of brake "A" and "B".

If thickness is less than the specified limit, replace brake "A" and "B" as a set.

Wear limit "L" = 15.4 mm (0.606 in)

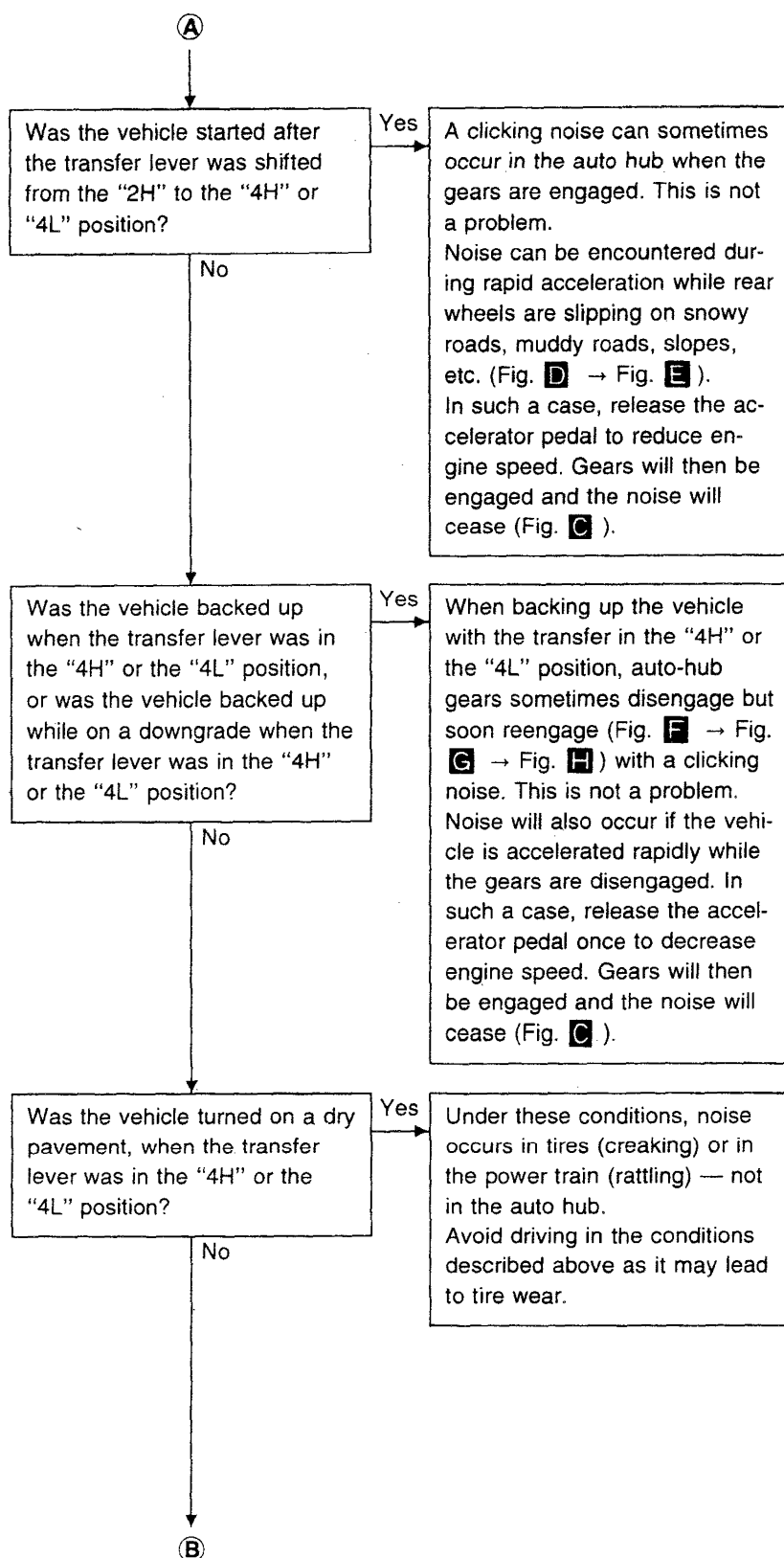
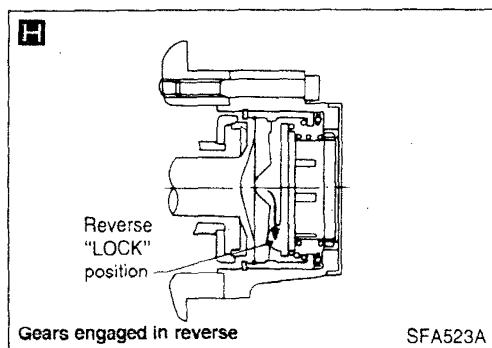
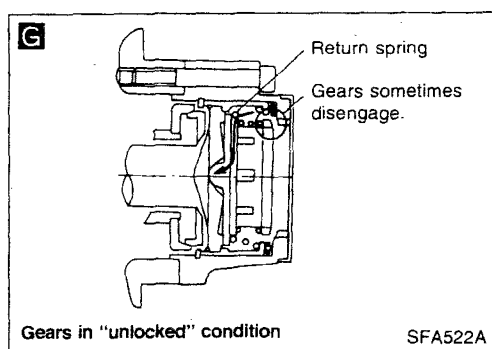
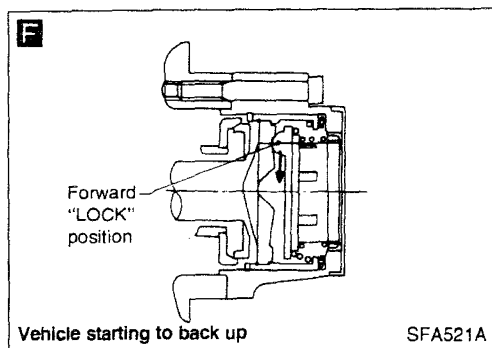
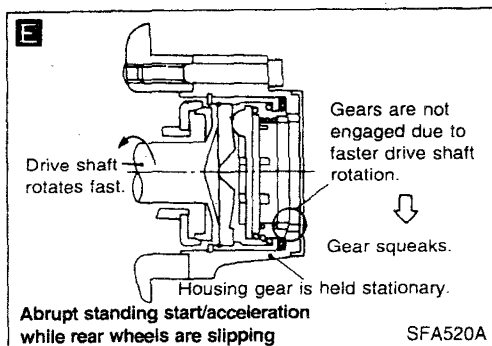
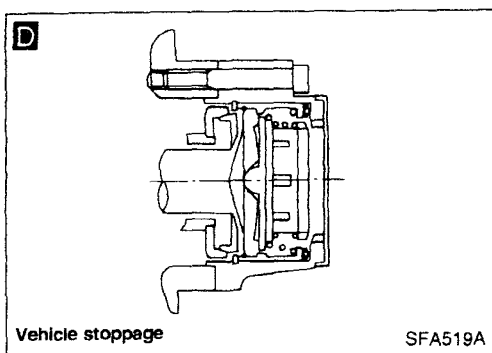
Trouble-shooting

Noise occurring in the auto hub under any of the conditions described is not indicative of a problem. Noise can be eliminated by properly operating the transfer lever of the vehicle.



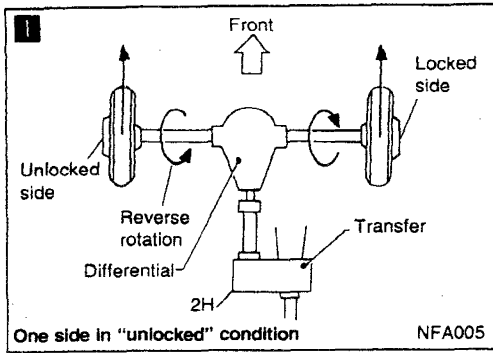
FRONT AXLE — Auto-lock Free-running Hub

Trouble-shooting (Cont'd)



FRONT AXLE — Auto-lock Free-running Hub

Trouble-shooting (Cont'd)



B

Was the vehicle moved in one direction after the vehicle was driven in another direction when the transfer lever was in the "4H" or the "4L" position and then returned to the "2H" position?

Yes

Auto-hub gears will disengage with a resultant noise (clicking). If the distance the vehicle is moved in the opposite direction is short [less than 1 m (3 ft)] or if the rotation angle of the left and right wheels is not the same (as in rounding a corner), gears on one side will disengage (Fig. **I**). Under this condition, a noise (crushing, etc.) might occur while driving in the "2H" position. If only gears on one side are unlocked, the locked drive shaft rotates at the same speed as wheels; however, the unlocked drive shaft is made to rotate in the reverse direction by the differential. This forces by auto hub's slide gear to lock in the reverse direction. As a result, noise occurs. If this happens, slowly move the vehicle straight back approximately 2 to 3 m (7 to 10 ft) with the transfer lever in the "2H" position to disengage the gears on the other side.

No

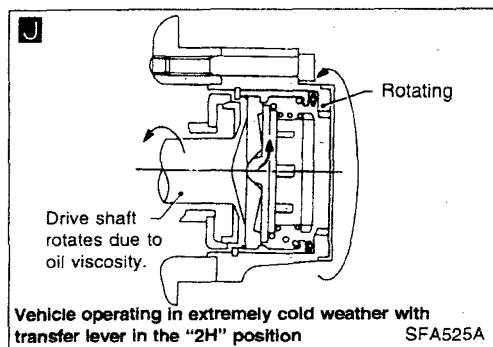
Was the vehicle driven with the transfer lever in the "2H" position in extremely cold weather?

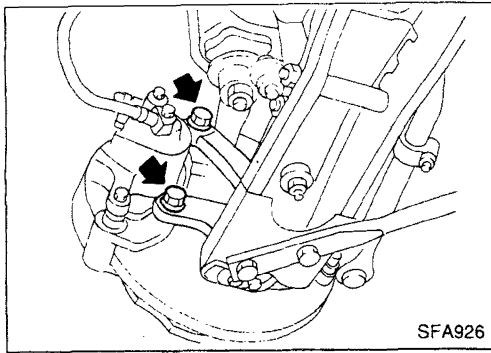
Yes

In extremely cold weather (areas), the viscosity of differential oil is greater than in moderate weather. When the auto hubs are unlocked with the transfer lever set to the "2H" position, one auto hub can sometimes remain locked. This causes noise during operation. Noise can also occur in the auto hub when the front propeller shaft is rotated due to the viscosity resistance of the transfer fluid (Fig. **J**). In such a case, drive in the "4H" position for approximately 10 minutes until the vehicle warms up, and return the transfer lever to the "2H" position to eliminate the noise.

No

Disassemble and check the auto hub.
(Refer to "Removal and Installation" earlier in this section.)



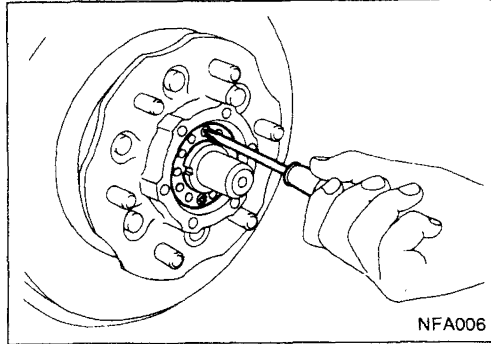


Removal and Installation

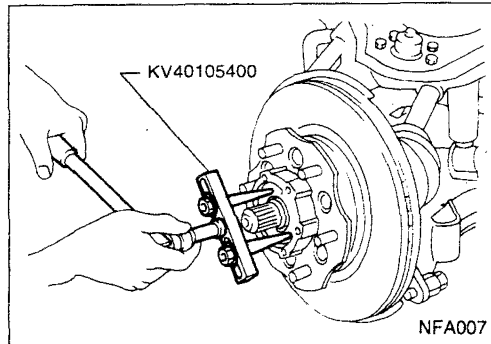
- Remove free-running hub assembly.
Refer to "FRONT AXLE — Auto-Lock Free-running Hub".
- Remove brake caliper assembly.

Brake hose does not need to be disconnected from brake caliper.

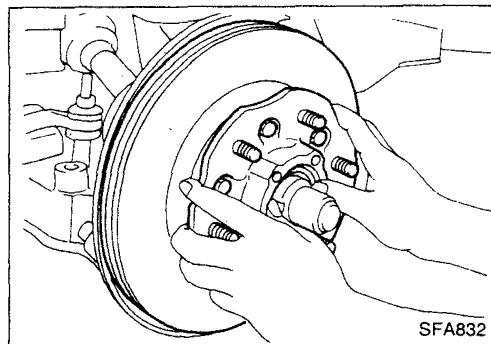
**Be careful not to depress brake pedal, or piston will pop out.
Make sure brake hose is not twisted.**



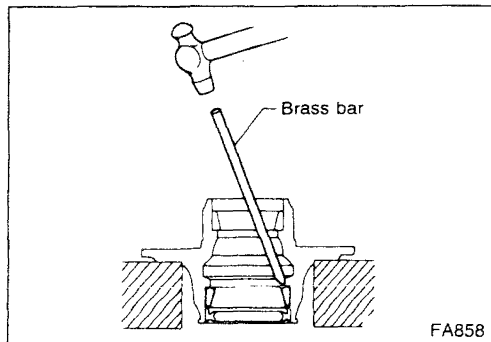
- Remove lock washer.



- Remove wheel bearing lock nut with Tool.
Tool: KV40105400



- Remove wheel hub and wheel bearing.
Be careful not to drop outer bearing.
- After installing wheel hub and wheel bearing, adjust wheel bearing preload.
Refer to "PRELOAD ADJUSTMENT" in "Front Wheel Bearing" section of "CHECK AND ADJUSTMENT".



Disassembly

- Drive bearing outer races with suitable brass bar.

Inspection

Thoroughly clean wheel bearing and wheel hub.

WHEEL BEARING

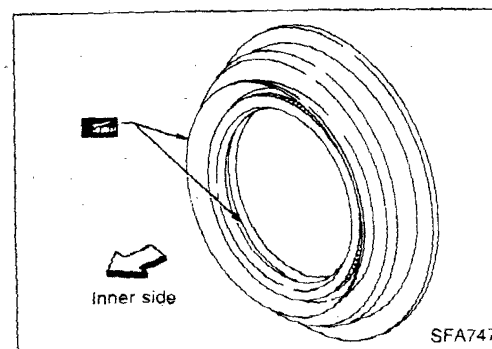
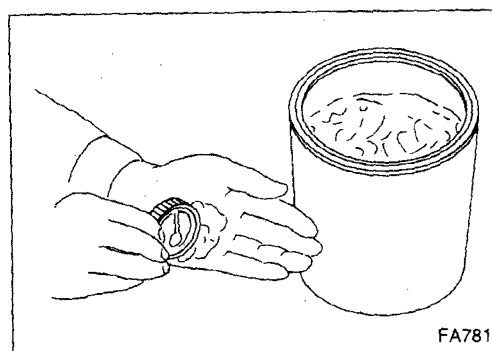
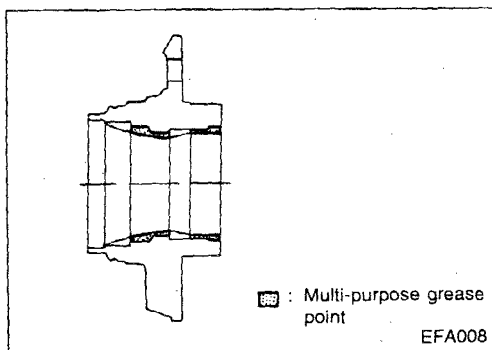
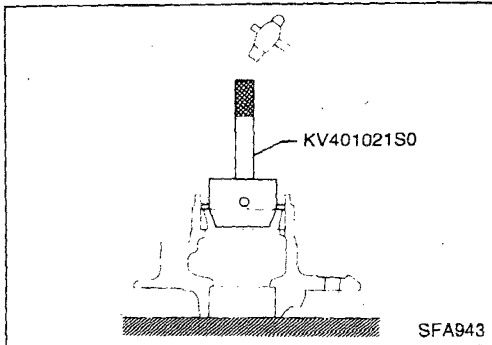
- Make sure wheel bearing rolls freely and is free from noise, crack, pitting or wear.

WHEEL HUB

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

Assembly

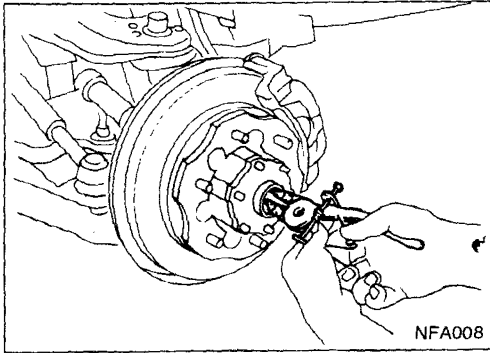
- Install bearing outer race with Tool until it seats in hub.



- Apply multi-purpose grease to each bearing cone.

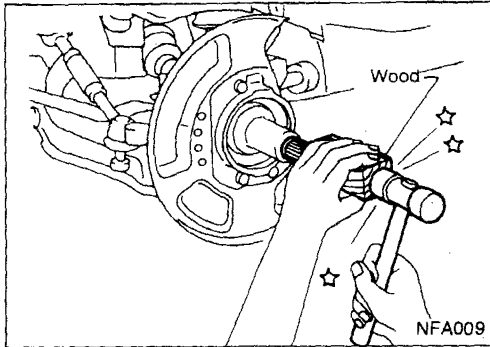
- Pack grease seal lip with multi-purpose grease, then install it into wheel hub with suitable drift.

FRONT AXLE — Knuckle Spindle

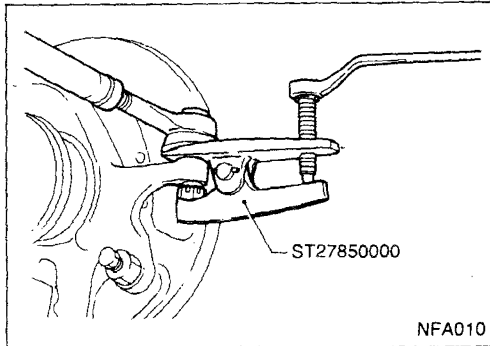


Removal

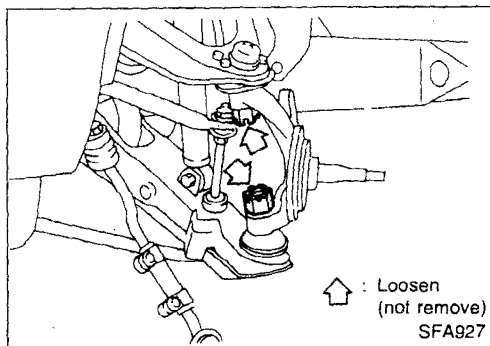
- Remove free-running hub assembly.
Refer to "FRONT AXLE — Auto-lock Free-running Hub".



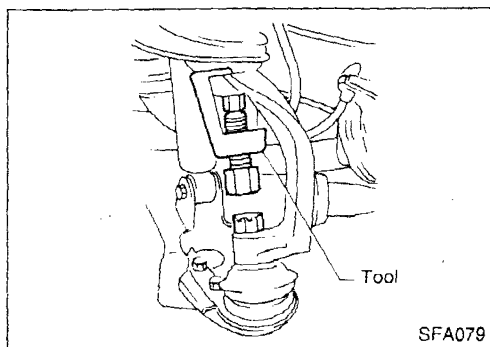
- Separate drive shaft from knuckle spindle by slightly tapping drive shaft end.



- Separate tie-rod from knuckle spindle with Tool.
Install stud nut conversely on stud bolt so as not to damage stud bolt.



- Separate knuckle spindle from ball joints.
(1) Loosen (not remove) upper and lower ball joint tightening nuts.



- (2) Separate upper and lower ball joints to knuckle spindle with Tool.

During above operation, never remove ball joint nuts which are loosened in step (1) above.

Tool: HT72520000

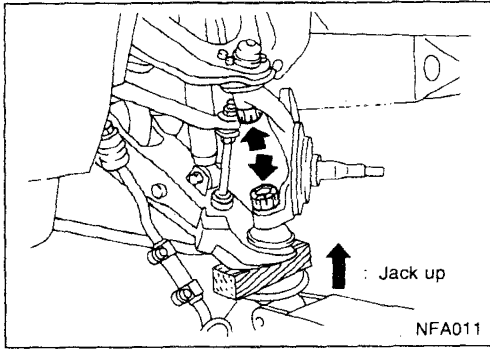
FRONT AXLE — Knuckle Spindle

Removal (Cont'd)

(3) Remove ball joint tightening nuts.

Support lower link with jack.

(4) Separate knuckle spindle from upper and lower links.



Inspection

KNUCKLE SPINDLE

- Check knuckle spindle for deformation, cracks or other damage by using a magnetic exploration or dyeing test.

NEEDLE BEARING

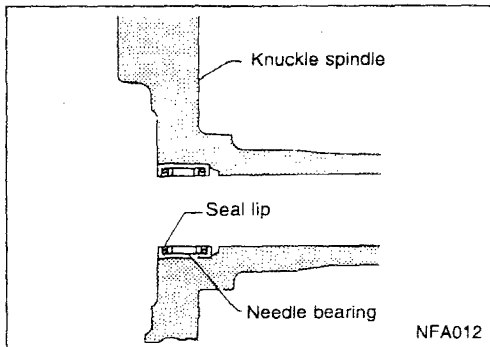
- Check needle bearing for wear, scratches, pitting, flaking and burn marks.

Installation

- Install needle bearing into knuckle spindle.

Make sure that needle bearing is facing in proper direction.

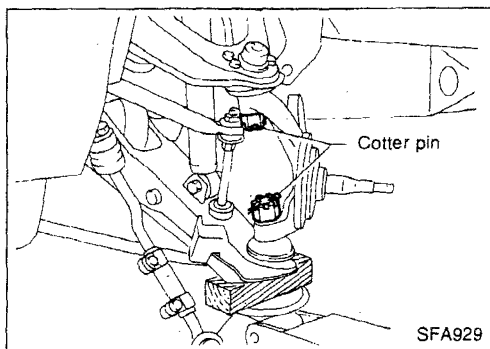
Apply multi-purpose grease.



- Install knuckle spindle to upper and lower ball joints with lower link jacked up.

CAUTION:

Make sure that oil or grease does not come into contact with tapered areas of ball joint and knuckle spindle and threads of ball joint.



- After installing knuckle spindle, adjust wheel bearing preload.

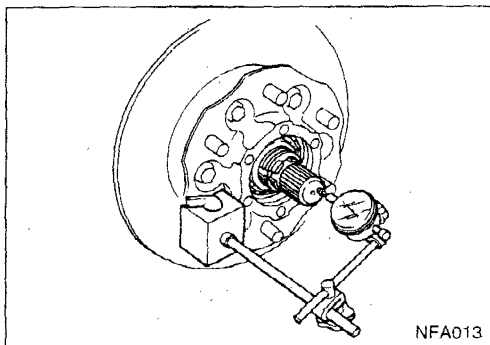
Refer to "PRELOAD ADJUSTMENT" in "Front Wheel Bearing" section of "CHECK AND ADJUSTMENT".

- After installing drive shaft, check drive shaft axial end play.

Do not reuse snap ring once it has been removed.

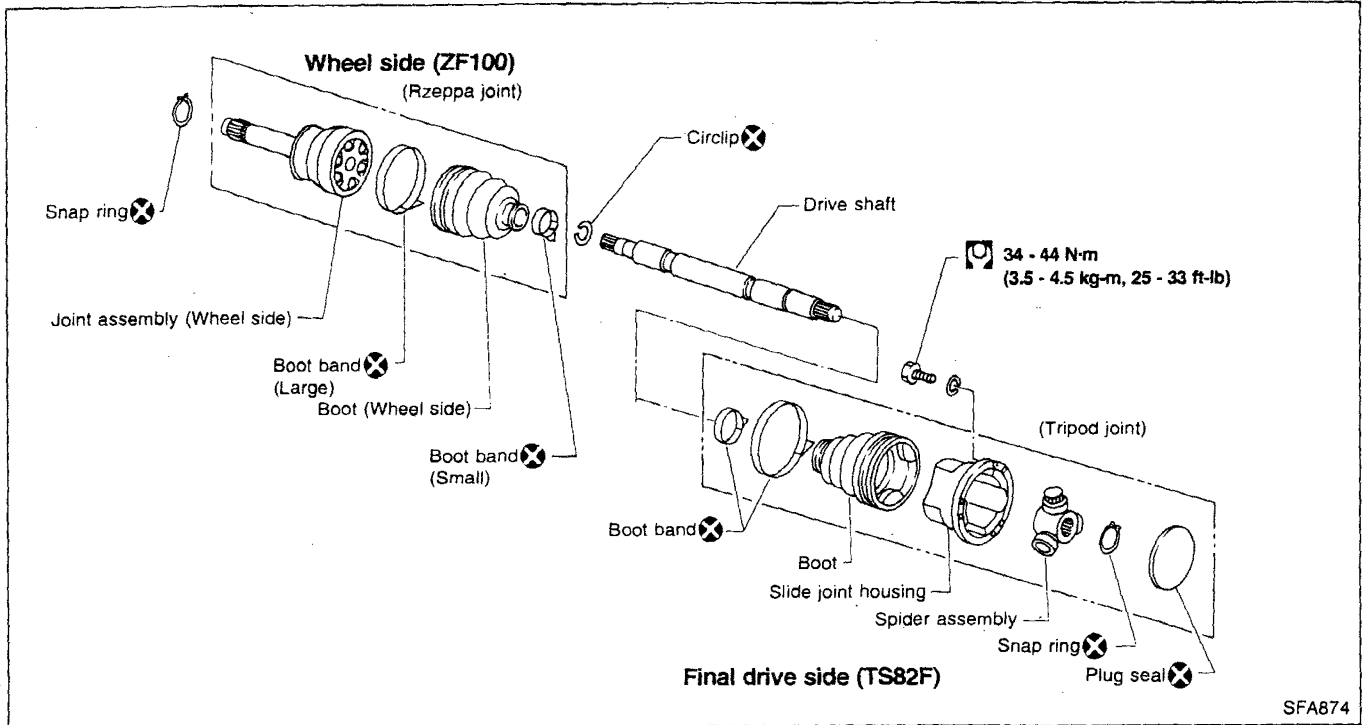
Temporarily install snap ring at same thickness as it was installed before removal.

Refer to "FRONT AXLE — Drive Shaft".



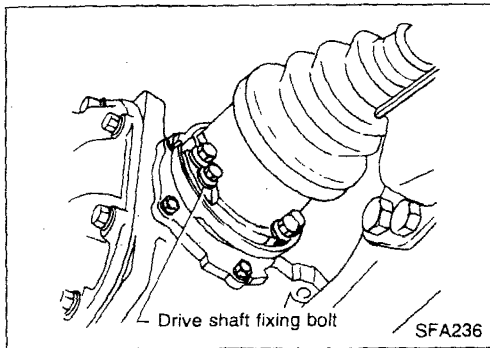
FRONT AXLE — Drive Shaft

Removal and Installation



Removal

1. Remove bolts fixing drive shaft to final drive.

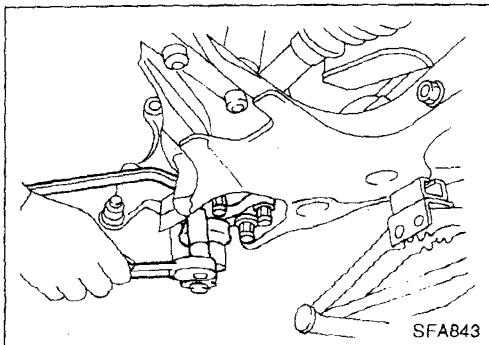


2. Remove free-running hub assembly with brake pedal depressed. Refer to "FRONT AXLE — Auto-lock Free-running Hub".
 - Remove brake caliper assembly without disconnecting brake hydraulic line.

Make sure that brake hose is not twisted.

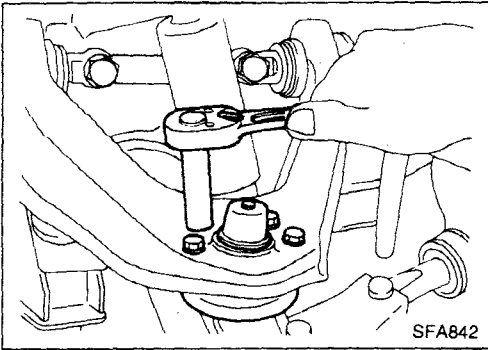
- Remove tie-rod ball joint. Refer to "FRONT AXLE — Knuckle Spindle".

3. Remove nuts fixing lower ball joint on lower link.
Support lower link with jack.

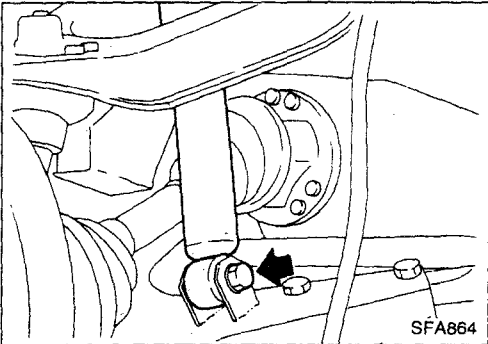


FRONT AXLE — Drive Shaft

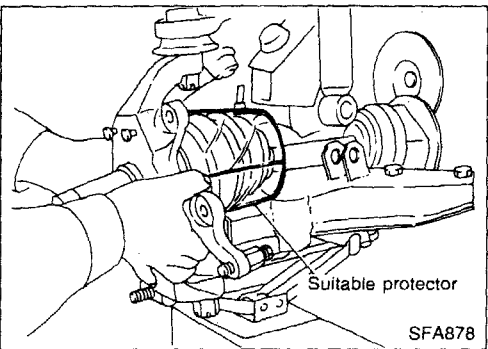
Removal (Cont'd)



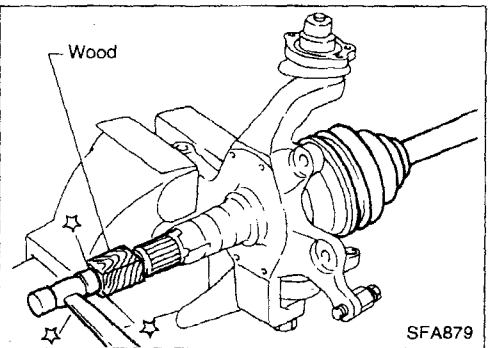
4. Remove upper ball joint fixing bolt.



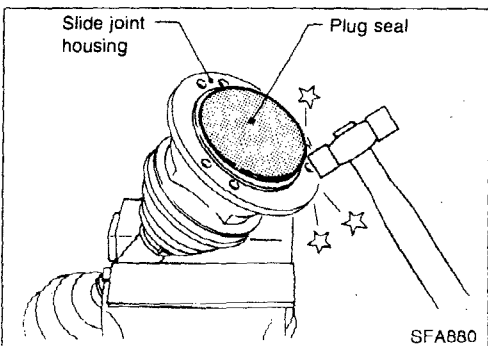
5. Remove shock absorber lower bolt.



6. Remove drive shaft with knuckle.
Cover drive shaft boot with a suitable protector.



7. Separate drive shaft from knuckle by slightly tapping it.



Disassembly

FINAL DRIVE SIDE

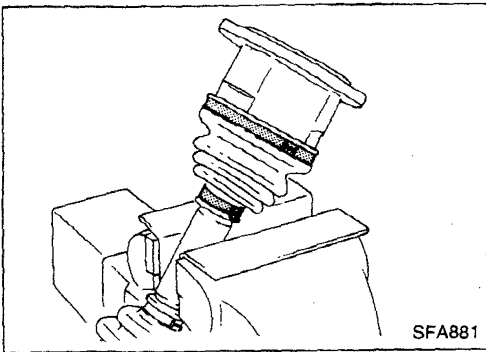
— TS82F type —

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

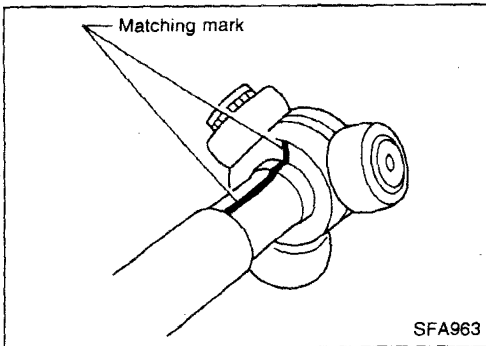
FRONT AXLE — Drive Shaft

Disassembly (Cont'd)

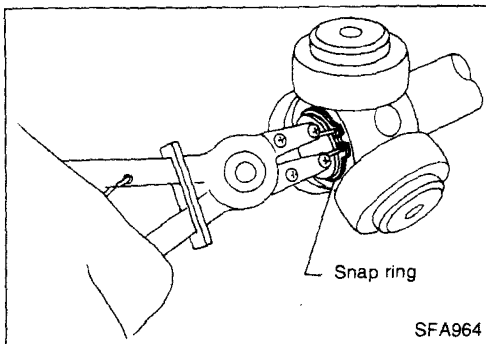
2. Remove boot bands.



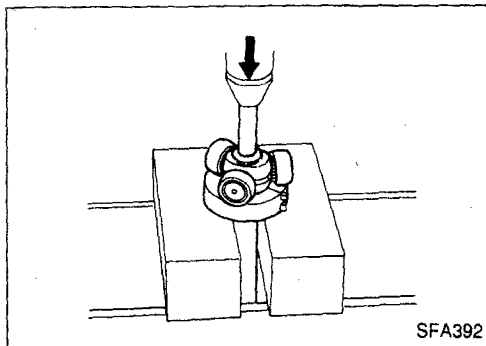
3. Move boot and slide joint housing toward wheel side, and put matching marks.



4. Pry off snap ring.

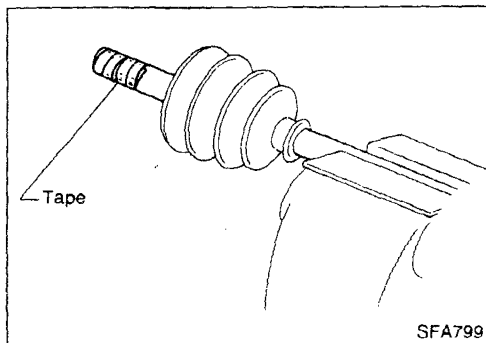


5. Detach spider assembly with press.



6. Draw out boot.

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



FRONT AXLE — Drive Shaft

Disassembly (Cont'd)

WHEEL SIDE (ZF100)

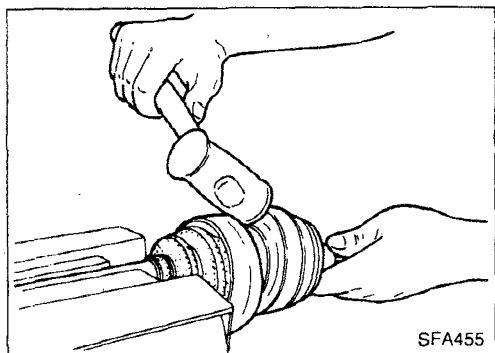
CAUTION:

This type of 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 suitable tool.

Be careful not to damage threads on drive shaft.

- Remove boot bands.



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 (TS82F) (FINAL DRIVE SIDE)

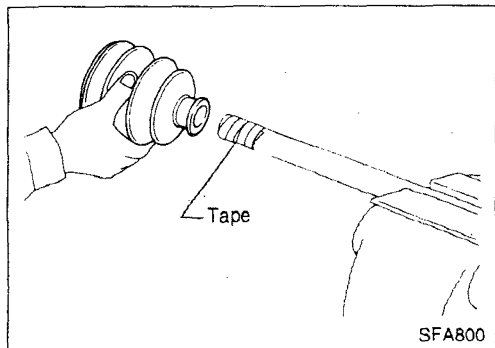
- Replace any parts of double offset joint which show signs of scorching, rust, wear or excessive play.
- Check serration for deformation. Replace if necessary.
- Check slide joint housing for any damage. Replace if necessary.

JOINT ASSEMBLY (ZF100) (WHEEL SIDE)

Replace joint assembly if it is deformed or damaged.

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.



FINAL DRIVE SIDE

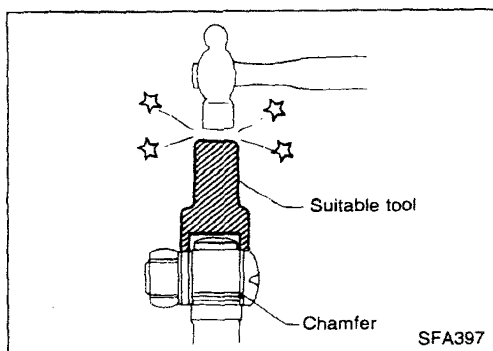
— TS82F type —

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

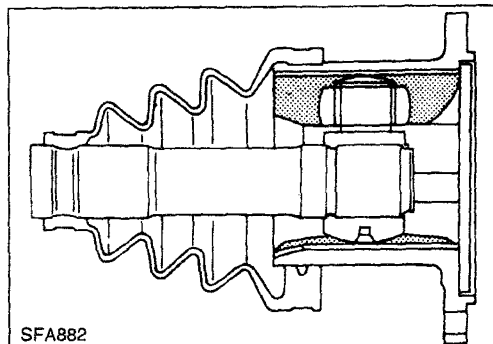
Cover drive shaft serration with tape so as not to damage boot during installation.

FRONT AXLE — Drive Shaft

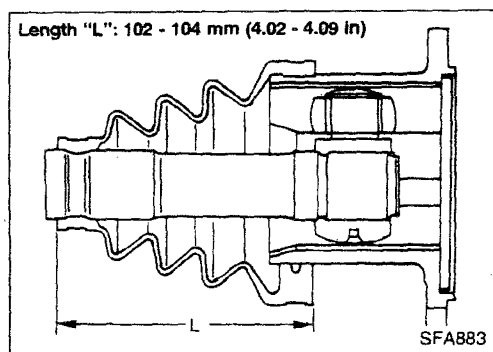
Assembly (Cont'd)



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



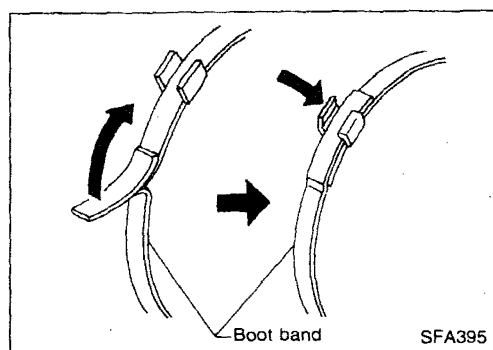
4. Pack with grease.
Specified amount of grease:
190 - 210 g (6.70 - 7.41 oz)



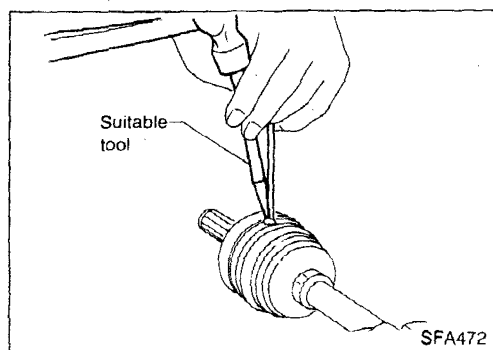
5. Set boot so that it does not swell and deform when its length is "L".

Length "L" = 102 - 104 mm (4.02 - 4.09 in)

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



6. The rubber cover comes with clamps on both ends. Firmly clinch the clamp to the end which is wider in diameter and repeat the procedure at the narrower end. Use the appropriate tool.



7. Install new plug seal to slide joint housing by lightly tapping it.
- Apply sealant to mating surface of plug seal.**

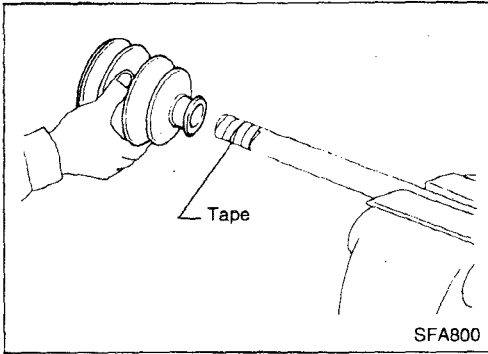
FRONT AXLE — Drive Shaft

Assembly (Cont'd)

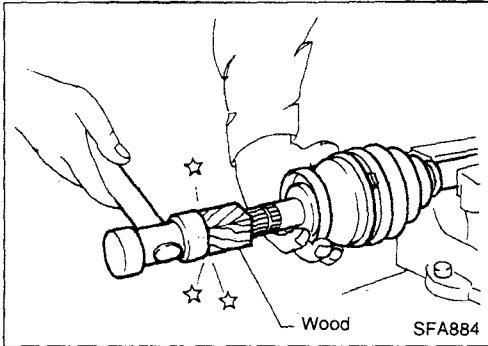
WHEEL SIDE (ZF100)

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

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



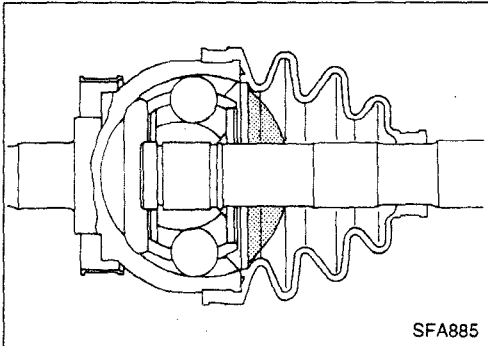
2. Set joint assembly onto drive shaft by lightly tapping it. Install joint assembly securely, ensuring marks which were made during disassembly are properly aligned.



3. Pack drive shaft with specified amount of grease.

Specified amount of grease:

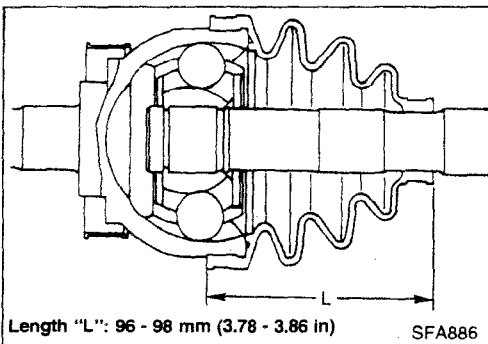
100 - 120 g (3.53 - 4.23 oz)



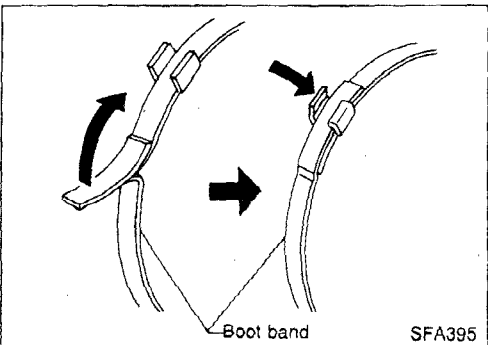
4. Set boot so that it does not swell and deform when its length is "L".

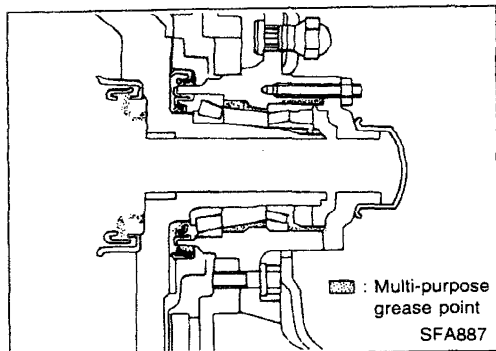
Length "L" = 96 - 98 mm (3.78 - 3.86 in)

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



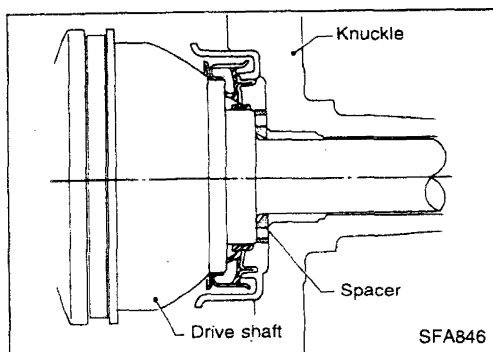
5. Lock new larger boot band securely with a suitable tool.



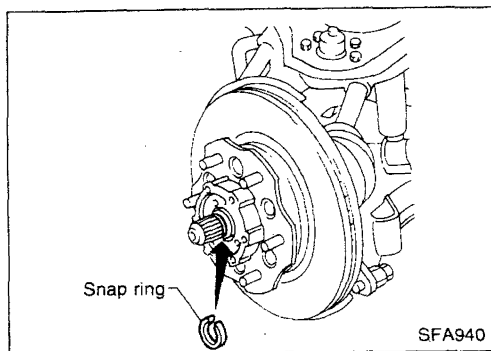


Installation

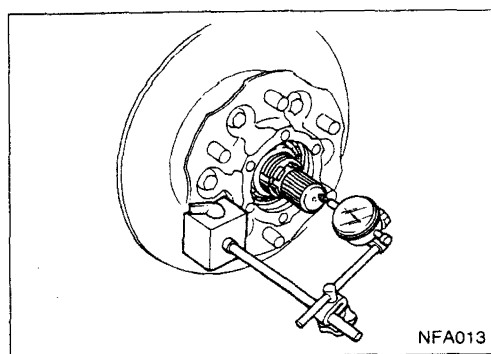
- Apply multi-purpose grease.



- Install bearing spacer onto drive shaft.
Make sure that bearing spacer is facing in proper direction.



- When installing drive shaft, adjust drive shaft axial end play by selecting a suitable snap ring.
- (1) Temporarily install new snap ring on drive shaft in the same thickness as it was installed before removal.



- (2) Set dial gauge on drive shaft end.

- (3) Measure axial end play of drive shaft.

Axial end play: 0.1 - 0.3 mm (0.004 - 0.012 in)

- (4) If axial end play is not within the specified limit, select another snap ring.

1.1 mm (0.043 in)

1.3 mm (0.051 in)

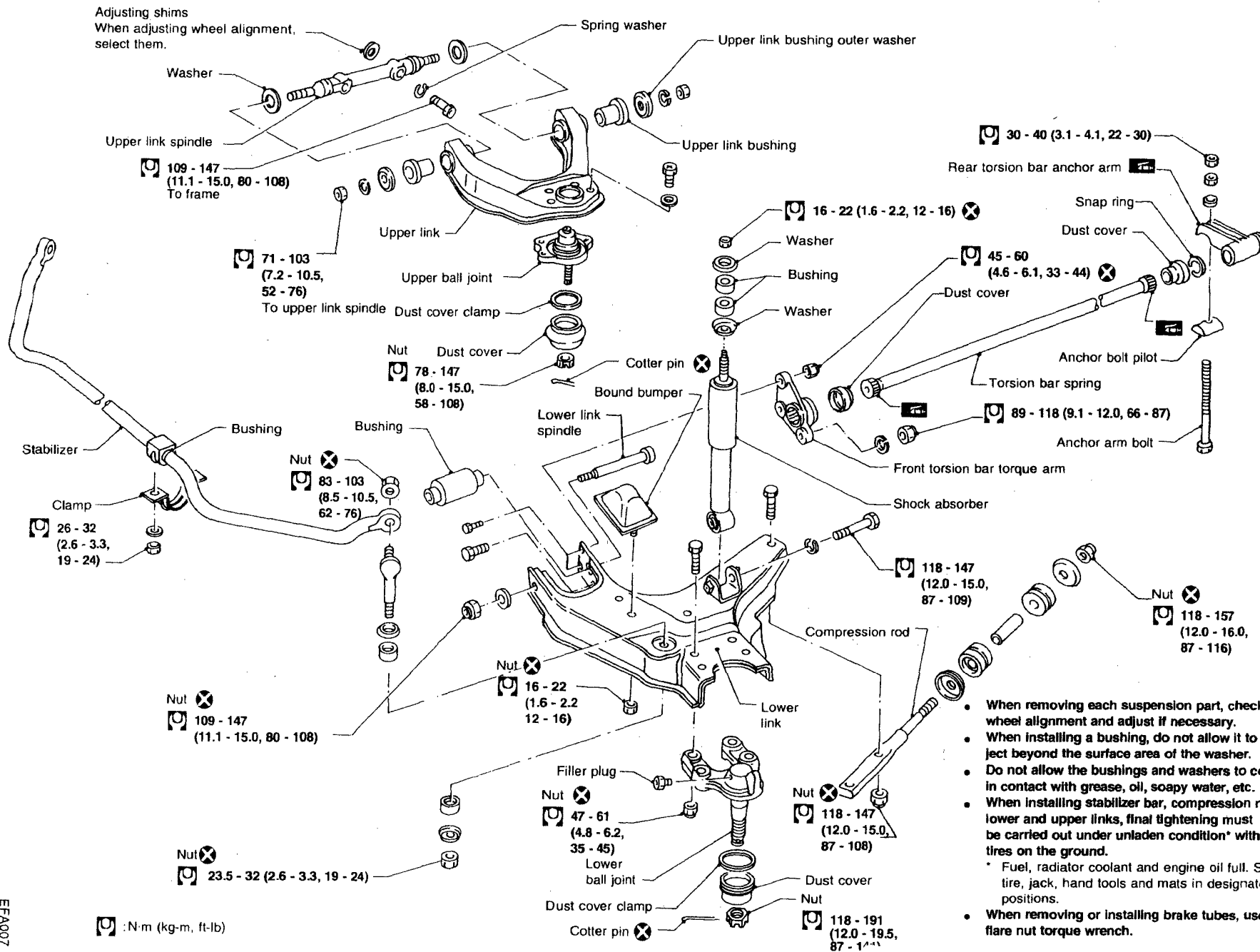
1.5 mm (0.059 in)

1.7 mm (0.067 in)

1.9 mm (0.075 in)

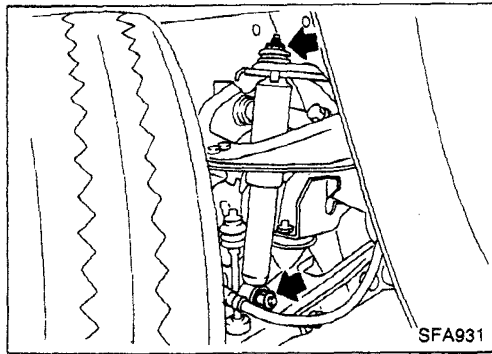
2.1 mm (0.083 in)

2.3 mm (0.091 in)



: N·m (kg·m, ft·lb)

- When removing each suspension part, check wheel alignment and adjust if necessary.
- When installing a bushing, do not allow it to project beyond the surface area of the washer.
- Do not allow the bushings and washers to come in contact with grease, oil, soapy water, etc.
- When installing stabilizer bar, compression rod, lower and upper links, final tightening must 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.
- When removing or installing brake tubes, use flare nut torque wrench.



Shock Absorber

REMOVAL AND INSTALLATION

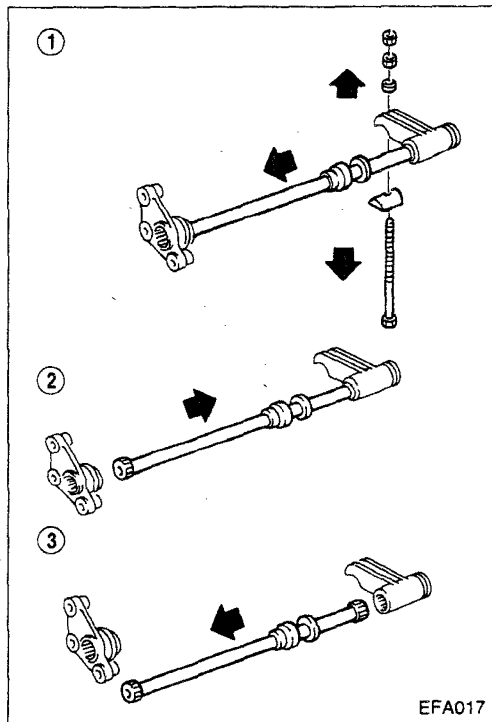
When removing and installing shock absorber, do not allow oil or grease to come into contact with rubber parts.

INSPECTION

Wash all parts, except for nonmetallic parts, with suitable solvent and dry with compressed air.

Blow dirt and dust off of nonmetallic parts with compressed air.

- Check for oil leakage and cracks. Replace if necessary.
- Check piston rod for smooth operation. Replace if necessary.
- Check rubber parts for wear, cracks, damage or deformation. Replace if necessary.



Torsion Bar

REMOVAL

- Remove torsion bar as follows:
 - (1) Remove anchor arm bolt nuts and remove anchor arm bolt and pilot.
Remove snap ring and dust cover from rear torsion bar anchor arm.
 - (2) Withdraw torsion bar and remove torsion bar and torsion bar rear anchor arm as an assembly from front torsion bar torque arm.
 - (3) Remove torsion bar from rear torsion bar anchor arm.

INSPECTION

- Check torsion bar for wear, twist, bend and other damage.
- Check serrations of each part for cracks, wear, twist and other damage.
- Check dust cover for cracks.

FRONT SUSPENSION

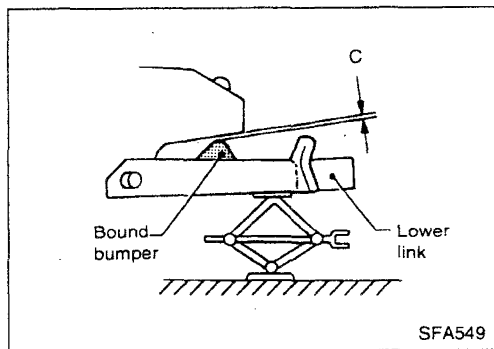
Torsion Bar (Cont'd)

INSTALLATION AND ADJUSTMENT

Adjustment of anchor arm adjusting nut is in tightening direction only.

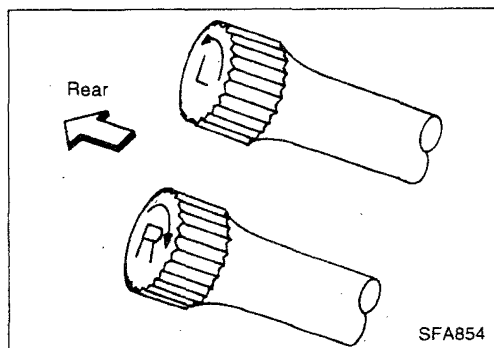
Do not adjust by loosening anchor arm adjusting nut.

1. Coat multi-purpose grease on the serration of torsion bar spring.



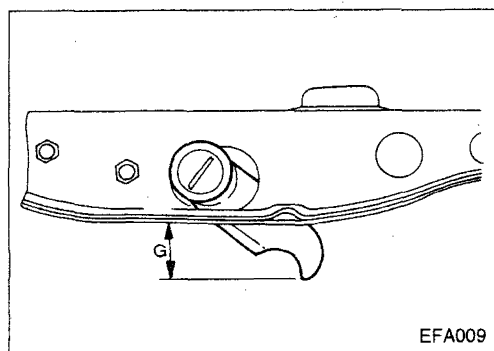
2. Place lower link in the position where bound buffer clearance "C" is 0.

Clearance "C": 0 mm (0 in)



3. Install torsion bar spring with torque arm.

Be sure to install right and left torsion bar springs correctly.



4. Set anchor arm.

Standard length "G"

KA24E engine:

28 - 41 mm (1.10 - 1.61 in)

TD27T engine:

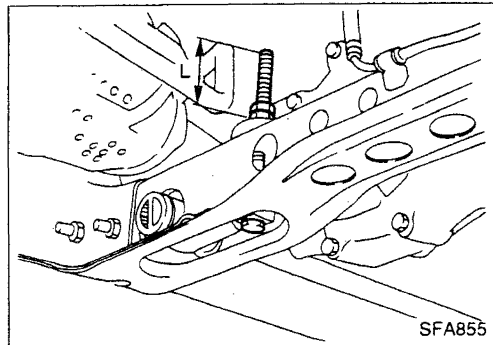
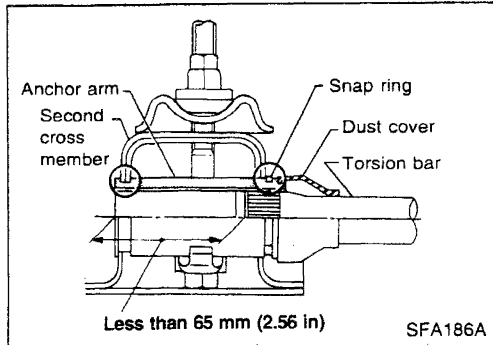
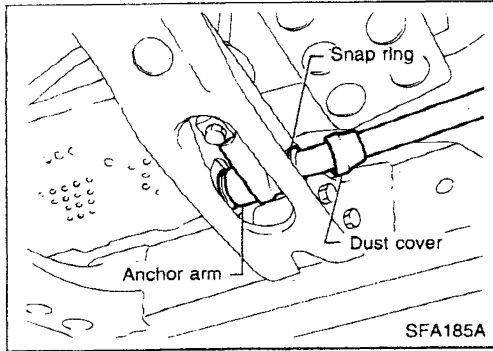
32 - 45 mm (1.26 - 1.77 in)

5. Install snap ring to anchor arm and dust cover.

FRONT SUSPENSION

Torsion Bar (Cont'd)

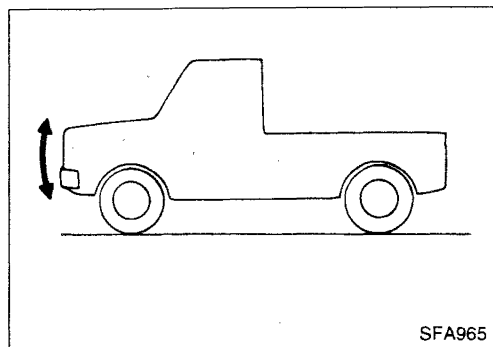
Make sure that snap ring and anchor arm are properly installed.



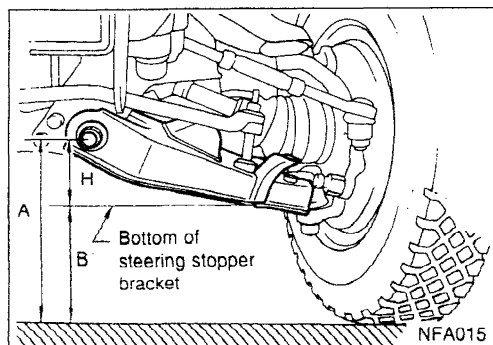
6. Tighten anchor arm adjusting nut to get L dimension.

Standard length "L":

77 mm (3.03 in)



7. Bounce vehicle with tires on ground (Unladen) to eliminate friction of suspension.



8. Measure vehicle posture "H".

$H = A - B$ mm (in) "Unladen"

Refer to S.D.S.

- (1) Exercise the front suspension by bouncing the front of the vehicle 4 or 5 times to ensure that the vehicle is in a neutral height attitude.
- (2) Measure vehicle posture ... Dimension "H".

(Refer to S.D.S.)

FRONT SUSPENSION

Torsion Bar (Cont'd)

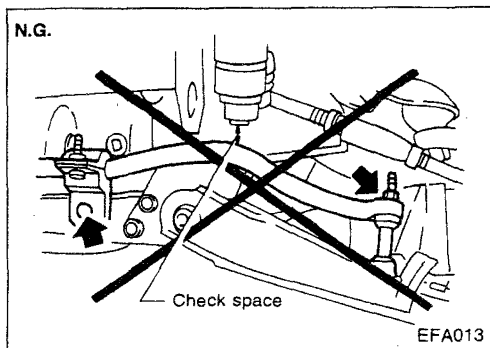
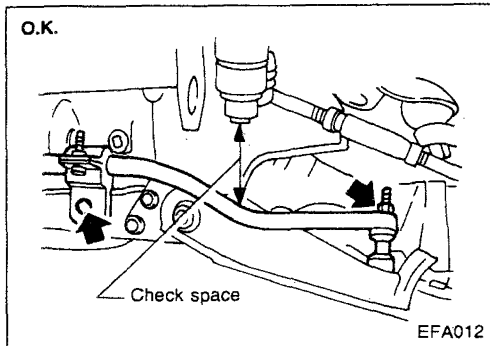
(3) If height of the vehicle is not as specified, adjust vehicle posture.

(Refer to S.D.S.)

(4) Check wheel alignment if necessary.

(Refer to S.D.S.)

9. If "H" dimension is not within the specified value, readjust vehicle posture using anchor arm adjusting nut.



Stabilizer Bar

REMOVAL

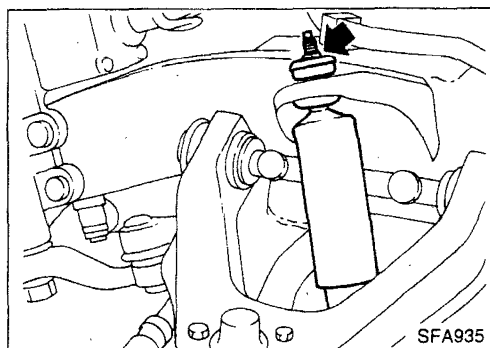
- Remove stabilizer bar ball joint nuts and clamp bolts.

INSPECTION

- Check stabilizer bar for twist and deformation. Replace if necessary.
- Check rubber bushing for cracks, wear or deterioration. Replace if necessary.

INSTALLATION

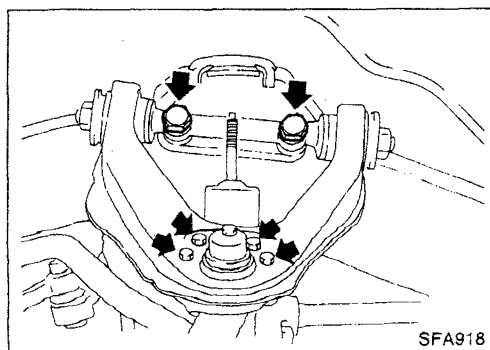
- Install bushing outside white mark painted on stabilizer facing the ground.
- Make sure stabilizer bar is properly installed. See figures.



Upper Link

REMOVAL

- Remove shock absorber upper fixing nut.



- Remove bolts fixing upper ball joint on upper link.
- Support lower link with jack.**
- Remove upper link spindle fixing bolts.

FRONT SUSPENSION

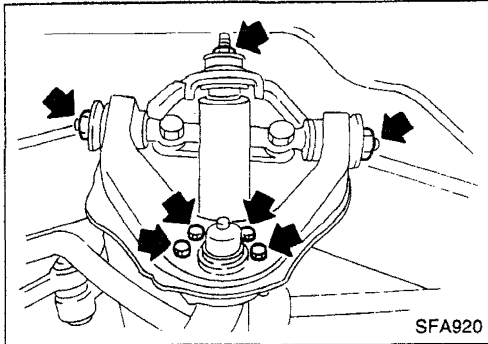
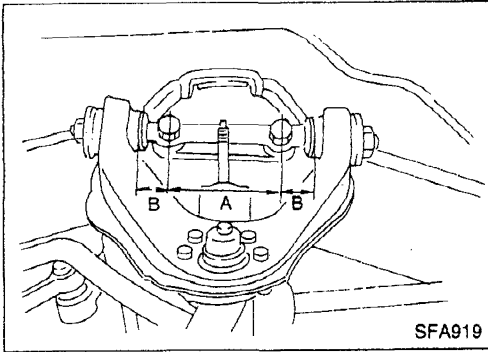
Upper Link (Cont'd)

INSTALLATION

- Tighten upper link spindle with camber adjusting shims.
- After fitting, check dimensions "A" and "B".

A: 110 mm (4.33 in)

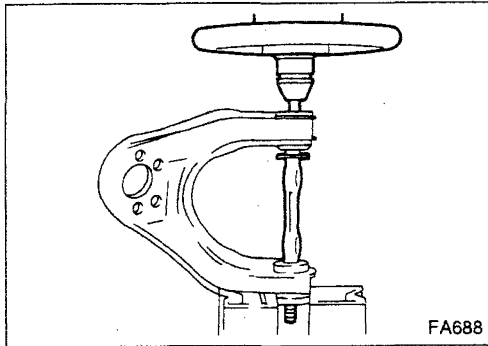
B: 31.8 mm (1.25 in)



- Install upper ball joint upper link.
- Install shock absorber upper fixing nut.
- Tighten upper link spindle lock nuts under unladen condition with tires on ground.
- After installing, check wheel alignment. Adjust if necessary. Refer to "Front Wheel Alignment" in "CHECK AND ADJUSTMENT".

DISASSEMBLY

- Press out upper link spindle with bushings.



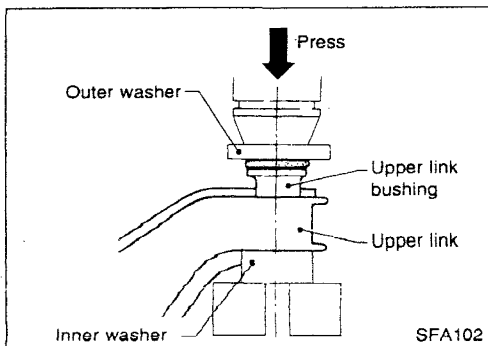
INSPECTION

- Check upper spindle and rubber bushings for damage. Replace if necessary.
- Check upper link for deformation or cracks. Replace if necessary.

ASSEMBLY

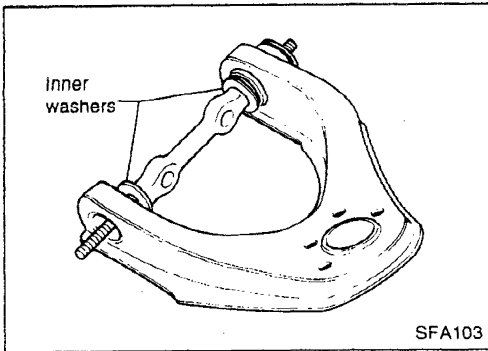
- Apply soapsuds to rubber bushing.
- Press upper link bushing.

Press bushing so that flange of bushing securely contacts end surface of upper link collar.

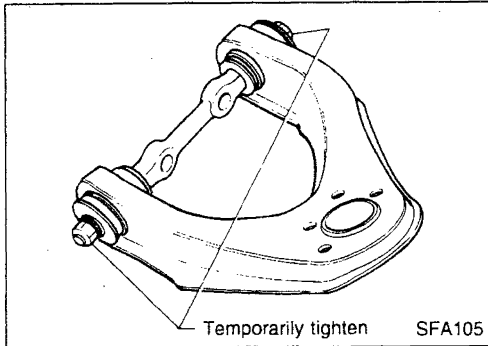


FRONT SUSPENSION

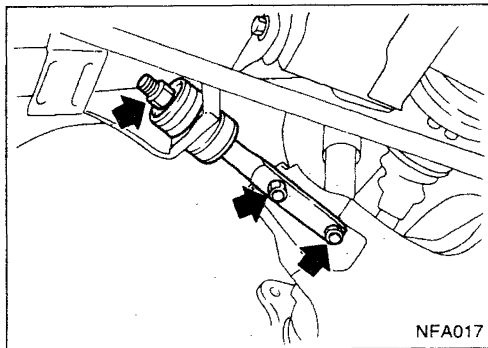
Upper Link (Cont'd)



- Insert upper link spindle and inner washers.
Install inner washers with rounded edges facing inward.
- Press another bushing.
Press bushing so that flange of bushing securely contacts end surface of upper link collar.



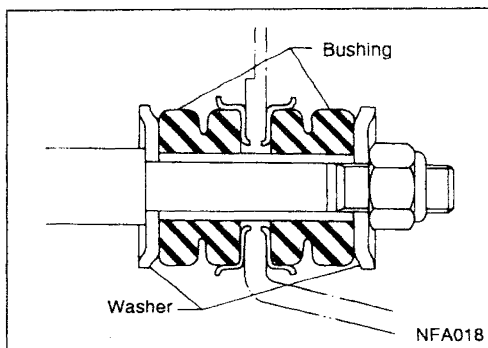
- Temporarily tighten nuts.



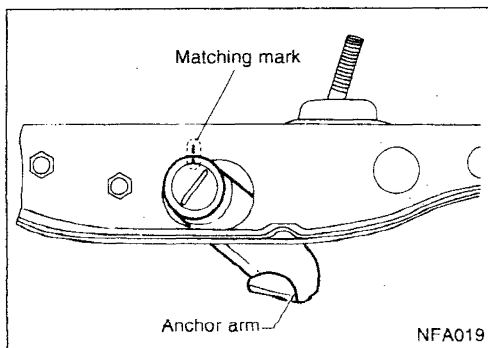
Compression Rod

REMOVAL AND INSTALLATION

- Remove fixing nuts on lower link and frame
Support lower link with jack.



- Install compression rod.
Make sure that bushings and washers are installed properly.



Lower Link

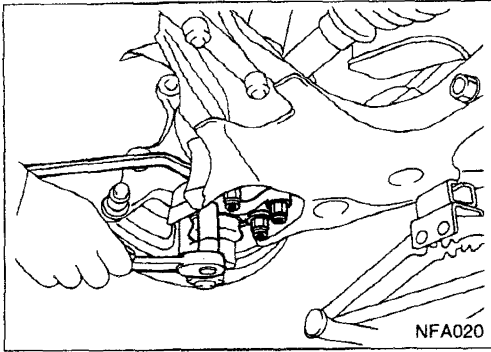
REMOVAL AND INSTALLATION

- Remove torsion bar. Refer to "REMOVAL" in "Torsion Bar".

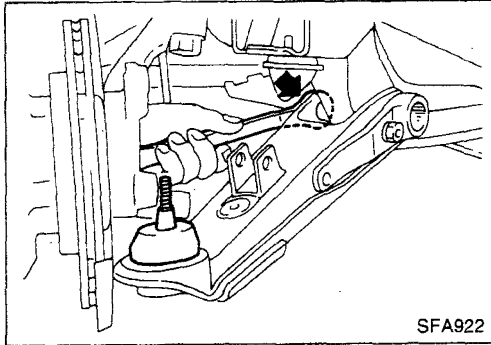
Make matching mark on anchor arm and crossmember when loosening adjusting nut until there is no tension on torsion bar.

FRONT SUSPENSION

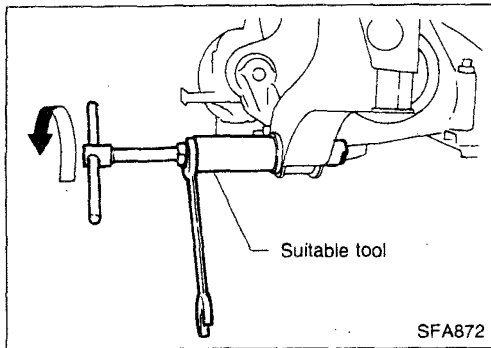
Lower Link (Cont'd)



- Separate lower ball joint from lower link.



- Remove front lower link fixing nut.



- Remove bushing of lower link spindle from frame with suitable tool.
- When installing bushing, apply grease on bushing and remove excess after installation.
- After installing lower link, adjust wheel alignment and vehicle height. Refer to "Front Wheel Alignment" in "CHECK AND ADJUSTMENT".

INSPECTION

Lower link and lower link spindle

- Check lower link and lower link spindle for deformation or cracks. Replace if necessary.

Lower link bushing

- Check bushing for distortion or other damage. Replace if necessary.

Upper Ball Joint and Lower Ball Joint

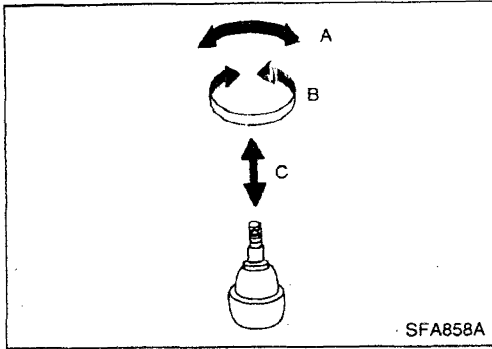
REMOVAL AND INSTALLATION

- Separate knuckle spindle from upper and lower link. Refer to "FRONT AXLE — Knuckle Spindle".

FRONT SUSPENSION

Upper Ball Joint and Lower Ball Joint (Cont'd)

INSPECTION



- Check ball joint for turning torque "A".

Upper ball joint:

31.87 - 199.38 N

(3.25 - 20.33 kg, 7.17 - 44.38 lb)

Lower ball joint:

0 - 67.7 N

(0 - 6.9 kg, 0 - 15.2 lb)

If turning torque A is not within above specifications, replace ball joint assembly.

- Check ball joint for turning torque "B".

Upper ball joint:

1.0 - 4.9 N·m

(10 - 50 kg-cm, 8.7 - 43.4 in-lb)

Lower ball joint:

0 - 4.9 N·m

(0 - 50 kg-cm, 0 - 43 in-lb)

If turning torque B is not within above specifications, replace ball joint assembly.

- Check ball joint for vertical end play "C".

Upper ball joint:

1.6 mm (0.063 in) or less

Lower ball joint:

0.5 mm (0.020 in) or less

Replace ball joint if movement is beyond specifications.

- Check dust cover for damage.
Replace dust cover and dust cover clamp if necessary.

SERVICE DATA AND SPECIFICATIONS (S.D.S)

General Specifications

TORSION BAR SPRING

Applied model	Hardtop	Wagon
Spring diameter x length mm (in)	26.0 x 1,230 (1.024 x 48.43)	
Spring constant N/mm (kg/mm, lb/in)	25.3 (2.58, 144.5)	

SHOCK ABSORBER

Applied model	Hardtop	Wagon
Shock absorber type	Non-adjustable (hydraulic)	
Damping force N (kg, lb) [at 0.3 m (1.0 ft)/sec.]		
Expansion	2265 ± 314 (230 ± 32, 507 ± 71)	2323 ± 324 (236.7 ± 33, 522 ± 73)
Compression	653 ± 124 (66.6 ± 12.6, 147 ± 28)	929 ± 157 (94.6 ± 16, 209 ± 35)

STABILIZER BAR

Applied model	Hardtop	Wagon
Stabilizer bar diameter mm (in)	28	26

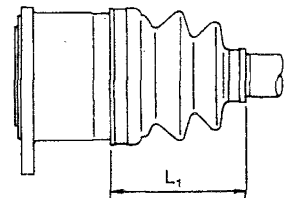
COMPRESSION ROD

Applied model	Hardtop	Wagon
Rod diameter mm (in)	23.5 (0.925)	

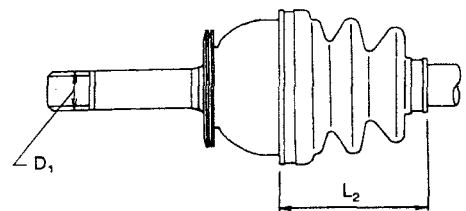
DRIVE SHAFT

Applied model	All	
Drive shaft joint type		
Final drive side	TS82F	
Wheel side	ZF100	
Fixed joint axial end play limit mm(in)	1.0 (0.039)	
Wheel side		
Pitch circle diameter serration mm (in)	27.0 (1.063)	
Major diameter (D1) mm (in)	28.0 (1.10)	
Grease		
Quality	Nissan genuine grease or equivalent	
Capacity g (oz)		
Final drive side	190 - 210 (6.70 - 7.41)	
Wheel side	100 - 120 (3.53 - 4.23)	
Boot length mm (in)		
Final drive side (L ₁)	97 - 99 (3.82 - 3.90)	
Wheel side (L ₂)	96 - 98 (3.78 - 3.86)	

Final drive side



Wheel side

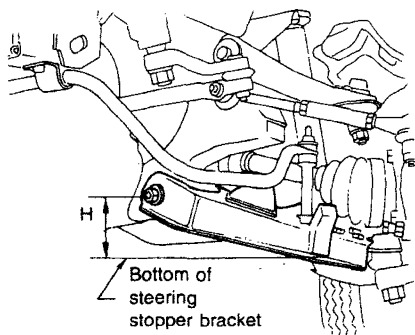


SFA877A

Inspection and Adjustment

WHEEL ALIGNMENT (Unladen *1)

Applied model		Hardtop	Wagon
Camber	degree	0°35' ± 30'	
Caster	degree	1°40' ± 30'	
Kingpin inclination	degree	7°36' to 8°36'	
Total toe-in			
Radial tire	mm (in)	3 to 5 (0.12 x 0.20)	
Front wheel turning angle			
Full turn			
Inside		35 ⁺⁰ ₋₂	
Outside		33 ⁺⁰ ₋₂	
Vehicle posture			
Lower arm pivot height (H)	mm (in)	36	34



NFA021

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

WHEEL BEARING

Axial end play limit	mm (in)	0 (0)
Lock nut		
Tightening torque	N·m (kg-m, ft-lb)	78 - 98 (8 - 10, 58 - 72)
Retightening torque	N·m (kg-m, ft-lb)	0.5 - 1.5 (0.05 - 0.15, 0.4 - 1.1)
Turning resistance at wheel hub bolt		A
Tightening angle	degree	15° - 30°
Turning resistance at wheel hub bolt		B
Preload C = B - A	N (kg, lb)	7.06 - 20.99 (0.72 - 2.14, 1.59 - 4.72)

DRIVE SHAFT INSTALLATION

Axial end play	mm (in)		
At wheel hub		0.1 - 0.3 (0.004 - 0.012)	
Available drive shaft end snap rings			
Thickness	mm (in)	Part number	
1.1 (0.043)		39253-31G10	39253-88G10
1.3 (0.051)		39253-31G11	39253-88G11
1.5 (0.059)		39253-31G12	39253-88G12
1.7 (0.067)		39253-31G13	39253-88G13
1.9 (0.075)		39253-31G14	39253-88G14
2.1 (0.083)		39253-31G15	39253-88G15
2.3 (0.091)		39253-31G16	39253-88G16

UPPER BALL JOINT

Swinging force at cotter pin hole	N (kg, lb)	31.87 - 199.38 (3.25 - 20.33, 7.17 - 44.83)
Rotating torque	N·m (kg-cm, in-lb)	1.0 - 4.9 (10 - 50, 8.7 - 43.4)
Axial end play limit	mm (in)	1.6 (0.063)

LOWER BALL JOINT

Swinging force at cotter pin hole	N (kg, lb)	0 - 67.7 (0 - 6.9, 0 - 15.2)
Rotating torque	N·m (kg-cm, in-lb)	0 - 4.9 (0 - 50, 0 - 43)
Axial end play limit	mm (in)	0.5 (0.020)

WHEEL RUNOUT

Wheel type	Steel
	(15")
Radial runout limit mm (in)	0.5 (0.02)
Lateral runout limit mm (in)	0.8 (0.031)