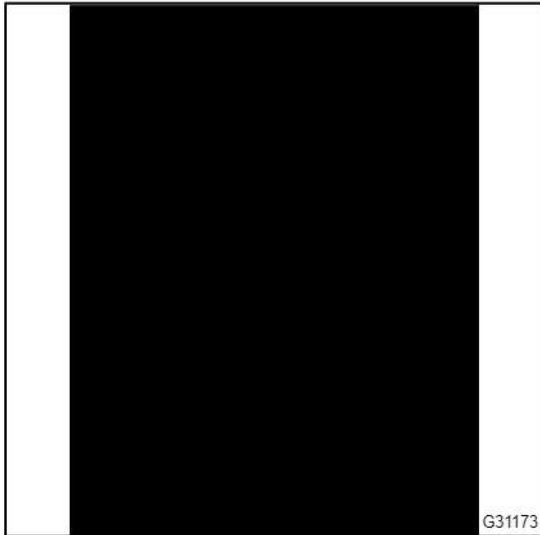


FRONT WHEEL ALIGNMENT

ADJUSTMENT

280H7-03

1. INSPECT TIRE (SEE PAGE 26-7)



G31173

2. MEASURE VEHICLE HEIGHT

Vehicle height:

	Front A - B	Rear D - C
FF	120.1 mm (4.73 in.)	40.5 mm (1.59 in.)
4WD	110.1 mm (4.33 in.)	30.5 mm (1.20 in.)

Measuring points:

A: Ground clearance of front wheel center

B: Ground clearance of lower suspension arm No.2 bush set bolt center

C: Ground clearance of strut rod set bolt center

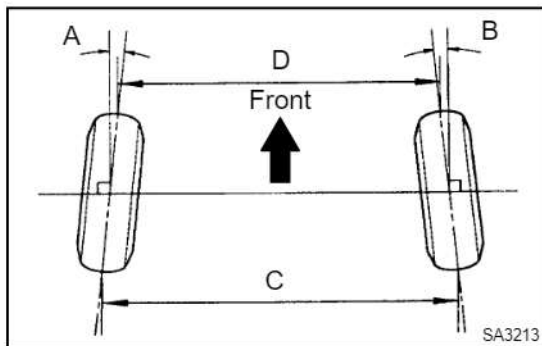
D: Ground clearance of rear wheel center

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

HINT:

Bounce the vehicle at the corners up and down to stabilize the suspension and inspect the vehicle height.



SA3213

3. INSPECT TOE-IN

Toe-in:

Toe-in (total)	A + B: $0^\circ \pm 10'$ ($0^\circ \pm 0.16^\circ$) C - D: 0 ± 2 mm (0 ± 0.08 in.)
----------------	--

If the toe-in is not within the specified range, adjust it at the rack ends.

4. ADJUST TOE-IN

- Remove the rack boot set clips.
- Loosen the tie rod end lock nuts.

- Turn the right and left rack ends by equal amounts to adjust the toe-in.

HINT:

Try to adjust the toe-in to the center of the specified value.

- Make sure that the lengths of the right and left rack ends are the same.

Rack and length difference: 1.5 mm (0.059 in.) or less

- Torque the tie rod end lock nuts.

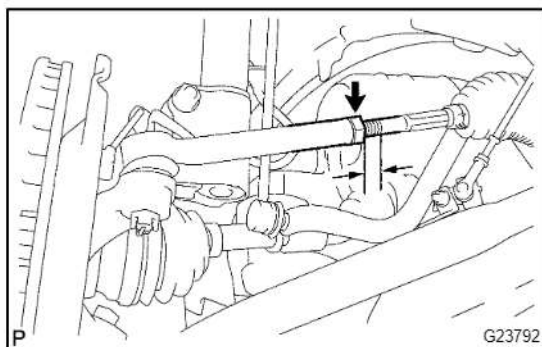
Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

- Place the boots on the seats and install the clips.

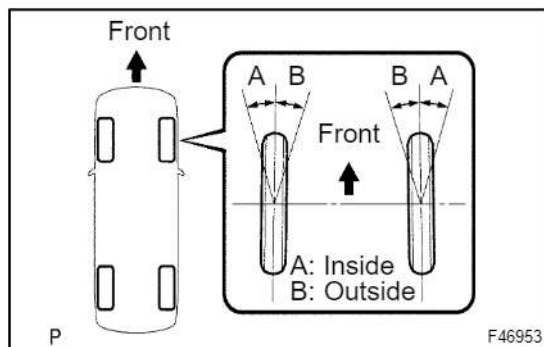
HINT:

Make sure that the boots are not twisted.

- Perform VSC system calibration (see page 05-765).



G23792



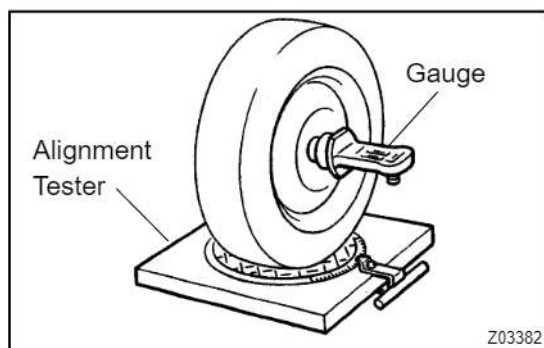
5. INSPECT WHEEL ANGLE

- (a) Turn the steering wheel fully left and right to measure the turning angle.

Wheel turning angle:

	Inside wheel	Outside wheel: Reference
FF	$35^{\circ}28' \pm 2^{\circ}$ ($35.47^{\circ} \pm 2^{\circ}$)	$31^{\circ}13' (31.22^{\circ})$
4WD	$35^{\circ}41' \pm 2^{\circ}$ ($35.68^{\circ} \pm 2^{\circ}$)	$31^{\circ}22' (31.37^{\circ})$

If the right and left inside wheel angles differ from the specified value, check and adjust the right and left rack end lengths.



6. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

- (a) Put the front wheel on the center of the alignment tester.
(b) Set the camber - caster - kingpin gauge at the center of the axle hub or drive shaft.

Camber, caster and steering axis inclination:

	FF	4WD
Camber	$-0^{\circ}40' \pm 45'$ ($-0.67^{\circ} \pm 0.75^{\circ}$)	$-0^{\circ}35' \pm 45'$ ($-0.58^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less	45' (0.75°) or less
Caster	$2^{\circ}45' \pm 45'$ ($2.75^{\circ} \pm 0.75^{\circ}$)	$2^{\circ}45' \pm 45'$ ($2.75^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less	45' (0.75°) or less
Steering axis inclination	$10^{\circ}45' \pm 45'$ ($10.75^{\circ} \pm 0.75^{\circ}$)	$10^{\circ}35' \pm 45'$ ($10.58^{\circ} \pm 0.75^{\circ}$)
Right-left error	45' (0.75°) or less	45' (0.75°) or less

If the caster and steering axis inclination are not within the specified values after the camber has been correctly adjusted, re-check the suspension parts for damage and/or wear.

7. ADJUST CAMBER

NOTICE:

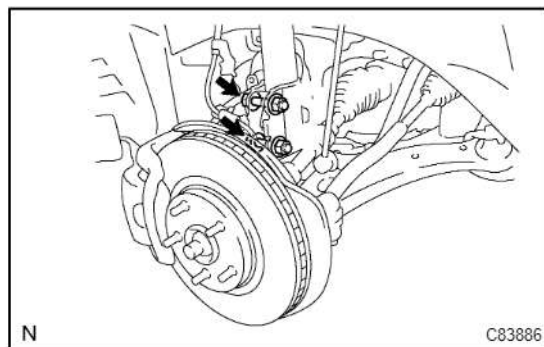
Inspect toe-in after the camber has been adjusted.

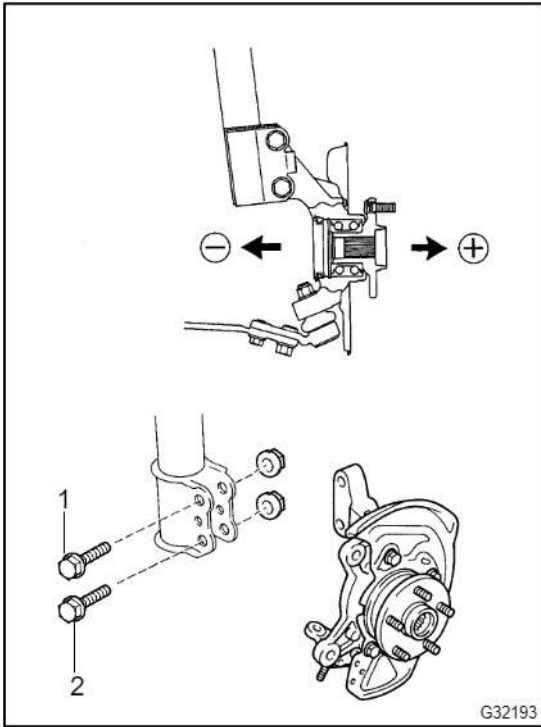
- (a) Remove the front wheel.
(b) Remove the 2 nuts on the lower side of the shock absorber.

HINT:

When removing the nuts, keep the bolts from rotating.

- (c) Clean the installation surface of the shock absorber and the steering knuckle.
(d) Temporarily install the 2 nuts.





(e) Fully push or pull the front axle hub in the direction of the required adjustment.

(f) Tighten the nuts.

Torque: 230 N·m (2,350 kgf·cm, 170 ft·lbf)

HINT:

When installing the nuts, keep the bolts from rotating and then torque the nuts.

(g) Install the front wheel.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

NOTICE:

Keep the bolts from rotating and torque the nuts.

(h) Install the front wheel.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

(i) Check the camber.

If the measured value is not within the specified range, calculate the required adjustment amount using the formula below.

(Camber adjustment amount) = Center of the specified range medium - Measured value

Check installed bolts combination. Select appropriate bolts from the table below to adjust the camber to within the specified range.

Move the axle toward (+) in step (e)	Refer to table (1) (Move the axle toward positive side)
Move the axle toward (-) in step (e)	Refer to table (2) (Move the axle toward negative side)

Table (1) (Move the axle toward positive side)

Installed Bolt Adjusting Value	1	No Dot	No Dot	No Dot	No Dot	1 Dot	2 Dots	3 Dots
	2	No Dot	1 Dot	2 Dots	3 Dots	3 Dots	3 Dots	3 Dots
-1°30' to -1°15'								G
-1°15' to -1°00'							G	A
-1°00' to -0°45'						G	A	B
-0°45' to -0°30'					G	A	B	C
-0°30' to -0°15'				G	A	B	C	D
-0°15' to 0°		G	A	B	C	D	E	
0° to 0°15'	A	B	C	D	E	F		
0°15' to 0°30'	B	C	D	E	F			
0°30' to 0°45'	C	D	E	F				
0°45' to 1°00'	D	E	F					
1°00' to 1°15'	E	F						
1°15' to 1°30'	F							

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17012
2	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015	 90105-17012

Bolt Distinguishing Mark

No Dot	1 Dot	2 Dots	3 Dots
 90105-17012	 90105-17013	 90105-17014	 90105-17015

F47223

The body and suspension may be damaged if the camber is not correctly adjusted according to the above table.

NOTICE:

Replace the nut with a new one when replacing the bolt.

(j) Repeat the steps mentioned above. At step (b), replace 1 or 2 selected bolts.

HINT:

Replace one bolt at a time when replacing 2 bolts.

Table (2) (Move the axle toward negative side)

Installed Bolt Adjusting Value	1	No Dot	No Dot	No Dot	No Dot	1 Dot	2 Dots	3 Dots
	2	No Dot	1 Dot	2 Dots	3 Dots	3 Dots	3 Dots	3 Dots
-1°30' to -1°15'	F							
-1°15' to -1°00'	E	F						
-1°00' to -0°45'	D	E	F					
-0°45' to -0°30'	C	D	E	F				
-0°30' to -0°15'	B	C	D	E	F			
-0°15' to 0°	A	B	C	D	E	F		
0° to 0°15'		G	A	B	C	D	E	
0°15' to 0°30'			G	A	B	C	D	
0°30' to 0°45'				G	A	B	C	
0°45' to 1°00'					G	A	B	
1°00' to 1°15'						G	A	
1°15' to 1°30'							G	

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17012
2	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015	 90105-17012

Bolt Distinguishing Mark

No Dot	1 Dot	2 Dots	3 Dots
 90105-17012	 90105-17013	 90105-17014	 90105-17015

F47223

The body and suspension may be damaged if the camber is not correctly adjusted according to the above table.

NOTICE:

Replace the nut with a new one when replacing the bolt.

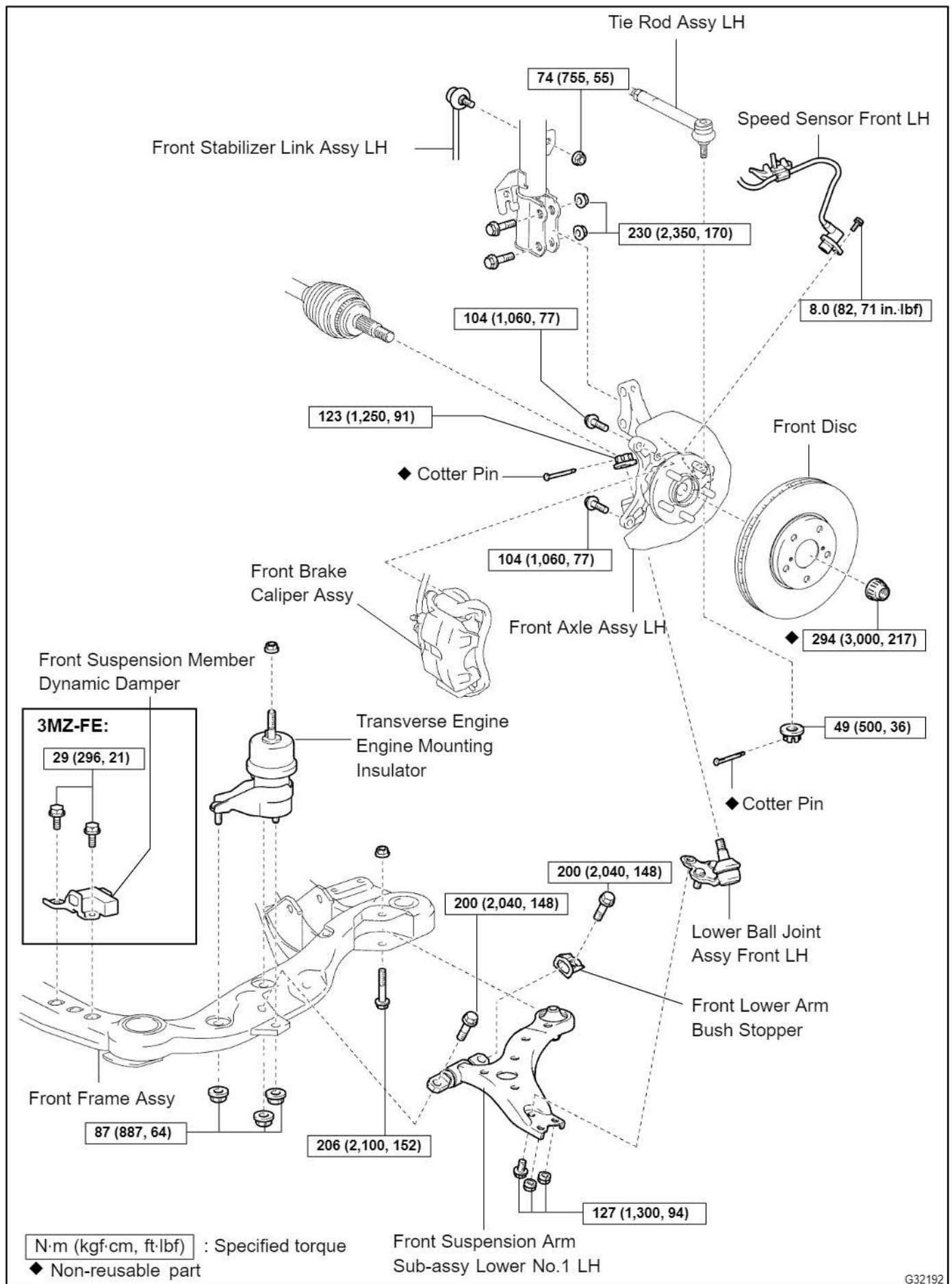
(k) Repeat the steps mentioned above. At step (b), replace 1 or 2 selected bolts.

HINT:

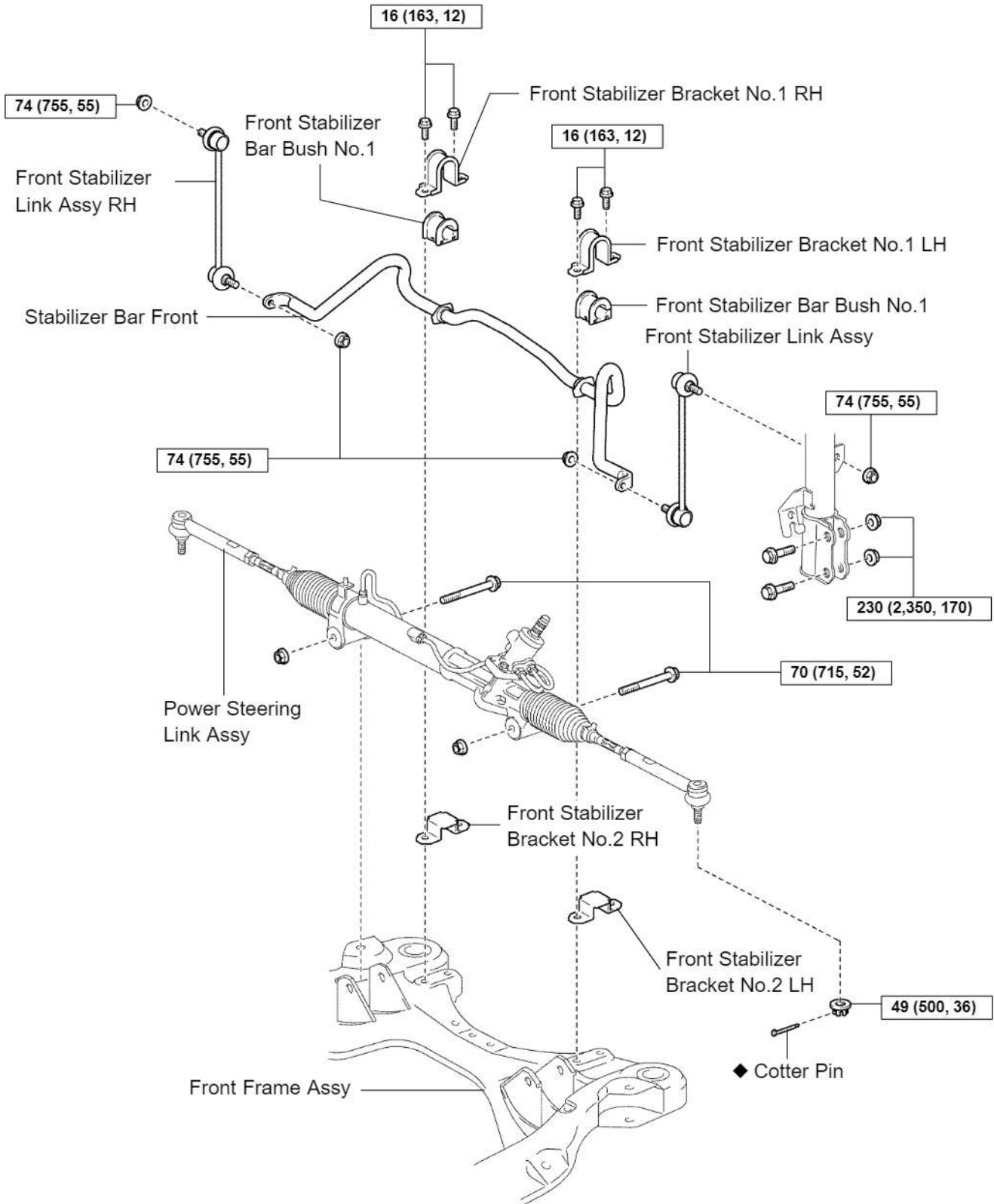
Replace one bolt at a time when replacing 2 bolts.

260DY-05





FF:



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

P

F45482

4WD:

3MZ-FE

Exhaust Manifold
Heat Insulator
No.1

49 (500, 36)

Exhaust Manifold
Converter Sub-assy

Manifold Stay

34 (347, 25)

8.5 (87, 75 in.-lbf)

56 (571, 41)

Gasket

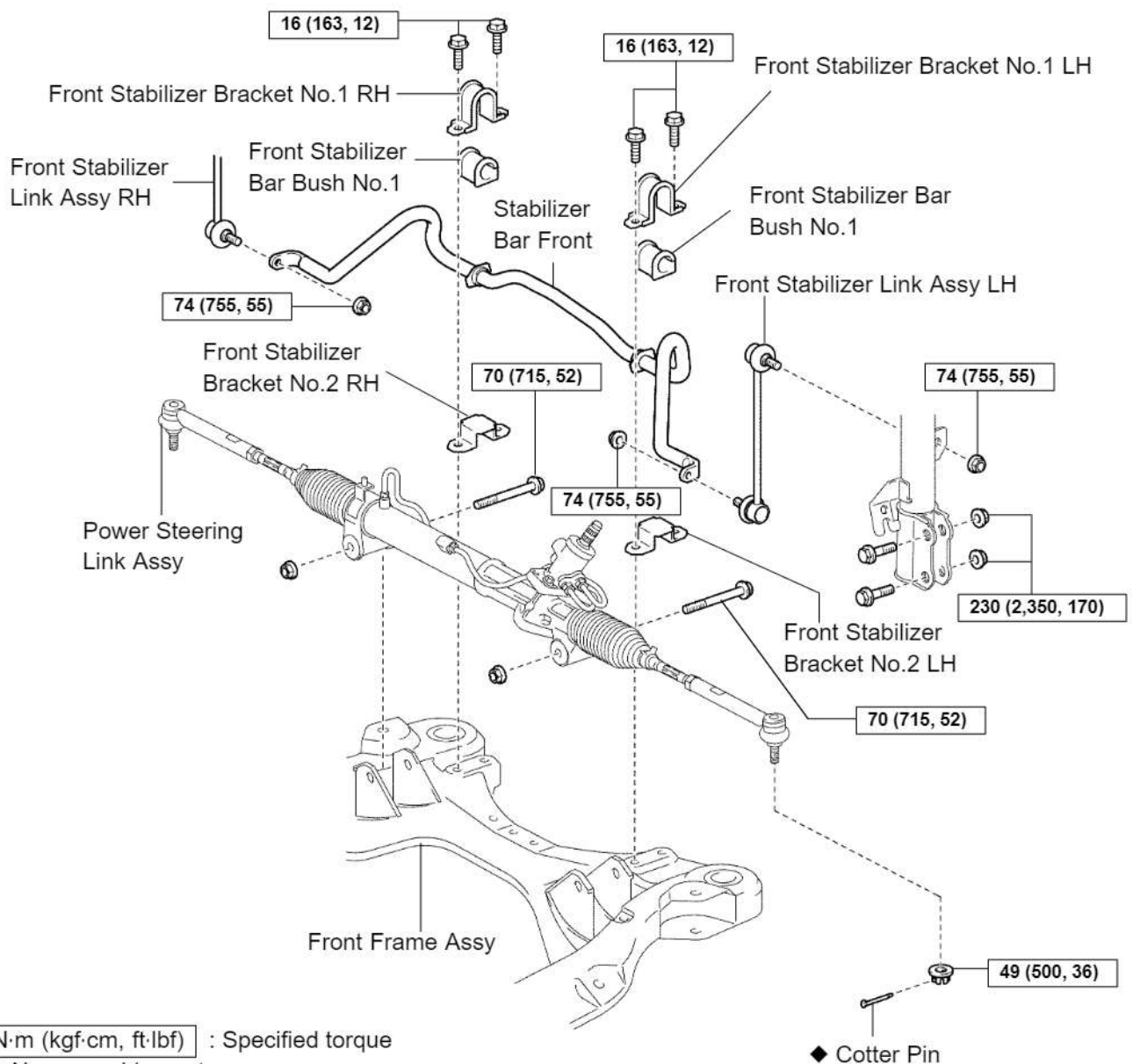
34 (347, 25)

48 (489, 35)

Exhaust Pipe
Sub-assy Front No.3

Gasket

56 (571, 41)

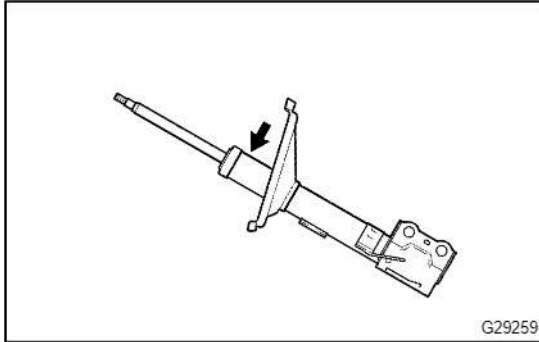


F45483

DISPOSAL

HINT:

Dispose of the RH side by following the same procedures as with the LH side.



1. DISPOSE OF SHOCK ABSORBER ASSY FRONT LH

- (a) Fully extend the shock absorber rod.
- (b) Using a drill, make a hole in the cylinder as shown in the illustration to discharge the gas inside.

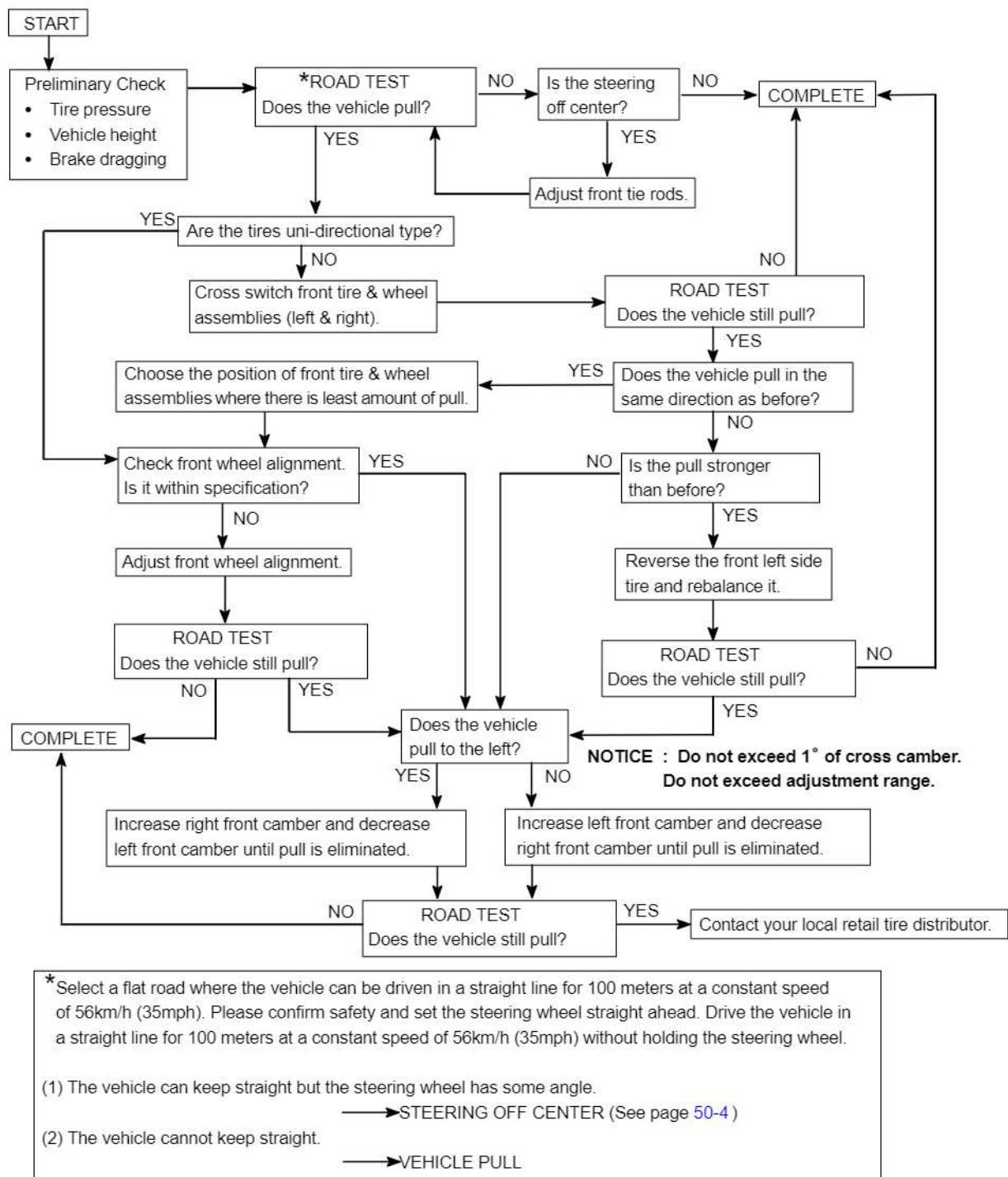
CAUTION:

- Be careful when drilling because shards of metal may fly about. Always use the proper safety equipment.
- The gas is colorless, odorless and non-poisonous.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

This is the repair procedure for vehicle pull.



FRONT SUSPENSION SYSTEM

280HB-04

PROBLEM SYMPTOMS TABLE

Use the table below to help determine the cause of the problem. The numbers indicate the priority of the possible cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspected Area	See page
Bottoming	1. Vehicle (Overloaded)	-
	2. Spring (Weak)	26-12
	3. Shock absorber (Worn)	26-12
Sways/pitches	1. Tire (Worn or improperly inflated)	28-1
	2. Stabilizer bar (Bent or broken)	26-22
	3. Shock absorber (Worn)	26-25 26-12
Front wheel shimmy	1. Tire (Worn or improperly inflated)	28-1
	2. Wheel (Out of balance)	28-1
	3. Shock absorber (Worn)	26-12
	4. Wheel alignment (Incorrect)	26-7
		27-5
	5. Ball joint (Worn)	26-20
	6. Hub bearing (Worn)	30-3
	7. Steering linkage (Loose or worn)	-
Abnormal tire wear	8. Steering gear (Out of adjustment or broken)	51-3
	1. Tire (Worn or improperly inflated)	28-1
	2. Wheel alignment (Incorrect)	26-7
		27-5
Vehicle pull	3. Shock absorber (Worn)	26-12
	4. Suspension parts (Worn)	-
	1. Tire	26-2
	2. Tire pressure (incorrect)	26-2
	3. Wheel alignment (Incorrect)	26-2
	4. Brake (Dragging)	26-2
	5. Steering wheel (Off center)	26-2

SHOCK ABSORBER ASSY FRONT LH

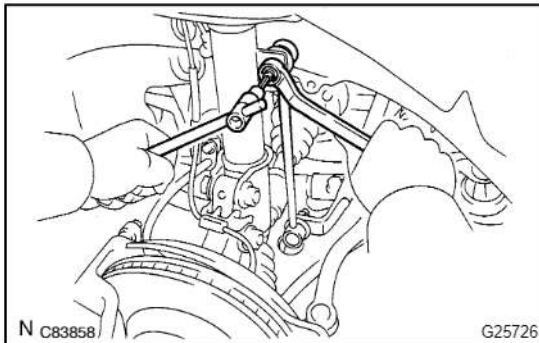
REPLACEMENT

280HB-02

HINT:

- COMPONENTS: See page 26-3
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. REMOVE FRONT WHEEL

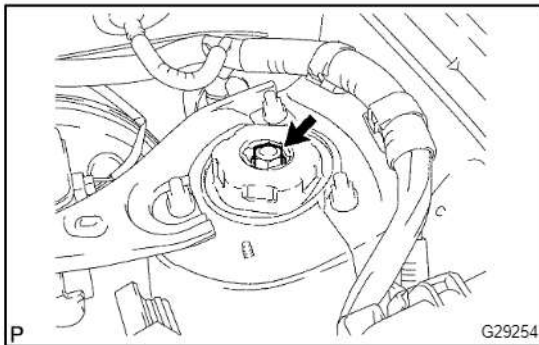


2. SEPARATE FRONT STABILIZER LINK ASSY LH

- (a) Remove the nut and separate the front stabilizer link assy LH from the shock absorber assy front LH.

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

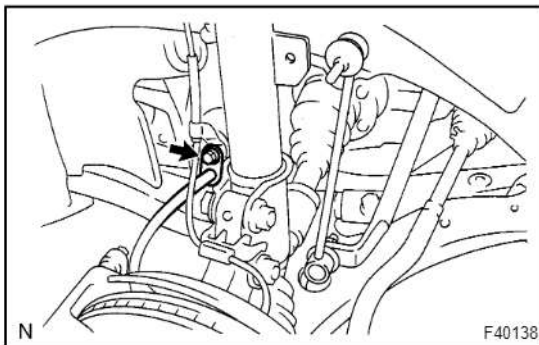


3. REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING

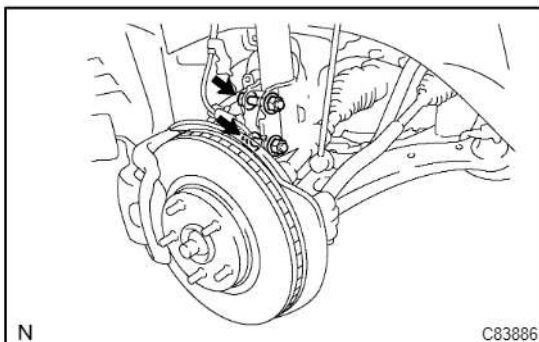
- (a) Loosen the lock nut.

NOTICE:

- Do not loosen or remove the lock nut except when disassembling the shock absorber assy front LH with coil spring.
- Do not remove the lock nut.



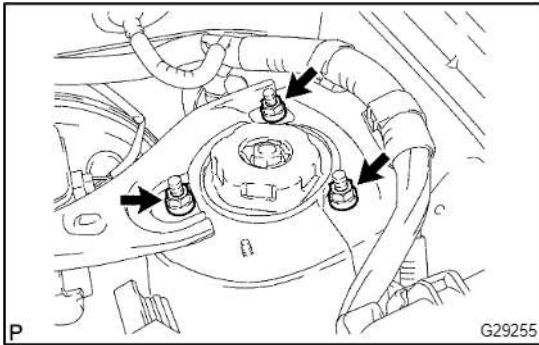
- (b) Remove the bolt and disconnect the front flexible hose No. 1 and speed sensor front LH wire harness.



- (c) Remove the 2 nuts and bolts on the lower side of front shock absorber with coil spring.

HINT:

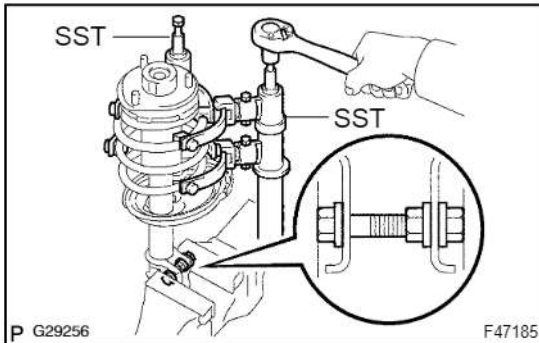
When removing the bolts, keep the bolt from rotating and loosen the nut.



- (d) Remove the 3 nuts on the upper side of the front shock absorber with coil spring.
- (e) Remove the front shock absorber with coil spring.

NOTICE:

Make sure that the front speed sensor is disconnected from the front shock absorber.

**4. FIX FRONT SHOCK ABSORBER WITH COIL SPRING**

- (a) As shown in the illustration to the left, secure the front shock absorber with coil spring in a vise by clamping onto a double nutted bolt affixed to the bracket at the bottom of the absorber.

5. REMOVE SHOCK ABSORBER ASSY FRONT LH

- (a) Using SST, compress the front coil spring LH.
SST 09727-30021 (09727-00010, 09727-00021)

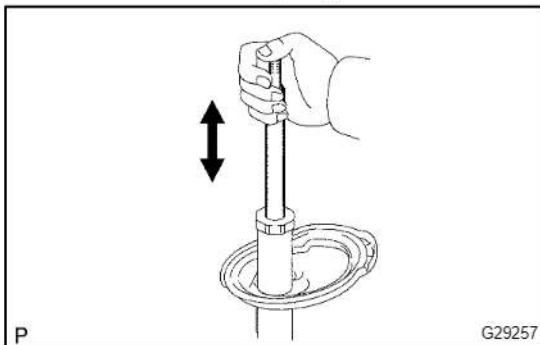
NOTICE:

Do not use an impact wrench. It will damage the SST.

HINT:

Use 2 of the same type of SST.

- (b) Remove the front suspension support sub-assy LH, front suspension support bearing LH, front coil spring seat upper LH, front coil spring insulator upper LH, front coil spring LH, front spring bumper LH and front coil spring insulator lower LH from the shock absorber assy front LH.

**6. INSPECT SHOCK ABSORBER ASSY FRONT LH**

- (a) Compress and extend the shock absorber rod 4 times or more.

Then check that there is no abnormal resistance or sound and operation resistance is normal.

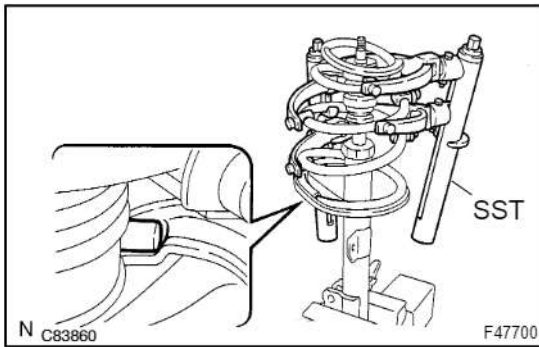
If there is any abnormality, replace the shock absorber assy front LH with a new one.

NOTICE:

When disposing of the shock absorber assy front LH, see DISPOSAL on page 26-17 .

7. INSTALL SHOCK ABSORBER ASSY FRONT LH

- (a) Install the front coil spring insulator lower LH onto the shock absorber assy front LH.
- (b) Install the front spring bumper LH to the piston rod.



- (c) Using SST, compress the front coil spring LH.
SST 09727-30021 (09727-00010, 09727-00021)

NOTICE:

Do not use an impact wrench. It will damage the SST.

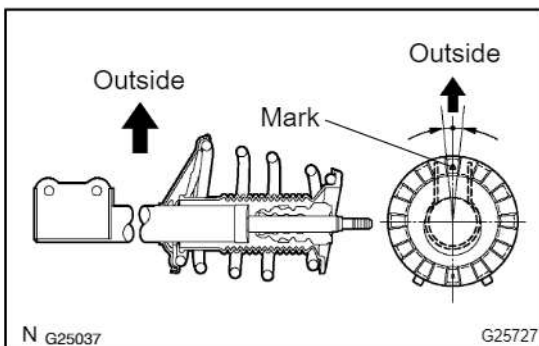
HINT:

Use 2 of the same type of SST.

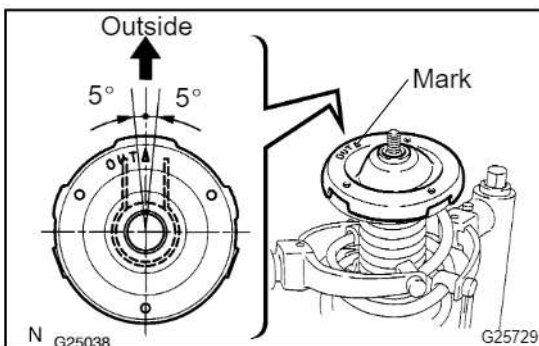
- (d) Install the front coil spring LH to the shock absorber assy front LH.

HINT:

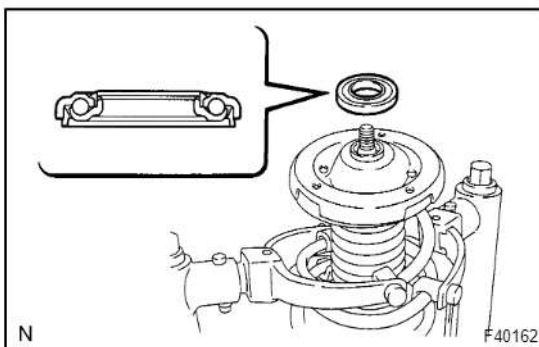
Fit the lower end of the front coil spring LH in the gap of the spring Insulator lower LH.



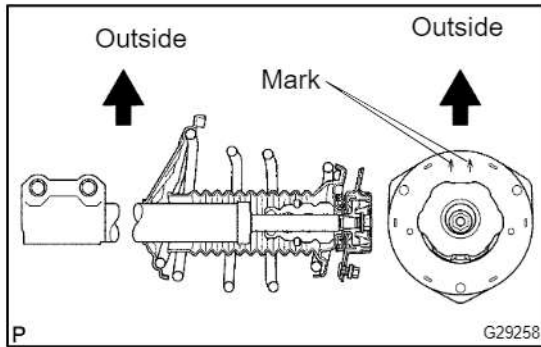
- (e) Install the front coil spring insulator upper LH with the mark facing to the outside of the vehicle as shown in the illustration.



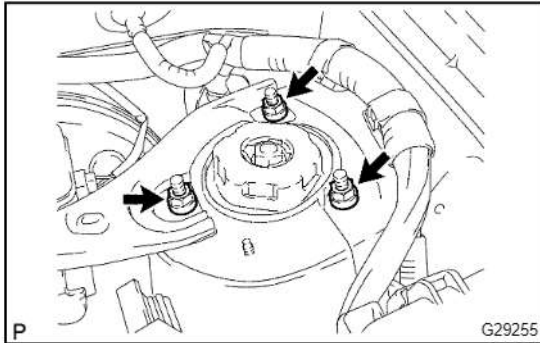
- (f) Install the front coil spring seat upper LH to the shock absorber assy front LH with the mark facing to the outside of the vehicle.



- (g) Install a new front suspension support bearing LH.



- (h) Install the front suspension support sub-assy LH with the mark facing to the outside of the vehicle.
- (i) Temporarily tighten a new lock nut.
- (j) Remove the SST slowly in order to release the coil spring.
SST 09727-30021 (09727-00010, 09727-00021)



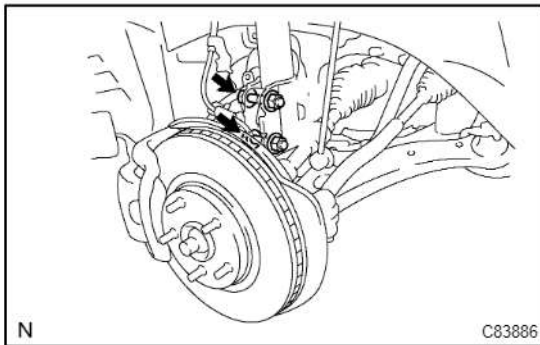
8. INSTALL FRONT SHOCK ABSORBER WITH COIL SPRING

- (a) Install the front shock absorber with coil spring .
- (b) Install the 3 nuts to the upper side of front shock absorber with coil spring.

Torque: 80 N·m (816 kgf·cm, 59 ft·lbf)

NOTICE:

Do not tighten the lock nuts until installing the bolts and nuts (lower side).

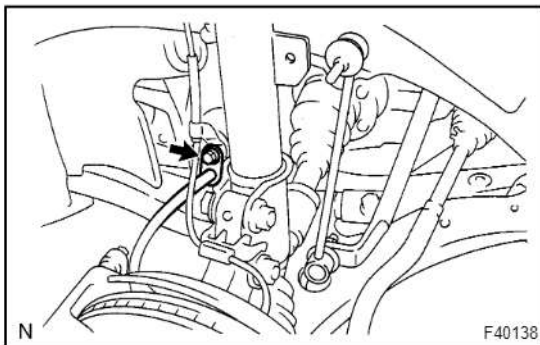


- (c) Install the 2 bolts and 2 nuts to the lower side of front shock absorber with coil spring.

Torque: 230 N·m (2,350 kgf·cm, 170 ft·lbf)

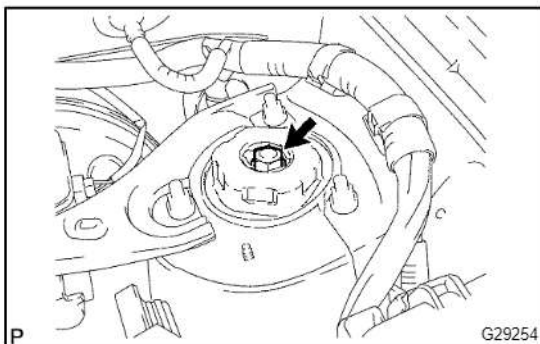
HINT:

When installing the nuts, keep the bolts from rotating and torque the nut.

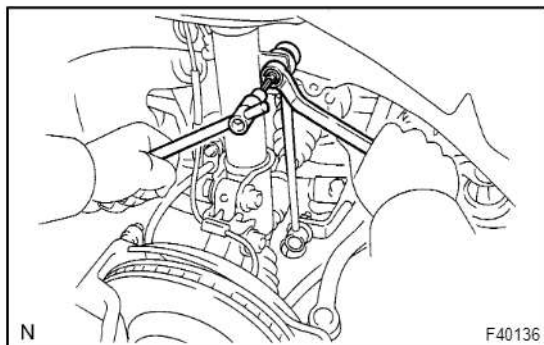


- (d) Install the front flexible hose No. 1 and speed sensor wire harness front LH with the bolt.

Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)



- (e) Fully tighten the lock nut.
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

**9. INSTALL FRONT STABILIZER LINK ASSY LH**

- (a) Install the front stabilizer link assy LH with the nut.

Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

10. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

11. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (SEE PAGE [26-7](#))

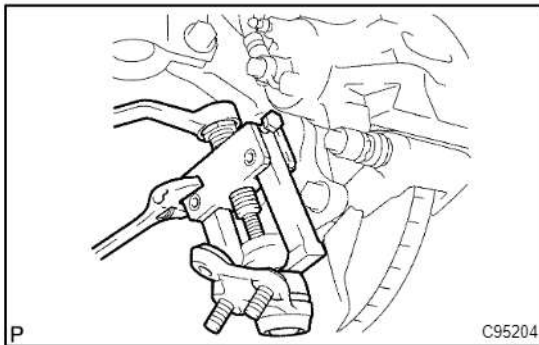
LOWER BALL JOINT ASSY FRONT LH

REPLACEMENT

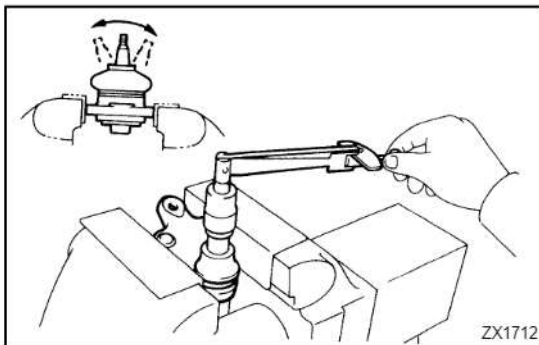
280HB-02

HINT:

- COMPONENTS: See page 26-3 .
 - Use the same procedures for the RH side and LH side.
 - The procedures listed below are for the LH side.
1. **REMOVE FRONT WHEEL**
 2. **REMOVE FRONT AXLE HUB LH NUT (SEE PAGE 30-21)**
SST 09930-00010
 3. **SEPARATE SPEED SENSOR FRONT LH (SEE PAGE 30-21)**
 4. **SEPARATE FRONT DISC BRAKE CALIPER ASSY LH (SEE PAGE 30-38)**
 5. **REMOVE FRONT DISC**
 6. **SEPARATE TIE ROD END SUB-ASSY LH (SEE PAGE 30-21)**
SST 09628-6201 1
 7. **SEPARATE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (SEE PAGE 30-21)**
 8. **REMOVE FRONT AXLE ASSY LH (SEE PAGE 30-38)**



9. **REMOVE LOWER BALL JOINT ASSY FRONT LH**
 - (a) Remove the cotter pin and castle nut.
 - (b) Using SST, remove the lower ball joint assy front LH.
SST 09628-6201 1



10. **INSPECT LOWER BALL JOINT ASSY FRONT LH**
 - (a) As shown in the illustration, flip the ball joint stud back and forth 5 times.
 - (b) Using a torque wrench and nut, turn the ball joint continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Turning torque:

0.98 to 3.43 N·m (10 to 35 kgf·cm, 8.7 to 30 in·lbf)

If the value is not within the specification, replace the lower ball joint assy front LH with a new one.

11. **INSTALL LOWER BALL JOINT ASSY FRONT LH**

- (a) Install the lower ball joint assy front LH to the steering knuckle with the castle nut.
Torque: 123 N·m (1,250 kgf·cm, 91 ft·lbf)

NOTICE:

Prevent oil from adhering to the screw and tapered parts.

- (b) Install a new cotter pin to the steering knuckle.

NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut up to 60° further.

12. **INSTALL FRONT AXLE ASSY LH (SEE PAGE 30-38)**

13. **INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (SEE PAGE 30-21)**

2005 HIGHLANDER REPAIR MANUAL (RM1144U)

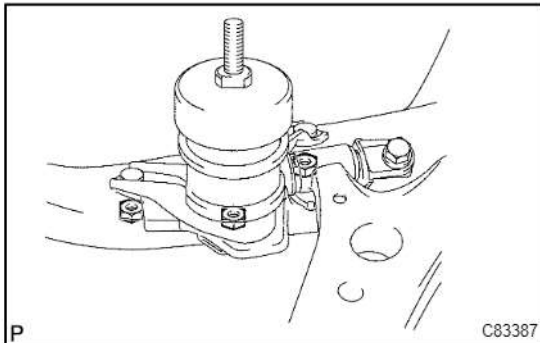
14. INSTALL TIE ROD END SUB-ASSY LH (SEE PAGE [30-21](#))
15. INSTALL FRONT DISC
16. INSTALL FRONT DISC BRAKE CALIPER ASSY LH (SEE PAGE [30-38](#))
17. INSTALL SPEED SENSOR FRONT LH (SEE PAGE [30-21](#))
18. INSTALL FRONT AXLE HUB LH NUT (SEE PAGE [30-21](#))
19. INSTALL FRONT WHEEL
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
20. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (SEE PAGE [26-7](#))
21. CHECK ABS SPEED SENSOR SIGNAL (SEE PAGE [05-765](#))

FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH REPLACEMENT

2801A-02

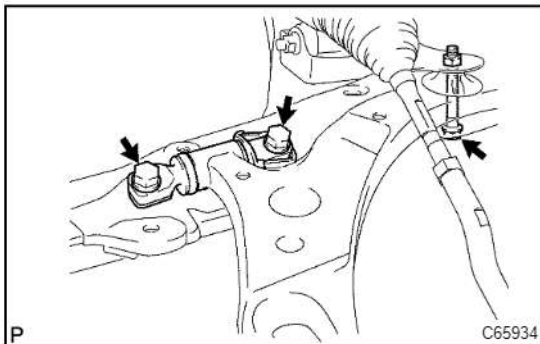
HINT:

- COMPONENTS: See page 26-3 .
 - Use the same procedures for the RH side and LH side.
 - The procedures listed below are for the LH side.
1. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (3MZ-FE ENGINE TYPE)**
(SEE PAGE 14-149)
 2. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (2AZ-FE ENGINE TYPE)**
(SEE PAGE 14-24)



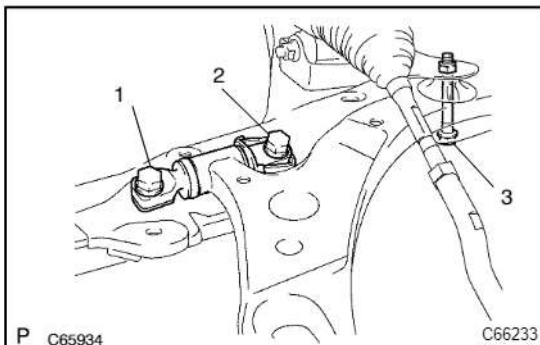
3. REMOVE TRANSVERSE ENGINE MOUNTING INSULATOR

- (a) Remove the 3 nuts and the transverse engine mounting insulator.



4. REMOVE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH

- (a) Remove the 3 bolts and the nut on the suspension arm lower No.1 LH and remove it from the front frame assy.
- (b) Remove the front lower arm bush stopper.



5. INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH

- (a) Install the front lower arm bush stopper.
- (b) Install the suspension arm lower No.1 LH to the front frame assy with the 3 bolts and the nut.
- (c) Tighten the 3 bolts in numerical order as shown in the illustration.

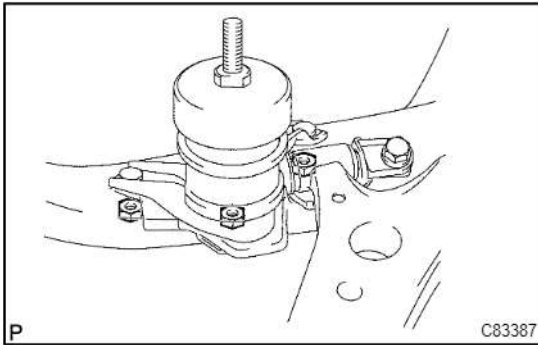
Torque:

(bolt 1, 2) 200 N·m (2,040 kgf·cm, 148 ft·lbf)

(bolt 3) 206 N·m (2,100 kgf·cm, 152 ft·lbf)

HINT:

Start tightening the bolts from the front side of the vehicle.



6. INSTALL TRANSVERSE ENGINE MOUNTING INSULATOR

- (a) Install the transverse engine mounting insulator with the 3 nuts.

Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)

7. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (3MZ-FE ENGINE TYPE) (SEE PAGE [14-149](#))

8. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (2AZ-FE ENGINE TYPE) (SEE PAGE [14-24](#))

STABILIZER BAR FRONT (4WD)

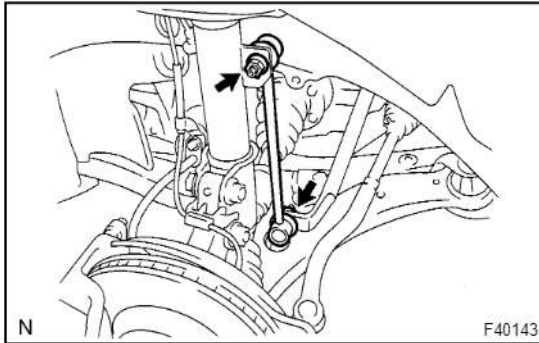
REPLACEMENT

280HD-04

HINT:

- COMPONENTS: See page 28-1 .
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. REMOVE FRONT WHEEL



2. REMOVE FRONT STABILIZER LINK ASSY LH

- (a) Remove the 2 nuts and the front stabilizer link assy LH.

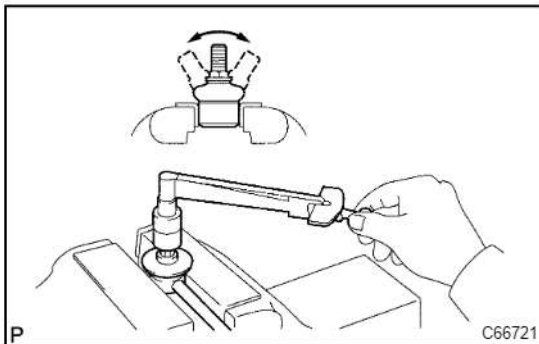
HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

3. REMOVE FRONT STABILIZER LINK ASSY RH

HINT:

Remove the RH side following the same procedures as with the LH side.



4. INSPECT FRONT STABILIZER LINK ASSY LH

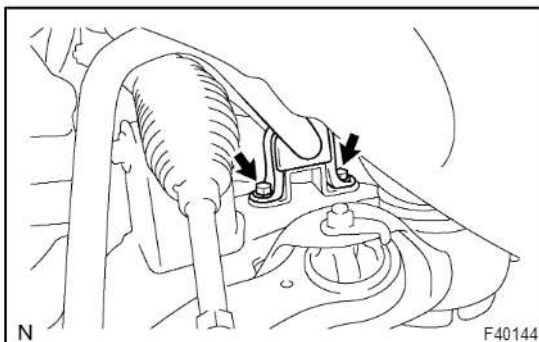
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times.
- (b) Using a torque wrench and nut, turn the nut continuously at a rate of 2 to 4 seconds per turn and take the torque reading on the 5th turn.

Turning torque:

0.05 to 1.96 N·m (0.5 to 20 kgf·cm, 0.4 to 17.4 in·lbf)

If the value is not within the specification, replace the front stabilizer link assy LH with a new one.

5. REMOVE EXHAUST PIPE SUB-ASSY FRONT NO.3 (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)



6. REMOVE FRONT STABILIZER BRACKET NO.1 LH

- (a) Remove the 2 bolts and front stabilizer bracket No.1 LH.

7. REMOVE FRONT STABILIZER BRACKET NO.1 RH

HINT:

Remove the RH side following the same procedures as with the LH side.

8. REMOVE FRONT STABILIZER BRACKET NO.2 LH

(a) Remove the front stabilizer bracket No.2 LH from the stabilizer bar bush.

9. REMOVE FRONT STABILIZER BRACKET NO.2 RH

HINT:

Remove the RH side following the same procedures with the LH side.

10. SEPARATE TIE ROD END SUB-ASSY LH (SEE PAGE 30-21)

SST 09628-6201 1

11. SEPARATE TIE ROD END SUB-ASSY RH

SST 09628-6201 1

HINT:

Separate the RH side following the same procedures as with the LH side.

12. SEPARATE STEERING INTERMEDIATE SHAFT SUB-ASSY (SEE PAGE 51-28)**13. DISCONNECT RETURN TUBE ASSY (SEE PAGE 51-28)**

SST 09023-12701

14. DISCONNECT PRESSURE FEED TUBE ASSY (SEE PAGE 51-28)

SST 09023-12701

15. REMOVE POWER STEERING LINK ASSY (SEE PAGE 51-28)**16. REMOVE FRONT STABILIZER BAR BUSH NO.1**

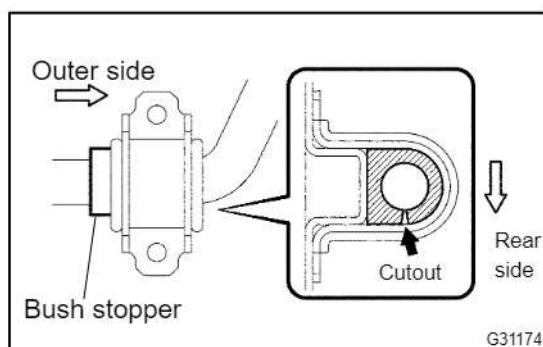
(a) Remove the 2 bushes from the stabilizer.

17. REMOVE MANIFOLD STAY (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)**18. REMOVE EXHAUST MANIFOLD HEAT INSULATOR NO.1 (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)****19. REMOVE EXHAUST MANIFOLD CONVERTER SUB-ASSY (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)****20. REMOVE STABILIZER BAR FRONT**

(a) Remove the stabilizer bar front from the vehicle.

21. INSTALL STABILIZER BAR FRONT

(a) Install the stabilizer bar front from the vehicle.

22. INSTALL EXHAUST MANIFOLD CONVERTER SUB-ASSY (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)**23. INSTALL EXHAUST MANIFOLD HEAT INSULATOR NO.1 (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)****24. INSTALL MANIFOLD STAY (3MZ-FE ENGINE TYPE) (SEE PAGE 15-5)****25. INSTALL FRONT STABILIZER BAR BUSH NO.1**

HINT:

- Install the bushing to the outer side of the bush stopper on the stabilizer bar.
- Place the cutout of the stabilizer bush facing the rear side as shown in the illustration.

26. INSTALL POWER STEERING LINK ASSY (SEE PAGE 51-28)**27. INSTALL PRESSURE FEED TUBE ASSY (SEE PAGE 51-28)**

SST 09023-12701

28. INSTALL RETURN TUBE ASSY (SEE PAGE 51-28)

SST 09023-12701

29. CONNECT STEERING INTERMEDIATE SHAFT SUB-ASSY (SEE PAGE 51-28)**30. INSTALL TIE ROD END SUB-ASSY LH (SEE PAGE 30-21)****31. INSTALL TIE ROD END SUB-ASSY RH**

HINT:

Install the RH side following the same procedures as with the LH side.

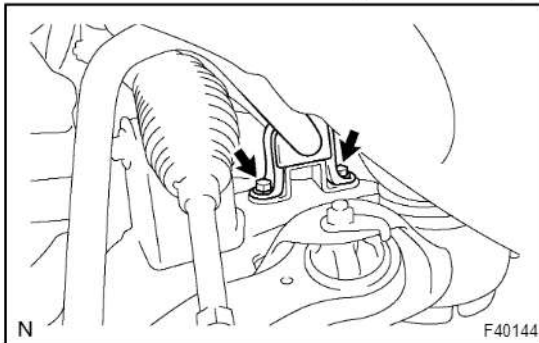
32. INSTALL FRONT STABILIZER BRACKET NO.2 LH

(a) Install the front stabilizer bracket No. 2 to the stabilizer bar bush No.1.

33. INSTALL FRONT STABILIZER BRACKET NO.2 RH

HINT:

Install the RH side following the same procedures as with the LH side.

**34. INSTALL FRONT STABILIZER BRACKET NO.1 LH**

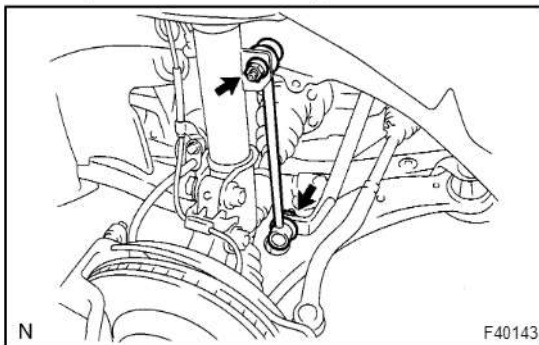
(a) Install the front stabilizer bracket No. 1 LH with the 2 bolts.

Torque: 16 N·m (163 kgf·cm, 12 ft·lbf)

35. INSTALL FRONT STABILIZER BRACKET NO.1 RH

HINT:

Install the RH side following the same procedures as with the LH side.

**36. INSTALL EXHAUST PIPE SUB-ASSY FRONT NO.3 (3MZ-FE ENGINE TYPE)
(SEE PAGE 15-5)****37. INSTALL FRONT STABILIZER LINK ASSY LH**

(a) Install the front stabilizer link assy LH with the 2 nuts.

Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

38. INSTALL FRONT STABILIZER LINK ASSY RH

HINT:

Install the RH side following the same procedures as with the LH side.

39. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

40. BLEED POWER STEERING FLUID (SEE PAGE 51-3)**41. CHECK POWER STEERING FLUID LEAKAGE****42. INSPECT AND ADJUST STEERING WHEEL CENTER POINT****43. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (SEE PAGE 26-7)**

STABILIZER BAR FRONT (FF)

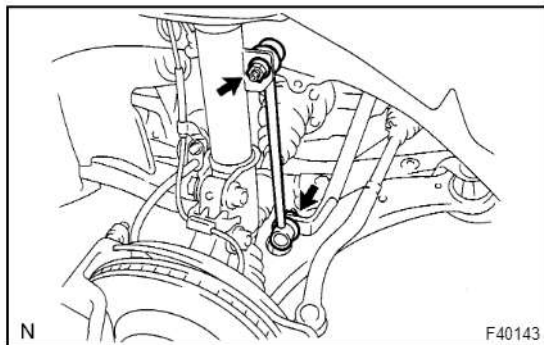
REPLACEMENT

280HC-04

HINT:

- COMPONENTS: See page 26-3 .
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

1. REMOVE FRONT WHEEL



2. REMOVE FRONT STABILIZER LINK ASSY LH

- (a) Remove the 2 nuts and the front stabilizer link assy LH.

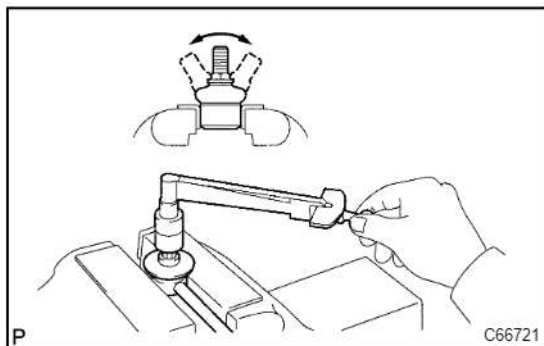
HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

3. REMOVE FRONT STABILIZER LINK ASSY RH

HINT:

Remove the RH side by following the same procedures as with the LH side.



4. INSPECT FRONT STABILIZER LINK ASSY LH

- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times .
- (b) Using a torque wrench and nut, turn the nut continuously at a rate of 2 to 4 seconds per turn and take the torque reading on the 5th turn.

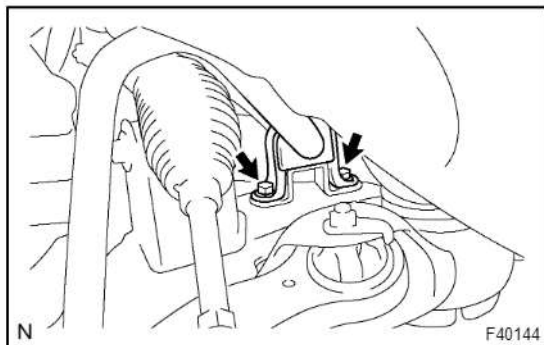
Turning torque:

0.05 to 1.96 N·m (0.5 to 20 kgf·cm, 0.4 to 17.4 in·lbf)

If the value is not within the specification, replace the front stabilizer link assy LH with a new one.

5. REMOVE FRONT STABILIZER BRACKET NO.1 LH

- (a) Remove the 2 bolts and the front stabilizer bracket No. 1 LH.



6. REMOVE FRONT STABILIZER BRACKET NO.1 RH

HINT:

Remove the RH side by following the same procedures as with the LH side.

7. REMOVE FRONT STABILIZER BRACKET NO.2 LH

- (a) Remove the front stabilizer bracket No. 2 LH from the stabilizer bar bush.

8. REMOVE FRONT STABILIZER BRACKET NO.2 RH

HINT:

Remove the RH side following the same procedures as with as the LH side.

9. DISCONNECT TIE ROD END SUB-ASSY LH (SEE PAGE 30-21)

SST 09628-6201 1

10. DISCONNECT TIE ROD END SUB-ASSY RH

SST 09628-6201 1

HINT:

Disconnect the RH side following the same procedures as with the LH side.

11. SEPARATE STEERING INTERMEDIATE SHAFT SUB-ASSY (SEE PAGE 51-28)**12. DISCONNECT STEERING GEAR OUTLET RETURN TUBE (SEE PAGE 51-28)**

SST 09023-12701

13. DISCONNECT PRESSURE FEED TUBE ASSY (SEE PAGE 51-28)

SST 09023-12701

14. REMOVE POWER STEERING LINK ASSY (SEE PAGE 51-28)**15. REMOVE FRONT STABILIZER BAR BUSH NO.1**

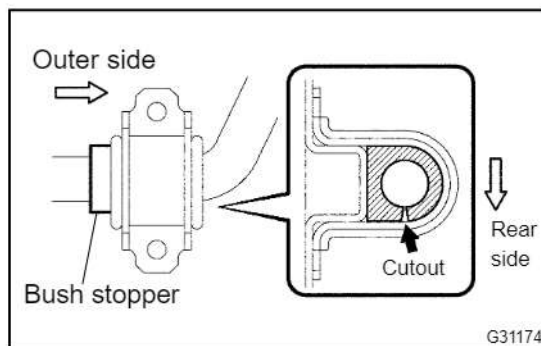
(a) Remove the 2 bushes from the stabilizer.

16. REMOVE STABILIZER BAR FRONT

(a) Remove the stabilizer bar front from the vehicle.

17. INSTALL STABILIZER BAR FRONT

(a) Install the stabilizer bar front to the vehicle.

**18. INSTALL FRONT STABILIZER BAR BUSH NO.1**

HINT:

- Install the bush to the outer side of the bush stopper on the stabilizer bar.
- Place the cutout of the stabilizer bush facing the rear side as shown in the illustration.

19. INSTALL POWER STEERING LINK ASSY (SEE PAGE 51-28)**20. INSTALL PRESSURE FEED TUBE ASSY (SEE PAGE 51-28)**

SST 09023-12701

21. INSTALL STEERING GEAR OUTLET RETURN TUBE (SEE PAGE 51-28)

SST 09023-12701

22. CONNECT STEERING INTERMEDIATE SHAFT SUB-ASSY (SEE PAGE 51-28)**23. INSTALL TIE ROD END SUB-ASSY LH (SEE PAGE 30-21)****24. INSTALL TIE ROD END SUB-ASSY RH**

HINT:

Install the RH side following the same procedures as with the LH side.

25. INSTALL FRONT STABILIZER BRACKET NO.2 LH

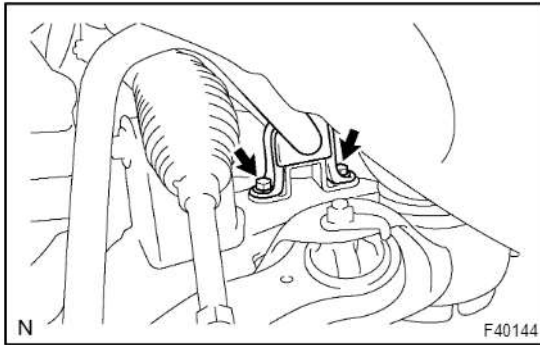
(a) Install the front stabilizer bracket No. 2 to the stabilizer bar bush No.1.

26. INSTALL FRONT STABILIZER BRACKET NO.2 RH

HINT:

Install the RH side following the same procedure as with the LH side.

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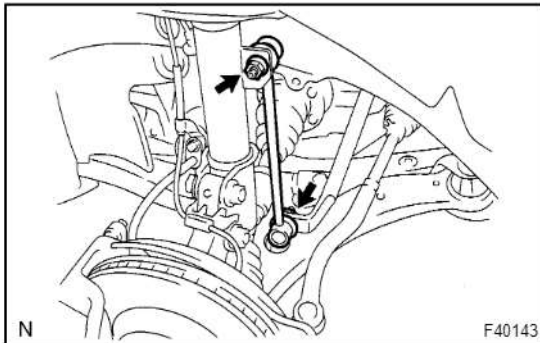
**27. INSTALL FRONT STABILIZER BRACKET NO.1 LH**

- (a) Install the front stabilizer bracket No. 1 LH with the 2 bolts.
Torque: 16 N·m (163 kgf·cm, 12 ft·lbf)

28. INSTALL FRONT STABILIZER BRACKET NO.1 RH

HINT:

Install the RH side following the same procedures as with the LH side.

**29. INSTALL FRONT STABILIZER LINK ASSY LH**

- (a) Install the front stabilizer link assy LH with the 2 nuts.
Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

30. INSTALL FRONT STABILIZER LINK ASSY RH

HINT:

Install the RH side following the same procedures as with the LH side.

31. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

32. BLEED POWER STEERING FLUID (SEE PAGE 51-3)**33. CHECK POWER STEERING FLUID LEAKAGE****34. INSPECT AND ADJUST STEERING WHEEL CENTER POINT****35. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (SEE PAGE 26-7)**