REAR SUSPENSION SYSTEM

270C4−03

PROBLEM SYMPTOMS TABLE

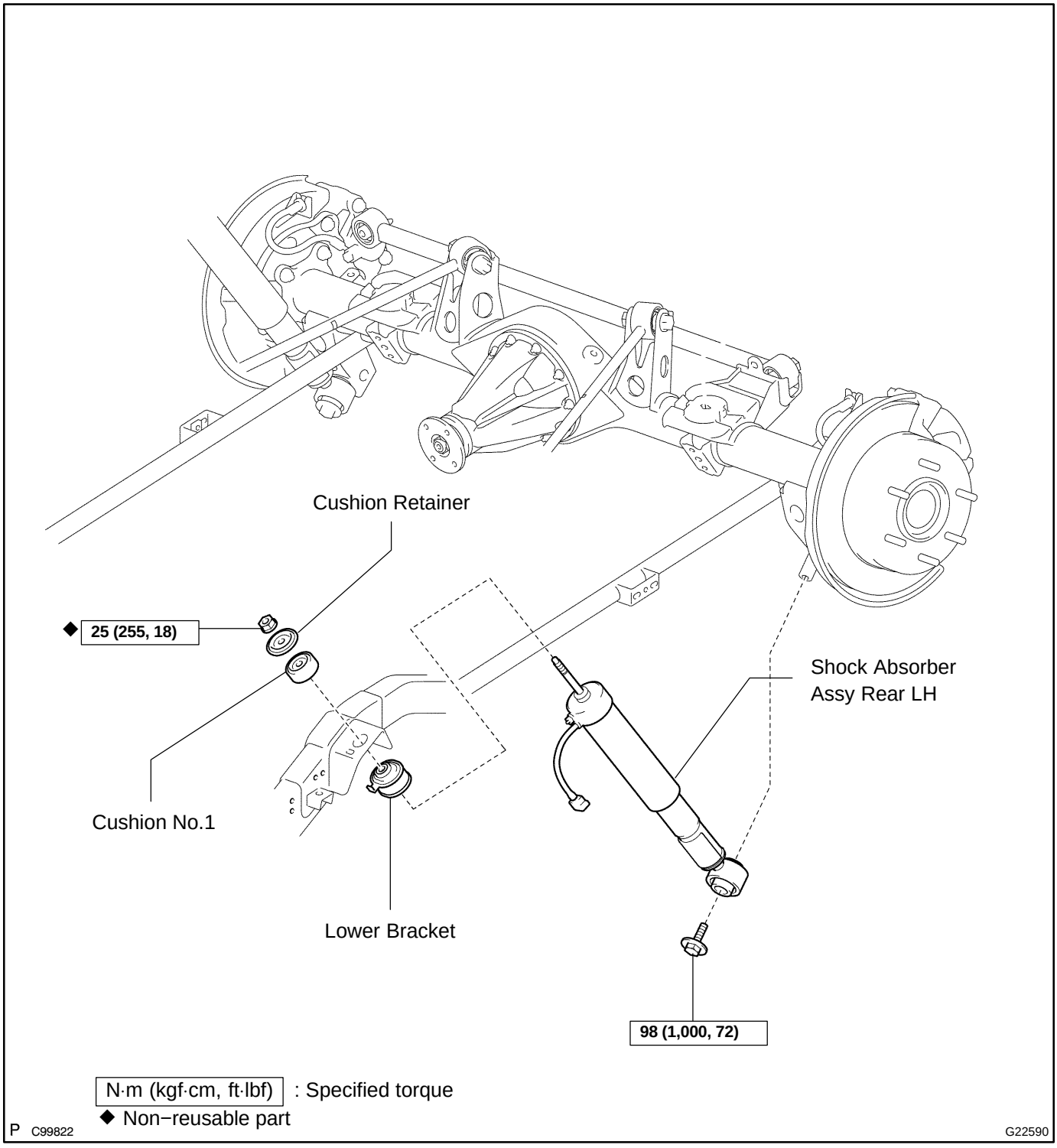
Use the table below to help find the cause of the problem. The numbers indicate the probability of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspected Area	See page
Wander/pulls	1. Tire (Worn or improperly inflated) 2. Wheel alignment (Incorrect) 3. Hub bearing (Worn) 4. Suspension parts (Worn)	28−1 26−7 30−38 −
Bottoming	1. Vehicle (Overloaded) 2. Pneumatic cylinder (Weak) 3. Shock absorber (Worn)	− 27−7 27−3
Sways/pitches	1. Tire (Worn or improperly inflated) 2. Stabilizer bar (Bent or broken) 3. Shock absorber (Worn)	28−1 27−19 27−3
Rear wheel shimmy	1. Tire (Worn or improperly inflated) 2. Wheel (Out of balance) 3. Shock absorber (Worn) 4. Wheel alignment (Incorrect) 5. Hub bearing (Worn)	28−1 28−1 27−3 26−7 30−38
Abnormal tire wear	1. Tire (Worn or improperly inflated) 2. Wheel alignment (Incorrect) 3. Shock absorber (Worn) 4. Suspension parts (Worn)	28−1 26−7 27−3 −

SHOCK ABSORBER ASSY REAR LH (From August, 2003)

270C5−02

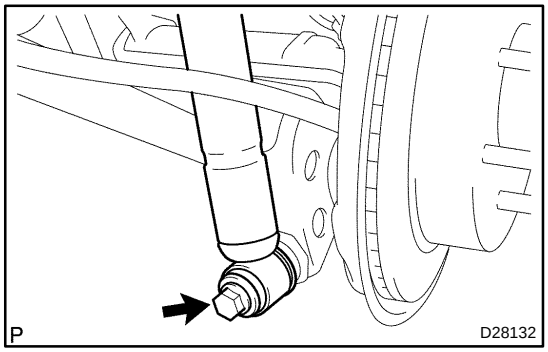
COMPONENTS



270C6–02

REPLACEMENT

1. REMOVE REAR WHEEL



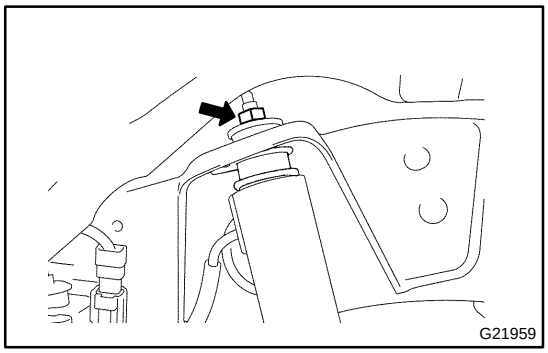
2. REMOVE SHOCK ABSORBER ASSY REAR LH

(a) Disconnect the absorber control actuator connector.

(b) Remove the bolt and separate the shock absorber assy rear LH from the rear axle housing.

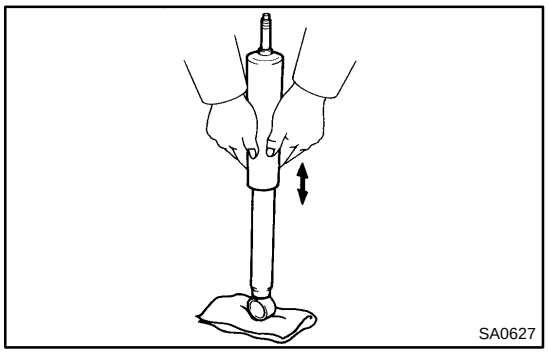
NOTICE:

Do not lower the rear axle housing too much when disconnecting the shock absorber assy rear LH with the pneumatic cylinder being attached.



(c) Remove the nut, cushion retainer, cushion No.1 and shock absorber assy rear LH.

(d) Remove the lower bracket from the shock absorber assy rear LH.



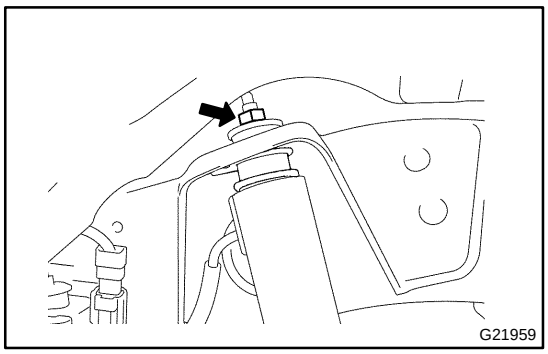
3. INSPECT SHOCK ABSORBER ASSY REAR LH

(a) Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual sound during operation.

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

NOTICE:

When disposing of the shock absorber, see DISPOSAL on page 27–5.



4. INSTALL SHOCK ABSORBER ASSY REAR LH

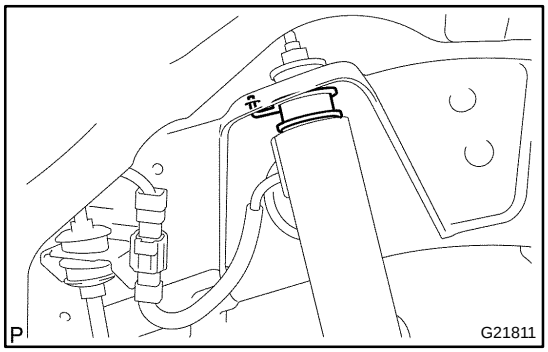
(a) Install the lower bracket to the shock absorber assy rear LH.

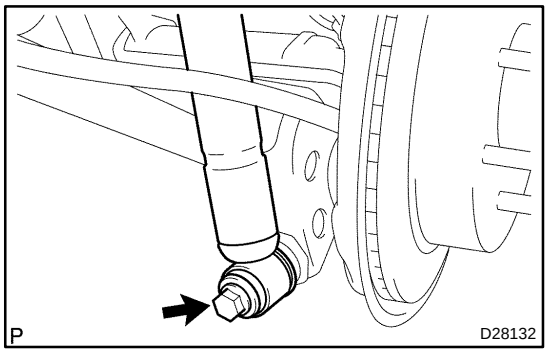
(b) Install the cushion retainer, cushion No.1 and shock absorber assy rear LH with the nut.

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)

NOTICE:

- **Be sure to fit the positioning protrusion of the bracket to a hole on the frame.**
- **Install the connector as it comes in the front.**





(c) Install the shock absorber assy rear LH with the bolt.

(d) Connect the absorber control actuator connector.

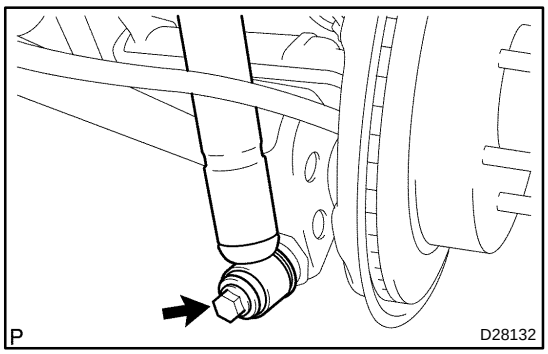
5. INSTALL REAR WHEEL

Torque: 112 N·m (1,137 kgf·cm, 82 ft·lbf)

6. STABILIZE SUSPENSION

(a) Jack down the vehicle.

(b) Bounce the vehicle up and down several times to stabilize the suspension.



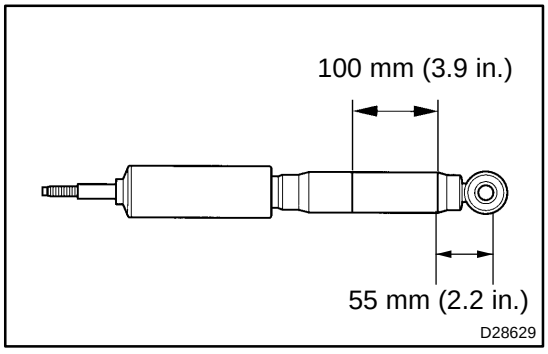
7. FULLY TIGHTEN SHOCK ABSORBER ASSY REAR LH

(a) Fully tighten the bolt.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

270GX−01

DISPOSAL



1. DISPOSE OF SHOCK ABSORBER ASSY REAR 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.

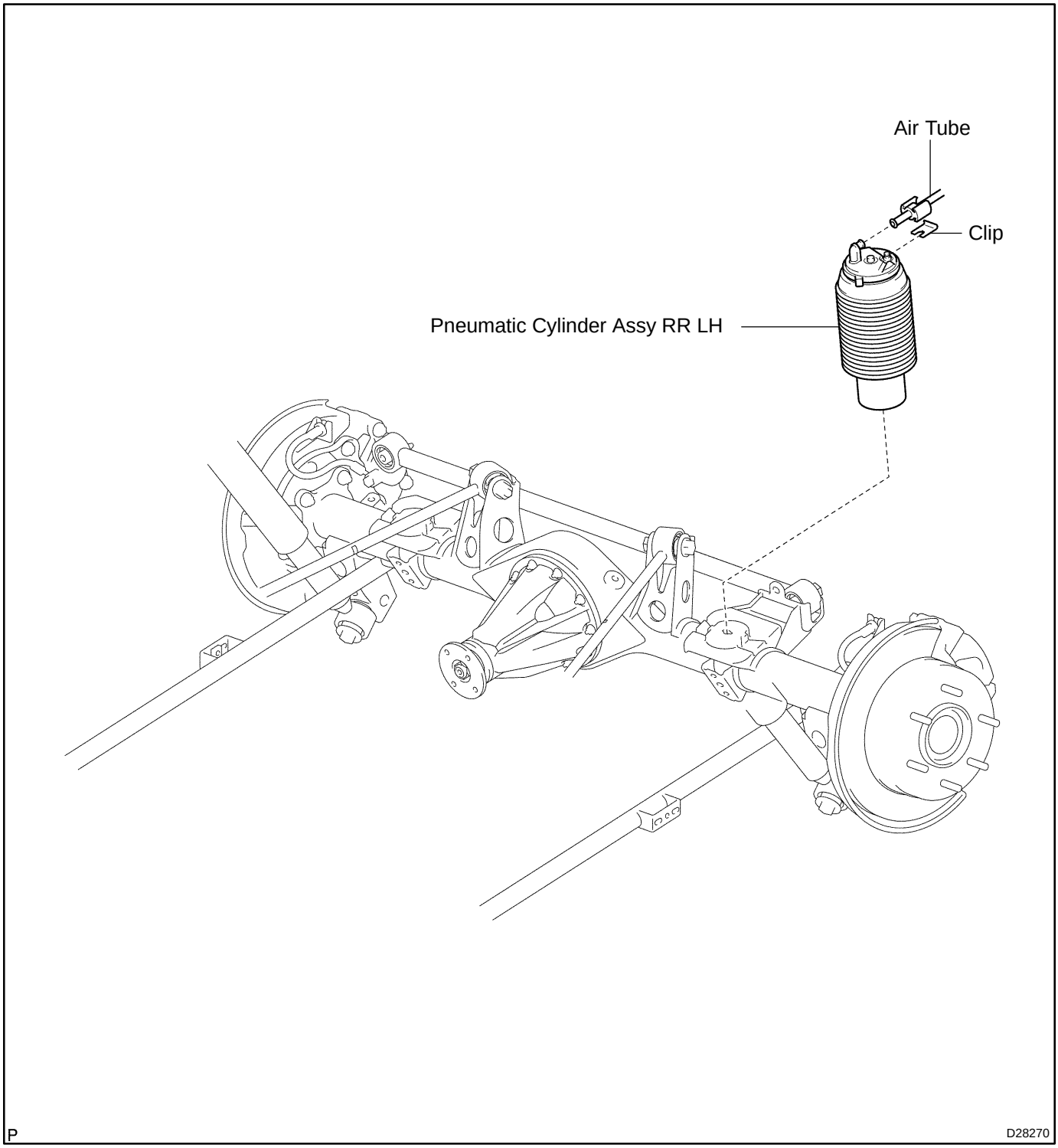
CAUTION:

- **When drilling, chips may fly out, so work carefully.**
- **The gas is colorless, odorless and non−poisonous.**

PNEUMATIC CYLINDER ASSY REAR LH

COMPONENTS

270C8−02



270C9−04

REPLACEMENT

HINT:

For components of pneumatic cylinder assy RR LH, refer to page 27−6.

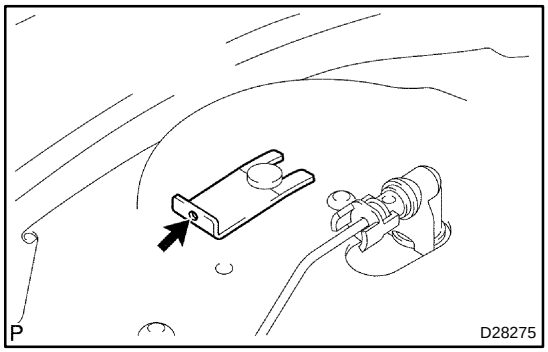
1. REMOVE PNEUMATIC CYLINDER ASSY REAR LH

(a) Jack up vehicle and support the frame with safety stands.

NOTICE:

- **Do the work with the rear axle assy lowered.**
- **Do the work with the shock absorber installed.**

(b) Disconnect the height control tube (See page 25−1).

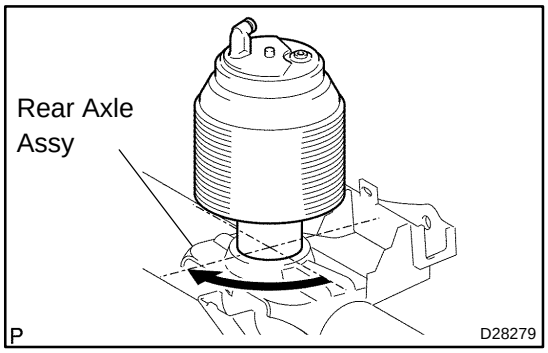


(c) Remove the clip on the upper side of the pneumatic cylinder (See page 25−1).

HINT:

If the clip cannot easily be removed, thread a wire through the hole to pull it.

(d) Discharge air from the pneumatic cylinder assy to retract it.



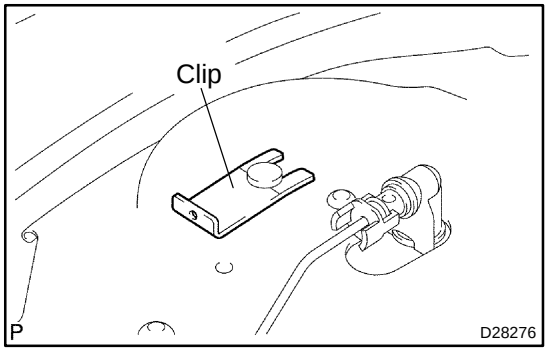
(e) Turn the pneumatic cylinder assy 90 degrees and remove it from the rear axle assy.

NOTICE:

Do not extend the pneumatic cylinder assy.

HINT:

If the pneumatic cylinder assy is to be reused, 2 new o−rings as well as a new plate and height control plug must be used (See page 25−1).



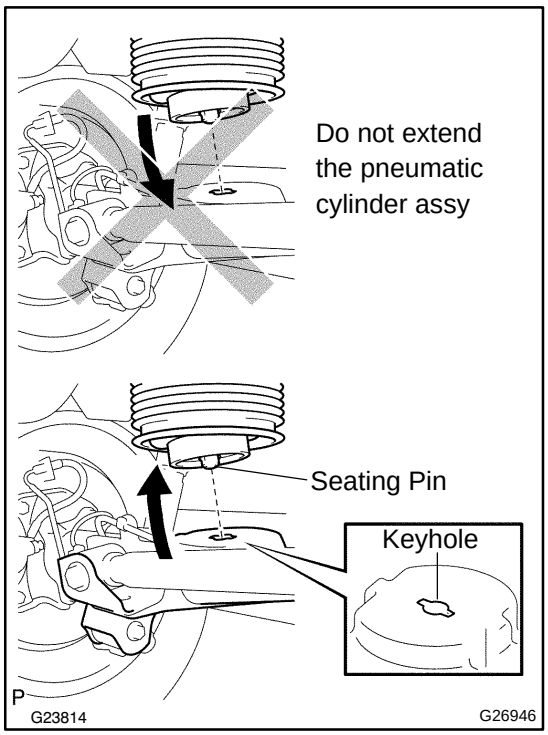
2. INSTALL PNEUMATIC CYLINDER ASSY REAR LH

(a) Install the pneumatic cylinder assy with the clip.

NOTICE:

Make sure that the clip is secured tightly onto the cylinder.

(b) Connect the height control tube (See page 25−1).



(c) When using safety stands and jack:

(1) Jack up the rear axle assy until the bottom of the pneumatic cylinder assy touches the rear axle assy and install the clip at the lower side of the pneumatic cylinder assy into the keyhole in the rear axle assy.

NOTICE:

- **Do not extend the pneumatic cylinder assy for clip installation.**
- **Make sure that the clip at the lower side of the pneumatic cylinder assy fits in the keyhole in the rear axle assy.**

(2) Remove the safety stands with care not to extend the pneumatic cylinder assy when jacking down the vehicle till it sits on the ground.

NOTICE:

- **Do not extend the pneumatic cylinder assy by lowering the rear axle assy with safety stands installed.**
- **Make sure that the diaphragm of the pneumatic cylinder assy is not deformed.**

(d) When using a swing arm type lift:

(1) Lower the vehicle till the tires hit the ground, and continue lowering slowly until the bottom of the pneumatic cylinder assy touches the rear axle assy.

(2) Align the seating pin on the cylinder with the keyhole in the rear axle assy and install the pneumatic cylinder assy on the rear axle assy.

(3) Lower the lift carefully so as not to extend the pneumatic cylinder assy.

NOTICE:

- **Do not extend the pneumatic cylinder assy by lifting up the rear axle housing after installing the clip.**
- **Make sure that the diaphragm of the pneumatic cylinder assy is not deformed.**

(e) Start the engine and replenish the pneumatic cylinder assy with air.

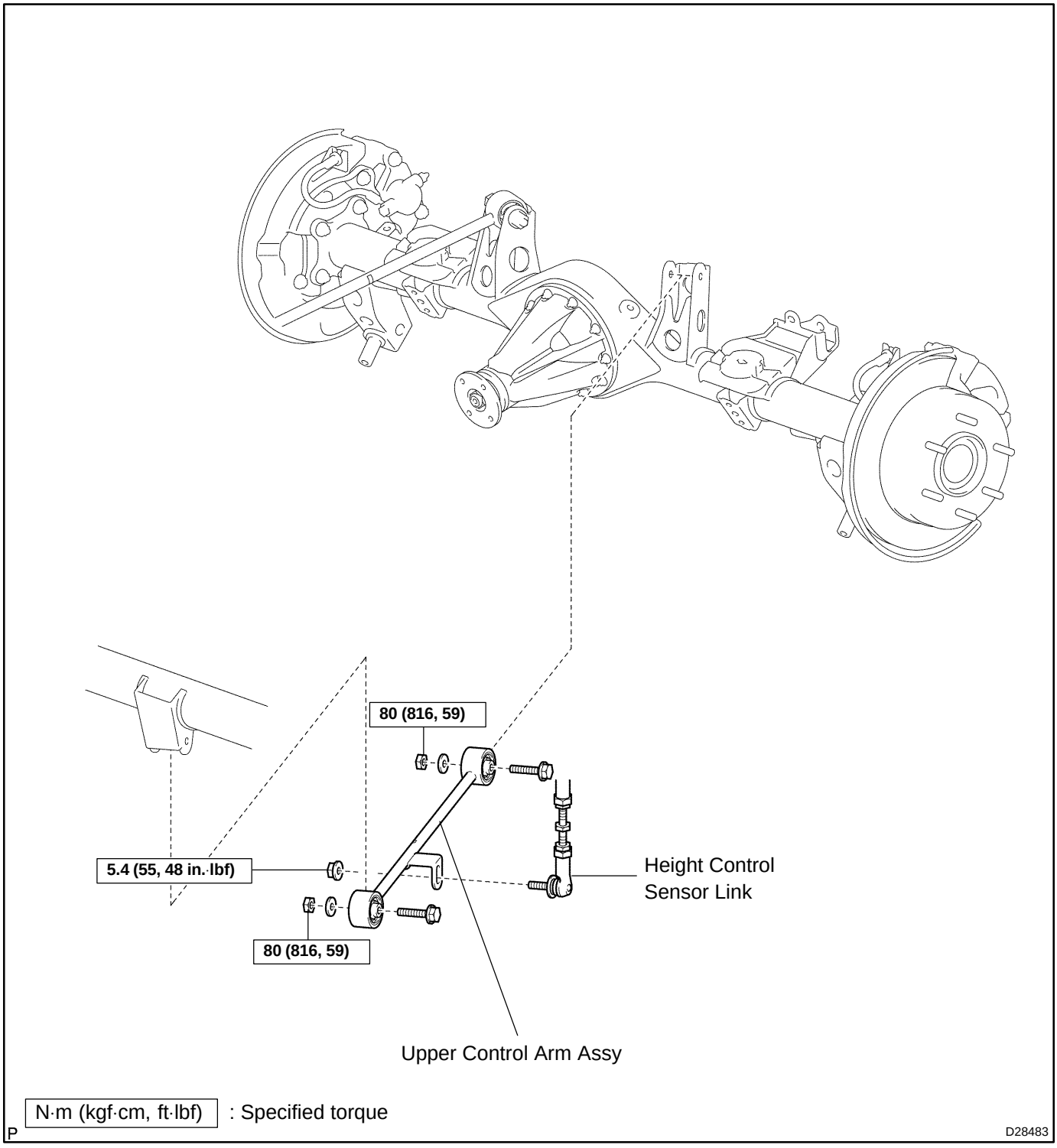
3. INSPECT AIR LEAK (See page 25−3)

4. INSPECT VEHICLE HEIGHT (See page 25−3)

UPPER CONTROL ARM ASSY

270CA−02

COMPONENTS

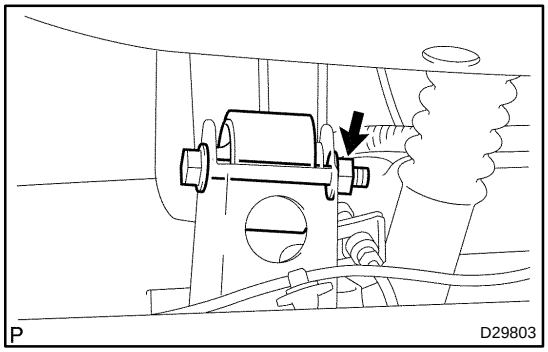


270CB−02

REPLACEMENT

1. REMOVE REAR WHEEL

2. DISCONNECT HEIGHT CONTROL SENSOR LINK SUB−ASSY REAR (See page 25−17)

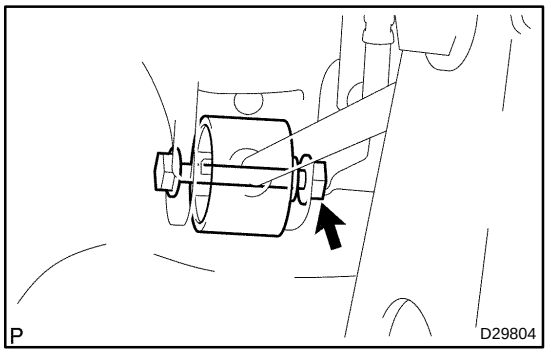


3. REMOVE UPPER CONTROL ARM ASSY

(a) Remove the nut, washer and bolt from rear axle housing.

HINT:

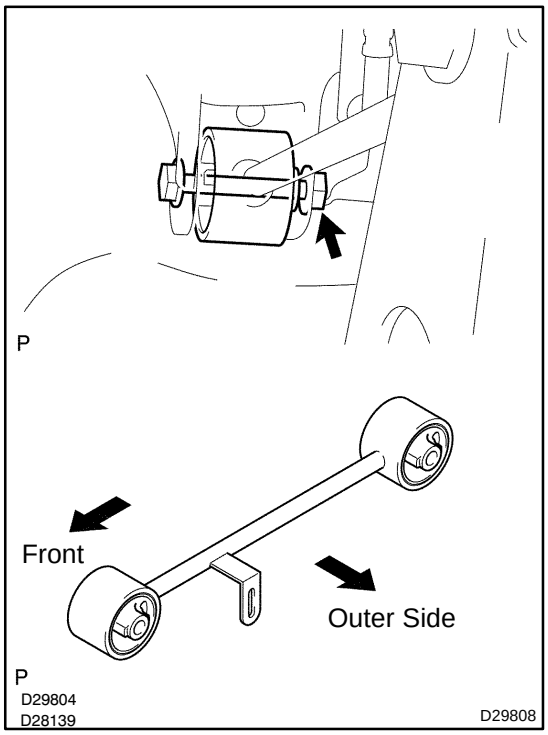
While holding the bolt, turn and remove the nut.



(b) Remove the nut, washer and bolt with the upper control arm assy.

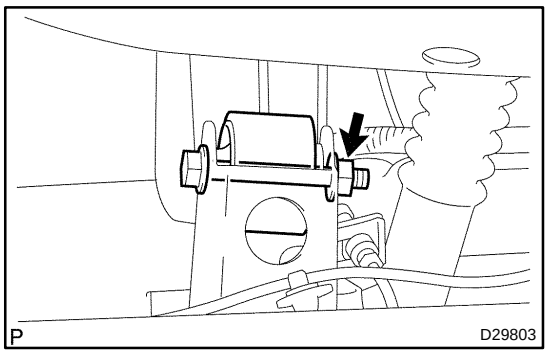
HINT:

While holding the bolt, turn and remove the nut.



4. INSTALL UPPER CONTROL ARM ASSY

(a) Install the upper control arm assy, and temporarily tighten the nut, washer and bolt.



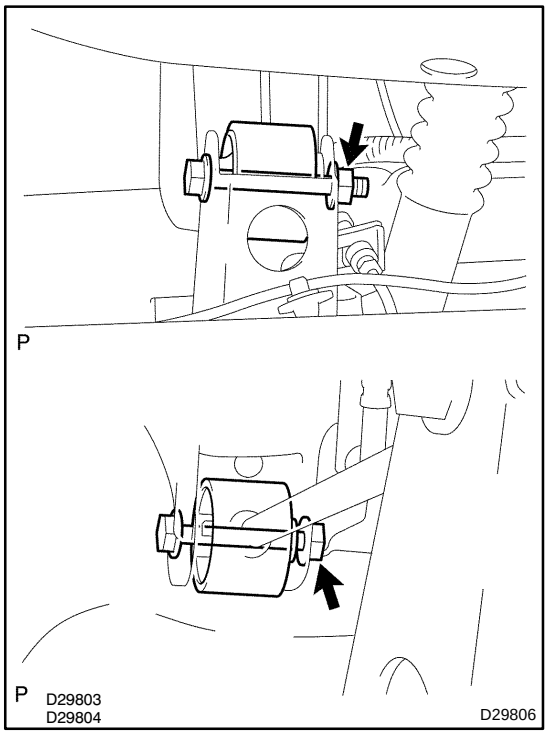
(b) Install the rear axle housing, and temporarily tighten the nut, washer and bolt.

5. CONNECT HEIGHT CONTROL SENSOR LINK SUB−ASSY REAR (See page 25−17)

6. INSTALL REAR WHEEL

Torque: 112 N·m (1,137 kgf·cm, 82 ft·lbf)

7. STABILIZE SUSPENSION (See page 27−3)



8. FULLY TIGHTEN UPPER CONTROL ARM ASSY

(a) Fully tighten the 2 nuts.

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

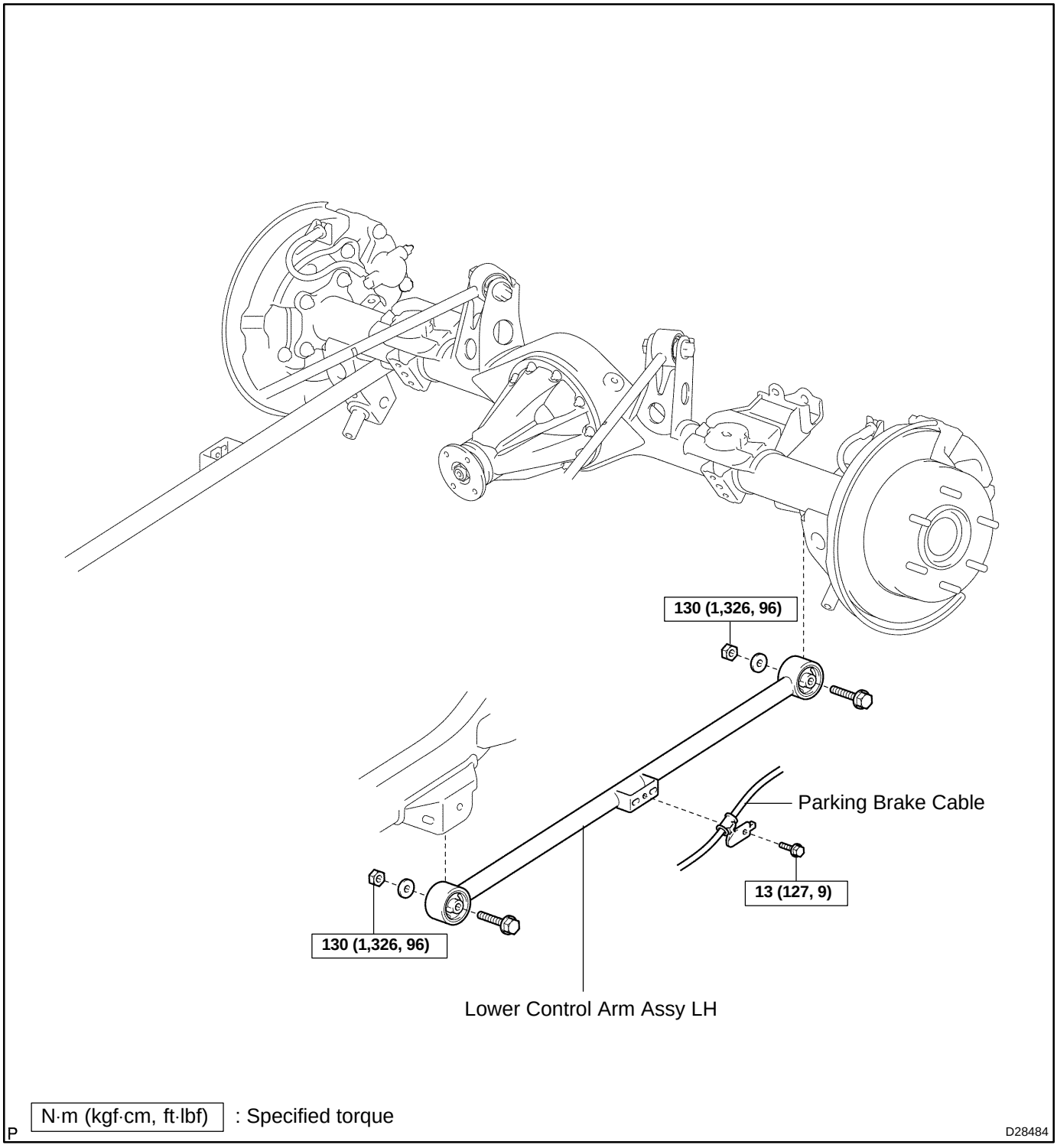
HINT:

While holding the bolt, turn and install the nut.

LOWER CONTROL ARM ASSY LH

270CC−02

COMPONENTS



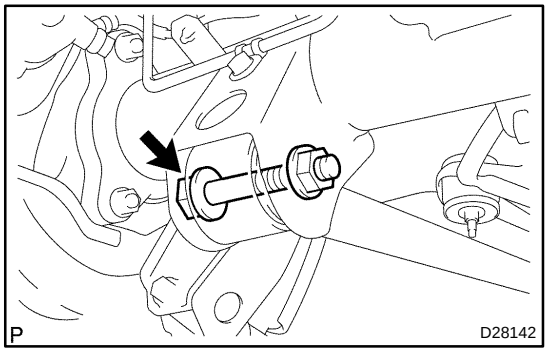
270CD−02

REPLACEMENT

1. REMOVE REAR WHEEL

2. SEPARATE PARKING BRAKE CABLE ASSY NO.3

(a) Remove the bolt, and separate the parking brake cable assy No.3.

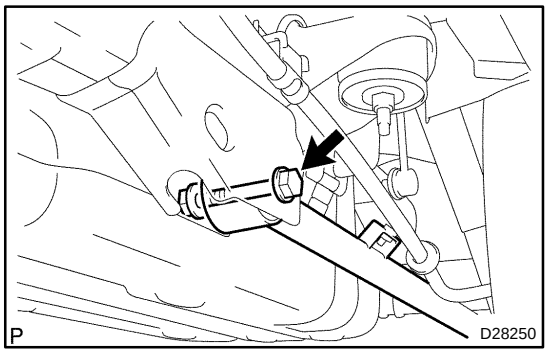


3. REMOVE LOWER CONTROL ARM ASSY LH

(a) Remove the nut, washer and bolt from rear axle housing.

HINT:

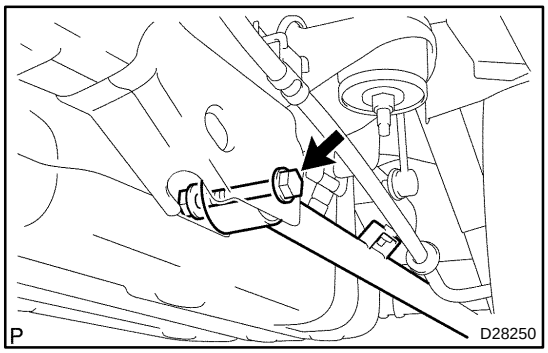
While holding the nut, turn and remove the bolt.



(b) Remove the nut, washer, bolt and the lower control arm assy.

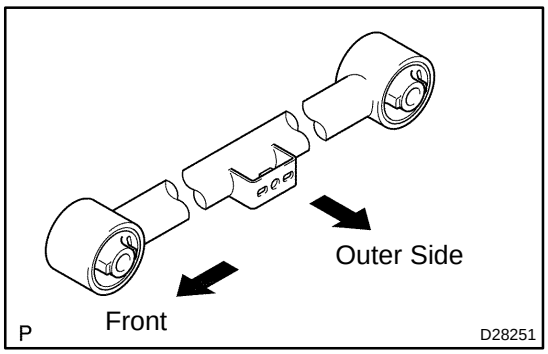
HINT:

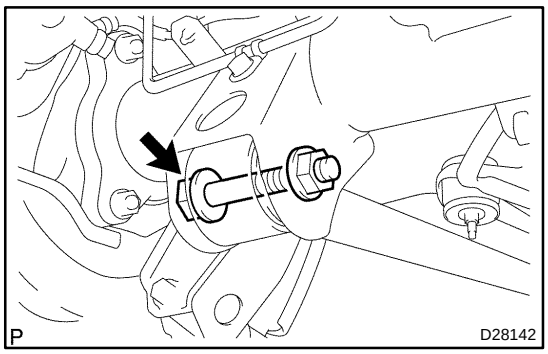
While holding the nut, turn and remove the bolt.



4. INSTALL LOWER CONTROL ARM ASSY LH

(a) Install the lower control arm assy, and temporarily tighten the bolt, washer and nut.





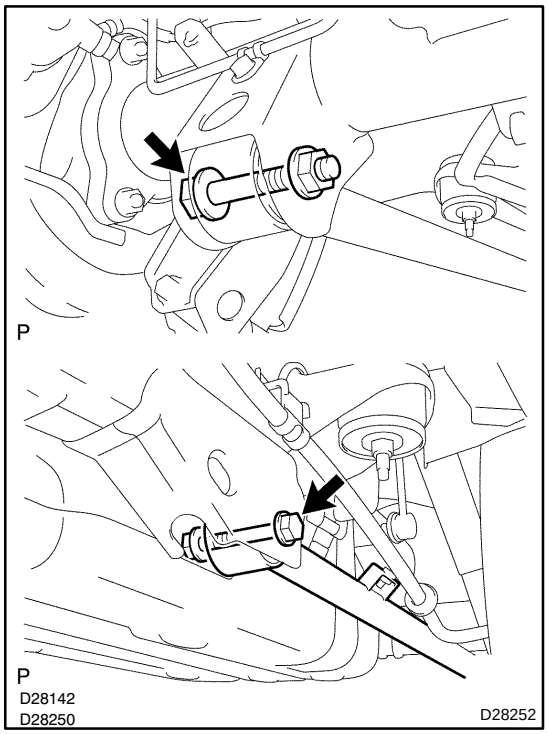
(b) Install the rear axle housing, and temporarily tighten the bolt, washer and nut.

5. CONNECT PARKING BRAKE CABLE ASSY NO.3

(a) Connect the parking brake cable assy No.3 with the bolt.
Torque: 13 N·m (127 kgf·cm, 9 ft·lbf)

6. INSTALL REAR WHEEL
Torque: 112 N·m (1,137 kgf·cm, 82 ft·lbf)

7. STABILIZE SUSPENSION (See page 27−3)



8. FULLY TIGHTEN LOWER CONTROL ARM ASSY LH

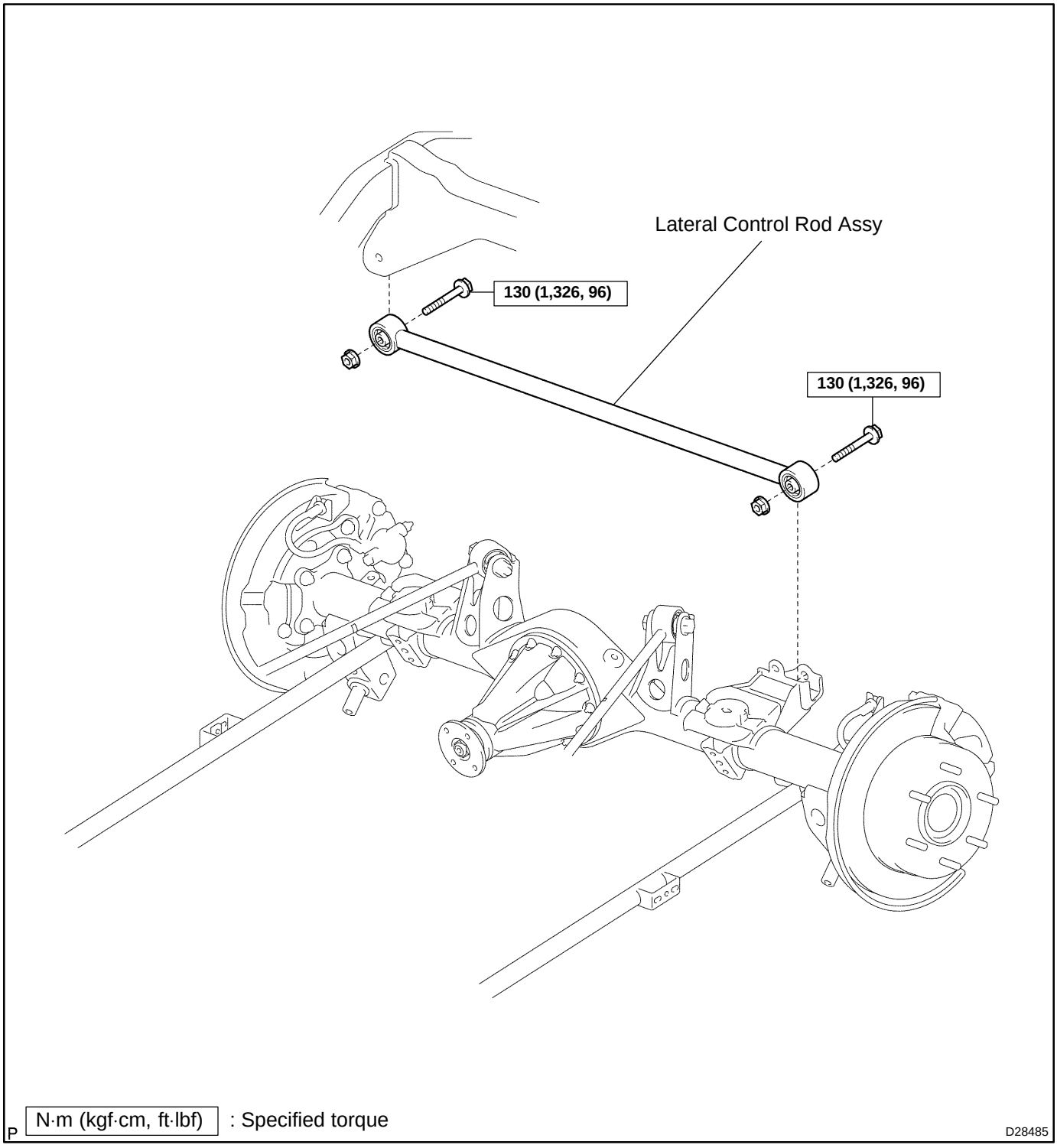
(a) Fully tighten the 2 bolts.
Torque: 130 N·m (1,326 kgf·cm, 96 ft·lbf)

HINT:
While holding the nut, turn and remove the bolt.

REAR LATERAL CONTROL ROD ASSY

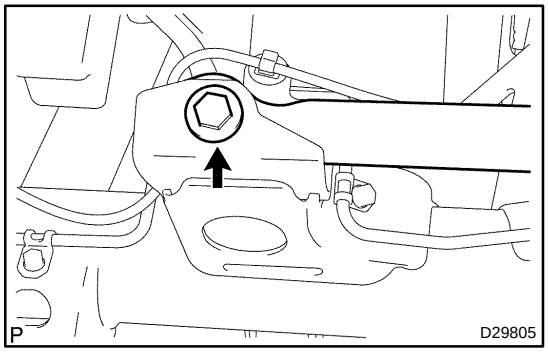
270CE−02

COMPONENTS



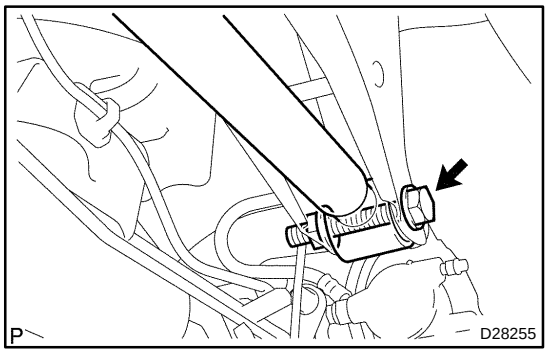
270CF−02

REPLACEMENT



1. REMOVE REAR LATERAL CONTROL ROD ASSY

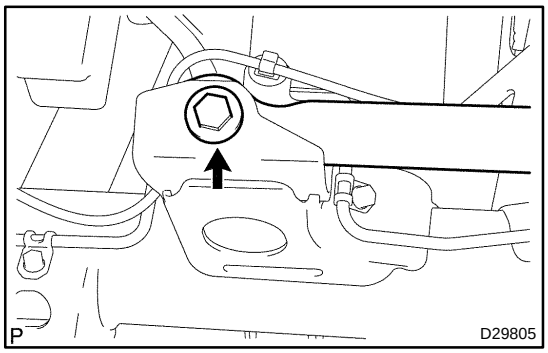
(a) Remove the bolt.



(b) Remove the bolt, nut and lateral control rod assy.

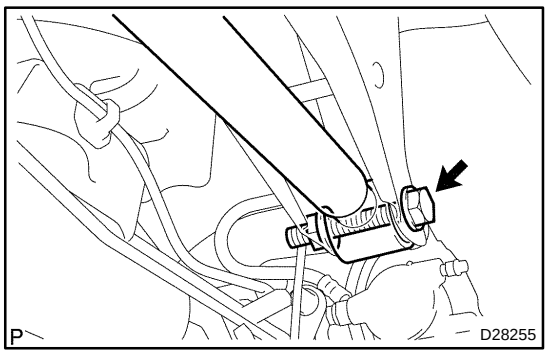
HINT:

While holding the nut, turn and remove the bolt.



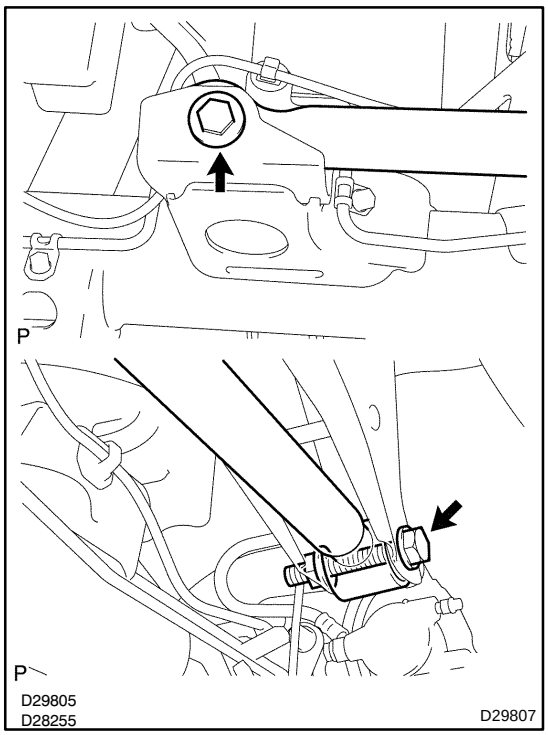
2. INSTALL REAR LATERAL CONTROL ROD ASSY

(a) Install the lateral control rod assy with the bolt.



(b) Install the bolt and the nut.

3. STABILIZE SUSPENSION (See page 27−3)



4. FULLY TIGHTEN REAR LATERAL CONTROL ROD ASSY

(a) Fully tighten the 2 bolts.

Torque: 130 N·m (1,326 kgf·cm, 96 ft·lbf)

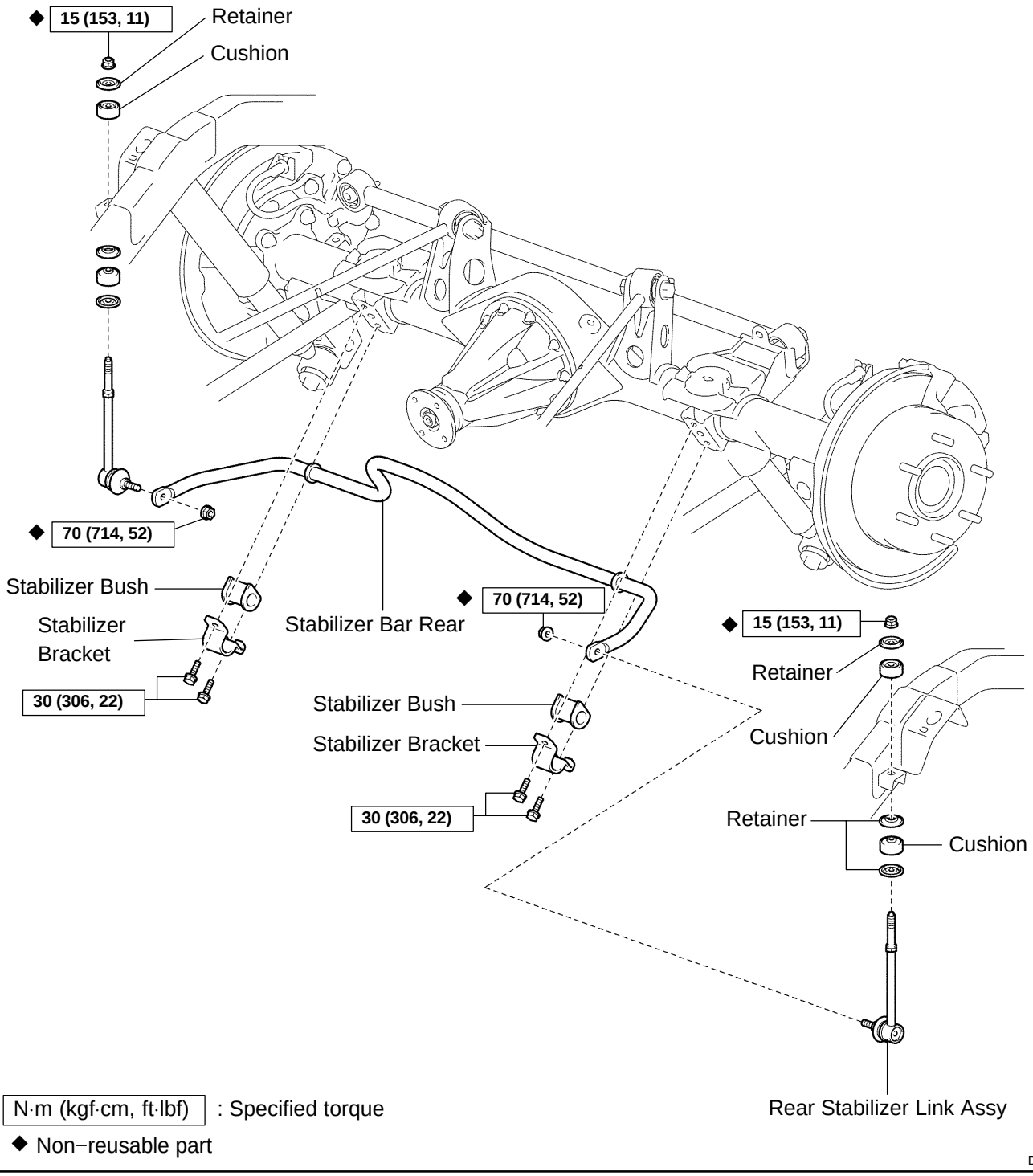
HINT:

While holding the nut, turn and install the bolt.

STABILIZER BAR REAR

COMPONENTS

270CG−02



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

◆ Non−reusable part

P

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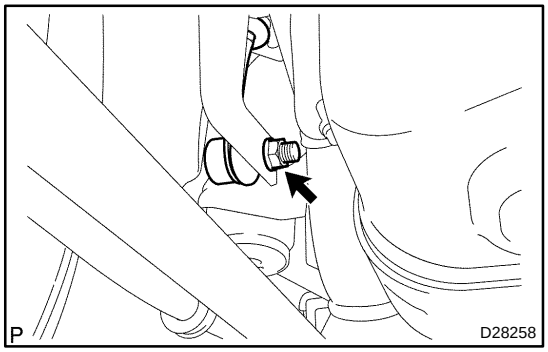
REPLACEMENT

1. REMOVE REAR WHEEL

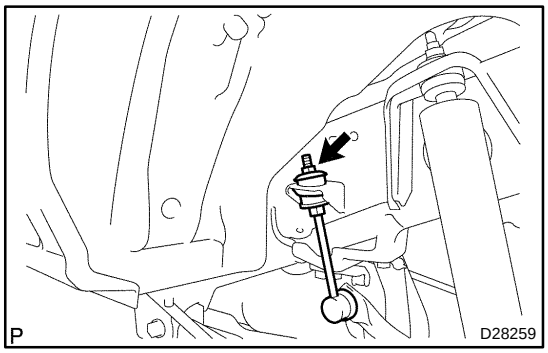


2. REMOVE REAR STABILIZER LINK ASSY LH

(a) Remove the nut and disconnect the stabilizer bar from the stabilizer link (LH side).

HINT:

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



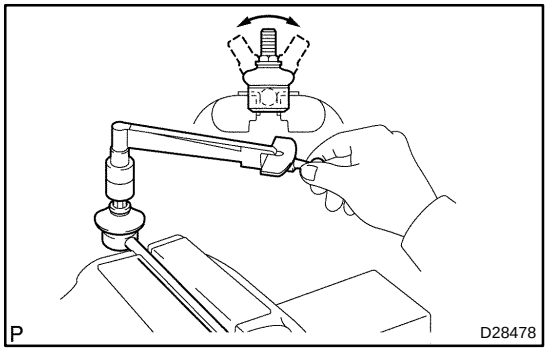
(b) Hold the stabilizer bar link with a wrench and remove the nut, retainer, cushion and link.

(c) Remove the 2 retainers and cushion from the stabilizer link.

3. REMOVE REAR STABILIZER LINK ASSY RH

HINT:

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

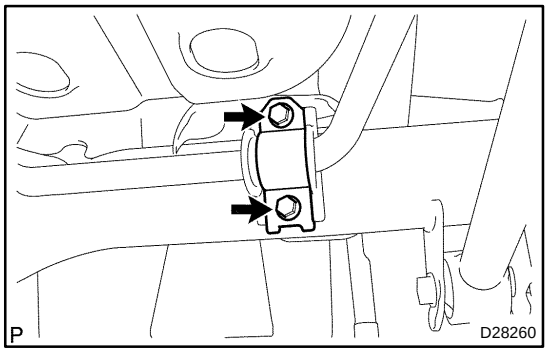


4. INSPECT REAR STABILIZER LINK ASSY LH

(a) As shown in the illustration, flip the ball joint stud back and forth 5 times before installing the nut.

(b) Using a torque wrench, turn the nut continuously at a rate of 3 − 5 seconds per 1 turn and take the torque reading on the 5th turn.

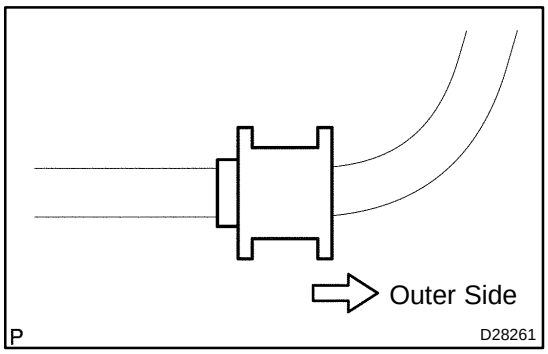
Turning torque: 2.0 N·m (20 kgf·cm, 17.7 in.·lbf) or less



5. REMOVE STABILIZER BAR REAR

(a) Remove the 4 bolts, the 2 stabilizer brackets and the stabilizer bar.

(b) Remove the 2 stabilizer bushes from the stabilizer bar.

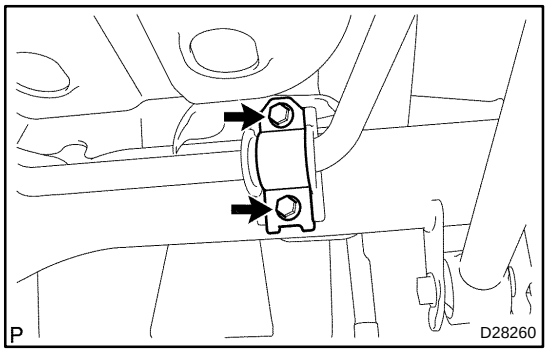


6. INSTALL STABILIZER BAR REAR

(a) Install the 2 stabilizer bushes to the stabilizer bar.

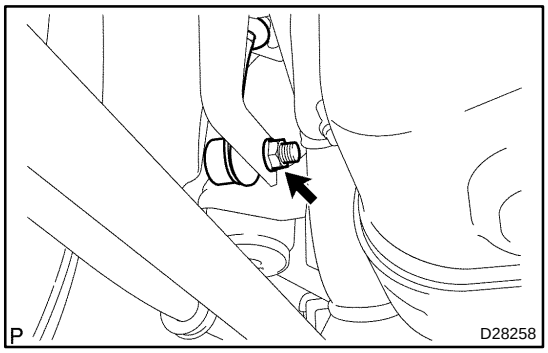
HINT:

Install the stabilizer bush to the inner side of the stabilizer bush stopper on the stabilizer bar.



(b) Install the stabilizer bar and the 2 stabilizer brackets with the 4 bolts.

Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)



7. INSTALL REAR STABILIZER LINK ASSY LH

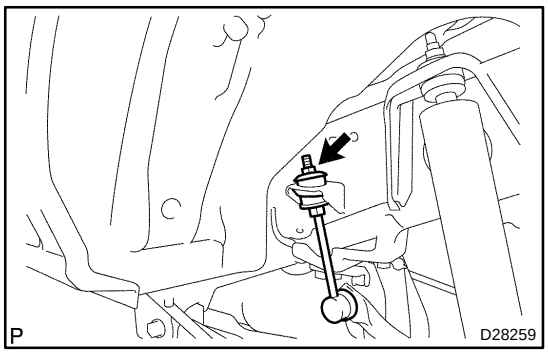
(a) Install the stabilizer link with the nut (LH side).

Torque: 70 N·m (714 kgf·cm, 52 ft·lbf)

HINT:

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

(b) Install the 2 retainers and the cushion to the stabilizer link.



(c) Hold the stabilizer bar link with a wrench, and install the nut, retainer, cushion and link.

Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)

8. INSTALL REAR STABILIZER LINK ASSY RH

HINT:

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

9. INSTALL REAR WHEEL

Torque: 112 N·m (1,137 kgf·cm, 82 ft·lbf)