

# BRAKE SYSTEM

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**BR**

## PRECAUTIONS

1. Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts of the same part number or equivalent.
2. It is very important to keep parts and the area clean when repairing the brake system.

## TROUBLESHOOTING

| Problem             | Possible cause                                | Remedy                            | Page          |
|---------------------|-----------------------------------------------|-----------------------------------|---------------|
| Low or spongy pedal | Linings worn                                  | Replace brake shoes or pads       | BR-41, 50, 56 |
|                     | Leak in brake system                          | Locate and repair                 |               |
|                     | Master cylinder faulty                        | Repair or replace master cylinder | BR-9          |
|                     | Air in brake system                           | Bleed brake system                | BR-6          |
|                     | Wheel cylinder faulty                         | Repair wheel cylinder             | BR-41, 56     |
|                     | Piston seals worn or damaged                  | Repair brake calipers             | BR-51         |
|                     | Rear brake automatic adjuster faulty          | Repair or replace adjuster        | BR-56         |
| Brakes drag         | Parking brake out of adjustment               | Adjust parking brake              | BR-7          |
|                     | Linkage binding                               | Repair as necessary               |               |
|                     | Booster push rod out of adjustment            | Adjust push rod                   | BR-27         |
|                     | Return spring faulty                          | Replace spring                    | BR-41, 56     |
|                     | Brake line restricted                         | Repair as necessary               |               |
|                     | Lining cracked or distorted                   | Replace brake shoes and pads      | BR-41, 50, 56 |
|                     | Wheel cylinder or caliper piston sticking     | Repair as necessary               | BR-41, 52, 56 |
|                     | Automatic adjuster broken                     | Replace adjuster                  | BR-56         |
|                     | Master cylinder faulty                        | Repair or replace master cylinder | BR-9          |
| Brakes pull         | Tires improperly inflated                     | Inflate tires to proper pressure  | A-6, 7        |
|                     | Oil or grease on linings                      | Check for cause/Replace shoes     | BR-41, 56     |
|                     | Brake shoes distorted, linings worn or glazed | Replace brake shoes               | BR-41, 56     |
|                     | Drum or disc out of round                     | Replace drum or disc              | BR-41, 52, 56 |
|                     | Return spring faulty                          | Replace spring                    | BR-41, 56     |
|                     | Wheel cylinder faulty                         | Repair wheel cylinder             | BR-41, 56     |
|                     | Piston frozen in caliper                      | Repair caliper                    | BR-52         |
|                     | Disc brake pad sticking                       | Replace pads                      | BR-50         |
|                     |                                               |                                   |               |
| Brakes grab/chatter | Oil or grease on linings                      | Check for cause. Replace shoes    | BR-41, 56     |
|                     | Drum or disc scored or out of round           | Replace drum or disc              | BR-41, 52, 56 |
|                     | Brake shoes distorted, linings worn or glazed | Replace brake shoes               | BR-41, 56     |
|                     | Wheel cylinder faulty                         | Repair wheel cylinder             | BR-41, 56     |
|                     | Disc brake pad sticking                       | Replace pads                      | BR-50         |
|                     | Brake booster faulty                          | Replace booster                   | BR-16         |
|                     |                                               |                                   |               |

## TROUBLESHOOTING (Cont'd)

| Problem                                                                                                                                                                                                                                                                                                                                                                                                                          | Possible cause                                                                                                                                  | Remedy                                              | Page          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------|
| Hard pedal but brakes inefficient                                                                                                                                                                                                                                                                                                                                                                                                | Oil or grease on linings                                                                                                                        | Check for cause. Replace shoes                      | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Brake shoes distorted, linings worn or glazed, drums worn                                                                                       | Replace brake shoes                                 | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brake pads worn                                                                                                                            | Replace pads                                        | BR-49         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Piston frozen in caliper                                                                                                                        | Repair caliper                                      | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Brake booster faulty                                                                                                                            | Repair booster                                      | BR-16         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Brake line restricted                                                                                                                           | Repair as necessary                                 |               |
| Snapping or clicking noise when brakes are applied                                                                                                                                                                                                                                                                                                                                                                               | Drum brakes—brake shoes binding at backing plate ledges                                                                                         | Lubricate                                           | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Drum brakes—backing plate ledges worn                                                                                                           | Replace and lubricate ledges                        | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Drum brakes—loose or missing hold down spring                                                                                                   | Replace                                             | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Drum brakes—loose set bolt at backing plate                                                                                                     | Tighten                                             | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—rust on front edge of inboard shoes                                                                                                 | Inspect, lubricate or replace if necessary          | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—loose or missing pad support plate                                                                                                  | Replace                                             | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—loose installation bolt                                                                                                             | Tighten                                             | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—wear on slide bushing                                                                                                               | Replace                                             | BR-52         |
| Scraping or grinding noise when brakes are applied                                                                                                                                                                                                                                                                                                                                                                               | Worn brake linings                                                                                                                              | Replace. Refinish drums or rotors if heavily scored | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Caliper to wheel or rotor interference                                                                                                          | Replace as required                                 | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Dust cover to rotor or drum interference                                                                                                        | Correct or replace                                  |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Other brake system components:<br>Warped or bent brake backing plate, cracked drum or rotor                                                     | Inspect and service                                 | BR-41, 52, 56 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Tires rubbing against chassis and body                                                                                                          | Inspect and service                                 |               |
| Squealing, groaning or chattering noise when brakes are applied<br><br>Note: Brake friction materials inherently generate noise and heat in order to dissipate energy. As a result, occasional squeal is normal and is aggravated by severe environmental conditions such as cold, heat, wetness, snow, salt, mud, etc. This occasional squeal is not a functional problem and does not indicate any loss of brake effectiveness | Brake drums and linings, rotors and pads worn or scored                                                                                         | Inspect, service or replace                         | BR-41, 52, 56 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—missing or damaged brake pad anti-squeal shim                                                                                       | Replace                                             | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Disc brakes—burred or rusted calipers                                                                                                           | Clean or deburr                                     | BR-52         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Dirty, greased, contaminated or glazed linings                                                                                                  | Clean or replace                                    | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Improper lining parts                                                                                                                           | Check for correct parts<br>Replace                  | BR-41, 56     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mal-adjustment of brake pedal or booster push-rod                                                                                               | Inspect and adjust                                  | BR-5, 27      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                  | Drum brakes—weak damaged or incorrect shoe hold-down springs, loose or damaged shoe hold-down pins and springs and grooved backing plate ledges | Inspect, service or replace                         | BR-41, 56     |

## TROUBLESHOOTING (Cont'd)

| Problem                                                          | Possible cause                                                                                                                                                                          | Remedy                                                         | Page             |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------|
| Squealing noise when brakes are not applied                      | Bent or warped backing plate causing interference with drum                                                                                                                             | Service or replace                                             | BR-41, 56        |
|                                                                  | Improper machining of drum causing interference with backing plate or shoe                                                                                                              | Replace drum                                                   | BR-41, 56        |
|                                                                  | Mal-adjustment of brake pedal or booster push-rod                                                                                                                                       | Inspect and adjust                                             | BR-5, 27         |
|                                                                  | Poor return of brake booster or master cylinder or wheel cylinder                                                                                                                       | Inspect, service or replace                                    | BR-9, 16, 41, 56 |
|                                                                  | Disc brakes—rusted, stuck                                                                                                                                                               | Inspect. Lubricate if necessary                                | BR-50            |
|                                                                  | Other brake system components:<br>Loose or extra parts in brakes<br>Rear drum adjustment too tight causing lining to glaze<br>Worn, damaged or insufficiently lubricated wheel bearings | Inspect, service, replace as required                          |                  |
|                                                                  | Drum brakes—weak, damaged or incorrect shoe retracting springs                                                                                                                          | Inspect, service or replace                                    | BR-41, 56        |
|                                                                  | Drum brakes—grooved backing plate ledges                                                                                                                                                |                                                                | BR-41, 56        |
|                                                                  | Improper positioning of pads in caliper                                                                                                                                                 | Inspect and service                                            | BR-50            |
|                                                                  | Outside diameter of rotor rubbing caliper housing                                                                                                                                       | Inspect, correct or replace                                    | BR-52            |
|                                                                  | Housing installation of disc brake pad support plate                                                                                                                                    | Correct                                                        | BR-50            |
| Groaning, clicking or rattling noise when brakes are not applied | Stones or foreign material trapped inside wheel covers                                                                                                                                  | Remove stones, etc.                                            |                  |
|                                                                  | Loose wheel hub nuts                                                                                                                                                                    | Tighten to correct torque. Replace if stud holes are elongated | BR-50            |
|                                                                  | Disc brakes—failure of shim                                                                                                                                                             | Inspect. Replace if necessary                                  | BR-50            |
|                                                                  | Disc brakes—wear on slide bushing                                                                                                                                                       | Inspect. Replace if necessary                                  | BR-50            |
|                                                                  | Disc brakes—loose installation bolt                                                                                                                                                     | Inspect. Tighten if necessary                                  | BR-50            |
|                                                                  | Mal-adjustment of brake pedal or booster push-rod                                                                                                                                       | Inspect and adjust                                             | BR-5, 27         |
|                                                                  | Disc brakes—poor return of piston                                                                                                                                                       | Inspect, service or replace                                    | BR-52            |
|                                                                  | Drum brakes—loose or extra parts                                                                                                                                                        | Inspect, remove or service                                     | BR-41, 56        |
|                                                                  | Worn, damaged or dry wheel bearings                                                                                                                                                     | Inspect, lubricate or replace                                  |                  |

## CHECKS AND ADJUSTMENTS

### CHECK AND ADJUSTMENT OF BRAKE PEDAL

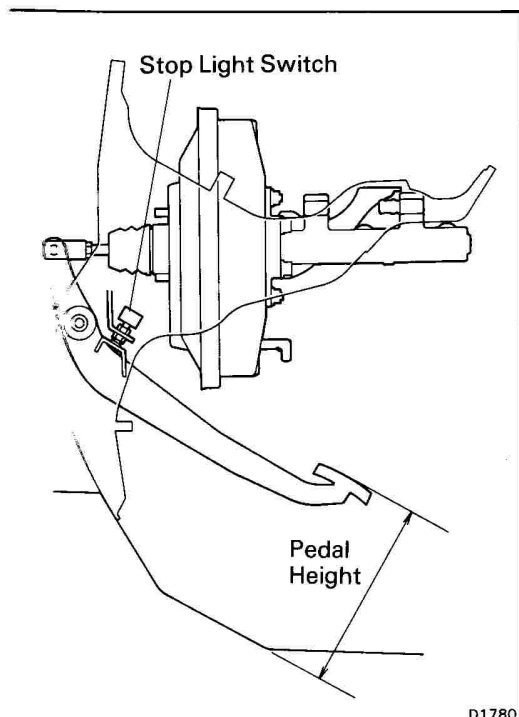
#### 1. CHECK THAT PEDAL HEIGHT IS CORRECT

Pedal height: Regular cab 200.0 mm (7.874 in.)  
Wide cab 198.5 mm (7.815 in.)

If incorrect, adjust the pedal height.

#### 2. IF NECESSARY, ADJUST PEDAL HEIGHT

- Sufficiently loosen the stop light switch.
- Sufficiently loosen the pedal stopper.
- Adjust the pedal height by turning the pedal push rod.
- Lock the pedal stopper at the position where it lightly strikes the pedal.
- Return the stop light switch until its body lightly contacts the idler arm.
- After adjusting the pedal height, check and adjust the pedal freeplay.



#### 3. CHECK THAT PEDAL FREEPLAY IS CORRECT

- Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.
- Push in the pedal until the beginning of resistance is felt. Measure the distance, as shown.

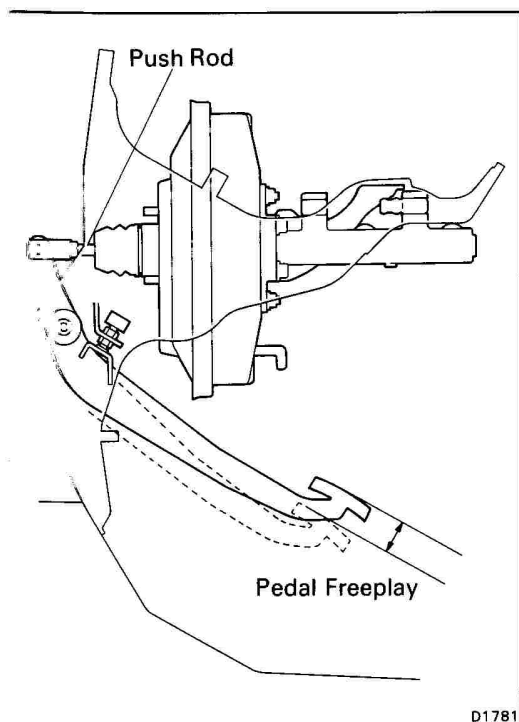
Pedal freeplay: 3 – 6 mm (0.12 – 0.24 in.)

NOTE: The pedal freeplay is the amount of the stroke until the booster air valve is moved by the pedal push rod.

If incorrect, adjust the pedal freeplay.

#### 4. IF NECESSARY, ADJUST PEDAL FREEPLAY

- Adjust the pedal freeplay by turning the pedal push rod.
- Start the engine and confirm that pedal freeplay exists.
- After adjusting the pedal freeplay, check the pedal height.

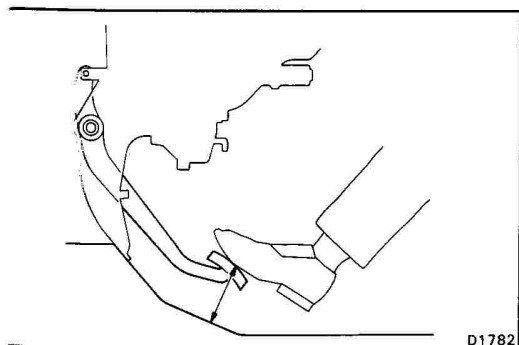


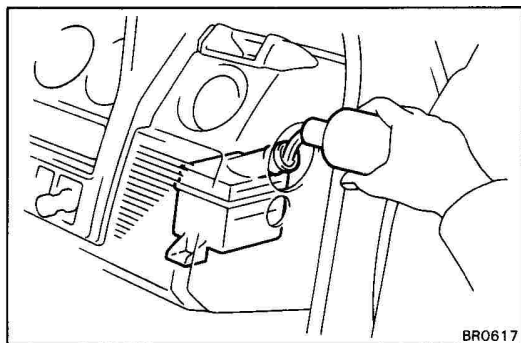
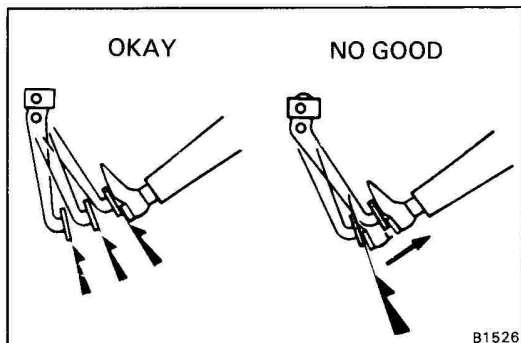
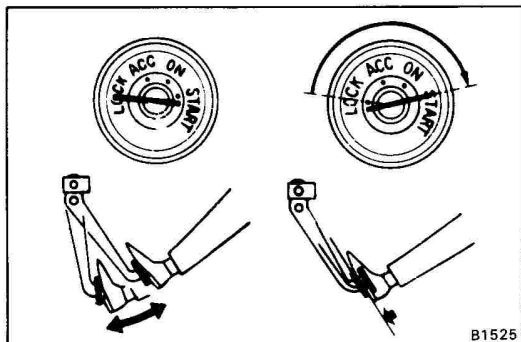
#### 5. CHECK THAT PEDAL RESERVE DISTANCE IS CORRECT

Depress the pedal and measure the pedal reserve distance, as shown.

Pedal reserve distance from floor panel at 50 kg (110.2 lb, 490 N): More than 60 mm (2.36 in.)

If incorrect, troubleshoot the brake system.





## OPERATIONAL TEST OF BRAKE BOOSTER

**NOTE:** If there is leakage or lack of vacuum, repair before testing.

### 1. OPERATING CHECK

- Depress the brake pedal several times with the engine off, and check that there is no change in the pedal reserve distance.
- Depress the brake pedal and start the engine. If the pedal goes down slightly, operation is normal.

### 2. AIR TIGHTNESS

- Start the engine and stop it after one or two minutes. Depress the brake pedal several times slowly. If the pedal goes far down the first time, but gradually rises after the second or third time, the booster is air tight.
- Depress the brake pedal while the engine is running, and stop it with the pedal depressed. If there is no change in pedal reserve travel after holding the pedal for thirty seconds, the booster is air tight.

## BLEEDING OF BRAKE SYSTEM

**NOTE:** If any work is done on the brake system or if air is suspected in the brake lines, bleed the system of air.

**CAUTION:** Do not let brake fluid remain on a painted surface. Wash it off immediately.

### 1. FILL BRAKE RESERVOIRS WITH BRAKE FLUID

Check the reservoir after bleeding each wheel. Add fluid, if necessary.

### 2. CONNECT VINYL TUBE TO WHEEL CYLINDER BLEEDER PLUG

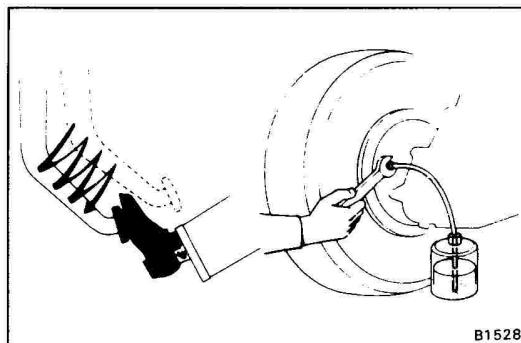
Insert other end of the tube in a half-filled container of brake fluid.

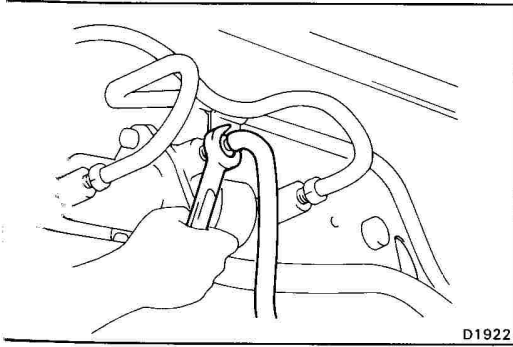
**NOTE:** Begin air bleeding from the wheel cylinder with the longest hydraulic line.

### 3. BLEED BRAKE LINE

- Slowly pump the brake pedal several times.
- While having an assistant press on the pedal, loosen the bleeder plug until fluid starts to run out. Then close the bleeder plug.
- Repeat this procedure until there are no more air bubbles in the fluid.

**Bleeder plug tightening torque:**  
110 kg-cm (8 ft-lb, 11 N·m)

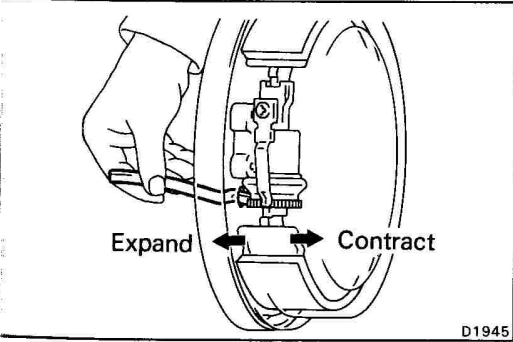




D1922

**4. REPEAT PROCEDURE FOR EACH WHEEL****5. WHEN REPLACING DSPV, BLEED DSPV WHEN REPLACING**

NOTE: When bleeding DSPV, keep the pedal pressure above 50 kg (110.2 lb, 490 N).

**6. CHECK FLUID LEAKAGE**

D1945

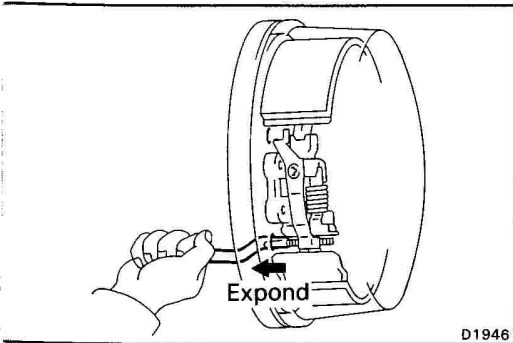
**ADJUSTMENT OF BRAKE SHOE CLEARANCE FOR DRUM BRAKE TYPE****ADJUST BRAKE SHOE CLEARANCE**

- Jack up and support the vehicle.
- Remove the shoe adjusting hole plugs from the backing plate.
- Using a brake adjusting tool, turn the adjusting nut until the wheel locks.
- Insert the screwdriver through the hole in the backing plate, and hold the adjust lever away from the automatic adjust nut.
- Using a brake adjusting tool, turn the adjusting nut until the wheel turns freely.

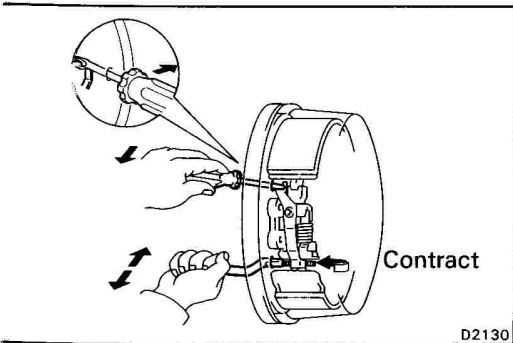
**Standard number of notches to be backed off (w/o Auto Adjuster only): 5 notches**

- Repeat the steps (c) and (d) for other wheels.
- (w/ Auto Adjuster)  
Depress the brake pedal several times.
- Install the shoe adjusting hole plugs.
- Check that the pedal reserve distance is correct.

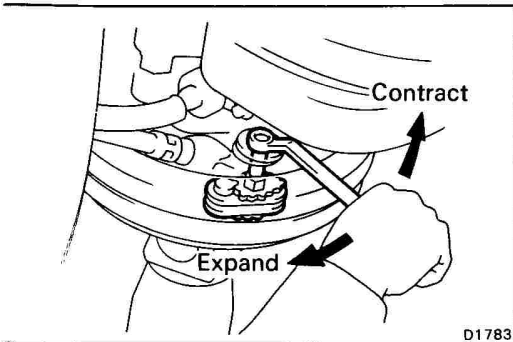
**Pedal reserve distance from floor to pedal at 50 kg (110.2 lb, 490 N): More than 60 mm (2.36 in.)**



D1946



D2130

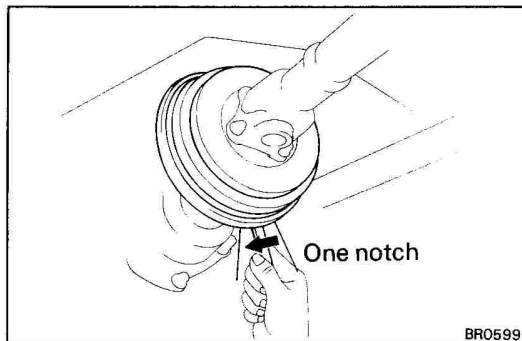


D1783

**ADJUSTMENT OF PARKING BRAKE SHOE CLEARANCE**

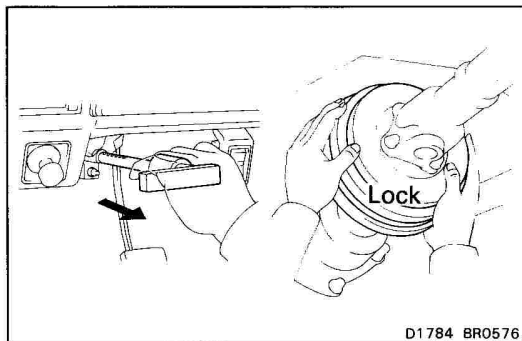
- JACK UP VEHICLE**
- RELEASE PARKING BRAKE LEVER**
- EXPAND SHOES UNTIL DRUM IS COMPLETELY LOCKED**

Turn the adjuster counterclockwise until the brake shoes are fully expanded.



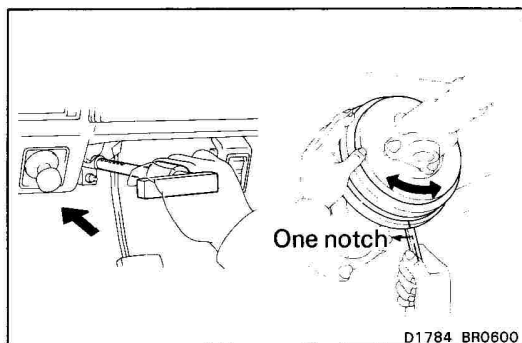
#### 4. LOOSEN ADJUSTER UNTIL DRUM TURNS FREELY

Turn the adjuster clockwise one notch.



#### 5. CHECK PARKING BRAKE OPERATION

- (a) With the parking brake is pulled its full distance check to see that the drum is locked.

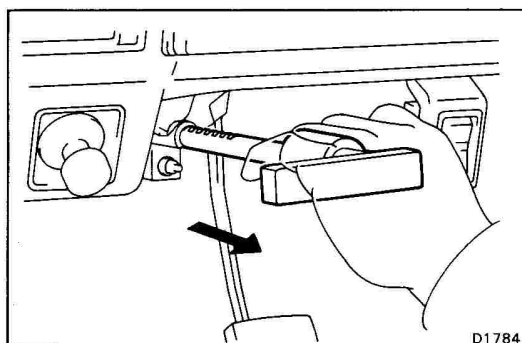


- (b) Release the parking brake lever and insure that the parking brake is not dragging.

NOTE: If dragging, turn the adjuster clockwise another notch.

#### 6. CHECK PARKING BRAKE LEVER TRAVEL

(See step 1 on this page)



### CHECK AND ADJUSTMENT OF PARKING BRAKE LEVER TRAVEL

#### 1. CHECK PARKING BRAKE LEVER TRAVEL

Pull the parking brake lever out all the way, and count the notches of lever travel.

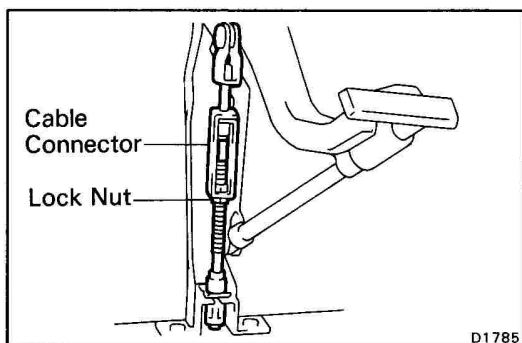
Lever travel at 25 kg (55.1 lb, 245 N): 6 – 10 clicks

If incorrect, adjust the parking brake.

#### 2. IF NECESSARY, ADJUST PARKING BRAKE LEVER TRAVEL

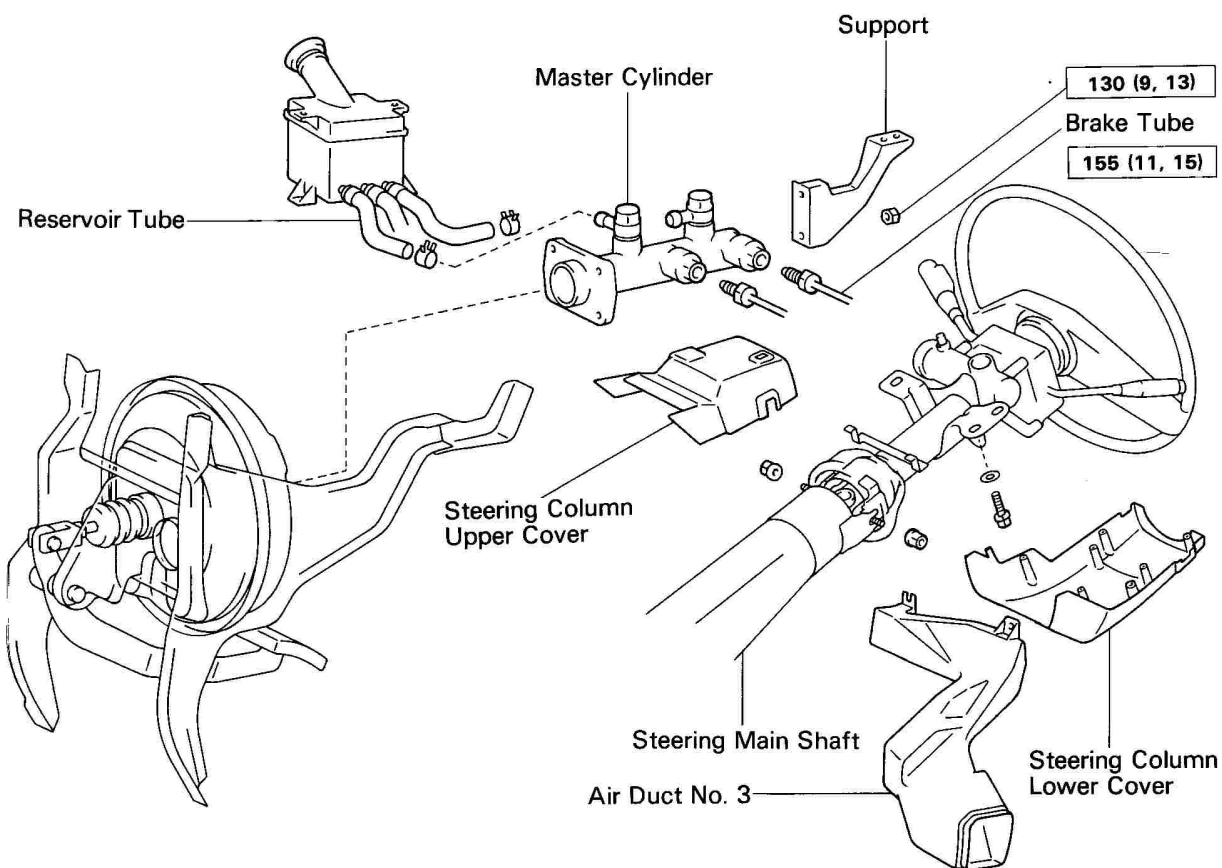
NOTE: Before adjusting parking brake lever travel, make sure the parking brake shoe clearance has been adjusted

- Loosen the lock nut.
- Adjust the amount of lever travel by turning the cable connector.
- Tighten the lock nut.



## MASTER CYLINDER

### REMOVAL OF MASTER CYLINDER



cm (ft-lb, N·m) : Tightening torque

D1786

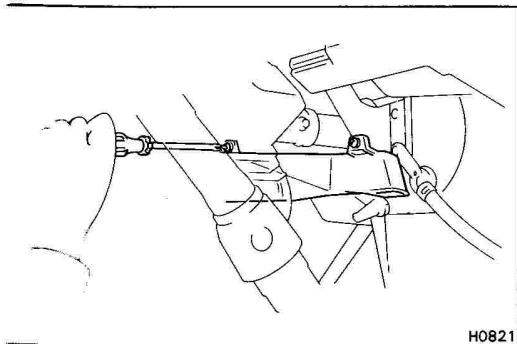
**CAUTION:** Do not let brake fluid remain on a painted surface. Wash it off immediately.

1. TAKE OUT FLUID WITH SYRINGE OR SUCH
2. REMOVE AIR DUCT NO. 3

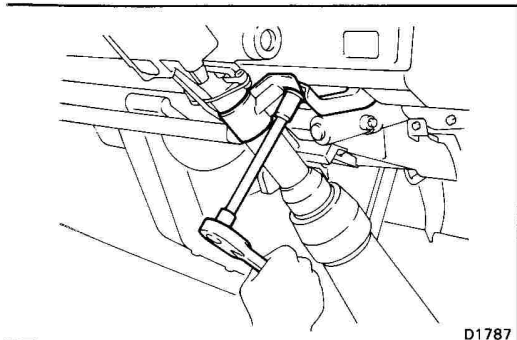
3. REMOVE STEERING COLUMN COVER

4. (Regular Cab)  
TILT STEERING MAIN SHAFT

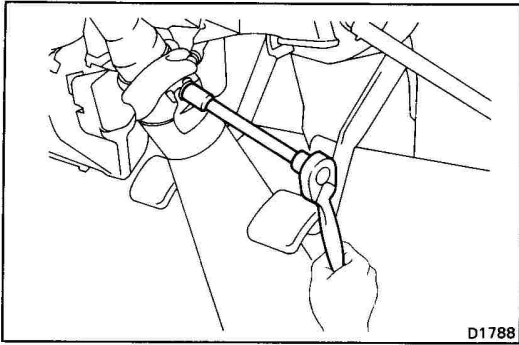
- (a) Remove the three bolts of steering main shaft bracket.



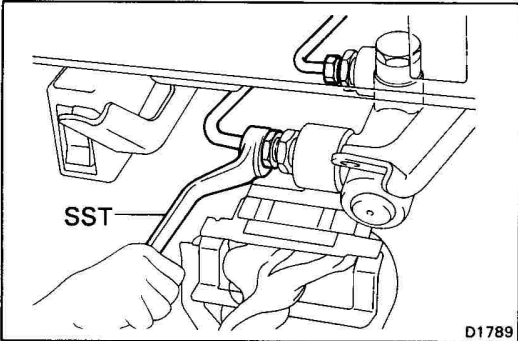
H0821



D1787

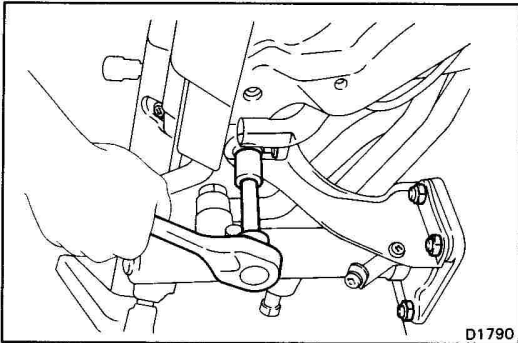


- (b) Loosen the universal joint lock nut and then tilt the steering main shaft rearward.



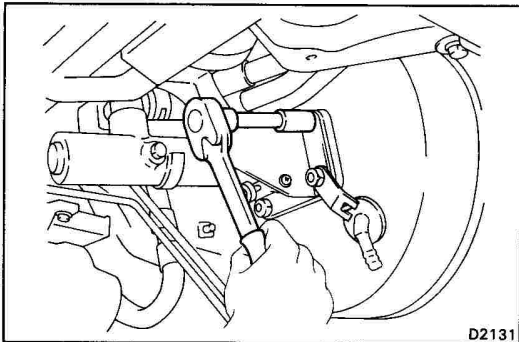
**5. DISCONNECT TWO BRAKE TUBES**

Using SST, disconnect the two brake tubes.  
SST 09751-36011

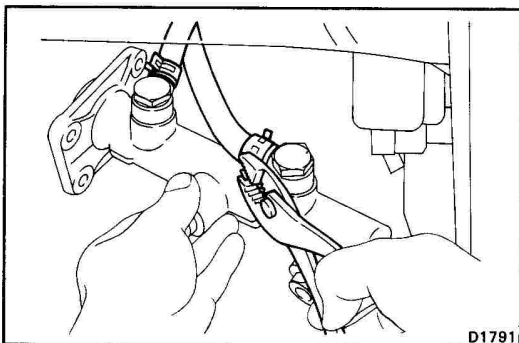


**6. REMOVE BRAKE MASTER CYLINDER AND SUPPORT**

- (a) Remove the bolt from the upper side of support.

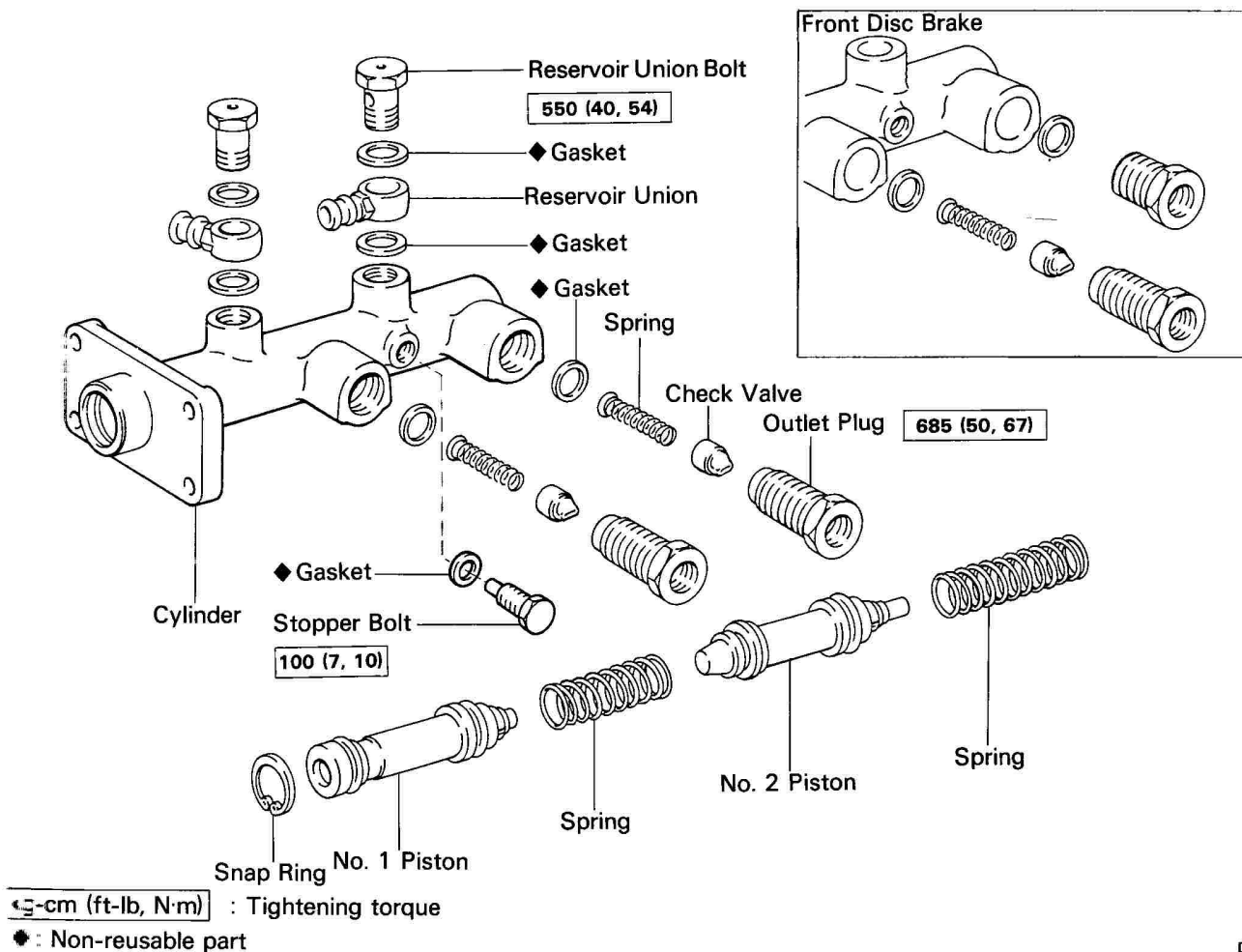


- (b) Remove the four nuts and master cylinder together with the support.



- (c) Remove the hose clamps and disconnect the reservoir hoses.

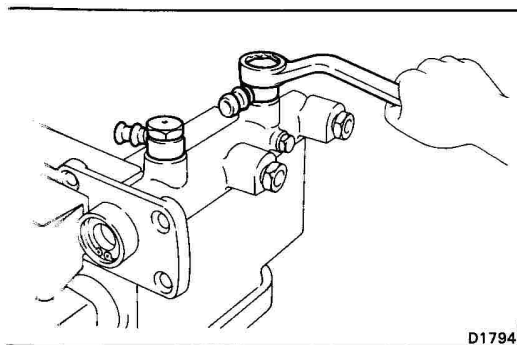
## COMPONENTS



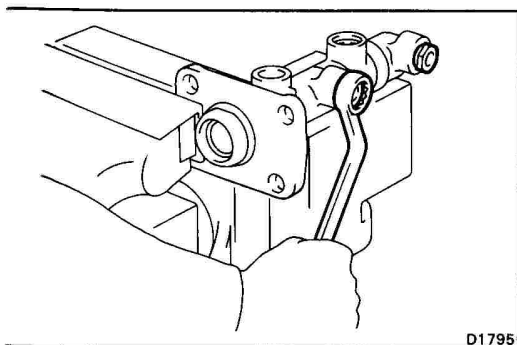
D1792

## DISASSEMBLY OF MASTER CYLINDER

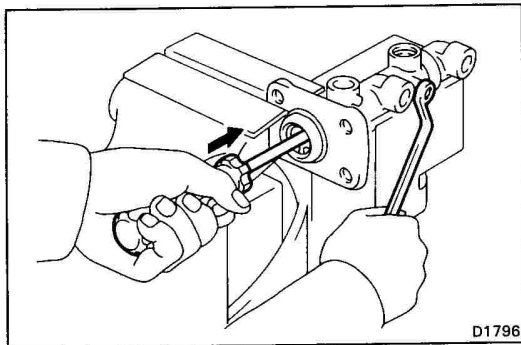
1. PLACE MASTER CYLINDER IN VISE
2. REMOVE RESERVOIR UNION  
Remove the union bolt, union and gaskets.
3. REMOVE OUTLET PLUGS AND CHECK VALVES  
Remove the outlet plug, check valve, spring and gasket.



D1794

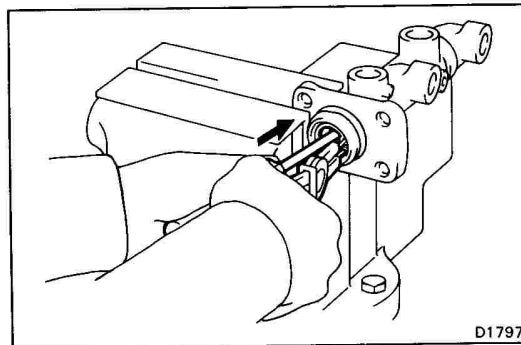


D1795



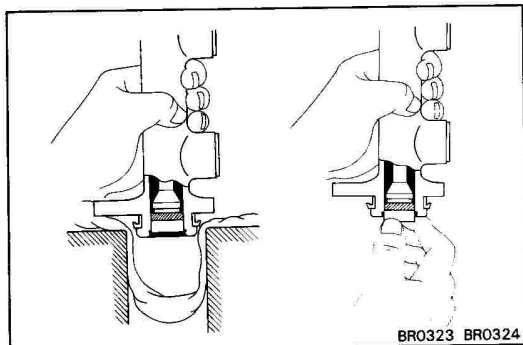
#### 4. REMOVE PISTON STOPPER BOLT

Using a screwdriver, push the pistons in all the way and remove the piston stopper bolt and gasket.



#### 5. REMOVE TWO PISTONS AND SPRINGS

- (a) Using a screwdriver and snap ring pliers, push the piston in the way and remove the snap ring.
- (b) Remove the No. 1 piston and spring.



- (c) Place a rag over wooden blocks and lightly tap the cylinder flange between the blocks until the piston tip protrudes.
- (d) Remove the No. 2 piston by hand, pulling straight out, not at an angle.

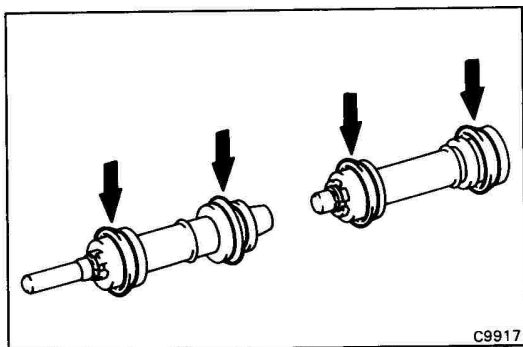
**NOTE:** If pulled out at an angle, there is possibility of damaging the cylinder bore.

### INSPECTION OF MASTER CYLINDER COMPONENTS

Inspect the disassembled parts for wear, rust or damage.

### ASSEMBLY OF MASTER CYLINDER

(See page BR-11)



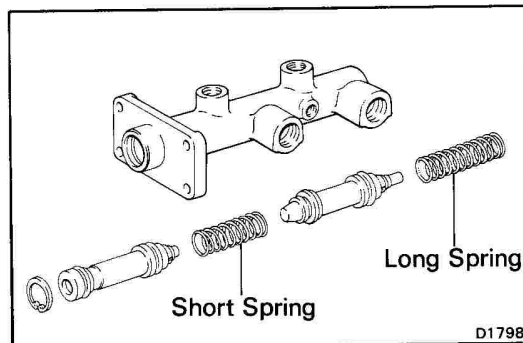
1. APPLY LITHIUM SOAP BASE GLYCOL GREASE TO RUBBER PARTS OF PISTON

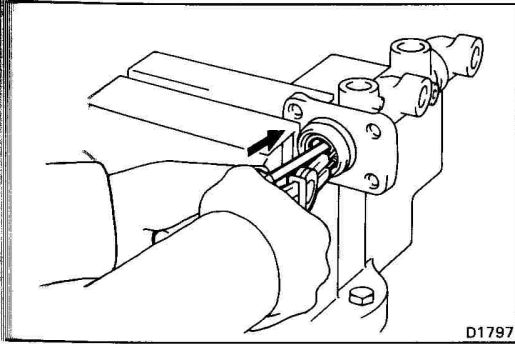
2. INSTALL TWO PISTONS AND SPRINGS

**CAUTION:** Be careful not to damage the rubber lips on the pistons.

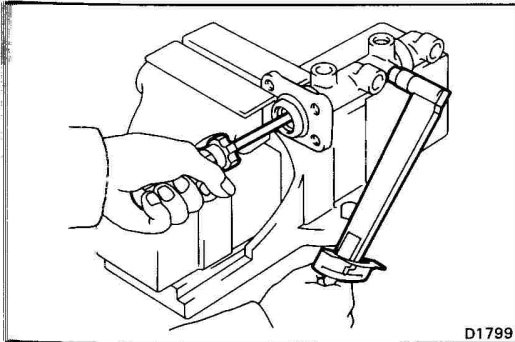
- (a) Insert the two springs and pistons in the master cylinder housing as shown.

**NOTE:** Install in proper direction only.





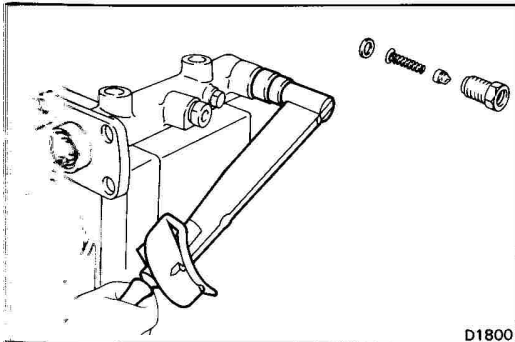
- (b) Using a screwdriver and snap ring pliers, push the piston in the way and install the snap ring.



### 3. INSTALL PISTON STOPPER BOLT

Using a screwdriver, push the pistons in all the way and install the piston stopper with a new gasket. Torque it.

**Torque: 100 kg-cm (7 ft-lb, 10 N·m)**



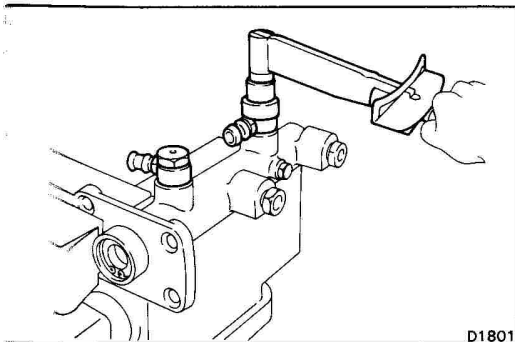
### 4. INSTALL CHECK VALVES AND OUTLET PLUGS

- (a) Install the check valve and spring to the outlet plug.

**NOTE:** If the vehicle has front disc brakes, the valve and spring are in the front outlet plug.

- (b) Install the outlet plug with a new gasket to the master cylinder. Torque it.

**Torque: 685 kg-cm (50 ft-lb, 67 N·m)**

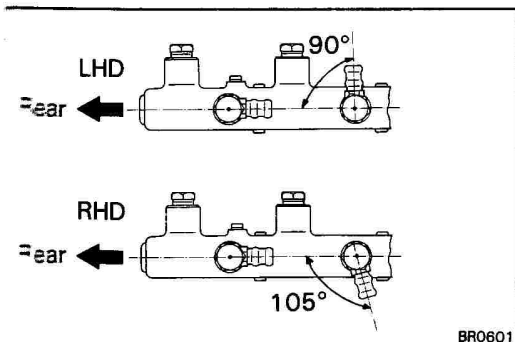


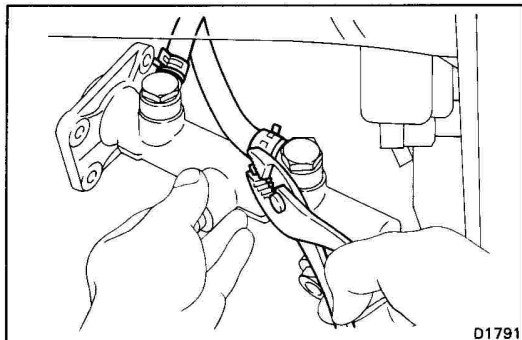
### 5. INSTALL RESERVOIR UNION

Install the reservoir union, union bolt and a new gaskets. Torque the bolt.

**Torque: 550 kg-cm (40 ft-lb, 54 N·m)**

**NOTE:** Install in proper direction only.





## INSTALLATION OF MASTER CYLINDER

(See page BR-9)

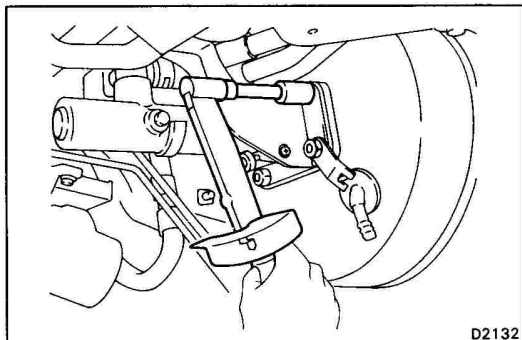
1. **ADJUST LENGTH OF BRAKE BOOSTER PUSH ROD BEFORE INSTALLING MASTER CYLINDER**  
(See page BR-27)

2. **INSTALL MASTER CYLINDER AND SUPPORT**

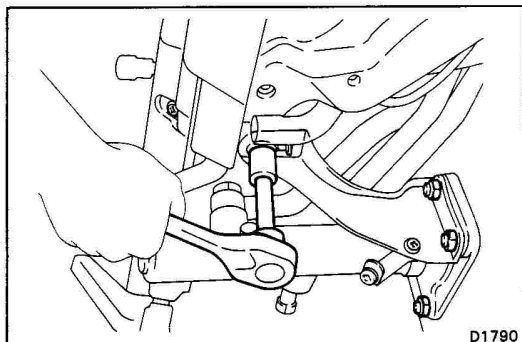
(a) Connect the reservoir hoses to the master cylinder.

(b) Install the master cylinder and support with the four nuts. Torque the nuts.

**Torque: 130 kg-cm (9 ft-lb, 13 N·m)**



(c) Install the bolt to the upper side of the support.

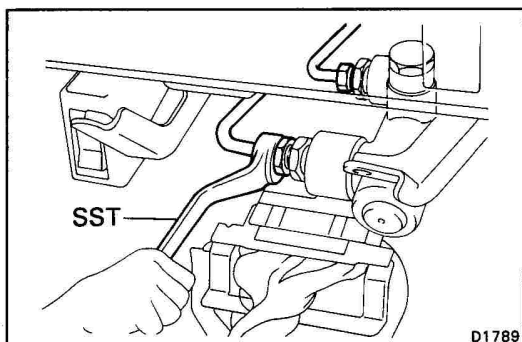


3. **CONNECT TWO BRAKE TUBES**

Using SST, first tighten the nuts by finger and then with SST.

SST 09751-36011

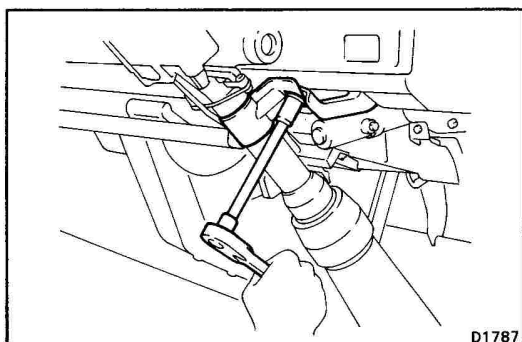
**Torque: 155 kg-cm (11 ft-lb, 15 N·m)**

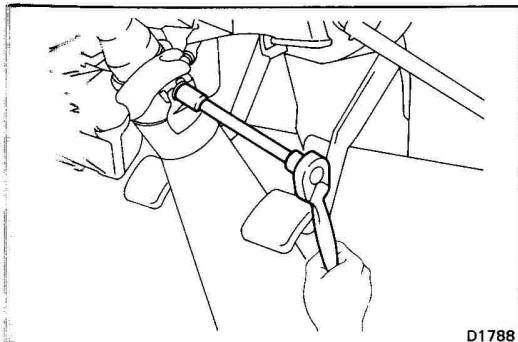


4. **(Regular Cab)**  
**INSTALL STEERING MAIN SHAFT**

(a) Install the three bolts of steering main shaft bracket.

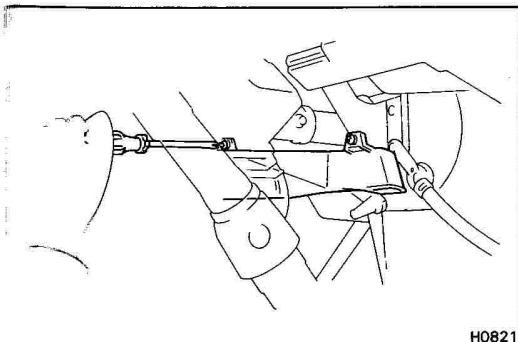
**Torque: 115 kg-cm (8 ft-lb, 11 N·m)**





(b) Tighten and torque the nut of the universal joint.  
Torque: 200 kg-cm (14 ft-lb, 20 N·m)

**5. INSTALL STEERING COLUMN COVER**



**6. INSTALL AIR DUCT NO. 3**

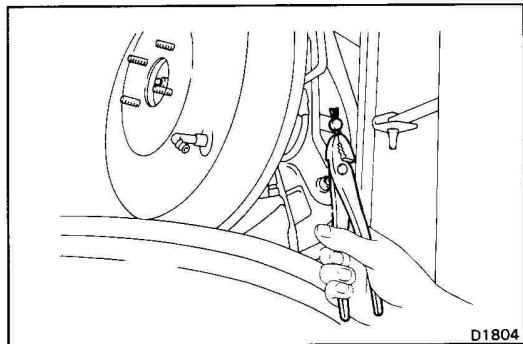
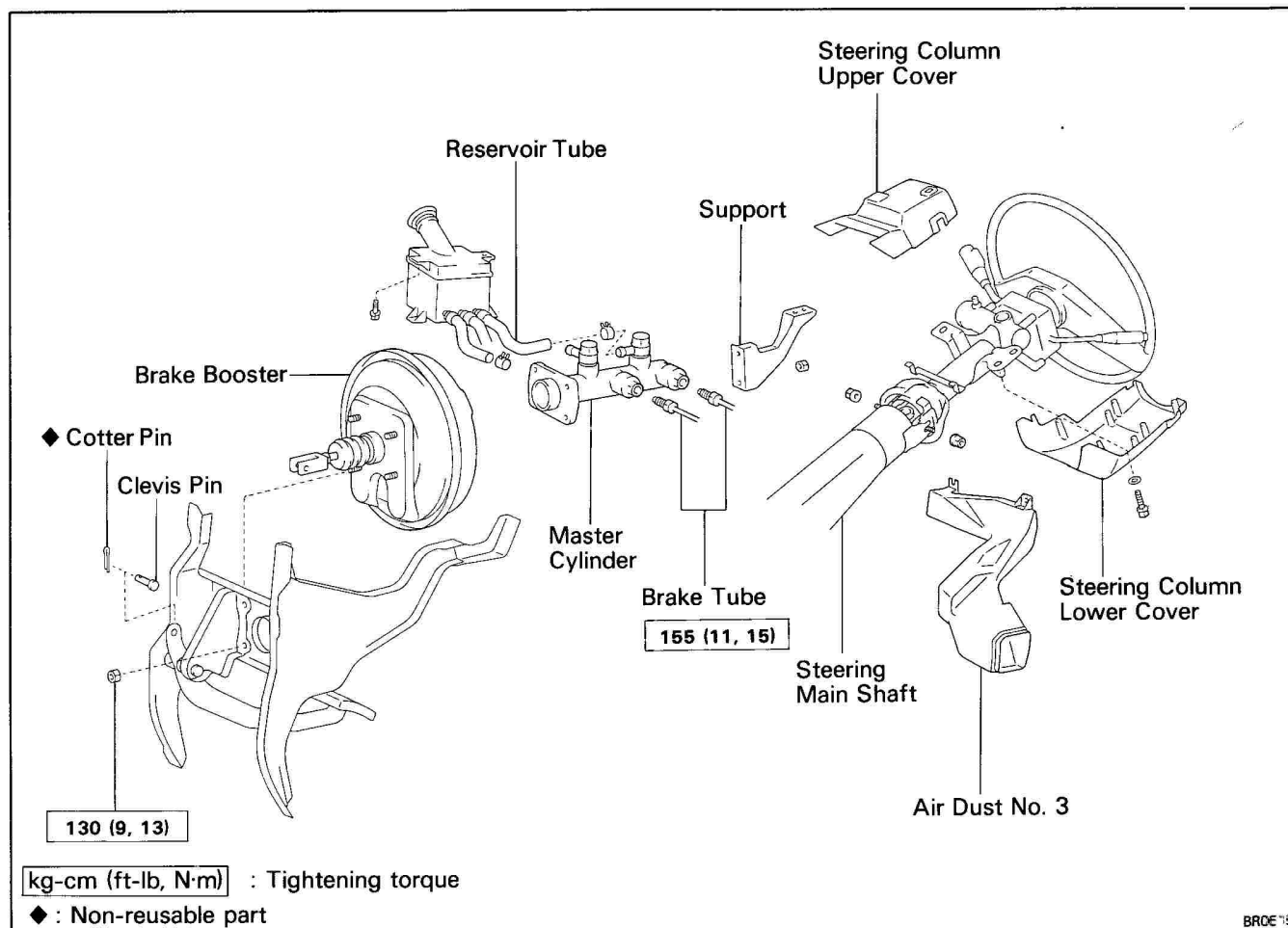
**7. FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)**

**8. CHECK FOR LEAKS**

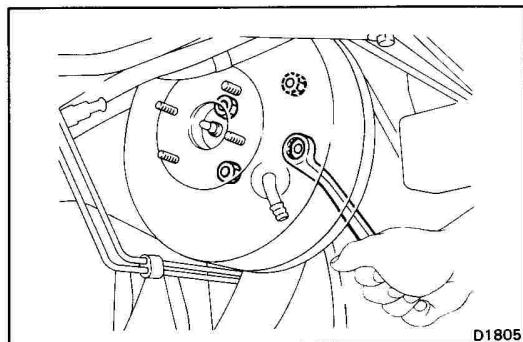
**9. CHECK AND ADJUST BRAKE PEDAL (See page BR-5)**

# BRAKE BOOSTER

## REMOVAL OF BRAKE BOOSTER

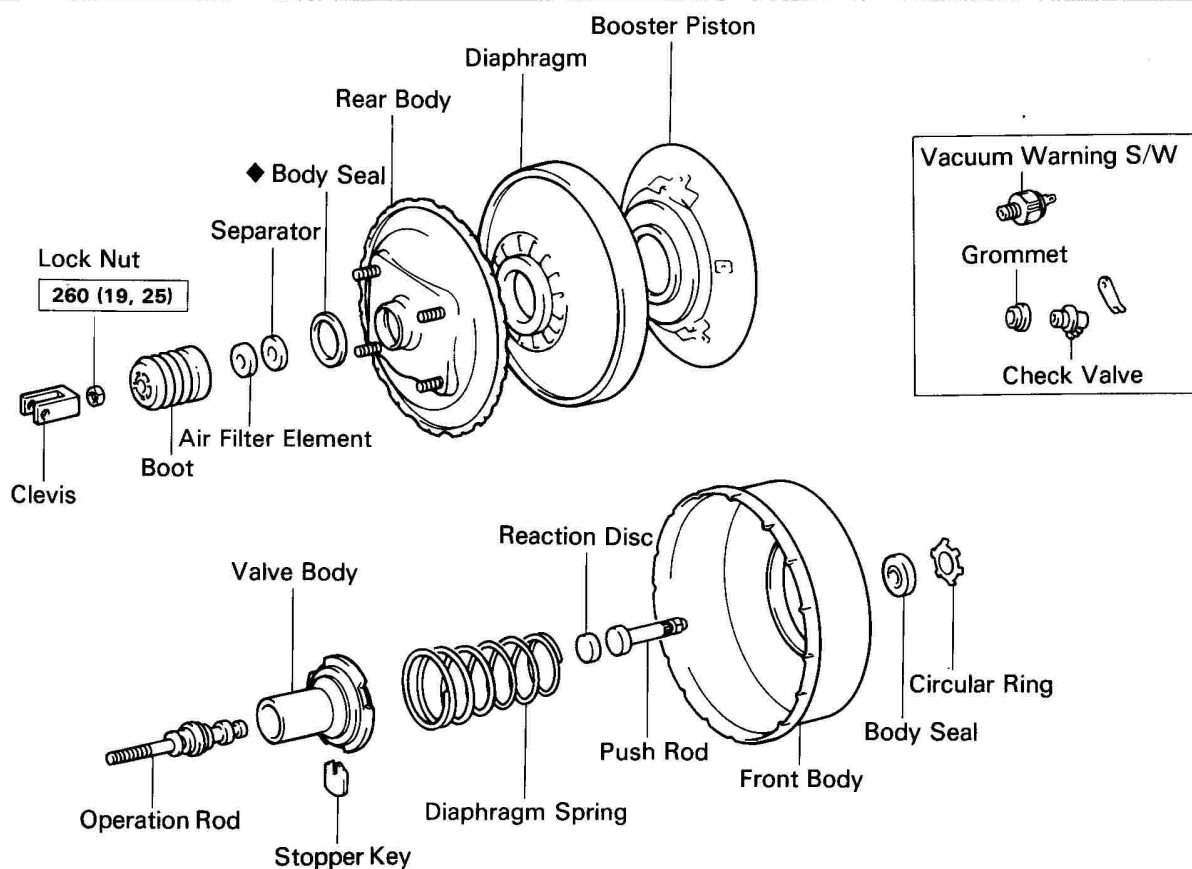


1. REMOVE MASTER CYLINDER  
(See page BR-9)
2. DISCONNECT VACUUM HOSE
3. REMOVE COTTER PIN AND CLEVIS PIN



4. REMOVE BRAKE BOOSTER  
Remove the four nuts and then remove the brake booster.

## 9 in. Type (AISIN) COMPONENTS



g-cm (ft-lb, N·m) : Tightening torque

◆ : Non-reusable part

D2133

### DISASSEMBLY OF BRAKE BOOSTER

1. (Gasoline Engine)  
REMOVE VACUUM WARNING SWITCH AND CHECK VALVE
2. REMOVE CLEVIS AND LOCK NUT
3. REMOVE BOOT FROM REAR BODY

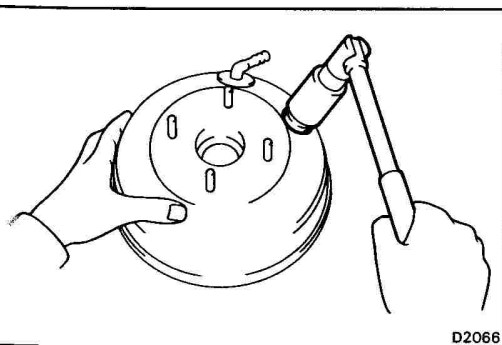
#### 4. SEPARATE FRONT AND REAR BODIES

- (a) Put matchmarks on the front and rear bodies.
- (b) Set the booster in SST.

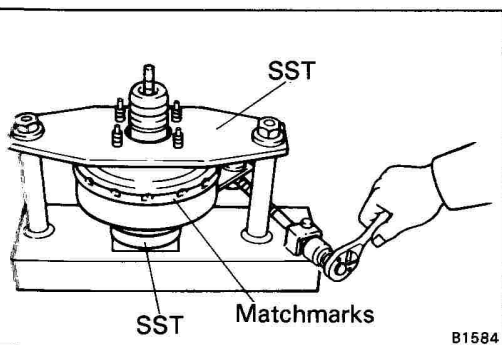
SST 09753-00012 and 09753-40010

**CAUTION:** Be careful not to tighten the two nuts of the SST too tightly.

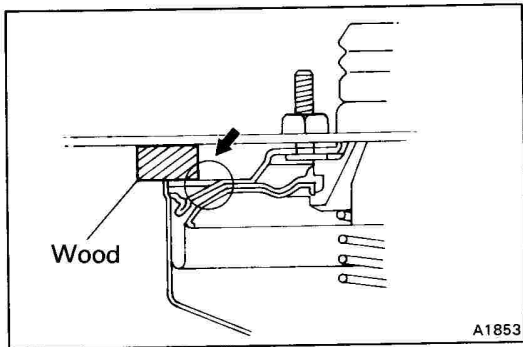
- (c) Turn the front body clockwise until the front and rear bodies separate.



D2066

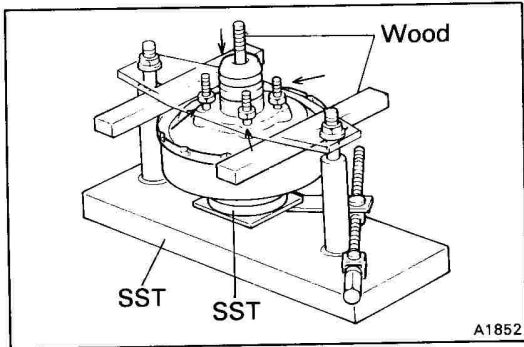


B1584



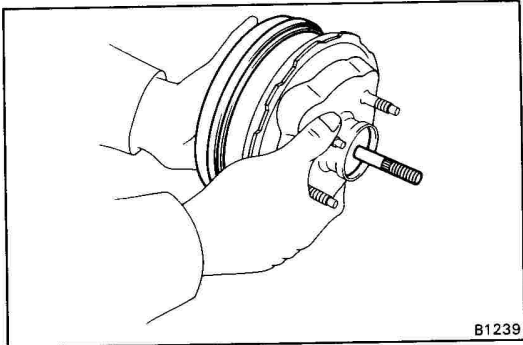
- (d) Loosen the upper left and right nuts of the SST, and insert pieces of wood between the front body and upper plate of the SST.

**CAUTION:** Be careful that the pieces of wood do not contact the rear body.



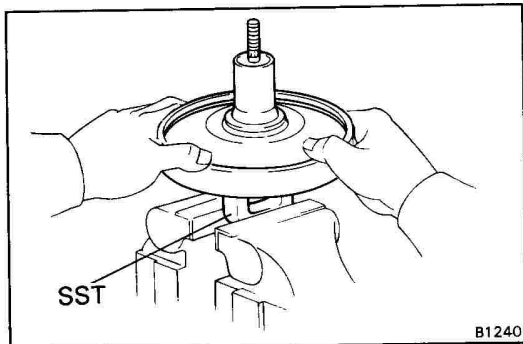
- (e) Evenly tighten down the four booster mounting nuts to separate the front and rear bodies.  
(f) Remove the diaphragm spring and push rod.

## 5. REMOVE DIAPHRAGM ASSEMBLY FROM REAR BODY



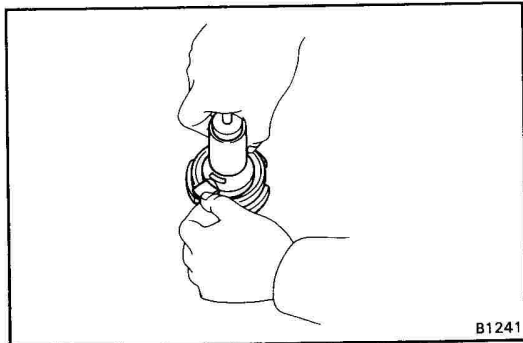
## 6. DISASSEMBLE DIAPHRAGM ASSEMBLY

- (a) Set the SST on the vise.  
SST 09736-27010  
(b) Put the diaphragm assembly on SST and turn it to separate the valve body and booster piston.  
(c) Remove the diaphragm from the booster piston.

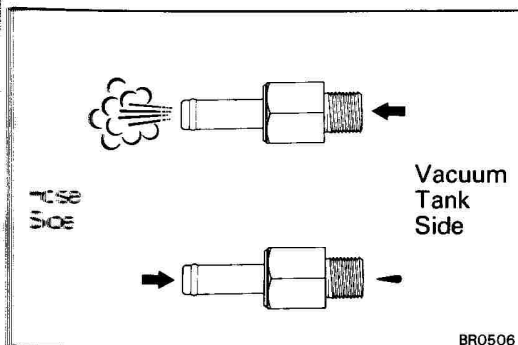


## 7. REMOVE OPERATING ROD FROM VALVE BODY

- (a) Push the operating rod in the valve body and remove the stopper key.  
(b) Pull out the operating rod with the element and separator.



## 8. REMOVE REACTION DISC FROM VALVE BODY



## INSPECTION OF BRAKE BOOSTER COMPONENTS

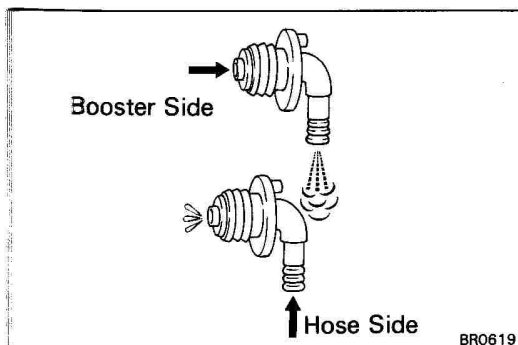
### 1.-1 (Diesel Engine)

#### INSPECT CHECK VALVE OPERATION

- Remove the check valve from the vacuum tank.
- Check that air flows from the vacuum tank side to the hose side.
- Check that air does not flow from the hose side to the vacuum tank side.

If problem is found, replace the check valve.

- Install the check valve to the vacuum tank.

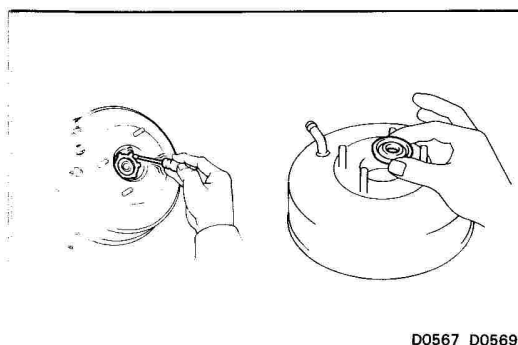


### 1.-2 (Gasoline Engine)

#### INSPECT CHECK VALVE OPERATION

- Check that air flows from the booster side to the hose side.
- Check that air does not flow from hose side to the booster side.

If problem is found, replace the check valve.

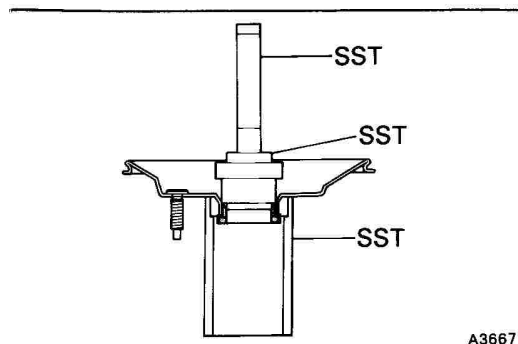


## 2. INSPECT BODY SEALS FOR WEAR OR DAMAGE

Replace, if necessary.

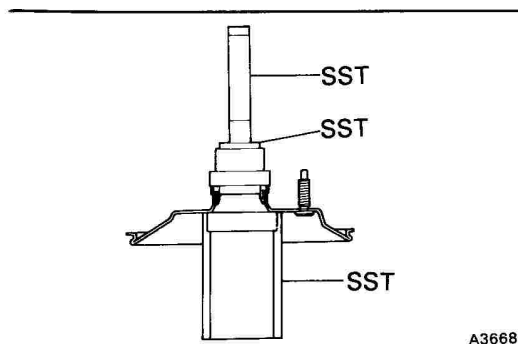
## 3. IF NECESSARY, REPLACE BODY SEAL ON FRONT BODY

- Using a screwdriver, pry out the circular ring, and remove the seal.
- Place a new seal in position.
- Secure the seal with the circular ring.



## 4. IF NECESSARY, REPLACE BODY SEAL ON REAR BODY

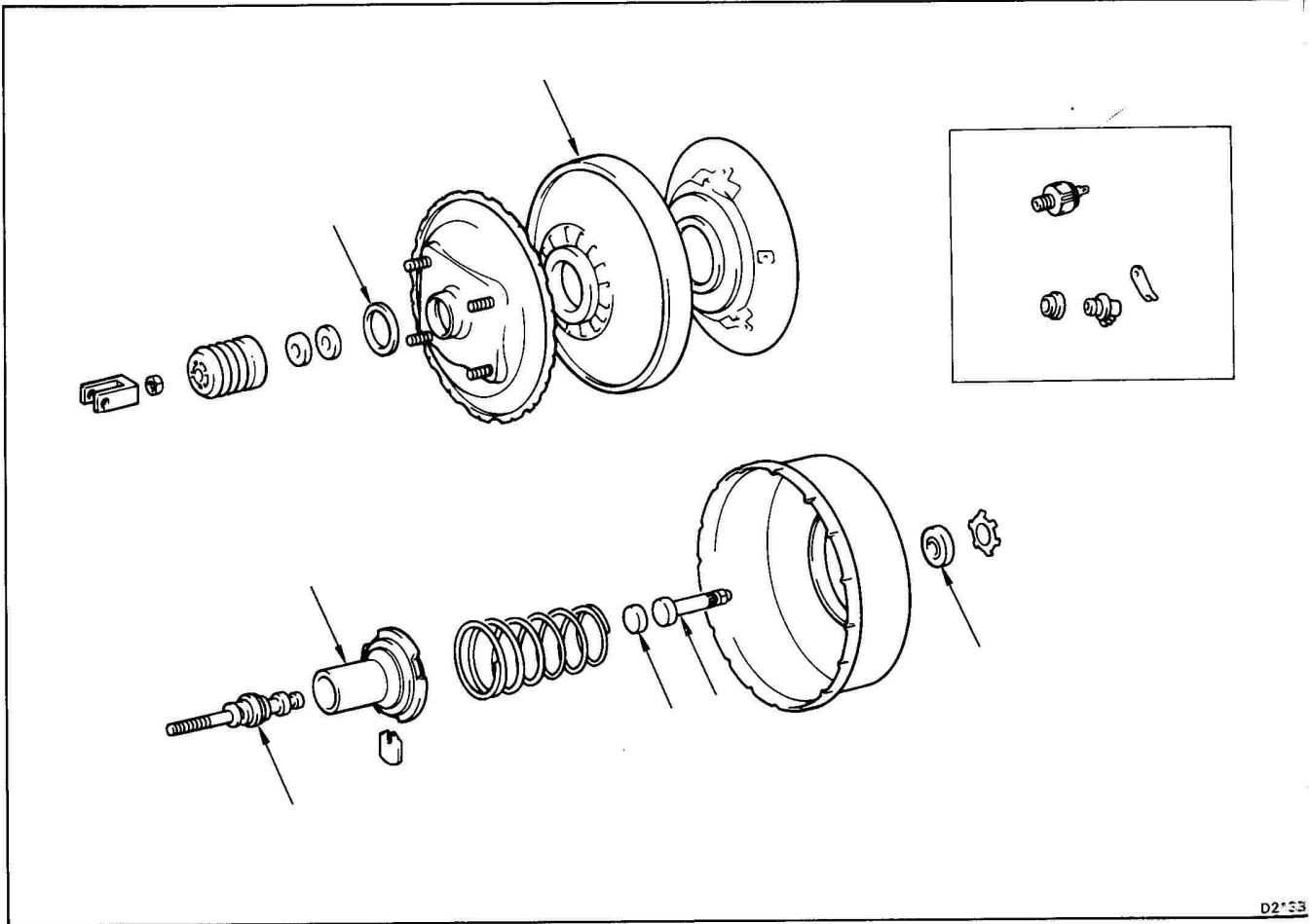
- Using SST, remove the seal from the rear body.  
SST 09608-30011, 09612-30012 and 09753-30020



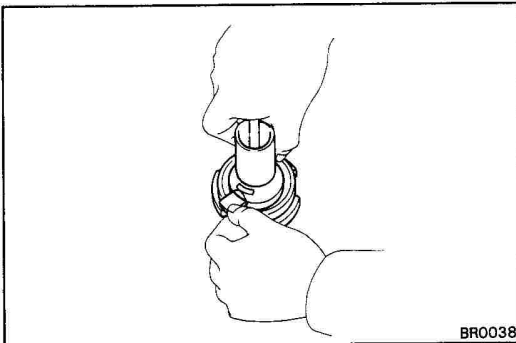
- Using SST, install a new seal.  
SST 09608-30011, 09612-30012 and 09753-30020

**ASSEMBLY OF BRAKE BOOSTER**

(See page BR-17)

**1. APPLY SILICONE GREASE TO PARTS SHOWN BELOW**

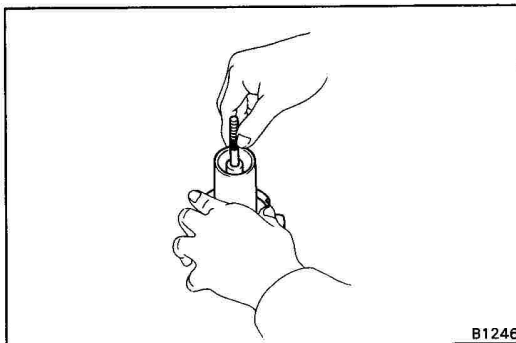
D2133



BR0038

**2. INSTALL OPERATING ROD TO VALVE BODY**

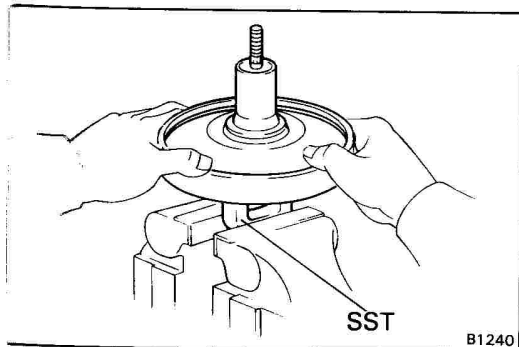
- (a) Insert the operating rod in the valve body.
- (b) Push the operating rod in the valve body and install the stopper key.



B1246

- (c) Pull the operating rod and confirm that the stopper key is working.

**3. INSTALL REACTION DISC TO VALVE BODY**

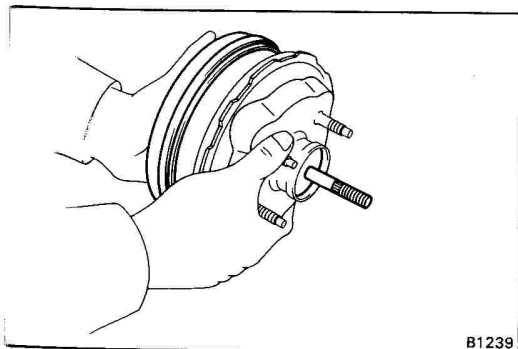


#### 4. ASSEMBLE BODY, DIAPHRAGM AND BOOSTER PISTON

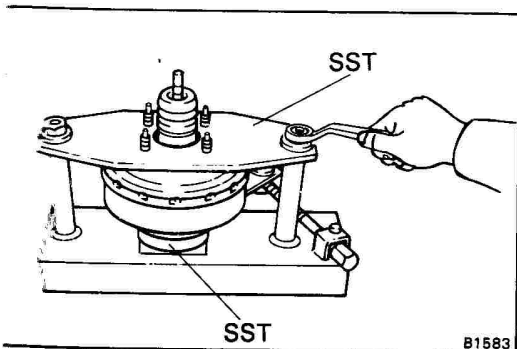
- (a) Install the diaphragm to the piston.
- (b) Insert the valve body to the piston.
- (c) Set the SST on the vise.

SST 09736-27010

- (d) Put the diaphragm assembly on SST, and turn it to install.



#### 5. INSTALL DIAPHRAGM ASSEMBLY TO REAR BODY



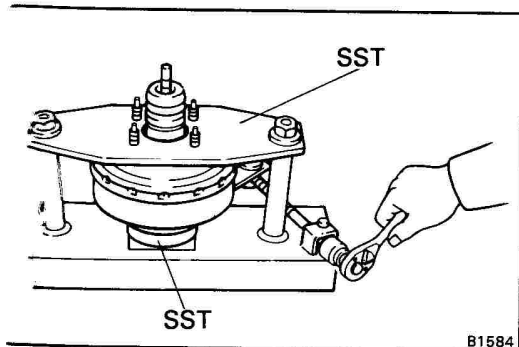
#### 6. ASSEMBLE FRONT AND REAR BODIES

- (a) Place the front body on SST.

SST 09753-00012 and 09753-40010

- (b) Place the diaphragm spring and push rod between the front body and rear body assembly.

**CAUTION:** Be careful not to tighten the two nuts of the SST too tightly.



- (c) Assemble the front and rear bodies by turning the front body counterclockwise until the matchmarks match.

**NOTE:** If the front body is too tight to be turned, apply more silicone grease on the diaphragm edge that contacts the front and rear bodies.

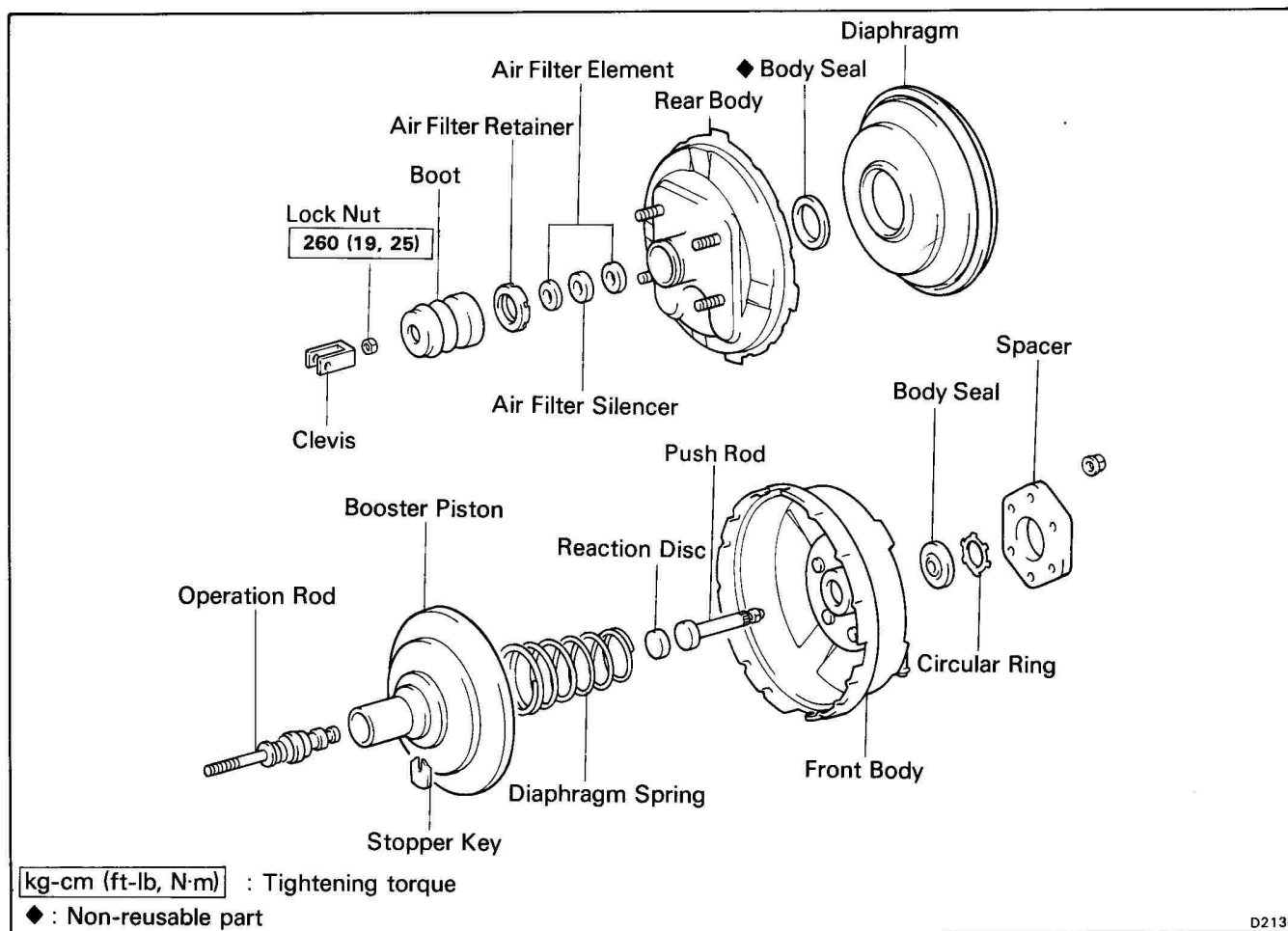
#### 7. INSTALL SEPARATOR AND ELEMENT TO VALVE BODY

#### 8. INSTALL BOOT TO VALVE BODY

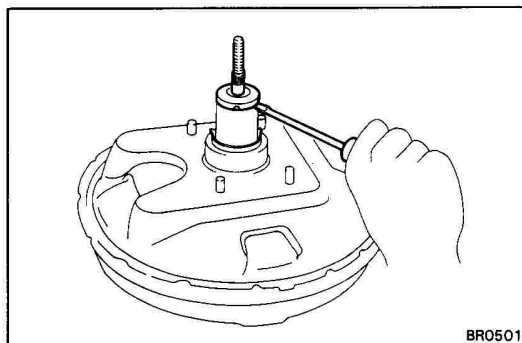
#### 9. INSTALL LOCK NUT AND CLEVIS

#### 10. (Gasoline Engine) INSTALL VACUUM WARNING SWITCH AND CHECK VALVE

## 10.5 in. Type (JKC) COMPONENTS

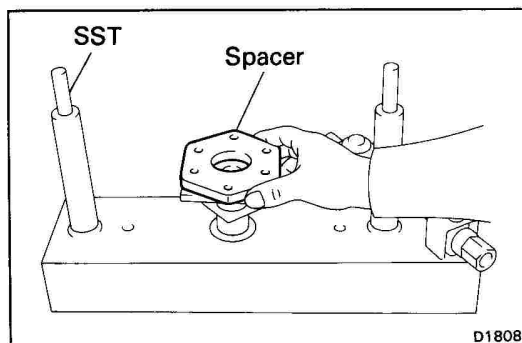


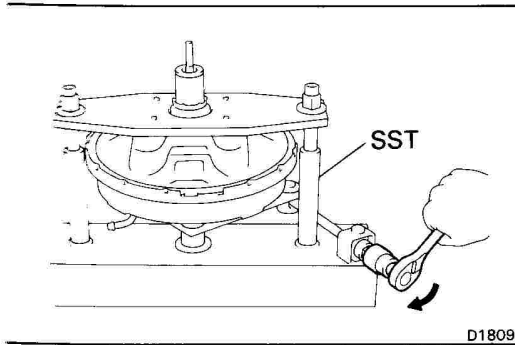
D2134



### DISASSEMBLY OF BRAKE BOOSTER

1. REMOVE CLEVIS AND LOCK NUT
2. REMOVE SPACER FROM FRONT BODY  
Remove the two nuts and spacer.
3. REMOVE AIR FILTER RETAINER  
Using a screwdriver, remove the retainer.
4. SEPARATE FRONT AND REAR BODIES  
(a) Place the spacer onto SST.  
SST 09753-00012



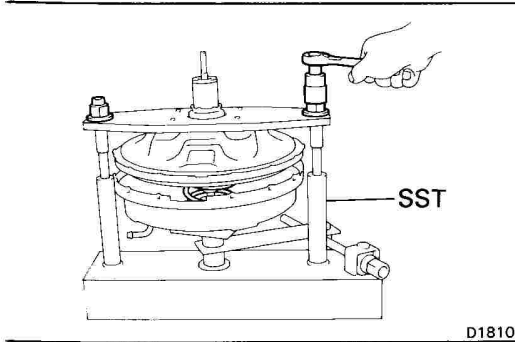


(b) Put matchmarks on the front and rear bodies.

(c) Set the booster in SST.

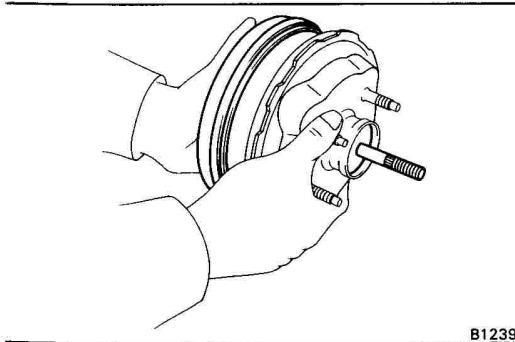
SST 09753-00012

**CAUTION:** Be careful not to tighten the two nuts of the SST too tightly.

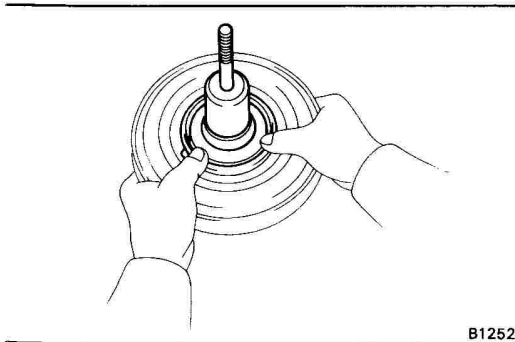


(d) Turn the front body clockwise until the front and rear bodies separate.

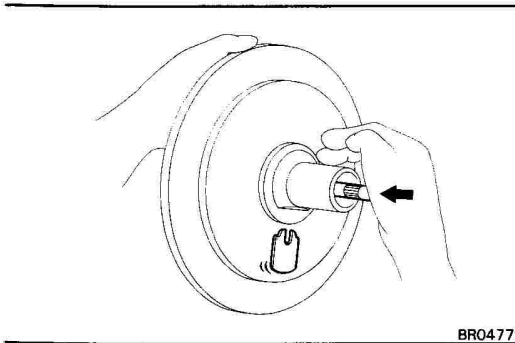
(e) Remove the diaphragm spring and push rod.



**5. REMOVE DIAPHRAGM ASSEMBLY FROM REAR BODY**



**6. REMOVE DIAPHRAGM FROM BOOSTER PISTON**



**7. REMOVE OPERATING ROD FROM BOOSTER PISTON**

(a) Push the operating rod in the piston and remove the stopper key.

(b) Pull out the operating rod with the elements and silencer.

**8. REMOVE REACTION DISC FROM BOOSTER PISTON**

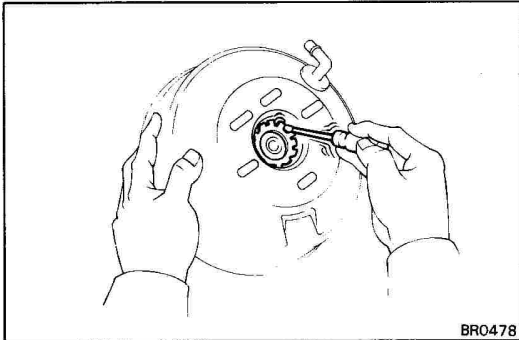
## INSPECTION OF BRAKE BOOSTER COMPONENTS

1. **INSPECT CHECK VALVE**  
(See step 1 on page BR-19)
2. **INSPECT BODY SEALS FOR WEAR OR DAMAGE**

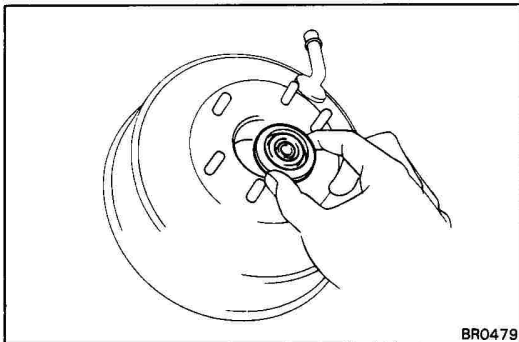
Replace, if necessary.

3. **IF NECESSARY, REPLACE BODY SEAL ON FRONT BODY**

- (a) Using a screwdriver, pry out the circular ring, and remove the seal.

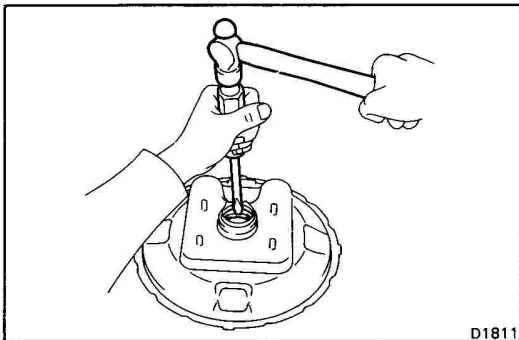


- (b) Place a new seal in position.
- (c) Secure the seal with the circular ring.

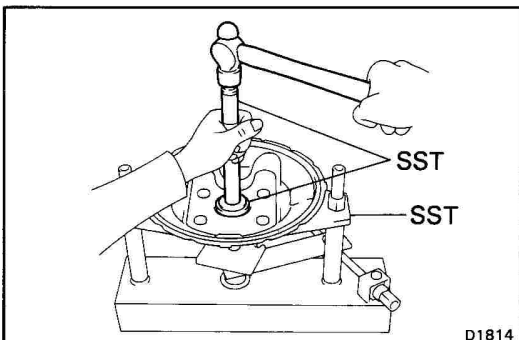


4. **IF NECESSARY, REPLACE BODY SEAL ON REAR BODY**

- (a) Using a screwdriver, tap out the seal from the rear body.

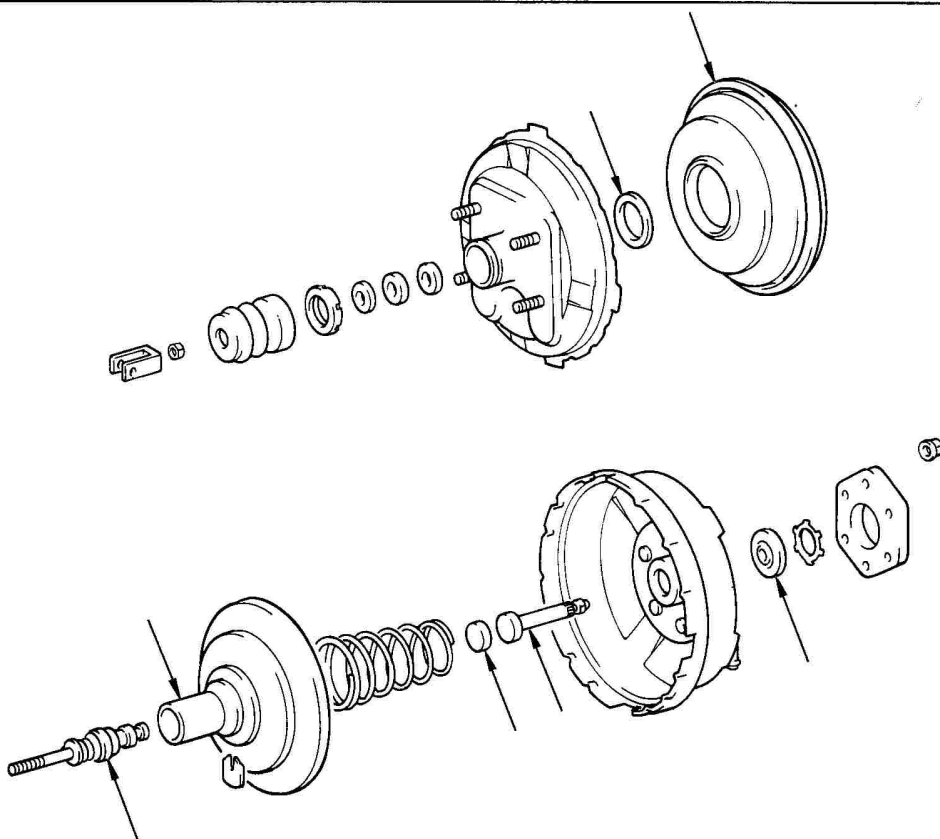


- (b) Using SST, install a new seal.  
SST 09753-00012 and 09608-20011

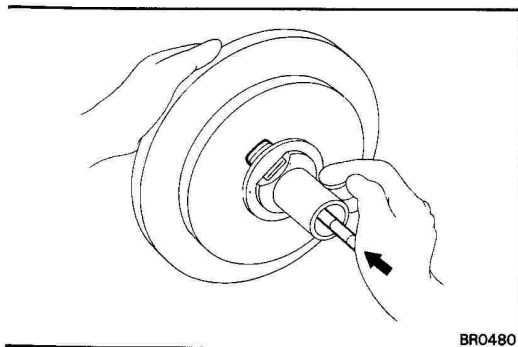


**ASSEMBLY OF BRAKE BOOSTER**

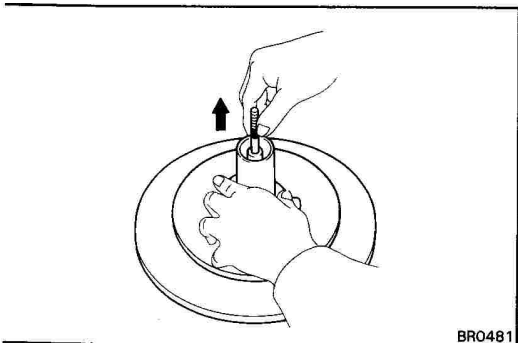
(See page BR-22)

**1. APPLY SILICONE GREASE TO PARTS SHOWN BELOW**

D2134

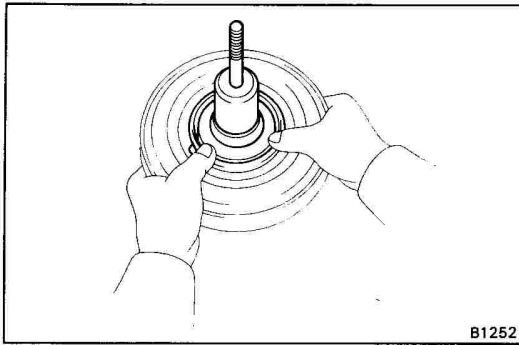
**2. INSTALL OPERATING ROD TO BOOSTER PISTON**

- (a) Insert the operating rod in the piston.
- (b) Push the operating rod in the piston and install the stopper key.



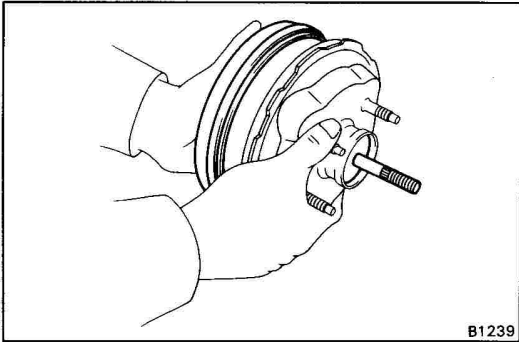
- (c) Pull the operating rod and confirm that the stopper key is working.

**3. INSTALL REACTION DISC TO BOOSTER PISTON**



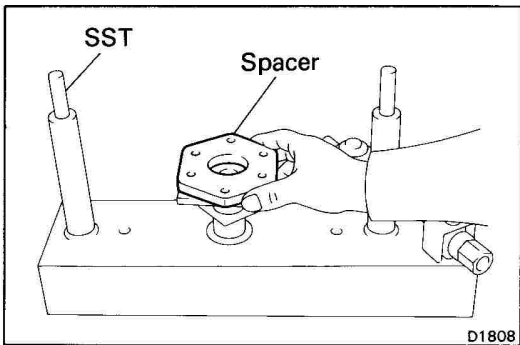
B1252

#### 4. INSTALL DIAPHRAGM TO BOOSTER PISTON



B1239

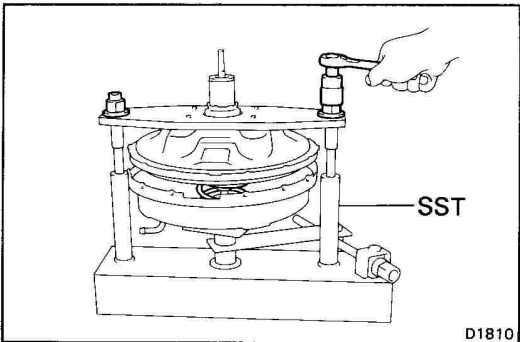
#### 5. INSTALL DIAPHRAGM ASSEMBLY TO REAR BODY



D1808

#### 6. ASSEMBLE FRONT AND REAR BODIES

- (a) Place the spacer onto SST.  
SST 09753-00012



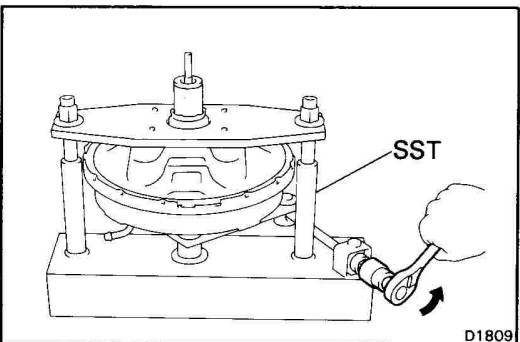
D1810

- (b) Place the front body on SST and insert the return spring and push rod.

SST 09753-00012

- (c) Place the diaphragm spring and push rod between the front body and rear body assembly.

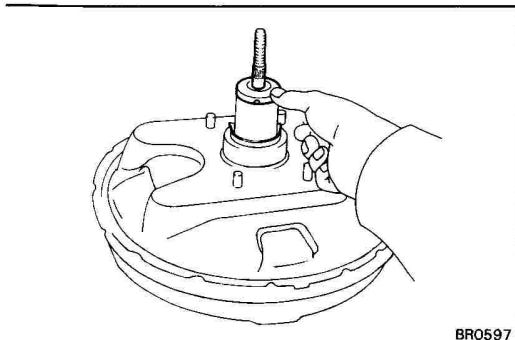
**CAUTION:** Be careful not to tighten the two nuts of the SST too tightly.



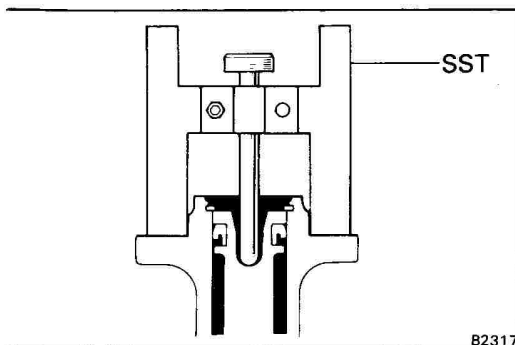
D1809

- (d) Assemble the front and rear bodies by turning the front body counter clockwise until the matchmarks match.

**NOTE:** If the front body is too tight to be turned, apply more silicone grease on the diaphragm edge that contacts the front and rear bodies.



7. **INSTALL SEPARATE, TWO ELEMENTS AND RETAINERS**
8. **INSTALL SPACER**  
Install the spacer with two nuts.
9. **INSTALL BOOT TO BOOSTER PISTON**
10. **INSTALL LOCK NUT AND CLEVIS**



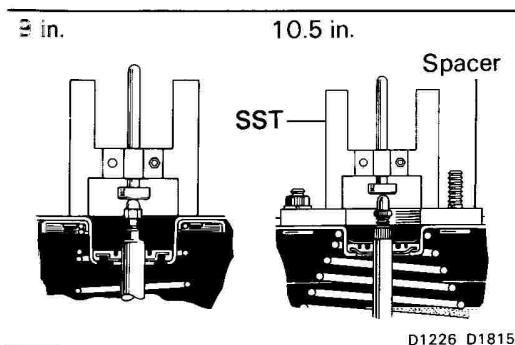
## INSTALLATION OF BRAKE BOOSTER

(See page BR-16)

### 1. ADJUST LENGTH OF BOOSTER PUSH ROD

- (a) Set SST on the master cylinder, and lower the pin until its tip slightly touches the piston.

SST 09737-00010



- (b) Turn SST upside down, and position it on the booster.

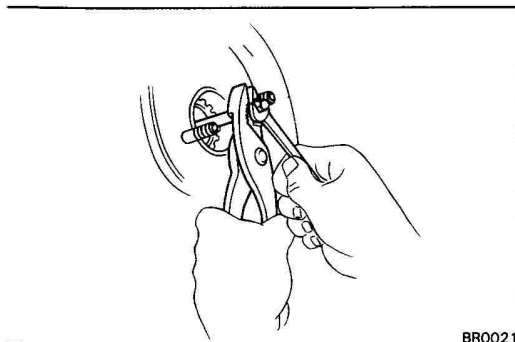
SST 09737-00010

NOTE: For 10.5 in. type, take the measurement with the spacer in place.

- (c) Measure for clearance between the booster push rod and pin head (SST).

Clearance: 0 mm (0 in.)

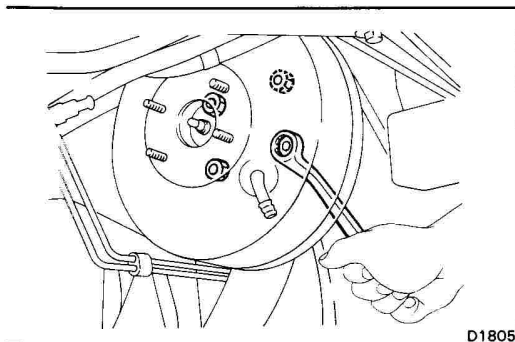
- (d) Adjust the booster push rod length until the push rod lightly touches the pin head.

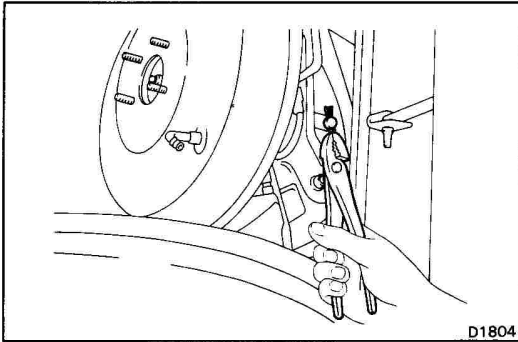


### 2. INSTALL BRAKE BOOSTER

Install the booster with four bolts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)



**3. CONNECT CLEVIS TO BRAKE PEDAL**

Insert the clevis pin to the clevis and brake pedal, and then install the clip to the clevis pin.

**4. CONNECT VACUUM HOSE TO BRAKE BOOSTER****5. INSTALL MASTER CYLINDER (See page BR-9)****6. FILL BRAKE RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-6)****7. CHECK FLUID LEAKAGE****8. CHECK AND ADJUST BRAKE PEDAL  
(See page BR-5)****9. PERFORM OPERATIONAL CHECK (See page BR-6)**