

BRAKE SYSTEM

32038-09

PRECAUTION

- ◆ 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 the identical parts of which part numbers are same or equivalent.
- ◆ It is very important to keep parts and the area clean when repairing the brake system.
- ◆ If the vehicle is equipped with a mobile communication system, refer to the precaution in the INTRODUCTION section.

PROBLEM SYMPTOMS TABLE

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

Symptom	Suspect Area	See page
Low pedal or spongy pedal	1. Fluid leaks for brake system	–
	2. Air in brake system	32-4
	3. Piston seals (Worn or damaged)	32-17
	4. Brake master cylinder (Faulty)	32-23 32-39
Brake drag	1. Brake pedal free play (Minimum)	32-8
	2. Parking brake pedal travel (Out of adjustment)	33-2
	3. Parking brake wire (Sticking)	33-7
		33-11
	4. Parking brake (Shoe clearance out of adjustment)	33-15
	5. Pad (Cracked or distorted)	32-17
		32-23
	6. Piston (Stuck)	32-17
		32-23
Brake pull	7. Piston (Frozen)	32-17
		32-23
	8. Tension or return spring (Faulty)	33-15
	9. Brake master cylinder (Faulty)	32-39
	1. Piston (Stuck)	32-17
		32-23
	2. Pad (Cracked or distorted)	32-17
		32-23
	3. Piston (Frozen)	32-17
Hard pedal but brake inefficient	4. Disc (Scored)	32-23
		32-17
	5. Pad (Cracked or distorted)	32-23
		32-17
	6. Brake master cylinder (Faulty)	32-23
		32-39
	1. Fluid leaks for brake system	–
	2. Air in brake system	32-4
	3. Pad (Worn)	32-17
		32-23
	4. Pad (Cracked or distorted)	32-17
		32-23
	5. Pad (Oily)	32-17
		32-23
	6. Pad (Glazed)	32-17
		32-23
	7. Disc (Scored)	32-17
		32-23
	8. Brake master cylinder (Faulty)	32-39

Noise from brakes	1. Pad (Cracked or distorted)	32-17
		32-23
	2. Installation bolt (Loose)	32-23
	3. Disc (Scored)	32-17
		32-23
	4. Pad support plate (Loose)	32-23
	5. Sliding pin (Worn)	32-23
	6. Pad (Dirty)	32-17
		32-23
	7. Pad (Glazed)	32-17
		32-23
	8. Tension or return spring (Faulty)	33-15
	9. Anti-squeal shim (Damaged)	32-17
		32-23
	10. Shoe hold-down spring (Damaged)	33-15
Noise from brake master cylinder (Abnormal pump motor operation noise)	Accumulator bracket clearance (Out or adjustment)	32-39
Brake warning light lights up* ¹ (Parking brake pedal released)	1. Brake fluid level	–
	2. Brake master cylinder power supply system (Faulty)	32-39
Brake warning light lights up and skid control buzzer sounds* ²	Brake master cylinder power supply system (Faulty)	32-39
ABS warning light lights up* ³	1. Anti-lock brake system (Faulty)	–
	2. Brake master cylinder power supply system (Faulty)	32-39

*¹, *³: The light may stay on for about 60 seconds after the engine starts. It is normal if it goes off after a while.

*², *³: Depressing the brake pedal repeatedly may turn on the warning light and buzzer. It is normal if the light goes off and the buzzer stops sounding after a few seconds.

*³: While ABS warning light is ON, both VSC warning light and VSC OFF indicator light come on.

BRAKE FLUID

BLEEDING

3200U-02

HINT:

- ◆ If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the system.
- ◆ When bleeding, keep the amount of the fluid within the line of reservoir between Min. and Max.

NOTICE:

- ◆ Wash off the brake fluid immediately if it comes into contact with a painted surface.
- ◆ With the reservoir cap removed, when depressing the brake pedal, the fluid will spray.

1. FILL RESERVOIR WITH BRAKE FLUID

Fluid: SAE J1703 or FMVSS NO. 116 DOT3

2. IN CASE OF USING HAND-HELD TESTER: BLEED BRAKE MASTER CYLINDER

HINT:

If the brake master cylinder is disassembled, if the brake line is disconnected from the brake master cylinder if the reservoir become empty, bleed brake master cylinder.

- (a) Turn the ignition switch to OFF, depress the brake pedal more than 40 times.

HINT:

When a pressure in power supply system is released, reaction force becomes light and stroke becomes longer.

- (b) Turn the ignition switch to ON, check that the pump stops after approx. 30 to 40 sec.

NOTICE:

When the pump does not stop, repeat step (a) and (b) again.

- (c) With the ignition switch remained ON, depress the brake pedal more than 20 times.
 (d) Follow the procedure in step 4 and bleed the right and left front brake caliper.
 (e) Keep depressing the brake pedal, bleed the right and left rear brake caliper.

HINT:

It is not necessary to depress the pedal continuously, because brake fluid flows out by first depressing.

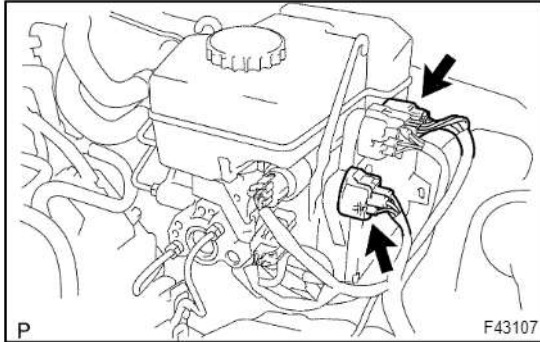
- (f) Connect hand-held tester.
 (1) Turn the ignition switch to OFF, connect the hand-held tester to DLC3.
 (2) Turn the ignition switch to ON and select "AIR BLEEDING" on the hand-held tester.

HINT:

Please refer to the hand-held tester operator's manual for further details.

- (g) Bleed right front brake line.
 (1) Select "FR LINE" on the hand-held tester.
 (2) With "FR LINE" turned ON with the hand-held tester, depress the brake pedal and hold it to bleed the right front brake caliper.
 (3) Repeat step (2) until there are no more air bubbles in the fluid.
- (h) Bleed left front brake line.
 (1) Select "FL LINE" on the hand-held tester.
 (2) With "FL LINE" turned ON with the hand-held tester, depress the brake pedal and hold it to bleed the left front brake caliper.
 (3) Repeat step (2) until there are no more air bubbles in the fluid.
- (i) Bleed rear brake line.
 (1) Select "RR LINE" on the hand-held tester.
 (2) With "RR LINE" turned ON with the hand-held tester, bleed the left and right rear brake caliper.

- (j) Disconnect the hand-held tester from DLC3.
- (k) Clear the DTC (See page 05-803).



3. IN CASE OF USING ABS ACTUATOR CHECKER (SST) BLEED BRAKE MASTER CYLINDER

HINT:

If the brake master cylinder is disassembled, if the brake line is disconnected from the brake master cylinder if the reservoir become empty, bleed the brake master cylinder.

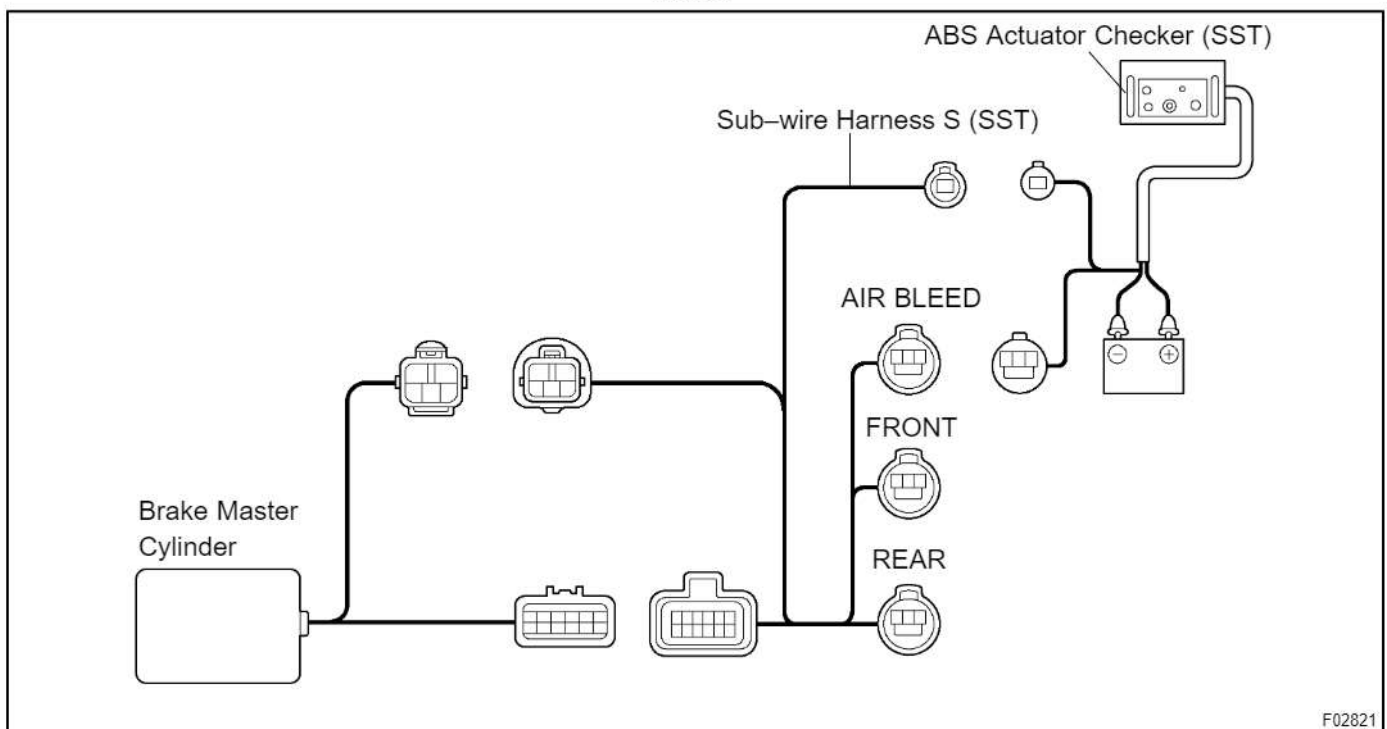
- (a) Disconnect the 2 connectors from the brake master cylinder.
- (b) Connect the actuator checker (SST) to the brake master cylinder side wire harness via the sub-wire harness (SST), as shown in the chart below.

SST 09990-00150, 09990-00480

HINT:

Connect the connector with the label of "AIR BLEED" attached to the connector of actuator checker.

- (c) Connect the red cable of the checker to the battery positive (+) terminal and the black cable to the negative (-) terminal.



- (d) Turn the ignition switch to OFF, depress the brake pedal more than 40 times.

HINT:

When a pressure in power supply system is released, reaction force becomes light and stroke becomes longer.

- (e) Turn the ignition switch to ON, check that the pump stops after 30 to 40 sec.

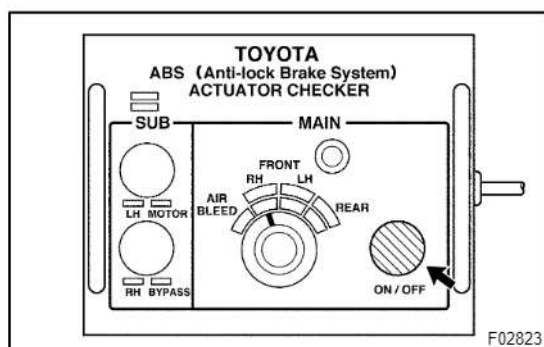
NOTICE:

When the pump does not stop, repeat step (d) and (e) again.

- (f) With the ignition switch remained ON, depress the brake pedal more than 20 times.
- (g) Follow the procedure in step 4 and bleed the right and left front wheel caliper.
- (h) Keep depressing the brake pedal depressed, bleed the right and left rear brake caliper.

HINT:

It is not necessary to depress the pedal continuously, because brake fluid flows out by first depressing.

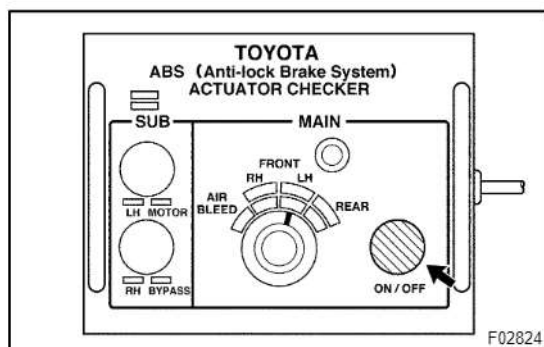


- (i) Bleed right front brake line.
- (1) Turn the selector switch of the actuator checker to the "FRONT RH" position.
 - (2) Push and hold in MAIN push switch, depress the brake pedal and hold it to bleed the right front brake caliper.

NOTICE:

Do not keep the MAIN switch pushed in for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (3) Repeat step (2) until air bubbles in the fluid has gone.

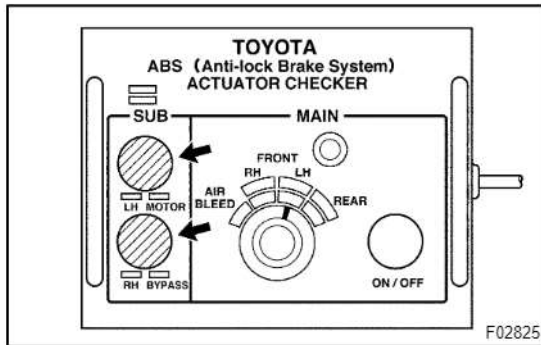


- (j) Bleed left front brake line.
- (1) Turn the selector switch of the actuator checker to the "FRONT LH" position.
 - (2) Push and hold in the MAIN push switch, depress the brake pedal and hold it to bleed the left front brake caliper.

NOTICE:

Do not keep the MAIN switch pushed in for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (3) Repeat step (2) until air bubbles in the fluid has gone.

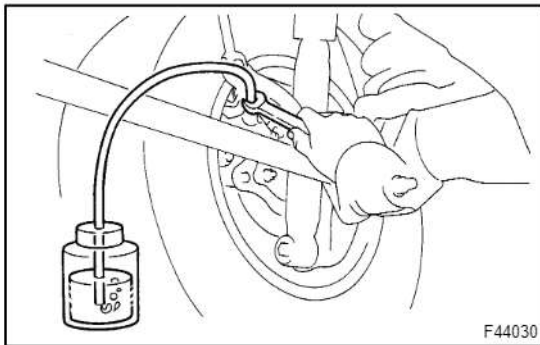


- (k) Bleed right rear brake line.
 (1) Push and hold in the "SUB LH" and "SUB RH" switches, bleed the right rear brake caliper.

NOTICE:

Do not keep the MAIN switch pushed in for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (2) Repeat step (1) until air bubbles in the fluid has gone.
 (l) Observe the procedure in step (k) and bleed left rear brake line.
 (m) Disconnect the actuator checker (SST) and sub-wire harness (SST) from the brake master cylinder.
 SST 09990-00150, 09990-00480
 (n) Connect the 2 connectors to the brake master cylinder.
 (o) Clear the DTC (See page 05-803).

**4. BLEED BRAKE LINE**

- (a) Connect the vinyl tube to the brake caliper.
 (b) Ignition key is turn to ON.
 (c) Depress the brake pedal several times, and then loosen the bleeder plug with the pedal held down.
 (d) At the point when fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
 (e) Repeat (b) and (c) until all the air in the fluid has been bled out.
 (f) Repeat the above procedure to bleed the brake line for each wheel.

Torque: 11 N·m (112 kgf·cm, 8 ft·lbf)

5. CHECK FLUID LEVEL IN RESERVOIR

- (a) With the ignition switch to OFF, depress the brake pedal more than 40 times.

HINT:

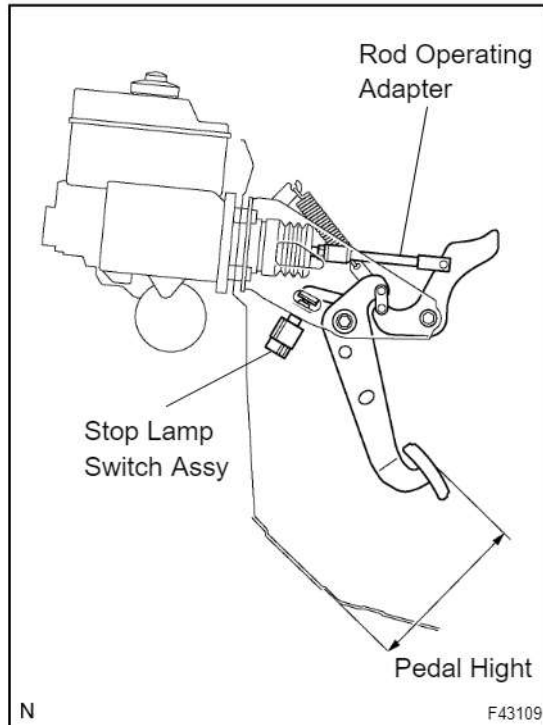
When a pressure in power supply system is released, reaction force becomes lighter and stroke becomes longer.

- (b) Remove the reservoir cap. Add brake fluid up to the "MAX" line.

Fluid: SAE J1703 or FMVSS NO. 116 DOT3

BRAKE PEDAL SUB-ASSY ON-VEHICLE INSPECTION

320CX-05



1. CHECK BRAKE PEDAL HEIGHT

- (a) Check the brake pedal height.

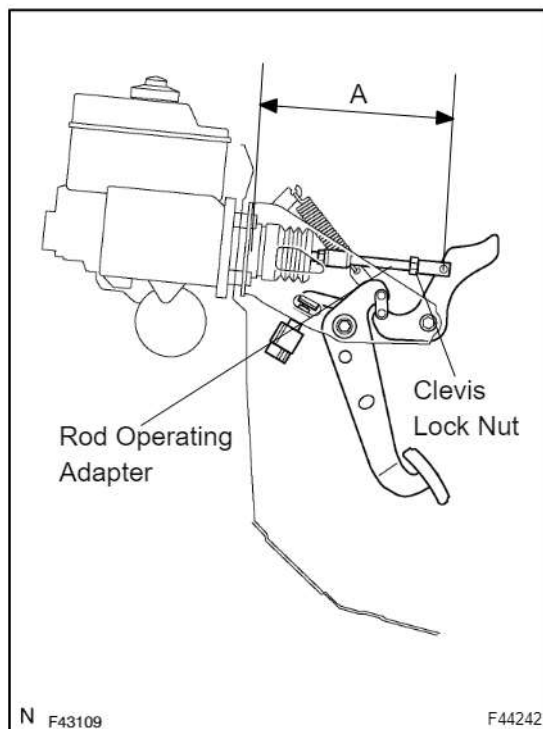
Pedal height from dash panel:

166.1 – 176.1 mm (6.539 – 6.933 in.)

NOTICE:

Do not adjust the pedal height. Doing so by changing the push rod length will structurally change the pedal ratio.

If the pedal height is incorrect, adjust the rod operating adapter length.



- (b) Adjust the rod operating adapter length.

- (1) Remove the clip and clevis pin.
- (2) Loosen the clevis lock nut.
- (3) Adjust the rod operating adapter length by turning the pedal push rod clevis.

Rod operating adapter length "A":

232.5 – 242.5 mm (9.154 – 9.547 in.)

- (4) Tighten the clevis lock nut.

Torque: 26 N·m (265 kgf·cm, 19 ft·lbf)

- (5) Install the clip and clevis pin.

If the pedal height is incorrect even if the rod operating adapter is adjusted, check that there is no damage in brake pedal, brake pedal lever, brake pedal bracket and dash panel.

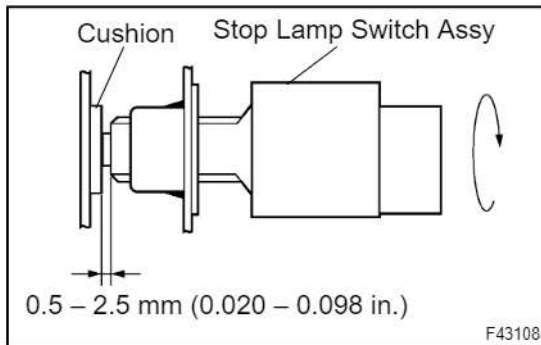
- ◆ Even if there is damage, there is no problem if the reserve distance is within the standard value.
- ◆ If necessary, replace them.

2. CHECK AND ADJUST STOP LAMP SWITCH

HINT:

If the pedal height is incorrect, check and adjust the stop lamp switch clearance.

- Disconnect the stop lamp switch assy connector from the stop lamp switch assy.
- Turn the stop lamp switch assy counterclockwise and remove the stop lamp switch assy.



- Insert the stop lamp switch assy until the body hits the cushion.

NOTICE:

When inserting the stop lamp switch assy, support the pedal from behind so that the pedal is not pushed in.

- Make a quarter turn clockwise to install the stop lamp switch assy.

NOTICE:

The turning torque for installing the stop lamp switch assy.

HINT:

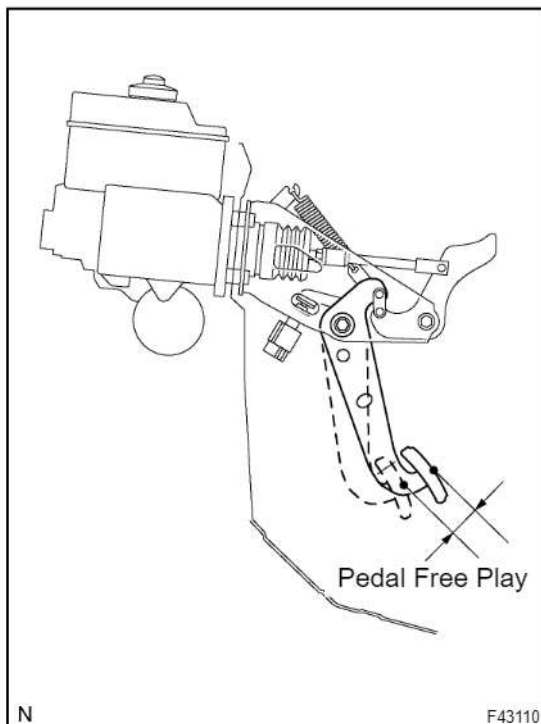
Due to the inverse screw structure, if the stop lamp switch assy is turned clockwise, the stop lamp switch assy moves in the direction to be pulled out.

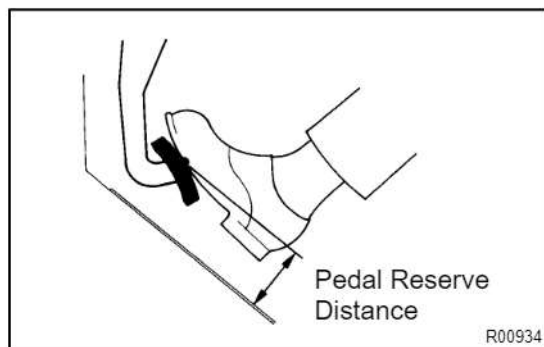
- Connect the stop lamp switch connector to the stop lamp switch assy.
- Check the protrusion of the rod.
Protrusion of the rod: 0.5 - 2.5 mm (0.020 - 0.098 in.)
- Install the clevis pin and clip.
- After adjusting the pedal height, check the pedal free play.

3. CHECK PEDAL FREE PLAY

- 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 the resistance is felt. Measure the distance, as shown.

Pedal free play: 1 - 6 mm (0.04 - 0.24 in.)



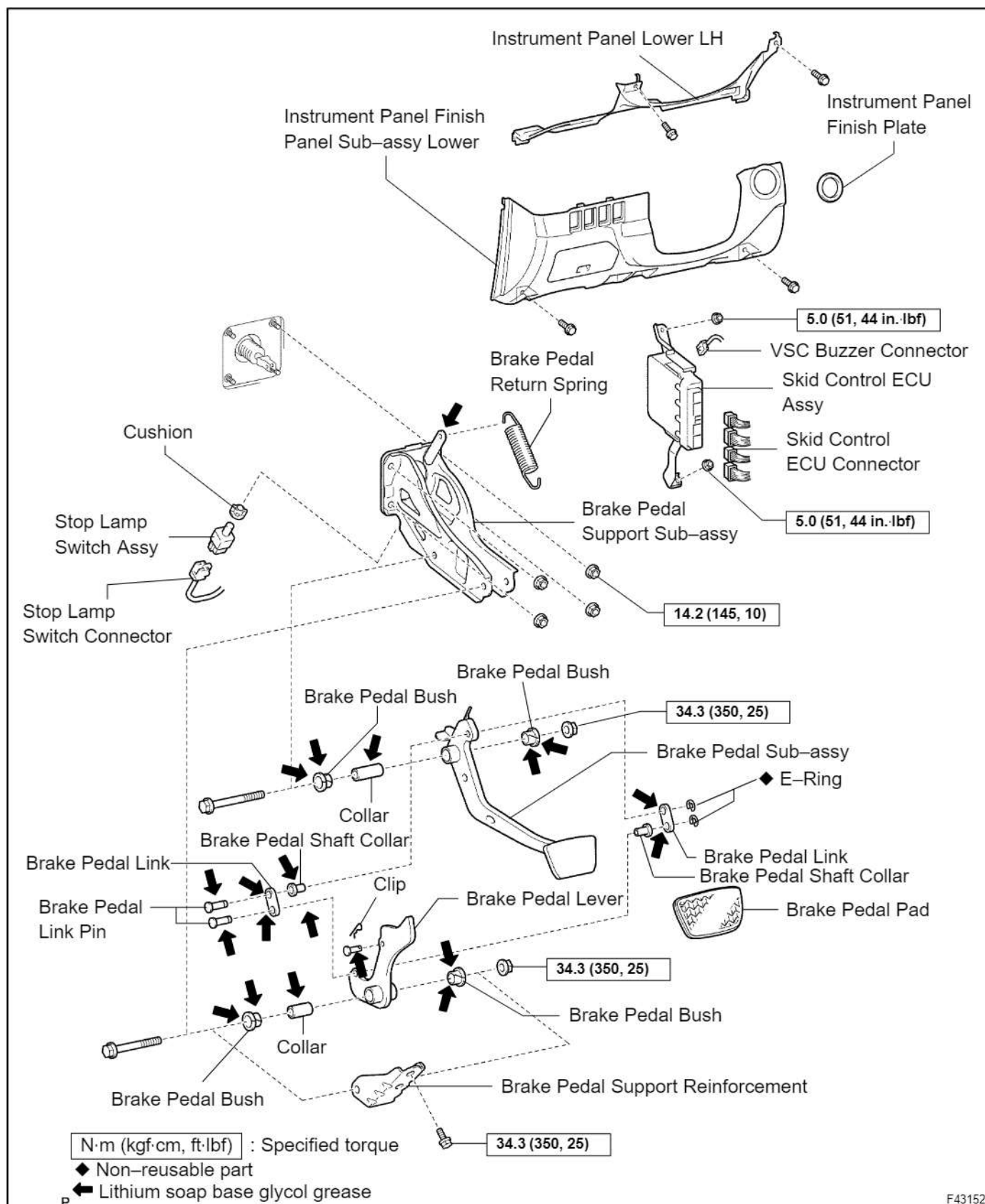
**4. CHECK PEDAL RESERVE DISTANCE**

- (a) Release the parking brake pedal.
With engine running, depress the pedal and measure the pedal reserve distance, as shown.

Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110.2 lbf): More than 55 mm (2.17 in.)

If incorrect, troubleshoot the brake system.

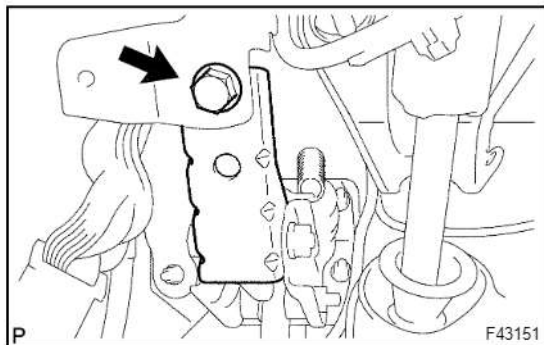
COMPONENTS



F43152

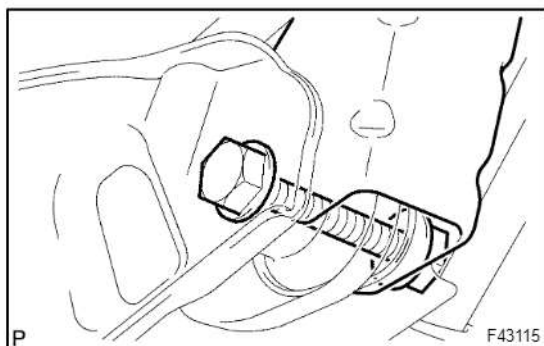
REPLACEMENT

1. REMOVE INSTRUMENT PANEL FINISH PLATE (See page 71-14)
2. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER (See page 71-14)
3. REMOVE INSTRUMENT PANEL LOWER LH (See page 71-14)
4. REMOVE SKID CONTROL ECU ASSY (See page 32-57)
5. REMOVE PUSH ROD PIN
 - (a) Remove the clip and push rod pin from the brake pedal lever.



6. REMOVE BRAKE PEDAL SUPPORT REINFORCEMENT

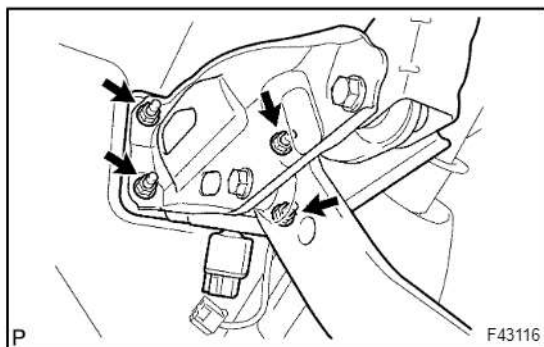
- (a) Remove the bolt from the brake pedal support reinforcement.



- (b) Remove the bolt and nut, then remove the brake pedal support reinforcement from brake pedal support sub-assy.

7. REMOVE BRAKE PEDAL SUPPORT SUB-ASSY

- (a) Disconnect the stop lamp switch connector from the stop lamp switch assy.

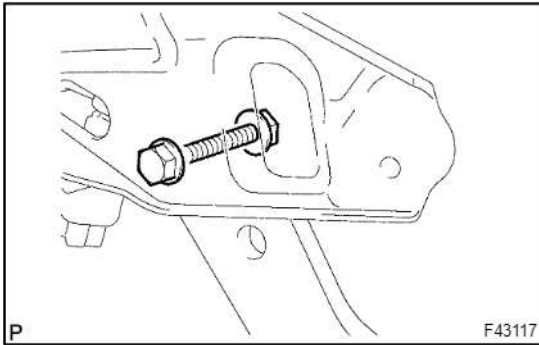


- (b) Remove the 4 nuts and brake pedal support sub-assy.

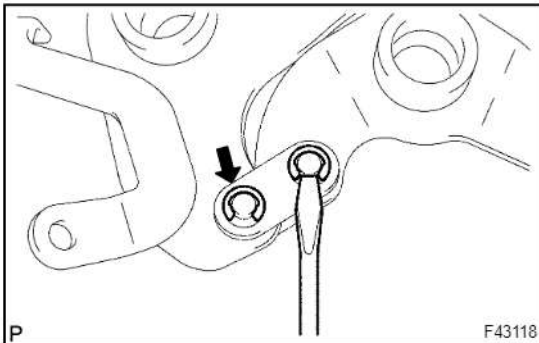
8. REMOVE BRAKE PEDAL RETURN SPRING

9. REMOVE STOP LAMP SWITCH ASSY

- (a) Turn the stop lamp switch assy counterclockwise and remove the stop lamp switch assy.
- (b) Remove the cushion from brake pedal support sub-assy.

**10. REMOVE BRAKE PEDAL SUB-ASSY**

- (a) Remove the bolt and nut, then remove the brake pedal sub-assy from brake pedal support sub-assy.
- (b) Remove the 4 brake pedal bushes from the brake pedal and brake pedal lever.
- (c) Remove the 2 collars from brake pedal sub-assy and brake pedal lever.

**11. REMOVE BRAKE PEDAL LEVER**

- (a) Using a screwdriver, remove the 2 E-rings from the brake pedal link pin.
- (b) Remove the 2 brake pedal link pins, 2 brake pedal shaft collars and 2 brake pedal link.
- (c) Remove the brake pedal lever from brake pedal sub-assy.

12. REMOVE BRAKE PEDAL PAD

- (a) Remove the brake pedal pad from the brake pedal sub-assy.

13. INSTALL BRAKE PEDAL PAD

- (a) Install the brake pedal pad to the brake pedal sub-assy.

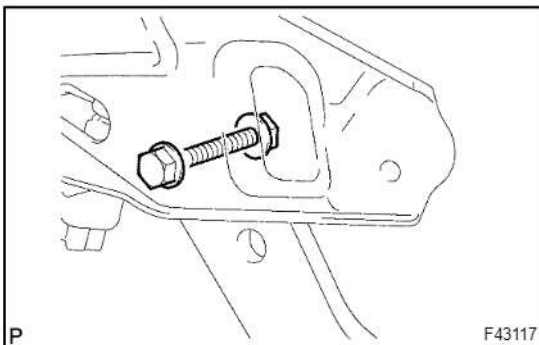
14. INSTALL BRAKE PEDAL LEVER

- (a) Apply the lithium soap base glycol grease to the 2 brake pedal link pins, pedal shaft collars and 2 brake pedal link.
- (b) Install the brake pedal lever with 2 brake pedal link pins, 2 brake pedal shaft collars and 2 brake pedal link to the brake pedal sub-assy.
- (c) Install the 2 new E-rings to each of brake pedal link pin.

15. INSTALL BRAKE PEDAL SUB-ASSY

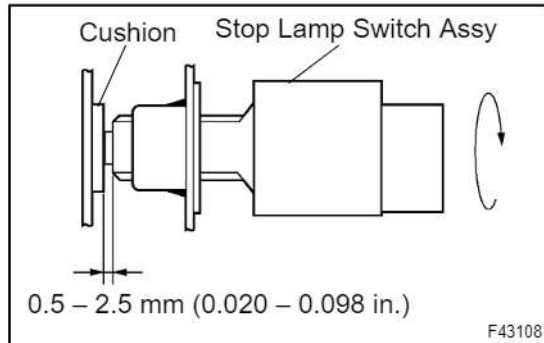
- (a) Apply the lithium soap base glycol grease to the 2 collars and 4 brake pedal bushes.
- (b) Install the 2 collars and 4 brake pedal bushes to the brake pedal sub-assy and brake pedal lever.
- (c) Install the brake pedal sub-assy with the bolt and nut to the brake pedal support sub-assy.

Torque: 34.3 N·m (350 kgf·cm, 25 ft·lbf)



16. INSTALL STOP LAMP SWITCH ASSY

- (a) Install the cushion to the brake pedal bracket.



- (b) Insert the stop lamp switch assy until the body hits the cushion.

NOTICE:

When inserting the stop lamp switch, support the pedal from behind so that the pedal is not pushed in.

- (c) Make a quarter turn clockwise to install the stop lamp switch assy.

NOTICE:

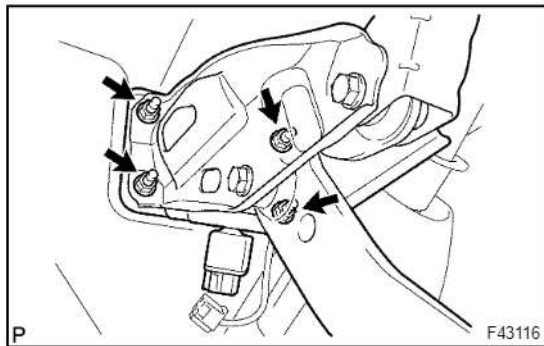
The turning torque for installing the stop lamp switch assy.

HINT:

Due to the inverse screw structure, if the stop lamp switch assy is turned clockwise, the stop lamp switch assy moves in the direction to be pulled out.

17. INSTALL BRAKE PEDAL RETURN SPRING

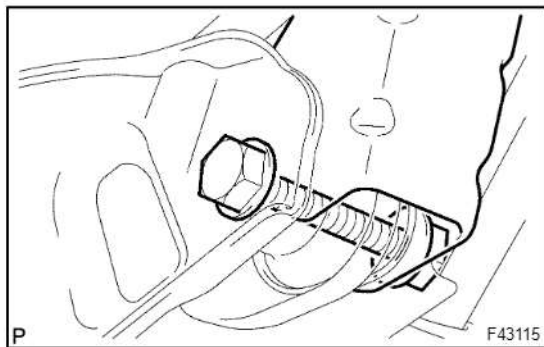
- (a) Apply the lithium soap base glycol grease to inner surface of the hole on the brake pedal support sub-assy.
- (b) Install the brake pedal return spring to the brake pedal support sub-assy.

**18. INSTALL BRAKE PEDAL SUPPORT SUB-ASSY**

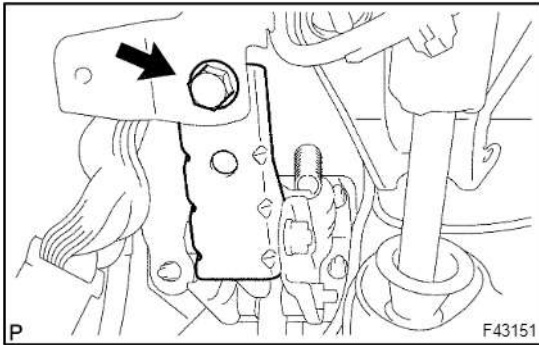
- (a) Install the 4 nuts and brake pedal support sub-assy.

Torque: 14.2 N·m (145 kgf·cm, 10 ft·lbf)

- (b) Connect the stop lamp switch connector to the stop lamp switch assy.

**19. INSTALL BRAKE PEDAL SUPPORT REINFORCEMENT**

- (a) Install the brake pedal support reinforcement to the brake pedal support sub-assy.
- (b) Temporarily tighten the bolt and nut to the brake pedal support sub-assy, brake pedal support reinforcement and brake pedal lever.



- (c) Install the bolt to the brake pedal support reinforcement.
Torque: 34.3 N·m (350 kgf·cm, 25 ft·lbf)
- (d) Tighten the bolt and nut.
Torque: 34.3 N·m (350 kgf·cm, 25 ft·lbf)

20. INSTALL PUSH ROD PIN

- (a) Apply the lithium soap base glycol grease to the inner surface of the hole on the brake pedal lever.
- (b) Install the push rod pin and clip to the brake pedal lever.

21. INSTALL SKID CONTROL ECU ASSY (See page 32-57)

22. INSTALL INSTRUMENT PANEL LOWER LH

23. INSTALL INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER

24. REMOVE INSTRUMENT PANEL FINISH PLATE

25. INSPECT BRAKE PEDAL HEIGHT (See page 32-8)

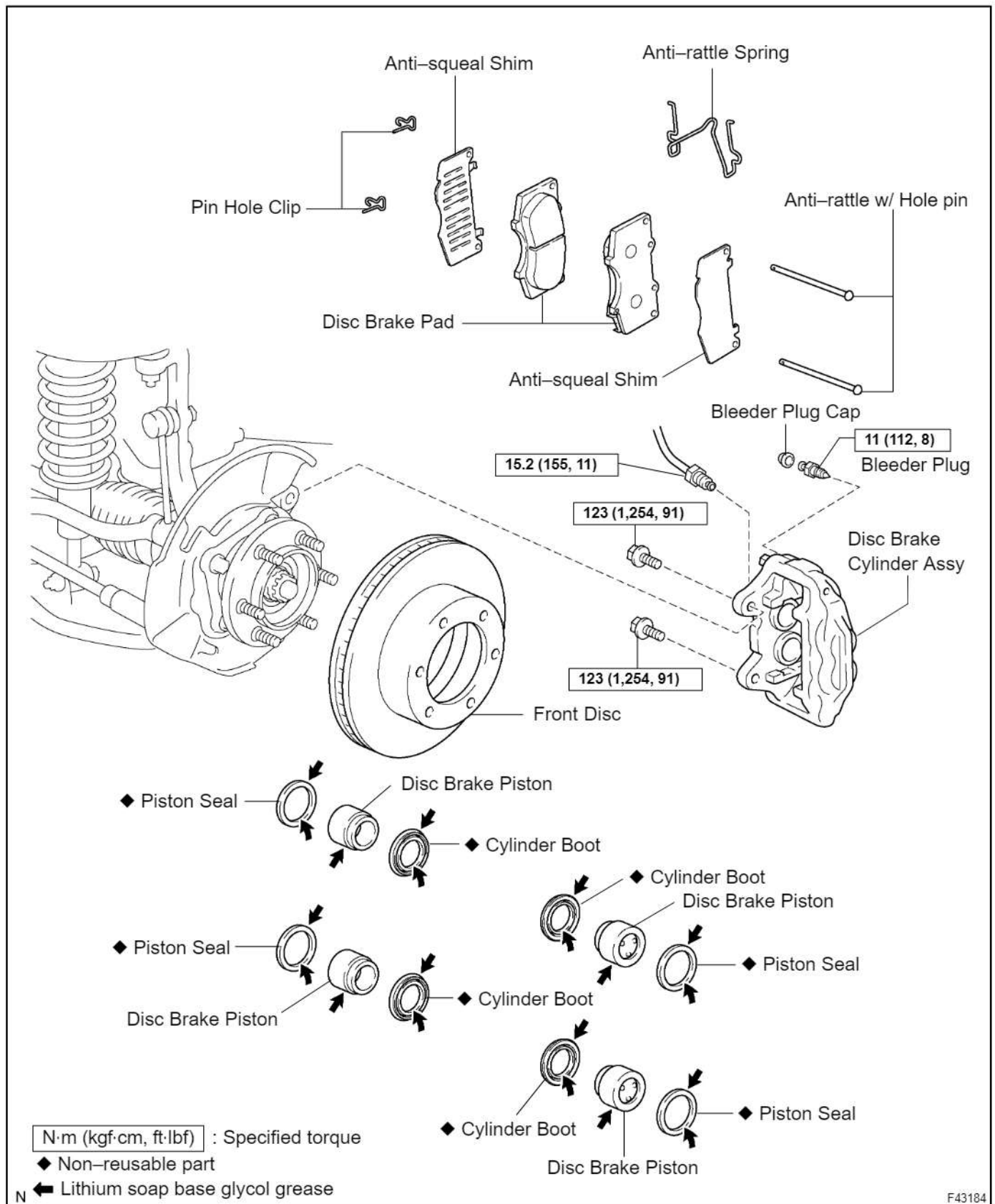
26. CHECK PEDAL FREE PLAY (See page 32-8)

27. CHECK PEDAL RESERVE DISTANCE (See page 32-8)

28. CHECK VSC SENSOR SIGNAL (See page 05-803)

FRONT BRAKE COMPONENTS

32000-05



F43184

OVERHAUL

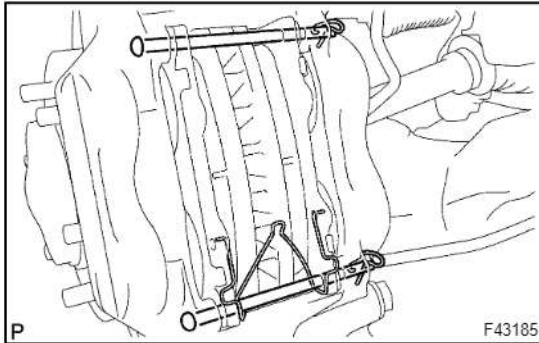
HINT:

Overhaul procedure of the RH side is the same as that of with LH side.

1. **REMOVE FRONT WHEEL**
2. **DRAIN BRAKE FLUID**

NOTICE:

Wash off the brake fluid immediately if it comes into contact with a painted surface.



3. REMOVE FRONT DISC BRAKE ANTIRATTLE W/HOLE PIN

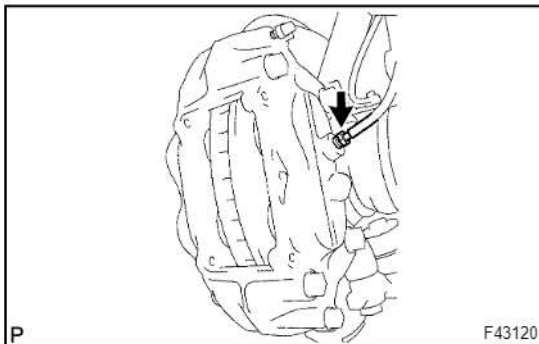
- (a) Remove the 2 pin hole clips, then remove the 2 anti-rattle w/ hole pins from disc brake cylinder assy.
- (b) Remove the anti-rattle spring from the disc brake pad.

4. REMOVE DISC BRAKE PAD KIT FRONT (PAD ONLY)

- (a) Remove the 2 disc brake pads with anti-squeal shim from the disc brake cylinder assy.

5. REMOVE ANTI SQUEAL SHIM KIT FRONT

- (a) Remove the 2 anti-squeal shims from each of the disc brake pads.

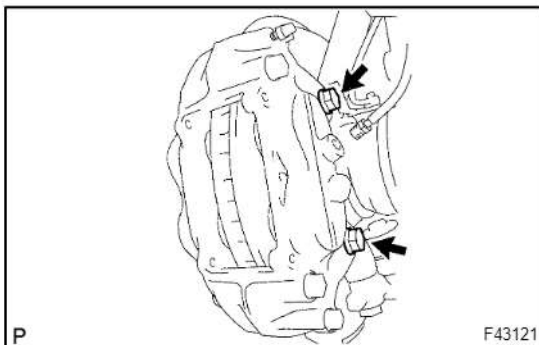


6. REMOVE DISC BRAKE CYLINDER ASSY LH

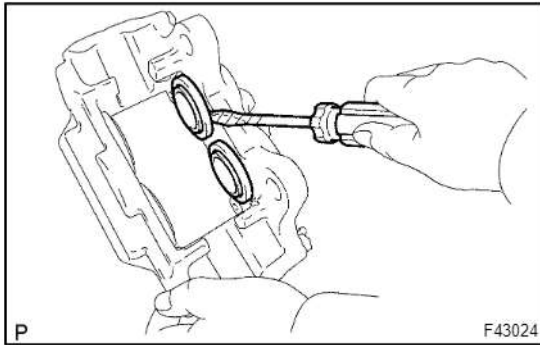
- (a) Using SST, disconnect the brake tube from the disc brake cylinder assy.
SST 09023-00100

HINT:

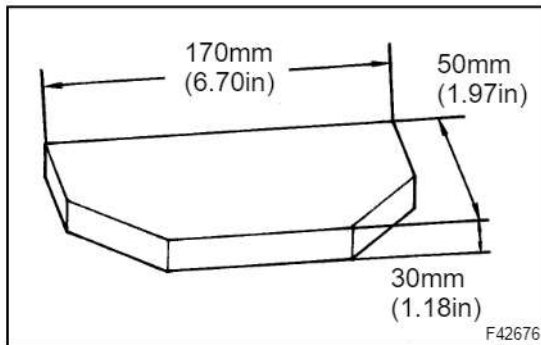
Use a container to catch brake fluid as it drains out.



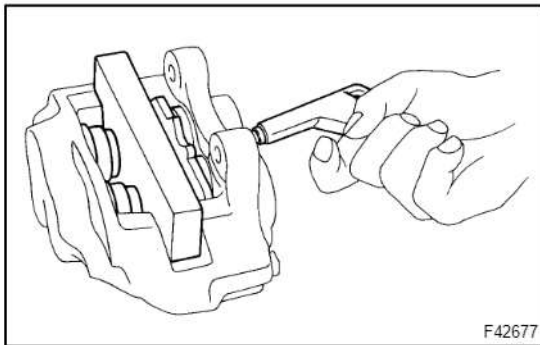
- (b) Remove the 2 bolts and remove the disc brake cylinder assy.

**7. REMOVE CYLINDER BOOT**

- (a) Using a screwdriver, remove the 4 cylinder boots from the caliper.

**8. REMOVE FRONT DISC BRAKE PISTON**

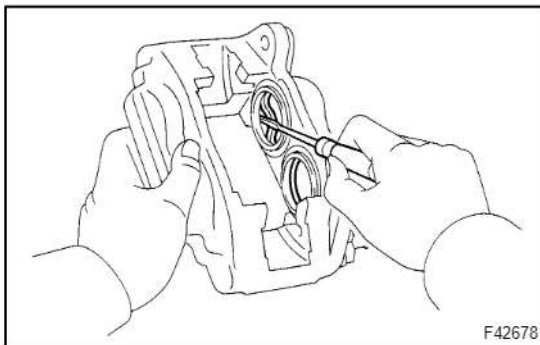
- (a) Prepare the wooden plate to hold the pistons.



- (b) Place the plate between the pistons and insert a pad at one side.
 (c) Use compressed air to remove the pistons alternately from the cylinder.

CAUTION:

Do not place your fingers in front of the piston when using compressed air.

**9. REMOVE PISTON SEAL**

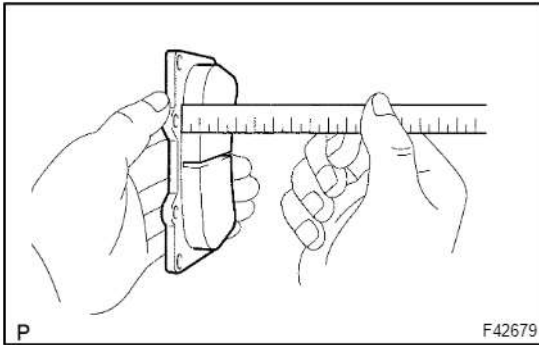
- (a) Using a screwdriver, remove the 4 piston seals from the cylinder.

10. REMOVE FRONT DISC BRAKE BLEEDER PLUG

- (a) Remove the breeder plug cap and breeder plug from the disc brake cylinder assy.

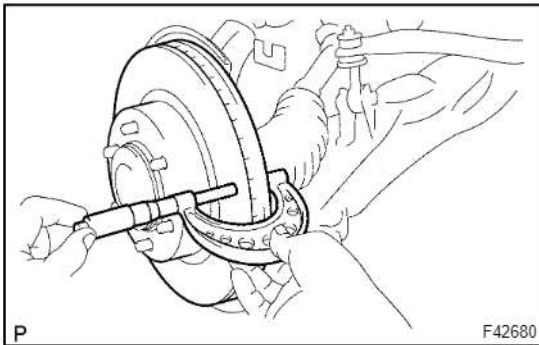
11. INSPECT BRAKE CYLINDER AND PISTON

- (a) Check the cylinder bore and piston for rust or scoring.



12. INSPECT PAD LINING THICKNESS

- (a) Using a ruler, measure the pad lining thickness.
Standard thickness: 11.5 mm (0.453 in.)
Minimum thickness: 1.0 mm (0.039 in.)



13. INSPECT DISC THICKNESS

- (a) Using a micrometer, measure the disc thickness.
Standard thickness: 28.0 mm (1.102 in.)
Minimum thickness: 26.0 mm (1.024 in.)

14. REMOVE FRONT DISC

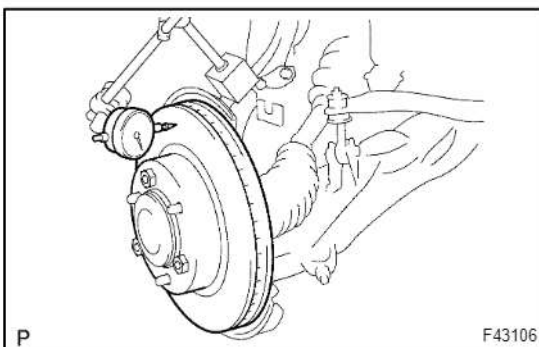
- (a) Make matchmarks on the disc and the axle hub.
 (b) Remove the front disc.

15. INSTALL FRONT DISC

- (a) Aligning the matchmarks, install the front disc.

HINT:

When replacing the disc with a new one, select the installation position where the disc has the minimum run-out.



16. INSPECT DISC RUNOUT

- (a) Temporarily fasten the disc with hub nuts.
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)
 (b) Using a dial indicator, measure the disc runout 10 mm (0.39 in.) away from the outer edge of the disc.
Maximum disc runout: 0.05 mm (0.0020 in.)
 (c) If the disc runout is maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page 30-2). If the bearing play and axle hub runout are normal, adjust the disc runout or grind it on a "On-car" brake lathe.

17. TEMPORARILY TIGHTEN FRONT DISC BRAKE BLEEDER PLUG

- (a) Temporarily tighten the bleeder plug to the disc brake cylinder assy.
 (b) Install the breeder plug cap to the breeder plug.

18. INSTALL PISTON SEAL

- (a) Apply the lithium soap base glycol grease to the 4 new piston seals.
 (b) Install the 4 piston seals to the disc brake cylinder assy.

19. INSTALL FRONT DISC BRAKE PISTON

- (a) Apply the lithium soap base glycol grease to the 4 disc brake pistons.
- (b) Install the 4 disc brake pistons on the disc brake cylinder assy.

NOTICE:

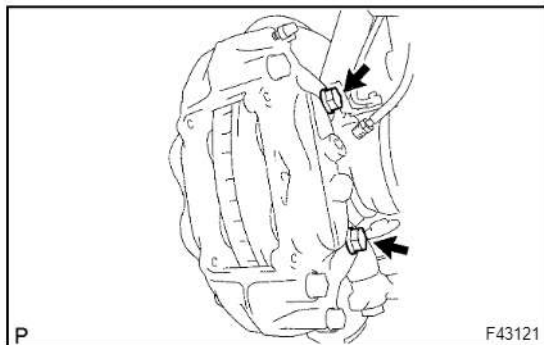
Do not screw the disc brake piston forcibly in the disc brake cylinder assy.

20. INSTALL CYLINDER BOOT

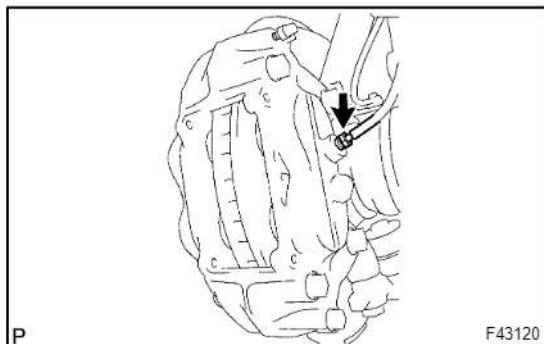
- (a) Apply the lithium soap grease glycol grease to the 4 new cylinder boots.
- (b) Install the 4 cylinder boots on the disc brake cylinder assy.

HINT:

Install the cylinder boot securely on the grooves of the disc brake cylinder and piston.

**21. INSTALL DISC BRAKE CYLINDER ASSY LH**

- (a) Install the disc brake cylinder assy with 2 bolts.
Torque: 123 N·m (1,254 kgf·cm, 91 ft·lbf)



- (b) Using SST, connect the brake tube to the disc brake cylinder assy.

SST 09023-00100

Torque: 15.2 N·m (155 kgf·cm, 11 ft·lbf)

22. INSTALL ANTI SQUEAL SHIM KIT FRONT**NOTICE:**

If necessary, replace the anti-squeal shim kit when replacing the brake pad.

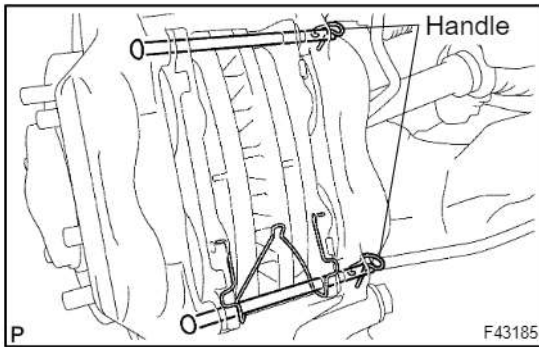
- (a) Install the anti-squeal shims on each brake pads.

NOTICE:

There should be no oil or grease on the friction surfaces of the brake pads and the front disc.

23. INSTALL DISC BRAKE PAD KIT FRONT (PAD ONLY)

- (a) Install the 2 disc brake pads with anti-squeal shim to the disc brake cylinder assy.



24. INSTALL FRONT DISC BRAKE ANTIRATTLE W/HOLE PIN

- (a) Install the 2 anti-rattle w/ hole pins and anti-rattle spring to the disc brake cylinder.

HINT:

Anti-rattle spring is installed with bottom side of anti-rattle w/ hole pin.

- (b) Install the 2 new pin hole clips to the anti-rattle w/ hole pin.

NOTICE:

When installing the pin hole clip, be sure to install the pin hole clip with the handle facing to the vehicle center.

25. FILL RESERVOIR WITH BRAKE FLUID

26. BLEED BRAKE LINE (See page 32-4)

27. CHECK FLUID LEVEL IN RESERVOIR

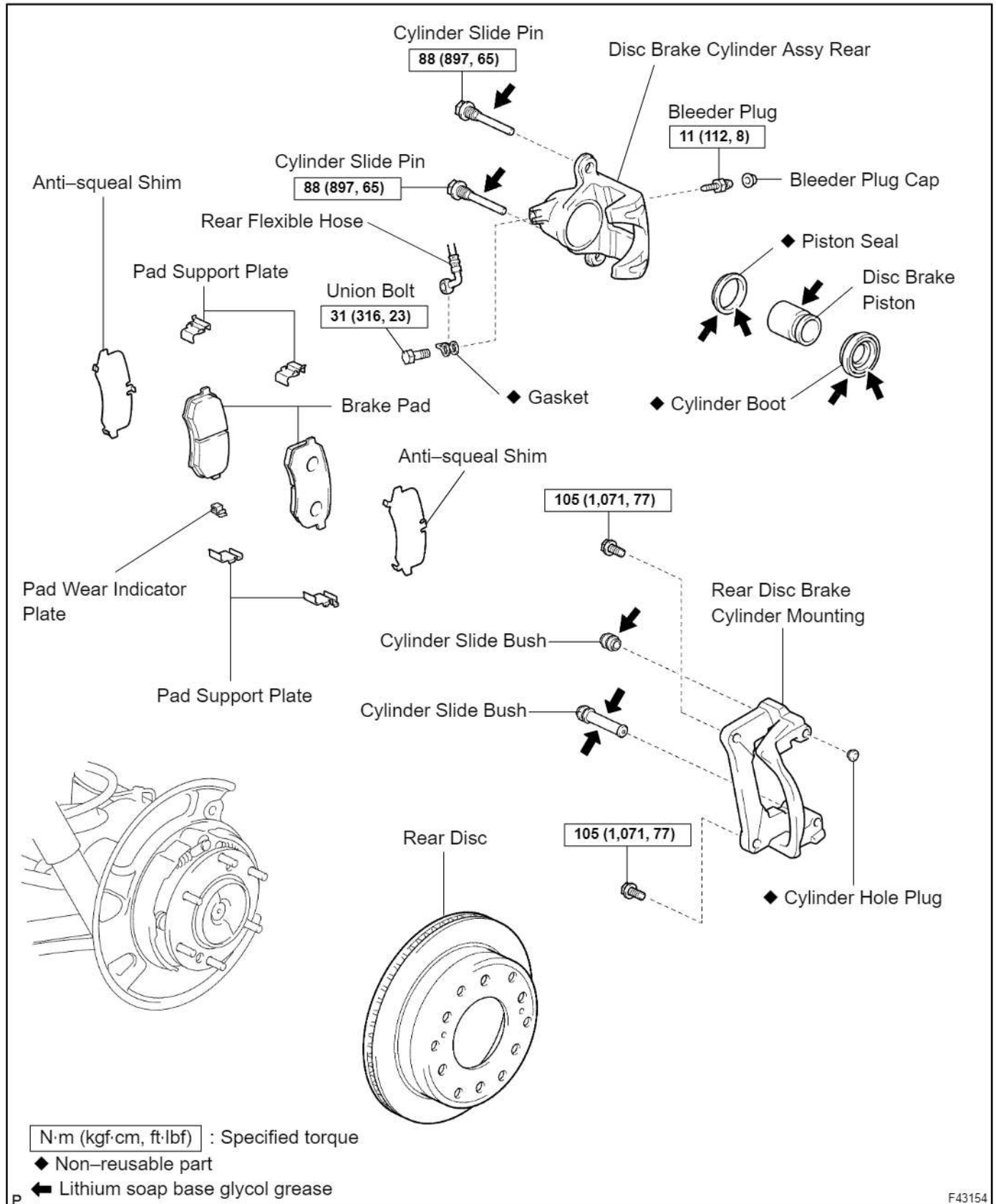
28. CHECK BRAKE FLUID LEAKAGE

29. INSTALL FRONT WHEEL

Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)

REAR BRAKE COMPONENTS

3200Y-02



cardiagn.com

F43154

OVERHAUL

HINT:

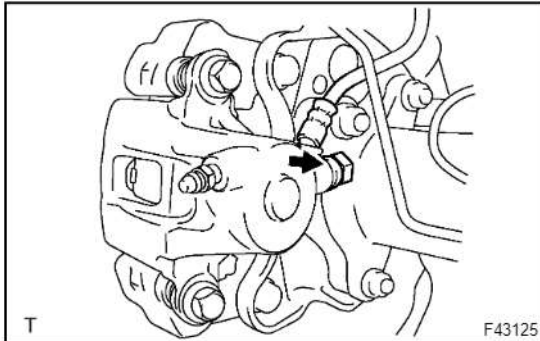
Overhaul procedure of the RH side is the same as that of with LH side.

1. REMOVE REAR WHEEL

2. DRAIN BRAKE FLUID

NOTICE:

Wash off the brake fluid immediately if it comes into contact with a painted surface.

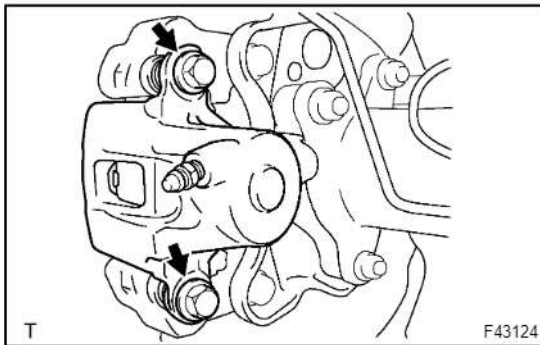


3. DISCONNECT REAR LH FLEXIBLE HOSE

- (a) Remove the union bolt and gasket from the disc brake cylinder, then disconnect the flexible hose from the disc brake cylinder assy rear.

HINT:

Use a container to catch brake fluid as it drains out.



4. REMOVE DISC BRAKE CYLINDER ASSY REAR LH

- (a) Remove the 2 cylinder slide pins from disc brake cylinder assy rear.
- (b) Remove the disc brake cylinder assy rear from rear disc brake cylinder mounting.

5. REMOVE DISC BRAKE PAD KIT REAR (PAD ONLY)

- (a) Remove the 2 brake pads with anti-squeal shims from rear disc brake cylinder mounting.

6. REMOVE REAR DISC BRAKE ANTI-SQUEAL SHIM

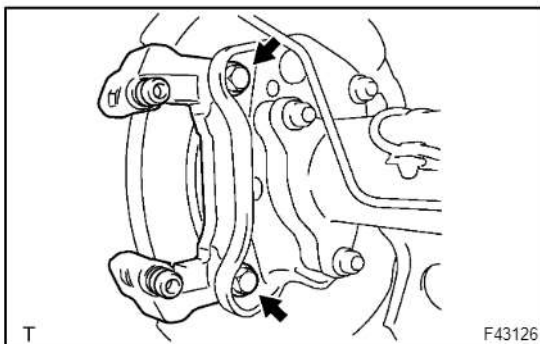
- (a) Remove the 2 anti-squeal shims from each disc brake pads.

7. REMOVE REAR DISC BRAKE PAD WEAR INDICATOR PLATE

- (a) Remove the pad wear indicator plate from the inner side disc brake pad.

8. REMOVE REAR DISC BRAKE PAD SUPPORT PLATE

- (a) Remove the 4 pad support plates from the rear disc brake cylinder mounting.

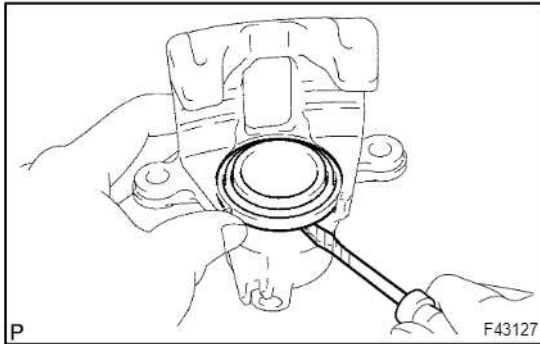


9. REMOVE REAR DISC BRAKE CYLINDER MOUNTING LH

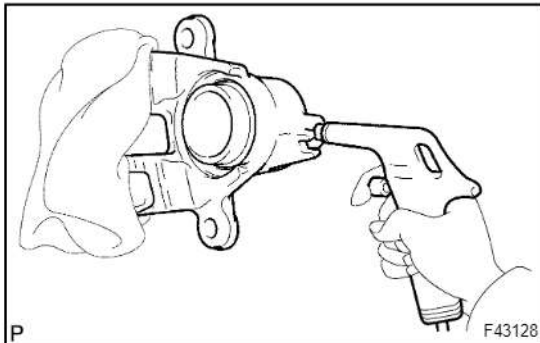
- (a) Remove the 2 bolts and rear brake cylinder mounting.

10. REMOVE REAR DISC BRAKE CYLINDER SLIDE BUSH

- (a) Remove the 2 cylinder slide bushes from the rear disc brake cylinder mounting.
- (b) Remove the cylinder hole plug from the rear disc brake cylinder mounting.

**11. REMOVE CYLINDER BOOT**

- (a) Using a screwdriver, remove the cylinder boot from disc brake cylinder assy rear.

**12. REMOVE REAR DISC BRAKE PISTON**

- (a) Place a of cloth or equivalent between the piston and the disc brake cylinder assy rear.
- (b) Use compressed air to remove the piston from the disc brake cylinder assy rear.

CAUTION:

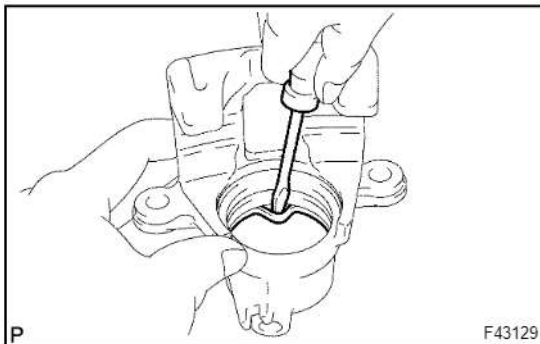
Do not place your fingers in front of the piston when using compressed air.

NOTICE:

Do not spatter the brake fluid.

13. REMOVE PISTON SEAL

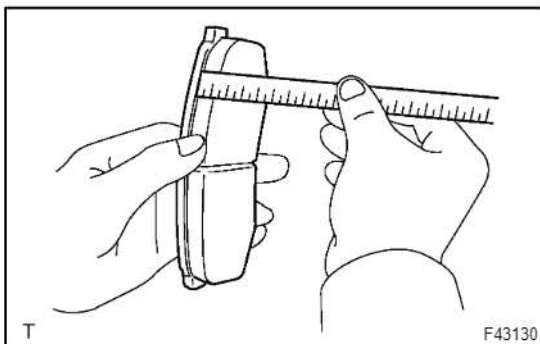
- (a) Using a screwdriver, remove the piston seal from the disc brake cylinder assy rear.

**14. REMOVE REAR DISC BRAKE BLEEDER PLUG**

- (a) Remove the bleeder plug cap and bleeder plug from disc brake cylinder assy rear.

15. INSPECT BRAKE CYLINDER AND PISTON

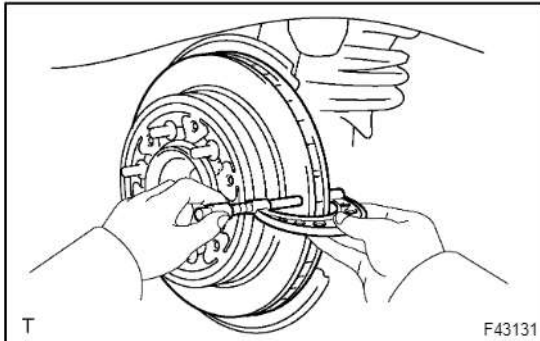
- (a) Check the cylinder bore and piston for rust or scarring.

**16. INSPECT PAD LINING THICKNESS**

- (a) Using a ruler, measure the pad lining thickness.
Standard thickness: 10.0 mm (0.394 in.)
Minimum thickness: 1.0 mm (0.039 in.)

17. INSPECT REAR DISC BRAKE PAD SUPPORT PLATE

- (a) Inspect the 4 pad support plates. Make sure the plates have sufficient rebound check for deformation, cracks or wear, rust, dirt or foreign particles.

**18. INSPECT DISC THICKNESS**

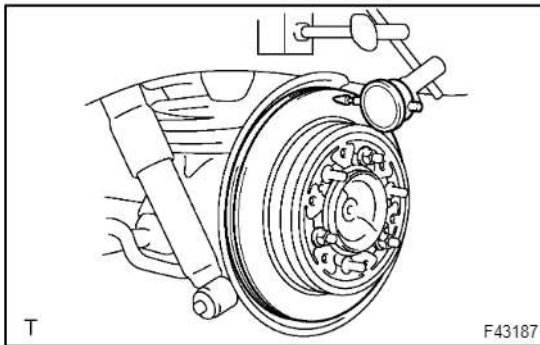
- (a) Using a micrometer, measure the disc thickness.
Standard thickness: 18.0 mm (0.709 in.)
Minimum thickness: 16.0 mm (0.630 in.)

19. REMOVE REAR DISC

- (a) Make matchmarks on the rear disc and the axle hub.
 (b) Remove the rear disc.

20. INSTALL REAR DISC

- (a) Align the matchmarks and install the rear disc.

**21. INSPECT DISC RUNOUT**

- (a) Temporarily fasten the disc with hub nuts.
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)
 (b) Using a dial indicator, measure the disc runout 10 mm (0.39 in.) away from the outer edge of the disc.
Maximum disc runout: 0.20 mm (0.0079 in.)
 (c) If the disc runout is the maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page 30-2). If the bearing play and axle hub runout are normal, adjust the disc runout or grind it on a "On-car" brake lathe.

22. TEMPORARILY TIGHTEN REAR DISC BRAKE BLEEDER PLUG

- (a) Temporarily tighten the bleeder plug to the disc brake cylinder assy rear.
 (b) Install the bleeder plug cap on the bleeder plug.

23. INSTALL PISTON SEAL

- (a) Apply the lithium soap base glycol grease to a new piston seal.
 (b) Install the piston seal on the disc brake cylinder assy rear.

24. INSTALL REAR DISC BRAKE PISTON

- (a) Apply the lithium soap base glycol grease to a disc brake piston.
 (b) Install the disc brake piston on the disc brake cylinder assy rear.

NOTICE:

Do not screw the disc brake piston forcedly in the disc brake cylinder assy rear.

25. INSTALL CYLINDER BOOT

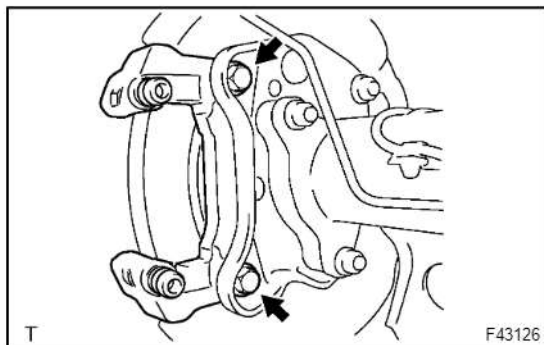
- (a) Apply the lithium soap base glycol grease to a new cylinder boot.
 (b) Install the cylinder boot on the disc brake cylinder

HINT:

Install the cylinder boot securely on the grease of the disc brake cylinder assy and piston.

26. INSTALL REAR DISC BRAKE CYLINDER SLIDE BUSH

- (a) Apply the lithium soap base glycol grease to a new cylinder hole plug and 2 new cylinder slide bushes.
 (b) Install the cylinder hole plug and 2 cylinder slide bush to the rear disc brake cylinder mounting.



27. INSTALL REAR DISC BRAKE CYLINDER MOUNTING LH

- (a) Install the rear disc brake cylinder mounting with 2 bolts.
Torque: 105 N·m (1,071 kgf·cm, 77 ft·lbf)

28. INSTALL REAR DISC BRAKE PAD SUPPORT PLATE

- (a) Install the 4 pad support plates on the rear disc brake cylinder mounting.

29. INSTALL REAR DISC BRAKE PAD WEAR INDICATOR PLATE

- (a) Install the pad wear indicator plate on the inner side disc brake pad.

HINT:

Install the pad wear indicator facing downward.

30. INSTALL REAR DISC BRAKE ANTI-SQUEAL SHIM

NOTICE:

If necessary, replace the anti-squeal shim kit when replacing the brake pad.

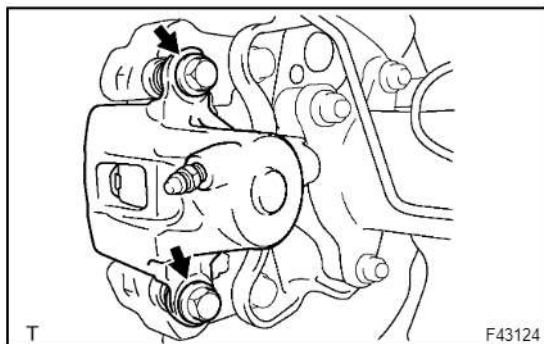
- (a) Install the anti-squeal shims on each brake pad.

NOTICE:

There should be no oil or grease on the friction surfaces of the brake pads and the rear disc.

31. INSTALL DISC BRAKE PAD KIT REAR (PAD ONLY)

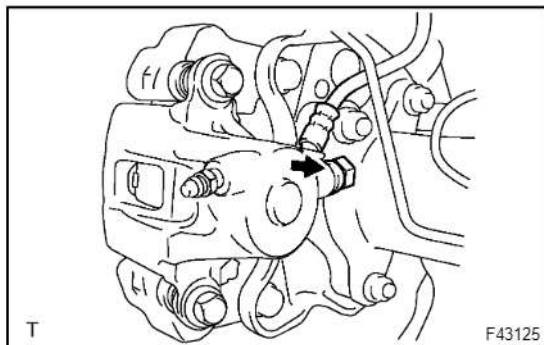
- (a) Install the 2 disc brake pads with anti-squeal shim to the disc brake cylinder assy.



32. INSTALL DISC BRAKE CYLINDER ASSY REAR LH

- (a) Apply the lithium soap base glycol grease to the sliding part of 2 cylinder slide pins.
(b) Install the disc brake cylinder assy rear with 2 cylinder slide pins.

Torque: 88 N·m (897 kgf·cm, 65 ft·lbf)

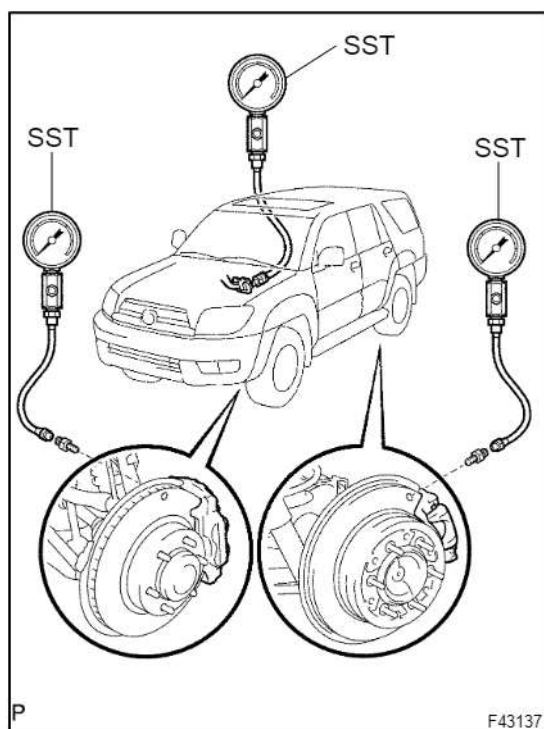


33. CONNECT REAR LH FLEXIBLE HOSE

- (a) Connect the flexible hose with union bolt and new gasket to the disc brake cylinder assy rear.

Torque: 31 N·m (316 kgf·cm, 23 ft·lbf)

- 34. FILL RESERVOIR WITH BRAKE FLUID
- 35. BLEED BRAKE LINE (See page [32-4](#))
- 36. CHECK FLUID LEVEL IN RESERVOIR
- 37. CHECK BRAKE FLUID LEAKAGE
- 38. INSTALL REAR WHEEL
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)



BRAKE MASTER CYLINDER SUB-ASSY

320P0-02

ON-VEHICLE INSPECTION

1. CHECK BRAKE MASTER CYLINDER FLUID PRESSURE CHANGE

- Inspect the battery positive voltage.
Battery positive voltage: 10 – 14 V
- Turn the ignition switch to OFF and depress the brake pedal more than 40 times.

HINT:

When a pressure in power supply system is released, reaction force becomes lighter and stroke becomes longer.

- Install LSPV gauge (SST) and brake pedal effort gauge, bleed air.

SST 09709-29018

- When booster does not operate: Depress the brake pedal and check fluid pressure.

At 245 N (25 kgf, 55 lbf):

Front brake pressure	Rear brake pressure
2,260 kPa (23.0 kgf/cm ² , 328 psi) or more	0 kPa (0 kgf/cm ² , 0 psi)

At 343 N (35 kgf, 77 lbf):

Front brake pressure	Rear brake pressure
3,280 kPa (33.4 kgf/cm ² , 476 psi) or more	0 kPa (0 kgf/cm ² , 0 psi)

- When booster operate: Depress the brake pedal and check fluid pressure.

- Turn the ignition switch to ON and wait until the pump motor has stopped.

- Depress the brake pedal and check fluid pressure.

At 49 N (5 kgf, 11 lbf):

Front brake pressure	Rear brake pressure
1,000 – 2,100 kPa (10.1 – 21.4 kgf/cm ² , 145 – 305 psi)	1,280 – 2,380 kPa (13.1 – 24.3 kgf/cm ² , 186 – 345 psi)

At 98 N (10 kgf, 22 lbf):

Front brake pressure	Rear brake pressure
3,690 – 4,890 kPa (37.6 – 49.9 kgf/cm ² , 535 – 709 psi)	4,560 – 5,760 kPa (46.5 – 58.7 kgf/cm ² , 661 – 836 psi)

At 147 N (15 kgf, 33 lbf):

Front brake pressure	Rear brake pressure
6,290 – 7,490 kPa (64.1 – 76.4 kgf/cm ² , 912 – 1,086 psi)	7,950 – 9,150 kPa (81.1 – 93.3 kgf/cm ² , 1,153 – 1,327 psi)

At 196 N (20 kgf, 44 lbf):

Front brake pressure	Rear brake pressure
8,600 – 9,800 kPa (87.7 – 99.9 kgf/cm ² , 1,247 – 1,421 psi)	11,310 – 12,510 kPa (115.3 – 127.6 kgf/cm ² , 1,640 – 1,814 psi)

2. IN CASE OF USING TOYOTA HAND-HELD TESTER: INSPECT BRAKE MASTER CYLINDER OPERATION

- (a) Inspect the battery positive voltage.

Battery positive voltage: 10 – 14 V

- (b) Turn the ignition switch OFF, depress the brake pedal more than 40 times.

HINT:

When a pressure in power supply system is released, reaction force becomes light and stroke becomes longer.

- (c) Check that the brake pedal becomes light to depress.

If the pedal does not become to be light to depress, check and replace the brake line and brake master cylinder.

- (d) Turn the ignition switch ON, check the pump motor operation noise.

If the pump motor does not operate, check and replace the wire harness and pump motor (See page 32-39).

- (e) Connect the hand-held tester.

- (1) Connect the hand-held tester to the DLC3.
- (2) Turn the ignition switch ON.
- (3) Select the "ACTIVE TEST" mode on the hand-held tester.

HINT:

- ◆ Please refer to the hand-held tester operator's manual for further details.
- ◆ To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

- (f) Inspect the front TRAC & VSC solenoid operation.

- (1) Select "SA1" and "SA2" on the hand-held tester.
- (2) With "SA1" and "SA2" turned ON simultaneously with the hand-held tester, depress the brake pedal with stable force and check that the pedal cannot be depressed.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

If the pedal can be depressed, replace the brake master cylinder.

NOTICE:

When operating it continuously, set the interval of more than 20 sec.

- (3) Once, release the brake pedal.
- (4) When the solenoids are OFF, after depressing the brake pedal again and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (g) Inspect the front ABS solenoid operation.

- (1) Select "SFRH" and "SFLH" on the hand-held tester.
- (2) With "SFRH" and "SFLH" turned ON simultaneously with the hand-held tester, depress the brake pedal with stable force and check that the brake pedal cannot be depressed.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

If the pedal can be depressed, replace the brake master cylinder.

- (3) Once, release the brake pedal when the solenoids are OFF, check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (4) Once, release the brake pedal. After depressing and holding the brake pedal with stable force, turn the SFRH and SFRR solenoids ON simultaneously.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

- (5) When the solenoids are OFF, check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (6) Once, release the brake pedal. After depressing and holding the brake pedal with stable force, turn the SFLH and SFLR solenoids ON simultaneously.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

- (7) When the solenoids are OFF, check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (h) Jack up and support the vehicle.
- (i) Release the parking brake pedal.
- (j) Shift the transfer shift lever to "N" position and check that the rear wheels by rotating them by hand.
- (k) Inspect the rear TRAC & VSC solenoid operation.
 - (1) Select the "SA3" and "STR" on the hand-held tester.
 - (2) Turn the "SA3" and "STR" ON simultaneously with the hand-held tester, and check that the rear wheel does not rotate by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the rear wheels rotate, replace the brake master cylinder.

- (3) Turn the "SA3" and "STR" OFF simultaneously, and check that the rear wheels by rotating them by hand.

HINT:

- ◆ To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.
- ◆ When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

NOTICE:

When operating it continuously, set the interval of more than 20 sec.

If the rear wheels stop, replace the brake master cylinder.

- (l) Inspect the right rear ABS solenoid.
 - (1) Select the "SA3", "STR" and "SRRH", on the hand-held tester.
 - (2) Turn the "SA3", "STR" and "SRRH" ON simultaneously with the hand-held tester, and check that the right rear wheel by rotating it by hand.

HINT:

- ◆ To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.
- ◆ When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.
- ◆ When solenoid is OFF, the wheel might stop temporarily. However if the wheel rotates again, the function works normally.

If the rear wheels stop, replace the brake master cylinder.

- (3) Turn the "SA3", "STR" and "SRRH" OFF, and check that the right rear wheel by rotating it by hand.

HINT:

- ◆ To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.
- ◆ When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the right rear wheel stop, replace the brake master cylinder.

- (4) Depress the pedal with stable force, then turn the "SRRH" and "SRRR" ON simultaneously.
 (5) When the solenoids are ON, check that the right rear wheel by rotating it by hand.

(m) Inspect the left rear ABS solenoid operation.

- (1) Select the "SA3", "STR" and "SRLH" on the hand-held tester.
 (2) Turn the "SA3", "STR" and "SRLH" ON with hand-held tester, and check that the left rear wheel by rotating it by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

If the rear wheels stop, replace the brake master cylinder.

- (3) Turn the "SA3", "STR" and "SRLH" OFF and check that the left rear wheel by rotating it by hand.

HINT:

- ◆ To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.
- ◆ When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.
- ◆ When solenoid is OFF, the wheel might stop temporarily. However if the wheel rotates again, the function works normally.

If the left rear wheel stop, replace the brake master cylinder.

- (4) Depress the pedal with stable force, then turn the "SRLH" and "SRLR" ON simultaneously.

HINT:

To protect the solenoids, hand-held tester turns OFF automatically 2 sec. after every solenoid has been turned ON.

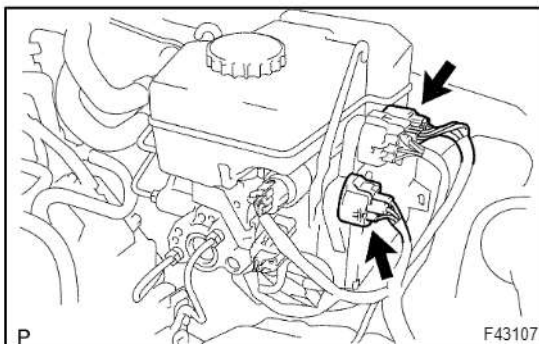
- (5) When the solenoids are ON, check that the left rear wheel by rotating it by hand.

HINT:

When rotating the wheel fast, the fail-safe function is activated and judgement cannot be made properly. So rotate the wheel as slowly as possible.

(n) Lower the vehicle.

(o) Disconnect the hand-held tester.



3. IN CASE OF USING ABS ACTUATOR CHECKER (SST):

INSPECT BRAKE MASTER CYLINDER OPERATION

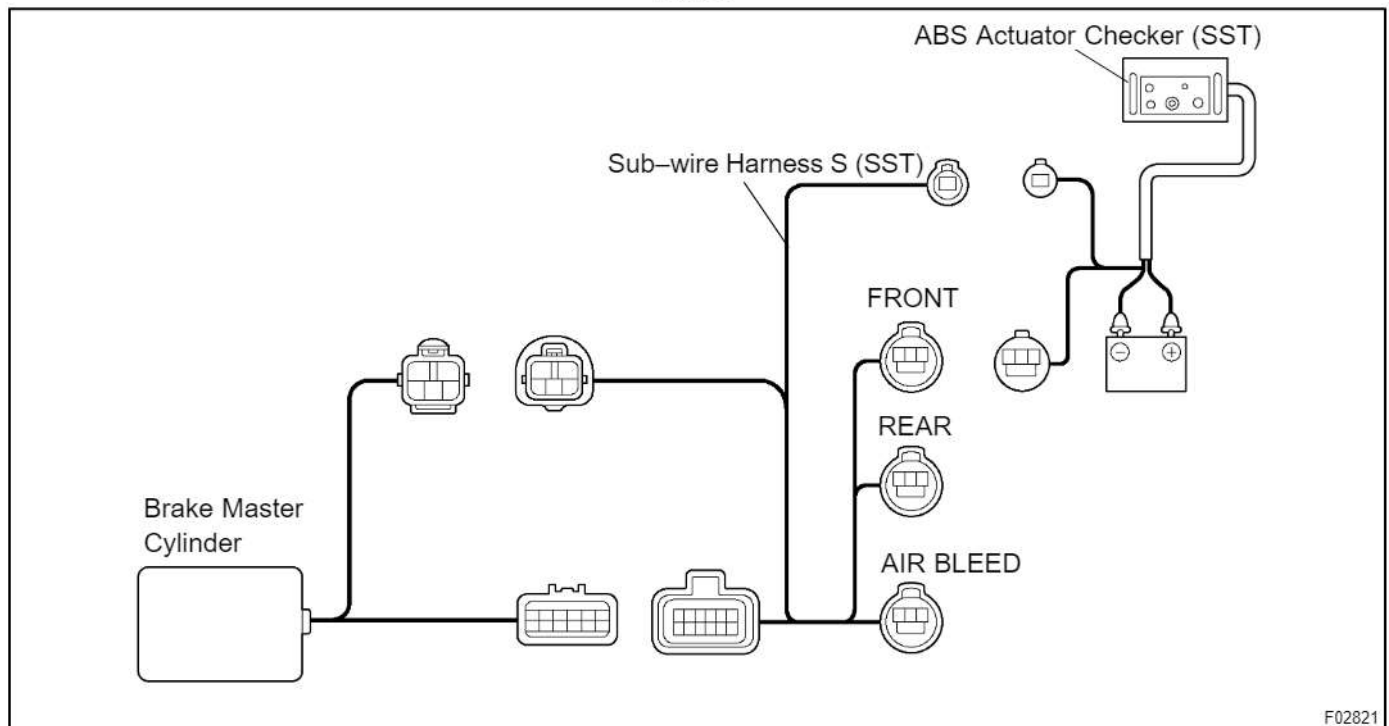
- (a) Inspect the battery positive voltage.
Battery positive voltage: 10 – 14 V
 (b) Disconnect the 2 connectors from brake master cylinder.

- (c) Connect the actuator checker (SST) to the brake master cylinder side wire harness via the sub-wire harness S (SST), as shown in the following chart.
SST 09990-00150, 09990-00480

HINT:

Connect the connector with the label of "FRONT" attached to the connector of actuator checker.

- (d) Connect the red cable of the checker to the battery positive (+) terminal and the black cable to the negative (-) terminal.



- (e) Place "SHEET G" (SST) of "FRONT" on actuator checker.
SST 09990-00240
- (f) Turn the ignition switch OFF, depress the brake pedal more than 40 times.

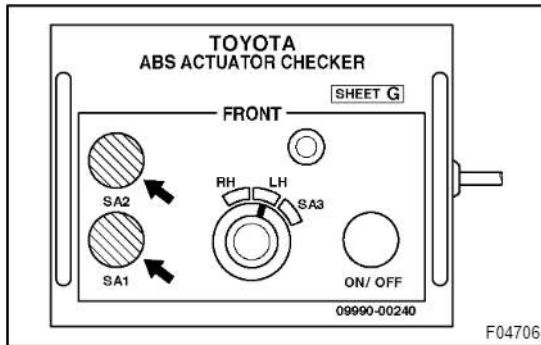
HINT:

When a pressure in power supply system is released, reaction force becomes light and stroke becomes longer.

- (g) Check that the brake pedal becomes light to depress.
If the pedal does not become to be light to depress, check and replace the brake line and brake master cylinder.

- (h) Turn the ignition switch ON, check the pump motor operation noise.

If the pump motor does not operate, check and replace the wire harness and pump motor (See page 32-39).



- (i) Inspect the right front ABS solenoid operation.
- (1) Push in and hold the "SA1" and "SA2" switches simultaneously, depress strongly and hold the brake pedal with stable force.

NOTICE:

Do not keep the "SA1" and "SA2" pushed down for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

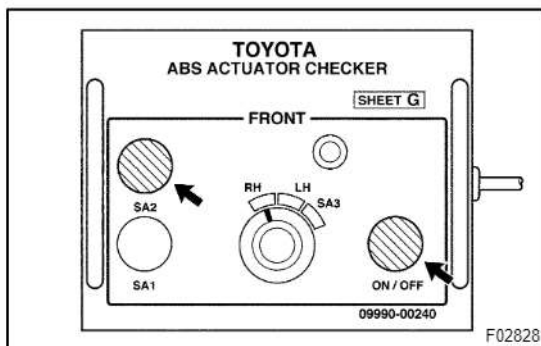
- (2) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the brake master cylinder.

- (3) Release the "SA1" switch and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (4) Release the "SA2" switch and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.



- (j) Inspect the right front ABS solenoid operation.
- (1) Turn the selector switch to "RH" position.
 - (2) Push and hold in the MAIN push switch and "SA2" switch simultaneously, depress and hold the brake pedal with stable force.

NOTICE:

Do not keep the MAIN push switch and "SA2" switch pushed down for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (3) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the brake master cylinder.

- (4) Release the MAIN push switch and "SA2" switch simultaneously and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

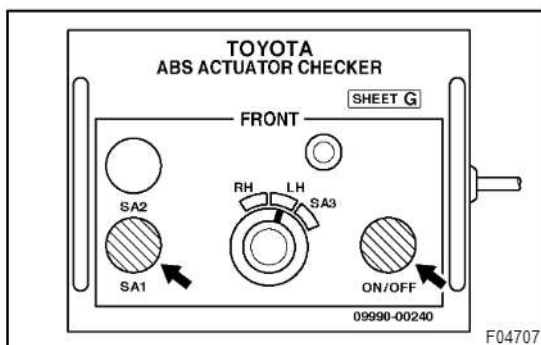
- (5) Release the brake pedal.

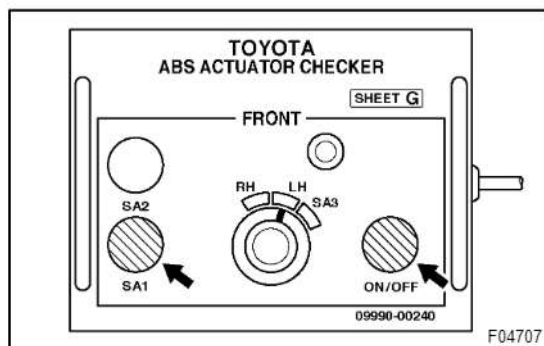
- (6) Depress and hold the brake pedal with stable force, push and hold in MAIN push switch.

NOTICE:

Do not keep the MAIN push switch pushed down for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (7) Check that the brake pedal cannot be depressed. If the pedal can be depressed, replace the brake master cylinder.





- (8) Release the MAIN push switch, and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (9) Release the brake pedal.
- (k) Inspect the left front ABS solenoid operation.
- (1) Turn the selector switch to "LH" position.
- (2) Push and hold in the MAIN push switch and "SA1" switch simultaneously, depress and hold the brake pedal with stable force.

NOTICE:

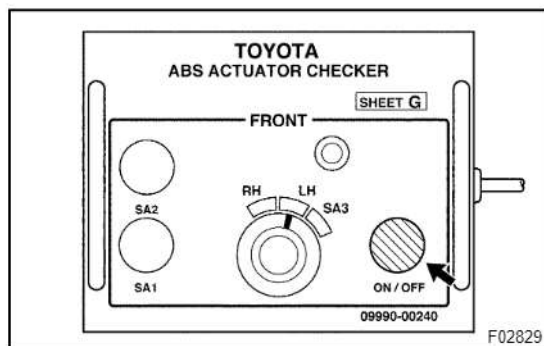
Do not keep the MAIN push switch and "SA1" switch pushed down for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (3) Check that the brake pedal cannot be depressed.
- If the pedal can be depressed, replace the brake master cylinder.

- (4) Release the MAIN push switch and "SA1" switch simultaneously, and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (5) Release the brake pedal.



- (6) Depress and hold the brake pedal with stable force, push and hold in MAIN push switch.

NOTICE:

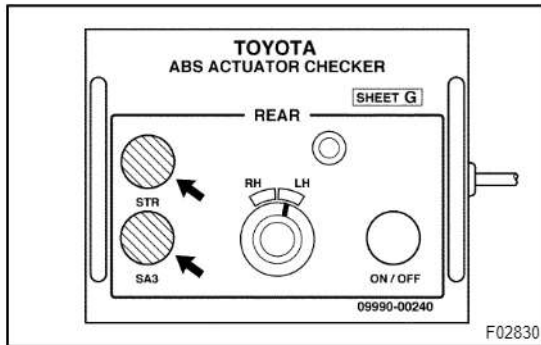
Do not keep the MAIN push switch pushed down for more than 10 sec. When operating it continuously, set the interval of more than 20 sec.

- (7) Check that the brake pedal cannot be depressed.
- If the pedal can be depressed, replace the brake master cylinder.

- (8) Release the MAIN push switch, and check that the brake pedal can be depressed.

If the pedal cannot be depressed, replace the brake master cylinder.

- (9) Release the brake pedal.
- (l) Turn the ignition switch to OFF, then reconnect the connector of sub-wire harness from the one with label of "FRONT" to "REAR".
- (m) Place "SHEET G" of "REAR" on the actuator checker.
- (n) Jack up and support the vehicle.
- (o) Start the engine and run it at idle.



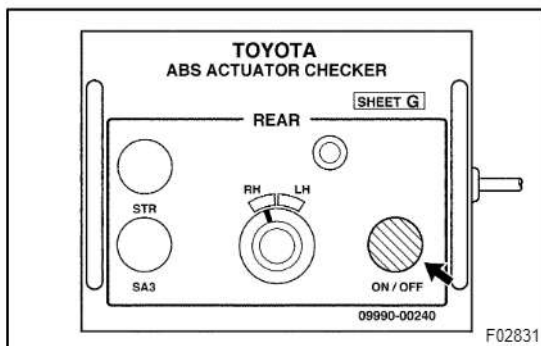
- (p) Inspect the rear TRAC & VSC solenoid.
- (1) Release the parking brake pedal and shift the shift lever to "L" position.
 - (2) Push and hold the "SA3" switch and "STR" switch simultaneously.

NOTICE:

- ◆ Do not keep the "STR" switch pushed down for more than 10 sec.
 - ◆ Do not keep the "SA3" switch pushed down for more than 5 sec.
 - ◆ When operating it continuously, set the interval of more than 20 sec.
- (3) Check that the rear wheels stop.

If the rear wheels rotate, replace the brake master cylinder.

- (4) Release the "SA3" switch and "STR" switch simultaneously.
 - (5) Check that the rear wheels rotate.
- If the rear wheels stop, replace the brake master cylinder.



- (q) Inspect the right rear ABS solenoid.
- (1) Turn the selector switch to "RH" position.
 - (2) Depress the brake pedal several times and release the brake pedal when the pump begins rotating. Wait until the pump stops.
 - (3) Turn the ignition switch to OFF.
 - (4) Depress the brake pedal with a force of 343 N (35 kgf, 77 lbf), record the fluid surface in the reservoir tank of the brake master cylinder.
 - (5) Press the MAIN push switch for 10 sec., and check that the fluid surface in the reservoir tank of the brake master cylinder does not rise up at this time.

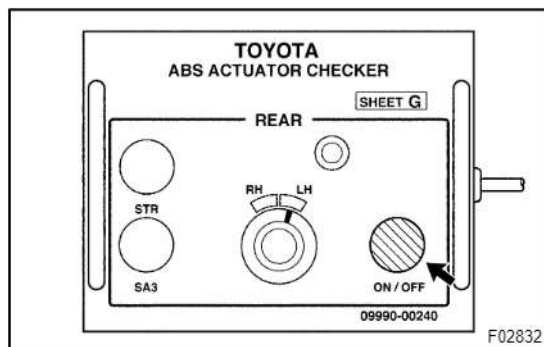
If the fluid surface level rises up, replace the brake master cylinder.

NOTICE:

Do not press MAIN push switch for more than 10 sec. When operating the switch continuously, do it an interval of more than 20 sec.

- (6) Start the engine and run it at idle.
- (7) Depress the brake pedal.
- (8) Release the parking brake pedal and shift the shift lever to "L" position.
- (9) Once, release the brake pedal. After depressing the brake pedal with stable force, then push and hold MAIN push switch.
- (10) Check that the right rear wheel rotates.

If the right rear wheel stops, replace the brake master cylinder.



- (r) Inspect the left rear ABS solenoid.
- (1) Turn the selector switch to "LH" position.
 - (2) Depress the brake pedal several times and release the brake pedal when the pump begins rotating. Wait until the pump stops.
 - (3) Turn the ignition switch to OFF.
 - (4) Depress the brake pedal with a force of 343 N (35 kgf, 77 lbf), record the fluid surface in the reservoir tank of the brake master cylinder.
 - (5) Press the MAIN push switch for 10 sec., and check that the fluid surface in the reservoir tank of the brake master cylinder does not rise up at this time.

If the fluid surface level rises up, replace the brake master cylinder.

NOTICE:

Do not press MAIN push switch for more than 10 sec. When operating the switch continuously, do it an interval of more than 20 sec.

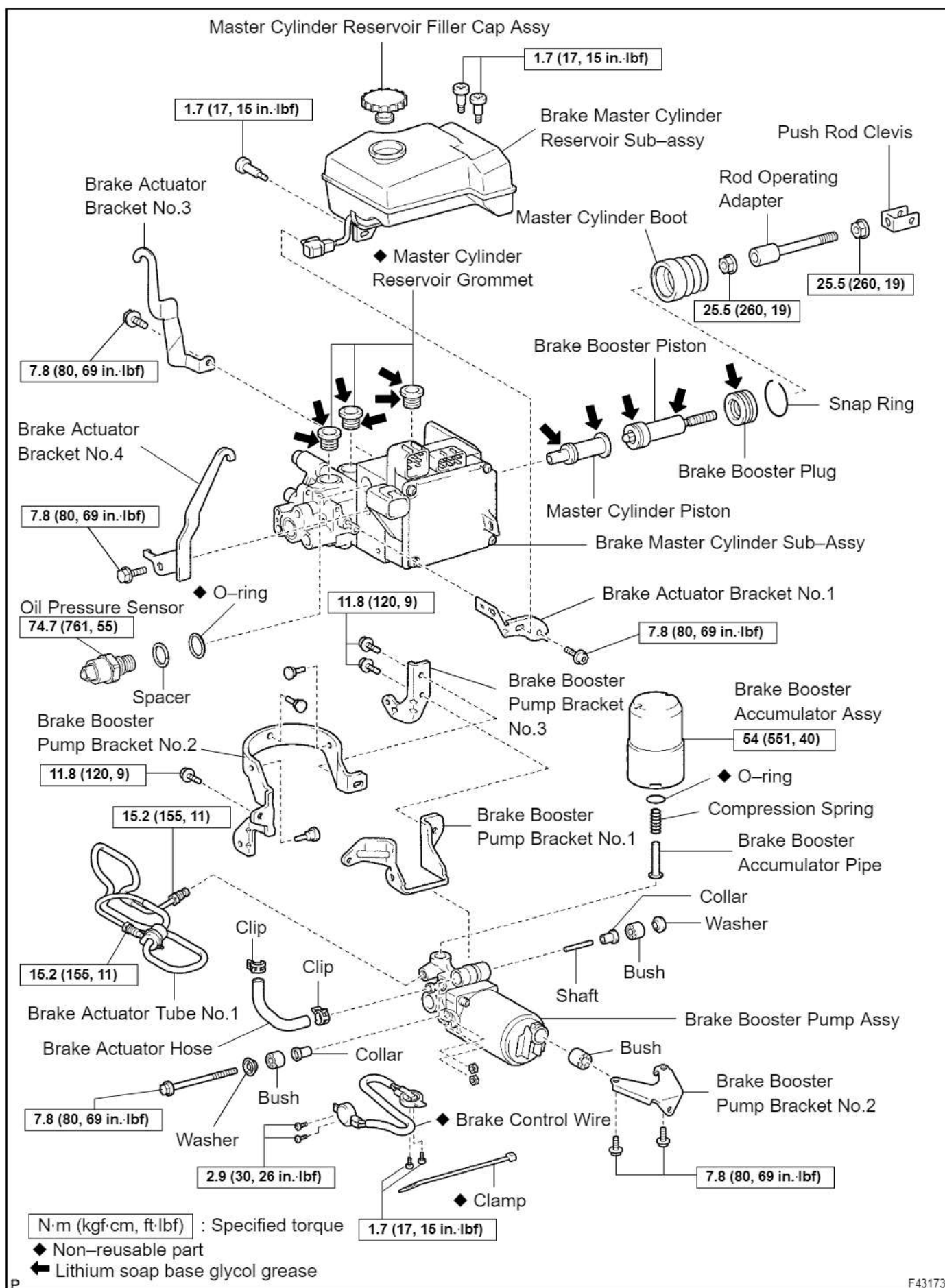
- (6) Start the engine and run it at idle.
- (7) Depress the brake pedal.
- (8) Release the parking brake pedal and shift the shift lever to "L" position.
- (9) Once, release the brake pedal. After depressing the brake pedal with stable force, then push and hold MAIN push switch.
- (10) Check that the left rear wheel rotates.

If the left rear wheel stops, replace the brake master cylinder.

- (s) Stop the engine and lower the vehicle.
- (t) Remove the "SHEET G" (SST) and disconnect the actuator checker (SST) and sub-wire harness S (SST) from the brake master cylinder.
- (u) Connect the 2 connectors to the actuator.
- (v) Clear the DTC (See page 05-803).

320P1-02





F43173

OVERHAUL

NOTICE:

Before starting the work, make sure that the ignition switch is OFF and depress the brake pedal more than 40 times.

HINT:

When a pressure in power supply system is released, reaction force become light.

NOTICE:

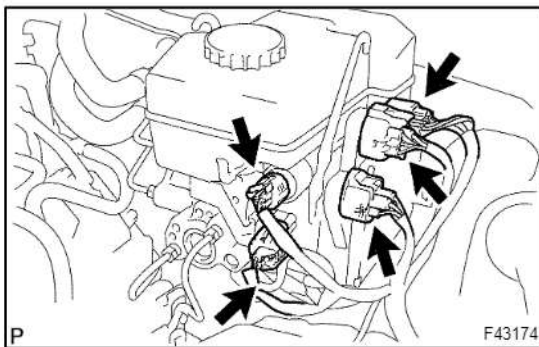
- ◆ As high pressure is applied to the brake actuator tube No.1, never deform it.
- ◆ Until the work is over, do not turn the ignition switch ON.

1. DRAIN BRAKE FLUID

NOTICE:

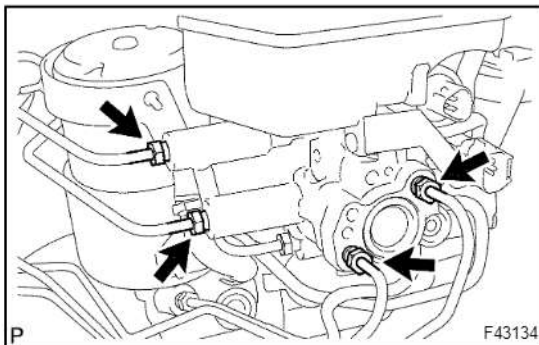
Wash off the brake fluid immediately if it comes into contact with a painted surface.

2. REMOVE INSTRUMENT PANEL FINISH PLATE (See page 71-14)
3. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER (See page 71-14)
4. REMOVE INSTRUMENT PANEL LOWER LH (See page 71-14)
5. REMOVE SKID CONTROL ECU ASSY (See page 32-57)
6. REMOVE PUSH ROD PIN
 - (a) Remove the clip and push rod pin from the clevis.

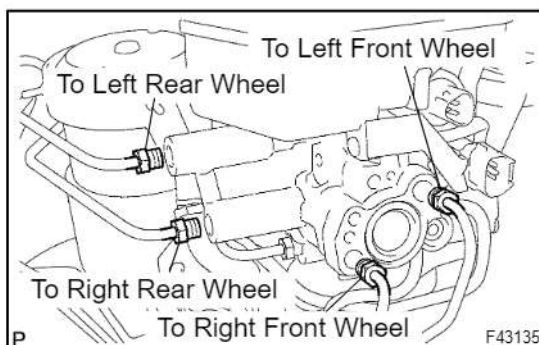


7. REMOVE BRAKE MASTER CYLINDER

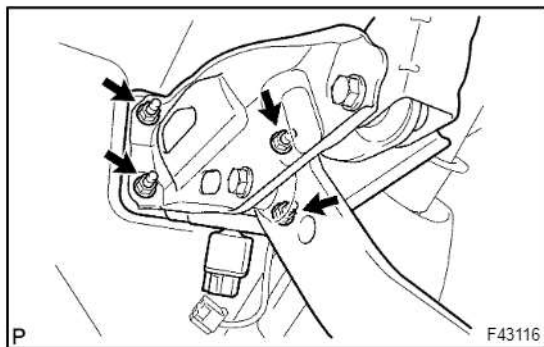
- (a) Disconnect the 5 connectors from brake master cylinder.



- (b) Using SST, disconnect the 4 brake lines from brake master cylinder.
SST 09023-00100



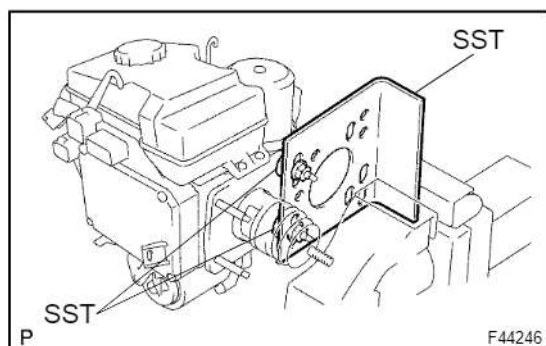
- (c) Use tags or make a name to identify the place to reconnect.



- (d) Remove the 4 nuts and pull out the brake master cylinder.

8. REMOVE BRAKE BOOSTER GASKET

- (a) Remove the brake booster gasket from the brake master cylinder.



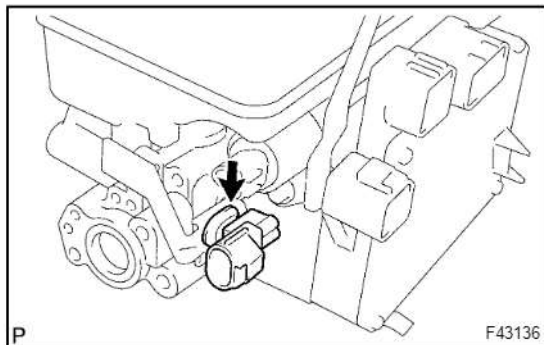
9. FIX BRAKE MASTER CYLINDER

- (a) Using SST, set the brake master cylinder in a vise.
SST 09630-00014 (09631-00142), 09950-60010
(09951-00180, 09951-00190)

10. REMOVE MASTER CYLINDER PUSH ROD CLEVIS

- (a) Loosen the lock nut on the brake master cylinder side then remove the rod operating adapter and lock nut.
(b) Loosen the lock nut on rod operating adapter then remove the push rod clevis and lock nut.

11. REMOVE MASTER CYLINDER BOOT



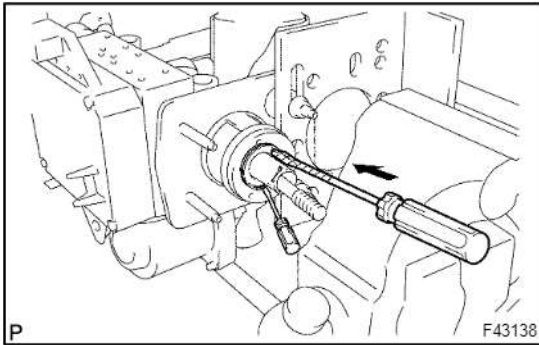
12. REMOVE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSY

- (a) Using a clip remover, remove the brake level warning connector from the brake actuator bracket No.1.
(b) Remove the 3 screws and pull out the master cylinder reservoir sub-assy.

13. REMOVE BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSY

14. REMOVE MASTER CYLINDER RESERVOIR GROMMET

- (a) Remove the 3 reservoir grommets from the master cylinder reservoir sub-assy.

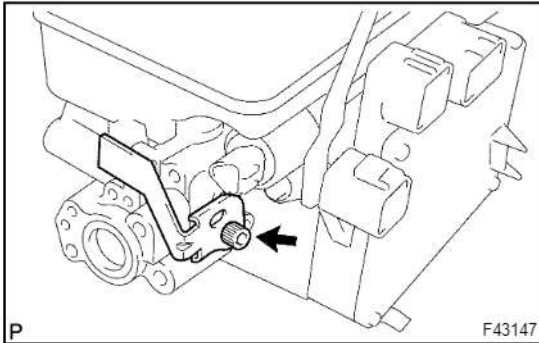


15. REMOVE BRAKE MASTER CYLINDER KIT

- (a) Pressing the brake master cylinder plug in with a screwdriver, use a pin or equivalent to push the snap ring from the hole in the master cylinder body and then remove it with another screwdriver.
- (b) Remove the brake booster piston, brake booster plug and master cylinder piston by pulling straight out, not at angle.

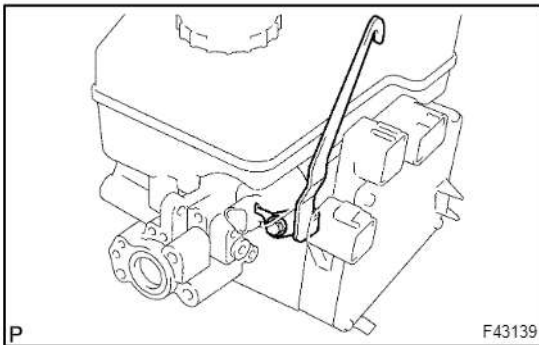
NOTICE:

If pulled out at an angle, there is a possibility that the cylinder bore could be damaged.



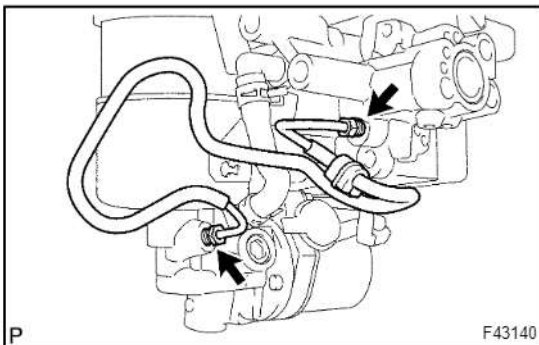
16. REMOVE BRAKE ACTUATOR BRACKET NO.1

- (a) Using a hexagon wrench (5 mm), remove the bolt and brake actuator bracket No.1 from brake master cylinder.
SST 99999-60011



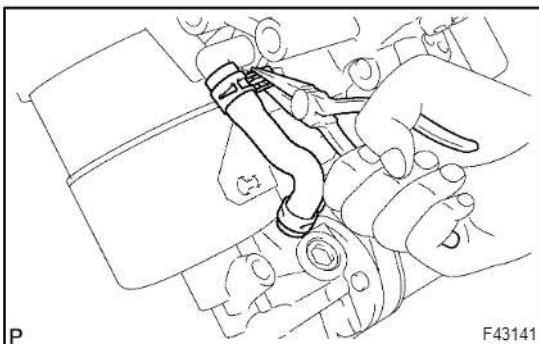
17. REMOVE BRAKE ACTUATOR BRACKET NO.4

- (a) Remove the bolt and brake actuator bracket No.4 from brake master cylinder.



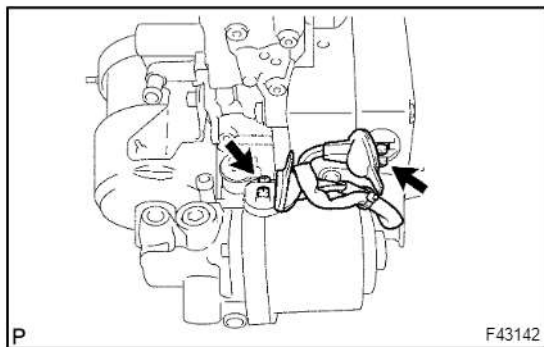
18. REMOVE BRAKE ACTUATOR TUBE NO.1

- (a) Using SST, remove the brake actuator tube No.1 from brake master cylinder and brake booster pump assembly.
SST 09023-00100



19. REMOVE BRAKE ACTUATOR HOSE

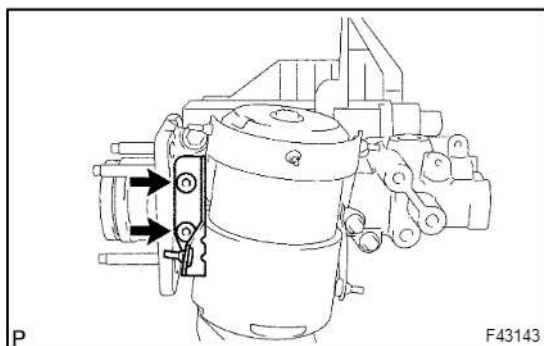
- (a) Using needle nose pliers, slide the 2 clips and remove the brake actuator hose and 2 clips.

**20. REMOVE BRAKE CONTROL WIRE**

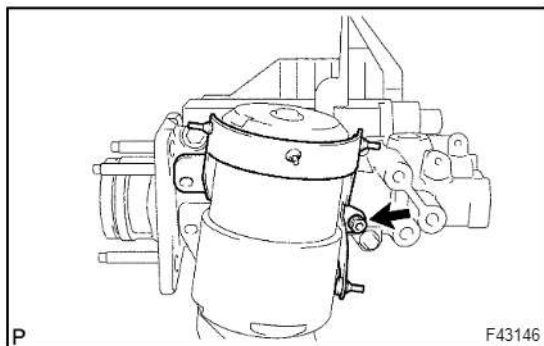
- (a) Remove the 4 screws.
- (b) Disconnect the clamp and remove the brake control wire.

21. REMOVE OIL PRESSURE SENSOR

- (a) Remove the oil pressure sensor from brake master cylinder.
- (b) Remove the spacer and O-ring from the oil pressure sensor.

**22. REMOVE BRAKE BOOSTER PUMP BRACKET NO.3**

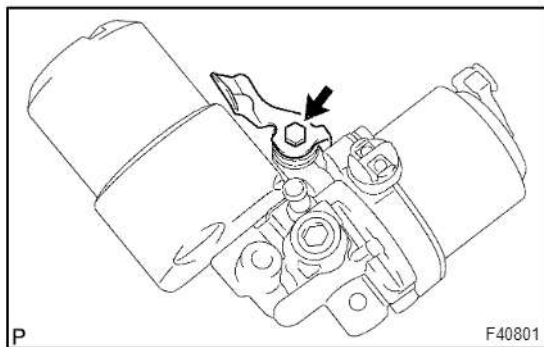
- (a) Using a hexagon wrench (5 mm), remove the 2 bolts and brake booster pump bracket No.3.
SST 99999-60011

**23. REMOVE BRAKE BOOSTER PUMP BRACKET NO.2**

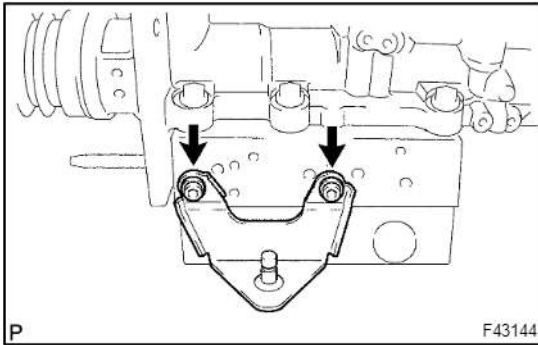
- (a) Hold the w/ accumulator pump assy, then using a hexagon wrench (5 mm), and remove the bolt and brake booster pump bracket No.2 from brake master cylinder.
SST 99999-60011

24. REMOVE BRAKE BOOSTER W/ACCUMULATOR PUMP ASSY

- (a) Remove the brake booster w/ accumulator pump assy from brake master cylinder.

**25. REMOVE BRAKE BOOSTER PUMP BRACKET NO.1**

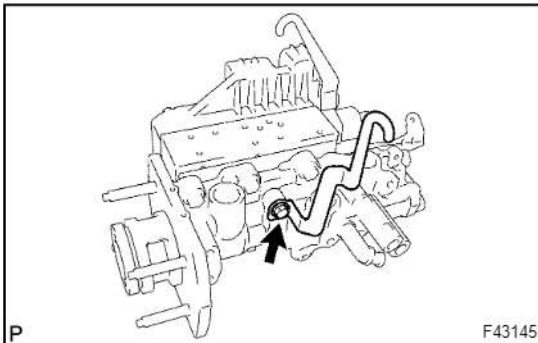
- (a) Remove the bolt and brake booster bracket No.1 from brake booster w/ accumulator pump assy.
- (b) Remove the 2 washers, 3 bushes, 2 collars and shaft from brake booster w/ accumulator pump assy.



26. REMOVE BRAKE BOOSTER PUMP BRACKET NO.2

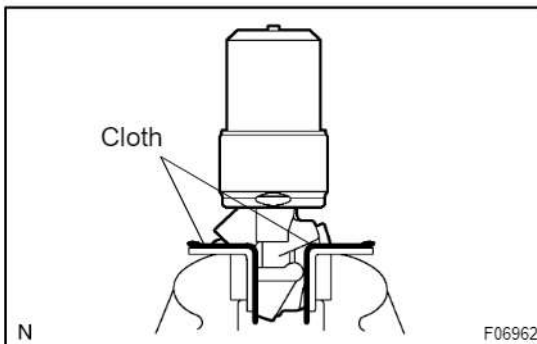
- (a) Using a hexagon wrench (5 mm), remove the 2 bolts and brake booster pump bracket No.2 from brake master cylinder.

SST 99999-60011



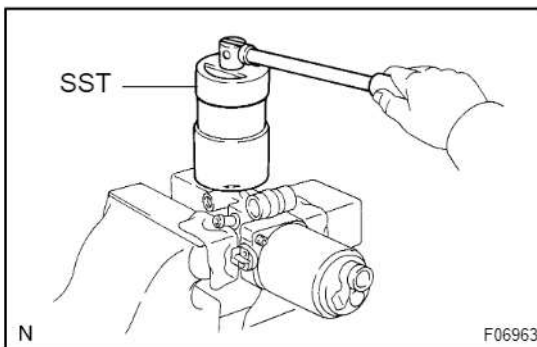
27. REMOVE BRAKE ACTUATOR BRACKET NO.3

- (a) Remove the bolt and brake actuator bracket No.3 from brake master cylinder.



28. FIX BRAKE BOOSTER W/ACCUMULATOR PUMP ASSY

- (a) Place the brake booster pump with a cloth as shown in the illustration on the left.

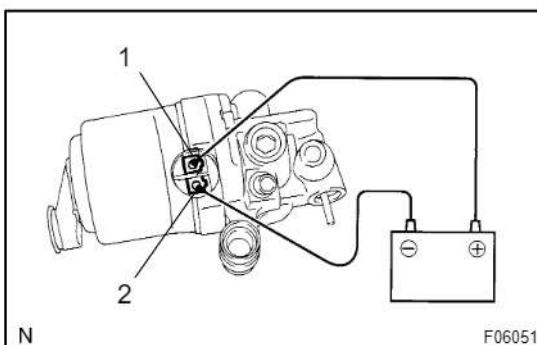


29. REMOVE BRAKE BOOSTER ACCUMULATOR ASSY

- (a) Using SST, remove the brake booster accumulator assy.
SST 09318-12010
- (b) Remove the brake booster accumulator pipe, compression spring and O-ring.

NOTICE:

Ensure no foreign matter enters the pump.

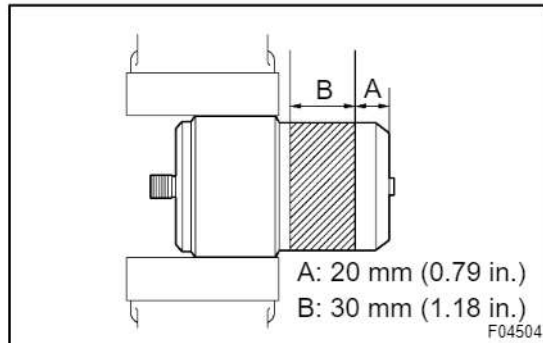


30. INSPECT BRAKE BOOSTER PUMP ASSY

- (a) Connect the positive (+) lead from the battery to terminal 1 of pump motor, and negative (-) lead to terminal 2.
- (b) Check that the brake booster pump assy operation.

31. DISPOSE OF BRAKE BOOSTER ACCUMULATOR ASSY

- (a) Place the brake booster accumulator assy in a vise, cover it with a cloth.

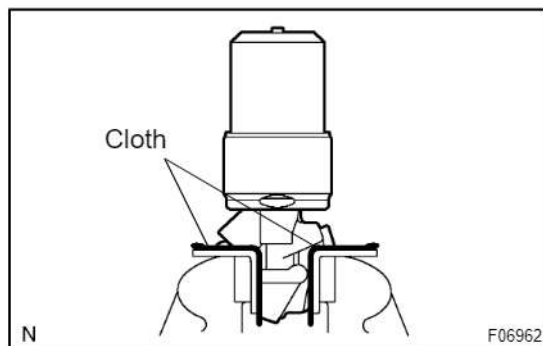


- (b) Using a saw, cut the brake booster accumulator body slowly.

CAUTION:

Do not cut at a place except a stretch.

- (c) When the outer body of the accumulator is cut, gas discharge.

**32. FIX BRAKE BOOSTER PUMP ASSY**

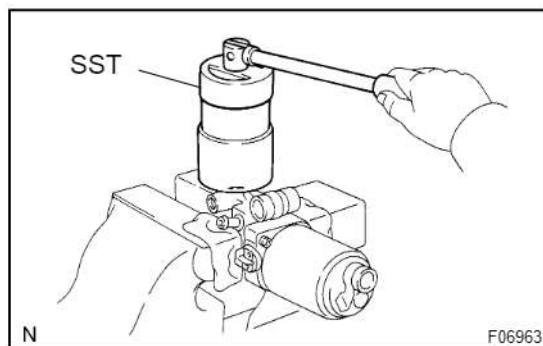
- (a) Place the brake booster pump with a cloth as shown in the illustration on the left.

33. INSTALL BRAKE BOOSTER ACCUMULATOR ASSY

- (a) Install the brake booster accumulator pipe, compression spring and new O-ring.

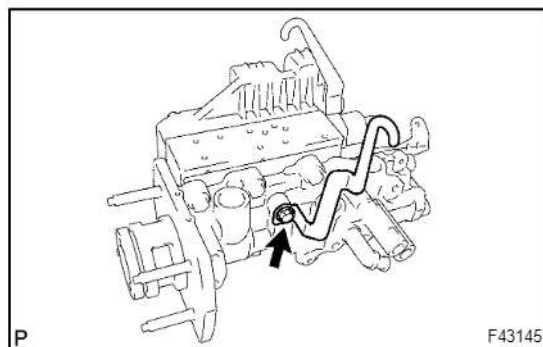
NOTICE:

Ensure that no foreign matter enters the pump.



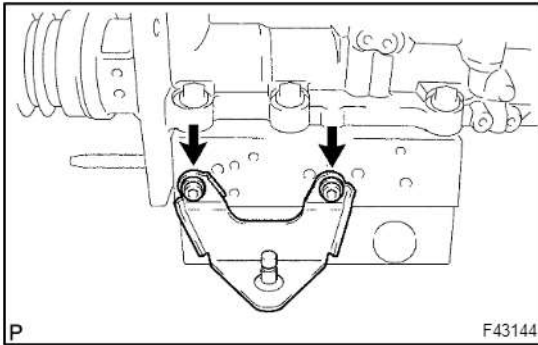
- (b) Using SST, install the brake booster accumulator assy.
SST 09318-12010

Torque: 54 N·m (551 kgf·cm, 40 ft·lbf)

**34. INSTALL BRAKE ACTUATOR BRACKET NO.3**

- (a) Install the brake actuator bracket No.3 with the bolt.

Torque: 7.8 N·m (80 kgf·cm, 69 in·lbf)



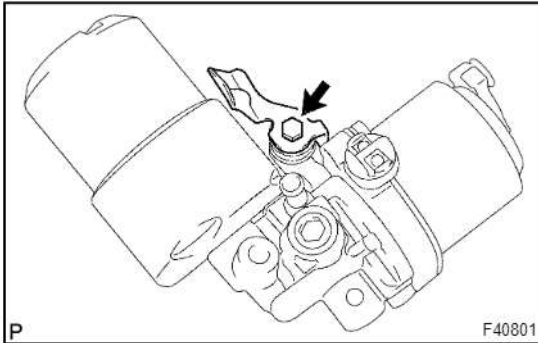
- 35. INSTALL BRAKE BOOSTER PUMP BRACKET NO.2**
 (a) Using a hexagon wrench (5 mm), install the brake booster pump bracket No.2 with the 2 bolts.

Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

SST 99999-60011

- 36. INSTALL BRAKE BOOSTER PUMP BRACKET NO.1**

- (a) Install the shaft, 2 collars, 3 bushes and 2 washers.

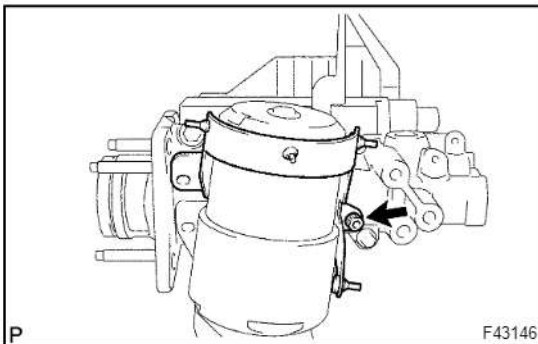


- (b) Install the brake booster pump bracket with the bolt.

Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

37. INSTALL BRAKE BOOSTER W/ACCUMULATOR PUMP ASSY

- (a) Install the brake booster w/ accumulator pump assy to the brake master cylinder.

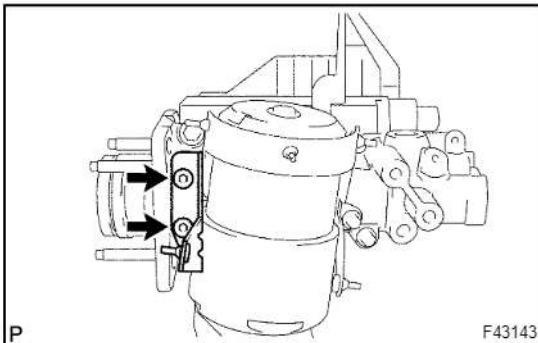


38. INSTALL BRAKE BOOSTER PUMP BRACKET NO.2

- (a) Using a hexagon wrench (5 mm), install the brake booster pump bracket No.2 on the brake booster pump bracket No.1 and brake master cylinder with the bolt.

Torque: 11.8 N·m (120 kgf·cm, 9 ft·lbf)

SST 99999-60011

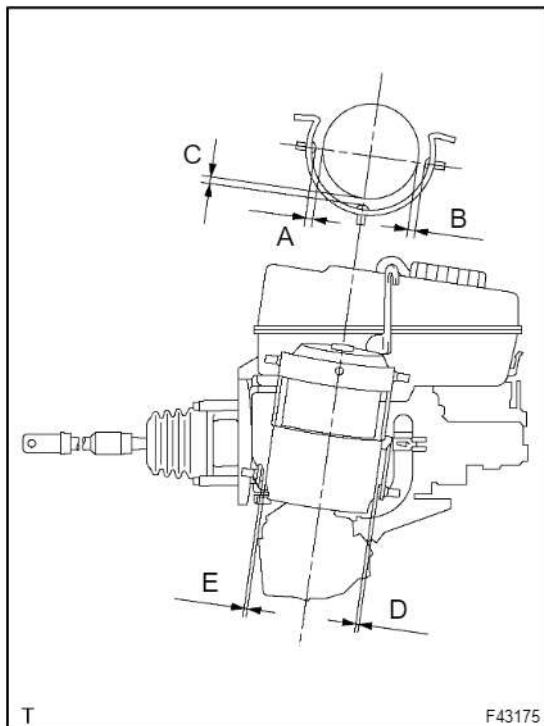


39. INSTALL BRAKE BOOSTER PUMP BRACKET NO.3

- (a) Using a hexagon wrench (5 mm), install the brake booster pump bracket No.3 on the brake booster pump bracket No.1, No.2 and brake master cylinder with 2 bolts.

Torque: 11.8 N·m (120 kgf·cm, 9 ft·lbf)

SST 99999-60011



40. INSPECT BRAKE BOOSTER PUMP BRACKET CLEARANCE

- (a) When installing the brake booster bracket, adjust the clearance. Each of the values are shown in the illustration on the left and the table below. Using a thickness gauge, adjust such clearance.

Standard Clearance:

A + B: 0.20 – 1.20 mm (0.0079 – 0.0472 in.)

C: 0.10 – 0.40 mm (0.0039 – 0.0157 in.)

D: 0.25 – 0.95 mm (0.0098 – 0.0374 in.)

E: 0.25 – 0.65 mm (0.0098 – 0.0256 in.)

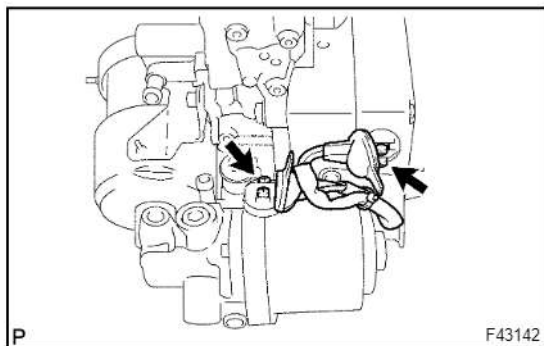
HINT:

The clearance for A and that for B must be at least 0.1 mm (0.004 in.).

41. INSTALL OIL PRESSURE SENSOR

- (a) Install the new O-ring and spacer to the oil pressure sensor.
(b) Install the oil pressure sensor to the brake master cylinder.

Torque: 74.7 N·m (761 kgf·cm, 55 ft·lbf)



42. INSTALL BRAKE CONTROL WIRE

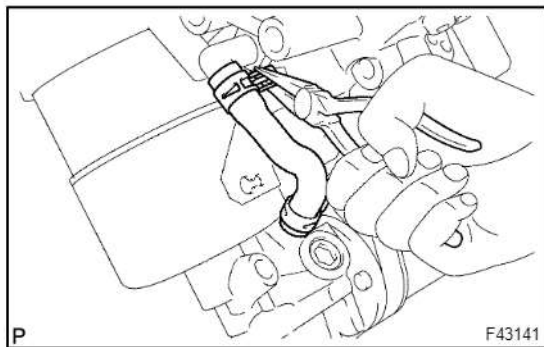
- (a) Install a new brake control wire with 4 screws.

Torque:

Master cylinder side: 1.7 N·m (17 kgf·cm, 15 in·lbf)

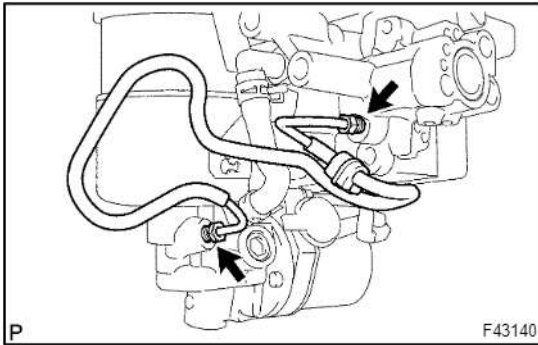
Booster pump side: 2.9 N·m (30 kgf·cm, 26 in·lbf)

- (b) Fix the brake control wire to the brake booster pump bracket No.2 with the new clamp.



43. INSTALL BRAKE ACTUATOR HOSE

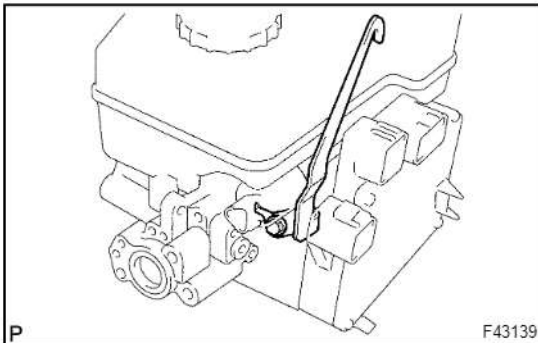
- (a) Using needle nose pliers, install the brake actuator hose and 2 clips.

**44. INSTALL BRAKE ACTUATOR TUBE NO.1**

- (a) Using SST, install the brake actuator tube No.1 to the brake master cylinder and brake booster pump assy.

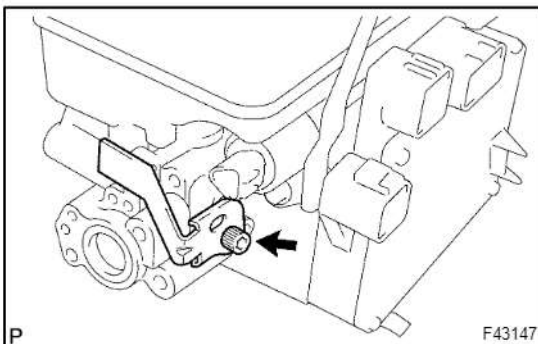
SST 09023-00100

Torque: 15.2 N·m (155 kgf·cm, 11 ft·lbf)

**45. INSTALL BRAKE ACTUATOR BRACKET NO.4**

- (a) Install the brake actuator bracket No.4 to the brake master cylinder with the bolt.

Torque: 7.8 N·m (80 kgf·cm, 69 in·lbf)

**46. INSTALL BRAKE ACTUATOR BRACKET NO.1**

- (a) Using a hexagon wrench (5 mm), install the brake actuator bracket No.1 to the brake master cylinder with a bolt.

Torque: 7.8 N·m (80 kgf·cm, 69 in·lbf)

SST 99999-60011

47. INSTALL BRAKE MASTER CYLINDER KIT

- (a) Apply the lithium soap base glycol grease to the master cylinder piston, brake booster piston and brake booster plug.

- (b) Install the master cylinder piston, brake booster piston and brake booster plug.

- (c) Pressing brake booster plug, install a new snap ring.

48. INSTALL MASTER CYLINDER RESERVOIR GROMMET

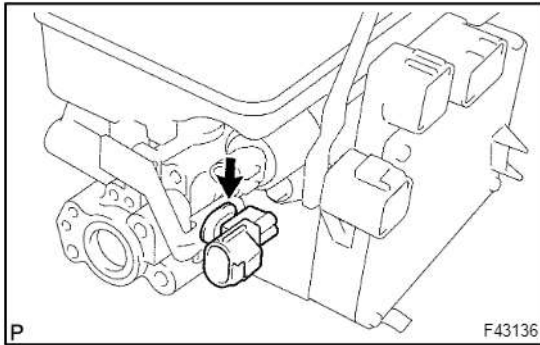
- (a) Apply the lithium soap base glycol grease to new 3 reservoir grommets.

- (b) Install the 3 reservoir grommets to the master cylinder reservoir sub-assy.

49. INSTALL BRAKE MASTER CYLINDER RESERVOIR FILLER CAP ASSY**50. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSY**

- (a) Install the brake master cylinder reservoir sub-assy with the 3 screws.

Torque: 1.7 N·m (17 kgf·cm, 15 in·lbf)



- (b) Install the brake fluid level warning switch connector to the brake actuator bracket No.1.

51. INSTALL MASTER CYLINDER BOOT

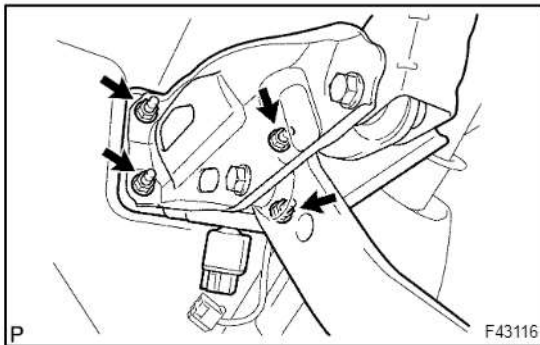
52. INSTALL MASTER CYLINDER PUSH ROD CLEVIS

- (a) Install the lock nut and master cylinder push rod clevis on the rod operating adapter.
 (b) Install the brake master cylinder side lock nut and rod operating adapter on the brake master cylinder.

Torque: 25.5 N·m (260 kgf·cm, 19 ft·lbf)

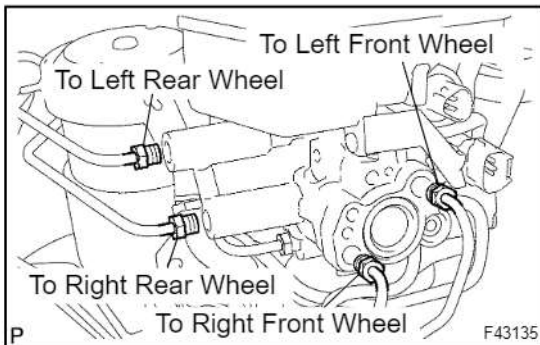
53. INSTALL BRAKE BOOSTER GASKET

- (a) Install a new brake booster gasket on the master cylinder.

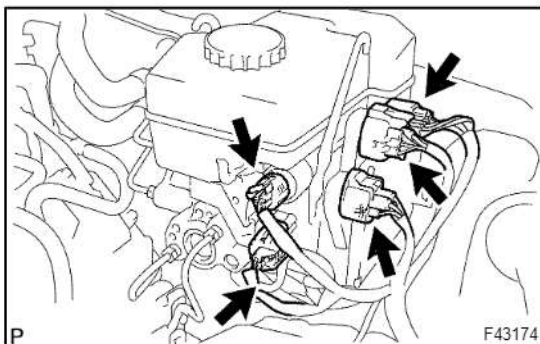


54. INSTALL BRAKE MASTER CYLINDER

- (a) Install the brake master cylinder with 4 nuts.
Torque: 14.2 N·m (145 kgf·cm, 10 ft·lbf)



- (b) Using SST, connect the 4 brake lines to the correct position of brake master cylinder as shown in the illustration.
 SST 09023-00100
Torque: 15.2 N·m (155 kgf·cm, 11 ft·lbf)



- (c) Connect the 5 connectors to the brake master cylinder.

55. INSTALL PUSH ROD PIN

(a) Install the push rod pin to the clevis with the clip.

56. INSTALL SKID CONTROL ECU ASSY (See page 32-57)**57. INSTALL INSTRUMENT PANEL LOWER LH****58. INSTALL INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER****59. INSTALL INSTRUMENT PANEL FINISH PLATE****60. FILL RESERVOIR WITH BRAKE FLUID****61. BLEED BRAKE LINE (See page 32-4)****62. INSPECT BRAKE PEDAL HIGHT (See page 32-8)****63. CHECK PEDAL FREE PLAY (See page 32-8)****64. CHECK PEDAL RESERVE DISTANCE (See page 32-8)****65. CHECK FLUID LEVEL IN RESERVOIR****66. CHECK BRAKE FLUID LEAKAGE****67. CHECK BRAKE MASTER CYLINDER OPERATION (See page 32-28)**

SPEED SENSOR FRONT LH

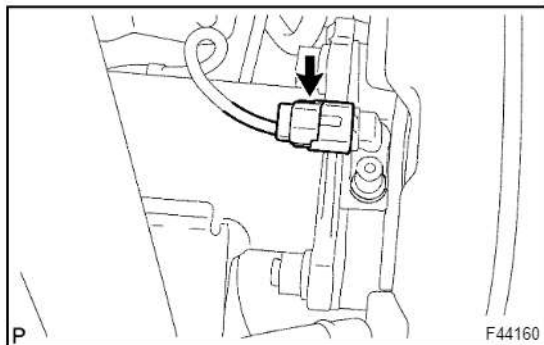
REPLACEMENT

320P3-02

HINT:

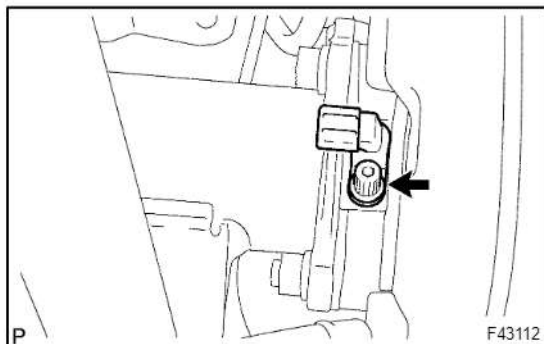
Replacement of RH side is same as that of LH side.

1. REMOVE FRONT WHEEL



2. REMOVE SPEED SENSOR FRONT LH

- (a) Disconnect the speed sensor connector.

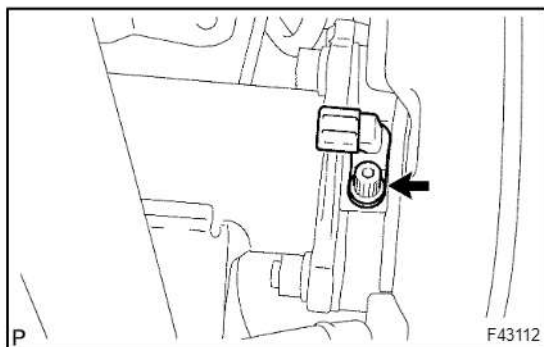


- (b) Using a hexagon wrench (5 mm), remove the bolt and front speed sensor from the steering knuckle.

NOTICE:

- ◆ Do not stick and foreign matter on the sensor tip.
- ◆ Do not let the foreign matter into the sensor installation hole.

SST 99999-60011



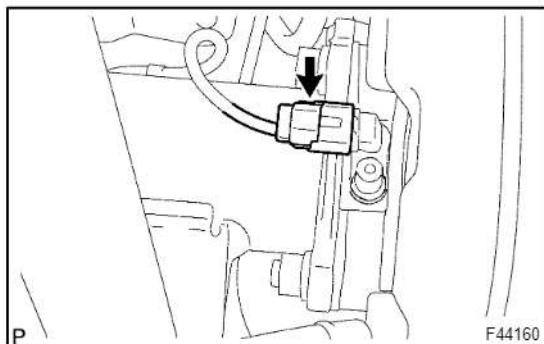
3. INSTALL SPEED SENSOR FRONT LH

- (a) Using a hexagon wrench (5 mm), install the front speed sensor with the bolt to the steering knuckle.

Torque: 8.3 N·m (85 kgf·cm, 73 in·lbf)

NOTICE:

Make sure the sensor tip is clean.



- (b) Connect the speed sensor connector.

SST 99999-60011

4. **INSTALL FRONT WHEEL**
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)
5. **CHECK VSC SENSOR SIGNAL** (See page [05-803](#))

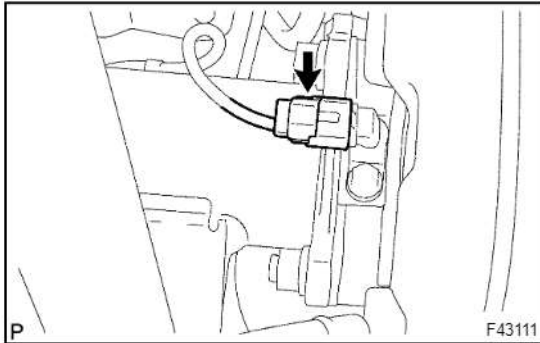
SPEED SENSOR REAR LH REPLACEMENT

320P4-02

HINT:

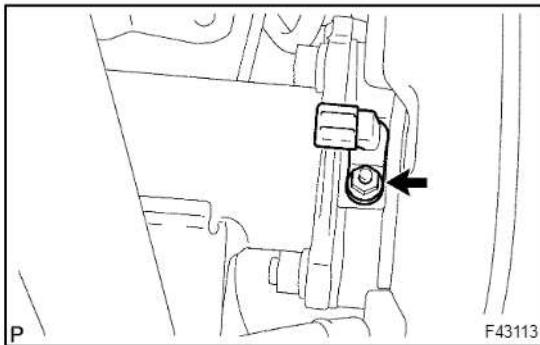
Replacement of RH side is same as that of LH side.

1. REMOVE REAR WHEEL



2. REMOVE SPEED SENSOR REAR LH

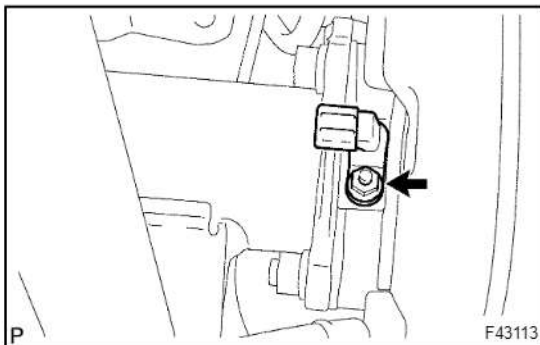
- (a) Disconnect the speed sensor connector.



- (b) Remove the nut and speed sensor rear from the axle hub.

NOTICE:

- ◆ Do not stick and foreign matter on the sensor tip.
- ◆ Do not let the foreign matter into the sensor installation hole.



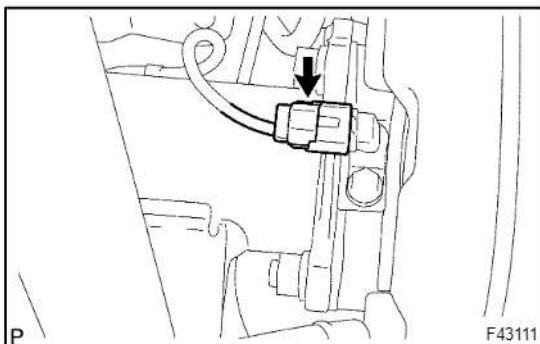
3. INSTALL SPEED SENSOR REAR LH

- (a) Install the rear speed sensor with the nut to the steering knuckle.

Torque: 8.3 N·m (85 kgf·cm, 73 in·lbf)

NOTICE:

Make sure the sensor tip is clean.



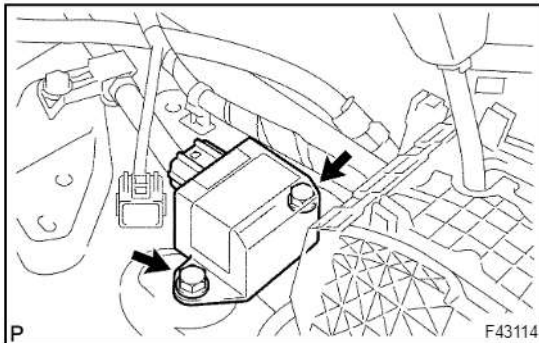
- (b) Connect the speed sensor connector.

4. **INSTALL REAR WHEEL**
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf)
5. **CHECK VSC SENSOR SIGNAL** (See page [05-803](#))

YAWRATE SENSOR REPLACEMENT

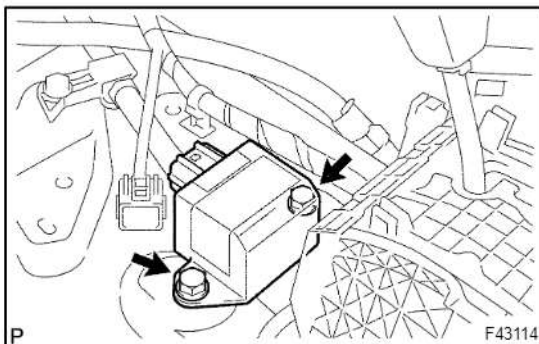
320PS-02

1. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSY (See page 71-14)
2. REMOVE CONSOLE PANEL SUB-ASSY UPPER (See page 71-14)
3. REMOVE CONSOLE UPPER PANEL GARNISH NO.1 (See page 71-14)
4. REMOVE CONSOLE UPPER PANEL GARNISH NO.2 (See page 71-14)
5. REMOVE CONSOLE BOX ASSY REAR (See page 71-14)



6. REMOVE YAWRATE SENSOR

- (a) Disconnect the yawrate sensor connector.
- (b) Remove the 2 bolts and yawrate sensor.



7. INSTALL YAWRATE SENSOR

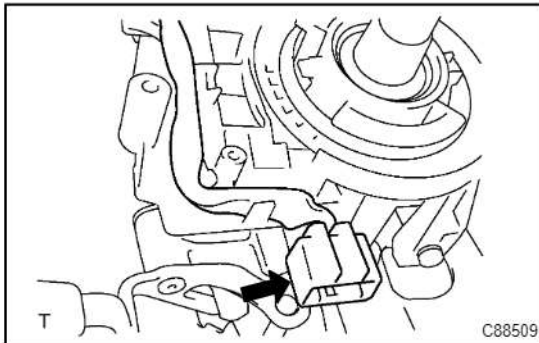
- (a) Install the yawrate sensor with 2 bolts.
Torque: 13.3 N·m (136 kgf·cm, 10 ft·lbf)
- (b) Connect the yawrate sensor connector.

8. INSTALL CONSOLE BOX ASSY REAR
9. INSTALL CONSOLE UPPER PANEL GARNISH NO.2
10. INSTALL CONSOLE UPPER PANEL GARNISH NO.1
11. INSTALL CONSOLE PANEL SUB-ASSY UPPER
12. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSY
13. PERFORM YAWRATE SENSOR ZERO POINT CALIBRATION (See page 05-803)
14. CHECK VSC SENSOR SIGNAL (See page 05-803)

STEERING SENSOR REPLACEMENT

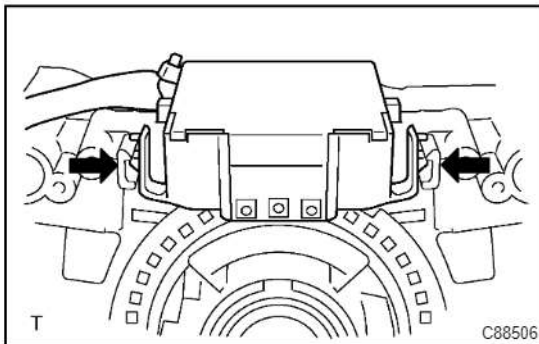
320P6-02

1. PRECAUTION (See page 60-23)
2. DISCONNECT BATTERY NEGATIVE TERMINAL (See page 60-23)
3. PLACE FRONT WHEELS FACING STRAIGHT AHEAD (See page 60-23)
4. REMOVE STEERING WHEEL COVER LOWER NO.3 (See page 50-8)
5. REMOVE STEERING WHEEL COVER LOWER NO.2 (See page 50-8)
6. REMOVE HORN BUTTON ASSY (See page 50-8)
7. REMOVE STEERING WHEEL ASSY (See page 50-8)
SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)
8. REMOVE STEERING COLUMN COVER UPR (See page 50-8)
9. REMOVE SPIRAL CABLE SUB-ASSY (See page 50-8)
10. REMOVE TURN SIGNAL SWITCH ASSY (See page 50-8)

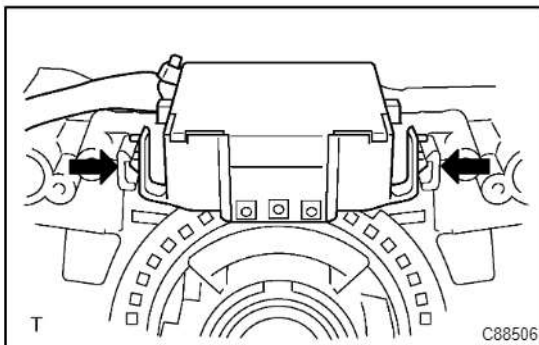


11. REMOVE STEERING SENSOR

- (a) Remove the steering sensor connector.

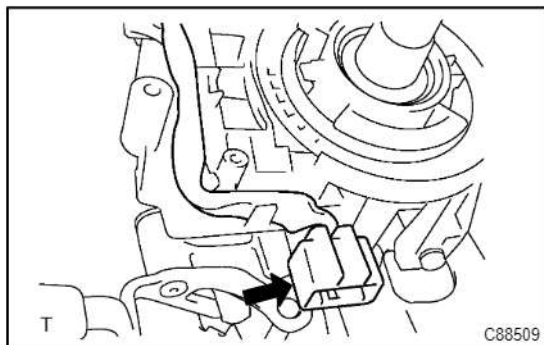


- (b) Remove the 2 claws, then remove the steering sensor.



12. INSTALL STEERING SENSOR

- (a) Install the steering sensor.



(b) Install the steering sensor connector.

13. INSTALL TURN SIGNAL SWITCH ASSY (See page 50-8)

14. INSPECT SPIRAL CABLE SUB-ASSY (See page 50-8)

If the following condition is identified, replace the spiral cable sub-assy with a new one.

Condition:

Scratches or cracks on the connector

Cracks, dents or chipping of the spiral cable sub-assy

15. PLACE FRONT WHEELS FACING STRAIGHT AHEAD (See page 60-23)

16. INSTALL SPIRAL CABLE SUB-ASSY (See page 50-8)

17. INSTALL STEERING COLUMN COVER UPR (See page 50-8)

18. INSTALL STEERING WHEEL ASSY (See page 50-8)

19. INSTALL HORN BUTTON ASSY (See page 50-8)

20. INSTALL STEERING WHEEL COVER LOWER NO.2 (See page 50-8)

21. INSTALL STEERING WHEEL COVER LOWER NO.3 (See page 50-8)

22. INSPECT SRS WARNING LIGHT (See page 05-1238)

23. PERFORM STEERING ANGLE SENSOR ZERO POINT CALIBRATION (See page 05-803)

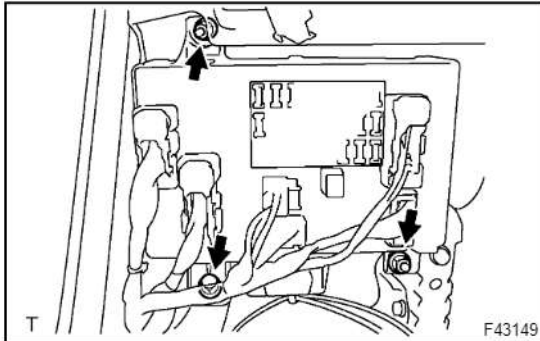
24. CHECK VSC SENSOR SIGNAL (See page 05-803)

SKID CONTROL ECU ASSY

REPLACEMENT

320P7-02

1. REMOVE INSTRUMENT PANEL FINISH PLATE (See page 71-14)
2. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER (See page 71-14)
3. REMOVE INSTRUMENT PANEL LOWER LH (See page 71-14)

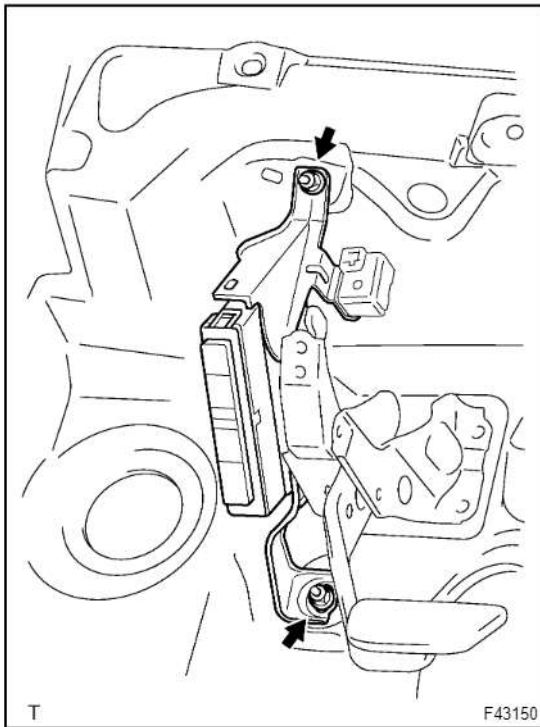


4. REMOVE INSTRUMENT PANEL JUNCTION BLOCK ASSY

- (a) Remove the bolt and 2 nuts, then move the instrument panel junction block assy aside.

5. REMOVE SKID CONTROL ECU ASSY

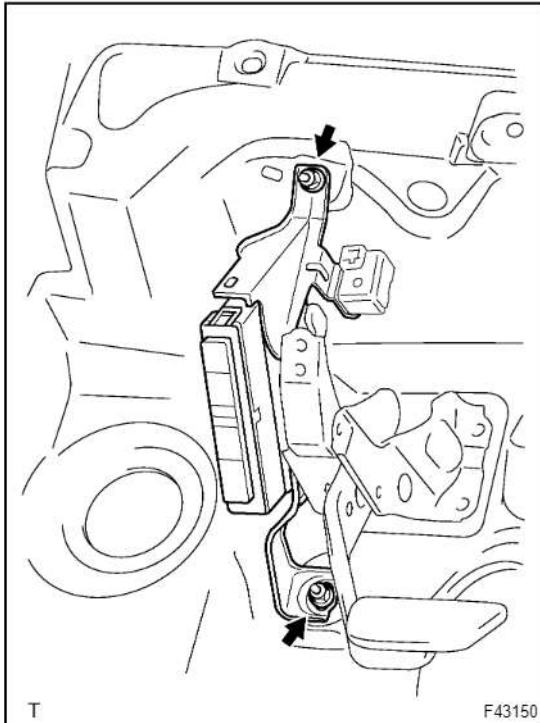
- (a) Disconnect the 4 skid control ECU connectors.
- (b) Remove the 2 nuts and control ECU assy.
- (c) Disconnect the skid control buzzer connector and remove the skid control buzzer assy from skid control ECU assy.



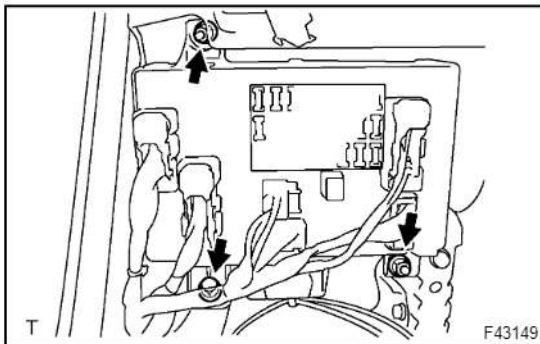
cardiagn.com

6. INSTALL SKID CONTROL ECU ASSY

- (a) Install the skid control buzzer on the skid control ECU, and connect the skid control buzzer connector.



- (b) Install the skid control ECU assy with 2 nuts.
Torque: 5.0 N·m (51 kgf·cm, 44 in.·lbf)
 (c) Connect the 4 skid control ECU connectors.

**7. INSTALL INSTRUMENT PANEL JUNCTION BLOCK ASSY**

- (a) Install the instrument panel junction block assy with bolt and 2 nuts.

8. INSTALL INSTRUMENT PANEL LOWER LH**9. INSTALL INSTRUMENT PANEL FINISH PANEL SUB-ASSY LOWER****10. INSTALL INSTRUMENT PANEL FINISH PLATE****11. CHECK VSC SENSOR SIGNAL (See page 05-803)**