

Brake Bleeding: Service and Repair

BRAKE: BRAKE FLUID (for 1UR-FSE): BLEEDING

BRAKE: BRAKE FLUID

CAUTION:

Bleeding without the Techstream may result in air remaining in the brake hydraulic system. As this can cause an accident, be sure to use the Techstream for air bleeding.

NOTICE:

- Move the shift lever to the P position and apply the parking brake before bleeding the brakes.
- Add brake fluid to keep the level between MIN and MAX lines of the reservoir while bleeding the brakes.
- If the pump motor operates while air remains inside the brake reservoir tube no.1 hose, the air will enter the actuator, resulting in difficulty in bleeding. Keep the 2 ABS motor relays removed until instructed to reinstall them to prevent air from entering the brake reservoir tube no.1 hose.
- The actuator pump motor and solenoid can be operated by the driver even if the engine switch is off.
- Although a buzzer may sound due to declined accumulator pressure during bleeding, keep on bleeding.
- DTCs indicating a malfunction in the ABS motor relay or pressure sensor are stored after bleeding. Clear the DTCs when instructed during or after bleeding.

Work list

Item	Work procedure
Brake fluid(replacement) *1*2	1.Disable brake control. 2.Bleed the front brake system. 3.Bleed the rear brake system.
Brake master cylinder and stroke simulator (replacement) *1 *2	1.Perform accumulator zero down. (before replacement). 2.Disable brake control. (remove motor relay) (before replacement) 3.Bleed the brake reservoir tube No.1 hose. 4.Bleed the front brake system. 5.Bleed the rear brake system. 6.Perform accumulator zero down.
Brake actuator (replacement) *1	1.Perform accumulator zero down. (before replacement). 2.Disable brake control. (remove motor relay) (before replacement) 3.Bleed the brake reservoir tube No.1 hose. 4.Bleed the front brake system. 5.Bleed the rear brake system. 6.Perform accumulator zero down.
Front brake (removal, installation, and disassembly) *1	1.Disable brake control. (removal, installation, and disassembly) 2.Bleed the front brake system.
Rear brake (removal, installation, and disassembly) *1	1.Disable brake control. (removal, installation, and disassembly) 2.Bleed the rear brake system.

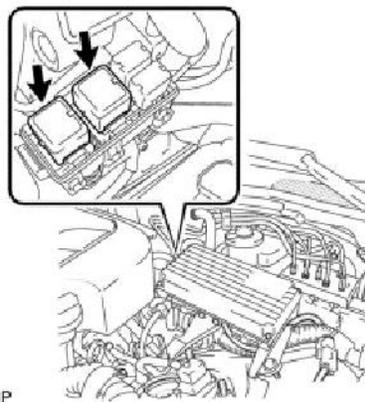
- *1 : The listed order must be followed.
- *2 : If air enters the brake reservoir tube No.1 hose due to declined brake fluid level, be sure to bleed the brake reservoir tube No.1 hose.

HINT:

Refer to the Techstream operator's manual for further details.

1. DISABLE BRAKE CONTROL

- (a) Move the shift lever to the P position and apply the parking brake.
- (b) Connect the Techstream to the DLC3 with the engine switch off.



- (c) Remove the 2 ABS motor relays with the engine room relays from No.3 block.
 (d) Turn the engine switch on (IG).

NOTICE:

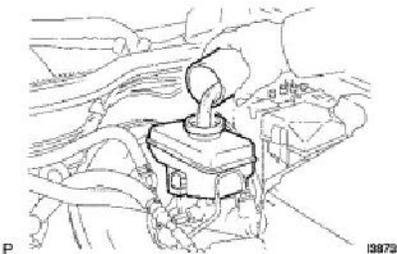
Do not start the engine.

- (e) Turn the Techstream on and enter the following menus: Chassis / ABS/VSC/TRC / Utility / Electronically Controlled Brake system Utility / Electronically Controlled Brake system Invalid.

2. ADD RESERVOIR WITH BRAKE FLUID

NOTICE:

- If brake fluid leaks onto any painted surface, wash or otherwise remove it completely
- Do not place the fluid can on the reservoir inlet because brake fluid may overflow.

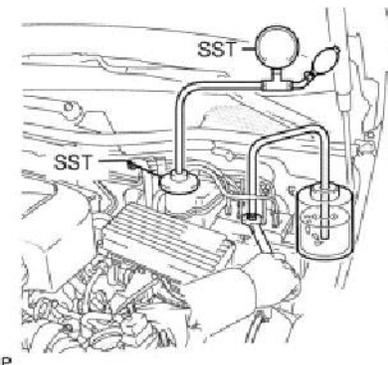


- (a) Add brake fluid into the reservoir.

Fluid:

SAE J1703 or FMVSS No. 116 DOT3

3. BLEED BRAKE RESERVOIR TUBE No.1 HOSE



- (a) Connect SST to the reservoir with the brake reservoir pressure adapter.

SST: 09992-00242

SST: 09992-00350

- (b) Connect the vinyl tube to the bleeder plug of the actuator.
 (c) Loosen the bleeder plug of the actuator.
 (d) Use the SST to boost the pressure in the reservoir.

Standard:

50 to 80 kPa (0.5 to 0.8 kgf/cm², 7.3 to 11.6 psi)

- (e) Drain approximately 100 cc of fluid.

- (f) Tighten the bleeder plug and boost the pressure in the reservoir again. Then loosen the bleeder plug to bleed air.

NOTICE:

Repeat the above procedures 5 times or more.

- (g) When air is completely bled from the hose between the reservoir and the actuator, tighten the bleeder plug.

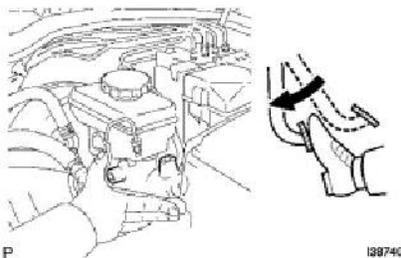
SST: 09023-00101

Torque: 8.3 Nm (85 kgf-cm, 74 in-lbf)

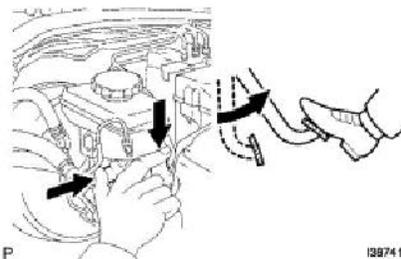
4. BLEED MASTER CYLINDER

NOTICE:

If the master cylinder has been disassembled or if the reservoir becomes empty, bleed the air from the master cylinder.



- (a) Disconnect the brake lines from the master cylinder.
 (b) Slowly depress and hold the brake pedal.



- (c) Cover the outer holes with fingers, and release the brake pedal.
 (d) Repeat (b) and (c) 3 or 4 times.

- (e) Connect the brake lines to the master cylinder.

SST: 09023-00101

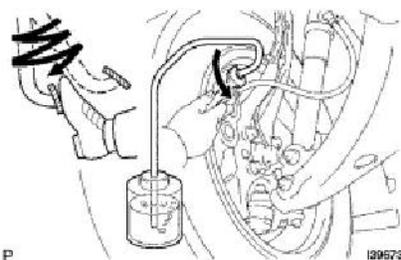
Torque: 15 Nm (155 kgf-cm, 11 ft-lbf)

5. BLEED FRONT BRAKE SYSTEM

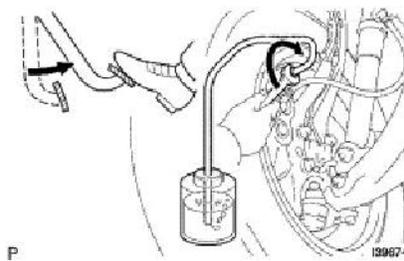
NOTICE:

Bleed the air from the wheel furthest from the master cylinder.

- (a) Connect the vinyl tube to the bleeder plug.



- (b) Depress the brake pedal several times, then loosen the bleeder plug with the pedal depressed.



- (c) When fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
- (d) Repeat (b) and (c) until all the air in the fluid is completely bled out.
- (e) Using SST, tighten the bleeder plug completely.

SST: 09023-00101

Torque: 11 Nm (112 kgf-cm, 8 ft-lbf)

- (f) Repeat the above procedures for other wheel to bleed the air from the brake line.

6. BLEED REAR BRAKE SYSTEM

NOTICE:

Bleed the air by following the steps displayed on the Techstream.

- (a) Turn the engine switch off.
- (b) Install the 2 ABS motor relays to the engine room relay block No.3.

NOTICE:

Install ABS motor relays before bleeding the air from the rear brake system.

- (c) Turn the engine switch on (IG) and turn the Techstream on.
- (d) Cancel "DISABLE BRAKE CONTROL" on the Techstream.

HINT:

If the brake control has been disabled brake control.

- (e) Clear the DTC.
- (f) Turn the Techstream on and enter the following menus: Chassis / ABS/VSC/TRC / Utility / Electronically Controlled Brake system Utility / Electronically Controlled Brake system Invalid.
- (g) With the brake pedal depressed, bleed the bleeder plug on the rear disc brake cylinder LH.

NOTICE:

Keep the fluid inside the reservoir above the LOW level by replenishing.

HINT:

- Depress and hold the brake pedal.
- After the solenoid operates for approximately 30 seconds, release the brake pedal to stop the solenoid
- Repeat the procedures until air is completely bled from the rear brake system.
- The brake warning light comes on and the buzzer sound while bleeding, but they do not indicate a malfunction.

- (h) Tighten the bleeder plug after bleeding.

SST: 09023-00101

Torque: 11 Nm (112 kgf-cm, 8.0 ft-lbf)

- (i) With the brake pedal depressed, bleed the bleeder plug on the rear disc brake cylinder RH.

NOTICE:

Keep the fluid inside the reservoir above the MIN level by replenishing.

HINT:

- Depress and hold the brake pedal.
- After the solenoid operates for approximately 30 seconds, release the brake pedal to stop the solenoid.
- Repeat the procedures until air is completely bled from the rear brake system.
- The brake warning light comes on and the buzzer sound while bleeding, but they do not indicate a malfunction.

- (k) Tighten the bleeder plug after bleeding.

Torque: 11 Nm (112 kgf-cm, 8.0 ft-lbf)

SST: 09023-00101

- (l) Cancel "DISABLE BRAKE CONTROL" on the Techstream.

7. PERFORM ACCUMULATOR ZERO DOWN

CAUTION:

- **Be sure to perform this procedure before removal of the actuator.**

NOTICE:

Perform accumulator zero down by following the steps displayed on the Techstream.

- (a) Drain the brake fluid in the brake fluid reservoir tank near the MIN line.
- (b) Connect the Techstream to the DLC3 with the engine switch off
- (c) Turn the Techstream on and repeat the following steps 5 times.
 - (1) Turn the engine switch on (IG).
 - (2) Turn the Techstream on and enter the following menus: Chassis / ABS/VSC/TRC / Utility / Electronically Controlled Brake system Utility / Zero Down.
 - (3) When the buzzer sounds, turn the engine switch off.

NOTICE:

Keep the fluid inside the reservoir above the MIN level by replenishing.

HINT:

- Accumulator pressure is released and accumulated repeatedly, which circulates the fluid inside the accumulator zero down (accumulator depressurizing).
- The pump motor rotates and accumulator is pressurized every time the engine switch is turned from off to on (IG).

8. CHECK BRAKE FLUID LEVEL

- (a) Adjust the fluid level to the MAX line with the engine switch on (IG).

9. CLEAR DTC**10. PERFORM LINER VALVE OFFSET LEARNING**

- (a) When the brake actuator assembly is replaced, perform linear valve offset learning. See: Antilock Brakes / Traction Control Systems/Testing and Inspection/Programming and Relearning