

LX570 AHC Bleed/Flush

WARNING: ONLY use Toyota Suspension Fluid, AHC 08886-01805 (2.5l - DISCONTINUED?) or 08886-81221 (1 l.)
(Brake fluid and other types of hydraulic fluid are not compatible and will damage the AHC system)

CAUTION: While bleeding, ensure there is always enough fluid in the reservoir to prevent drawing air into the system.

Materials:

- Full flush: 5 Liters Toyota Suspension Fluid
- Length of 3/16 ID drain tubing for bleeder nipples
- 10mm spanner/box wrench/crows foot
- Suitable waste fluid container
- Highly recommended: fluid pump (to draw old fluid from reservoir and easily refill)

NOTE: Vehicle must be on flat, level ground with the FULL weight of the vehicle resting on all four tires (the vehicle's weight compresses the suspension down to the bump stops to remove the maximum amount of old fluid from the shocks and actuators).

WARNING: Do not get under the vehicle to bleed the system. The vehicle falls rapidly when bleed valves are opened, which can result in serious injury.

1. **Start** the engine and set the AHC to **LOW** with the suspension control switch. Once completely lowered, wait 25 seconds for the system to settle and then turn the vehicle **OFF**. (The fluid in the reservoir will now be at its highest level)

Note: The AHC fluid reservoir is located in a compartment behind the right rear wheel.

2. Clean around all openings to the AHC fluid reservoir to prevent contaminating the fluid.

3. Remove the reservoir cap (twist counter-clockwise 45 deg and pull) and dust filter capsule. Insert drain tube and use a vacuum pump or similar suction device to remove as much of the old fluid as possible from the reservoir (approximately 1.5 L if you were between Max and Min in the AHC Neutral setting).



*Tip: Place a light on top of the spare tire shining through the back of the fluid reservoir.
This will make it much easier to see the fluid level in the tank.*

4. Fill the reservoir tank with new AHC suspension fluid (approximately 2.5 liters--this will be past the 'max' line and the plastic tank should be nearly full). (opt) Replace the filter capsule before filling (filling will be MUCH slower).

5. **Start** the engine and set the vehicle height to **NORMAL** with the suspension control switch. When the vehicle height reaches NORMAL, wait 25 seconds for the accumulator to pressurize and then turn the vehicle **OFF**.

6. Connect a hose to the bleeder plug of the ***RH Front Shock Absorber Control Valve*** (12 inch long cylinder on outer frame rail), then loosen the bleeder plug to commence draining fluid.

CAUTION: Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

7. When the fluid stops or flows clear (no dirty fluid or bubbles), retighten the bleeder plug. (You should drain ~0.3 liters)

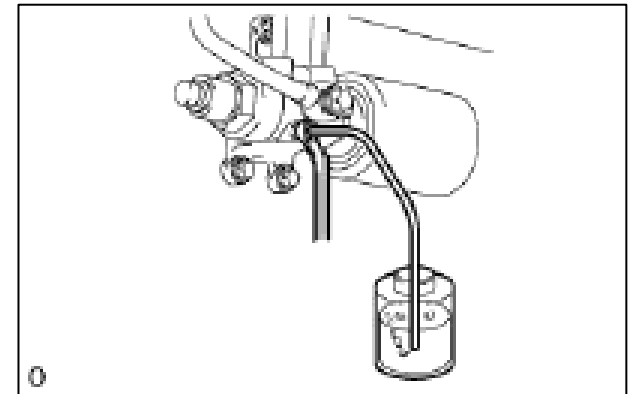
Plug Torque: 8.3 N*m {85 kgf*cm , 73 in.*lbf}

8. Connect a hose to the bleeder plug of the ***LH Front Shock Absorber Control Valve*** (12-inch-long cylinder on outer frame rail), then loosen the bleeder plug to commence draining fluid.

9. When the fluid stops or flows clear (no dirty fluid or bubbles), and the vehicle front has dropped to the bump stops, retighten the bleeder plug. (You should drain ~0.3 liters)

Plug Torque: 8.3 N*m {85 kgf*cm , 73 in.*lbf}

Tip: Check the reservoir fluid level to ensure adequate fluid is still present to prevent drawing air into the system.



10. Connect a hose to the bleeder plug of the **RH Rear Shock Absorber Control Valve** (rear black bulb on outer frame rail), then loosen the bleeder plug to commence draining fluid.

CAUTION: Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

11. When the fluid stops or flows clear (no dirty fluid or bubbles), retighten the bleeder plug. (You should drain ~0.3 liters)

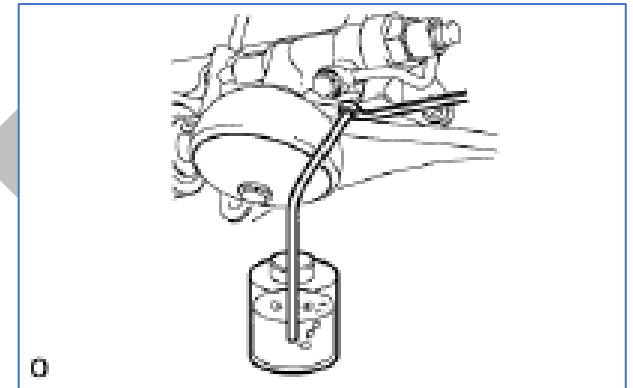
Plug Torque: 8.3 N*m {85 kgf*cm , 73 in.*lbf}

12. Connect a hose to the bleeder plug of the **LH Rear Shock Absorber Control Valve** (rear black bulb on outer frame rail), then loosen the bleeder plug to commence draining fluid.

13. When the fluid stops or flows clear (no dirty fluid or bubbles), retighten the bleeder plug. (You should drain ~0.3 liters)

Plug Torque: 8.3 N*m {85 kgf*cm , 73 in.*lbf}

NOTE: You should now have drained approximately **1.2 liters (0.3+0.3+0.3+0.3)** {check this for the LX570} for healthy damper accumulator spheres; if you have degraded or blown spheres then you'll likely drain less fluid as there's limited/no nitrogen charge to expel the spheres fluid contents) leaving you about 0.5 liters "excess" in the reservoir.



[Optional]--This step is **not** recommended by the Lexus service manual. While it will ensure you have flushed all the old fluid, if done improperly, it risks causing issues with the AHC system. Only recommended for experienced mechanics or those with a more advanced knowledge of the AHC system

[a.] Connect a hose to the bleeder plug of the **Suspension Control Pump Accumulator** (large cylinder on the inside of the left side frame rail opposite the rear shock absorber control valve, and covered by a bash guard. You may need to remove the cover for easier access to the bleeder), then loosen the bleeder plug to commence draining fluid.

[b.] When the fluid stops or flows clear (no dirty fluid or bubbles), retighten the bleeder plug. (You should drain ~0.3 liters)

Plug Torque: 8.3 N*m {85 kgf*cm , 73 in.*lbf}

14. **Start** the vehicle, let it idle for 30-60 seconds and then press UP on the suspension control switch to raise to **NORMAL** height. The whole system will refill and recharge with new fluid from the reservoir and the level in the reservoir will be drawn down to slightly over the max line (on the first round) if everything has gone as expected.

****You have two options from here depending on how thoroughly you need to bleed your system.**

CAUTION: While bleeding, ensure there is always enough fluid in the reservoir to prevent drawing air into the system.

OPTION A: Full flush

15a. Turn the vehicle **OFF**. Repeat steps 6-14 until clean, bubble free fluid comes out of each bleeder.

OPTION B: Maintenance flush

15b. Turn the vehicle **OFF** and do a small, quick bleed on the **LH front and rear Shock Absorber Control Valves** just to check that there isn't any gas trapped. You don't need to remove very much at all from the LH as essentially all available fluid (there will always be a small residual in each shock actuator/damper that we can't access) is forced out when you do the RH dropping the vehicle down to the bump stops.

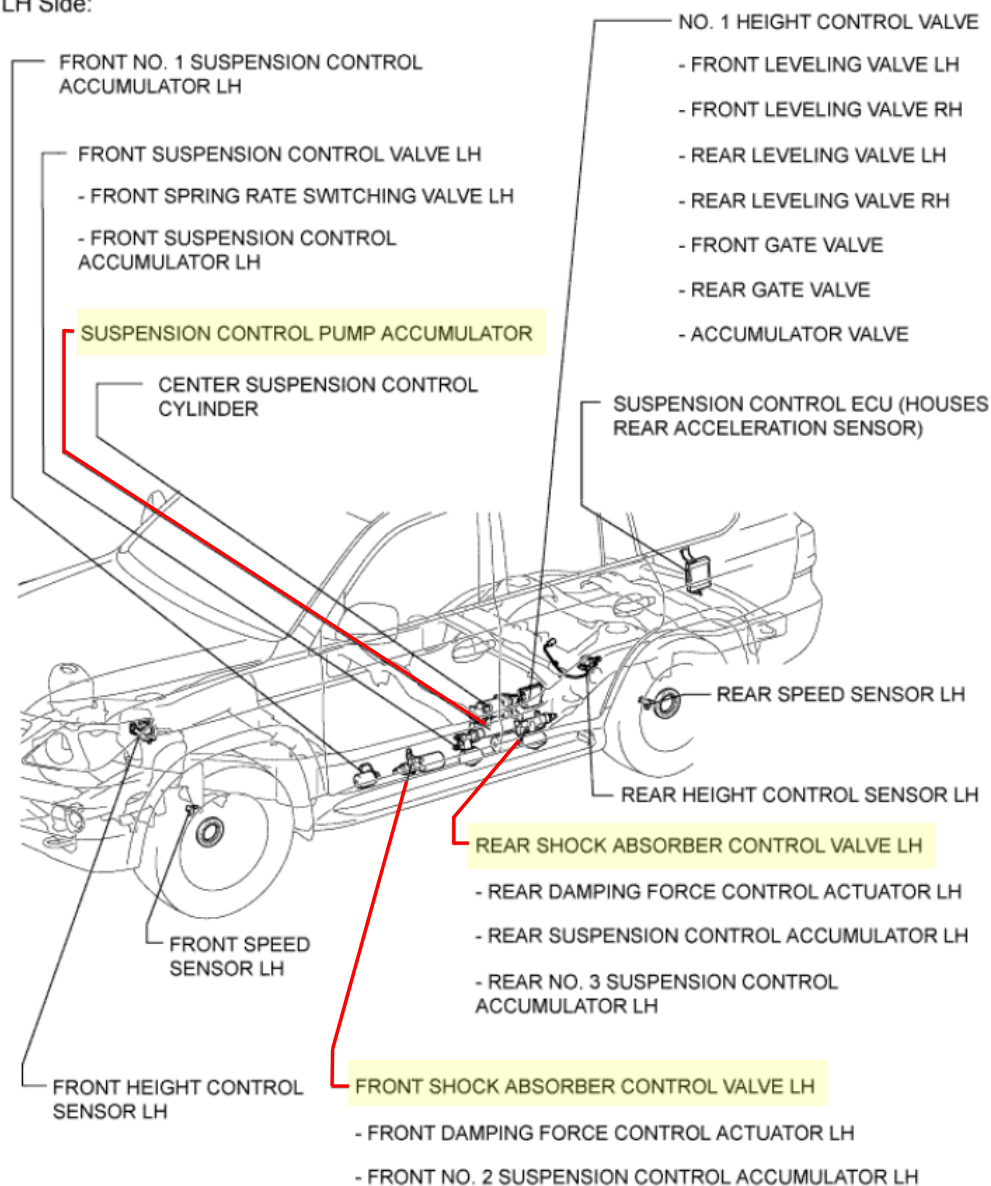
16. Start the vehicle, let it idle for 30-60 seconds. With the vehicle empty, press UP on the suspension control switch to raise to **NORMAL** height. Check that the fluid level in the reservoir is within the specified range (MAX/MIN). Add fluid if required (there is nothing wrong with leaving the level slightly over the max line).

17. Conduct a function and road test.

Tip: It's recommended to replace the bleeder caps occasionally (every 5-6 years, 60-90k miles).

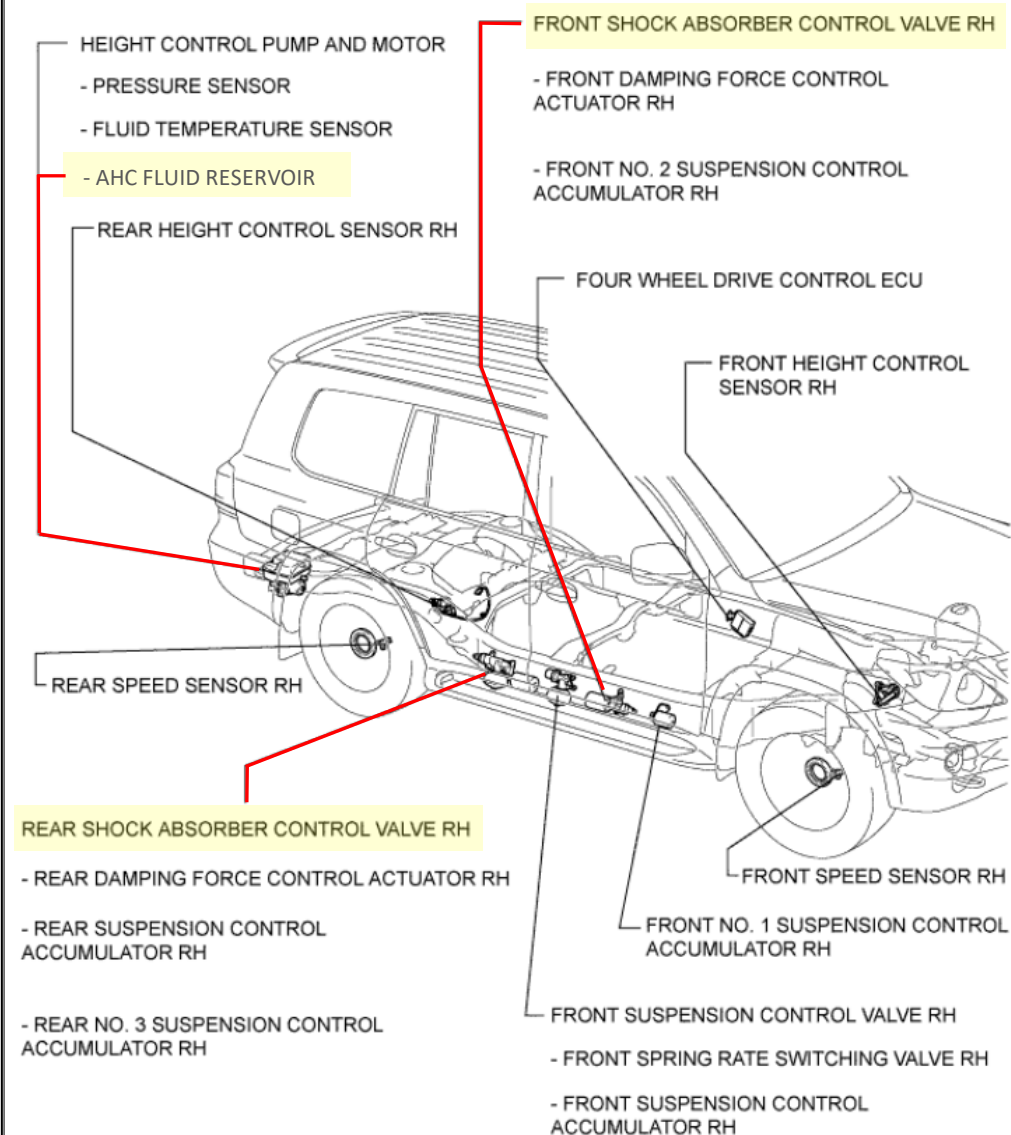


LH Side:



H

RH Side:



H

USER TIPS:

I used the bleed procedure; however, at each corner and with truck off I bled the body down until it stopped, tightened the bleed screw, ensured there was plenty of fluid in the reservoir, turned the truck on, gave the AHC time to get everything back up to Normal, and repeated until I saw fresh fluid bleeding out. Then I stopped and moved to the next corner.

You can start your bleeding with height control in any setting you like. The higher the setting the lower the reservoir level will be at and the more fluid will bleed out any given line/bleeder. If starting in "H", vehicle will travel down from greater height. No matter, it always stops lowering at same distance from ground. Don't get stuck under it!

Whatever height setting used to start with, never change to a lower height setting until job done. Doing so will push old fluid back into reservoir.

After flushing, inspect a small amount of fluid from each bleeder for particles, which are often found in high mileage rigs. It's these particles that damage seals. Draw off a little from any bleeder. I like to sample from the accumulator as it seems the dirtiest, but it's a pain to get-to on the 200 series. Fluid will be dark, so a small sample is best for this test. Place the sample of fluid in a white plastic container. Then look through fluid to bottom of container, particles over 30 microns can be seen with naked eye. If you see particles keep flushing the system. You can use a fine filter to recycle and reuse the otherwise clean fluid.

After bleeding the accumulator and a globe at same time in the 200 series, the system didn't want to pressure up. Light came on and pump would not run. I don't know if accumulator being bled or bleeding both at same time caused this, as didn't happen with bleeding one globe/shock at a time. Rather than keep starting and stopping engine and waiting for fluid to work its way to sensor. I hooked up to Tech stream and activate the pump, it (AHC) took over right away filling system.

Flush new OEM shocks before installing to ensure no particulates remain inside the new shock (some have had to flush up to seven times).

LOCATED BEHIND
REAR PANEL IN
REAR PASSENGER
WHEELWELL

**HARD TO SEE
FLUID LEVEL**

FLASHLIGHT HELPS

**200-SERIES
AHC FLUID
RESERVOIR**

The image is divided into three vertical panels illustrating the process of changing AHC fluid.

- Panel 1:** Shows the location of the Reservoir Breather (indicated by a red arrow) and the Reservoir Fill Cap (also indicated by a red arrow).
- Panel 2:** Shows a hand wearing a blue glove removing the Reservoir Fill Cap.
- Panel 3:** Shows a bottle of Toyota Genuine Motor Oil SAE 0W-20 being poured into the reservoir. The bottle label includes the following information:
 - KEY FINDINGS: 7 YRS & 85K MILES, SAME SMELL & SAME VISCOSITY
 - PART NO. FOR 1QT (APPRX 1D)
 - TOYOTA GENUINE MOTOR OIL SAE 0W-20
 - SUSPENSION FLUID AHC
 - Part No. 08986-81221
 - ONE 08/21/2018 SUSPENSION FLUI
 - DEALER: 64187 [SEB 40443]
 - REF: EL249638
 - TO: 1.7L (3.5L) OF SUSPENSION FLUID TO BE ADDED TO THE RESERVOIR
 - REMOVED: 100