

BRAKE-01, Brake Fluid Replacement and Bleeding Brakes

Introduction

Brake fluid is hygroscopic. This means that it will readily absorb moisture. In fact, it will absorb moisture out of the air. Moisture in your brake fluid does two things. When the brake fluid becomes hot under hard braking, the water in the brake fluid boils. This causes steam voids in the brake system which causes a dramatic reduction in braking capability. In severe cases it can cause braking capability to be lost completely. Moisture in the brake system also causes internal corrosion of brake system components resulting in loss of braking capability. Therefore, it is extremely important to change your brake fluid at the specified intervals. Your brake fluid should be changed at least once per year and more frequently if the car is tracked. In fact, some PCA regions require that your brake fluid be changed within three months of a driving event. Make sure you use a good DOT 4 brake fluid. DO NOT use DOT 3 or DOT 5 fluid. For cars that are frequently tracked, you should use a brake fluid with a higher boiling temperature. ATE Super Blue is one of the more commonly used high temperature brake fluids.

Tools

- Jack stands or ramps
- Container to catch fluid during bleeding
- Turkey baster or hand vacuum pump type brake bleeder (vacuum pump bleeder required for one person brake bleeding)
- Wrench
- Catch Rags
- Brake fluid (1 liter or 1 quart for complete change)

Procedure

1. Place the vehicle on jack stands or ramps.
2. Remove the brake fluid reservoir cover.
3. Using a turkey baster or hand vacuum pump type brake bleeder, remove as much of the brake fluid from the reservoir as possible.
4. Using clean rags, wipe out the brake fluid reservoir ensuring that no trash or debris gets into the reservoir.
5. Refill the reservoir with new brake fluid (DOT 4).

NOTE

When bleeding brakes, always start with the caliper farthest away from the master cylinder and work toward the master cylinder. In other words:

1. Right rear
 2. Left rear
 3. Right front
 4. Left front
6. If two people are available perform the following:
- a. Position a catch pan and rags at the caliper to be bled first. Determine the correct size wrench for the bleeder and remove the rubber boot cover from the bleeder. Position the other person in the driver's seat.
 - b. Have the person in the driver's seat pump the brakes several times and then hold the pedal in the depressed position.

NOTE

Once the bleeder is opened the person holding the brake will feel the pedal go to the floor. This is perfectly normal and they should NOT remove their foot from the pedal until directed to do so by the person doing the bleeding. If they release the brake while the bleeder is open, air will be drawn into the brake system making it more difficult to vent.

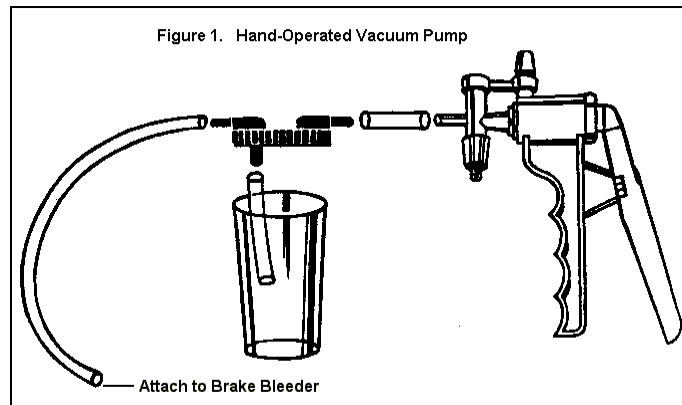
- c. Open the bleeder and catch the brake fluid that comes out in the container. When fluid stops coming out, close the bleeder. The person in the car may now release the brake pedal.
- d. Repeat the steps above until clean brake fluid comes out of the bleeder.
- e. Wipe up any spilled brake fluid with the catch rags.

NOTE

On 944 Turbos, 944 S2, and 968s there are two bleeders on each caliper. Bleeding should be done separately through each bleeder on the caliper.

- f. Repeat this process until all four brakes are done.
- g. For cars equipped with hydraulic clutches, the clutch should be bled at the slave cylinder as well.

7. If bleeding is to be done by one person with a hand vacuum pump type bleeder, perform the following:
 - . Position the vacuum pump, appropriate size wrench for the bleeder screw, and catch rags at the caliper and remove the rubber boot from the brake bleeder.
 - a. Connect the vacuum pump to the tip of the brake bleeder (Figure 1). Most vacuum pump kits now come with a variety of adapters. Find an adapter that will provide a tight seal on the brake bleeder.



- b. Pump the vacuum pump about 10 times and open the brake bleeder.
- c. As fluid comes out of bleeder into the container, continue to pump the vacuum pump until clean brake fluid starts to come out of the bleeder.
- d. If the container fills prior to getting clean fluid, stop bleeding by closing the bleeder. Empty the vacuum pump container and start bleeding again.
- e. When clean fluid comes out of the bleeder, close the bleed screw.
- f. Wipe up any spilled brake fluid with the catch rags.

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