

Tech Tip®

HOW TO BLEED YOUR BRAKES

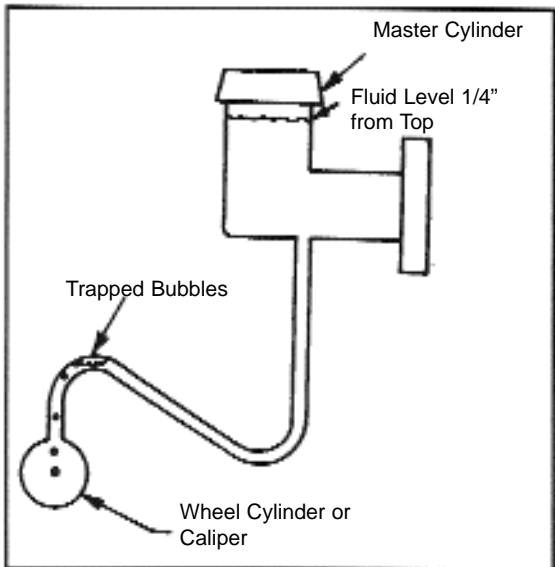


Figure 1 -System in Need of Bleeding

ITEMS NEEDED:

- Clear Plastic Hose
- Clear Container (pickle jar)
- Brake Bleeder Wrench
- Spray Penetrant
- Safety Glasses
- Brake Fluid
- Hammer (not necessary)
- Propane Torch (not necessary)

1

A telltale sign of air in the hydraulic brake system is a soft or spongy pedal when applying the brakes. If a spongy pedal is felt or if any of the hydraulic components, such as the master cylinder, a wheel cylinder, or a brake hose are removed or replaced, the system must be bled to eliminate any air that is present (see Figure 1).

The most common method of bleeding brakes is the "two-man" method. One person is needed to operate the brake pedal, while the other person opens and closes the bleeders.

2

First, remove the cover on the master cylinder and fill the level of the fluid to within 1/4" of the top of the reservoir. Set the cover back on top of the master cylinder, but don't lock it down at this time.

Spray all of the bleeder screws with the spray penetrant, and allow it to soak in for at least one hour. Next, use a six-point wrench, a brake-bleeding wrench or a six-point socket to loosen each bleeder screw. We recommend a six-point wrench or socket to prevent rounding the head of the bleeder screw.

If the bleeder screw will not loosen, heat the area around the bleeder screw with a propane torch and tap lightly on the head of the bleeder with a small hammer while loosening with the wrench. Most often this method will loosen a stubborn bleeder screw. Once loosened, we recommend replacing the old bleeder screws with new ones available from your local Auto Store.

If the bleeder screw breaks off, replacement of the entire caliper or wheel cylinder is necessary.

3 Consult your vehicle's owner's, or shop manual for the brake bleeding sequence for your vehicle. On most rear wheel drive vehicles, the bleeding sequence starts with the right rear, then the left rear, the right front, and finally, the left front (see Figure 2).

Many front wheel drive vehicles are equipped with a dual-diagonal brake system and require a different bleeding sequence (see Figure 3). The recommended procedure for this type of system is to bleed in diagonal pairs starting with the right rear and left front, then the left rear, and finally, the right front.

4 Attach a piece of clear plastic hose to the first bleeder and open the bleeder (see Figure 4). Then have your assistant slowly depress the brake pedal. Close the bleeder before the pedal is fully depressed to the floor.

With the bleeder closed, allow the brake pedal to slowly return to the released position. **NEVER RELEASE THE BRAKE PEDAL WHILE THE BLEEDER SCREW IS OPEN!** This will allow air to re-enter the system.

Now, gently pump the brake pedal three or four times and hold in the applied position. Again open the bleeder and note the fluid coming through the hose.

5 When the pedal nears the floor, tighten the bleeder screw. Repeat this procedure for each wheel until there are no more air bubbles passing through the hose. Make sure to frequently check and refill the fluid level in the master cylinder during bleeding.

When all the air bubbles are removed and a firm brake pedal is felt, recheck all the bleeders for tightness. Recheck the fluid level in the master cylinder and add fluid as necessary. The fluid level should read on the full mark or be within approximately 1/4" from the top of the reservoirs.

Please dispose of the old brake fluid. NEVER reuse old brake fluid. Now test drive the vehicle, make a few slow, easy stops.

Bleeding your brakes is easy when the right procedures and the right tools are used.

