

# BLEEDING BRAKES

## You will need the following tools:

- Correct size spanners
- Extra brake fluid (about 1 pint if you are just bleeding, about 2 if you are completely replacing)
- 12-inch long section of clear plastic tubing, ID sized to fit snugly over your car's bleeder screws
- Disposable bottle for waste fluid
- One can of brake cleaner
- One assistant (to pump the brake pedal)

## Bleeding Process

1. Begin at the corner furthest from the driver and proceed in order toward the driver. (Right rear, left rear, right front, left front.) While the actual sequence is not critical to the bleed performance it is easy to remember the sequence as the farthest to the closest. This will also allow the system to be bled in such a way as to minimize the amount of potential cross-contamination between the new and old fluid.
2. Locate the bleeder screw at the rear of the caliper body (or drum brake wheel cylinder.) Remove the rubber cap from the bleeder screw.
3. Place the spanner over the bleeder screw. An offset wrench works best – since it allows the most room for movement.
4. Place one end of the clear plastic hose over the nipple of the bleeder screw.
5. Place the other end of the hose into the disposable bottle.
6. Place the bottle for waste fluid on top of the caliper body or drum assembly. Hold the bottle with one hand and grasp the wrench with the other hand.
7. Instruct the assistant to “apply.” The assistant should pump the brake pedal three times, hold the pedal down firmly, and respond with “applied.” Instruct the assistant not to release the brakes until told to do so.
8. Loosen the bleeder screw with a brief ¼ turn to release fluid into the waste line. The screw only needs to be open for one second or less. (The brake pedal will “fall” to the floor as the bleeder screw is opened. Instruct the assistant in advance not to release the brakes until instructed to do so.)
9. Close the bleeder screw by tightening it gently. Note that one does not need to pull on the spanner with ridiculous force. Usually just a quick tug will do.
10. Instruct the assistant to “release” the brakes. Note: do NOT release the brake pedal while the bleeder screw is open, as this will suck air back into the system!
11. The assistant should respond with “released.”
12. Inspect the fluid within the waste line for air bubbles.
13. Continue the bleeding process (steps 11 through 16) until air bubbles are no longer present. Be sure to check the brake fluid level in the reservoir after bleeding each wheel! Add fluid as necessary to keep the level at the MAX marking. (Typically, one repeats this process 5-10 times per wheel when doing a ‘standard’ bleed.)
14. Move systematically toward the driver – right rear, left rear, right front, left front - repeating the bleeding process at each corner. Be sure to keep a watchful eye on the brake fluid reservoir! Keep it full!
15. When all four corners have been bled, spray the bleeder screw (and any other parts that were moistened with spilled or dripped brake fluid) with brake cleaner and wipe dry with a clean rag. (Leaving the area clean and dry will make it easier to spot leaks through visual inspection later!)
16. Test the brake pedal for a firm feel. (Bleeding the brakes will not necessarily cure a “soft” or “mushy” pedal – since pad taper and compliance elsewhere within the system can contribute to a soft pedal. But the pedal should not be any worse than it was prior to the bleeding procedure!)
17. Be sure to inspect the bleeder screws and other fittings for signs of leakage. Correct as necessary.
18. Properly dispose of the used waste fluid as you would dispose of used motor oil. Important: used brake fluid should **NEVER** be poured back into the master cylinder reservoir!