



# HYDRAULIC CLUTCH UNIT BLEEDING PROCEDURES

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## SAFETY PROCEDURES

Always follow the vehicle manufacturer's recommended safety procedures in your Shop and Owners Manual.

**NOTE:** Some external slave cylinders do not have bleed screws. Some casting may appear to be missing a bleeder but careful inspect will reveal no fluid passage holes. These cylinders are a result of casting consolidations and the application is not designed for bleeder screw usage. These cylinders must be filled with clutch hydraulic fluid before they are installed on the transmission. All slave cylinders are shipped with a plastic pushrod-retaining strap. This strap retains the pushrod during shipping and also provides a nonmetallic end for the pushrod, which helps prevent wear and squeaks when the clutch is actuated. Make sure the pushrod-retaining strap is in place and secure when the slave cylinder is reinstalled to the vehicle. The pushrod retaining strap retaining bands are designed to break during the first clutch application.

## HYDRAULIC BLEEDING OF EXTERNAL SLAVE CYLINDERS WITHOUT BLEED SCREWS

1. Push the slave cylinder pushrod in and disconnect both retaining bands of the retaining strap, release the pushrod and allow it to fully extend.

**NOTE:** *DO NOT CUT OR DISCARD RETAINING STRAP.*

2. Tip the slave cylinder up at approximately 45 degrees and pour brake hydraulic fluid into the hydraulic port until all air has been expelled.
3. With the slave cylinder still tipped up, insert the clutch hydraulic tube in the slave cylinder hydraulic output port (replace the small rubber quad seal on the end of the metal tube connector and lubricate with clutch fluid), insert retaining pin and drive in with drift punch.

*IMPORTANT! : Original replacements and components must be used*

4. Hold slave cylinder vertically with pushrod facing the ground. Hold pushrod against the palm of the hand in a position which allows the slave cylinder to be lower than the master cylinder.
5. Slowly depress the pushrod into slave cylinder bore approximately 25 – 30 mm while watching the master cylinder reservoir for air bubbles. Stroke the slave cylinder in this manner until air bubbles are no longer entering reservoir, approximately 10 – 15 strokes.
6. With the master cylinder reservoir cap removed, slowly push the slave cylinder pushrod back in and reconnect the two bands of the retaining strap. The slave cylinder is now ready to be installed on the vehicle.
7. Using short quick strokes, push the master cylinder pushrod in and out using your hand or foot at the pedal approximately 15 to 20 times, or until the pushrod is firm.

**HYDRAULIC BLEEDING OF MASTER CYLINDERS AND EXTERNAL SLAVE CYLINDERS WITH BLEED SCREW** (Assuming the system is already installed in the vehicle)

1. Carefully clean the top and sides of the reservoir before opening to prevent contamination of the system with dirt, water, and other foreign material.
2. Remove the reservoir cap and diaphragm and fill the reservoir to approx. 12mm from the top with DOT 3 brake fluid from a sealed container.

NOTE: Do not use fluid that has been bled from a system to fill the reservoir, as it may be contaminated. *Never use transmission fluid, motor oil, power steering fluids or any mineral oil fluids to fill or lubricate the Clutch Hydraulic System.*

3. Using short quick strokes, push the master cylinder pushrod in and out using your hand or foot at the pedal approximately 10-20 times or until the pushrod is firm. This motion will allow air in the system to escape through the master cylinder reservoir.
4. Refill the reservoir if it is necessary with DOT 3 fluid.
5. Depress the clutch pedal and hold it down.
6. Open the bleed screw on the Slave Cylinder to let air and brake fluid escape.
7. Close the bleed screw quickly then release the clutch pedal. *Do not over tighten bleed screw.* (Torque 1.75 to 2.45 Nm)
8. NOTE: Check and refill the reservoir as needed while bleeding the system to prevent air from being drawn back into the system.
9. Pump clutch pedal several times, if clutch engagement is not satisfactory, repeat steps 5, 6, and 7 until all of the air is removed.
10. After bleeding the system, reinstall diaphragm and reservoir cap.
11. Note: Under normal usage, small amounts of air will eventually work its way out of the system.