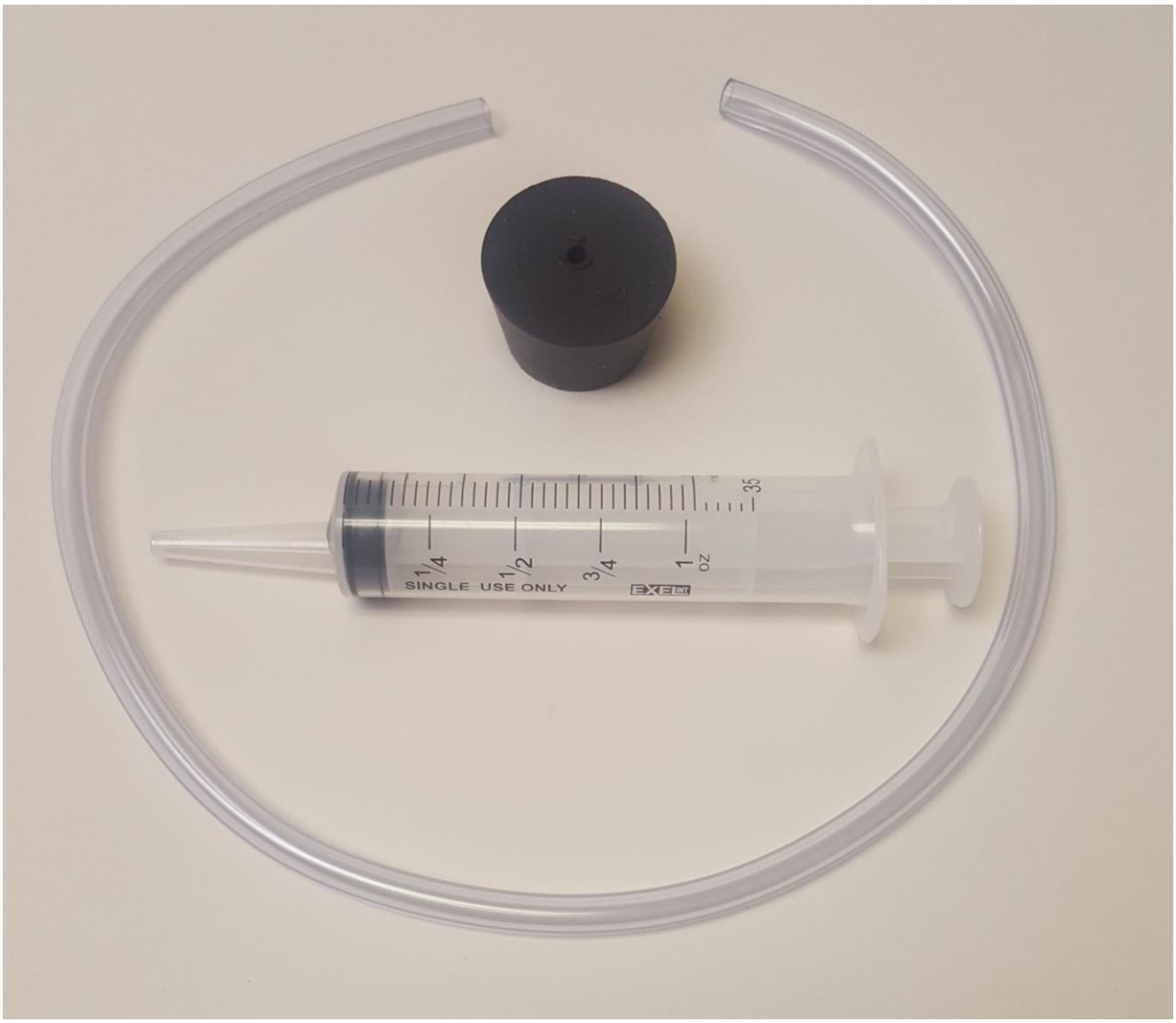
MDL Bleeder Kit

This one-person bleeder kit serves as the primary way to bleed your hydraulic system. This kit will not work with the single-line OE Ford HRB/CSC.



This kit works with all Modern Driveline supplied reservoirs and master cylinders.

Read this Entire document before beginning.

Safety Equipment – Always wear ANSI approved safety goggles/glasses when working with metal and fluids. Wear proper gloves when working with hot surfaces and corrosive fluids.

Don'ts

- NEVER PUMP THE CLUTCH PEDAL – this is not brakes and you will introduce micro-bubbles into the fluid.
- Never shake or drop your new brake fluid container.

- Never use Silicone based fluids in this system. Castrol LMA PTFE DOT 5 and ATE Type 200 are known to be incompatible and may cause seals to swell. It is not necessary to run any type of synthetic or high-heat fluid. The clutch actuation system does not see the same strenuous demands as brake systems.

Do's

- Always use clean, new DOT 3 fluid. Using recycled fluid can contaminate the system and introduce micro-bubbles.

Warnings

- DOT 3 fluid is harmful to paint. Wash off spilled fluid immediately with soapy water.

Helpful Hints

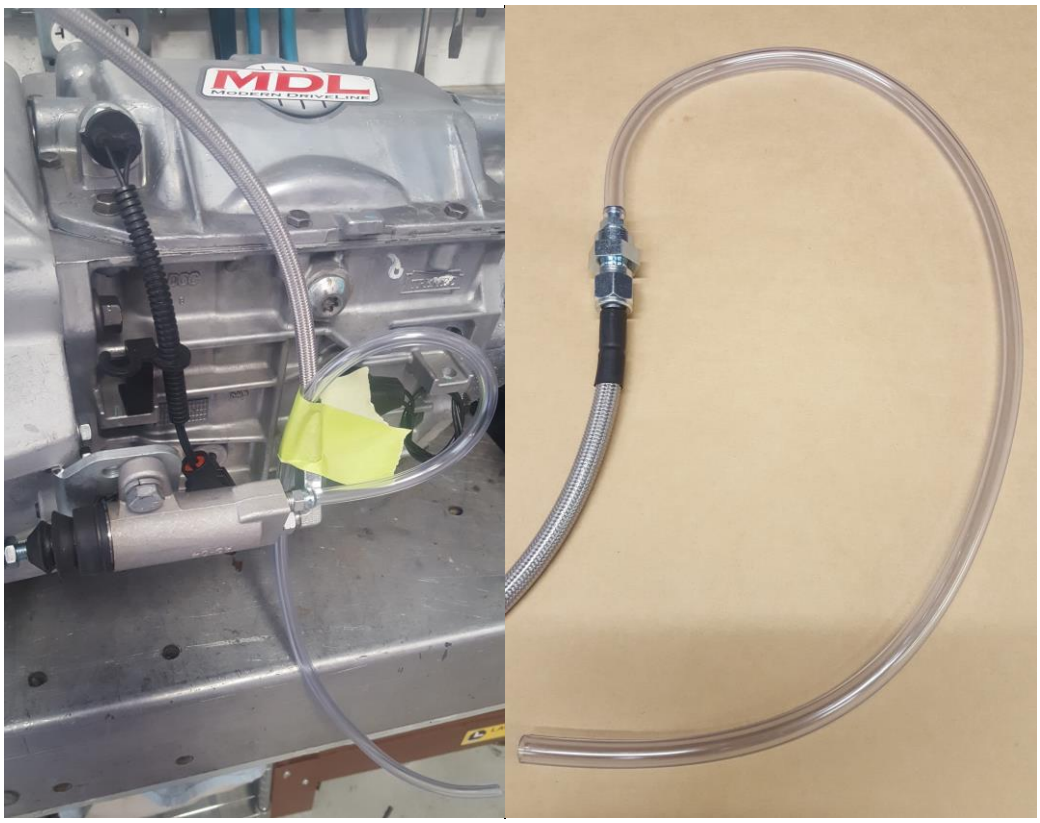
- Make sure all fluid fittings are tight.
- Make sure the clutch master cylinder is installed correctly per the installation instructions.
- Verify the slave cylinder or internal release bearing (HRB, CSC) has the exit/bleed port in the highest position.
- Remove any installed check ball valves from bleeder screws (if equipped).
- Read step 1 completely.
- Be sure there are no extra parts added to the system such as residual check valves or additional springs.
- Remove any/all springs from the clutch pedal.
- Be sure the reservoir hose (external) constantly travels downward.

Steps

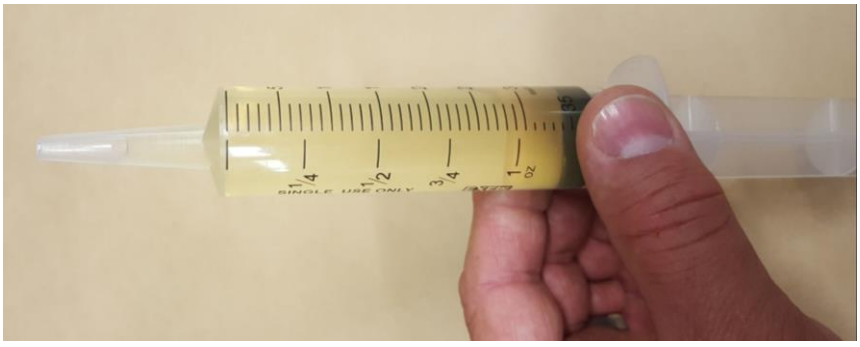
1. Disconnect the clutch master cylinder rod from the reduction linkage. If your vehicle does not have reduction linkage, disconnect the clutch master cylinder rod from the clutch pedal. Close the bleed screw on the slave cylinder or hydraulic throw out bearing. Remove the bladder (if equipped in the reservoir) & fill reservoir only halfway with DOT 3 brake fluid.

2. Attach the vinyl tubing to the slave cylinder bleed screw and create an upward facing trap (loop up, then down) immediately after the bleed screw. This will allow you to bleed the system without a helper and keep air from re-entering the system. Use tie-wraps or tape to hold the tubing in place as required. Place the end of the tubing into an open or VENTED catch-can.
   Do not open the bleeder fitting at this time because the system will continue to gravity bleed.

Note – <u>It is okay</u> that your HRB/CSC bleed line does not face upward so long as you have an upward loop in the vinyl tubing "immediately" after the bleed screw. (not half-way down or at the end of the vinyl tubing).



3. Use the syringe to draw in new clean DOT 3 fluid from the original or a clean container to completely fill the syringe. Be sure the tip of the syringe is constantly submerged.
Drawing in air will introduce micro bubbles into the fluid and you must start over, purging the syringe and setting the removed fluid aside.

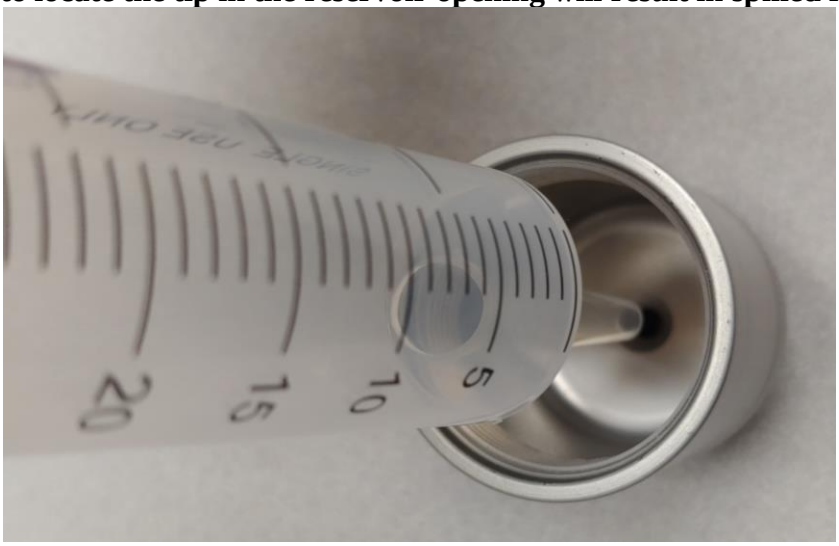


4. Turn syringe tip up, tap the body of the syringe, and ensure any remaining air travels to the tip and push the plunger slightly to fill the tip with fluid.

5. Open the bleed screw about 1/2 turn.

6. For external reservoir systems insert the syringe tip in the bottom of the reservoir port and press on the plunger COMPLETELY, in a single stroke of the plunger. This should take no more than 3 seconds, or you are pushing too slow. You may optionally use the beaker stopper in the reservoir by following step 6A below.

- **If you push the plunger too slow it will not force any trapped air from the system.**
- **Failure to locate the tip in the reservoir opening will result in spilled fluid.**



Shown is an empty reservoir and empty syringe.
Your reservoir and syringe will have fluid in them when bleeding the system.

6A. For integral reservoir clutch master cylinders insert the beaker stopper **firmly** into the opening. Insert the syringe tip into the beaker stopper, hold the beaker stopper down firmly and press on the plunger COMPLETELY, in a single stroke of the plunger. This should take no more than 3 seconds or you are pushing too slow.

- **If you push the plunger too slow it will not force any trapped air from the system.**

Shown is the beaker stopper pressed firmly in the opening and syringe tip in beaker stopper.

7. Close the bleed screw THEN remove the vinyl tubing. Fluid and air will exit the vinyl tubing. Clean up any residual fluid.

8. Fill the reservoir to the proper level and re-install any removed bladder and the cap.

9. Test the system –Reconnect the clutch master cylinder rod per installation instructions. Push on the clutch pedal with your foot. It should be firm top to bottom and release the clutch. If it does not release the clutch… push on the clutch pedal with your hand. If the pedal is soft and then gets firmer… you still have air in the system. Repeat the bleed procedure as written. Do not work out of order. As a reminder if you have a reduction linkage system, disconnect the clutch master cylinder rod from the linkage, not the pedal.

10. Inspect for leaks after cycling the pedal a few times. Press the clutch pedal and hold down. Have a second person inspect master cylinder fittings, reservoir connections, any in-line unions on the braided lines, circlip fittings at CSC/HRB, fittings at slave cylinder, bleed screw. At the clutch pedal you can expect some light wetting of the clutch master cylinder rod **boot** – the bore of the clutch master cylinder may be rougher than the pressure seal will be able to seat against until some cycling has occurred, but it should not leak under pressure. The CSC/HRB or external slave cylinder should also remain extended without moving.

11. Release the clutch pedal and remove the reservoir cap and bladder. Wear safety glasses. Carefully and slowly press on the clutch pedal and verify the fluid level in the reservoir does NOT rise. **If the fluid level does rise this is an indication the reservoir port seal is damaged or has debris stuck on the seal (Wilwood/Girling style master cylinders only).**

12. Re-install bladder (as applicable) and cap.

13. Inspect fluid line routing – make sure the pressure line(s) are not in the way of moving parts (in and out of the bell housing as applicable) and are routed away from all heat sources. Tether or P-clamp the braided lines to stabilize as needed. Verify the braided lines will not be in the path of travel of the pressure plate when the vehicle is running. Verify the reservoir hose is not pinched or pulled tight.

FAQ:
What if there is a little air in my syringe when I bleed the system?
A tiny bubble in the syringe will not find its way into the master cylinder. It will simply come back up into the reservoir. Refer to helpful hints for reservoir hose routing.

What if I have no leaks but I still cannot get my clutch to release?

1) Refer to step 11

2) Confirm you have a hydraulic release issue by inspecting the movement of the slave cylinder. External slave rods should move 1.2”. Internal release bearings will **travel** back and forth 7/16”.

3) Remember the bleed line of an internal release bearing is part of the pressurized system. Refer to step 7 for assurances of no air in the system.

I have cycled almost a quart of fluid thru the system, and it still isn’t working. What’s next?
The syringe volume is like filling the system twice. If you have followed all the above steps there is something else wrong.

Possible causes are:
A leak not found – check fluid level again and under the dash (step 10) – light wetting is not a pressure leak
Disk installed backwards or disk stuck to pressure plate or flywheel; inspect this by removing the starter
Transmission stuck in gear
Rear end unable to turn (brakes, ring and pinion)
The transmission still has a rubber plug in the back
Slip yoke too tight
Rust on transmission or rear end parts, internally
Pilot bushing too tight on input shaft
Input shaft bottomed out on crank
Splines bottomed out on pilot bushing
Bearing retainer tube or release bearing tube is contacting the clutch disk hub

> If the pedal is not firm by hand after two additional bleeding attempts, or if you have leaks that cannot be overcome by following installation instructions call Modern Driveline at:
> 208-453-9800 M-F 8-5 Mountain time or E-mail Tech@moderndriveline.com

We can also help you with "possible causes" trouble shooting and replacement or additional components if necessary.