



"FIVE AND SIX SPEED CONVERSION SPECIALISTS"

MD-910-0105 C2 Corvette '63-'67 Hydraulic Clutch Master Cylinder Installation Instructions



Read These Instructions Completely Before Beginning

These instructions are for hydraulic master cylinder installations using an external slave cylinder or a hydraulic throw-out bearing. If your car has been modified from a stock configuration, certain steps may not apply. Existing alterations to your vehicle are your responsibility.

Some pics are shown with color-contrasting parts. Some items have been omitted for clarity.

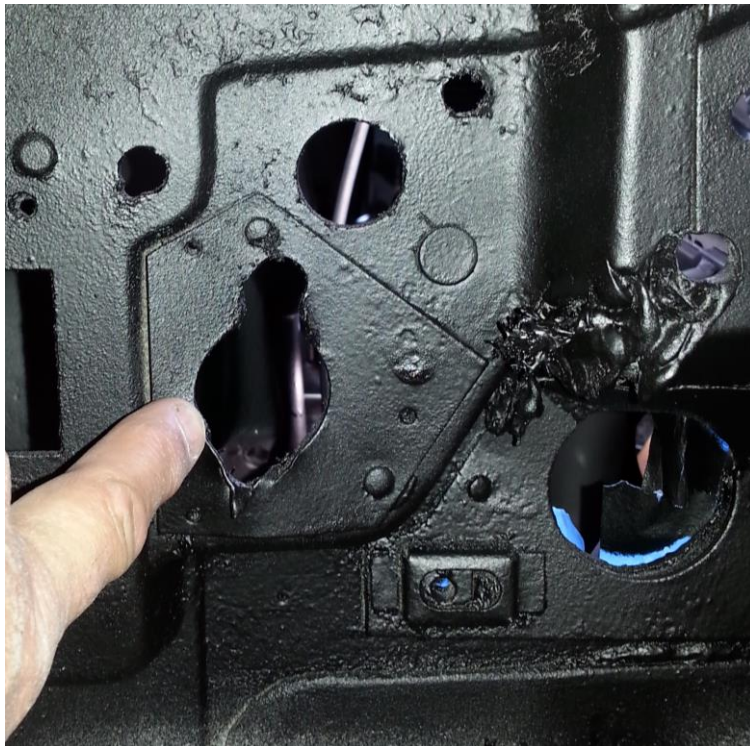
Tools and Notes

Drill motor, 21/64" drill bit, Sharpie marker, (2) 1/2" wrenches and/or socket/ratchet, 1-3/8" hole saw (or equiv), silicone sealant, a second person.

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.

1.0 Disassembly - If your Corvette is already disassembled, skip to the Assembly Instructions. If you are converting an automatic car, some disassembly steps do not apply.

- 1.1 Remove all clutch linkage or automatic linkage from engine, transmission, frame and clutch pedal. From the clutch pedal, retain the keeper pin and spring washer. These two parts will be used on re-assembly.
- 1.2 Do not remove the clutch pedal stop.
- 1.3 Remove the doubler plate from under the dash, if installed. It will look similar to the small plate supplied in the kit.



2.0 Assembly

- 2.1 If you are converting an Automatic car, the clutch rod hole location will not exist. Using masking tape, cover the area in the engine compartment where the yellow plate is shown below. Position the small plate from the kit and mark with a sharpie, keeping the small plate out of the radiuses. Mark the mounting holes and hole for the master cylinder. Drill holes using a 5/16" drill bit. Create a hole for the Master Cylinder using a 1-3/8" hole saw as required.

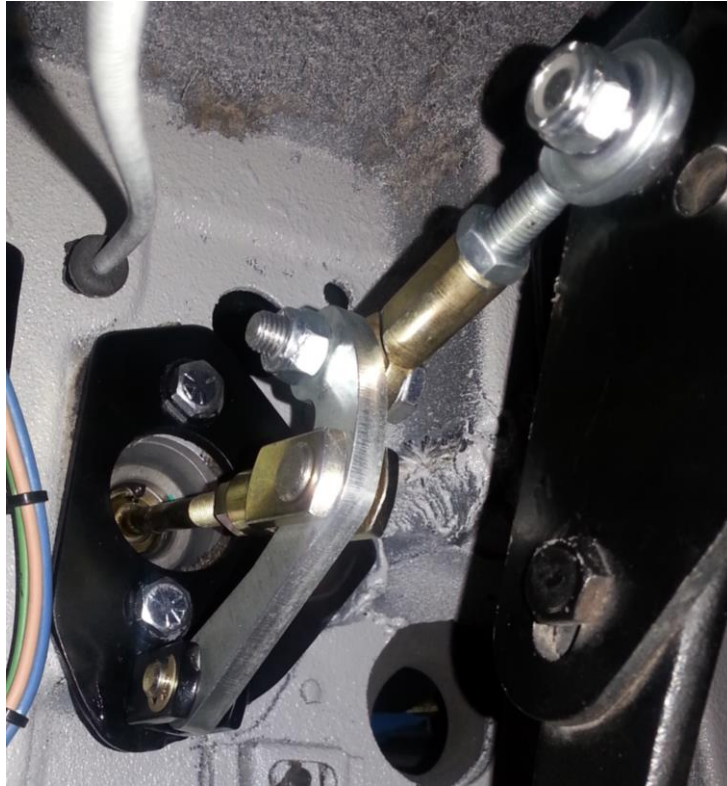


- 2.2 Verify both side of the firewall are smooth/flat. Any high-spots will cause stress once the plates are installed.
- 2.3 Clean surfaces of firewall, plates, master cylinder & spacer block. Apply silicone sealant to mating surfaces. Position the under-dash plate with fasteners and using a second person, position the plate and Master Cylinder with block & tighten all fasteners.



- 2.4 Assemble the under-dash components. Install the clevis on the end of the Master Cylinder until the threads are even with the inside. Install the lever with the flat nylatron washer and install the clevis pin and E-clip. Attach the rod-ends as shown to the lever and the clutch pedal. Adjust during assembly the clutch pedal against the up-stop and make sure there is no preload on the master cylinder.

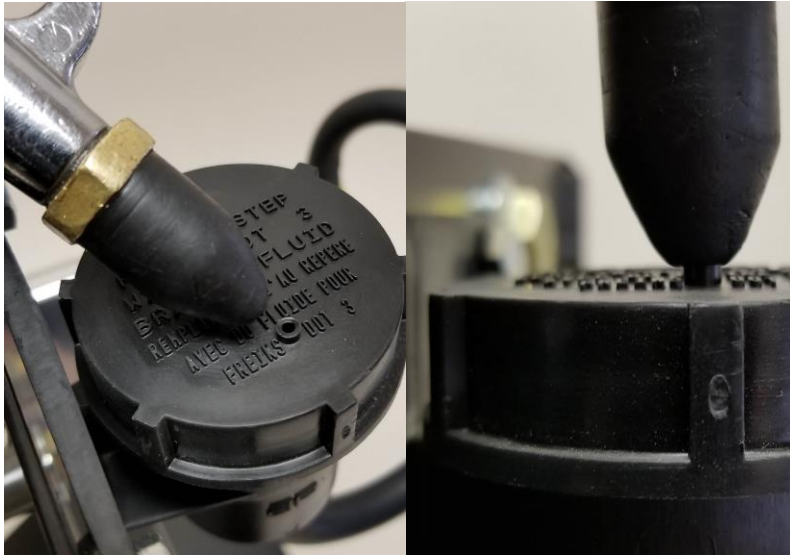
- 2.5 Verify actuation of the lever assy with master cylinder attached. The master cylinder will have 1.4” of total travel. Verify master cylinder does not bottom out on lever and also verify the lever does not hit fastener in plate.



- 2.6 Verify actuation – the clutch pedal should bottom out on the carpeting at the same time the master cylinder bottoms out. If you have no carpeting or insulation under the clutch pedal, a stop block is recommended so the master cylinder will not be damaged. If the pedal bottoms out on the carpeting without bottoming out the master cylinder no further adjustments are necessary until the hydraulic system is activated with the clutch. If the pedal stops before hitting the carpeting, loosen the stop nut on the master cylinder clevis, loosen lock nut and remove the rod end on the lever. Checking in ½ turn increments, adjust the master cylinder clevis until the pedal stops against the carpeting, reattaching hardware and adjusting the rod-end as required. **It is important the linkage push STRAIGHT. Do not allow linkage to side-load. Use supplied washers as required to maintain alignment.** Once adjustments are complete, tighten clevis jam nut and install plastic washer between lever and clevis and install C-clip on dowel pin as req'd. Re-install rod-end hardware and tighten jam nut between rod-ends. Verify no binding of rod-ends and clevis against lever and clutch pedal spacer. Actuation should be smooth. **Verify the master cylinder rod travels the full stroke of 1.35” to 1.4” for proper clutch release.**



- 2.7 Do not over tighten fittings – this will cause damage to the seat of the hose end and fittings. Attach the steel braided line to the 90-degree elbow on the master cylinder and slave cylinder or hydraulic throw out bearing making sure line has clearance to exhaust system and will not interfere with any moving parts. Once steel braided line is positioned for routing and clearance, tighten jam nut on the 90-degree fitting in the master cylinder. Note: There is an o-ring under the jam nut. **Do not adjust 90-degree elbow more than ½ turn in either direction.**
- 2.8 Close the bleed screw on the slave cylinder or hydraulic throw out bearing. Remove the bladder & fill reservoir with **DOT 3** brake fluid. Do not install bladder at this time. Install cap tightly.
- 2.9 **Caution: Always wear ANSI approved goggles/glasses when working with fluids. Wear proper gloves when working with corrosive fluids.** Purging of air and filing the hydraulic system. Pressure bleeding is the only way to remove all the air from the system. Pedal pumping will not work as it causes air bubbles to be trapped in the line and will not pass.
 - 2.9.1 Loosen the bleed screw on the slave cylinder or hydraulic throw-out bearing. Allow gravity to fill the system until fluid comes out the bleed screw then close. Top-off reservoir and re-install cap.
 - 2.9.2 Using a second person, open the bleed screw and apply 5-10 psi thru the vent hole in the reservoir cap using a rubber tipped air nozzle. **Air pressure must be regulated to ~10 psi for safety.**



- 2.9.3 Since the reservoir is small, the bleed screw should only be open for about 5 seconds. You will see a solid stream of fluid come out, followed by air bubbles, followed by another solid stream of fluid. Immediately close the bleed screw when you see the second solid stream of fluid to prevent draining the reservoir.
- 2.9.4 Top off fluid to the step line in the reservoir and install bladder and cap. Do not overfill or brake fluid will spill over.
- 2.10 With the **NOT** running and system full of fluid, cycle the clutch pedal a few times. You should have clutch *feel* but it will not be a *heavy clutch*. If the slave cylinder does not move at the beginning of the clutch pedal movement, there is still air in the system. Repeat the above process as necessary.
- 2.11 Position rear wheels on jack stands (free to rotate). With transmission in neutral, start car. Push in clutch pedal. Transmission should go into 1st gear easily. Slowly release clutch pedal. Pedal should start to engage the clutch at a comfortable level of the pedal travel (about 1.0”- 1.5” from floor). Adjust slave cylinder first, master cylinder second, to change clutch engage/release point. A new or rebuilt transmission should have all the gears run thru (in the driveway, partially releasing clutch) before road testing the new hydraulic clutch.
- 2.12 Remove jack stands and test drive. Upon return, verify steel braided line clearance and support. The hydraulic lines should keep away from the exhaust and clutch assembly.
- 2.13 If the clutch feels spongy or releases too close to the floor, repeat step 2.9. FYI – micro bubbles may be present in the system due to actuation, accumulation on rubber parts, and machining marks within the system. Repeating step 2.9 is recommended, before or after test driving.
- 2.14 Further assistance and tech support is available by calling Modern Driveline at 208-453-9800 M-F 8-5 Mountain time or E-mail Tech@moderndriveline.com

2.15 Enjoy your new hydraulic system and Thank You for “Making it Modern” We appreciate your business.

