"FIVE AND SIX SPEED CONVERSION SPECIALISTS"

MD-910-0100 Chevy 55-57 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.

Tools and Notes

Drill motor, 21/64" drill bit, Sharpie marker, 3/8" 7/16" 1/2" 9/16" 5/8" 3/4" wrenches and/or socket/ratchet, 1 3/8" hole saw, silicone sealant, loc-tite, a second person.

This Hydraulic Master Cylinder Kit does not utilize the stock clutch push-rod hole location in the firewall. For the 55-57 Chevy a new location was chosen to eliminate interference with multiple brake configurations that are available in both stock and aftermarket applications. This Kit will require you to re-locate your horn relay.

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

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

1.1 Remove brake master cylinder and brake booster as required.

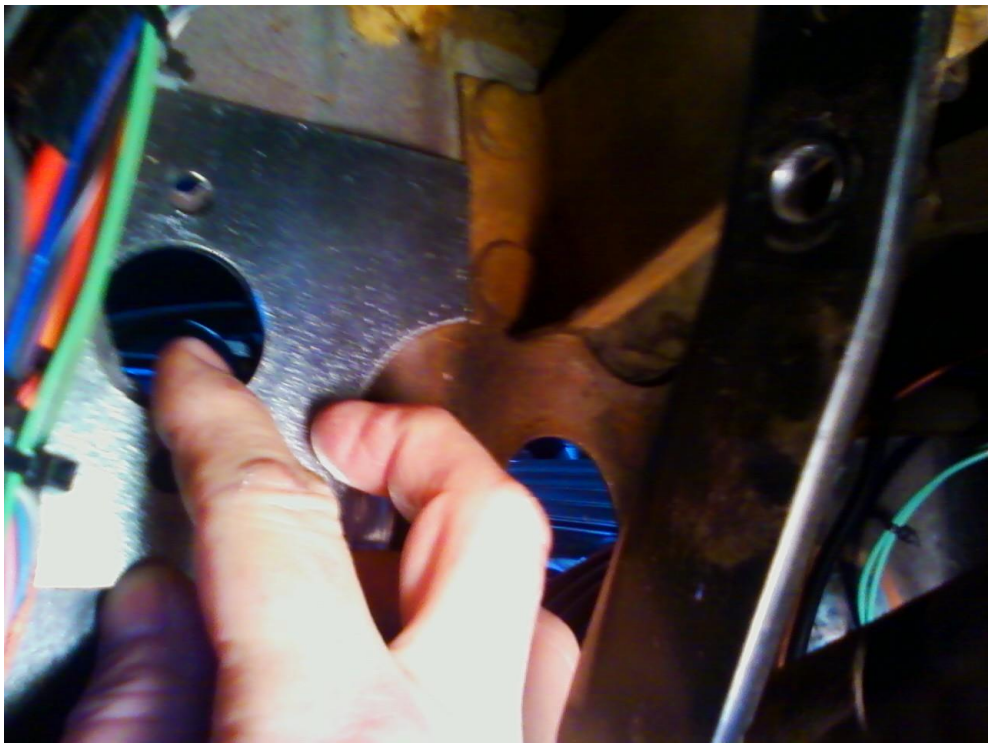
1.2 Remove all clutch linkage or automatic linkage from engine, transmission, frame and clutch pedal. The clutch pedal will be removed for modification and re-installed.

1.3 Warning: If equipped, clutch pedal spring is under pressure. Use caution when removing. Remove the clutch pedal spring and all associated hardware. Do not remove the clutch pedal stop. The spring and spring attaching hardware will not be reinstalled.

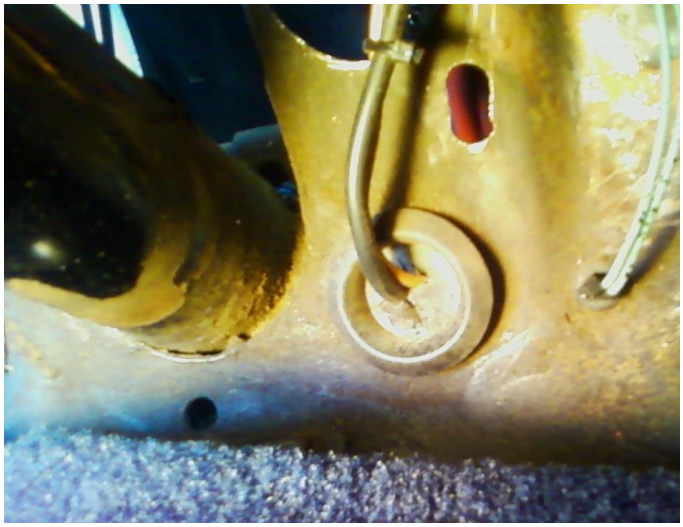
2.0 <u>Assembly</u>

2.1 Note: our mock-up vehicle has certain items removed for clarity.

2.2 Locate the supplied firewall plate as shown. Using the pedal hangar as a guide, locate the lower inboard corner of the supplied plate to the lower outboard corner of the pedal hangar assembly. It is important the supplied plate is positioned horizontal/vertical and the inboard lower corner of the supplied plate is touching the lower corner of the pedal hangar. If the pedal hangar metal stamping is not vertical, you may trim the hangar or the plate. NOTE: On some cars the outboard side of the plate may need to be trimmed to clear a vertical firewall stiffener. Mark and drill using 21/64" bit the master cylinder mounting holes and 1 3/8” thru hole. De-burr holes.



2.3 Clean surfaces of supplied plate, firewall and clutch master cylinder. Apply a thin layer of silicone sealant around edges of body plug, plate and clutch master cylinder. Install clutch master cylinder and plate using 5/16 x 1-1/4" bolts and lock nuts. Install body plug in old clutch rod hole as required. Our mock-up vehicle used this location for auxiliary components.



2.4 Re-install brake master cylinder, booster, brake lines and distribution block as required.

2.5 Reset your insulation and carpeting, trimming to clear the new clutch master cylinder location as required.

2.6 Drill lower hole in clutch pedal to 7/16" and install clutch pedal. The starting height of the clutch pedal will be the same height of the brake pedal against the brake pedal stop.

2.7 Install the jam nuts and sleeve nut onto the clutch master cylinder and male rod end, bottoming out the threads to each other, centered in the sleeve nut. Do not tighten jam nuts at this time. Install the hex spacer on the stud end of the male rod end and snug up using 7/16" wrench. Install the hex spacer on outboard side of clutch pedal using 7/16"-20 bolt and lock washer.

2.8 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, remove the hex spacer and male rod end. Trim off about four threads on the male rod end and re-install. Adjust pedal stop as necessary and know the pedals may not be at the same height. Tighten jam nuts using 1/2" wrench and rod-end stud using 7/16" wrench. Verify no binding of rod-end, lever and clutch pedal hex spacer. Verify parallel alignment of all the components. Actuation should be smooth. Verify the master cylinder rod travels the full stroke of 1.35" to 1.4" for proper clutch release.

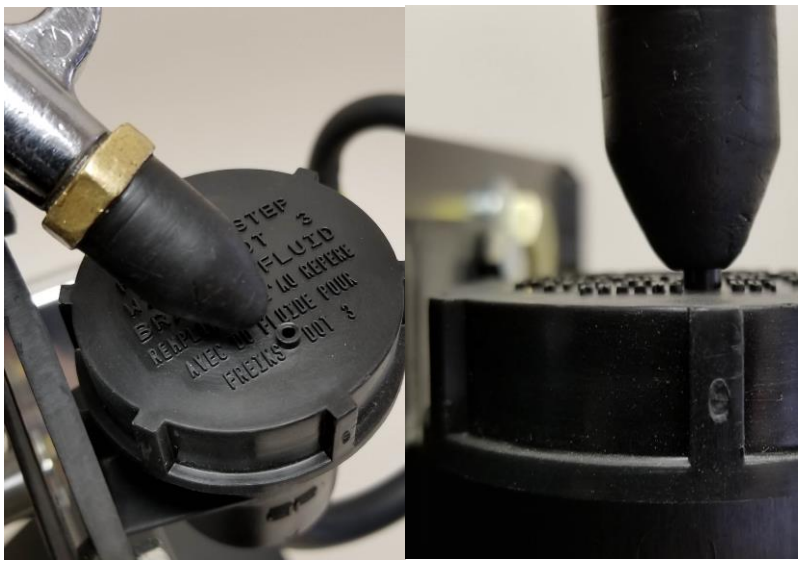
2.9 Do not over tighten fittings – this will cause damage to the seat of the hose end and fittings. Attach the steel braided line to the 90-degree elbow on the master cylinder and slave cylinder or hydraulic throw out bearing making sure line has clearance to exhaust system and will not interfere with 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.**

2.10 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.

2.11 **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.

2.11.1 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.

2.11.2 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.**



2.11.3 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.

2.11.4 Top off fluid to the step line in the reservoir and install bladder and cap. Do not overfill or brake fluid will spill over.

2.12 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.

2.13 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.

2.14 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.

2.15 If the clutch feels spongy or releases too close to the floor, repeat step 2.12. FYI – micro bubbles may be present in the system due to actuation, accumulation on rubber parts, and machining marks within the system. Repeating step 2.12 is recommended, before or after test driving.

2.16 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

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

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