

1955-57 HYDRAULIC CLUTCH INSTALLATION



Randy Irwin - Technical Writer

Randy has been involved in the Chevy parts business for over 25 years. He is a wizard at creating, making and modifying custom parts for Chevys.

When automobiles were first built in the 1880's, they had mechanical clutch linkage. Your manual transmission classic '55-'57 still has clutch technology that is 125 years old! It's time to update that antiquated clutch linkage with a state-of-the-art hydraulic clutch system. Installing a hydraulic clutch system will not only remove all of that ugly, clunky clutch linkage and clean up the engine compartment and firewall, it will also give you increased clearance in the engine compartment for custom headers and exhaust. The new Hydraulic Clutch System includes a small master cylinder that mounts up under the dash out of sight. Our system uses a hydraulic release bearing so that the mechanical clutch fork in the bellhousing is also removed for an even cleaner installation. This system will work with a three finger type pressure plate or a diaphragm type pressure plate.



Parts Needed:

- 08-500 Muncie Hydraulic Clutch System
- 08-501 Saginaw Hydraulic Clutch System
- 08-502 T10 Hydraulic Clutch System
- 08-503 T15 Hydraulic Clutch System

To order parts call 1-800-456-1957 or visit ClassicChevy.com

Tools Needed:

- 1/2" Wrench
- 9/16" Wrench
- 3/8" Ratchet
- 1/2" Socket
- 9/16" Socket

Time Frame:

4-Hours

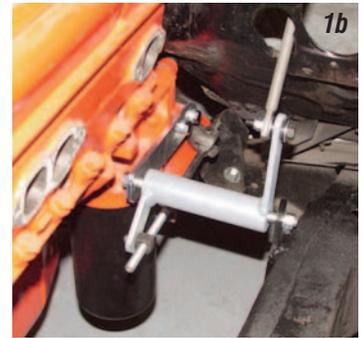
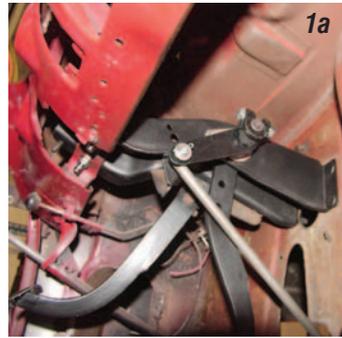


Photo #1a, 1b & 1c: The mechanical clutch linkage starts at the clutch pedal swing arm under the dash with a pushrod that routes through the firewall and connects to the cross shaft between the frame and the bellhousing bracket. A second pushrod connects the cross shaft to the clutch fork. This all works fine when everything is in good condition, but once one part starts to wear the complete system can become sloppy. The clutch linkage also eats up a lot of engine compartment room which can limit your choice of headers.



Photo #2: The clutch fork fits through a hole in the bell housing on the driver's side and connects to the mechanical release (throw out) bearing. The new hydraulic clutch system eliminates all of the clutch linkage, clutch fork and release bearing.

Photo #3: The hydraulic clutch master cylinder mounts to the top of the brake pedal swing arm assembly under the dash. By mounting the master cylinder under the dash and not out on the firewall, the engine compartment will remain nice and clean. On 1955 and 56 cars, one hole must be drilled and on 1957 cars two holes must be drilled in the brake pedal swing arm assembly. To complete this, the assembly will need to be unbolted and removed from the car.





Photo #4: The stock clutch pedal swing arm has a return spring and bracket that will need to be removed. The return spring bracket is bolted to the clutch pedal arm with two 9/16" bolts.



Photo #5a & 5b: The clutch pedal pushrod arm is splined to the clutch pedal shaft and secured with a 9/16" bolt, nut and lock washer. The stock arm will be replaced with a new billet arm for the hydraulic master cylinder.

Photo #6: Before installing the new clutch arm, make sure the bushings on the clutch shaft are in good shape. If the shaft is wobbly, the bushings are bad. To replace the bushings, slide the pedal shaft out of the pivot sleeve and install two P/N 08-18 bushings. Be sure to lightly grease the bushings.



Photo #7a & 7b: Install the aluminum bushing in the kit onto the clutch arm shaft. Next install the billet aluminum clutch master cylinder arm. Make sure the offset of the arm is toward the left (driver side) of the pedal assembly. The arm is held to the shaft with an Allen head bolt and lock nut that will pass over the flat cut in the clutch pedal shaft just like the original arm.

Photo #8: The clutch master cylinder bracket bolts to the top of the pedal assembly with two 9/16" x 1" bolts, lock washers and nuts. There is an existing hole on the 1955 and 56 pedal assembly that can be used for one of the mounting holes for the clutch master cylinder bracket.



Photo #9: Bolt the bracket to the top of the pedal assembly and square up the front of the bracket to the new clutch pedal arm.

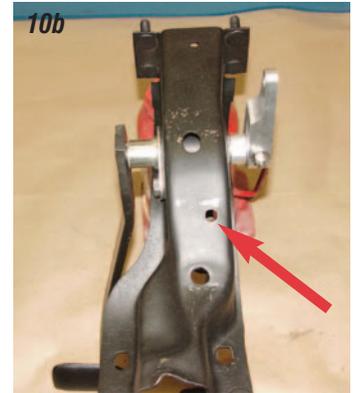


Photo #10a, 10b & 10c: Using the bracket as a guide, drill the second 3/8" hole in the pedal assembly and bolt the bracket in place.

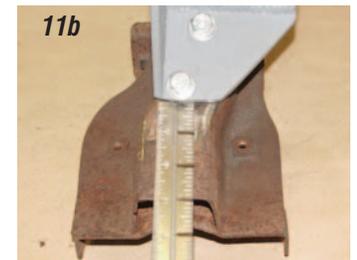
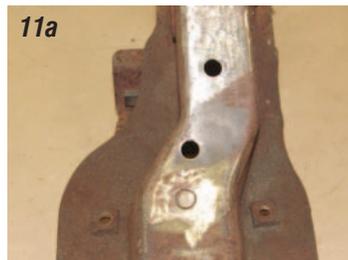


Photo #11a & 11b: On the 1957 pedal assembly both 3/8" holes must be drilled for the clutch master cylinder bracket. The rear edge of the bracket should be located 2-7/8" from the rear edge of the pedal assembly. The original support rods from the pedal assembly to cowl will no longer be used.



Photo #12: The clutch master cylinder bolts to the master cylinder bracket with two 5/16" X 1-1/4" bolts with lock nuts.

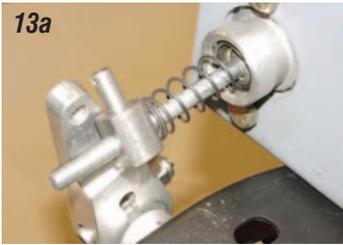


Photo #13a & 13b: The master cylinder is equipped with a threaded pushrod. The 3" long spring provided should be installed onto the pushrod shaft first. Screw the coupler onto the shaft to connect the master cylinder pushrod to the clutch pedal arm. Make sure the flat side on the coupler is facing away from the master cylinder.

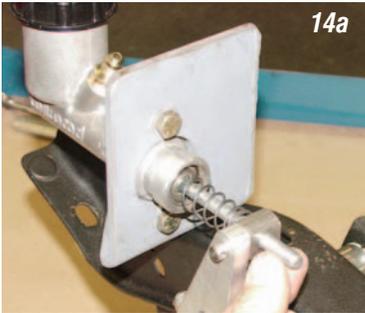


Photo #14a & 14b: The pushrod shaft for the master cylinder can be turned so that clutch pedal height can be adjusted. This can be done on the bench.



Photo #15: Once the clutch pedal height is set, lock the master cylinder pushrod to the coupler using the 5/16" fine thread nut and flat washer.



Photo #16a & 16b: Install the cotter pin and washer to hold the coupler to the clutch pedal arm. The pedal assembly is ready to be installed back under the dash.



Photo #17: With the pedal assembly back in the car, the clutch master cylinder will be to the right of the gauge cluster allowing clearance for the stock gauge cluster as well as any aftermarket gauge cluster. The stock wiper transmission cables and the updated Raingear system will clear as well.



Photo #18: The hydraulic release bearing fits on the front bearing retainer on any three, four, five or six-speed standard transmission.



Photo #19: The release bearing is adjustable in length so that it can be used with a diaphragm or three finger type pressure plate. A set collar on the release bearing may be adjusted in or out to set the proper clearance between the release bearing and pressure plate.



Photo #20a & 20b: The adjusting collar for the release bearing has two o-rings on the inside bore so that it will not spin. Lubricate the o-rings with a light oil and install the collar onto the front bearing retainer. The beveled side of the collar installs against the transmission face.



Photo #21: Next install the release bearing onto the adjusting collar by turning the bearing clockwise until the rear face of the bearing bottoms out on the front bearing retainer bolts.

Photo #22: Measure the clearance between the release bearing and the pressure plate. To make the release bearing work properly, there must be no less than .100" and no more than .300" between the bearing and pressure plate. First measure the distance from the front of the gear box to the front of the release bearing. Our project car had a measurement of 3".





Photo #23: Next measure the distance from the face of the bellhousing to the fingers on the pressure plate. Our project car had a measurement of 2-7/8". By subtracting 2-7/8" from the 3" measurement we find that we have 1/8" (.125") clearance between the release bearing and the fingers of the pressure plate, this is within the tolerances required for the release bearing. If your measurement is not .100" to .300" turn the entire bearing assembly clockwise or counterclockwise full turns until the proper measurement is obtained.

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Photo #24: There are two fittings on the release bearing. The upper fitting is for bleeding the hydraulic system. A 12" long #4 steel braided hose is installed on this fitting with a bleeder fitting on the end. The lower fitting is for the supply hose from the master cylinder. The kit includes a 60" long #4 Teflon steel braided hose that connects the release bearing to the clutch master cylinder. Connect the straight end of the #4 hose to the lower fitting on the release bearing.



Photo #25: With the two hoses connected to the release bearing and the bearing installed onto the front bearing retainer, the transmission may be installed. Feed the two hoses out through the hole in the side of the bellhousing where the clutch fork was installed and bolt the transmission into place.

Photo #26: The supply hose can be routed through the firewall in any desired location. Make sure the hose is kept away from any moving parts or hot exhaust. The kit includes a grommet so that the hose will be protected as it passes through the firewall.



Photo #27a & 27b: The 90-degree end on the hose from the release bearing connects to the #4 fitting on the master cylinder.



Photo #28a, 28b & 28c: With everything installed it is time to put brake fluid in the clutch master cylinder. Use ONLY DOT 3 brake fluid and not silicone brake fluid. Using silicone brake fluid will damage the release bearing and void any warranty. If the gauge cluster is removed, there is room to get a container of brake fluid up to the master cylinder top to fill the master cylinder. Fill it to within 1/2" of the top. If there is not enough room to get a container of brake up to the master cylinder use the supplied squeeze ball and hose to fill the master cylinder. Spread a garbage bag out on the floor of the car to protect the carpet.



Photo #29: The clutch master cylinder will bleed just like a brake master cylinder. With the master cylinder filled, pump the pedal four or five times and hold the pedal to the floor. Now open the bleeder on the #4 hose from the release bearing allowing the air to escape. Do this several times until all the air is bled from the system.



Photo #30a & 30b: Once all the air has been removed, the release bearing will move forward 1/2" to disengage the clutch. This amount of movement is enough to adequately disengage a three finger or diaphragm style pressure plate.

Using a couple of zip-ties, tie the two #4 steel braided hoses together so that the hoses cannot make any contact with the pressure plate when the engine is running. Enjoy your new smoothly operating clutch system using 21st century technology! Good Luck! 

1955-57 HYDRAULIC CLUTCH UPDATE



Randy Irwin - Technical Writer

Randy has been involved in the Chevy parts business for over 25 years. He is a wizard at creating, making and modifying custom parts for Chevys.

Eckler's Classic Chevy first introduced the hydraulic clutch system for the Tri-Fives in the October 2006 Classic Chevy World magazine. At that time the hydraulic release bearing available was more or less a universal style bearing that would fit various transmissions. The manufacturer has now developed a new release bearing that is custom fit to each type of transmission. It is both a hydraulic release bearing and front bearing retainer, so it will replace the stock front bearing retainer completely.



Parts Needed:

- 08-500 Muncie 4-Speed Hydraulic Clutch Kit
- 08-501 Saginaw 4-Speed Hydraulic Clutch Kit
- 08-502 T10 4-Speed & Richmond 5/6-Speed Hydraulic Clutch Kit

- 08-503 T5 Hydraulic Clutch Kit
- 08-505 Tremec 5/6-Speed Hydraulic Clutch Kit
- 08-100 Muncie Hydraulic Release Bearing
- 08-101 Saginaw Hydraulic Release Bearing
- 08-102 Richmond Hydraulic Release Bearing
- 08-103 T5 Hydraulic Release Bearing
- 08-105 Tremec Hydraulic Release Bearing

To order parts call 1-800-456-1957 or visit ClassicChevy.com

Tools Needed:

- 5/16" Allen Socket
- 9/16" Sockets and Ratchet

Torque Wrench
Silicone

Time Frame:

4-Hours

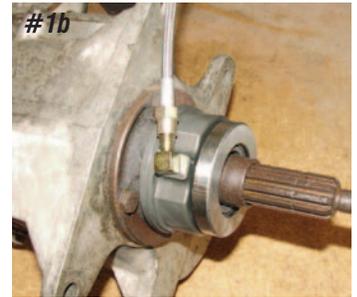
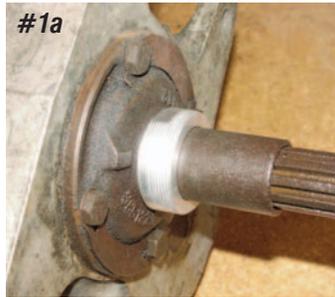


Photo #1a & 1b: The old universal style release bearing fit onto the stock front bearing retainer. It used an adjustable collar that screwed into the bearing. This collar was used for setting the bearing to pressure plate clearance.

Photo #2: The original front bearing retainer is bolted to the front of the transmission. A Muncie transmission uses 4, 3/8" bolts; other transmissions may have five or six bolts.



Photo #3a & 3b: To remove the bearing retainer, first bend the tabs back on the bolt retaining plates and remove the four bolts. Using a plastic mallet, tap on the neck of the retainer and the retainer will break free from the transmission.



Photo #4: The release bearing P/N 08-100 for a Muncie is machined to fit over the front transmission bearing and has a seal that seals to the front of the transmission. This entire assembly replaces the old bearing retainer you just removed. Each style hydraulic release bearing is custom designed to fit your

specific transmission in the same manner.



Photo #5a & 5b & 5c: Before installing the hydraulic release bearing, the manufacturer recommends putting a thin coat of silicone sealer on the face of the bearing and not using the stock bearing retainer gasket. Using the supplied socket head bolts, bolt the retainer to the front of the



transmission and torque the bolts to 18 ft/lbs.

Connect the hose from the release bearing to the master cylinder and bleed the system. Using a hydraulic release bearing will eliminate sloppy clutch linkage and clearance for all types of headers will be greatly improved since the linkage is removed! Good Luck. ✓

YOU CAN DO IT EASY UPGRADES

by Randy Irwin

1955-57 HYDRAULIC CLUTCH SYSTEM ARM UPDATE



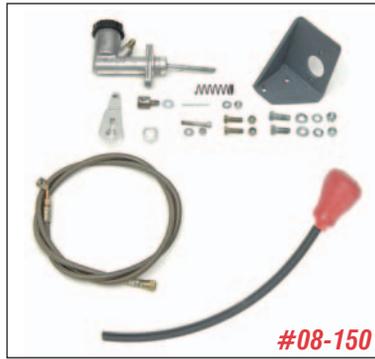
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Not everything on your 1955-57 is still within factory tolerances after 50 years. When installing the aluminum clutch master cylinder arm for the new hydraulic system, the clutch pedal shaft must be in pretty good shape; many times it is not. The first design aluminum arm for the hydraulic clutch system considered that the shaft was "as new". The shaft has a bolt that uses the flat on the clutch shaft to keep the arm from rotating when the pedal is depressed. If either the shaft or the flat are in poor shape, the arm will move on the shaft and the clutch master cylinder will not operate properly. The anchoring design of the new clutch arm has been changed so that it can be used on a shaft that is in perfect shape or one that is not so perfect!



#08-500



#08-150

Parts List:

- 08-500 Hydraulic Clutch System (Muncie)
- 08-501 Hydraulic Clutch System (Saginaw)
- 08-502 Hydraulic Clutch System (T-10 & Richmond)
- 08-503 Hydraulic Clutch System (T-5)
- 08-505 Hydraulic Clutch System (Tremec)
- 08-150 Hydraulic Master Cylinder Kit

Tools Needed:

Drill & 3/16" Drill Bit

Time Frame:

4 hours



1a

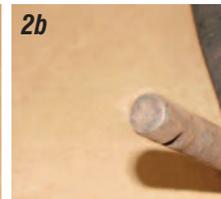


1b

Photos 1a & 1b: The original clutch linkage arm for the mechanical clutch linkage was held to the clutch pedal shaft with a squeeze bolt. The bolt passes over a flat in the clutch pedal shaft and when tightened will squeeze the arm tight on the shaft.



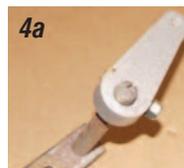
2a



2b

Photos 2a & 2b: The clutch linkage arm is notorious for coming loose and rotating on the shaft. When this happens, it rounds out the flat on the shaft and damages the splines on the arm. Here you can see where someone was so desperate to keep their arm in place they welded the arm to the shaft.

Photo 3: The aluminum clutch arm used in the first design hydraulic clutch system uses a through-bolt that passes over the flat of the shaft to lock the arm to the shaft. The flat must be in good condition to keep the arm from rotating and as you can see, that is not always true.



4a



4b

Photos 4a & 4b: With a bad flat on the shaft, the arm can rotate up to 10-degrees. With this much movement in the arm, the pushrod from the clutch master cylinder to the arm cannot be adjusted properly.



5a



5b

Photos 5a & 5b: The through-bolt on the aluminum clutch arm has now been replaced with a 3/16" dowel pin to lock the clutch arm to the shaft. A 3/16" hole will be drilled through the clutch pedal shaft and a 3/16" +.001" dowel pin is installed to anchor the arm to the clutch shaft.



Photos 6a & 6b: Install the clutch pedal pivot sleeve and the spacer that is supplied with the hydraulic clutch system onto the clutch shaft. Next, install the arm onto the clutch shaft. The clutch shaft will protrude through the arm about 1/16". The arm installs so it is parallel with the clutch pedal arm.



Photos 7a & 7b: The arm can be used as a guide to drill the required 3/16" hole. With the clutch arm in place, drill a 3/16" hole all the way through the clutch shaft.



Photos 8a & 8b: The 3/16" dowel pin is oversized by .001" for a tight fit. When installing the dowel pin for the final time, use a small amount of "RED" thread locker. The pin should be driven in flush with the bottom of the arm.



Photo 9: The 3/16" hole in the arm is drilled all the way through. If the dowel pin ever needs to be removed, a long punch can be used to drive the pin out from the top. Good Luck! ✓