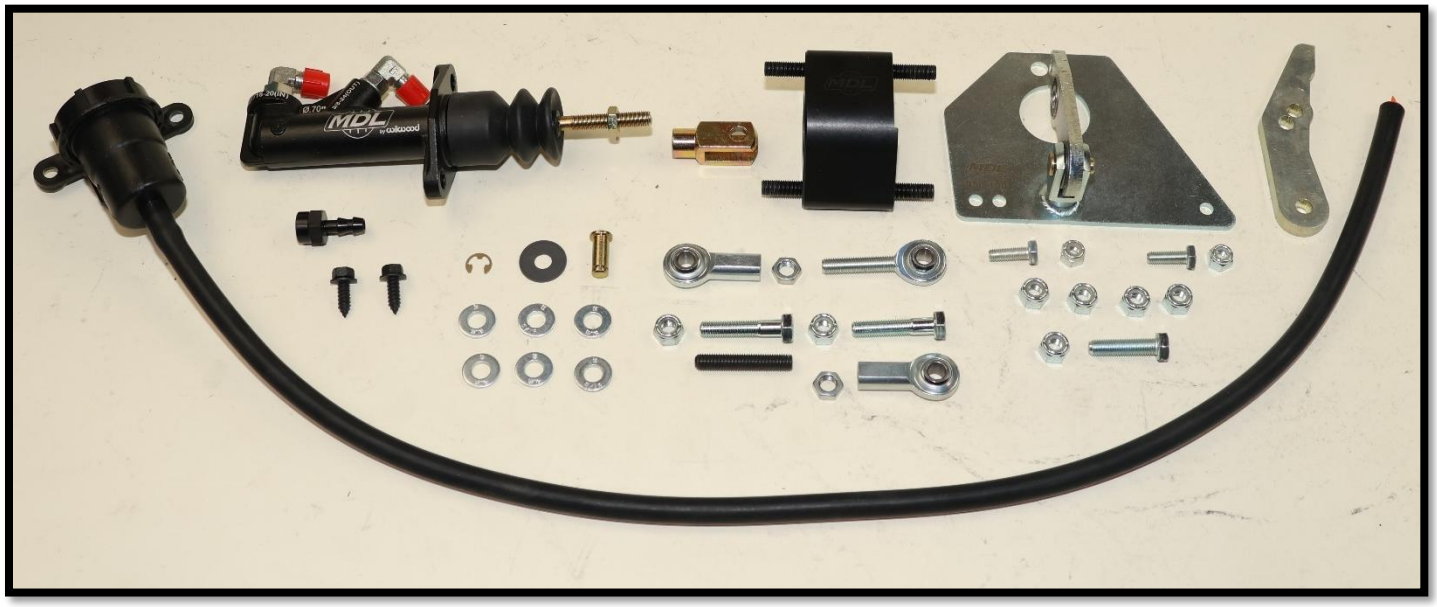
New LF Series Master Cylinder Kit for 60-65 Falcon

MD-910-2022-B/C/P

Installation Instructions



MD-910-2022-P Kit Shown

Thank you for purchasing the Modern Driveline *New LF Series* Master Cylinder Kit.

This reduction linkage clutch master cylinder kit is designed to mount on the firewall and attach to the pedal hanger with a bracket. Remote reservoir options include billet Black, billet Clear, or original-equipment late-model appearance black Plastic.

Modern Driveline New LF Series... Better!

Read These Instructions Completely Before Beginning

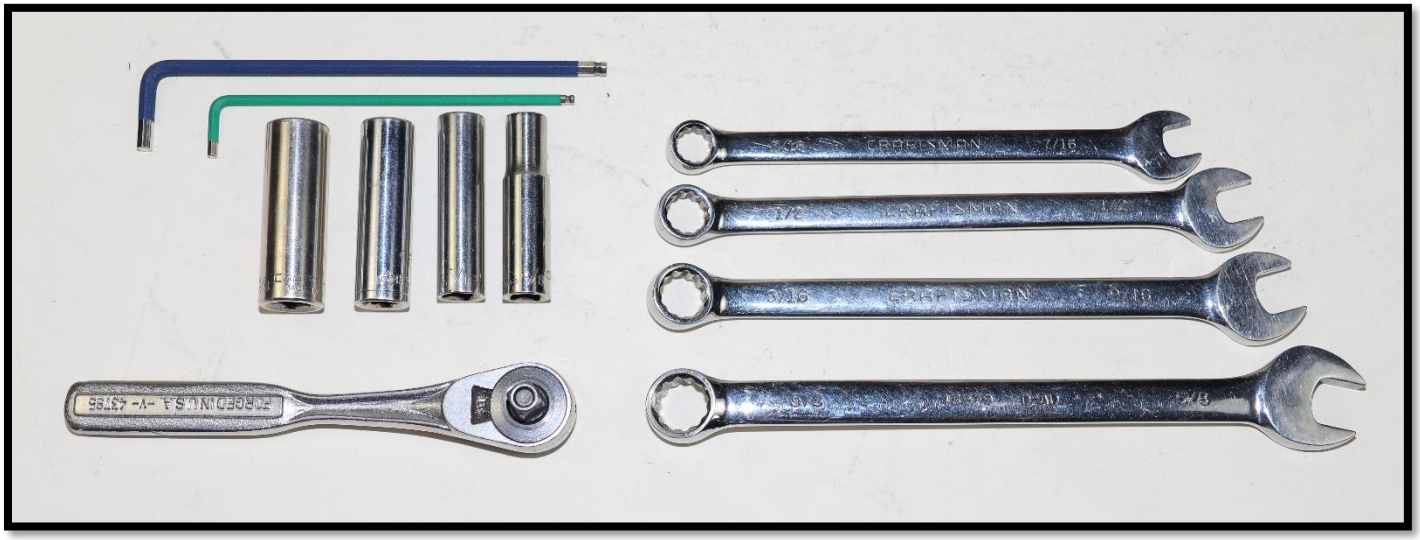
1. Before You Begin
   1.1. This kit will require some disassembly of the vehicle to install.
   1.2. General vehicle mechanical knowledge and an understanding of the terminology are required to install this kit.
   1.3. DO NOT VACUUM OR PUMP BLEED THIS SYSTEM. It is not brakes. Single seal push-pull systems will create micro bubbles in the fluid and in some instances harm the seals internally. The preferred method is to pressure bleed from the top down. Modern Driveline offers a hydraulic clutch system "bleeder kit". The bleeder kit comes standard in all Modern Driveline master cylinder kits and is also available separately as a purchase item.
   1.4. These systems are DOT 3 or DOT 4 brake fluid compatible. Do not use DOT 5 silicone based, or any high temperature resistant brake fluids designed for more than 550ºF as some brands will cause the seals to swell.
   1.5. If you are converting an automatic car this kit requires a clutch pedal and clutch pedal up-stop, sold separately.
   1.6. Vacuum Boosters – This kit is not designed to support the use of a brake vacuum booster. There is no room for a vacuum booster. Modern Driveline does offer our Stealth Series in-dash hydraulic clutch master cylinder kit that does not have any vacuum booster limitations. Reference part number MD-910-3022-B/C/P.

2. Pedal Height Matters
   2.1. Our Master kit does not have any adjustment. Certain pedal hangers do have an adjustable slot for the pedal stop. It is always recommended the pedal uses full-travel: Up-stop, down to carpet/floor. This will prevent damage to the cylinder. See the adjustment section at the end of these instructions.
   2.2. All parts in this kit are designed with nominal clutch pedal height in mind. The ideal clutch pedal position will re-engage the clutch about 1/3 to 1/2 total pedal travel, up from the carpet.
   2.3. Complete travel of the master cylinder rod will be required to release most clutches.

3. Information about this kit
   3.1 This cylinder can travel up to 1.4". Most installations will use all the travel of this cylinder.
   3.2 This cylinder has a 0.7" bore. Optional 0.75" bore cylinders are available for vehicles with pedal stroke limitations.
   3.3 0.7" bore x 1.4" stroke = .54 cu/in fluid volume requirement.
   3.4 0.75" bore x 1.4" stroke = .62 cu/in fluid volume requirement.
   3.5 The existing aftermarket slave cylinders typically use 0.52 cu/in fluid volume and are considered compatible with this master cylinder kit.
   3.6 Our mock-up firewall has certain items removed for clarity.
   3.7 No kit substitutions. Additional or different parts may be purchased if you choose.
   3.8 Do not remove the **red baffle** inside the optional billet reservoir.
   3.9 This kit does use the original clutch rod linkage hole/grommet location on the firewall.
   3.10 The master cylinder will not sit straight up and down. See the installation section.
   3.11 The plate assembly must be installed with the lever perfectly vertical, bottom of the plate level.

4. NON-Warrantable Conditions.
   4.1. Do not over-torque parts.
   4.2. Do not over-tighten parts (non-torque valued locations).
   4.3. Do not add parts to our kit.
   4.4. Use all parts of this kit unless instructions are provided not to do so.
   4.5. Do not substitute parts in this kit, contact MDL for assistance if necessary.
   4.6. Required vehicle components are your responsibility.
   4.7. Existing or new modifications to your vehicle from a stock firewall configuration are your responsibility.
   4.8. Always check/test threads prior to installation into the vehicle. Damaged threads are not warrantable.

5. Tools, Shop Supplies, and Notes



   5.1. Standard shop tools plus 1/8" & 3/16" Allen wrenches, sanding disk (flapper disk)
   5.2. DOT 3 brake fluid.
   5.3. Silicone sealant.
   5.4. Soapy water in a spray bottle (brake fluid clean-up).
   5.5. 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.
   5.6. A ground strap from the engine to the body, and body to frame, must be used.
   Failure to install a ground strap from the engine to the body and frame will result in braided line failure. A braided line cannot be used as a ground strap.

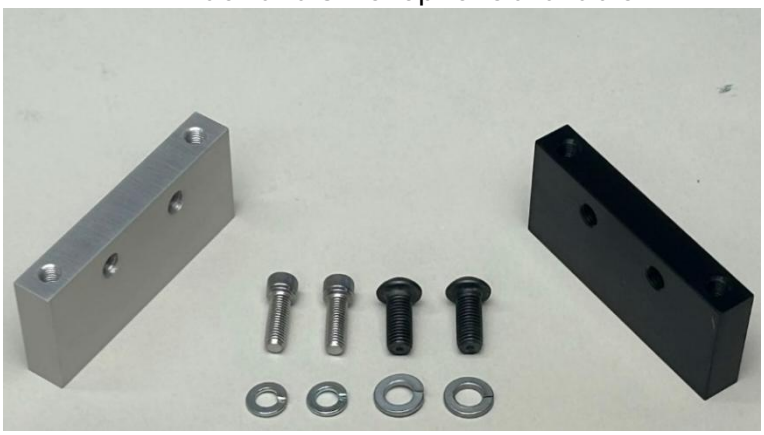
6. Provisional Parts – Some parts may not be required depending on pedal hanger and brake pedal configuration.
   6.1. MDL billet reservoir kits will have some hardware that does not get used.
   6.2. There is alternate hardware supplied in this kit due to variances in the OE and aftermarket clutch pedals.

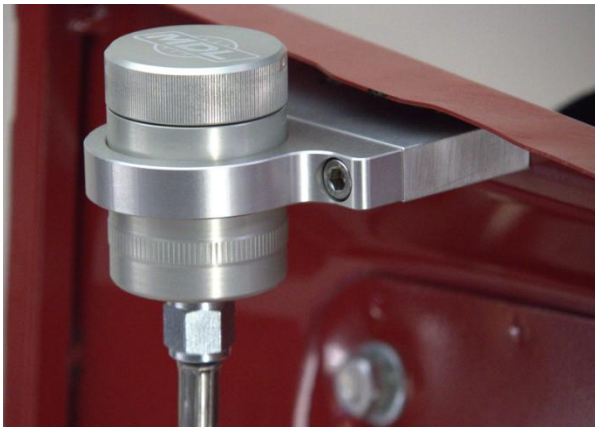
7. Options

7.1. If you need a clutch pedal up-stop MDL does offer them. P/N MD-402-1006.

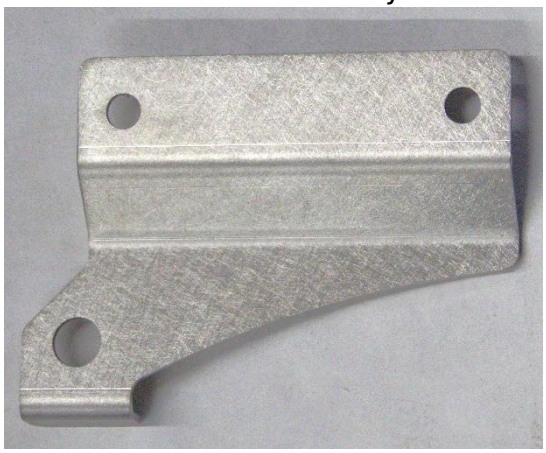
7.2. You may be interested in the mounting block or mounting bracket to reach under a firewall cowl lip or attach to a brake booster / master cylinder mounting bolt.

- MDL offers a complementing or contrasting mounting block to clamp/reservoir color. Black and Silver options available. P/N MD-960-2004-B or MD-960-2004-C.





- MDL also offers a stainless-steel mounting bracket, P/N MD-960-2001, for mounting to brake master cylinders and vacuum boosters.



8. Disassembly – If your vehicle is already disassembled, verify all disassembly steps have been performed and skip to the Assembly Instructions. If you are converting from an automatic vehicle, some disassembly steps do not apply.

8.1. Optional: Remove the driver's seat and lay down some cardboard for convenience.

8.2. Do not remove the firewall block-off plates at this time.

8.3. Do not remove the clutch pedal up-stop, if installed. See the options section above.

8.4. This step applies to a vehicle with an existing mechanical linkage system. Remove the clutch fork spring, Z-bar spring at the firewall (if equipped), frame fulcrum pivot and hardware, Z-bar, upper and lower Z-bar rods, engine fulcrum pivot and hardware. Remove the spring attached to the clutch pedal under the dash (if equipped). Retain the *clutch fork spring* if using MDL's Eliminator Slave system.

8.5. Disconnect and remove the brake pedal, and clutch pedal if equipped. Retain any clips, springs and washers for any removed clutch pedal.

8.6. Existing manual shift cars: Grind off the outboard side of the “pin” on the clutch pedal that previously pushed the linkage rod. Grind off the pin completely and drive out using a drift punch.

8.7. For automatic cars: Remove automatic linkage from steering column. Trim down the brake pedal pad area to match the rubber pad, sold separately.

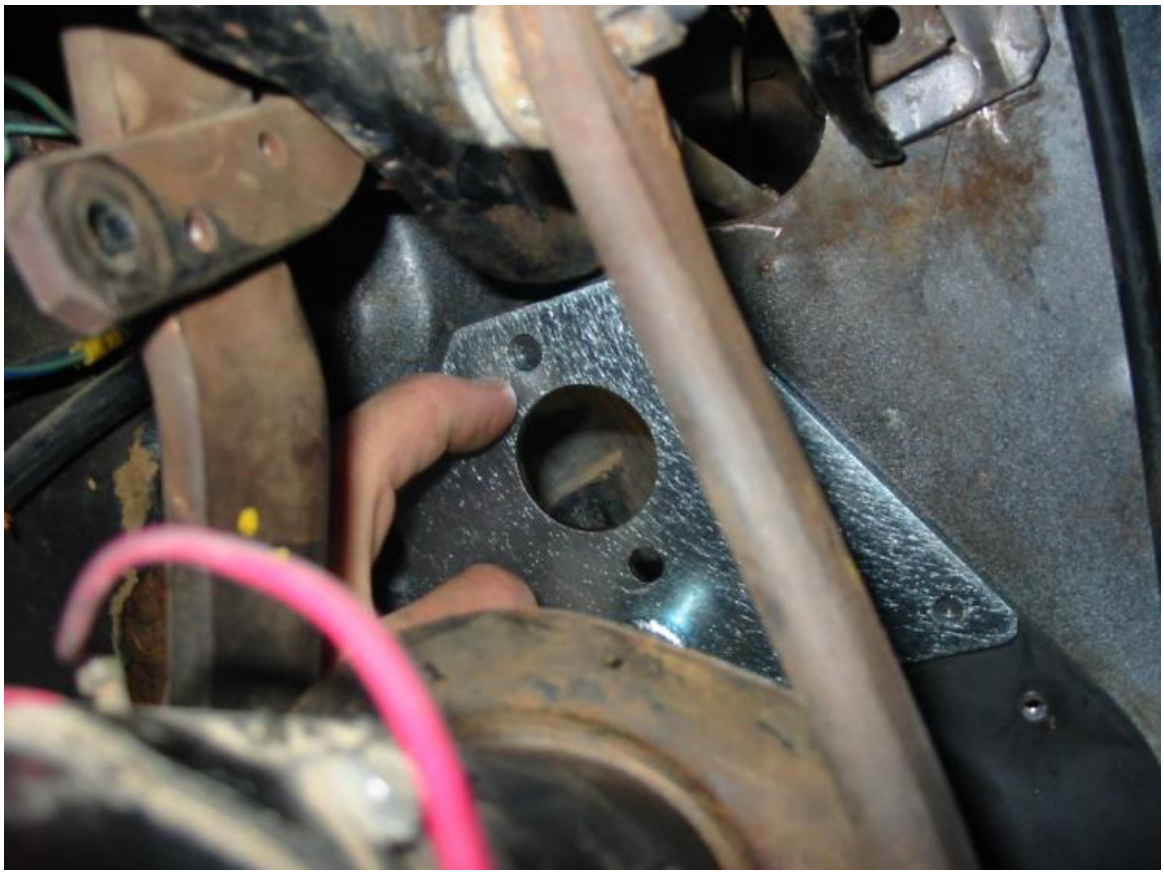
8.8. From the engine compartment side, prior to removing the steering column block-off plates, trim the existing gasket to the edge of the column opening. Do not trim the entire gasket to the edge of the opening. Trim down and cut horizontally 2 ½” from the top of the column cut-out in the firewall. Note: In the Hydraulic clutch kit the master cylinder spacer block is stepped to accommodate the firewall thickness and gasket. Not using a gasket will result in an un-even mounting surface.

8.9. Peel back your insulation, carpeting and steering column boot as required and remove the firewall block-off plates leaving the gasket in place. If the gasket comes off, re-adhere using some Duro spray adhesive, or equivalent. Retain the steering column block off plates, these will be trimmed later.

9. Installation - Clean as you go, use soapy water on spilled brake fluid, general cleanliness for all fitting and line-end ports.

9.1. Test bolts in all holes prior to installation. Ensure fasteners go through all holes properly.

9.2. Locate the supplied firewall plate assembly to the firewall butting the top of the supplied firewall plate assembly against the bottom of the pedal hangar assembly. With the bottom of the supplied firewall plate assembly horizontal, slide the supplied firewall plate assembly from left to right so the inboard edge of the steering column cut-out on the firewall is even with the edge of the large hole in the supplied firewall plate assembly. Mark the top hole of the supplied firewall plate assembly with a Sharpie and drill a 5/16” hole in the firewall (location of finger). Do not drill the 1/4" holes at this time.



9.3. Position the spacer block through the 5/16” holes in the supplied firewall plate. Using a Sharpie, mark the firewall steering column cut-out to trim off the upstanding lip so the spacer block will sit flat when installed. Do not cut away the flat part of the firewall you drilled the hole through. Make sure the step in the spacer block does not interfere with the flat part of firewall and enough of the firewall lip has been trimmed away.

A silver block is shown for clarity and shown positioned backwards (no studs)

9.4. Back inside the vehicle, verify the bottom of the supplied plate is horizontal. Drill the bottom two 1/4” holes. For the 60-63 Falcon drill the outer hole on the left side of the plate. For the 64-65 Falcon drill the inner hole on the left side of the plate.

9.5. Remove the supplied firewall plate and spacer block. Touch-up and deburr as required.

9.6. Clean surfaces of gasket, supplied firewall plate assembly, and spacer block. Apply a thin layer of silicone sealant around edges of supplied firewall plate assembly and step surface of spacer block. Install spacer block using 5/16” nylok nuts. Install the supplied 1/4" hardware in the lower two holes in the supplied firewall plate assembly and firewall. From engine compartment side, press gasket against plate to seal gasket and plate together.

9.7. Torque the 5/16” nuts at the above location to 15-18 ft/lbs, light wrist tight.

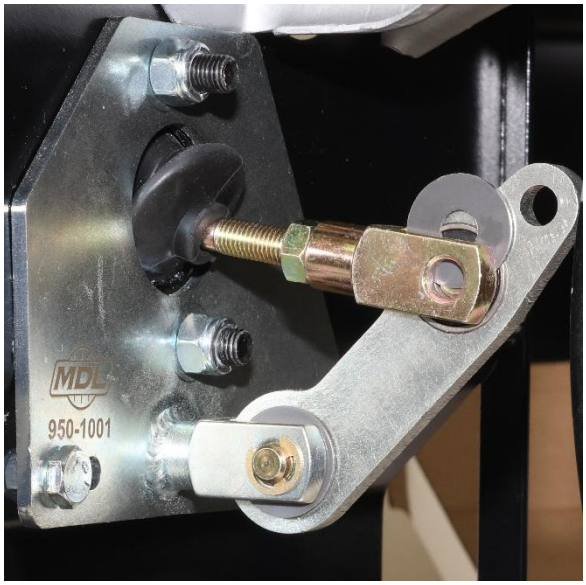
9.8. Torque the 1/4” nuts at the above location to 10-12 ft/lbs, twisted fingers tight.

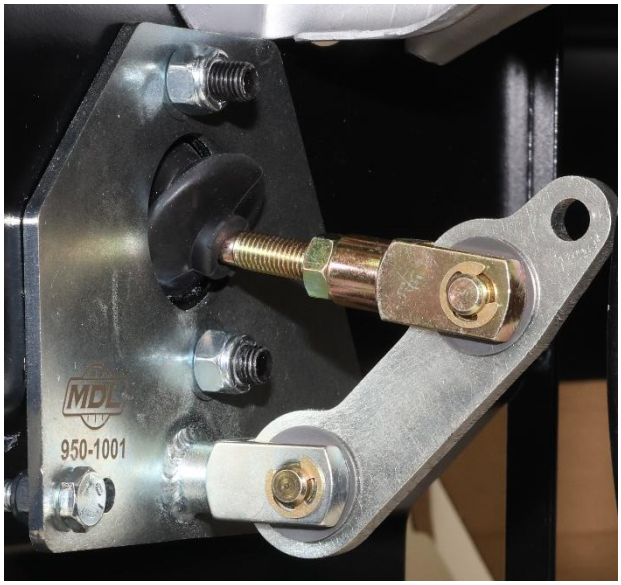
9.9. Take your existing steering column block-off plates and trim to the bottom of the supplied firewall plate assembly. Install with silicone sealant and exiting removed fasteners. You may add holes and fasteners to these plates if you wish.

9.10. Slide steering column boot back into position. Reset your insulation and carpeting, trimming to clear the new master cylinder location as required.

9.11. Install the gold clevis on the master cylinder rod so the threads are even with the inside edge of the clevis. Do not tighten the gold jamb nut at this time. Apply silicone sealant to the master cylinder mounting surface and feed the gold clevis through the actuation hole and mount the cylinder to the studs with nylok nuts. Torque the nuts at this location to 15-18 ft/lbs, light wrist tight.

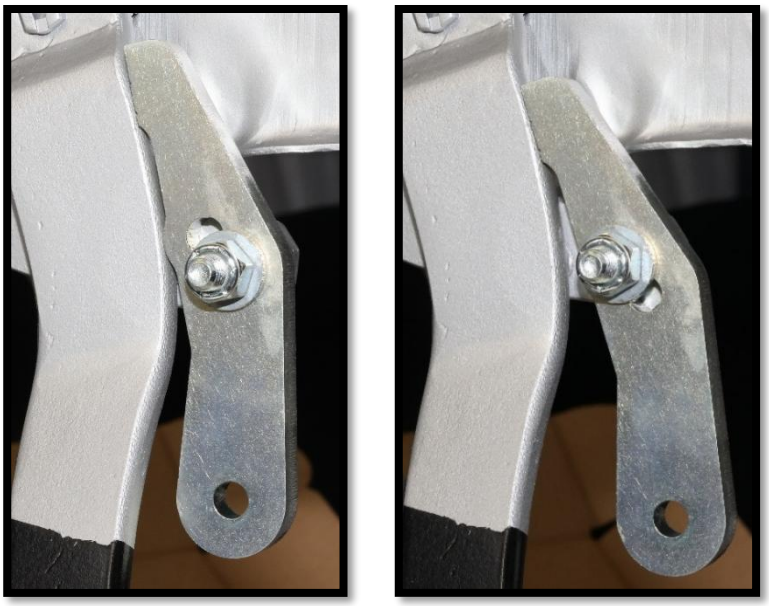
9.12. Swing the lever up and install the clevis pin, nylatron washer, and e-clip in the center hole of the lever. The nylatron washer must be installed on the same side as the washer installed in the lower hole. Orientation of the clevis pin and e-clip does not matter.





9.13. Re-install the clutch pedal and brake pedal with all bushings, washers, pins, and clips.

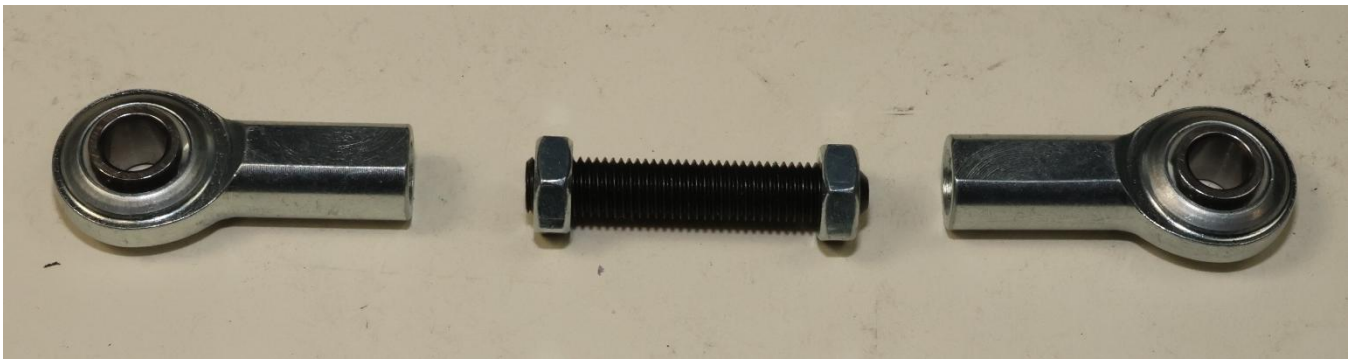
9.14. There are two holes in the center of the supplied pedal bracket shown below. Some OE clutch pedals have the hole in the spring arm closer to the pedal arm than others. Position the bracket through the removed pin in the clutch pedal. Use the upper or lower hole in the middle of the bracket that positions the bracket as close to the pedal arm as possible. Install the 5/16” x 1.25” bolt and nylok nut. Rest the upper end of the bracket against the pedal arm. Torque the bolt/nut at the pedal/pedal bracket location to 15-18 ft/lbs, light wrist tight.



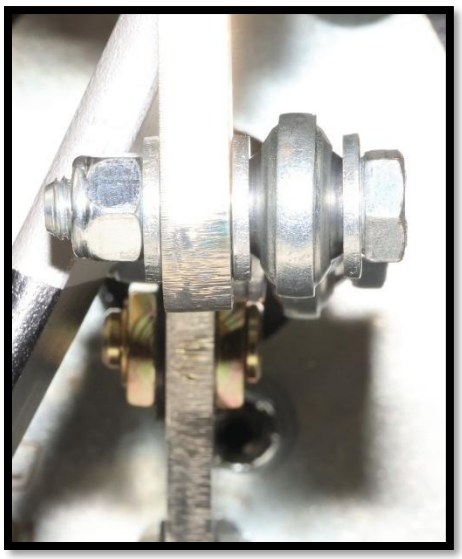
Position the hardware with lever as close as possible to the pedal.
Left picture would be more correct than the right picture.

9.15. Primary hardware: See exploded view at the end of these instructions. Thread the jamb nut onto the male rod-end and thread into the female rod-end a minimum of SEVEN threads. Attach one of the rod-ends to the top hole in the lever with 5/16”-24 x 1.5” bolt, washer(s), nylok nut. Position the remaining rod-end to the hole in the pedal bracket with bolt, washers, nylok nut. You may thread the rod-ends closer together but do not have less than SEVEN threads engaged. Use alternate hardware as required. Check the rod-ends are directly behind each other and will push straight forward. Locate washers as needed to gain straight alignment. It is recommended to have at least one washer between the female rod-end at the pedal backet. Put excess washers on the opposite side of the lever and bracket as needed. Do not torque at this time.

9.16. Alternate hardware: See exploded view at the end of these instructions. Install the jamb nuts onto the 1.75” set screw. Thread the female rod-ends onto the set screw, SEVEN threads minimum each. Attach one of the female rod-ends to the top hole in the lever with 5/16”-24 x 1.5” bolt, washer(s), nylok nut. Position the remaining rod-end to the hole in the pedal bracket with bolt, washers, nylok nut. You may thread the rod-ends closer together but do not have less than SEVEN threads engaged. Check the rod-ends are directly behind each other and will push straight forward. Locate washers as needed to gain straight alignment. It is recommended to have at least one washer between the female rod-end at the pedal backet. Put excess washers on the opposite side of the lever and bracket as needed. Do not torque at this time.



9.17. Hold the clutch pedal against the up-stop and thread the rod-end in to align with the hole in the bracket. Attach the rod-end to the bracket using 5/16”-24 x 1.5” bolt, washer(s), and nylok nut. The bolt/nut orientation may be reversed at both locations.



Pedal against the up-stop, linkage attached. Extra washers shown in varous positions. Linkage in the right picture is shown correctly with rod-ends directly behind each ohter. Adjust the rod-ends to be directly behind one another by adjusting washers as needed.

9.18. Torque the bolt/nut at the bracket/rod-end location to 15-18 ft/lbs, light wrist tight.

9.19. Torque the bolt/nut at the lever/rod-end location to 15-18 ft/lbs, light wrist tight.

9.20. Torque the jamb nut(s) between the rod-ends to 12-15 ft/lbs, light wrist tight.

9.21. Torque the jamb nut on the master cylinder rod to 12-15 ft/lbs, light wrist tight.

9.22. Re-check for freedom of movement. The pedal should stroke completely to the floor and come against the up-stop.

9.23. Pressure Port – If installed… attach the braided line from your slave cylinder (external or internal) to the 90 degree elbow in the angled port (OUT) in the center of the master cylinder. Once steel braided line is positioned for routing and clearance, torque the jam nut on the 90-degree fitting in the master cylinder 15-18 ft/lbs, light wrist tight.

9.24. If installed… torque the line-end to the 90 degree pressure port fitting (OUT) on the master cylinder to 25 ft/lbs, wrist tight. Be sure to hold the fitting while tightening the line-end.

9.25. Billet Reservoir Installation – refer to the instructions provided with the reservoir, IN-960-2100-B/C, and the indentured instructions below.

9.25.a Once the braided line is positioned for routing and clearance, torque the jam nut on the 90-degree fitting in the master cylinder reservoir port fitting (IN) to 15-18 ft/lbs, light wrist tight.

9.25.b Torque the line-end to the 90 degree reservoir port fitting (IN) at the forward end of the master cylinder to 25 ft/lbs, wrist tight. Be sure to hold the fitting while tightening the line-end.

9.26. Plastic Reservoir Installation – Follow the indentured instructions below.

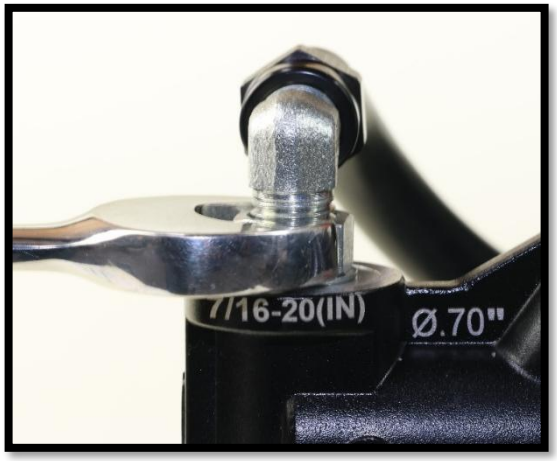
Note: The reservoir rubber hose can be cut to any length using scissors.
Before committing to your reservoir location double check the following:

- Hood clearance
- Hood HINGE clearance
- Induction system clearance

- Routing of wiring, A/C lines, power steering lines
- Ability to service once installed.
- The reservoir line length from the master cylinder or bulkhead fitting will reach the mounted reservoir location.

9.26.a Locate and mount the reservoir anywhere above the master cylinder. Mark the hole locations with a Sharpie. Using the 1/4" sheet metal screws supplied with the reservoir, pre-drill holes using a #7 drill bit prior to attaching reservoir. Install reservoir using 3/8" wrench or socket/ratchet. Do not over-tighten. Cut the reservoir line to desired length. Attach the reservoir line to the barbed inlet fitting on the master cylinder.

9.26.b Once the rubber line is positioned for routing and clearance, torque the jam nut on the 90-degree reservoir port fitting (IN) at the forward end of the master cylinder 15-18 ft/lbs, light wrist tight.



9.26.c Torque the barbed fitting to the 90 degree reservoir port fitting (IN) on the master cylinder to 15-20 ft/lbs, light wrist tight.

9.27. At this point the installation of the New LF Series master cylinder system is complete. You may be left with a single AN4 open port (angled port, OUT) for the line going to the slave cylinder of choice if it is not installed yet. Use the supplied red threaded cap to cover the open port. The red threaded plug is not used but supplied for your convenience.

9.28. Re-assemble your vehicle for all components removed.

10. Bleeding the System

10.1. In the master cylinder kit is a Bleeder Kit. Follow the *bleeder kit* instructions. If you have lost the bleeder kit instructions, they can be found on our web site moderndriveline.com.
Note: The RED BAFFLE in the billet reservoir is not a bladder, do not remove it.
You may take the red baffle out temporarily to perform the bleed operations.

11. Driveway Test and Test Drive

11.1. Position rear wheels on jack stands (free to rotate). With transmission in neutral, start vehicle. Push in clutch pedal and apply brake pressure. 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). It is okay if the clutch pedal releases close to the floor while on jack stands. It will release higher when the vehicle is on the ground. A new or rebuilt transmission should have all the gears run through (in the driveway, partially releasing clutch) before road testing the new hydraulic clutch.

11.2. Remove jack stands and test drive. Upon return, verify steel braided line clearance and support. The hydraulic lines must be kept away from the exhaust and rotating clutch assembly.

11.3. If the clutch feels spongy or releases too close to the floor, repeat the bleed procedure. FYI – micro bubbles may be present in the system due to actuation, accumulation on rubber parts, and machining marks within the system.

12. Reminders

12.1. DO NOT VACUUM OR PUMP BLEED THIS SYSTEM.

12.2. Important: Once your new hydraulic system is active, the pedal will be immediately firm. It should not feel spongy or soft. Lack of immediate movement or a spongy feeling clutch pedal indicates air is still in the system.

12.3. Periodic adjustment is not required for this master cylinder system. The goal is for the clutch to re-engage in the bottom 1/3 to 1/2 of clutch pedal travel, otherwise, over-travel may occur. Once again, make sure the slave cylinder of choice is set up correctly.

13. Adjustments

13.1. On certain pedal hangers the up-stop is adjustable. There is a vertical slot at the carriage bolt location holding the up-stop in position. This can be moved to change the pedal height. Disconnecting and readjusting of the linkage on the pedal bracket will be required to perform this task. For pedal hangers that do not have a vertical slot at the pedal stop location you can modify the hanger or the up-stop for fine tuning.

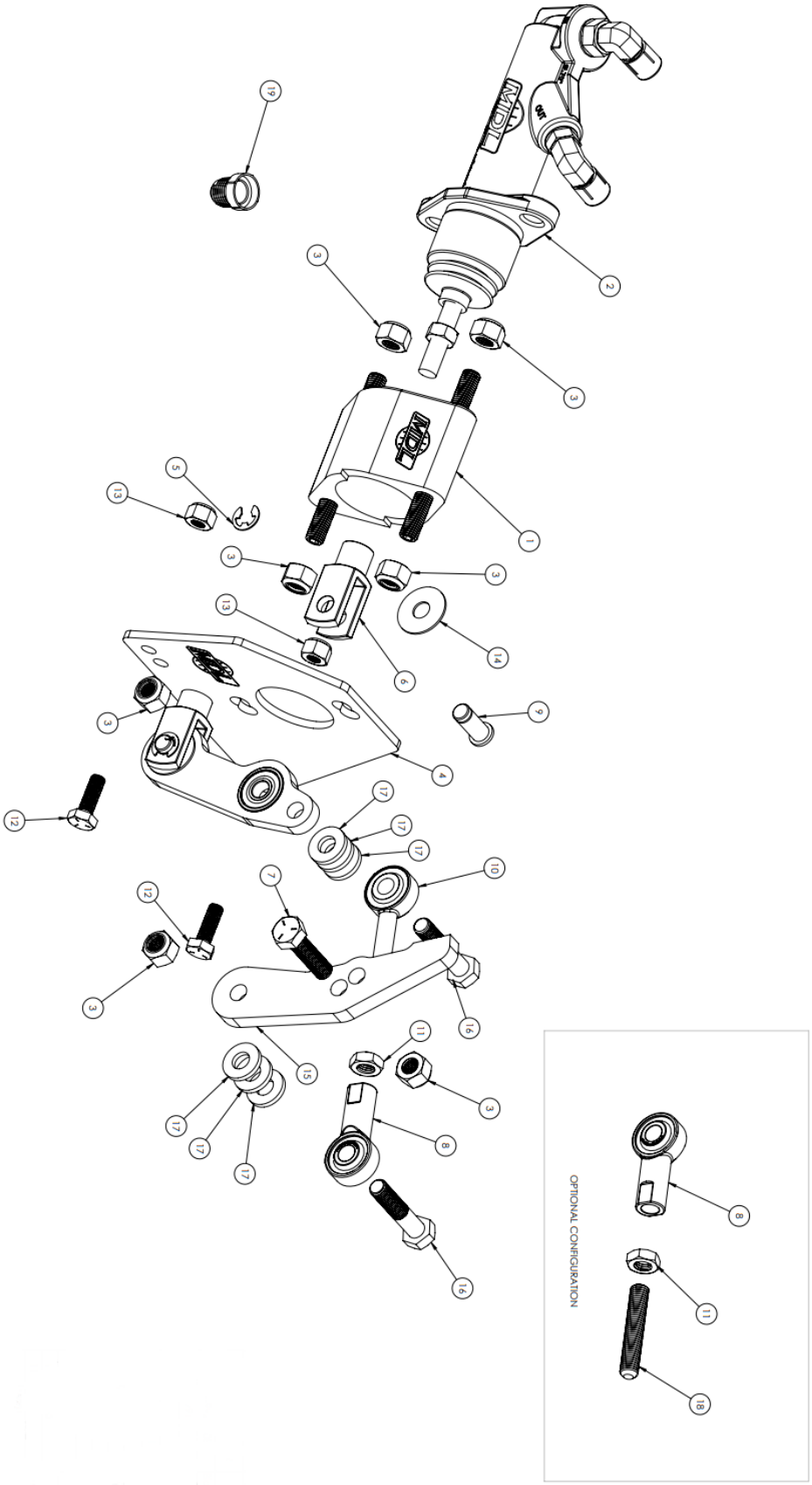
13.2. If your vehicle lacks enough clutch pedal travel to release the clutch due to other vehicle modifications, larger slave cylinder, or vehicle repair, MDL does offer a larger bore master cylinder.

Note: A pedal stop may be required to prevent damage to components. Always test the stroke of the pedal and set stops accordingly.

Further assistance and tech support is available by calling Modern Driveline at 208-453-9800 M-F 8-5 Mountain time. Email – Tech@ModernDriveline.com . Please contact us first for any issues.

Enjoy your new hydraulic system and Thank You for choosing Modern Driveline.
We appreciate your business.

ITEM NO.	DESCRIPTION	QTY.
1	Block Assy, Hyd Master 60-65 Falcon	1
2	Hyd Type 2 Master Sub-kit, LF Series w/fittings	1
3	Lock Nut-5/16-24 nylock	7
4	Plate Assy, 60-65 Falcon new LF Series Master Kit	1
5	Retaining ring, 5/16", external E type	1
6	Clevis, 5/16", short	1
7	Bolt, hex, 5/16"-24 x 1.25	1
8	Rod End 5/16-24 Female, Steel	2
9	Pin, Clevis, 5/16" OD, clip style	1
10	Rod end, male, 5/16"-24, 3/8" ID	1
11	Nut, Jam, 5/16"-24	2
12	Bolt-Hex, 1/4-28 x .75	2
13	Nut, 1/4-28 Nylok	2
14	Nylatron washer, .900 OD x .320 ID x .040 thk	1
15	Bracket, Pedal, new LF Series, 60-65 Falcon	1
16	5/16-24 x 1.5 Hex Bolt	2
17	5/16" flat washer	6
18	Set screw, 5/16-24 x 1.75", black	1
19	Plug, AN4, LDPE, 7/16-20	1



Master kit shown without reservoir. Position of #17 5/16” washers is variable.