"FIVE AND SIX SPEED CONVERSION SPECIALISTS"

Mustang 67-70 Big Block Big Fork
MD-410-2003
Strong Hold Z-Bar Installation Instructions
Read These Instructions Completely Before Beginning

These instructions are for *upgrading* existing mechanical linkage clutch actuation components. This kit may be used when converting an automatic car but additional components are required (clutch pedal, pedal stop, assist spring, assist spring bracket, firewall grommet/seal/bellows, clutch fork return spring, bell housing clutch fork boot). If your vehicle has been modified from a stock configuration, certain steps may not apply. Existing alterations to your vehicle are your responsibility.

1.0 Tools and Notes

1.1 9/16" wrenches, (2) flat tip screw drivers, socket/ratchet & pliers will be required. The parts supplied in the kit are shown above, along with spacer washers as required (not shown). The mounting brackets/pivot for the engine is not included. A new frame mount is included. Stock frame mounts are usually too shallow for the new Strong Hold Z-Bar to clear and actuate properly. The existing nylon roller ball for both brackets will not be used – they will be removed.

1.2 This Strong Hold Z-Bar Linkage Kit will use the stock clutch-rod location going thru the fire wall, use the existing or new stock clutch fork, and stock pivot stud on the engine. For NEW Strong Hold Z-Bar Linkage Kit installations… the below noted pivots and forks will be a separate purchase.

Modern Driveline offers Late-model small block motor bracket (MD-401-2019) and the clutch forks for big-block and small-block applications.
Other parts available thru distribution are the SBF early engine stud, and FE engine pivot bracket. There are differences in the ENGINE pivots so be sure to order correctly for your year of car and engine size.

Reference the following part number for Engine Mount (supplier part numbers vary)
FE Engine Bracket 90-75469-1

The above are sample part number and applications vary. Different configuration parts may be necessary.

1.3 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.

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

2.1 Disconnect the upper Z-bar location in the engine compartment. Repeat this clip removal from the clutch pedal under the dash. On some vehicles this is a thru-rod with adjusting nuts – remove the adjusting nut from the end of the rod to disconnect.

Shown is a 1968 Cougar upper Z-bar rod attach location above the steering column.

2.2 Disconnect the clutch fork spring (right or wrong) and remove the lower Z-bar rod from the Z-bar.

Shown is 1968 Cougar bent lower Z-bar rod with an incorrect return spring.

Shown is the removal of the lower Z-bar arm cotter pin. On some vehicles the cotter pin removal is from the stud attached to the lower end of the Z-bar.

2.3 Remove the frame mount from the vehicle to remove the Z-bar. Remove using 9/16” wrench or socket/ratchet on (2) 3/8” bolts.

Shown is a 9/16” wrench in position on one of the two bolts holding the frame mount in place.

2.4 The following parts should be removed from the vehicle. Only the (2) frame-bolts will be re-used. Additional parts not shown are the felt washers on the frame pivot and engine pivot that should also be removed. Our donor vehicle lost them long ago.

Shown are 1968 Cougar SBF parts.

2.5 From the new frame mount, remove the roller ball from the end. The c-clip will remove easily using (2) screw drivers. Repeat this process for the engine stud. Shown is the removal from the stock frame mount.

Shown is SBF frame mount.

2.6 Notice the difference in height between the aftermarket frame mount and the stock frame mount? This is required to clear the diameter of the new Strong Hold Z-bar cross-shaft.

Shown is SBF frame mount. BBF has larger pin.

You can see below the clearance between the original frame bracket and the new Strong Hold Z-bar is minimal, with ideal linkage alignment. Any deviation in alignment will cause interference.

Shown is SBF frame mount.

2.7 Inspect the clutch pedal for wear and loose-fitting joints in the pedal hangar. Any loose or damaged pedal components will cause the linkage not to operate properly.
The pedal should be secure to the hangar with good bushings and no broken, cracked, or missing parts. A Roller-Bearing Kit (MD-411-1080 or MD-411-1081) is available from MDL as an upgrade, and replacement nylon pedal bushings are also available. If the bronze/zinc/pot-metal inserts in the pedal hangar are loose or damaged… a roller bearing kit is necessary. Replacement clutch pedal up-stops are also available from Modern Driveline.

3.0 Assembly

The installation of the Strong Hold Z-Bar linkage system assumes no other changes and the clutch, clutch fork, and throw-out bearing are in good working order, have correct geometry and correct release rate on the pressure plate. Replacement parts are available from Modern Driveline if needed.

3.1 Installation is the reverse of the removal. After positioning your Z-Bar between the engine and frame mounts… make sure you have freedom of rotational movement, and the side-to-side movement of the Z-Bar is minimal. Use standard grade 2, 20 ft/lbs steel torque values for 3/8" mounting bolts on frame.

3.2 Thread the rod-ends into the upper rod atleast 9 full turns and snug-up jamb nuts. For our donor vehicle we chose to start by making the upper rod the same length as the rod coming out of the car.

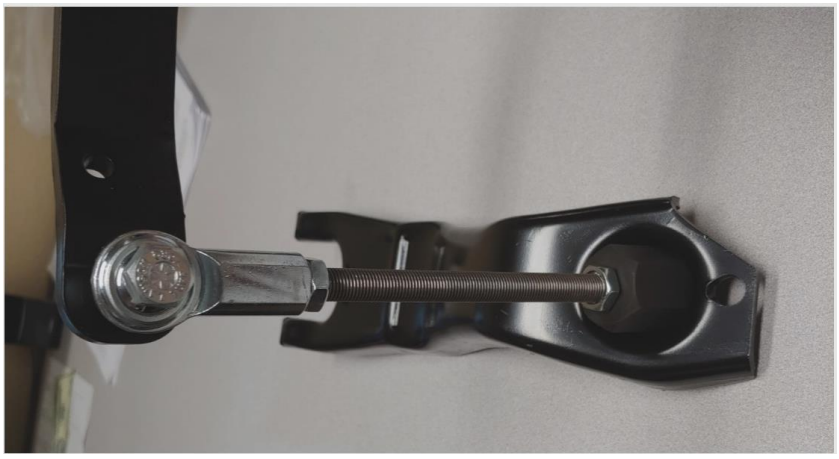
3.3 Position the upper linkage rod thru the firewall and attach to pedal and upper end of Z-Bar. Spacers are used to align the rod thru the hole in the firewall. Assemble loosely and verify actuation does not have any limits of travel or binding. There is an upper stop for the pedal under the dash. Make sure this exists. If you need a clutch pedal up-stop, MDL offers them. P/N MD-402-1001 (67-68) or MD-402-1003 (69-73).

3.4 It is important for the upper Z-bar rod to push straight thru the hole in the firewall. Actuate the clutch pedal and verify movement. Adjust bolt-length, washers, and spacers used as necessary.

3.5 Once the rod length and necessary hardware has been determined… position the boot on the rod as shown. If the boot is new, positioning will be necessary, so the bellows will not pull thru the firewall.

3.6 Thread the rod-end into the lower rod atleast 9 full turns and snug-up jamb nut.

3.7 Position the lower linkage rod to the clutch fork and attach to the lower end of the Strong Hold Z-Bar. Maintain 9-threads minimum engagement and adjust the position of the lower rod to push straight back, and ideally level. This will assure correct geometry for proper clutch release.



Lower rod to FE Fork

Lower rod spaced out to push straight back Fork spring in correct location

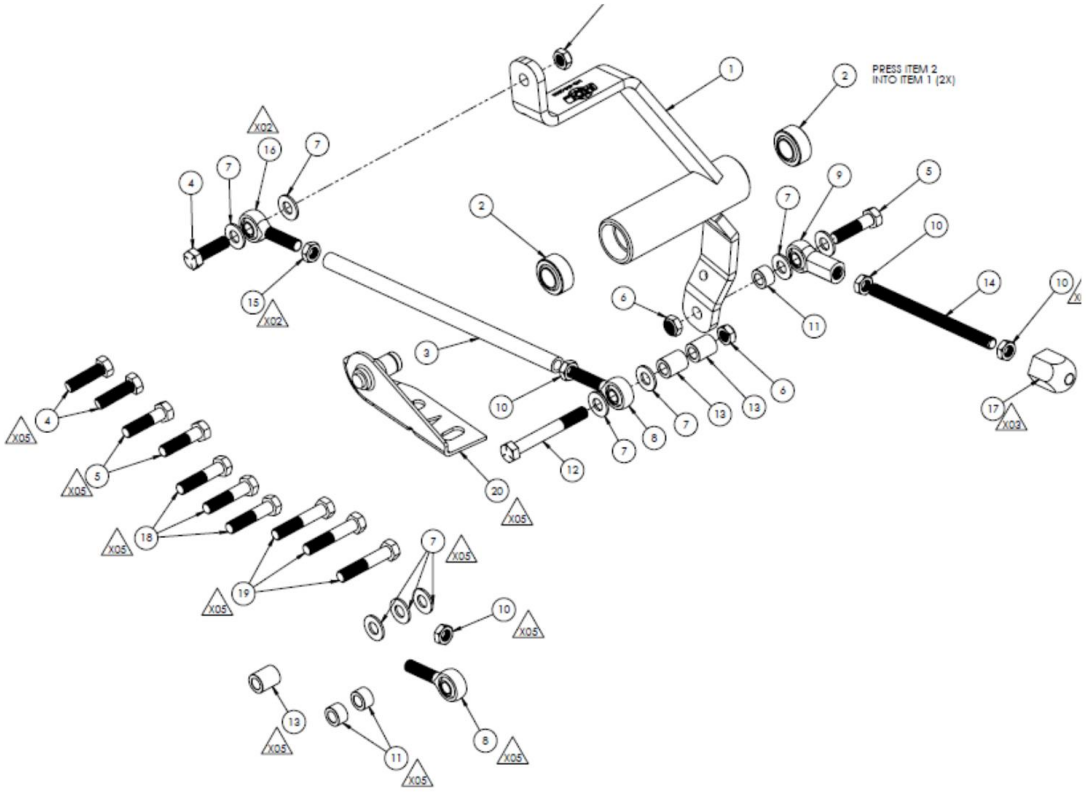
3.8 Adjust upper and lower rod-ends as req'd to assemble linkage components. Do not have less than 9 full turns of thread engagement at any rod end. Attach clutch fork return spring to clutch fork and crossmember/frame. Crossmember/Frame spring for fork is not shown. A larger spring attached to the fork and frame will allow the clutch pedal to return completely to the pedal stop.

3.9 Tighten all joints & jamb nuts using grade 2, 20 ft/lbs steel torque values. Verify actuation does not have any limits of travel or binding. Verify all supplied lock-nuts have the nylon locking feature engaged on threads.

3.10 Verify actuation again for binding, limit of travel, scraping, over-center pressure, etc. Nothing should keep the pedal from returning to the full-up position of the clutch pedal. If you have the clutch pedal helper-spring (not a return spring) under the dash and the clutch pedal does not return all the way… you may make linkage adjustments top/bottom, maintain 9-turns thread engagement. It is okay to remove this spring if you wish.

3.11 With the motor off, raise the rear tires off the ground and put the car in 4th gear. Be safe, block front tires. With a second person, push in the clutch pedal and turn the driveshaft (or tire if limited slip/posi). The driveshaft should spin, indicating the clutch is releasing completely.

3.12 Remove jacks/stands/ramps, start the car and enjoy your new Strong Hold Z-Bar.



In this illustration washers are used in various locations. Washers are only used as needed for spacing purposes. Various bolt lengths are also supplied. Positioning of components are for illustration purposes only.

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

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