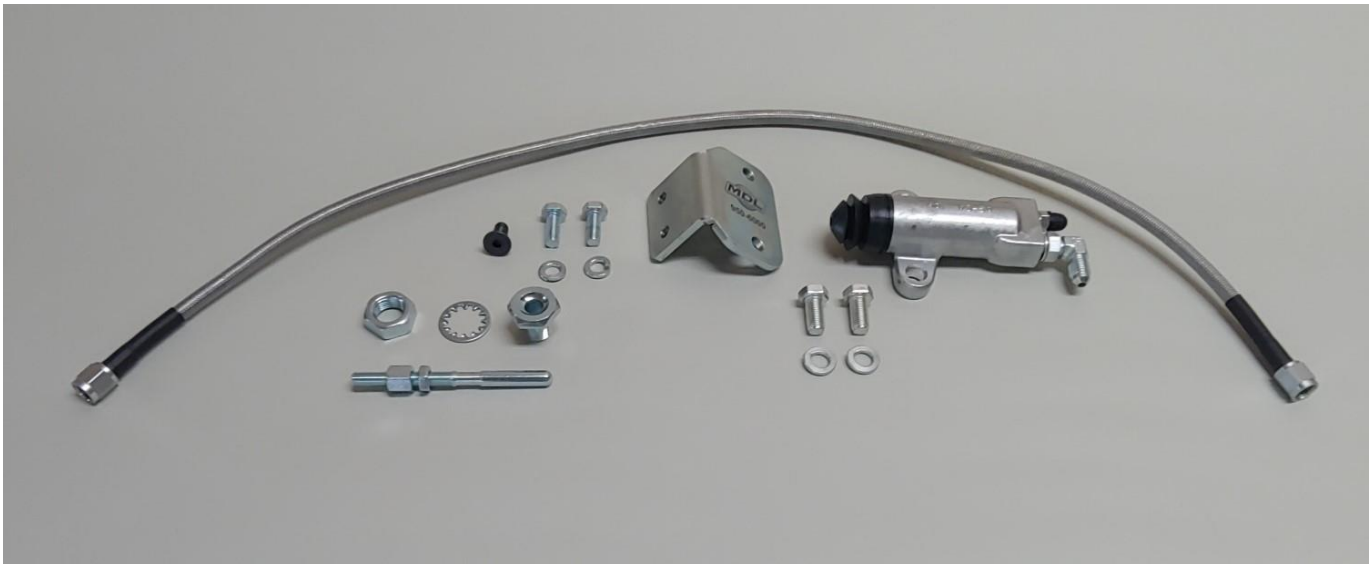
"FIVE AND SIX SPEED CONVERSION SPECIALISTS"

MD-910-1002 SBF T-5/TKO/TKX Aluminum Bell External Slave Cylinder Installation Instructions



Read These Instructions Completely Before Beginning

These instructions are for an external hydraulic slave cylinder installation for a T-5 or TKO/TKX series aluminum bell housing which use a pull/cable style clutch fork.

1.0 Before You Begin

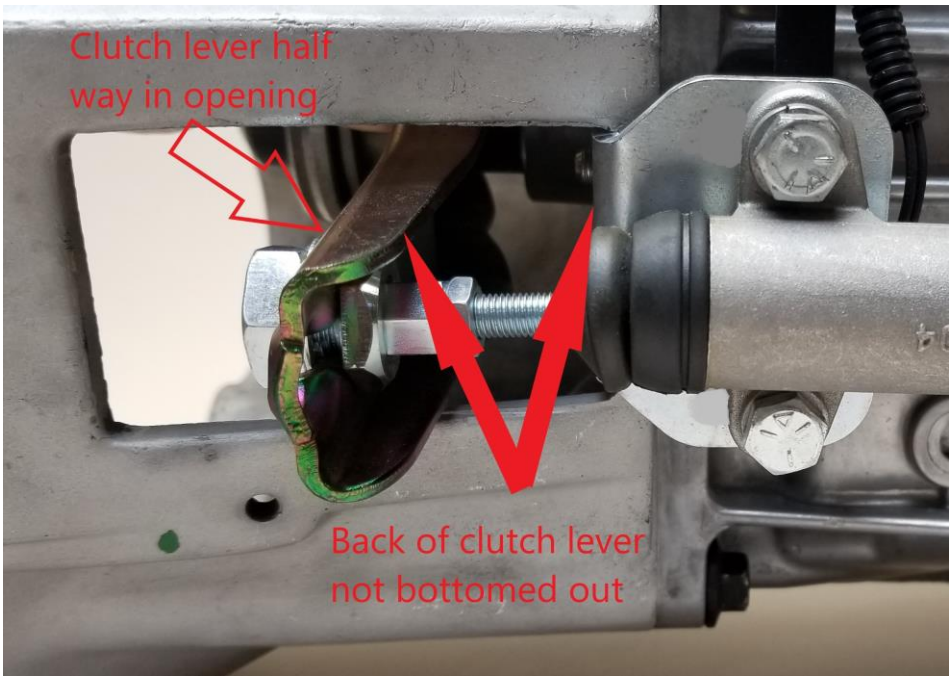
It is important to make sure the clutch fork is in the proper position. If the fork is not in the correct position it means you may have the wrong clutch configuration: mechanical release or 3-finger pressure plate, a disk that is too thin or too thick, wrong throw-out bearing, damaged or wrong fork. If the fork is not in the correct position you will not get proper clutch release or the clutch will fail prematurely.

1.1 Inspect the position of the clutch fork with the flywheel installed and torqued, the disk and pressure plate installed and torqued, the bell housing installed with clutch lever (fork) and throw-out bearing attached and centered on pressure plate fingers.

1.2 With the clutch lever pushed forward so the throw out bearing is contacting the pressure plate fingers… inspect the position of forward edge of the clutch lever. It should be no more than half-way forward in the opening. Ideally the forward edge of the fork will be 5/8 to 3/4 back in the opening. The clutch lever should also have room to move rearward and not bottom out at the back of the opening.

1.3 The existing pivot stud should have a single lock washer installed. The starting dimension for the pivot stud is 3.2” For minor correction changes in an aluminum bell you may add or take away 1 lock washer to get correct fork geometry.

1.4 Contact Modern Driveline if you cannot get the correct fork geometry with the above minor correction before you install this slave cylinder kit.



2.0 Tools and Notes

2.1 Drill motor, 21/64” drill bit, 10mm, 7/16”, 1/2”, 9/16” & 15/16” wrenches and/or socket/ratchet, Sharpie marker, 3/16” Allen wrench (TKX only), 80-82 degree countersink (TKX only), medium or high-strength loc-tite (TKX only).

2.2 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.

2.3 The Slave cylinder mounts aft of the clutch fork, pushing the clutch for forward. You do not need to change your clutch fork.

2.4 The mounting holes drilled in the bell housing must be perpendicular to the mounting surface to prevent misalignment issues and fatigue on the bolts. To perform this task the use of an angle motor or long drill bit is recommended if the transmission is bolted to the bell housing.

2.5 Our mock-up bell housing and transmission have certain items removed for clarity.

3.0 Disassembly

3.1 This step applies to a vehicle with an existing cable style installation. If your vehicle already has a hydraulic system (master cylinder) this step does not apply. Remove cable, cable brackets and any retaining clips, springs and clamps, none of those components will be re-used. Remove the clutch lever cover and retain for possible re-use.

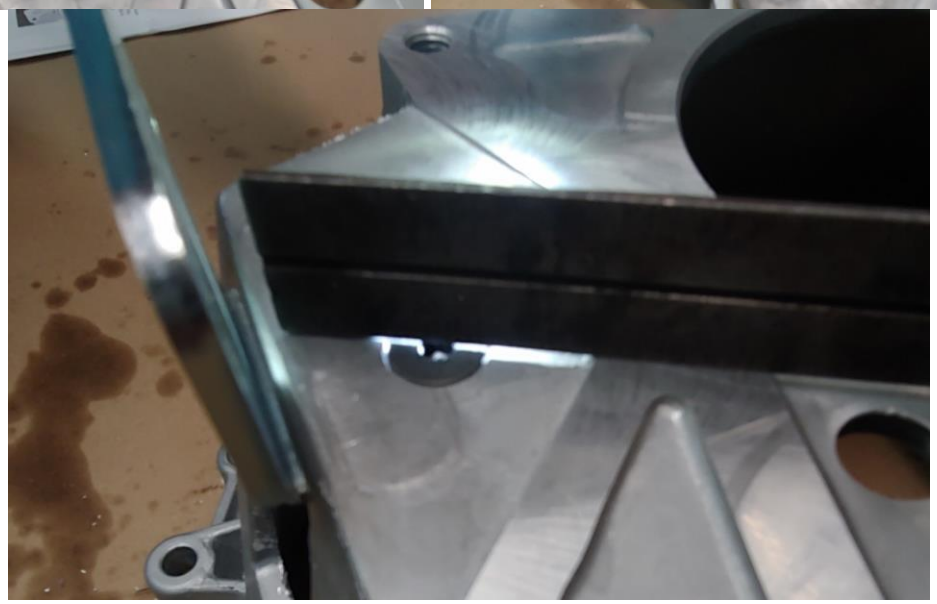
4.0 Installation

4.1 Always wear ANSI approved safety goggles/glasses when working with metal. Locate the "L" bracket to the bell housing as shown without riding up into the radius. Mark the L bracket on the top, bottom and center and move it to the aft side of the bell to locate the holes. Also mark the center of the clutch fork hole and align all three marks prior to drilling. Note: The bell housing casting may be angled where you will be mounting the L bracket. Take this into account when you are aligning the marks so the L bracket does not ride up into the radius of the L bracket when it is installed.

4.2 Note: The holes must be perpendicular to the mounting surface to prevent misalignment issues and fatigue on the bolts. Once the L bracket is located in position, mark the holes for drilling. Drill two 21/64" holes. To accomplish this, the use of an angle motor or extra long drill bit is recommended if the transmission is attached to the bell housing (T-5 and TKO only). Drill the first hole and temporarily install bracket on aft side of the bell housing. Verify alignment of the second hole and all marks on the bell housing and L bracket. Use a center punch as required prior to drilling second hole. Remove bracket and drill second hole.

4.3 For the installation of this kit using a TKX transmission the bell must be separated. Countersink the lower mounting hole ONLY using an 80-82 degree countersink. The smoother the countersink the better. This will reduce the fatigue on the aluminum surface. Incrementally check your countersink depth as you are drilling.

Make sure the installed head height is below the transmission mounting surface. The countersink does NOT need to be flush with the installed surface. Drilling the countersink too deep will not allow the fastener to seat on the bell housing.



For TKX Only

4.4 For T-5 and TKO transmissions install the bracket on bell housing with 5/16” bolts and lock washers. Bracket installs INSIDE the bell housing as shown.

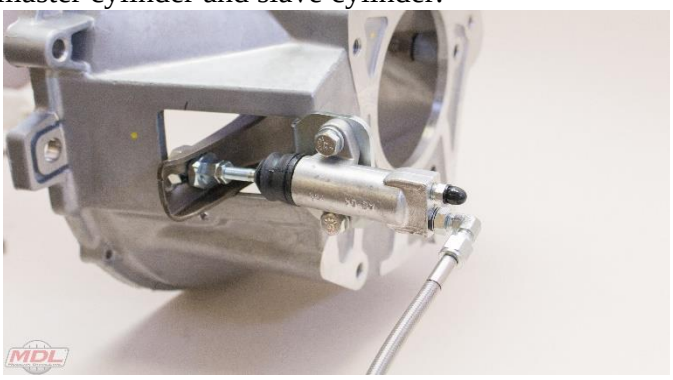
4.5 For TKX transmission install one 5/16” bolt with lock washer in the upper hole and install the countersink fastener with loc-tite in the lower hole using 3/16” Allen wrench.


4.6 Install the clutch fork socket on the aft side of the clutch fork in the inner hole and install the nut and lock washer on the front side and tighten using a 15/16” socket/wrench.

4.7 Install the push rod into the slave cylinder and install the slave cylinder on the mounting bracket and tighten 3/8” bolts and lock washers.

4.8 Set-Up: Open the bleed port. **Push the piston completely to the bottom of the piston bore AND make sure the throw-out bearing is in contact with the clutch pressure plate.** Adjust the convex nut on push rod to take out any slack/gap between the convex nut and socket (zero lash) then tighten the jam nut against the convex nut. Caution: Do not leave a gap between the throw-out bearing and the clutch diaphragm – that is old-school. Throw-out bearings designed today are made to have contact (not pressure) full-time. Leaving a gap will result in slave cylinder failure and the piston will pop out. Do not add any parts to this kit. Do not install ANY nuts on the forward side of the clutch fork rod coming out of the slave cylinder.

4.9 Attach steel braided line to the slave cylinder fitting and master cylinder fitting. Tighten hose end fittings. Make sure the steel braided line does not interfere with any moving parts and is at least 2” away from the exhaust. Rotate the 90-degree fittings on the master cylinder and slave cylinder as required to accomplish required clearances and tighten jam nuts on both master cylinder and slave cylinder.

4.10 You may modify and install the clutch lever cover by trimming away the aft side of the cover to clear the slave cylinder.

4.11 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. The one-person

bleeder kit is made ONLY for reservoirs with a round opening measuring between 1.30” & 1.55” in diameter. DOT 3 brake fluid only.

4.12 Important: Once your new hydraulic system is active, **the rod coming out of the slave cylinder should travel 1.2”**. Less than 1.2” may result in a clutch that does not release properly. The slave cylinder push rod should move immediately when the pedal is pressed. Lack of immediate movement or a spongy feeling clutch pedal indicates air is still in the system.

4.13 Periodic adjustment is required for this system. In the initial set-up above, the convex nut was adjusted for zero lash. When the clutch starts to release higher than it used to, repeat the process outlined in the set-up step above to obtain zero lash. This periodic adjustment will extend clutch life and throw-out bearing life by eliminating preload and premature wear. Once again, make sure the piston is bottomed out in the bore and the throw-out bearing is contacting the pressure plate when making any adjustments.

4.14 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.

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