

BRUCE COUTURE'S **MODERN DRIVELINE**

"FIVE AND SIX SPEED CONVERSION SPECIALISTS"

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 series aluminum bell housing which use a pull/cable style clutch fork.

1.0 Tools and Notes

- 1.1 Drill motor, 5/16" drill bit, 10mm, 7/16", 1/2", 9/16" & 15/16" wrenches and/or socket/ratchet, Sharpie marker.
- 1.2 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.
- 1.3 The Slave cylinder mounts aft of the clutch fork, pushing the clutch for forward. You do not need to change your clutch fork.
- 1.4 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.
- 1.5 Our mock-up bell housing and transmission have certain items removed for clarity.

2.0 Disassembly

- 2.1 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.

3.0 Installation

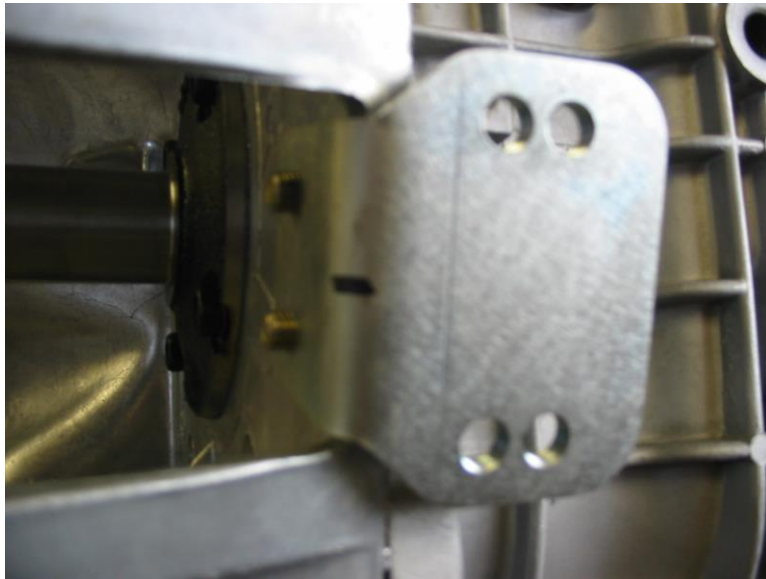
3.1 Always wear ANSI approved safety goggles/glasses when working with metal. Locate the “L” bracket to the bell housing as shown without riding up into the radius. Mark the L bracket on the top, bottom and center and move it to the aft side of the bell to locate the holes. Also mark the center of the 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.



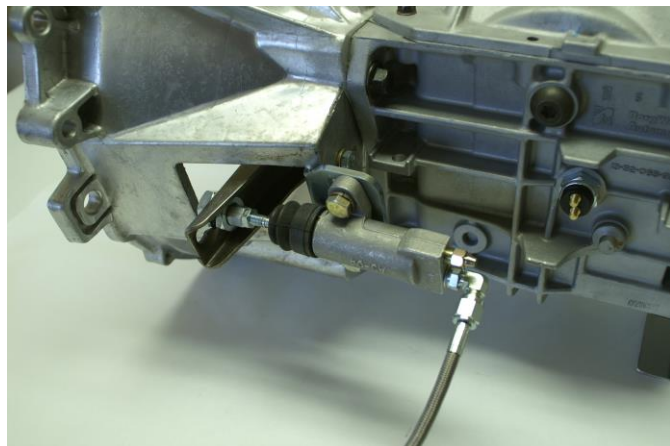
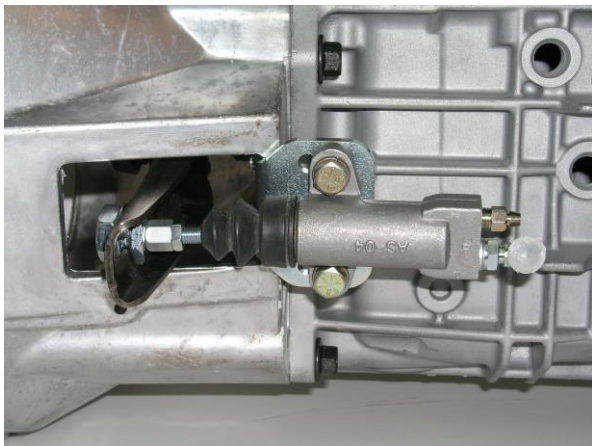
3.2 Note: The holes must be perpendicular to the mounting surface to prevent misalignment issues and fatigue on the bolts. Once the L bracket is located in position, mark the holes for drilling. Drill two 5/16” holes. To accomplish this, the use of an angle motor or extra long drill bit is recommended if the transmission is attached to the bell housing. 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.



3.3 Install bracket on bell housing with 5/16” bolts and lock washers.



- 3.4 Install the 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.
- 3.5 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.
- 3.6 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.
- 3.7 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.



- 3.8 You may modify and install the clutch lever cover by trimming away the aft side of the cover to clear the slave cylinder.
- 3.9 Important: Once your new hydraulic system is active, the rod coming out of the slave cylinder should travel a travel 1.2". Less than this will result in a clutch that does not release properly.
- 3.10 Periodic adjustment is required for this system. In the initial set-up in the step 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.
- 3.11 The balance of instructions is on the master cylinder installation instructions.
- 3.12 Further assistance and tech support is available by calling Modern Driveline at 208-453-9800 M-F 9-5 Mountain time. Please call us first for any issues.
- 3.13 Enjoy your new hydraulic system and Thank You for choosing Modern Driveline. We appreciate your business.