



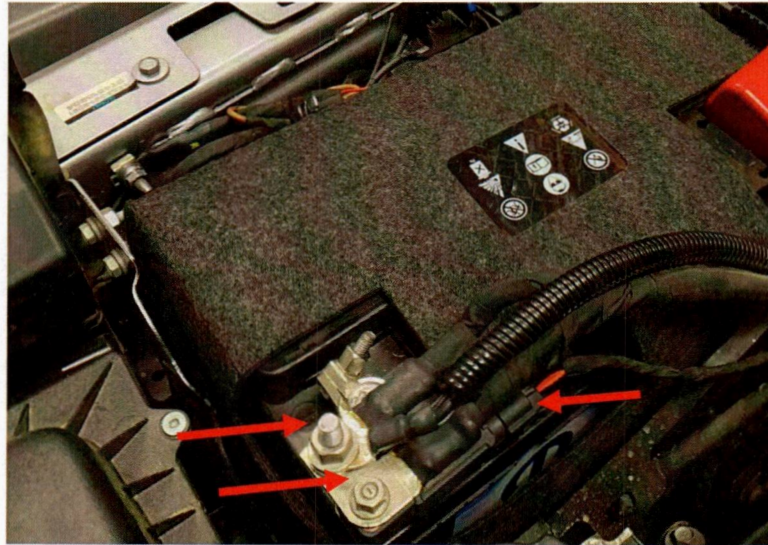
Performance Engineered Driveline Components

Jeep JL/JT clutch kit installation instruction manual

Please refer to www.mcleodracing.com for the most current and up to date instructions for your McLeod Product.

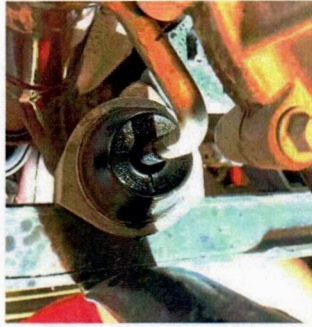


1. Disconnect both batteries. Remove the 13mm nut for the secondary battery at the main battery NEGATIVE terminal, remove and tape up the end of the cable with electrical tape. Loosen the 10mm nut on the Negative battery terminal, remove and tape up the cable end with electrical tape. Remove the connector from the terminal on the battery. Open the door and verify the power is disconnected and make sure the courtesy light does not come on.

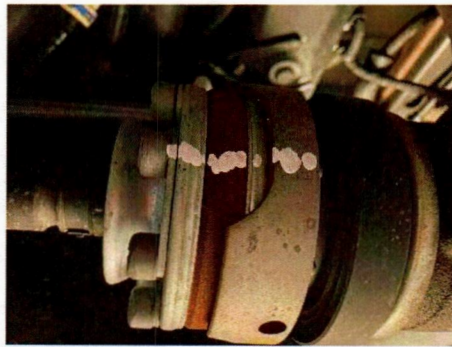


2. Remove the exhaust by removing the 2 bolts on the driver and passenger side connections from the manifold/ header and the exhaust clamp behind the crossmember. To remove the exhaust, you will have to remove the exhaust hanger attached to the top of the crossmember with 2 bolts.

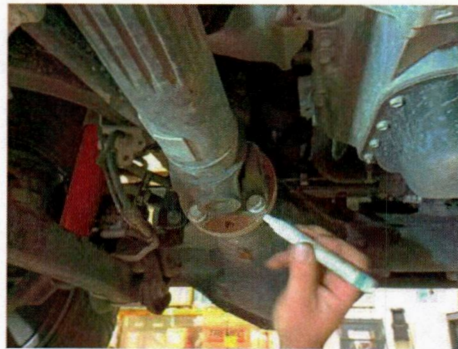




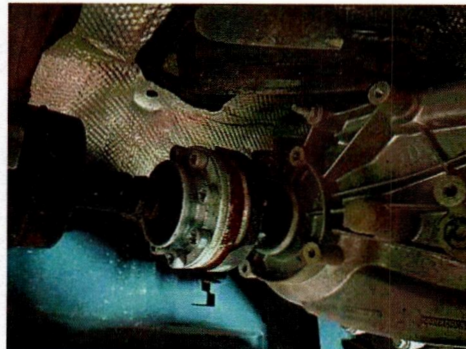
3. Remove the driveshafts front and rear. Be sure to mark the driveshaft orientation to the differentials and transfer case to ensure you can reinstall them the same way. You may choose not to unbolt the front driveshaft from the transfer case and just remove it from the front axle.



FRONT:



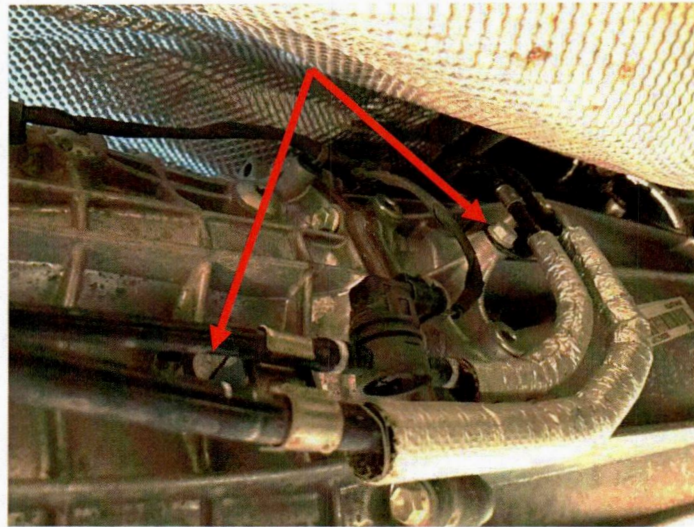
REAR:



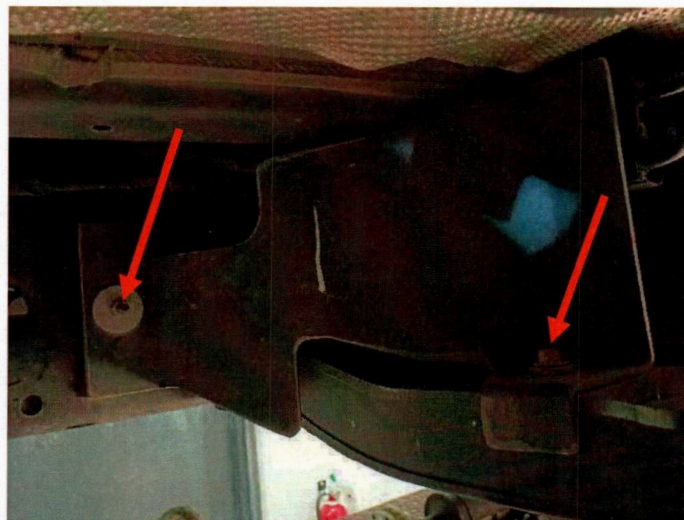
4. **DO NOT REMOVE THE SHIFT CABLE BRACKET FROM THE SIDE OF THE TRANSMISSION.** If you remove the shift cable bracket you will have to perform the shift cable reset procedure available in the factory service manual. Remove the 2 shift cables from the shift cable bracket on the side of the transmission. This will allow enough slack in the cables for the transmission with transfer case to move back and down. The cables can be disconnected from the bracket by pulling on the front side of the cable retainer (spring loaded). Leave the cables connected to the transmission but slide them out of the bracket. **Do not bend or kink the shift cables. Do not allow the transmission to hang on the shift cables. If the transmission needs to be removed from the vehicle you can pop the shift cable end off the lever on the transmission (ball and socket connection).**



5. Remove the 2 bolts holding the fuel line on the right side of the transmission.



6. Disconnect the top transmission sensor connector.
7. Take care to remove the wiring Christmas tree clips on the side of the transmission, to be reinstalled later. These may break, you can cut the cable tie part and insert a new cable tie to attach to the Christmas tree part still in the transmission.
8. Remove the nut and bolt for the fuel line guard on the passenger side of the transmission crossmember and frame.



9. Remove the 6 bolts attaching to the skid plate.

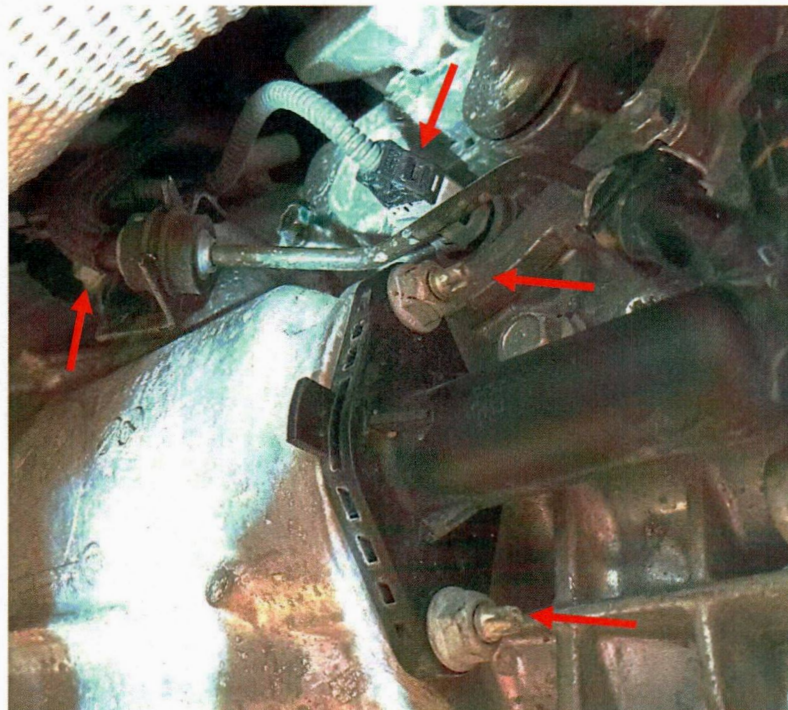


10. Remove the 5 bolts holding the crossmember and the 3 nuts for the transmission mount. You may have to loosen the fuel tank guard/case to remove the crossmember.

11. Remove the 13mm (head) bolt holding the hydraulic line for the clutch slave.

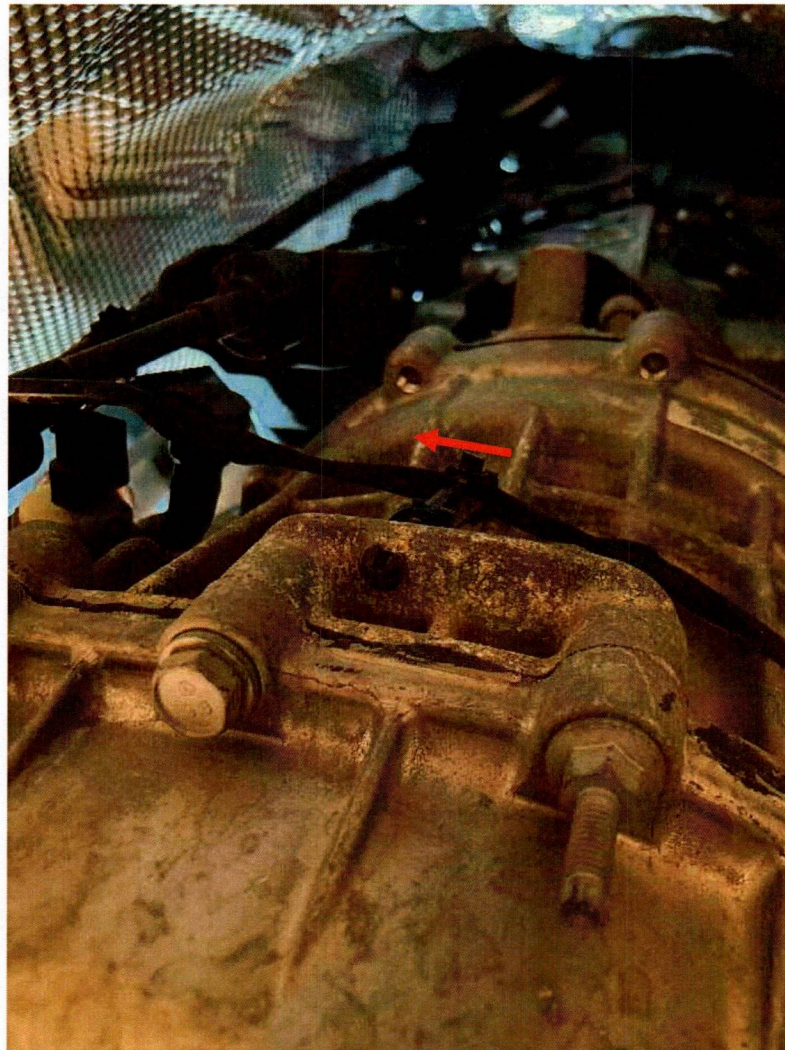
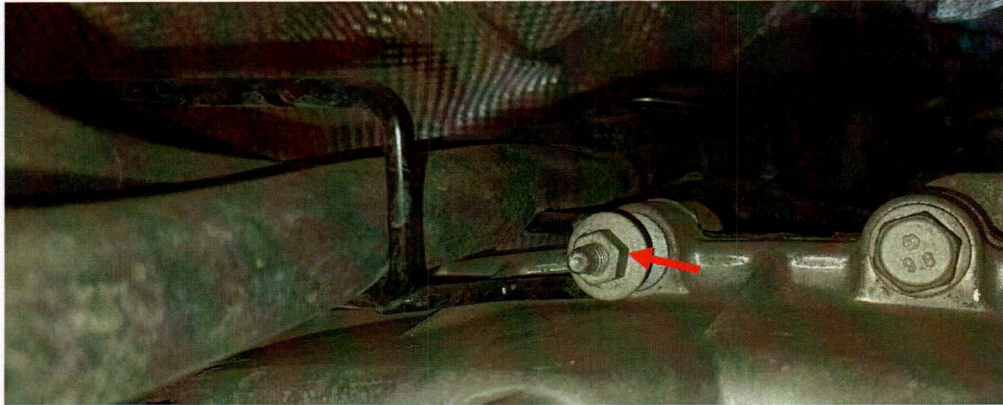
12. Remove the 13mm (head) nuts (2) holding the hydraulic slave to the transmission. Leave the slave connected at this time to prevent it from leaking while changing the clutch.

13. Disconnect position sensor electrical connector by the clutch slave.



14. Lower the transmission.

15. Remove the cable retention wire nut off the rear of the transmission.



16. Remove the upper shift cable from the bracket. The cable can be disconnected from the bracket by pulling on the front side of the cable retainer (spring loaded). Leave the cable connected to the transmission/transfer case but slide it out of the bracket. **Do not bend or kink the shift cables. Do not allow the transmission to hang on the shift cables.**

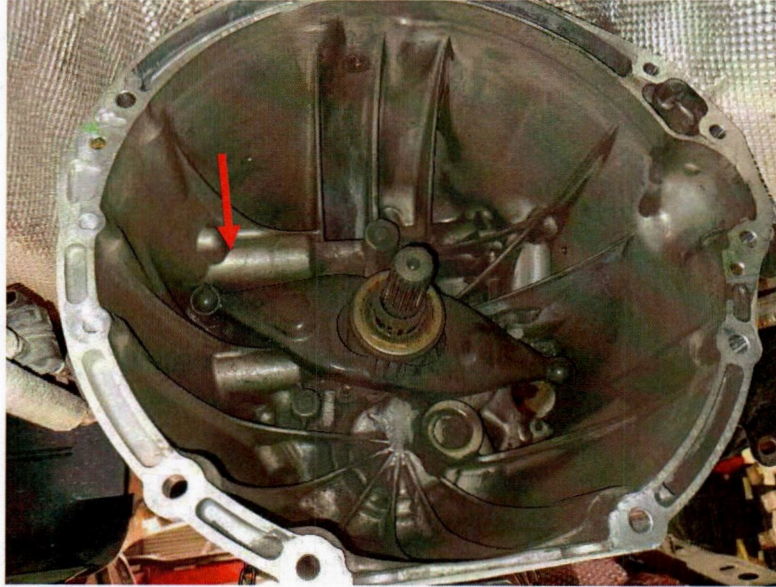


17. Disconnect plug for the sensor in the rear of the transfer case.

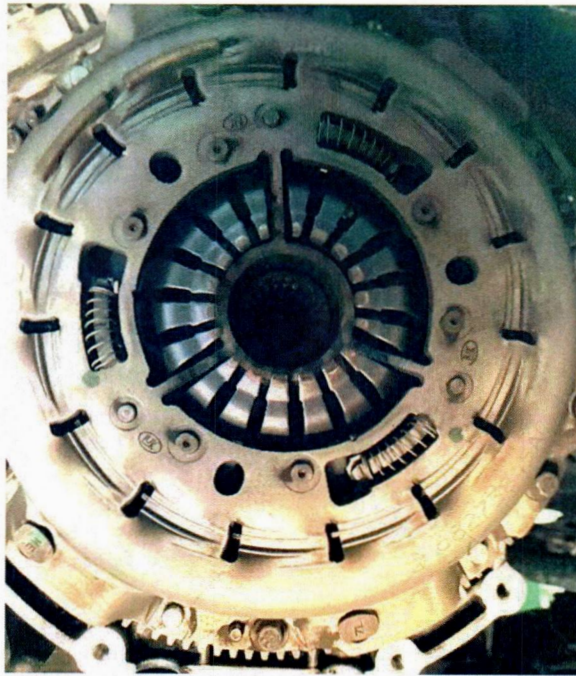


18. Remove the 15mm bellhousing bolts from the transmission. The top bolts have nuts and a bracket with rubber caps which may need to be removed to get to the nuts. At the top of the bellhousing there is a bracket which has a bolt and 2 nuts to hold the wiring. The top nut is 16mm and the one below it is 13mm.
19. Remove the transmission vent from the top of the transmission.
20. Remove the clip on the top of the transmission in the center.

21. Check around the transmission to make sure everything is disconnected, and you have clearance around the transmission and transfer case to slide them back.
22. Slide transmission and transfer case back.
23. Remove clutch fork and bearing by pulling on the fork on the passenger side of the fork.

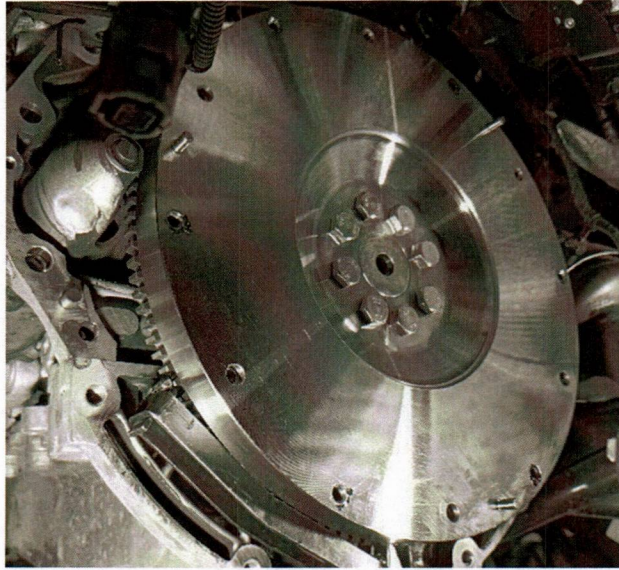


24. Remove the 6 pressure plate bolts and remove pressure plate and clutch disk.



25. Remove the eight flywheel bolts with a T50 TORX and remove the flywheel.

26. Install new flywheel using new provided bolts and torque to **65 ft/lbs**, the supplied bolts already have thread locker on them.

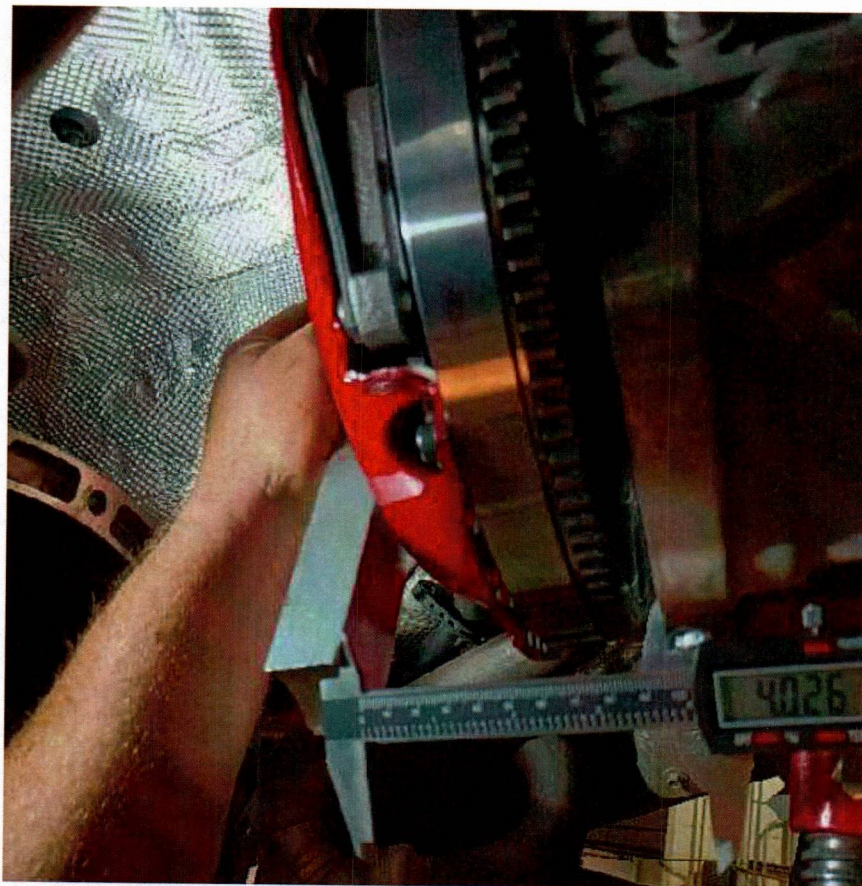


27. Install clutch and pressure plate using the clutch alignment tool and the fasteners provided and torque to 25 ft lbs.

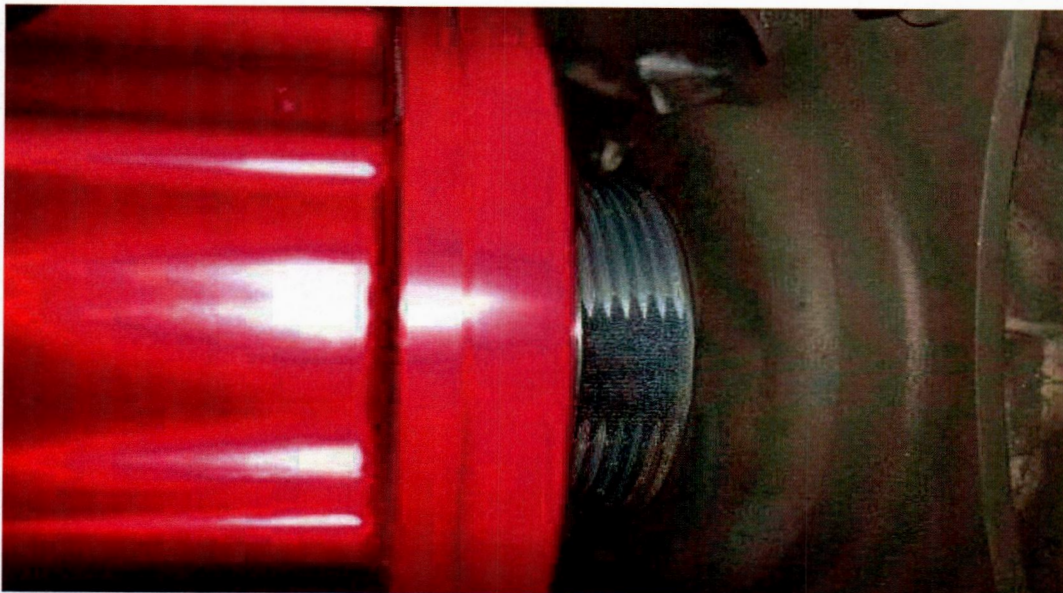
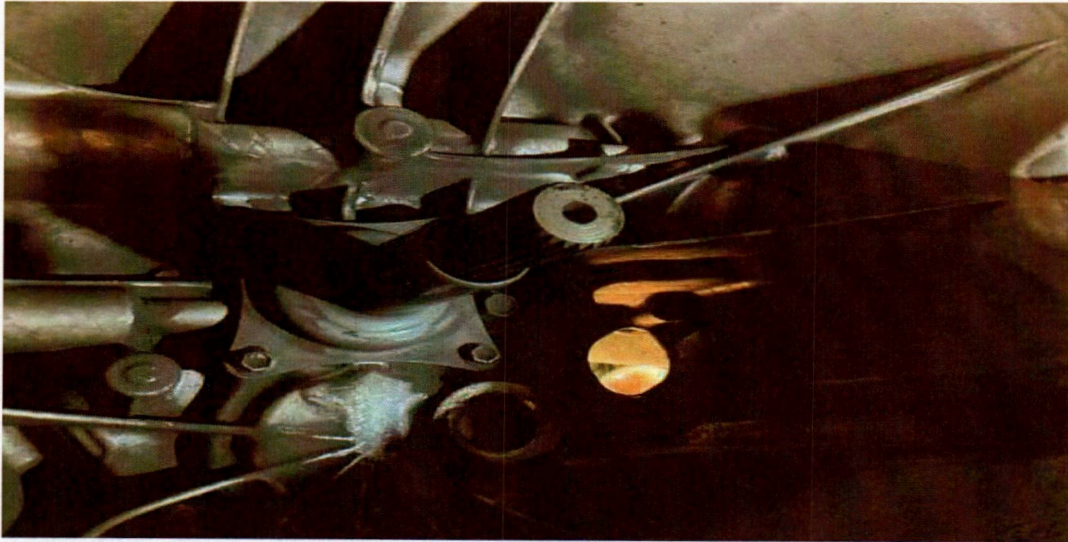


28. Using a straight edge measure from clutch fingers to engine block, taking care make sure the straight edge is even. Use this measurement and add 0.300".

* For reference this clutch setup measured 4.026" (see sample photo below).



29. Slide the new hydraulic slave bearing onto the transmission bearing retainer (use light grease or lube on the O-rings) and measure from the transmission face to the slave bearing. Adjust the bearing by turning it clockwise to increase the number and counterclockwise to decrease the number, until the measurement from the bearing to the bellhousing face matches the number calculated in the previous step.

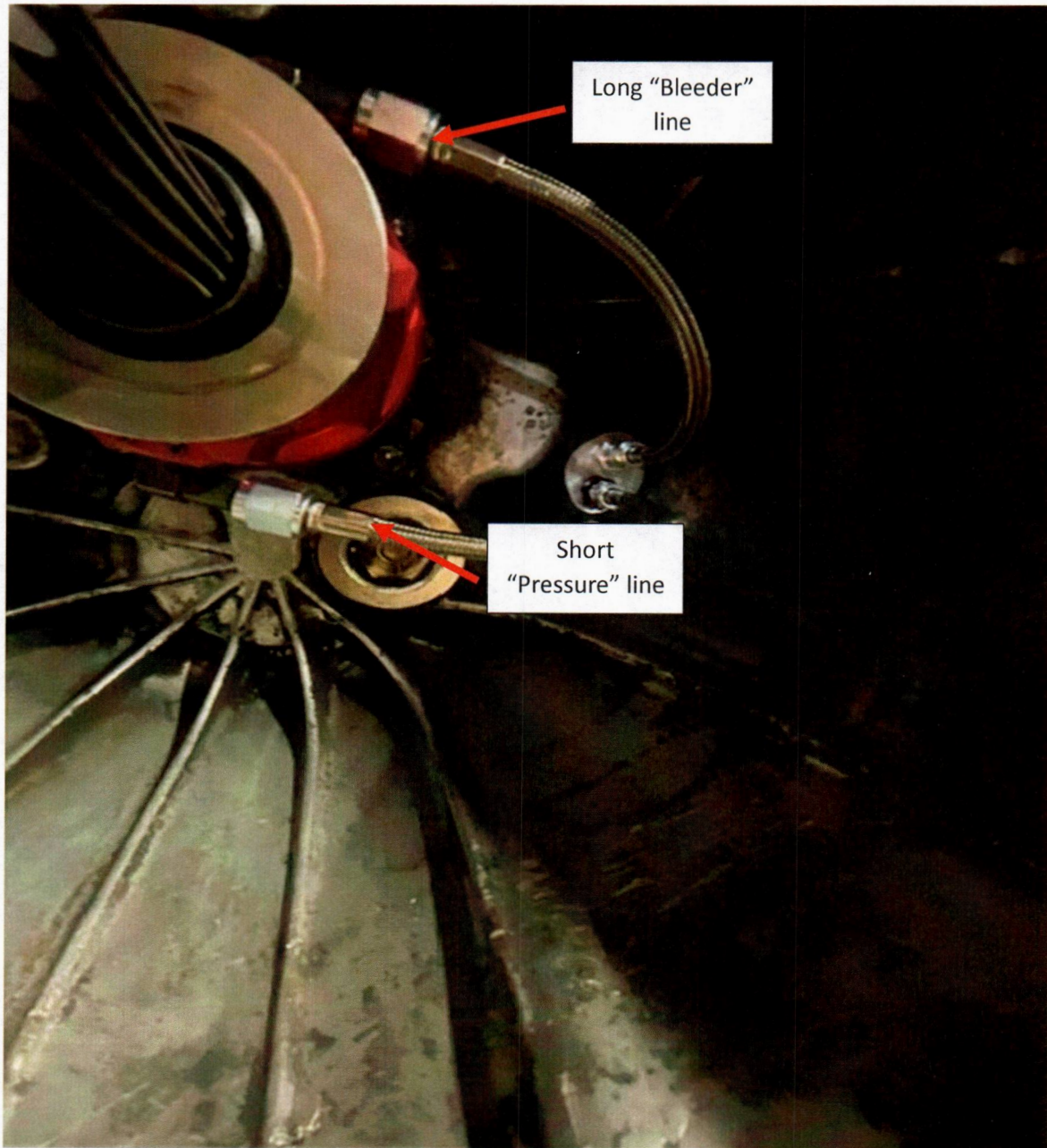




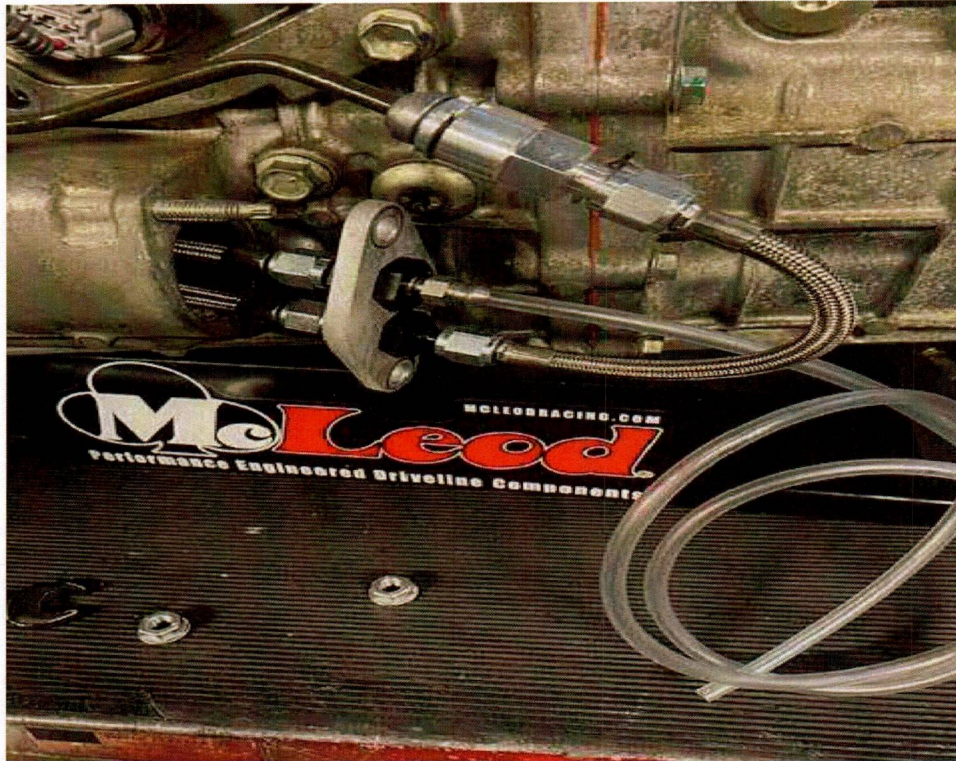
30. Install the supplied cover plate with the lines thorough the slave cylinder opening and re-attach it using the nuts from the original clutch slave cylinder.



31. Connect lines to the McLeod bearing. The shorter "Pressure" line connects to the bottom of the bearing and the longer line connects to the top and is the line used to bleed the bearing (See photo below).

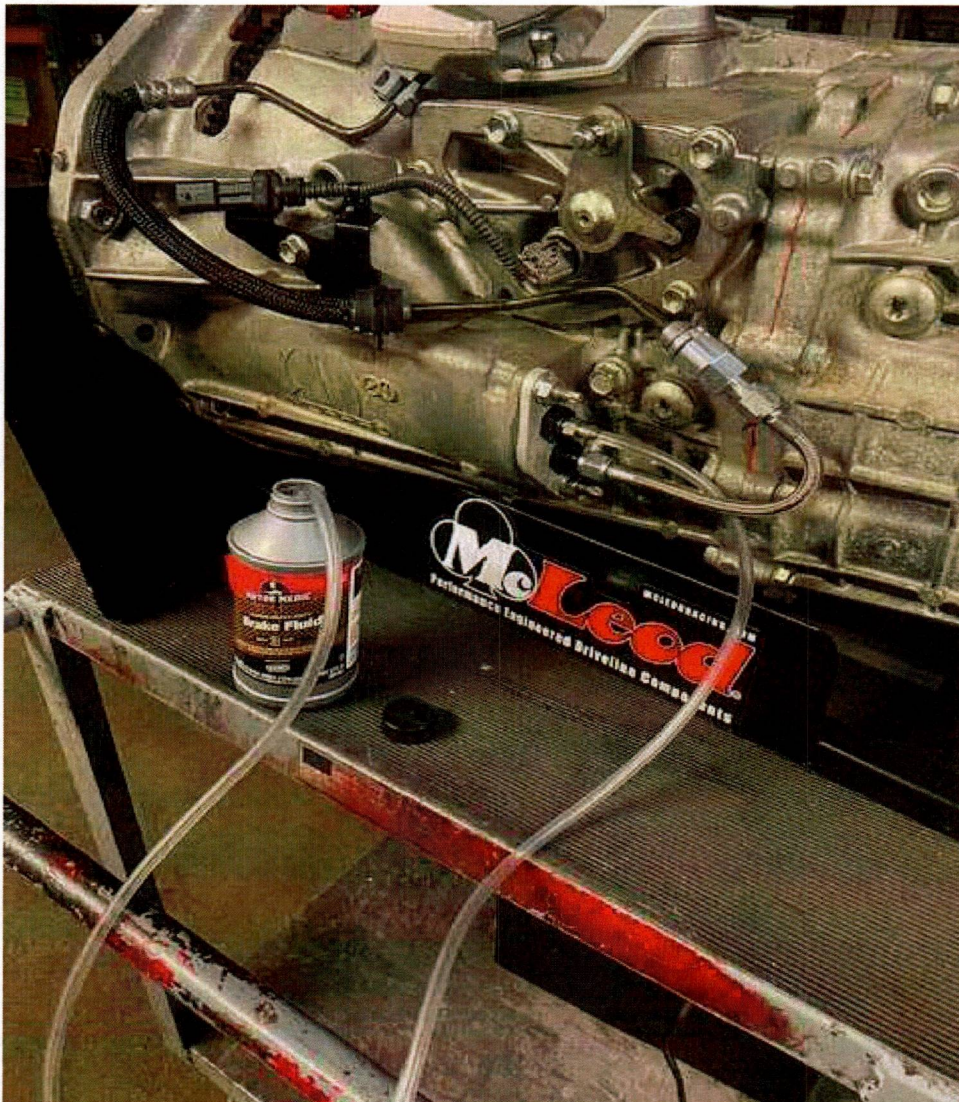


32. Push male fitting from OE line into the McLeod billet quick disconnect on the transmission, you should hear a “click” as soon as it is fully connected. At this time, you can push the clear tubing to the end of bleeder screw for bleeding purposes.



33. Install transmission to engine, take care to not pinch any wiring harnesses in between engine and transmission flanges. Take care to reattach any brackets which were removed during disassembly.
34. Reattach transmission vent line.
35. Reattach fuel line to the transmission
36. Reattach the 3 transmission shift cables.
37. Raise transmission and replace crossmember reusing the same 5 bolts to attach to the chassis.
38. Lower transmission onto the crossmember and tighten the 3 nuts for the transmission mount.
39. Reinstall the fuel line cover to the chassis and crossmember.
40. Reinstall driveshafts front and rear.
41. Reinstall exhaust.
42. Reinstall skid plate.

43. Now you are ready to bleed the clutch. The best method we have found is to start by opening the bleeder screw at the new block plate previously installed. Leave the bleeder screw open for a period time to let fluid travel through the system by gravity. The clear tubing should show fluid passing into it. With the tubing submerged into a bottle of brake fluid, depress the clutch pedal to the floor, hold the pedal to the floor, close the bleeder screw, release the clutch pedal, and repeat until you feel the pedal start to work the clutch. Make sure to **ONLY USE DOT 3** (non-silicone based) brake fluid in the system.



Limited Warranty

McLeod Racing LLC, products are warranted to be free from defects in material and workmanship for the period of ninety (90) days, from the date of purchase. McLeod does not warrant or make any representations concerning its products when not installed and or used strictly in accordance with the manufacturer's instructions for such; installation and operation, and in accordance with good installation and maintenance practices of the automotive industry. Products purchased used do not carry a warranty. This warranty is to the original purchaser and is non-transferable.

McLeod Racing LLC will not be held liable for the labor charges and other intangible or consequent losses that might be claimed as a result of the failure of any part, nor shall it be liable for damages or injury to persons or property resulting from the misuse or improper installation of any part subject to this warranty.

No merchandise may be returned for any reason unless prior return merchandise authorization number (RMA) has been obtained from McLeod. An RMA number may be obtained via www.mcleodracing.com or by calling McLeod directly.

McLeod Racing LLC reserves the right to examine all parts returned for warranty claim to determine whether or not any such part has failed because of a defect in material or workmanship. McLeod's obligation under this warranty shall be limited to repairing, replacing or crediting, at its option, any part found to be defective. All products returned to McLeod for warranty inspection must be prepaid by the customer under this warranty.

In a racing environment, the type of stress placed on automotive parts can vary dramatically by the type of use, driving style, track preparation, differing tire style and other variables that are out of McLeod's control. For this reason, any parts used in a racing environment shall be void of any warranty either expressed or implied.

There are no other warranties, either expressed or implied including, but not limited to, warranty of merchantability, and warranty of fitness for a particular purpose which extend beyond those set forth in the preceding paragraphs. This warranty shall be interpreted and applied in accordance with California law.

For any changes or updated versions of the warranty described above, please refer to www.mcleodracing.com before installation of product.

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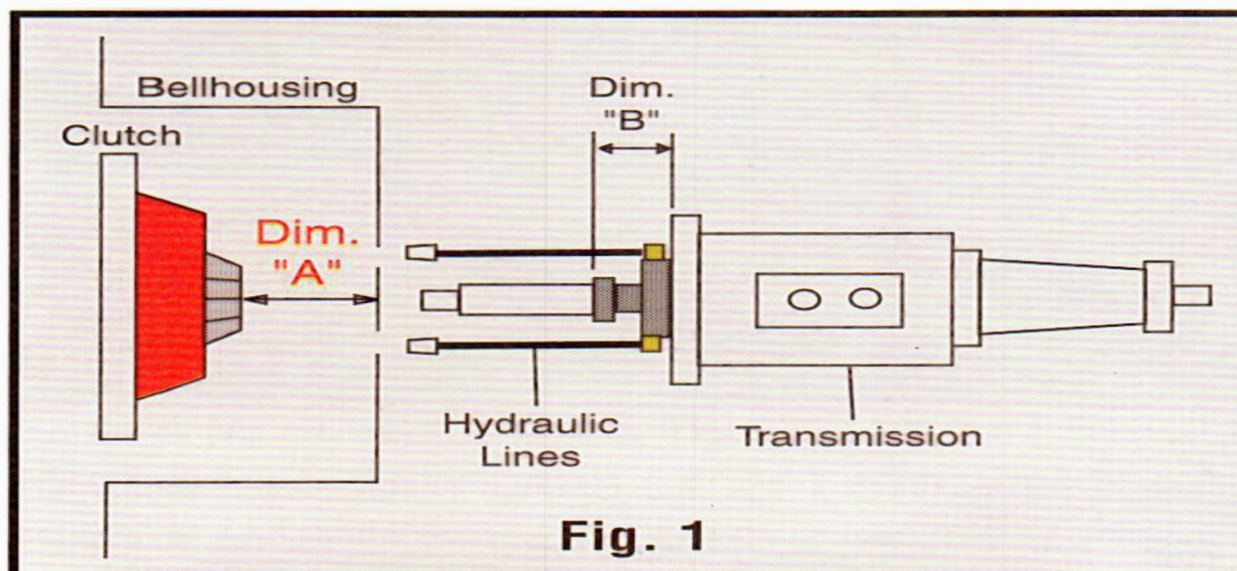
(714) 630-2764



1400 Series Hydraulic Throw-Out Bearing Instructions

Congratulations! You have just purchased a precision engineered hydraulic throw out bearing assembly. Properly installed this bearing assembly will provide proper clutch engagement and release for many trouble free miles. Please review these instructions to become familiar with key parts along with the proper installation procedures for this product. Prior to beginning this installation let's be certain you have the correct hydraulic throw out bearing assembly for your application. McLeod offers two distinct types of hydraulic throw out bearing assemblies, the Slip-On style and the Bolt-On style. By taking a few easy measurements on your bell housing to clutch release fingers you can easily determine if this bearing is correct for your application.

McLeod Hydraulic Throw Out bearing assemblies will not work with counter weighted diaphragm style pressure plates (Centerforce). If the weights are removed the bearing will function as designed.



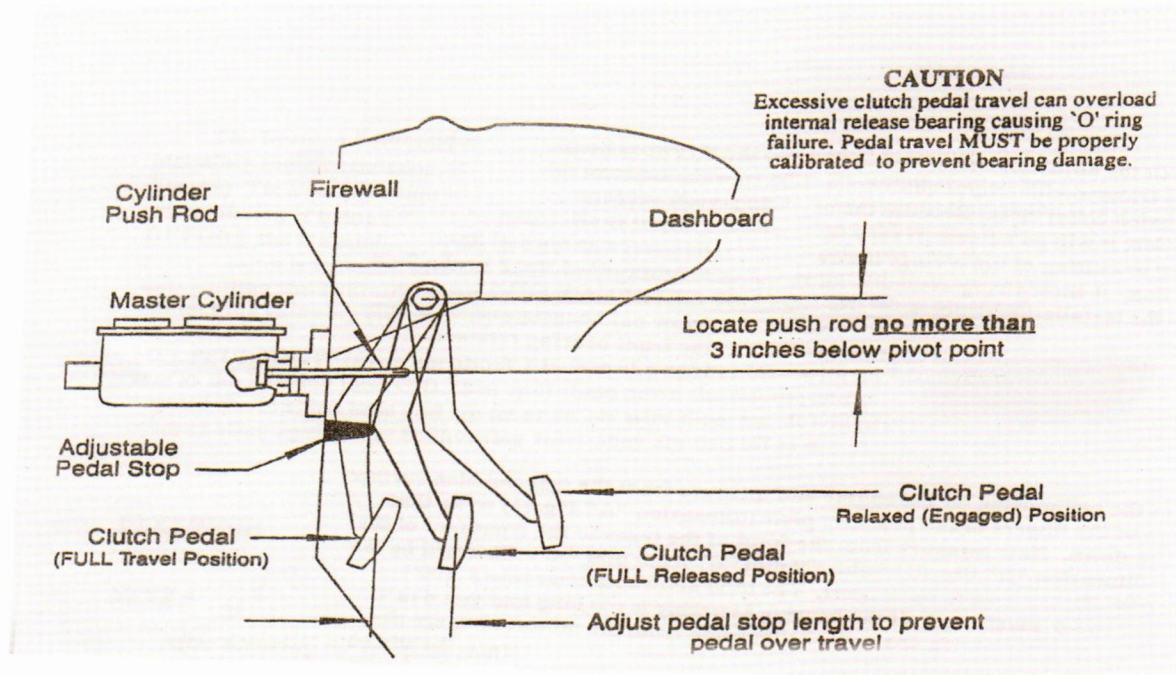
To Determine "Dimension A": With the bell housing, flywheel, disc and pressure plate bolted to the engine, measure the distance from the rear surface of the bell housing to the top of the release fingers on the pressure plate. If this dimension measures less than 3" you should use a "Bolt-On" style hydraulic throw out bearing assembly. If this dimension measures greater than 3" you should use a Slip-On style hydraulic throw out bearing assembly.

Note: T-56 transmissions have a recessed front intermediate plate. Place a straight edge across the face of the throw out bearing surface and measure to the front face of the front intermediate plate. The bearing assembly on the T-56 is nested inside the front intermediate plate. This "B" dimension must be determined to be certain you have the correct style bearing assembly. (Step 2).

Installation Instructions

Before installing the hydraulic Throw out Bearing Assembly let's take a look at your master cylinder and pedal assembly combination. Key parts to the system:

- 1) Master cylinder bore size ($3/4$ " recommended). Bore Diameter found on side of most aftermarket master cylinders.
- 2) Clutch pedal travel.
- 3) Master cylinder "Push Rod" stroke should be 1" minimum.
- 4) 6:1 Pedal ratio. See <http://www.mcleodracing.com/info/?id=5262> for more info.



The master cylinder push rod needs a minimum of 1" of stroke if using a $3/4$ " bore master cylinder. Less travel is required with a larger diameter bore, although pedal effort will increase. More travel is required with a smaller diameter bore, with decrease in pedal effort. If a larger than $3/4$ " bore is required for your application, you can ease pedal effort by mounting the master cylinder and push rod higher up the pedal toward the pivot point. This will increase the amount of leverage you have with the pedal, thus an easier push. You will lose some push rod travel by doing this however with the larger bore master cylinder you are dispensing more fluid per stroke to compensate for the loss of pedal travel.

A 6 to 1 ratio is recommended with a $3/4$ " bore master cylinder. Example...If the center of the pedal pad is 12" from the pivot point, the push rod connecting point should be 2" below the pivot point. Quick math: Pedal pad is 12" below pivot point, divided by 6 (desired ratio) = 2". Push rod should be attached to the pedal assembly 2" from the pivot point.

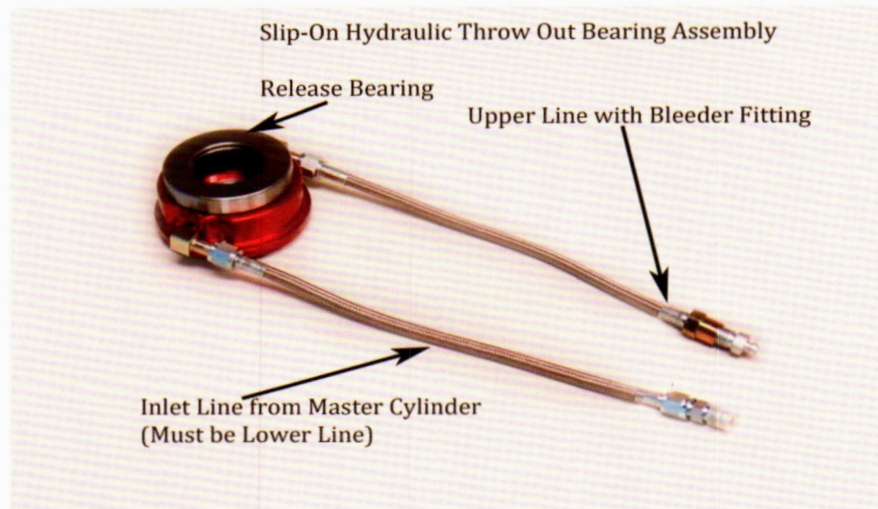


Figure A

Inspect the bearing assembly and note the AN -4 lines, inlet fitting, swivel fittings, bleeder fitting, release bearing and adjusting screw at rear of assembly. The adjusting screw includes two O-rings on the ID that will fit tightly onto the transmission input shaft collar. Figure A & B.

Prior to installing the bearing assembly it is strongly recommended you fabricate a protective cover for the AN -4 lines where these lines exit the bell housing. The protective cover can be rubber hose, such as heater hose or similar material. This hose should be about 2" in length for each AN -4 line. Slice the rubber hose lengthwise and slip it over the AN -4 lines and secure with zip ties or safety wire. This will prevent the AN -4 lines from chafing on the bell housing and prematurely failing.

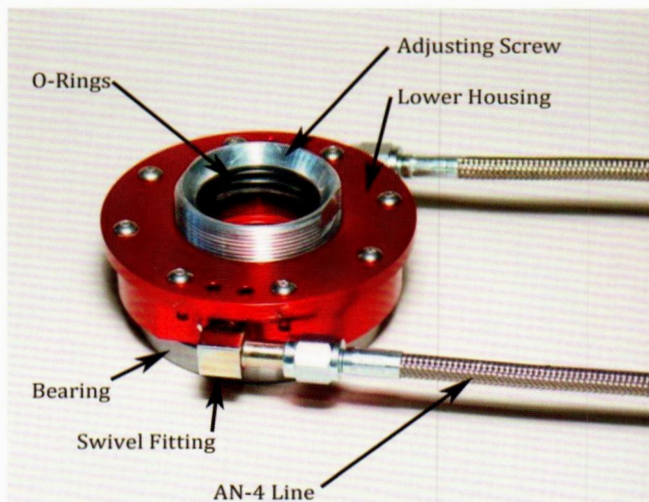


Figure B

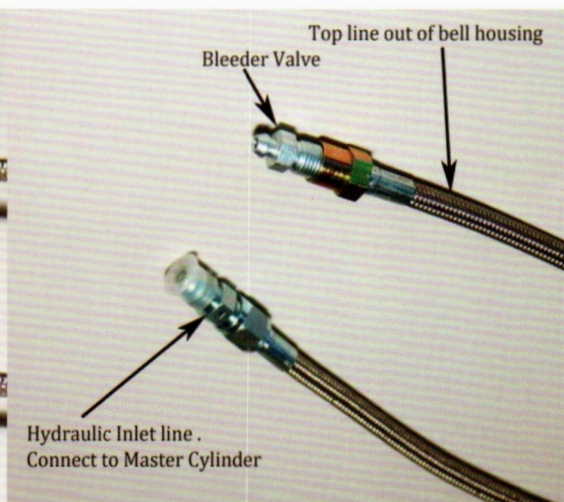


Figure C

Step 1) Screw the 'Adjusting Screw' all the way into the bearing assembly. Slip the bearing assembly onto the input shaft collar on the transmission. Be sure the tapered side of the adjusting screw goes on the transmission collar to seat against the base of the collar. This should be a tight fit, if necessary to ease installation lube the o-rings with a light coat of Dot 3 brake fluid or o-ring assembly lubricant. Do not use grease or oil!! Be sure the AN -4 lines are forward for ease of assembly.

Step 2) Take the measurement notes as 'Dimension A'. Note that number here_____.

Now measure from the front mounting surface of the transmission to the front face of the release bearing, this is Dimension "B".

See figure 1. Note that number here_____.

Subtract dimension "B" from dimension "A". Note that number here _____. This will be the clearance for the bearing to self adjust. The total allowable clearance is .100" to .150" maximum. If the bearing assembly is too short, screw the bearing assembly out until the proper clearance is achieved. One complete turn will provide **.060"** bearing movement forward. **Always have the AN -4 line with the bleeder valve at the top when the bearing is properly adjusted. If the desired clearance can only be reached with the bleeder line at the bottom it is OK to swap the lines on the swivel fittings. Remember the line with the bleeder valve must be at the top position!**

If 'Dimension B' is too long you can return the slip on bearing assembly to McLeod Racing for a Bolt-On style which can be made shorter than the Slip-On style. This is why the dimension check prior to installation is critical.

STEP 3) The braided steel AN -4 lines on the hydraulic bearing are designed to swivel. Before installing the transmission, swivel both lines forward parallel with the input shaft. See Figure 1. Tie a heavy string around both lines, making the string long enough to feed the string through the opening in the bell housing where the lines will feed through (typically the fork hole) before the transmission is fully engaged into the bell housing. As the transmission is installed into the bell housing the string can be pulled simultaneously, thus swiveling and guiding the AN -4 lines out through the bell housing hole. These lines must not contact the spinning clutch or flywheel when the engine is running. Be sure the protective hose on the lines are in the proper position to protect the AN -4 lines from chafing on the bell housing.

Step 4) After securing the transmission and driveline; connect a line from the master cylinder (not included with the bearing assembly) to the input line (bottom line) of the hydraulic bearing. This bearing assembly is supplied with an AN -4 fitting screwed into the line. Fill the master cylinder with DOT 3 or DOT 4 brake fluid. **DO NOT USE SILICONE FLUID or DOT 5 FLUID!! Use of silicone fluid will damage the o-rings resulting in leaks and or damage to the assembly.** After the master cylinder is filled, bleed the bearing assembly. Example: Pump the pedal 3 to 4 times, with the bleeder valve open and the end of the opening submerged in a cup partially filled with brake fluid. This will release fluid and air trapped in the system. Continue the bleeding process until all of the air is removed from the system. Now reach into the cup and tighten the bleeder fitting. Set the cup aside and then be sure to tighten the bleeder valve. Once the bleeding is complete refill the master cylinder, just don't fill it all the way to the top. The fluid level should be ½" to ¾" from the top. This will allow room for the brake fluid in the reservoir when the bearing self adjusts. Unlike brakes, the fluid level will rise in the reservoir, as the clutch wears, not lower.

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