

McLeod Hydraulic Throwout bearing installation

The throwout bearing has 4 main parts as shown below in Figure 1:



Figure 1

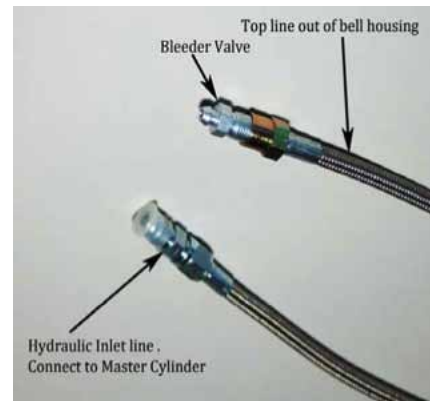


Figure 2

There are two braided AN -4 hydraulic lines connected to the bearing as shown in Figure 2. Looking at the ends of these lines, one has a regular AN -4 fitting (master cylinder connection) and the other has a bleeder valve (bleed line) on it. The line with the bleeder valve must always be above the master cylinder connection line when installed to enable correct bleeding of the system as shown in Figure 3.



Figure 3

Prior to installing the bearing assembly it is strongly recommended you fabricate a protective cover for the hydraulic 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 50mm (2") in length for each hydraulic line. Slice the rubber hose lengthwise and slip it over the hydraulic lines and secure with zip ties or safety wire. This will prevent the hydraulic lines from chafing on the bell housing and prematurely failing.

Fitting and Adjustment

1. First, fit your hydraulic throwout bearing unit to your transmission. Ensure that the unit is fully compressed and the adjusting screw is screwed all the way in as this is important for the measurement. 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 hydraulic lines are facing forward for ease of assembly. Measure the height from the gearbox mating face to the front bearing face as shown in Figure 4 and record the measurement:

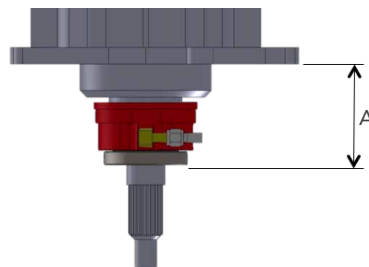


Figure 4

Measurement A = _____ mm

2. Fit your flywheel, clutch plate, pressure plate and bellhousing to the engine. Measure the distance from

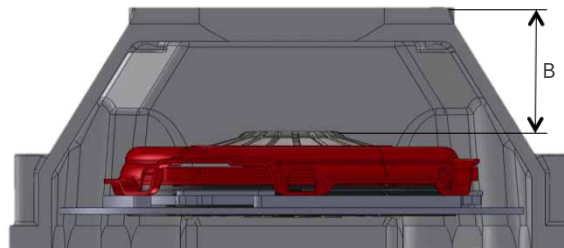


Figure 5

the bellhousing mating face to the pressure plate fingers as shown in Figure 5 and record the measurement:

Measurement B = _____ mm

3. Subtract 3.5mm from measurement B to allow for clutch wear and record this value.

$B - 3.5\text{mm} = \text{Measurement C} = \text{_____ mm}$

4. Measurement C is the final height that the bearing needs to be set to from the transmission front face. Subtracting A from C will reveal how much the adjustment screw needs to be wound out to achieve this. The maximum amount that the screw can be wound out is 3.8mm (0.15"). Anything above this will need a different length piston, which can be obtained from McLeod Racing if required. When the unit is adjusted correctly, taking measurement A should give the same value as measurement C. 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!

5. 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 as shown in Figure 6. 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 swivelling 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.



Figure 6

6. After securing the transmission and driveline; connect a line (not included with the bearing assembly) from the master cylinder to the input line (bottom line) of the hydraulic bearing.

NOTE: 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 or synthetic 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 12.5mm($\frac{1}{2}$ ") to 19mm($\frac{3}{4}$ ") 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 master cylinder, as the clutch wears, not lower. This is due to the lever action of the clutch fingers, the bearing will contract as the clutch discs become thinner. This is also the reason for the 3.5mm clearance used to set the bearing height earlier.