



1400 SERIES SLIP-ON INSTALLATION INSTRUCTIONS

HOW THE HYDRAULIC BEARING WORKS

1400 Series

The hydraulic bearing is designed with a constant running bearing that will touch the fingers of the clutch at all times, but does not apply pressure when clutch is engaged. The assembly consists of four major parts: 1) upper housing, 2) lower housing, 3) piston, 4) constant running bearing. The unit does not need any tools to tear down, unless you want to remove the lines.

With a 3/4" bore master cylinder and a 1" stroke on the master cylinder rod our bearing will move .500, the total movement of the piston from full compressed to full extension is .890.

The hydraulic bearing is self-adjusting, and is automatically done when you have the clearance of .100 to .300 between fingers and bearing face upon installation. You should bleed the system approximately three (3) times or until all air is removed. To prevent fluid from squirting all over the vehicle and ground, place a plastic or rubber hose over the end of the bleed screw and run it down into the container of brake fluid. Pressure bleeding is recommended with the bearing adjusted to recommended specs, i.e., .100 to .300 set-up clearance. As your clutch disc wears, the fingers of the clutch will rise, therefore pushing the piston back into the bearing housing self-adjusting itself. Now you can see why you need .100 to .300 clearance to allow the piston that much movement to self adjust.

NOTE: Use Dot 3 brake fluid only! DO NOT use synthetic or silicon brake fluid.

CAUTION: When bleeding the system be sure there is plenty of fluid (Dot 3) in the master cylinder at all times.

INSTALLATION INSTRUCTIONS

Step 1: Park vehicle on slight incline so that when the clutch is fully released, vehicle will start to roll.

Step 2: Depress clutch pedal slowly until vehicle starts to roll, indicating that the clutch is disengaged. At that point, set the brakes.

Step 3: Accurately measure the distance between the pedal and the firewall, and adjust travel stop so pedal does not exceed the distance of full clutch release. If your vehicle does not have an adjustment for pedal travel, then you may have to manufacture a metal or wood pedal stop. It is the excess travel after disengagement that will cause seal rupture or installations that have excessive clutch pedal travel.

NOTES

1. Pedal stop may be attached to the pedal or the firewall. A bracket with a bolt and a jam nut work nicely so that the stop is adjustable for more or less travel.
2. The master cylinder pushrod needs a minimum of 1" of stroke if using a 3/4" bore master cylinder. Less travel is required with a larger bore, although pedal effort will increase, and more travel is required with a smaller bore, and pedal effort will decrease. If a larger bore master cylinder is required for your application, you can ease pedal effort by mounting the master cylinder and rod higher up the pedal toward the pivot point. This increases the amount of leverage you have with the pedal, thus an easier pedal push. You will lose some pedal travel by doing this, but with a larger bore master cylinder you are dispensing more fluid per stroke to compensate for the loss of pedal travel.

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Hydraulic Clutch Release Bearing Adjustment

CAUTION

Excessive clutch pedal travel can overload internal release bearing causing "O" ring failure. Pedal travel MUST be properly calibrated to prevent bearing damage.

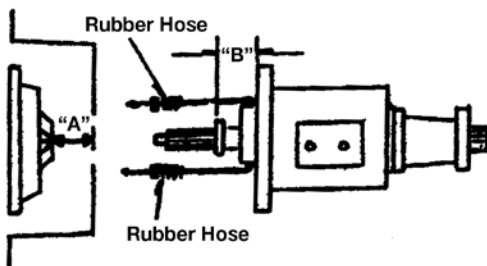
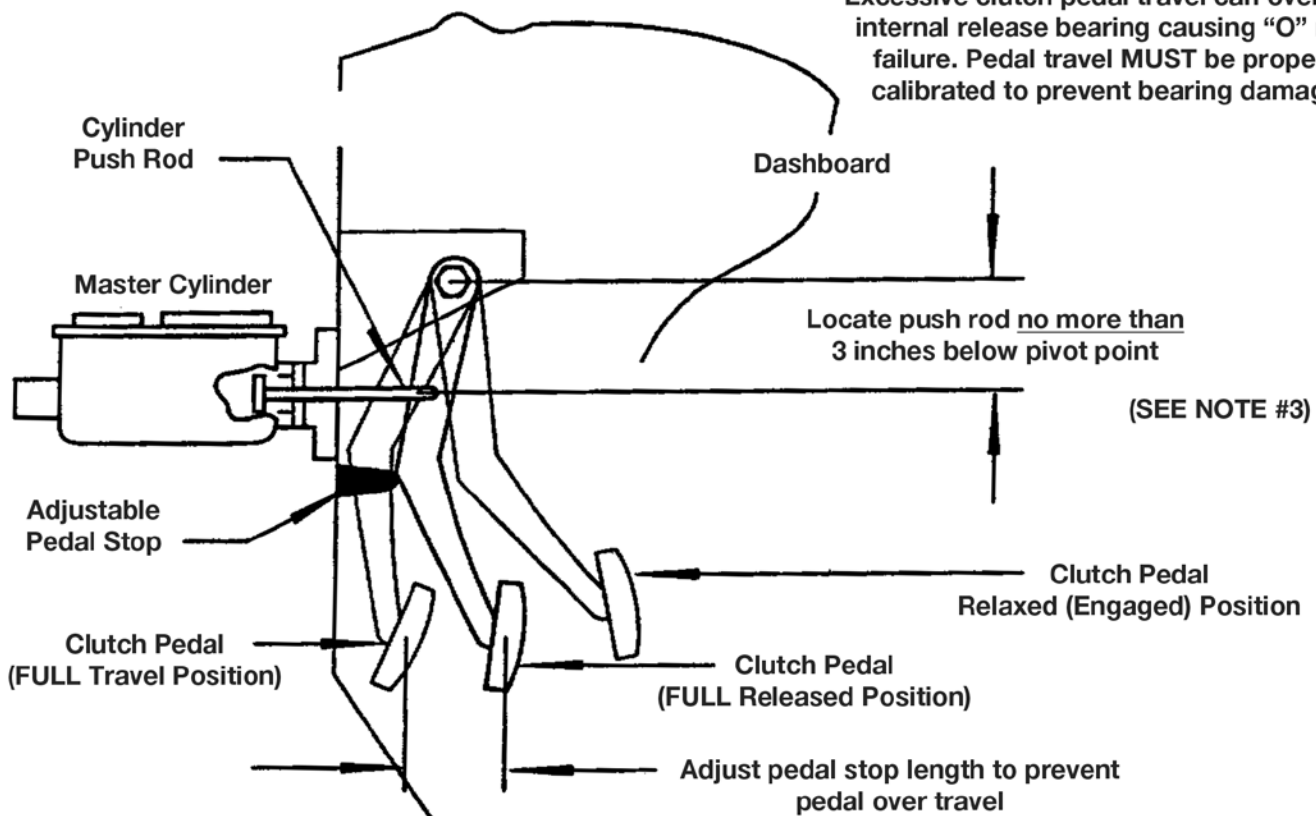


FIG. 1

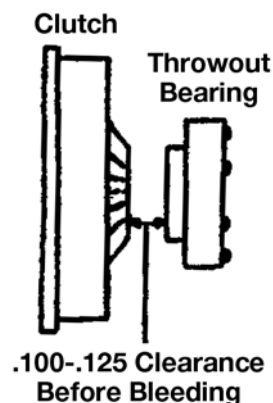


FIG. 3

3. A 6 to 1 ratio is recommended with a 3/4" bore master cylinder. Example: If it is 12" from the pivot point to the pedal foot pad, you should NOT be more than 2" down from the pivot point to where you connect the pushrod.

For answers to any questions you may have, call the factory Tech Line at (714) 630-3668 for assistance. The Tech Line is open Monday-Thursday, 7:30 a.m.-3:00 p.m., and Friday, 7:30 a.m.-1:00 p.m. Pacific Standard Time.

STEP 1: INSTALLATION OF ADJUSTING SCREW

With the adjusting screw removed from the throwout bearing assembly, slip it onto the transmission input shaft collar. Be sure the tapered side goes on the transmission collar first. Because the adjusting screw must not turn after installation, it will go on and fit very tightly on the input shaft collar. A slight pinching or cutting of the o'rings inside the adjusting

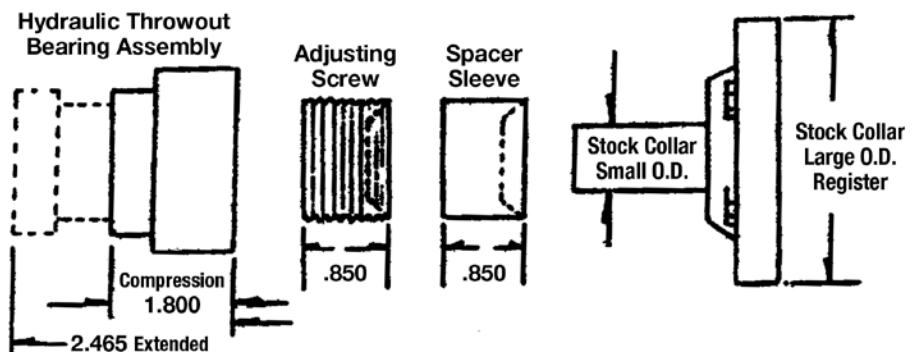


FIG. 2

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screw is normal upon installation. A little o-ring assembly lubricant or a light coat of Dot 3 brake fluid will aid the process. **DO NOT GREASE OR OIL.** A spacer sleeve is not required in applications. Screw the throwout bearing assembly onto the adjusting screw until you contact the bolts of the front bearing retainer.

STEP 2: ADJUSTING THE CLEARANCE

Bolt the bellhousing on the engine and measure from the transmission surface to the top of the fingers of the pressure plate (dimension "A" FIG. 1) and write that dimension down. Now measure from the front of the transmission to the front face of the bearing (dimension "B" FIG. 1). Subtract dimension "B" from dimension "A." This is the clearance for the bearing to self-adjust. The total allowable clearance is a minimum of .100 to a maximum of .300. If the bearing assembly is too long and you don't have .100" clearance, you can space the bellhousing from the motor, or space the transmission away from the bellhousing. If all else fails, you can return the slip on bearing assembly and exchange it for a bolt-on model, which can be made shorter than the slip type. If the bearing assembly is too short, screw the bearing assembly out until proper clearance is achieved (see FIG. 3). Always have the bleeder line at the top when the bearing is properly adjusted.

STEP 3: INSTALLING THE TRANSMISSION

The braided steel lines on the hydraulic bearing are designed to swivel. Before installing the transmission, swivel both lines out parallel with the input shaft (see FIG. 1). Tie a string around both lines, making the string long enough so that as the transmission is being installed you thread the string through the bellhousing hole BEFORE the transmission goes in and feed it out of the release fork hole. As the transmission is installed into the bellhousing, the string can be pulled, thus swiveling and guiding the hydraulic bearing lines out through the fork hole. They must not contact the spinning clutch or flywheel.

Helpful Hint: If you cut about 2 inches of a rubber hose with an I.D. the same size as the braided line's O.D., then you can split them down the middle and place them around the braided hose and zip tie or safety wire them on. It will prevent the lines from chafing against the bellhousing when they are tied off to it.

STEP 4: BLEEDING

After securing the transmission and driveline, connect a line (not included with the bearing) from the master cylinder to the **input/output or bottom line** of the hydraulic bearing. The bearing is supplied with an AN-4 fitting screwed into the line. Fill the master cylinder with Dot 3 brake fluid. **DO NOT USE SILICONE FLUID** or damage to the o-rings will occur. After the master cylinder is full, bleed the bearing just as you would bleed brakes. Pump the pedal 3 or 4 times, hold down the pedal, and open the bleeder screw or bearing bleeder line. This will release fluid and air trapped in the system. Do this until all air is out. Pressure bleeding is recommended to evacuate all air from the system. Once bleeding is complete, bring the fluid level back up in the master cylinder but not to the top. Leave the fluid level about 1/2" to 3/4" from the top. This way, when the bearing self adjusts, the fluid has room to return to the master cylinder. Unlike brakes, the fluid level **will rise, not lower**, in the master cylinder as the clutch wears.

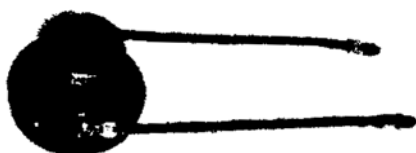
NOTES

The master cylinder rod must move 1.000 inch minimum when using a 3/4-inch bore master cylinder. This will move our bearing piston .500 inches. Larger bores require less movement and smaller bores require more movement. Our system uses a 3/4-inch bore master cylinder. A 5/8-inch cylinder is acceptable.

Hydraulic Throwout Bearing—Slip On

APPLICATION SPLINE

A833 4 Speed	1X23	1.250	1400-10	14005-10	140051-10	1419
440 & 426" ENG. 4 Speed	1-3/16X18	1.430	1400-30	14005-30	140051-30	1439
Richmound 5 & 6 Speed	1-1/8X26	1.430	1400-30	14005-30	140051-30	1439
G-Force 5 & 6 Speed	1-1/8X26	1.430	1400-30	14005-30	140051-30	1439
Liberty 5 & 6 Speed	1-3/16X18	1.430	1400-30	14005-30	140051-30	1439
Jerico 5 & 6 Speed All	1-1/8X26 & 1-3/16X18	1.430	1400-30	14005-30	140051-30	1439
Jerico 5 & 6 Speed with 3.347" Front Bearing	1-3/8X10 [3]	1.750	1400-74	14005-74	140051-74	
Jerico 5 & 6 Speed All	1-1/8X26 & 1-3/16X18	1.430	1400-30	14005-30	140051-30	1439
Jerico 5 & 6 Speed with 3.542" Front Bearing	1-3/8X10 [4]	1.750	1400-75	14005-75	140051-75	



Bolt On Hydraulic Bearing
1st Generation with Banjo Swivel Fittings



Bolt On Hydraulic Bearing
2nd Generation with Elbo Swivel Fittings

PART #	DESCRIPTION
139002	Master Cylinder 3/4" Bore
139003	Fitting Double Male for M/C 3/8X24 X AN-4
139009	Steel Braided Bleeder Line 11" Long, One End Rigid
139010	Steel Braided Flex Line 11" Long
139011	Stato Seal 3/8"
139013	Elbo Swivel Fitting Assembly with Roll Pin O'Ring
139014	Banjo Assembly without Stato Seal
139015	Repair Kit (8 O'Rings) 1st Generation
139016	Bleeder Elbow
139017	Fitting Double Male for Inlet, AN-4 on Both Ends
139019	Shuttle Valve for Drag Racing
139020	Solenoid for Line Launch
139021	Switch 2 Stage for Line Launch & Brakes
139031	Piston 1.740" Long #1
139032	Piston 1.940" Long #2
139033	Piston 2.140" Long #3
139034	Piston 2.340" Long #4
139035	Piston 2.540" Long #5
139036	Piston 2.740" Long #6
139037	Piston 2.940" Long #7
139038	Piston 3.140" Long #8

PART #	DESCRIPTION
139040	Adapter Ring 4.680 to 4.850
139041	Adapter Ring 4.680 to 4.910
139042	Adapter Ring 4.807 to 5.120
139043	Adapter Ring 4.680 to 5.120
139044	Adapter Ring 4.680 to 4.807
139045	Adapter Ring to Fit Saginaw Bearing
139046	Adapter Ring 4.358 to 4.807
139047	Adapter Ring 4.358 to 5.125
139048	Adapter Ring 4.180 to 4.680
139050	Bearing for All Hydraulic Assemblies
139051	Wide Face Adapter, Expands Face to 3.200"
139052	Spiral Lock Ring for 139051 & 139053
139053	Round Face Adapter for Flat Diaphragms
139061	Seal Kit for 3/4" Master Cylinder
139100-06	Steel Braided Flex Line, 6" Long
139100-30	Steel Braided Flex Line, 30" Long
139100-36	Steel Braided Flex Line, 36" Long
139100-48	Steel Braided Flex Line, 48" Long
139115	Repair Kit (6 O'Rings) 2nd Generation
149015	Repair Kit (10 O'Rings) 1st Generation
149074	Adjusting Collar Small Front Trans. Bearing, 4.850 O.D.
149075	Adjusting Collar Large Front Trans. Bearing, 4.850 O.D.



Slip On Assembly with Adjusting Screw
1st Generation with Banjo Swivels



Slip On Assembly with Adjusting Screw
2nd Generation with Elbo Swivels