



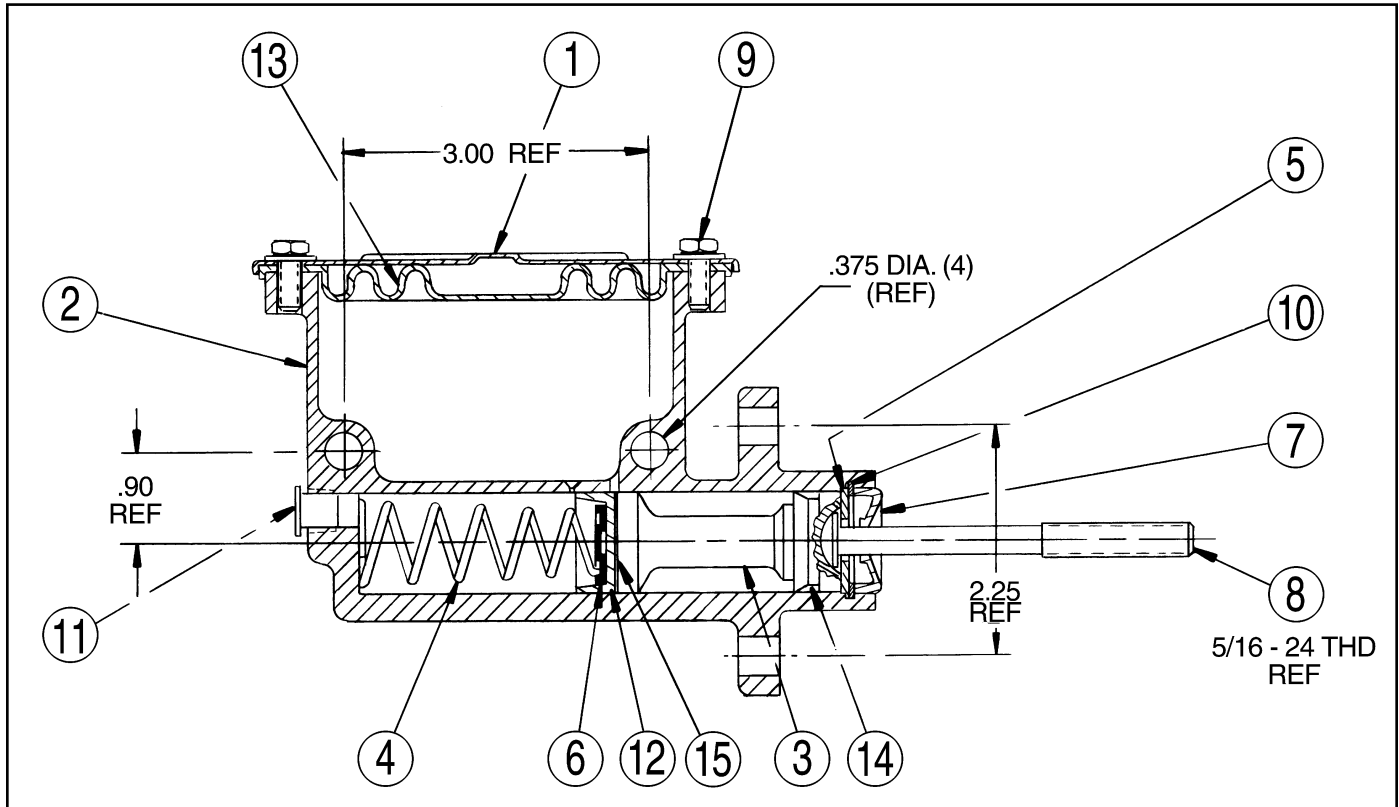
Discontinued Product Style or Size.
Parts Sheet is for use only with Repair Kits

3999-4088_02

MODELS:

3100-0200 3/4" Bore
3100-0400 7/8" Bore
3100-0600 1" Bore

Large Displacement Master Cylinder



Parts List

Item	Part No.	Description	3100-0200	3100-0400	3100-0600	Item	Part No.	Description	3100-0200	3100-0400	3100-0600
1.	3100-1003	Master Cylinder Cover	1	1	1	*7.	3100-1007	Boot	1	1	1
2.	3100-1017	Housing, 3/4" Bore	1			8.	3100-1009	Push Rod	1	1	1
	3100-1022	Housing, 7/8" Bore		1		9.	3100-1010	Slotted Hex Head Screw	2	2	2
	3100-1001	Housing, 1" Bore			1	*10.	3100-1011	Retaining Ring	1	1	1
*3.	3100-1019	Piston, 3/4" Bore	1			11.	3005-1018	Caplug	1	1	1
	#3100-1047	Piston, 7/8" Bore		1		*12.	3100-1020	Cup, 3/4"	1		
	§3100-1045	Piston, 1" Bore			1		3105-1029	Cup, 7/8"		1	
*4.	~3105-1003	Compression Spring	1				3100-1006	Cup, 1"			1
	3105-1028	Compression Spring		1	1	*13.	3100-1013	Diaphragm	1	1	1
*5.	3100-1005	Washer	1	1	1	*14.	3105-1005	Quad Seal, 3/4" Bore	1		
*6.	3105-1004	Cup, Protector, 3/4" Bore	1			*15.	3100-1021	Shim, 3/4" Bore	1		
	3115-1018	Cup, Protector, 7/8" & 1" Bore		1	1						

*Included in Overhaul Kits: 3100-9007 (3/4 inch bore) ~ 3100-9007 (3/4" bore O/H kit) contains 3105-1003 Compression Spring
 3105-9002 (7/8 inch bore) # 3105-9002 (7/8" bore O/H kit) contains 3100-1047 Piston and 3115-1015 Quad Seal
 3100-9000 (1 inch bore) § 3100-9000 (1" bore O/H kit) contains 3100-1045 Piston and 3100-1046 Quad Seal

INSTALLATION INSTRUCTIONS

1. Mount the Master Cylinder with 3/8" diameter bolts by using either the .375" diameter through holes in the housing, or by using the .375" diameter holes on the flange. When using the flange mount, make certain that the bolts do not touch the reservoir housing.
2. Connect the brake linkage to the Push Rod (#8).
3. After all the linkage has been connected to the push rod, check the position of the Cup (#12) by using a length of thin wire (.015" diameter) through the single small hole (.018" to .022" diameter) in the floor of the reservoir. The cup must not block the small hole when the piston is retracted. If necessary, adjust the push rod to retract the cup further.

BLEEDING

The goal of the bleeding procedure is to remove any air from the brake system. Air in the system will result in poor brake performance.

CAUTION!

Wear adequate eye protection, gloves and clothing. Brake fluid will cause eye irritation. In case of eye contact, flush with water for 20 minutes and get immediate medical attention.

NOTE: When filling the brake system, use clean, fresh brake fluid from an unopened container. Brake fluid exposed to air can absorb water. Contaminated brake fluids can cause brake system failure.

Make sure that the Master Cylinder is mounted upright and level above the level of the brakes.

1. Connect the hydraulic line to the Master Cylinder outlet port (1/8-27 NPT). **DO NOT ATTEMPT TO ENLARGE THE OUTLET PORT IN ANY WAY.** Use TEFLON® tape to seal all pipe thread joints.
2. Check the single small hole (Bypass Port) in the floor of the Master Cylinder reservoir with a very thin wire (0.015" diameter) to see that there are no obstructions. The Cup (#12) must not block the Bypass Port when the piston is retracted. If necessary, adjust the Piston Assembly to retract the Cup further.
3. If new brake calipers have been installed, pre-fill calipers by gravity feeding them with fresh brake fluid into the inlet port on the brake, with the bleeder screw open. When the brakes are full, close the bleeder screws and connect all the lines to the brakes and Master Cylinder.
4. Start by bleeding the brake caliper with the longest run of tubing from the Master Cylinder and conclude with the brake caliper nearest to the Master Cylinder.
5. A short length of rubber tubing that fits the bleed plug nipples tightly should be used to draw off fluid from each caliper during bleeding. The free end of the tube must be submerged below some brake fluid at the bottom of a vessel such as a 1 quart glass jar. The tube end must remain submerged at all times or air will be drawn back into the system.
6. First, make sure the bleeder port plugs on the brakes are closed. Then, with the Cover (#1) and Diaphragm (#13) removed, fill the reservoir with fresh high temperature brake fluid which meets the specifications for SAE J-1703 or DOT-3.

NOTE: If DOT-5 brake fluid (silicon) is to be used, the entire brake system MUST be disassembled and washed down with solvent. ALL traces of DOT-3 brake fluid must be removed before the introduction of DOT-5 fluid. Mixing DOT-3 and DOT-5 fluids can result in vapor lock, causing inadequate or unstable brake performance.

7. When the tubes from the bleeder plugs are submerged in brake fluid, depress the brake pedal or lever and hold in position. Then, open one bleeder plug. Repeat the procedure until air bubbles no longer appear at the end of the tubing when the pedal or lever is depressed.
8. **Remember to close the bleeder plug port BEFORE releasing the brake pedal or lever.** Allow the pedal or lever to return slowly. Avoid using excessive pedal pressure during bleeding, as it can cause an unexpected surge of air and fluid from the bleeders.
9. Repeat the procedure with each brake. Repeat the procedure until the brake pedal or lever has a firm feel to it.
10. Fluid level MUST be maintained in the reservoir. Check the fluid level frequently during bleeding and add more fluid if required.
11. After the system has been bled, the following test should be performed. Observe the fluid in the reservoir as the piston is actuated for the first time (depress brake pedal or lever). An upward surge in the fluid should

occur, indicating pressure in the system as the piston is released. A **HEAVY** upward surge in the fluid, however, indicates that air is still in the system and the bleeding procedure must be repeated.

PRESSURE BLEEDING

If you are using a pressure bleeding device, be sure the vessel contains a sufficient quantity of brake fluid. Prepare each brake for bleeding as described above. Charge the device with 20 to 25 PSI of air pressure. Fasten the correct Master Cylinder adapter to the Master Cylinder (1/8-27 NPT port). Open the feed line to the Master Cylinder. Open the bleeder plugs on the brake. Close the bleeder plugs on the brake when no air bubbles escape from the submerged ends of the rubber tubing in the vessels containing the brake fluid.

DISASSEMBLY

1. Remove the Cover (#1) and rubber Diaphragm (#13) and drain brake fluid from the cylinder.
2. Pry Boot (#7) out and remove it from the Rod (#8).
3. Depress the Rod (#8) slightly to relieve spring tension and remove Retaining Ring (#10) with a retaining ring pliers.
4. Remove Piston (#3) and all internal parts from the bore.
5. Discard all internal parts, retaining the Housing (#2), Push Rod (#8), Cover (#1) and Screws (#9).
6. Thoroughly clean all parts with solvent. Blow parts dry with compressed air or allow enough time for all of the solvent to evaporate completely before reassembling.

ASSEMBLY PROCEDURE

1. Lubricate the housing bore with brake fluid.
2. Lubricate the Cup (#12) with brake fluid. Place the Cup on a flat surface and insert the Cup Protector (#6) into the Cup, smooth side down.
3. Place the small end of the Compression Spring (#4) into the Cup (#12) and Cup Protector (#6).
4. Pick up Housing (#2) and carefully slide it down over the Compression spring (#4), Cup Protector (#6) and Cup (#12) until the Cup starts into the bore.
5. Keeping the cylinder vertical, pick up the Housing and gently push the Cup into the bore until the spring starts to compress. Then turn the assembly over.
6. **For the 3/4" bore model, 3100-0200, only:** Install the Shim (#15) on top of the cup. Then, install the Quad Seal (#14) on the rear of the piston.
7. Lubricate the Cup (#12) on the Piston (#3) and insert the Piston into the bore, flat side first.
8. Drop the Washer (#5) over the Push Rod (#8), place the rounded end of the push rod into piston and insert piston into the bore until the washer bottoms.
9. Install the Retaining Ring (#10), with the rounded edges facing out.
10. Reinstall the Master Cylinder, connect the brake linkage and brake line and follow the Bleeding Instructions.
11. Refill the reservoir to 3/16" from the top.
12. Install the Diaphragm (#13) in place over the reservoir, then install the Cover (#1) using the two slotted Hex Head Screws (#9).

SPECIFICATIONS

	3100-0200	3100-0400	3100-0600
Weight:	19 ounces	19 ounces	19 ounces
*Displacement:	.747 cubic inches	1.015 cubic inches	1.327 cubic inches
Stroke Length:	1.69 inches	1.69 inches	1.69 inches
Outlet Port:	1/8-27 NPT	1/8-27 NPT	1/8-27 NPT
Reservoir Capacity:	9.75 cubic inches	9.75 cubic inches	9.75 cubic inches
Overhaul Kits:	3100-9007	3105-9002	3100-9000

*Full Displacement will not be realized unless a full stroke of 1.69 inches can be achieved.

MAXIMUM OPERATING PRESSURE: 1000 PSI

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