



## Medium Displacement Engineered Resin Master Cylinder (LEVER or ROD ACTUATED)

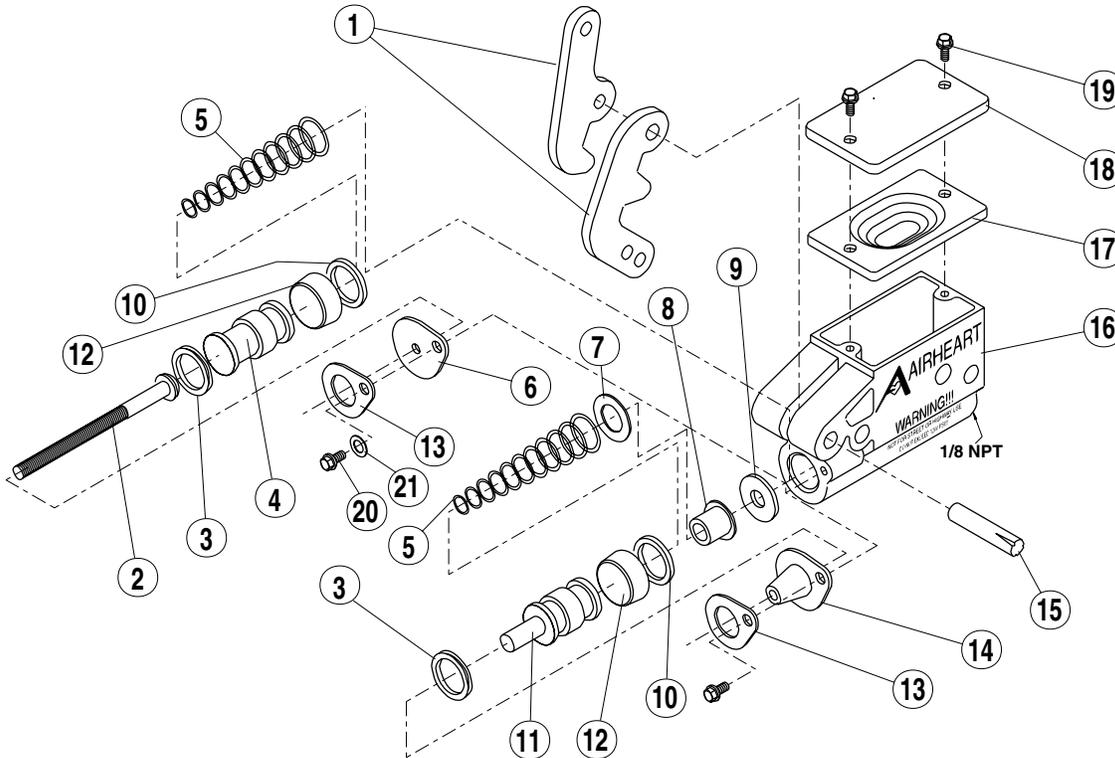
### MODELS:

#### Lever-Actuated

- 3105-0210 (Lever Down, 3/4" Bore)
- 3105-0211 (Lever Up, 3/4" Bore)
- 3105-0221 (Lever Up, 3/4" Bore)
- 3105-0413 (Lever Down, 7/8" Bore)
- 3105-0411 (Lever Up, 7/8" Bore)

#### Rod-Actuated

- 3105-0213 (3/4" Bore)
- 3105-0410 (7/8" Bore)



### Parts List

Item	Part No.	Description	Quantity							
			3105-0210	3105-0211	3105-0221	3105-0413	3105-0411	3105-0213	3105-0410	
1.	3105-1075	Lever, Down	1			1				
	3105-1074	Lever, Up		1	1		1			
2.	3105-1033	Rod						1	1	
	3105-1005	Quad Seal, 3/4"	1	1	1				1	
*3.	3115-1015	Quad Seal, 7/8"				1	1		1	
	3105-1044	Piston, Rod, 3/4"						1		
*4.	3105-1036	Piston, Rod, 7/8"							1	
	3105-1003	Spring	1	1	1				1	
*5.	3105-1028	Spring				1	1		1	
	3105-1034	Seal, Rod						1	1	
7.	3105-1042	Washer				1	1			
	3105-1086	Washer			1					
8.	3105-9000	RPV Assembly	1	1		1	1			
	3105-1011	Valve Seat, 3/4"	1	1						
9.	3115-1027	Valve Seat, 7/8"				1	1			
	3105-1004	Protector Cup, 3/4"	1	1	1				1	
10.	3115-1018	Protector Cup, 7/8"				1	1		1	

Item	Part No.	Description	Quantity							
			3105-0210	3105-0211	3105-0221	3105-0413	3105-0411	3105-0213	3105-0410	
*11.	3105-1002	Piston, Lever, 3/4"	1	1	1					
	3105-1040	Piston, Lever, 7/8"				1	1			
*12.	3100-1020	Seal, Cup, 3/ 4"	1	1	1				1	
	3105-1029	Seal, Cup, 7/8"				1	1		1	
13.	3105-1032	Retainer							1	1
	3105-1052	Retainer	1	1	1	1	1			
*14.	3115-1020	Boot	1	1	1	1	1			
15.	3105-1073	Pin	1	1	1	1	1			
16.	3105-1060	Housing, 3/4"	1	1	1				1	
	3105-1061	Housing, 7/8"				1	1		1	1
*17.	3105-1017	Diaphragm	1	1	1	1	1	1	1	1
18.	3105-1013	Cover	1	1	1	1	1	1	1	1
19.	3105-1062	Screw	2	2	2	2	2	2	2	2
20.	3105-1087	Screw	1	1	1	1	1	1	1	1
21.	2307-1020	Washer	1	1	1	1	1	1	1	1

\*Included in Repair Kits: 3105-9020 (3/4", Lever) 3105-9022 (7/8", Lever)  
3105-9021 (3/4", Rod) 3105-9023 (7/8", Rod)

**INSTALLATION**

1. Mount the Master Cylinder by using the two 5/16" bolt thru holes in the housing. (By making provisions for or taking care that the port end of the Master Cylinder is lower than the rod/lever end, the unit will bleed much easier and will naturally bleed itself while in use.)
2. Connect the brake linkage to the Push Rod (#2) or the Lever (#1)

**BLEEDING THE BRAKE SYSTEM**

Bleeding the brake system is a process of removing air from all brake components to ensure proper performance of overall brake system.

**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. (Use only DOT-3 or 4 per SAE J-1703.) 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 the port end is lower than the level of the brakes

1. If new brake calipers have been installed, pre-fill calipers by gravity feeding them with fresh brake fluid into the inlet ports 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.
2. Fill the Master Cylinder reservoir half full of brake fluid. While holding your finger over the outlet port, depress the brake pedal. Do this twice or as required to pre-fill the Master Cylinder. Connect the hydraulic line to the Master Cylinder outlet port (1/8-27 NPT). **Do not use thread sealants as they are not required. Warning! Do not exceed 20-25 inch-pounds of torque when installing fitting into housing.**
3. *Slowly* actuate the Master Cylinder once or twice to assure that linkage is properly adjusted. You will see air escape from the front port (replenishment port), or brake fluid will be ejected from the port.
4. Adjust linkage as required to retract piston as necessary. Start by bleeding the brake caliper with the longest run of tubing from the Master Cylinder and conclude with the brake caliper nearest 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 the bleeding. The free end of the tube must be submerged below the 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 brake are closed. Then, with the Cover (#18) and Diaphragm (#17) removed, fill the reservoir with fresh high temperature brake fluid which meets the specifications for SAE J-1703 or DOT3.

**WARNING: 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 brake fluid. Mixing DOT-3 and DOT-5 fluids can result in vapor lock and/or seal deterioration, causing inadequate, unstable brake performance, or possible brake failure.**

7. When the tubes from the bleeder plugs are submerged in brake fluid, slowly 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 brakes.
9. Repeat the procedure with each brake 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. Any bubbles or air returning through the replenishment port indicates the system is not totally bled.

**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 Cap to the Master Cylinder (1/8-27 NPT). 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. Disconnect the linkage and brake line. Remove the Master Cylinder from the vehicle.
2. Remove Cover (#18) and Rubber Diaphragm (#17) and drain brake fluid from the Master Cylinder.
3. For lever-actuated models: drive the Roll Pin (#15) out with a 1/4" diameter metal rod and remove the lever.
4. Hold the Piston Retainer (#13) in position and remove Retaining Screw (#19). Release the Retainer gradually to avoid loss of parts. Remove all parts.
5. Clean metal parts in solvent after they have been isolated from rubber parts. Use compressed air to dry parts, or allow enough time for the solvent to evaporate completely before reassembling them with new seals. Lubricate the parts with brake fluid before reassembling.
6. Discard the Cup Seal (#12) and Quad Ring (#3).

**REASSEMBLY**

1. Lubricate the housing bore with brake fluid.
2. Carefully install the Quad Ring (#3) on the Piston (#11 or #4) with a seal pick or small round dull object, taking care not to scratch the seal or piston.
3. Lubricate the Cup Seal (#12) and Quad Ring (#3) with brake fluid.
4. Insert the Spring (#5) gently into the bore.
5. Insert the Protector Cup (#10), Cup Seal (#12) and Piston (#11 or #4) into the bore.
6. For rod-actuated models: take the Rod (#2) and place the Rod Seal (#6) over the Rod. Next, place the Retainer (#13) over the Rod and install the Screw (#19).
7. For lever-actuated models: install the Boot (#14) over the end of the Piston (#11). Placing the Retainer (#13) over the Boot (#14), install the Screw (#19). Next, position the Lever (#1) and install the Drive Pin (#15) to hold it in place.
8. Reinstall the Master Cylinder and bleed the system.
9. Refill the reservoir to 3/16" from the top.
10. Install the Diaphragm (#17) in place over the reservoir, then install the Cover (#18) using two Hex Head Screws (#19).

Specifications	3105-02xx	3105-04xx
Weight:	9 oz.	9 oz.
Displacement:	.42 cu. in.	.57 cu. in.
Stroke Length:	.96 in.	.96 in.
Outlet Port:	1/8-27 NPT	1/8-27 NPT
Reservoir Capacity:	3.9 cu. in.	3.9 cu. in.
Repair Kit (Rod):	3105-9021	3105-9023
Repair Kit (Lever):	3105-9020	3105-9022

**MAXIMUM OPERATING PRESSURE 1000 PSI.**



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