

Rebuilding Girling Single-Circuit Master Cylinders

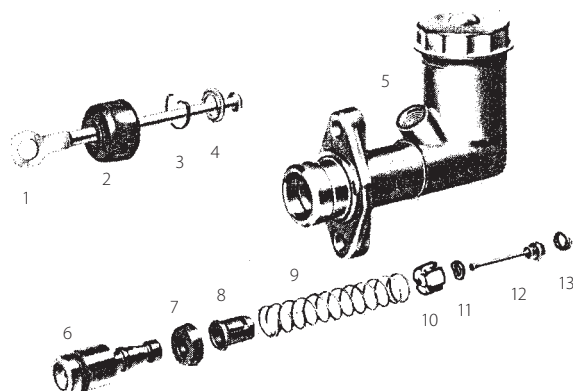
Girling single-circuit master cylinders follow the same steps whether the master cylinder is an integral-style master cylinder (shown) or a remote reservoir style. First, disconnect the pushrod from the pedal or bias bar. Disconnect the hydraulic (pressure) line and the reservoir feed line (remote reservoir only). Cap or plug both lines to prevent dirt from getting in. Remove the master cylinder from the bulkhead and you are ready to begin.

Exploded view

(integral reservoir version shown; remote reservoir version is similar)

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|--|--------------------|
| 1. Pushrod (shown with clevis installed) | 8. Spring Retainer |
| 2. Rubber Boot | 9. Spring |
| 3. Snap Ring | 10. Valve Spacer |
| 4. Pushrod Retaining Washer | 11. Shim |
| 5. Cylinder Body | 12. Valve Rod |
| 6. Piston | 13. Valve Seal |
| 7. Piston Seal | |

- Parts 10 through 13 make up the Valve Assembly.
- Parts 3, 7, 11, and 13 are included in Girling rebuild kits.



Disassembly

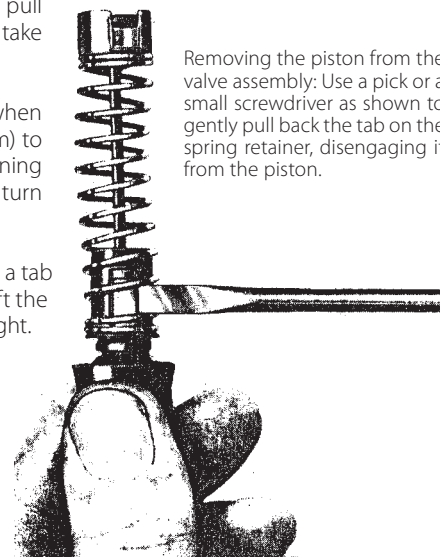
1. Remove the rubber boot (2) to expose the snap ring (3). Remove the snap ring with a pair of pliers and pull out the pushrod (1) and pushrod retaining washer (4). The washer just fits through the bore, so it may take some wiggling to get it out.

2. Remove the piston and valve assembly from the master cylinder body. The spring should push it out when the pushrod is removed, but if it does not, use a small amount of compressed air (5 to 10 psi maximum) to blow the piston out. Cover the reservoir opening with one hand and hold a shop rag over the bore opening to catch the piston while carefully blowing into the outlet port. Be very careful, as too much pressure will turn the piston into a dangerous projectile. A hand vacuum pump should create sufficient pressure.

3. Remove the piston (6) from the valve assembly. The spring retainer (8) is held in place on the piston by a tab which engages under a shoulder on the front of the piston. Use a small screwdriver or pick to carefully lift the tab, releasing the spring (9), spring retainer (8), and valve assembly from the piston. See illustration at right.

4. Dismantle the valve assembly by compressing the spring slightly and tipping the valve rod (12) to one side in the retainer to release the rod from the keyhole slot in the retainer. Slide the valve spacer (10) and shim (11) off the valve rod.

6. Noting the direction of the taper on the rubber seals, remove the piston seal (7) and the valve seal (13). Clean the metal and plastic parts with methylated spirits or rubbing alcohol and set aside to dry. Inspect the cylinder bore and piston for evidence of scoring or wear. If wear is excessive, replace the cylinder. The piston and cylinder are not available separately.



Removing the piston from the valve assembly: Use a pick or a small screwdriver as shown to gently pull back the tab on the spring retainer, disengaging it from the piston.

Reassembly

7. Install the new piston seal on the piston with the large diameter of the taper facing the front (small end) of the piston.

8. Install the new valve seal on the valve rod with the large diameter of the taper facing the front of the cylinder (away from the spring). Slide the shim, valve spacer (with legs over the valve seal), and spring over the valve rod. The convex face of the shim should be contacting the valve rod flange.

9. Install the spring retainer in the end of the spring. Compress the spring and insert the valve rod into the keyhole slot on the spring retainer.

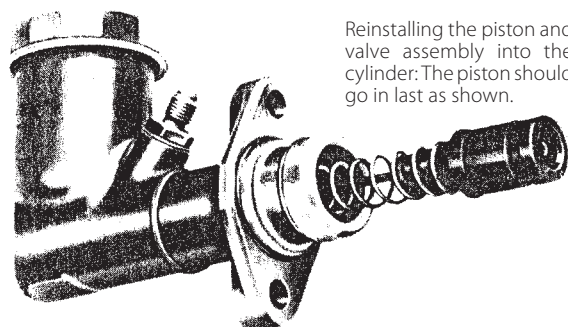
10. Insert the front (small) end of the piston into the spring retainer. The tab in the retainer must catch under the shoulder at the end of the piston. You may need to gently bend the tab into position.

11. Dip the valve seal and piston seal in clean, fresh brake fluid. Insert the piston and valve assembly into the cylinder with the valve seal end going in first. See illustration at right.

12. Using the pushrod to push the piston into the cylinder, position the retaining washer in place and install the snap ring.

13. Smear some hydraulic grease on the edges of the rubber boot to seal against moisture, being careful not to block the drain hole. Install the boot with the drain hole facing downwards.

14. Reinstall the master cylinder and reconnect the pushrod and the hydraulic line(s). Fill the reservoir with fresh brake fluid and bleed the system.



Reinstalling the piston and valve assembly into the cylinder: The piston should go in last as shown.



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