

Braking Stroke

When the brake lever is pulled, the piston in the master cylinder is pushed and moves forward against the force of the return spring. At this time, the primary cup at the head of the piston closes the 1/64 inch (0.4 mm) relief port which connects the pressure chamber and the reservoir. Until this port is fully closed, the brake fluid does not start being pressurized, in spite of the forward movement of the piston.

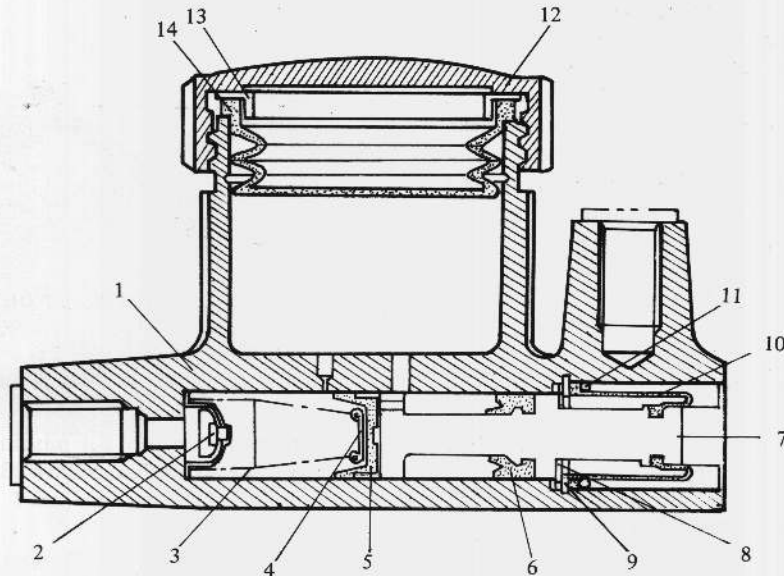
The pressure stroke starts as soon as the relief port is closed. Brake fluid being used as a pressure medium, the piston compresses the fluid and forces it through the check valve and out into the brake line. Pressure from the line is felt in the cylinder of caliper A and pushes the piston toward the disc. Pad A at the end of the piston is pushed against the disc, but since the disc is immovable, further pressure cannot move the pad any further. Instead, the cylinder and entire caliper assembly move in the reverse direction so that pad B is pulled toward the disc. In this manner the disc is pinched between the two pads and braking action is performed.

Braking Release Stroke

When the brake lever is released, the piston in the master cylinder is quickly returned toward its rest position and brake fluid pressure in the line and in the caliper master cylinder suddenly drops. The elasticity of the oil seal in caliper A's cylinder then pulls back the piston. This leaves no pressure against either pad A or B so that slight friction against the disc pushes them both a hair-breadth away from the disc.

As the master cylinder piston moves back further the brake fluid in the line, which still has some pressure, rushes to fill the low pressure area in front of the primary cup at the piston head. But the fluid is prevented from moving too fast by the check valve and the pressure in front of the piston drops lower. At this time, fluid from the reservoir flows through the large supply port into the space between the primary and secondary cups and escapes around the edges of the primary cup to fill the vacuum. When the piston finally returns to its rest position, the small relief port is uncovered and the brake fluid still returning from the line pushes any excess fluid through the relief port back into the reservoir until pressure in the line is again normal.

Master Cylinder



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|-------------------------|--------------------|------------------------|--------------|
| 1. Master cylinder body | 5. Primary cup | 9. Circlip | 13. Plate |
| 2. Check valve | 6. Secondary cup | 10. Dust seal | 14. Cap seal |
| 3. Spring | 7. Piston | 11. Stopper, dust seal | |
| 4. Spring seat | 8. Stopper, piston | 12. Cap | |