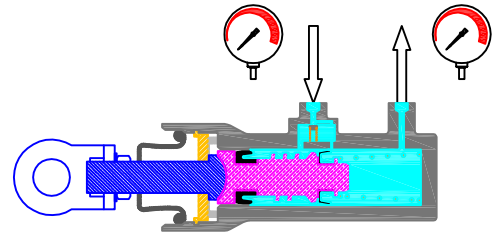


Brake System At Rest

When the brake system is at rest, the piston (magenta) is fully extended due to the force of the piston spring. The spring keeps the primary seal from blocking the compensating port. Allowing brake fluid to flow through the SMC between the rear master-cylinder, and the proportional valve.

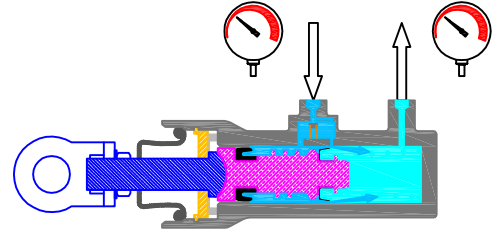


Rear Master-Cylinder Applied Vehicle At Rest

When the rear master-cylinder (pedal) is applied fluid enters the SMC via the inlet port check valve, fluid can pass through the compensating port out to the proportional valve. As long as there is no forward motion to the vehicle, the SMC piston will remain fully extended, keeping the compensating port clear.

Note: At this time fluid pressure is equal in all chambers of the SMC.

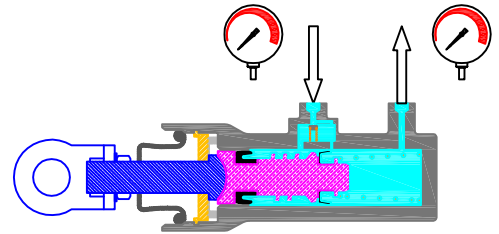
Note: Due to the small size of the compensating port, if a larger volume of fluid is required (as in brake bleeding), fluid will pass through the recuperation port, passing the primary seal via grooves in the edge of the primary seal (recuperation grooves).



Front Master-Cylinder Applied Vehicle At Rest

When the front master-cylinder (lever) is applied the SMC piston due to the lack of front wheel rotational energy to the SMC push rod does not move.

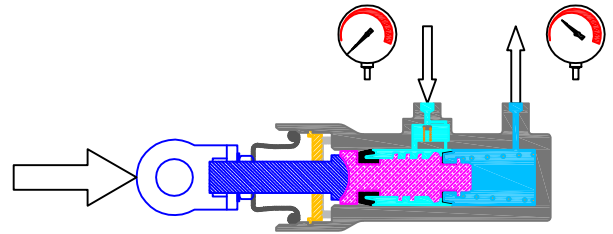
At this time the SMC should have no effect on the brake system.



Front Master-Cylinder Applied Vehicle In Motion

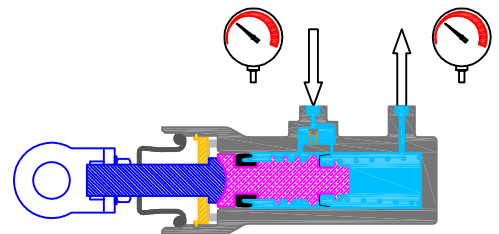
When the front master-cylinder (lever) is applied the SMC piston moves (compressing the piston spring), due to the application of front wheel rotational energy to the SMC push rod.

As the primary seal passes the compensating port, fluid pressure exiting the SMC increases (recuperation grooves).



Rear Master-Cylinder Applied Vehicle In Motion

- When the rear master-cylinder (pedal) is applied two events occur simultaneously:
1. Fluid momentarily enters the SMC via the inlet port check valve, passing through the compensating port out to the proportional valve.
 2. The SMC piston moves (compressing the piston spring), due to the application of front wheel rotational energy to the SMC push rod.

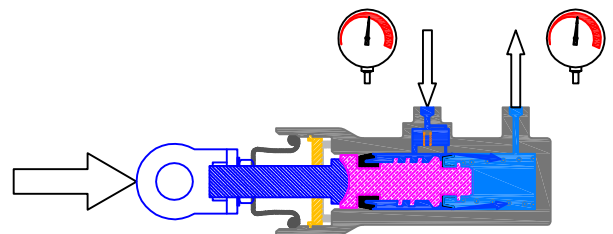
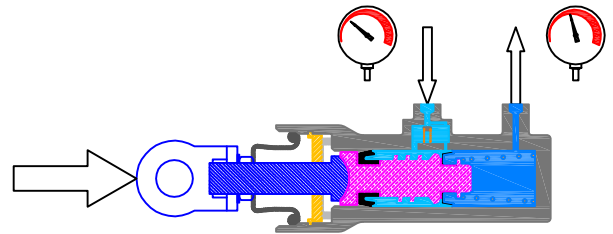


However as the piston moves, the primary seal quickly blocks off the compensating port. If this fluid pressure is greater than the pressure from the rear master-cylinder, then the fluid pressure exiting the SMC is solely due to the SMC piston movement.

Note: At this time the fluid pressures in the SMC chambers are not equal.

If on the other hand, fluid pressure generated by the rear master-cylinder is the greater, then fluid will pass through the recuperation port, passing the primary seal via the recuperation grooves in the edge of the primary seal, before exiting the SMC.

Note: At this time the fluid pressures in the SMC chambers are again equal.



HELCKHOUSE North Plainfield NJ		'06 HONDA ST1300			
		SMC STAGES OF OPERATION			
DATE	SCALE	DRAWN BY	SHOW NO.	DRAWING NO.	REVISION
15.Mar.2017	NTS	DAVID	000	00.00	0