



The Honda ST1300 uses (in addition to the front master-cylinder (lever), and the rear master-cylinder (pedal)) a third brake master-cylinder to operate the two non-center pistons of the rear brake caliper. The Secondary Master Cylinder (SMC) is applied only when the motorcycle is moving forward and either the front or rear master-cylinder is activated. Thus it is the SMC that is responsible for linking the front wheel brake with the rear wheel brake.

Both the SMC and the left-front brake caliper attach to the motorcycle by way of a pivoting bracket, designed to allow a small amount of rotational movement as the brake caliper begins gripping the brake rotor. This rotational movement is transferred to the SMC, and is all that is necessary to activate the SMC piston, in turn generating fluid pressure and flow to the rear brake caliper (via the Proportional Valve).

Like most modern brake master-cylinders, the SMC utilizes a recuperation port to avoid drawing air into the system as the piston returns to its retracted (at rest) position. When pedal/lever application is released, the piston spring will rapidly drive the piston toward its fully retracted position faster than fluid can return through the hydraulic lines. This action creates a negative pressure in the front chamber of the master-cylinder, causing fluid to be drawn from the rear chamber of the master-cylinder. The greater fluid pressure in the rear chamber will cause the primary seal lips to deflect allowing fluid to flow into the front chamber of the master-cylinder, avoiding the ingestion of air to the hydraulic brake system.

Unlike most brake master-cylinders, the SMC does not have a dedicated fluid reservoir, all fluid for the SMC is provided by the rear master-cylinder reservoir. The SMC does have a small volume chamber fed from the input port with a check valve allowing fluid to flow unrestricted into the chamber, where as, fluid flow out of the chamber (back to the rear master-cylinder reservoir) is restricted by a tiny passage.

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|---------------------|-------|---------------------------|----------|-------------|
| HELCKHOUSE          |       | '06 HONDA ST1300/A        |          |             |
| North Plainfield NJ |       | SECONDARY MASTER CYLINDER |          |             |
| DATE                | SCALE | DRAWN BY                  | SHOW NO. | DRAWING NO. |
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