

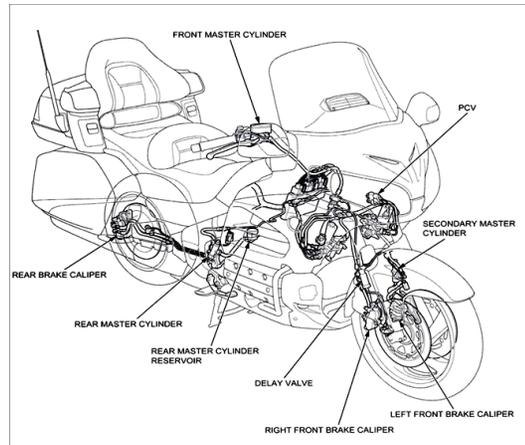
GL 1800 Combined Braking System (CBS) and Anti-Lock Braking System (ABS)

Combined Braking System (CBS)

Honda has incorporated a hybrid braking system in the Gold Wing. It is known as a Combined Braking System (CBS) or what is more commonly known as a Linked Braking System (LBS).

The Honda Gold Wing (GL1800) utilizes a braking system that equalizes the braking pressure and maximizes the braking potential of both wheels. The system allows the application of some braking pressure to front and rear wheels through the operation of either the brake pedal or the brake lever.

**Gold Wing
Hydraulic Service Brake
System Components**



Drawing taken Gold Wing
GL1800/A Service Manual

Each brake disc uses a caliper that has three pistons. When the brakes are applied, hydraulic pressure is applied to the pistons causing them to contact and push the brake pads into contact with the disc surface. Increasing braking pressure causes the pistons to push the pads into the disc harder resulting in more friction resistance and more stopping power.

The rear wheel brake operates much the same as the front except that the rear wheel only has one brake disc mounted.

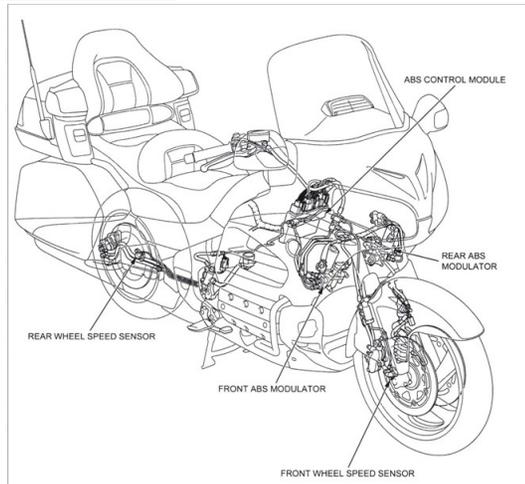
When the brake pedal is depressed braking pressure is applied to the two outer pistons of the rear brake caliper and the center piston of the left front caliper. When the brake lever is squeezed on the handlebar, braking pressure is applied to all three pistons of the right front caliper, the two outer pistons of the left front caliper and the center piston of the rear caliper. The CBS allows the rider to apply both brakes with the actuation of either lever or pedal. When both lever and pedal are used in synchronous action maximum braking potential can be achieved. The best way to stop a motorcycle, especially a machine the size of the Gold Wing is to use both brakes fully without locking either wheel. The rider must continually practice normal stop brake application as well as emergency brake application to be able to stop the Gold Wing effectively and efficiently without skidding either wheel.

The Gold Wing also comes equipped with an emergency braking system called the Anti-Lock Braking System (ABS).

GL 1800 Combined Braking System (CBS) and Anti-Lock Braking System (ABS)

Anti-Lock Braking System (ABS)

Gold Wing
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ABS is rapidly becoming a more common feature on today's motorcycles. Many manufacturers are producing motorcycles with ABS as standard equipment rather than an optional capability. The ABS option is delivered with the Gold Wing Level 3 option package in a new Gold Wing.

ABS is not designed to be used as a normal braking system. It is only activated when wheel lock-up is sensed by the ABS Control Unit. The system is designed to assist the rider with braking during low traction conditions such as a wet or loose surface; specifically, when one wheel begins to cease rotating or skid. The ABS accomplishes this without rider input. It continually monitors the speed of each wheel. When it detects a large decrease in expected rotational speed it will pulse the brake(s) for that wheel. Pulsing means that the brake pressure is reduced and reapplied repeatedly until the wheel regains rotational control or the speed at which it should be turning. The ABS operates the same in your automobile. This means that the stop will be safer, albeit longer. As the ABS allows the wheels to continue to rotate the distance required to come to a stop lengthens.

On the surface, this would imply that the rider can apply any amount of braking pressure (read max pressure or brake grab) and be assured that the wheels will not skid. Although this may be the case in a straight line stop, the principles do not necessarily apply when in a turn. The wheels will be turning at different speeds and application of the ABS could cause a loss of control. In fact when the ABS is actuated the rider has essentially lost control of the braking environment. The rider should maintain total control of the motorcycle in all situations. Using the brakes as they are meant to be used rather than to rely on the ABS computer is the best way to bring 1000 plus pounds of motorcycle, rider, passenger, and possibly a trailer to a safe stop.

How does ABS work? ABS samples the wheel speed. Located on each wheel is a notched ring on the inside of the brake disc. A wheel speed sensor located on the frame/fork near the wheel samples the speed at which the ring revolves. The wheel speed sensor transmits the wheel speed readings to the ABS Control Unit which can detect a change in wheel speed (wheel speed changes rapidly/slowly and is about to stop rotating). If such an indication exists, the ABS Control Unit will adjust the pressure applied to the brake caliper through either the front ABS Modulator or the rear ABS modulator, as appropriate, to ease hydraulic pressure/braking input and continue proper wheel rotation. Normal braking will not activate the system.

Many riders will argue that the ABS will stop the motorcycle in a shorter distance. This is not true if the rider is applying the hydraulic service brakes as expertly as possible. Since the ABS essentially releases the brake to regain wheel rotation, application of the ABS must add distance. Too much faith and reliance on ABS may cause a reduction in rider braking skill and may lead to brake "grab". This would cause a crash in a non-ABS equipped motorcycle by locking the front wheel.

The ABS system should not be used as a substitute for improper braking technique. Only in emergency situations should the ABS be relied upon to stop the motorcycle and then in as straight a line as possible.