

# Airbag System

GL1800DA

The Airbag System can help cushion the impact force to the rider's head and upper body in certain severe frontal impacts.

For safety precautions, see "Airbag system."  P.11

## How Rider Injuries Occur in a Frontal Crash

"SPEED KILLS," a saying goes. But not all motorcycle injuries occur at high speeds, and speed alone does not cause injuries.

In fact, the main cause of injuries in a collision is a rapid decrease in speed, caused by the rider impacting an object, such as another vehicle or the ground. As another saying goes, "It's not how fast you go, it's how hard you hit."

Consider, for example, what happens when a motorcycle and rider crash into a parked car at 30 mph (50 km/h).

- In a 30 mph (50 km/h), head-on crash into the side of a stationary car, the motorcycle will come to a stop in about 1/10th of a second—nearly as fast as the blink of an eye.
- A crash into a solid barrier at 30 mph (50 km/h) may not seem very serious, but for the rider it would be similar to falling from a third-story building directly onto pavement.

Without an airbag, the rider would continue forward at 30 mph (50 km/h) until he strikes the car or the ground with a force that could cause very serious or fatal injuries.

- In the same situation with an airbag-equipped motorcycle, the bag would slow the rider's forward movement and absorb some of his kinetic energy.\*

As a result, the rider would impact the car and/or the ground at a lower speed and with less force, and have a better chance of surviving the crash.

\*Kinetic energy (KE) is the energy of motion. For a motorcycle rider, it's a combination of the rider's mass (m) or weight, and his speed (v).

Mathematically,  $KE = (m \times v^2)/2$ . At 30 mph (50 km/h), a rider's kinetic energy is four times greater than at 15 mph (24 km/h). At 45 mph (72 km/h), it would be nine times greater.

At 60 mph (100 km/h), it would be sixteen times greater.