ANTI-LOCK BRAKING SYSTEMS (ABS)

A vehicle's tyres generate the maximum deceleration when braking power is applied. Once the brakes lock and the wheels skid, deceleration is reduced and directional control is lost. Electronically controlled anti-lock braking systems have improved the vehicle's controllability and reduced stopping distances especially in wet road conditions.

Originally developed for aircraft,[1] **ABS** works by limiting the pressure to any wheel which decelerates too rapidly, preventing it from skidding and allowing the driver to steer the vehicle.

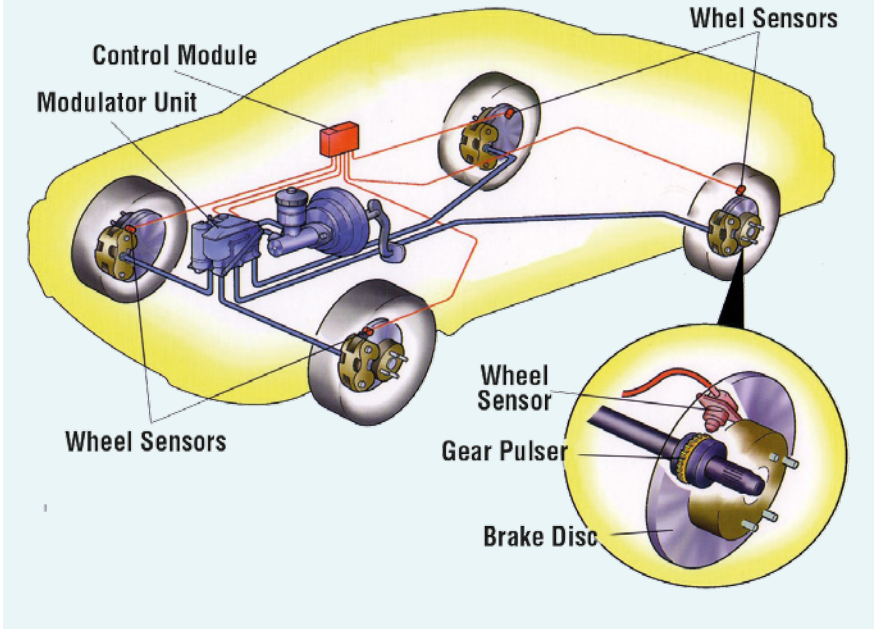
This system uses a combination of **electronics and hydraulic controls** to allow normal braking up to the point of wheel lock-up. At that point the system intervenes to reduce fluid pressure and to keep the deceleration of the vehicle at its maximum given the road conditions.

ABS systems generally have speed sensors at each wheel that constantly feed information to a centrally located ABS computer. The computer uses these data to determine overall vehicle speed and to detect when a wheel begins to lock. In a four-channel ABS system each wheel is independently controlled. Pressure is therefore automatically reduced to only the wheel that is locking.

When one wheel locks on a non-ABS car, the only way to allow it to spin again is by the driver reducing the brake pedal pressure, which reduces the braking force on all four wheels at once. ABS provides **shorter stopping distances** in difficult situations than a conventional system, promoting at the same time directional stability and allowing steering. In most lorries, ABS works only on the rear wheels, which promotes only directional stability.

GLOSSARY

1 a plane or any other vehicle that can fly



CLOZE EXERCISE

ACTIVITIES

- *Fill in the following text with the words given: need – pressure – rotors – vibration – require – pedal – conditions.*

How do I use ABS?

Apply steady and constant ..... 1 – do not take your foot off the brake ..... 2 until the vehicle has stopped. A noise or ..... 3 associated with the pulsing of the brake pedal indicates that the ABS is active.

If your brakes squeal under normal braking ..... 4, this may indicate that the pads are worn and ..... 5 replacing. A pulsating brake pedal every time you apply the brakes may indicate warped brake ..... 6 and/or seized brake calipers that ..... 7 servicing.

(Adapted from *Zeemac Service*)

SPEAKING

- *Explain the purposes of ABS.*