

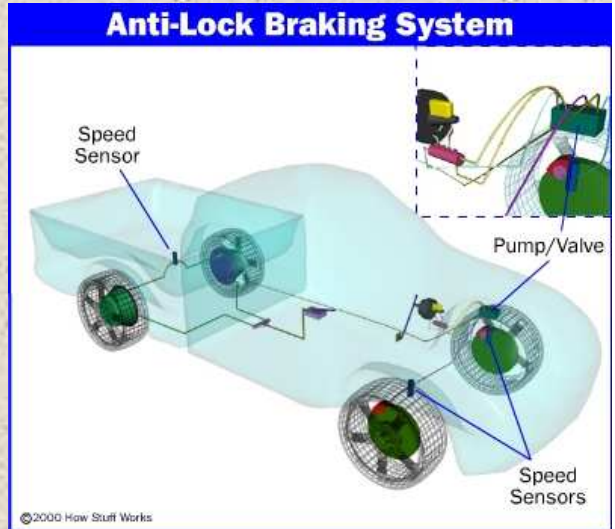
ABS AND DSC

By Neville Barlow

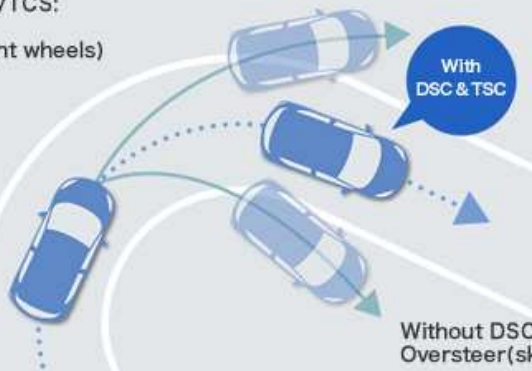
As a young man driving around our farm, it became very obvious, that if we were moving down a greasy wet hill and we slammed on the brakes, the wheels would lock up and one would skid into the river at the bottom. We quickly learnt in this situation to jab repeatedly and quickly on the brake pedal and we would usually end up 5 metres from the river and be able to cautiously drive out of trouble. The "brake and then let go" system greatly reduced our skid distance. This was indeed a very primitive ABS system (Antilock Braking System).

In 1958 an ABS system was used on a Royal Enfield Super Meteor motorcycle and reduced stopping distance by 30%. Several other motorcycle manufacturers followed suit and in 1960 it also featured in the Ferguson P99 Formula One racing car and also in the Jensen FF.

In 1971, Oldsmobile, Cadillac and Nissan offered systems, followed by Triumph in their 2500 Estate. In 1985 the Ford Scorpion with a Bosch ABS system won European Car of the Year. My mechanic friend said that if you want to feel the system working, drive with one wheel off the road in the loose metal and you will feel the vibrations. Modern systems work at 15 times per second. In 2007 most motorcycle and automobile manufacturers could offer an ABS system. It does seem to have taken a while since 1958.



Without DSC/TCS:
Understeer
(skidding front wheels)



Without DSC/TCS:
Oversteer (skidding rear wheels)

These days most ABS systems are offered along with an Electronic Stability System. Worldwide this is the term used, but various manufacturers use different names, such as -
DSC Dynamic Stability Control – Jaguar

VDC Vehicle Dynamic Control - Nissan

EDP Electronic Dynamic Program – Mercedes

In 1998 Bosch supplied Mercedes Benz with an ESC system. During a “moose test” (swerving to avoid an obstacle) a Swedish journalist, at the speed of 78 Kph, rolled a Mercedes Benz A class vehicle not fitted with such a device. Mercedes recalled and retro fitted 130,000 A class cars with their EDP system. As a consequence the European Union made ESC mandatory in 2009.

The ESC system intervenes when it detects the vehicle is not going where the driver is steering e.g. when it is skidding. It applies braking to individual wheels opposing the skid, bringing the vehicle back in line. Some ESC systems also reduce engine power until control is regained and operate the transmission to slow the vehicle down.

ESC systems help avoid crashing by correcting impending oversteer or understeer, stabilising the car during sudden evasive manoeuvres, improves handling in gravel patches and improves traction on slippery or icy roads.

This is a very simplistic explanation of a very complex system that can activate in thousandths of a second. A strange situation now develops because without these systems you dare not slam on the brakes when skidding and now you must slam on the brakes and steer out of danger.

According to the Insurance Institute for Highway Safety in the U.S.A , one third of all fatal one car accidents could have been prevented by this technology. Most vehicles have an off switch for those drivers who wish to push the boundaries such as in track racing.

The earliest Jaguar models fitted with DSC as far as I can tell were the X Type in 2001 as an optional extra and the 2001 S Type as standard.

