

Information Note on Vehicle Safety Features

What are vehicle safety features? These are systems in a vehicle designed to prevent a crash or protect us in the event of one occurring. For example, Electronic Stability Control (ESC) is a vehicle safety feature which helps us control the vehicle in hazardous conditions such as skidding on ice or aquaplaning on surface road water. Or an airbag is a safety feature that will activate to protect us from being injured in a collision.

Why is it important to have safety features in a car? Choosing a car with safety features not only offers serious protection in the event of a crash, it could prevent the crash altogether. Research¹ shows that the risk of fatal injury in the event of a crash is reduced by 66% in cars which have performed well in terms of safety features when tested by the European New Car Assessment Programme (Euro NCAP).

What is the EURO NCAP? The European New Car Assessment Programme is a vehicle safety rating system which awards 'stars' based on the performance of a vehicle in a variety of tests that aim to replicate real life crash scenarios. The top rating is five stars which means a vehicle has an overall good performance in crash protection and is well equipped with crash avoidance technology.

So how do I know which car that has the best safety features? Look for the Euro NCAP rating of the vehicle. The more the stars the better the safety features. The EURO NCAP website www.euroncap.com provides a detailed list of vehicles and their respective star ratings.

What about buying a second hand car? Equally if you're buying a second hand vehicle, there are *used car* NCAP ratings. It is important to note however that these ratings apply to vehicle makes and models in general over set time periods (e.g. 2009 – 2012). They don't take into account factors such as mileage, driving conditions, regular maintenance etc. So you should always get a used vehicle independently checked by a qualified mechanic before you buy to ensure that all of the safety features are still intact and operating correctly.

What types of safety features are available and which are the most important? Vehicle safety features can be divided into four main categories as follows, with some of the most important listed in descending order in each:

1. Crash Protection

- **Safety Restraints** – 3 point seatbelts, isofix child restraint anchors, inflatable rear safety belts, active head restraints
- **Airbags** - front airbags, side airbags, knee airbags
- **Crumple zones** - areas of a car which have been designed to absorb the impact during a crash
- **Roll-over protection** – a structure which protects occupants when the vehicle overturns / rolls over
- **Pre-crash sensor systems** – where the vehicle senses a collision and automatically activates safety items such as seatbelt sensors, airbags etc.
- **E-call** - automatically calls the emergency services in the event of a collision

2. Vehicle Control

- **Anti-lock Braking Systems (ABS)** prevents the brakes from locking which would cause the car to skid
- **Electronic Braking Systems (EBS)** - applies appropriate braking pressure to each wheel to maximize stopping power while keeping the vehicle in control
- **Electronic Stability Control** - ESC uses ABS and traction control to reduce the danger of skidding

- **Tyre Pressure Monitoring** – a dashboard signal which warns driver when the tyre pressure is low
- **Emergency brake assist** - assists to stabilise the vehicle when brakes are forcefully applied
- **Automatic braking** - vehicle senses a collision and brakes automatically
- **Trailer stability control** - recognises early signs of dangerous swinging motion and activates the brakes automatically to slow the trailer down and return stability
- **Roll over warning/stability** - vehicle detects a possible rollover and warns driver or automatically starts corrective action
- **Adaptive cruise control** - automatically adjusts the vehicle speed to maintain a safe distance from the vehicle ahead
- **Hill launch assist** - prevents the vehicle from rolling when a hill start is needed

3. Safety Assist

- **Safety belt reminder** – reminds the driver if he/she doesn't have their seatbelt on while in motion
- **Speed alert systems** – the driver is alerted if they are going over the speed limit or if the gap between them and the vehicle in front is closing too quickly
- **Lane support systems** – warns driver if the vehicle is departing from a lane
- **Fatigue reminder / detection** - systems which detects long periods of driving or driver behaviour associated with drowsiness (e.g. veering into the middle of the road) and warns the driver.
- **Alcohol/drug ignition interlock** – a breath measuring instrument that can prevent a vehicle from being started if the driver's breath alcohol/drug concentration is high.

4. Lighting & Visibility

- **Daytime running lights (DRL)** – lights which automatically turn on when the vehicle is moving forward. These increase its visibility during the day.
- **Reversing collision avoidance/intelligent parking systems** – these sensor systems assist the driver to reverse or park by warning them if another vehicle, pedestrian or object is nearby
- **Blind spot monitoring** – a sensor which detects other vehicles to the side/rear and notifies the driver
- **High intensity discharge (HID) headlamps** – these are lamps which are much brighter and so drivers can see better during times of low light and are equally more visible
- **Adaptive front lighting systems** – where the vehicle's headlights adapt to suit the road conditions e.g. when turning corners the lights will follow the curve of the road
- **Emergency stop signal (ESS)** – this is a system which causes the hazard lights to flash if the driver suddenly brakes when traveling at speed
- **Night vision enhancement** – a system which uses an infrared camera to improve a drivers vision in darkness or poor weather
- **Automatic High Beam** - switches beam (high to low beam) for safer night-time driving

¹ [Parliamentary Advisory Council for Transport Safety 2016](#)