The safety features in modern cars

There are many different types of safety feature in cars. The different safety features all have their own thing that they do. There are nine very important safety features that are needed in cars. They are seatbelts, airbags, head injury protection, head restraints, antilock brake system, traction control, all wheel drive, electronic stability control and weight. The two safety features that will be discussed in this report will be airbags and traction control. These two safety features will be found in most or even all modern cars.

Airbags is a restraint that is used to prevent the driver, of the car, does not hit the dashboard and the steering wheel, which could cause serious injuries to the neck and head. Airbags will help the driver if he/she is wearing a seatbelt. “ To date statistics,” in America, “ show that airbags reduce the risk of dying in a direct frontal car crash by about 30 percent.” This quote is taken from How stuff Work? – How airbags work?

The law of motion that is used for airbags is Momentum, unless there is an outside force acting on the object. One of the main goals of airbags is to slow down the driver and its passengers motion as slowly and as evenly as possible. There are three main parts to airbags, they are; the bag, the sensor and the inflation system. In this report I will be discussing the three parts briefly.

The bag is made up of a thin piece of nylon fabric, which is folded into the steering wheel, or dashboard, or the seat, or the door. The sensor is a device that allows the bags to know when it has to inflate when there is a force on the car that has a speed of 16km/h to 24km/h. There is a mechanical switch that will be flipped if there is a sudden change in mass in the vehicle. The

inflation system combines to chemicals, sodium azide and potassium nitrate, to produce nitrogen gas. The hot blast of nitrogen inflates the bag.

There are many safety concerns of airbags. Airbags have to work together with seat-belts because the force at which the airbags are expelled is enough to cause serious injury if the driver and the passengers aren't wearing their seatbelt. The risk zone of airbags is the first 5 to 8 cm of inflation. Airbags have been known to seriously injure or even kill children that are sitting to close to it or even thrown towards the dashboard in an emergency braking. Children should sit in the back to, so that they are protected from the force of the airbags.

There are some cases, in America in particular, where drivers have deactivate there airbags in certain cases because of the amount of injuries by the over-powerful force of the airbags. The driver of the car would have to get authorisation by the National Highway Traffic Safety Administration, in America, to get an on/off switch for on or both of their airbags; authorisation was only giving if you fell into one of the four categories. These categories are:

Å¸If the driver and the passenger both have a medical condition, where the risk of the inflation of the airbags exceeds the risk without an airbag.

If the driver is unable to position him-/her- self the correct distance away from the dashboard and the airbag.

Å¸ There is no rear or there is not enough room in the back of the car to put a rear-facing car seat or the driver has to monitor the child's medical condition.

Å¸ If the driver has to carry children because there is no space in the back or there is no rear seats.

The deactivation of airbags will not be authorised if you have certain other problems. These problems are pacemaker, eyeglasses, angina, emphysema, asthma, mastectomy, previous back or neck injury, advanced age, osteoporosis, arthritis, and/ or pregnancy.

The Newton's Law that is used for airbag's is Newton's first Law. Newton's first Law states that a body will continue in its state of rest or uniform velocity unless acted on by an external resultant force. This is also known as the Law of Inertia. Inertia is that of a body which must overcome in order to produce an acceleration or deceleration. The passenger of the vehicle goes forward very rapidly because it has a uniform velocity but the body is either being held back by the seatbelt and also stopped by the airbag, so this is the resultant force, body is stopped before hitting the dashboard.

Traction control system helps to improve the stability of the vehicle by controlling the amount the drive wheels can slip when you apply excess power. The output of the engine power is adjusted automatically by the system. The system, in some cases, will adjust the applied braking force on selected wheels during acceleration.

Traction control is a secondary function of the anti-lock braking system. This system is becoming more common in most modern cars. Traction is the friction that the car uses to stop, get going and to stay on the road. This system is like ABS but it is in reverse. ABS prevents your wheels from freezing when you are stopping which could cause you from skidding and having an accident. Traction control does a similar thing, but instead it stops the wheels from freezing or locking up when you accelerate.

The basic set-up of traction control system is that there is a mechanical linkage between the throttle and the accelerator pedal. Occasionally the mechanical linkage is replaced by an electronic drive-by-wire system. The electronic drive-by-wire system means that instead of having a direct link from the pedal, to the throttle. Instead it sends signals from an electrical connection to a sensor. The sensor then translates the information that the electronic connections give off, by the amount of pressure you put on the accelerator. Then the sensor passes on the information into a control unit and then it sees it the wheels are slipping or not.

There are benefits to having traction control system installed in the car. The traction control works so effortlessly that you may never know that it is on. The benefits are that it lowers the risks of skidding and having a major accident when the vehicle is going around the corner when the road is wet. This system is very evident when you accelerate from a complete stop. If you didn’t have this system, especially if you had a very powerful car, the vehicle and the tires will go in the direction in which they were not intended to go because of skidding. The system helps with regulating the amount of power that will be sent to tire, to prevent the skidding.

Theses two safety features are very useful in the vehicle but both need the driver plus the passengers to wear there seatbelt. If the passengers and the driver don’t wear their seatbelts they will still get seriously injured which could lead to death. The car need to be evaluated to see if the safety features are correctly put in and safe to use.