

Communiqués

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Safety: the sights are set on leadership

For immediate release

- Roll Stability Control
- Special steel in a reinforced roof structure
- IC (Inflatable Curtain) - for all three rows of seats
- Lower cross-member for increased car-to-car compatibility

Customers expect Volvo to retain its lead in the field of safety - irrespective of vehicle type. With the launch of its first-ever SUV, Volvo Cars enters an entirely new segment, and the goal is perfectly clear: to lead the way in terms of safety.

As in all other Volvo models, safety in the Volvo XC90 is a holistic concern. Safety is never achieved by simply integrating a number of individual stand-alone features into a car: what is important is the interaction between them - it is this interplay that shapes the result. This holistic approach is - and always has been - one of the cornerstones of Volvo's safety philosophy.

With XC90's entry into the SUV market, there is increased focus on several new areas. One of them is roll-over accidents, where the vehicle rolls over onto its roof one or more times.

Roll-over Protection System

Volvo's Roll-over Protection System, ROPS, tackles the problem from two directions:

- a stability-enhancing system, Roll Stability Control, RSC, which decreases the risk of rolling over in the first place - keeping the XC90 on all four tires is the first priority
- increased protection for the occupants if the vehicle does roll over is a comprehensive approach at addressing roll over accidents

Because of its higher center of gravity, an SUV has greater risk of rolling over in certain critical situations compared than a conventional passenger car. That is why the centre of gravity in the Volvo XC90 has been kept as low as possible. In fact, it is just 3.5" higher than that of the Volvo XC70.

However, this does not mean that Volvo has compromised on one of the properties that SUV buyers value so highly: a commanding seating position. The front seats are no less than 6.5" higher than in the Volvo XC70.

In order to help reduce the risk of a roll-over situation, the Volvo XC90 is equipped with an active stability-enhancing system known as Roll Stability Control or RSC, a world first. The system uses gyroscopic sensors to register the car's roll speed and roll angle. Using this information, the terminal angle is instantly calculated and thus also the roll-over risk.

If the calculated angle is so great that there is an obvious risk of rolling over, the DSTC (Dynamic Stability and Traction Control) anti-skid system is activated. DSTC responds by reducing the engine's power and also by braking one or more wheels as necessary until the car understeers and stability is regained.

This helps reduce the risk of a roll-over accident initiated by extreme manouvers. RSC is the only active stability-enhancement system on the market to measure the car's roll angle. It was developed jointly by Volvo and Ford Motor Company.

Special steel in a reinforced roof structure

If the Volvo XC90 experiences a rollover the passive safety systems step in.

The goal is to reduce the risk of the occupants' heads from coming into contact with the car's interior roof panel or sides. Volvo has reinforced parts of the roof structure in the Volvo XC90 with Boron steel, which is four or five times stronger than normal steel.

All the seats, including the 3rd row, are equipped with seat belt pretensioners which help keep the occupants securely in place. In an accident, the pretensioner pulls the seat belt firmly, securing the occupant's body in the seat and thereby providing enhanced protection.

In order to help prevent the head from striking the car's sides, the Volvo XC90 is equipped with Volvo's IC or Inflatable Curtain. IC also helps prevent the occupants from being ejected in an accident.

The Volvo XC90 has a version of IC that is specially adapted to deal with roll-over accidents.

This means that it stays fully inflated for longer so as to offer maximum protection in a roll-over scenario. What is more, the curtain is folded in its cassette in such a way that it follows the contour of the window glass as it inflates. If the occupant's head is resting against the window at the moment of inflation, the curtain will thus slip between the glass and the occupant's head to provide enhanced protection.

In the Volvo XC90, all three rows of seats in the 7-seat version are protected by the IC. Volvo is currently the only manufacturer offering this kind of protection for 3rd row occupants.

Selfless compatibility

The problem of compatibility - when a SUV collides with a car that sits closer to the road surface - was in firm focus throughout the development of the new Volvo XC90. The typical SUV has a high ground clearance and thus often comes with high-positioned bumpers. This may create a greater risk of damage to the oncoming passenger car and more serious injuries to its passengers, since the lower car's protective beams and crumple zones simply slip below the front of the SUV without being activated.

In order to reduce the risk of this type of injury, the front suspension subframe in the Volvo XC90 is supplemented with a lower cross-member, positioned at the height of the beam in a conventional car. This lower beam is integrated into the XC90's structure and is neatly concealed behind the spoiler.

The lower cross-member strikes the oncoming car's protective structure, activating its crumple zone as intended so the occupants can be given the maximum level of protection. This construction also reduces risk of injuries in frontal collisions as well as in rear-end impacts and side impacts

During the development of the Volvo XC90, considerable attention was also paid to the safety of pedestrians, cyclists and other relatively unprotected road-users. The entire front of the car features clean, gentle and smooth lines, and there are no protruding parts which may cause enhanced injuries.

The engine in the Volvo XC90 is installed low in the vehicle. As a result, the hood has no less than 3.1" of deformation space before there is any contact with the engine below it. It thus serves as a soft impact-absorbing "bumper", reducing the risk of serious injury to a pedestrian who may be thrown onto the hood.

High safety level in the third row of seats

The Volvo XC90's third row of seats provide a high level of passenger safety. In the case of a rear end collision the space behind the seats is designed to absorb and spread the collision force in an effective way.

The occupants of the rear most seats sit just above the rear axle, which is the optimum position in terms of side-impact safety. These seats also feature belt tensioners, head restraints and, as already mentioned, the Inflatable Curtain or IC.

Whiplash and side impact protection

The front airbags are of the dual-stage type, with a sensor that monitors the incoming collision force and adjusts the airbag's inflation accordingly.

Safety for the car's youngest occupants has always been a high priority at Volvo. That is why the Volvo XC90 has a standardised attachment system, ISOFIX, for child seats.

WHIPS, Volvo's award-winning Whiplash Protection System, is fitted in the two front seats of the Volvo XC90. WHIPS is activated in the event of a rear-end collision from speeds as low as 8 mph, helping to reduce trauma on the spine and neck and thus reducing the risk of injury.

The XC90 also features another award winning safety system - the Side Impact Protection System, SIPS, first introduced in the Volvo 850. The system is designed to absorb and distribute the collision forces in a side impact collision, thereby reducing the risk of injury.

Mots clés:

XC90 (2002-2014), Press Releases, 2003, Product News

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