

P R E S S R E L E A S E

Autoliv Presents Two New Airbags

(Stockholm, Sweden, June 25, 2007) --- At the international scientific conference *Enhanced Safety of Vehicles (ESV)*, Autoliv Inc. – the worldwide leader in automotive safety – introduced two new airbags that could save thousands of lives every year and prevent ten times as many severe injuries.

The *Bumper Airbag* for SUVs (Sport Utility Vehicles) addresses the compatibility problem associated with them and other high-hooded vehicles colliding with passenger cars and other low-profile vehicles. The *Front Edge Airbag* will save the lives of pedestrians when struck by an SUV.

In Europe alone, more than 10,000 pedestrians and other vulnerable road users are killed every year when struck by a motor vehicle. The EU has therefore introduced regulations on pedestrian protection and proposed even stricter rules by 2012. In response, Autoliv introduced a “pop-up hood” at the 2001 ESV conference that protects the heads of pedestrians by using airbag technologies to enable the hood to flex. Autoliv has had this system in serial production for more than a year.

However, SUVs are of particular concern for pedestrians due to their higher and more box-shaped fronts. The fatality risk for pedestrians is 2.5 times higher in SUV impacts than it is for regular cars. Another difference is the impact area. While most pedestrians killed by passenger cars perish when they hit their heads on the hood or windshield area of the car, the majority of severe injuries to pedestrians caused by SUVs occur when the front hood edge (also called the Bonnet Leading Edge or BLE) hits the pedestrian’s chest and abdomen. Autoliv has therefore developed an airbag to address this problem. Triggered by a pre-crash sensor (such as radar), the airbag deploys a few milliseconds before a pedestrian impact.

The system has been tested in both computer simulations and in real crash tests, involving crash dummies representing an average male and a very short female. In the simulations, the *Front Edge Airbag* demonstrated its ability to pass the tough requirements of EuroNCAP, the European crash test organization that rates new light vehicle models. In the full-scale tests, the airbag decreased all critical injury values considerably. The largest reduction was for the abdomen of the male dummy. Here the injury risk was reduced from 99% to just 3% when using the Front Edge Airbag. The test velocity was 40 km/h (25 mph), which is the average impact speed in fatal pedestrian accidents. Based on the crash tests, it is estimated that this new airbag could save hundreds of lives every year in the United States alone.

New Bumper Airbag

The new Bumper Airbag for SUVs also enhances pedestrian safety by deploying from beneath the bumper to protect the pedestrian’s legs. In the tests, the violence to the lower legs of the pedestrian dummy was reduced by more than 50% to levels within the criteria set by the EuroNCAP rating agency in their pedestrian protection tests.

However, the most important application of the bag will probably be in crashes when there is a mismatch in the height of the vehicles, especially when an SUV or other high-profile vehicle “T-bones” a passenger car. In these side impact collisions, the front of the SUV typically hits above the sill and the energy-absorbing structure of the passenger car, resulting in critical intrusions into the passenger compartment and, in some instances, even in collapses of the “protection cage” around the car occupants.

Consequently, crash data indicates that the risk of death in such crashes is between 27 and 48 times higher in a passenger car than in another SUV.

40% reduction

The *Bumper Airbag* has been evaluated in computer simulations and real crash tests. This 1.5 meter long, tubular airbag was mounted under the bumper of a Ford Explorer that was run head-on into the side of a typical passenger car at 48 Km/h (30 mph). The bag inflation started 80 milliseconds before the impact, using a pre-crash sensor, and the bag's load carrying structure swung into position. The intrusions were significantly less at all measuring points with the Bumper Airbag. At the level of the head of an occupant, the reduction was as much as 40%. An added benefit indicated by the tests was that the time available to inflate the side airbags of the passenger car could be increased when the SUV is equipped with a bumper bag.

The benefits of less intrusion using a Bumper Airbag are in the process of being evaluated using sled tests and crash test dummies. These tests indicate that the risk for rib fractures and other severe or fatal injuries (so called AIS3+ injuries) to the upper body could be reduced by nearly 40%. So far, only the benefits to the upper body have been evaluated. However, since the reduction at the head level was more significant than for other body parts, it can be assumed that the bumper bag could be even more efficient in reducing head injuries than the estimated 40% reduction in rib fractures and injuries to the lungs and the aorta recorded in the tests.

The preliminary estimates therefore indicate that this new airbag could save approximately 1,000 lives annually in the United States alone.

ESV Conference

The Enhanced Safety of Vehicles (ESV) is the world-leading scientific forum for vehicle safety. It is organized every second year by the National Highway Traffic Safety Administration (NHTSA) in the United States. NHTSA is also responsible for ESV's scientific secretariat.

At this year's conference, which was held in Lyon, France, Autoliv presented five scientific papers. In addition to the two papers on the new airbags, Autoliv representatives presented an evaluation on child restraints and another paper on Biorid (Bio-fidelic Rear-Impact Dummy). This dummy is more human-like than previous crash-test dummies, and will be used in EuroNCAP's proposed whiplash protection tests in rear-impacts. The fifth ESV-paper from Autoliv shows how pretensioners and other seatbelt improvements can reduce the risk for chest injuries. All papers are available on Autoliv's corporate website www.autoliv.com at What we do – Research – Reports & Papers.

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For more information on ESV: <http://www-esv.nhtsa.dot.gov/>

Autoliv Inc., the worldwide leader in automotive safety systems, develops and manufactures automotive safety systems for all major automotive manufacturers in the world. Together with its joint ventures, Autoliv has 80 facilities with approximately 42,000 employees in 28 vehicle-producing countries. In addition, the Company has technical centers in twelve countries around the world, including 21 test tracks, more than any other automotive safety supplier. Sales in 2006 amounted to US \$6.2 billion. The Company's shares are listed on the New York Stock Exchange (NYSE: ALV) and its Swedish Depository Receipts on the Stockholm Stock Exchange (SSE: ALIV).