

Unique crash tests of cars with luggage

Villaägarna Produktgranskning (Swedish Homeowners Product Review) have performed crash tests to determine the limit for when the luggage is thrown over the backseat in a car. The crash results show that 52 km/h is close to the limit of what a car¹ with a protective net of nylon can handle, whereas a car with a protective grille of steel can withstand a higher speed before the luggage penetrates into the passenger compartment.

Villaägarna's crash test is unique as no similar crash test is performed with luggage by crash testing agencies such as Euro NCAP, IIHS and ANCAP.

- All cars have trunks, but published crash tests of what happens in the event of a collision with luggage are lacking, despite the fact that many homeowners and other consumers around the world drive around with a lot of cargo in the trunk. For this reason, we have performed crash tests on cars with cargo at VTI's facility in Linköping, says Villaägarna's head lawyer Ulf Stenberg.

A realistic crash test

The cars, which had passed vehicle inspection and were equipped with original cargo nets in nylon or steel, were crashed at 52 km/h. Each car was loaded with ten bags² of a total of 135 kg corresponding to normal vacation luggage. If you buy goods at a DIY store, two concrete plinths and a bag of potting soil or five packs of tile will add up to the same weight. So, it's actually quite common that cargo or luggage is relatively heavy.

- Our idea was to perform a realistic crash test, in order to determine the breaking point for a car's luggage net. We therefore deliberately left out cars that do not have an original luggage net and that have weaker backseats, says Ulf Stenberg.

¹ The cars used in the crash tests were two Volvo V70N, a model manufactured between the years 2000 and 2008. This car model has original luggage nets in nylon or steel, while many other car makes do not have luggage nets nor the ability to install them. If a car lacks a luggage net and has an open space between the rear seat backseat and the ceiling, the risk is higher that the luggage penetrates into the passenger compartment in the event of a collision. The same is true if existing luggage nets in the car are not used.

² Five yellow plastic bags of 19 kg each were placed in the trunk. On top of these were four soft blue-black bags of 9 kg each and a soft black bag of 4 kg. All bags contained plastic bags with 4-8 mm yard gravel, a rather shock-absorbing load.

Left out high crash speeds and overload

Villaägarna also left out high crash speeds, overloads, harder cargo such as concrete plinths and tiles, and refrained from placing the luggage at a distance from the backseat which would cause it to be thrown forward towards the backseat in the crash.

- The intention was not to spectacularly pulverize the cars during the crash tests but to find out what happens and if there is any difference between cargo nets in nylon and steel. Had we chosen a crash speed of 100 km/h and put ten concrete plinths of a total of 600 kg in the trunk, the cars would have been crushed beyond recognition. The result of the crash test would then have been fairly expected, but would not have supplied much information, says Ulf Stenberg.

The cargo affects the crash test results

The crash tests demonstrated that the blue car, which was equipped with a nylon cargo net, managed with a small margin to keep the luggage in the trunk. The rear seat was however significantly deformed. With a slightly higher speed, heavier or harder cargo, the luggage would not have remained in the trunk but penetrated into the passenger compartment. In the silver-colored car, the **protective grille of steel** was severely deformed and the rear seat more damaged than in the blue car, but in this case the margin to be able to maintain the luggage in the trunk was larger. The head restraints on the right side of the rear seats of both cars were angled forward a significant amount.

- Our crash test shows that cargo affects what happens during a crash. It would therefore be interesting if crash tests of new cars were performed with cargo, says Ulf Stenberg.

In the silver-colored car, the car's airbags were not triggered.

- We do not know why the airbags were not inflated. The warning light for the airbags was not on in the vehicle. One of several possible explanations may be that someone over the years had done repair work on the car and then inadvertently destroyed the mechanism for the airbags, but there can of course be other explanations, says Ulf Stenberg.

How to reduce the safety risk with luggage in the trunk

Luggage can be a safety risk, but there are things you yourself can do to reduce this risk.

- If you have cargo in the trunk, make sure to use the existing luggage net. Also place the cargo against the backseat and if you have heavy cargo, place it as low as you can and fasten it if possible, says Ulf Stenberg.

Cargo restraints improve safety

Many cars lack cargo restraints, which is why there is a risk that the cargo is thrown over the backseat into the passenger compartment in the event of a collision. The car manufacturer may have made the decision not to equip the vehicle so that cargo restraints can be added and therefore may not even sell any cargo restraints.

Based on the crash tests of the cars with luggage nets, it can be concluded that Volvo takes seriously the risk of injury due to luggage being thrown forward over the backseat in a collision.

- However, it is deplorable that other car makes do not even offer the possibility of luggage restraints, despite the fact that the luggage may be thrown into the passenger compartment in the event of a collision. Since, at the present time, published crash tests take place without luggage, many consumers are unaware that inadequate cargo restraints can have huge consequences in terms of safety, says Ulf Stenberg.

Make sure to choose the right car model

Safety shortcomings that are not put through crash tests and thus prevent consumers from finding out about them are also not remedied by manufacturers, who do not put safety first.

- If you drive with heavy cargo in the trunk, you may want to refrain from buying a car make where the cargo may be thrown over the backseat, causing personal injury in a collision, says Ulf Stenberg.