

# Crumpling Fins and Blood-sucking Trees

For very many years, the safety of car occupants was relatively unimportant. When car manufacturers began to focus on the development of safety systems, in addition to the major milestones, there were also some oddities along the way. Both the strokes of genius and the big mistakes have been documented during the course of 125 years of ATZ.



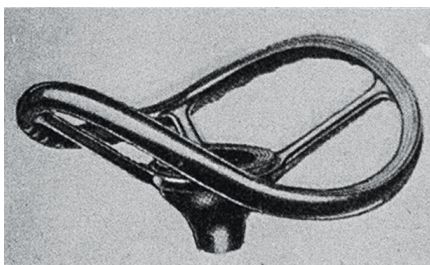
**1959** Crash tests in the Mercedes plant in Sindelfingen (Germany) with cars from the W111 model range (1959 to 1965). The so-called Fintail is the first car in the world with a rigid passenger compartment (© Daimler)

The solutions to complex problems can sometimes be quite simple; you just need to come up with them. In this case, the problem was cars colliding with trees at high speeds, which could lead to the occupants being injured or even killed. The solution was both simple and brilliant: get rid of the trees! The article in ATZ in October 1929 under the headline “Should we cut down roadside trees?” could hardly have been more dramatic. It began: “There is no doubt that many of our roadside trees have drunk more human blood than it is possible to account for.” Fortunately, the piece concluded that chopping down the “killer trees” was not a good idea, because “they are important landmarks at night, in the fog and in the snow.”

However, it was not until at least 30 years later that genuine progress was made in the field of safety systems. During that time, some strange technical solutions were developed. In 1929, ATZ reported on the “hard rubber safety steering wheel,” **FIGURE 1**. “As the steering wheel consists of one homogeneous component, it should not cause rattling noises. In the event of collisions or accidents, the steering wheel will not break, but can only become deformed.”

Long before that, there had been some inspiring ideas that were not widely implemented. For exam-

**FIGURE 1** In 1929, the hard rubber safety steering wheel designed by US automotive supplier Husted after being bent in impact tests  
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ple, a record attempt with the two-seater Baker Torpedo electric car on Staten Island in 1902 ended in tragedy. The car careered into a group of spectators and two were killed. However, the occupants of the car survived uninjured because they were wearing the very first safety belts. But the breakthrough for this life-saving feature did not come until 1959, when the Swedish engineer Nils Ivar Bohlin applied for a patent for the three-point seatbelt. The first car to be fitted with this restraint system as standard, **FIGURE 2**, was the Volvo PV 544, also known as the hunchback. Wearing safety belts in the front seats of cars became mandatory in Germany on January 1, 1976. A fine of 40 marks for failing to buckle up was introduced in 1984 in the face of serious resistance.

The year 1959 proved to be a good one for safety systems. In addition to the three-point seatbelt, another groundbreaking innovation was put into practice for the first time. Until then, engineers had worked on the principle that a car with a stiff structure would provide the best protection for its occupants. This idea of the fortress on wheels became a thing of the past following the invention of the safety body by engineer Béla Barényi. In 1951, he applied for a patent for the principle of the rigid passenger compartment with crumple zones at the front and rear of the car. In 1959, the Mercedes W111, the famous Fintail, was the first car to be produced with this system, Title Figure.

Issue 7 of ATZ in 1969 included a report on a development of the safety belt. The system in question was fitted with shock absorbers developed by Klippan, which were integrated into the top mounting point of the shoulder belt in the door pillar with the aim of “restricting the forces acting on the body to a range that represents the limit of what a human body can withstand from a medical perspective,” **FIGURE 3**.

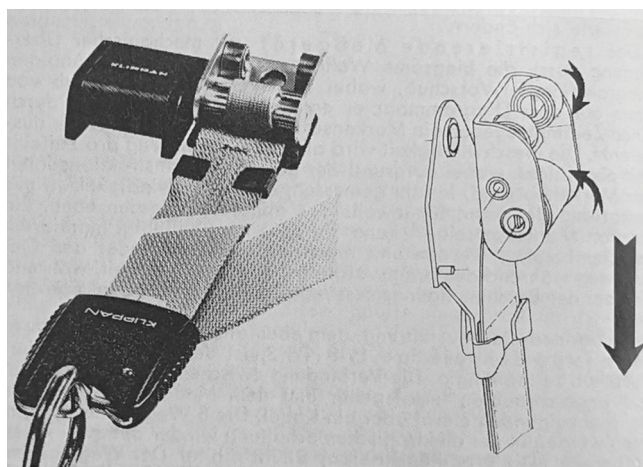
In 1975, a pneumatic safety bumper from MBB was presented in ATZ for the first time. This consisted of “the following elements: two impact hoses, brackets, a support hose, a pressure equalization valve and an outer cover.” It was designed to absorb impacts up to a speed of 8 km/h without permanent deformation, **FIGURE 4**.

Mercedes-Benz launched its S-Class (W126) models with an airbag and a belt tensioner in 1981 for the first time. It is hard to comprehend why it took another six years for passengers to be able to benefit from this technology. This is “housed in the dashboard in the place of the glove box, but has a volume almost three times the size and a different shape,” according to ATZ in 1987. The legendary TV advert shows a driver, who of course is a man, praising the virtues of his airbag. We hear a voice asking: “What about your wife?”. The man then looks helplessly at the woman sitting next to him.

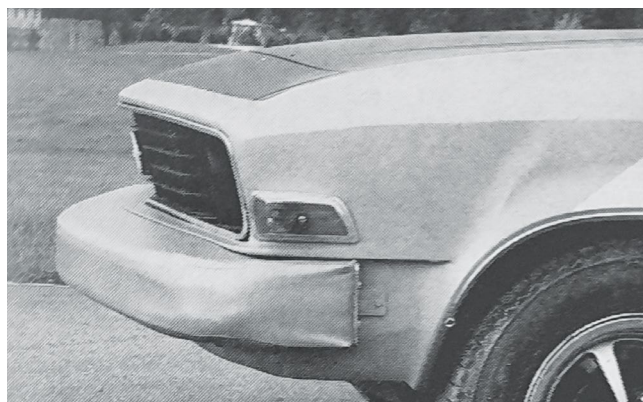
Frank Jung



**FIGURE 2** The hunchback Volvo in 1959 was the first production model to be fitted with a three-point seatbelt (© Volvo)



**FIGURE 3** The safety belt from Klippan in 1969 fitted with a shock absorber  
(© Springer Vieweg)



**FIGURE 4** The pneumatic safety bumper from MBB was designed in 1975 to cushion an impact (© Springer Vieweg)

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