Development of Modern Occupant Safety Systems

The development of modern occupant safety systems is one of the core competencies of TRW Automotive. These include safety systems such as the Active Control Retractor (ACR) or the Active Buckle Lifter (ABL). In the continuous ongoing development of the safety and comfort functions of such systems TRW relies on the ECU platform PUMA. Thereby the rapid-control-prototyping-platform is used for the pre-development in the laboratory as well as on test benches and test vehicles.

The main functions of modern safety seat belt systems are the active belt tightening just before a crash, support functions in dynamic driving maneuvers as well as functions for improving comfort. The systems ACR and ABL enable these functions with different emphases. While the ACR focuses on safety functions in a crash, the main goal of the ABL is the increase of comfort. Common to the systems is an electric motor, which is controlled by an integrated ECU in the vehicle.

ABL (bottom left) und ACR2 (top right)

Crash Test Dummy in the Test Vehicle

In the pre-development TRW uses the PUMA platform on the one hand for the development of new software functions and thereby using the integrated power stages of PUMA-PTM and PUMA-MPI for control of the electric motors. On the other hand, PUMA serves for commissioning and test of new electronic components for example power stages but also new mechanical components.

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