

1981), most comments were "in favor of increased underride protection," while the negative reactions were concerned mainly with which portion of the trucking industry will be exempt (off-road vehicle, hydraulic tailgates etc.).

Tests

As part of the joint program BMCS-NHTSA contracted with: (1) The Texas Transportation Institute of Texas A&M University (TTI) to develop a low cost, but practical underride protection device; and (2) Dynamic Science Inc., (DSI) to develop compliance test procedures. The research tested a "rigid guard" with low ground clearance, similar to the one tested in 1976. NHTSA concluded that "The tests performed by TTI and DSI demonstrated what the IIHS program had shown earlier: that excessive underride could be prevented with rigid guards."

However, these tests also showed that "rigid guards" increase the deceleration forces experienced by car passengers in a rear-end crash and as a consequence increase the risk of injury due to hazard other than underride. Crash tests with restrained dummies in passenger cars crashed at 35 mph into a rigid guard experienced injury responses not within the range allowable under FMVSS no. 208.

For comparison, DSI also tested collisions with current (ICC) guards. Results: "This guard was not able to prevent small cars from excessively underriding test trailers at collision speeds above 30 mph. In these tests, the dummies experienced injury responses that are not within the permissible limit of FMVSS no 208, ...The guard did not fail, i.e., did not permanently deform in some manner," probably because the small cars went too low under it to cause deformation.

"In tests of large cars at 30 mph underride was excessive in offset collisions but not when the collision was centric. Occupant response were also within the allowable limit of FMVSS No. 208 in these tests of large cars, and in all tests the guard did not fail. Occupant responses were also within the permissible range of standard No. 208 when the car crashed into the guard at 40 mph. However, in this test underride was excessive, and the guard was permanently deformed."

In addition, tests of a hydraulic energy absorbing guard manufactured by Quinton-Hazell Automotive Ltd. showed that this "off-the shelf" device "...was very effective both at preventing excessive underride, reducing occupant injury response, and reducing damage to the colliding vehicle." Obviously, the hydraulic device is more expensive. However, it is important to note that already in the mid 1970's it was available commercially.

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