

The **Hyundai Elantra** was redesigned for the 2001 model year.

The Insurance Institute for Highway Safety has evaluated the crashworthiness of the Elantra in three 40 mph frontal offset crash tests into deformable barriers. After the first test, Hyundai indicated the dummy's lower leg injury measures were different from those recorded in tests the company had conducted and requested a retest. Results of the second test were somewhat improved for lower leg injuries, but a high right foot acceleration occurred. More significantly, the airbag deployed late, contributing to poor head injury measures. A third test was conducted after Hyundai could find no evidence of a problem in the airbag deployment sensing system and suggested the late deployment might have been anomalous. However, the airbag also deployed late in the third test. Due to the similarity of results, the evaluation of the Hyundai Elantra is based on all three tests. Head restraint and bumper designs are evaluated separately.

OVERALL EVALUATION: POOR The driver space was maintained well in all three tests, although dummy measures indicate the possibility of leg or foot injuries in all tests. In the second and third tests, a late deploying airbag contributed to the dummy's head hitting the steering wheel hard. There was significant forward movement of the seat in the second test because the latch failed to hold it in place.

STRUCTURE/SAFETY CAGE: GOOD In all three tests there was minimal to moderate intrusion into the driver footwell area and minimal rearward movement of the instrument panel.

RESTRAINTS/DUMMY KINEMATICS: POOR In the first test, dummy movement was reasonably well controlled, although the dummy's head did strike the steering wheel through the frontal airbag. During rebound, the deployed side airbag kept the dummy's head away from the B-pillar. In the second test, the frontal airbag deployed late (76 milliseconds, compared with a typical 30 milliseconds), and the dummy's head hit the steering wheel. Also, the driver seat came loose on one of its tracks and moved forward 3 inches on the right side, where the safety belt is anchored. Both of the dummy's legs jammed against the instrument panel. The left shin contacted an exposed metal edge, and the right knee hit just below the ignition switch, producing gashes in the vinyl "skin" at the dummy's left shin and right knee. During rebound, the deployed side airbag kept the dummy's head away from the B-pillar. In the third test, the frontal airbag also deployed late (64 milliseconds), and the dummy's head struck the steering wheel through the airbag. The side airbag did not deploy in this test, and during rebound the dummy's head hit the B-pillar.

INJURY MEASURES: HEAD/NECK POOR IN SECOND AND THIRD TESTS In all three tests, forces on the head from hitting the steering wheel indicate the possibility of head injury. In the second and third tests, forces on the neck were moderately high, indicating the possibility of neck injury. Head acceleration from hitting the B-pillar was high in the third test. Forces on both lower legs in all tests indicate the possibility of leg injuries and, in the second test, the likelihood of right foot injuries. In all three tests, measures taken from the chest indicate low risk of injury.

SPECIAL SAFETY FEATURES:

- Side airbags: for drivers' and front passengers' heads and chests
- Safety belts: crash tensioners prevent slack in front belts from allowing excessive forward movement in a crash; devices on front belts limit belt forces on occupants
- Anchorages in rear seats for use with new child restraint designs
- Antilock brakes (optional)