



Glossary of Roof Crush Terms

September 2008

- A-Pillar** – the forward most vertical roof support that is entirely forward of the driver’s seat and is the structure that holds the windshield.
- B-Pillar** – a roof support on each side of the vehicle at the rear of the front door.
- CRIS** – Controlled Rollover Impact System – a dynamic rollover test procedure in which the vehicle is rolled and dropped from the rear of a moving tractor-trailer. This test is used by the automotive industry.
- Dolly Rollover Test** – a dynamic rollover test procedure in which the vehicle is rolled off a moving inclined platform. This test has been used extensively by the automotive industry. It has been an optional requirement since 1971 in Federal Motor Vehicle Safety Standard 208 (seat belts and air bags) but is not used for federal compliance measurements.
- Dynamic Rollover Test** – a test for rollover crashworthiness in which the tested vehicle is in a rolling motion. A dynamic test more closely represents real-world crash conditions.
- “Far” Side/ Trailing Side** – It is the side of the vehicle that hits the ground second. It is where the most crush and injury occurs (e.g., if the driver side is the “near” side, then the passenger side is the “far” side).
- FARS** – Fatality Analysis Reporting System – a NHTSA database of all US fatalities in which death occurred within 30 days of the crash.
- FMVSS 208** – Federal Motor Vehicle Safety Standard No. 208 requires safety belts and air bags; in a rollover context it refers to the optional dolly rollover procedure
- FMVSS 216** – Federal Motor Vehicle Safety Standard No. 216 – the roof crush resistance standard.
- Header** – the internal roof structure that ties the top of a vehicle’s A pillars together and holds the front of the roof panel and the top of the windshield.
- IBM** – integrated bending moment; the product of the bending force at the base of the neck (where most neck injuries occur in rollovers) and the time over which it occurs.
- Inverted Drop Test** – a dynamic test procedure in which the vehicle is dropped upside down on its roof from a set height; this test was used for years by industry but has been replaced by dolly rollover and CRIS tests.
- ISTEA** - Intermodal Surface Transportation Efficiency Act – 1991 transportation act.
- JRS** – Jordan Rollover System – a repeatable, dynamic rollover test device created by Acen Jordan and Donald Friedman where the vehicle is rotated prior to being dropped onto a moving road surface and is picked up after the first roll before further damage can occur.
- Matchboxing** – when the roof moves back and forth over the occupants during a rollover crash or crash test, like a parallelogram.
- NASS** – National Accident Sampling System – a NHTSA database of a randomly selected sample of crash investigations.
- “Near” Side/Leading Side** – the side that hits the road first in a rollover.
- NHTSA** - National Highway Traffic Safety Administration.
- NPRM** – Notice of Proposed Rulemaking.
- Pitch Angle** – the angle measured from the horizontal (longitudinal) axis of the vehicle.
- Platen** – a flat metal plate, in this case used in NHTSA’s roof crush test to apply a force to the vehicle’s roof.

Repeatable – a test is repeatable if the test can be repeated many times and produces an identical or very similar result; repeatability is important for establishing whether results are the result of the test and not random error.

Roll Angle – the angle measured from the horizontal (transverse) axis of the vehicle.

SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users
– 2005 transportation act.

SNPRM – Supplemental Notice of Proposed Rulemaking.

Static Roof Crush Test – any test for roof crush where the vehicle is not in motion and pressure is applied from above – the current FMVSS 216 test, which is the test used for determining whether a vehicle complies with federal standards, is a static roof strength test.

SWR – strength-to-weight ratio; in this case, the ratio of the roof strength to the unloaded maximum curb weight of the vehicle.