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INVERTED VEHICLE DROP TEST PROCEDURE—SAE J996 JUN80

SAE Recommended Practice

Report of the Automotive Safety Committee approved August 1967, reaffirmed without change June 1980

1. Scope—This SAE Recommended Practice establishes a standardized test procedure to obtain as closely as possible deformation of a vehicle roof or roll bar structure which occurs in a vehicle roll-over. The procedure is intended to provide reliable and repeatable results and to permit valid comparisons between various vehicle models and various roof or roll bar designs.

2. Introduction—An inverted vehicle drop test is one in which the vehicle is positioned to fall free under conditions of roll and pitch angle (Fig. 1) which produces deformation similar to vehicle roll-overs. Structural deformation resulting from a drop test is more readily reproducible than the deformation from roll-over tests due to the extreme variations and unpredictability of roll-over tests.

The drop test is a severe test since the majority of the kinetic energy is applied to one side of the roof structure, over a windshield support pillar. This is contrasted to a roll-over in which there is a progressive dissipation of energy by various parts of the vehicle, including wheels, bumpers, fenders and the roof structure.

Procedures and equipment described are subject to continuing review and will be revised as experience and improvements in technology warrant.

3. Drop Test Facility

3.1 General—The test site shall provide accommodations for the drop pad, test vehicle, equipment necessary to elevate the test vehicle to the required height, and other equipment as needed.

3.2 Drop Pad

3.2.1 The drop pad shall present an essentially unyielding level surface thick enough to prevent cracking and settlement with repeated testing.

A typical construction for a drop pad would consist of a compacted gravel base at least 6 in. thick of which not more than 15% by weight shall pass a No. 200 sieve. This base should be placed over undisturbed, well-drained ground that would be considered suitable for normal road or building construction. The base should then be surfaced with a minimum of 4 in. of bituminous concrete laid in two lifts, or 6 in. of reinforced Portland cement concrete.

3.2.2 The impact surface shall be covered with $\frac{3}{4}$ in. thick plywood.

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