Motor Vehicle Seat Belt Anchorages Test Procedure—SAE J384

SAE Recommended Practice
Approved May 1976

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SAE Recommended Practice

Report of Body Engineering Committee approved May 1976. SAE J787b has been discontinued and replaced by this report, SAE J384, and SAE J385.

1. Scope—This SAE Recommended Practice outlines both dynamic and static test procedures of seat belt anchorages attached to vehicle structure or seat assemblies installed in the vehicle (This SAE Recommended Practice supersedes the Test Procedure Section of SAE J787b). Design Recommendations and Performance Requirements are specified in the Recommended Practices SAE J383, Motor Vehicle Seat Belt Anchorages—Design Recommendations and SAE J385, Motor Vehicle Seat Belt Anchorages—Performance Requirements, respectively.

2. Definitions

2.1 Anchorage—The final point of attachment for transferring seat belt assembly loads to the vehicle structure.

2.2 Attachment Hardware—Any or all hardware (or the test equivalent) designed for transferring the load to the vehicle anchorage(s).

2.3 Dynamic Test—A test of anchorages through application of forces at onset rates which result from a barrier impact or equivalent sled simulation.

2.4 Static Test—A test in which loads are applied to the anchorage(s) at a rate less than the dynamic test through the use of hydraulic, pneumatic, etc. power.

3. Dynamic Testing

3.1 Test Equipment

3.1.1 BARRIER—Constructed in accordance with SAE J850, or equivalent, or:

3.1.2 IMPACT SIMULATOR—A device for accelerating, decelerating, or a combination of decelerating and accelerating a vehicle (or simulated vehicle structure) and instrumentation for measuring pertinent data. The acceleration pulse represents the pulse obtained during the barrier crash as outlined in SAE J850.

3.1.3 VEHICLE (OR SIMULATED VEHICLE STRUCTURE)—The vehicle or significant portion(s) of the vehicle containing the anchorage to be tested. The manufacturer may include any vehicle components normally provided and likely to contribute to the rigidity of the vehicle structure.

3.1.4 OCCUPANT SIMULATION—An anthropometric 50th percentile dummy as referenced in SAE J963, or equivalent, used to impart the inertial loads and load distribution to the anchorages during dynamic conditions.

3.2 Test Procedure

3.2.1 Mount the vehicle (or simulated vehicle structure) on the impact simulator or prepare the vehicle for a barrier impact—SAE J850. Install occupant simulations belted in each occupant seating position to be tested. Lap and/or shoulder belts are to be installed per the vehicle manufacturers' recommendation(s).

Adjustable seats are to be in their rearmost position with the seat back in its normal design driving or riding position.

3.2.2 Adjust the operation variables of the Impact Simulator to obtain the desired barrier impact pulse.

4. Static Testing

4.1 Test Equipment

4.1.1 VEHICLE (OR SIMULATED VEHICLE STRUCTURE)—See paragraph 3.1.3.

4.1.2 TEST MACHINE—A test fixture to rigidly mount the vehicle (or simulated vehicle structure). A source of power (hydraulic, pneumatic, etc.) to apply a specific static load to the anchorage(s) and instrumentation for measuring pertinent data.

4.1.3 TEST ATTACHMENTS—Connecting mechanisms, such as cables, body blocks, belt attaching devices used to transmit load to the anchorages under test.

4.2 Test Procedure

4.2.1 The vehicle (or simulated vehicle structure) is rigidly mounted to the Test Machine in a manner such as not to effect the strength characteristics of the anchorage(s).

4.2.2 Attachments are connected between the test machine and anchorage(s) to be tested as below:

(a) Attachment hardware is positioned to simulate its location in the vehicle.

(b) Common anchorages for each laterally adjacent seating position shall be tested simultaneously.

(c) The body block simulation cable will be pulled at an angle of 10 ± 5 deg above the horizontal in the direction shown in Fig. 1.

(d) For belt anchorages integral to the seat assembly, seat inertia force (see Fig. 1) is to be applied simultaneously with belt anchorage loads (as referenced in J879).

(e) Body Blocks—see Fig. 2.

4.2.3 Magnitudes of anchorage loads are specified in paragraph 4 of SAE J385.