



Simulated Occupant Load and Downward Strength Test

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This procedure evaluates the ability of a seat cushion frame to withstand a simulated occupant load and verifies the strength of the seat cushion frame against the vertical load. (Full Bench or Single or Dual Occupant Seats).

1.2 Applicability. This procedure applies to all GM passenger cars, light duty and medium duty trucks. This procedure applies to all seat rows.

1.3 Remarks. Not applicable.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

SAE J826

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- Statement of Requirements (SOR), Appendix G2.
- Subsystem Technical Specification (SSTS).
- Test report.

3 Resources

3.1 Facilities. An approved GM certified test lab with an adequate bed plate or equivalent work surface necessary for mounting of the test sample and associated test fixtures.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Mounting Fixture. Appropriate model mounting blocks to hold seat subsystem in body position.

3.2.2 Linear Measurement Devices. String potentiometers (or equivalent) and a fixture to measure vertical deflection and a set of the seat bottom frame suspension support rails.

3.2.3 Seat Saddle. A saddle representing an occupant, as described by the currently approved SAE J826 Three Dimensional (3D) form. Used for occupant load test.

3.2.4 Loading Device. Hip model pressure device (used for the downward strength test). See Appendix A, Figure A1.

3.2.5 Actuator. Equipment capable of applying the load specified in Subsystem Technical Specification (SSTS).

3.2.6 Weights. Sufficient weights to apply the SSTS specified load.

3.3 Test Vehicle/Test Piece.

3.3.1 Complete Trimmed Seat Subsystem. An appropriate seat subsystem consisting of all components necessary to qualify as complete for the model and trim level specified by the Design Release Engineer/Designing Engineer (DRE/DE).

3.4 Test Time.

Calendar time: 1 day

Test time: 1 h

Coordination time: 8 h

3.5 Test Required Information. The following information shall be provided to the testing organization: Seat fore/aft design position, seat back design position and SSTS specified load.

3.6 Personnel/Skills.

3.6.1 General Motors Design Release Engineer/Designing Engineer.

3.6.2 General Motors Validation Engineer.

3.6.3 Testing Organization's Test Engineer.

3.6.4 Testing Organization's Test Technician.

4 Procedure

4.1 Preparation. The region will choose to perform either 4.1.1 or 4.1.2 test procedure.

4.1.1 Simulated Occupant Load.

4.1.1.1 Visual Inspection. The DRE/DE will visually inspect the seat assembly for correct part numbers, quality of frame welds, proper fit and assembly and the presence of all required parts.

4.1.1.2 Mounting. Mount the seat subsystem on the appropriate model mounting blocks. Include mounting spacers if specified for installation.

4.1.1.3 Positioning. Set the seat back frame to design back angle (measure the back angle on the outboard portion of the seat back). Engage the seat adjuster in its design location.

4.1.1.4 Measurement Devices. Install necessary linear measurement devices at the centerline of the seat bottom frame suspension support rails so the deflection and set can be measured.

4.1.1.5 Connect and calibrate instrumentation.

4.1.2 Procedure Option B: Downward Strength for Seat Cushion.

4.1.2.1 Visual Inspection. The DRE/DE will visually inspect the seat assembly for correct part numbers, quality of frame welds, proper fit and assembly and the presence of all required parts.

4.1.2.2 Mounting. Mount the seat subsystem on the appropriate model mounting blocks. Include mounting spacers if specified for installation.

4.1.2.3 Positioning. Set the seat back frame to design back angle (measure the back angle on the outboard portion of the seat back) and position the seat adjuster as follows:

4.1.2.3.1 Fore/aft: Design position.

4.1.2.3.2 Height adjuster: Uppermost position.

4.2 Conditions.

4.2.1 Environmental Conditions. Unless otherwise specified in the SSTS, conduct test in a room temperature environment.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions. The region will use 4.3.1 or 4.3.2 to correspond with procedure 4.1.1 or 4.1.2, respectively.

4.3.1 Instructions for Procedure Option A: Simulated Occupant Load.

4.3.1.1 Place the seat saddle(s), including weights that equal the SSTS specified weight, onto the fully trimmed seat.

4.3.1.2 Record the vertical deflection of the front and rear suspension support rails.