



Interior Load Floor Performance - Vibration Fatigue

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 test procedure verifies durability vibration fatigue generated from loading cargo on the rear seat back.

1.2 Applicability. This test shall be applied to all GM vehicle seats with fold-flat seat backs.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

2.3 Additional References.

Global Seat System Technical Specification (GSSTS)

Subsystem Technical Specification (SSTS)

3 Resources

3.1 Facilities. An approved GM certified test lab with an adequate bedplate 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 Blocks. Rigid mounting blocks to simulate the floor attachment point to mount the seat system in body position on the vibration tester.

3.2.2 Temperature Controlling Device. Thermotron environmental chamber or equivalent.

3.2.3 Vibration Tester.

3.2.4 Weight. Weights shall be sufficient to 100 kg/m².

3.3 Test Vehicle/Test Piece. 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.

3.4 Test Time. Two (2) days.

3.5 Test Required Information. Written report with observations and photos.

3.6 Personnel/Skills. The following individuals are necessary to complete this test procedure:

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3.6.1 GM Design Release Engineer.

3.6.2 GM Validation Engineer.

3.6.3 Testing organization's test engineer.

3.6.4 Testing organization's test technician.

4 Procedure

4.1 Preparation. 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 Positioning. Fit the mounting block on the vibration tester, mount the seat assembly in the body or to the mounting blocks in design position, then fold down the seat back to make the load floor.

4.2 Conditions.

4.2.1 Environmental Conditions. Use the temperatures outlined in the Subsystem Technical Specification (SSTS). If none exist, the GM responsible engineer will specify the applied temperatures, if required.

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.

4.3.1 After soaking at Global Seat System Technical Specification (GSSTS) prescribed temperature for 4 h, measure load floor height and record on Appendix A, Data Sheet A1 in - Sample Preparation and Test Inspection.

4.3.2 Weights. Add weights to the load floor or seat back to distribute the load across the folded seat back to 100 kg/m² (Reference Figure 1).

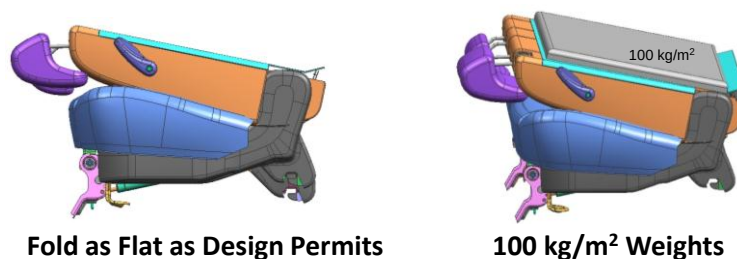


Figure 1: Folded Seat Back in Design Position with Load Applied

4.3.3 For split seat backs that are integrated and connected with each other, test them simultaneously.

4.3.4 Apply vibration on the seat back for acceleration, cycles and durations as shown in Table 1.

Table 1: Vibration Conditions

Vehicle Type	Vibration Conditions	Acceleration		Cycles	Duration
Other	Repeat to apply vibration in five steps of acceleration with frequency of 15 Hz for 18 times.	1	5.88 m/s ² (0.6 g)	60 000	66 minutes 40 s
		2	9.8 m/s ² (1.0 g)	25 000	27 minutes 46 s
		3	13.72 m/s ² (1.4 g)	7000	7 minutes 46 s
		4	17.64 m/s ² (1.8 g)	1500	1 minute 40 s
		5	23.52 m/s ² (2.4 g)	300	20 s
Van	Apply vibration at constant frequency of 11 Hz.		10.78 m/s ² (1.1 g)	500 000	

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