



## **Seat Cushion Knee Load Durability**

### **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 evaluates the performance of the seat cushion assembly and its components under an abusive knee load and a cyclical knee load. Components include, but are not limited to, structure, suspension, foam, trim cover, haptic motors, heater, ventilation, adjustable bolster feature, and occupant detection system (Suppression, seat belt reminder, etc.)

**1.2 Applicability.** This test shall be applied to all front and rear seats in General Motors vehicles. The cushion subassembly and its components are subject to the test.

### **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.**

- CG1804 Subsystem Technical Specification for Seats. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.
- 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 points to mount the seat system in body position on a bed plate or equivalent work surface.

##### **3.2.2 Knee Form.**

A 127 mm (5 in) diameter knee form as shown in Figure 1.

**GM Confidential**

© Copyright 2018 General Motors Company All Rights Reserved

April 2018

Page 1 of 6



**Documents**

Document Sharing Hub



Figure 1: Knee Form

### 3.2.3 Load Application Device.

A pneumatic or hydraulic cylinder capable of applying a maximum load, as specified in the Global Seat System Technical Specifications, and capable of attaching to the load cell connected to the knee form.

### 3.2.4 Heater Pad Monitoring Device.

A Controlled Area Network (CAN) controller capable of interfacing with and sending commands to GM Local Area Network (LAN) vehicle systems (Neo VI, CANoe, etc.) and a computer with vehicle spy software installed and configured to GM LAN systems. Specifically, this is a Neo VI CAN controller interface to send commands to GM LAN vehicle system and a computer with vehicle spy software installed and configured for GM LAN serial data.

### 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 (DRE).

### 3.4 Test Time.

Calendar time: 9 d

Test time: 7 h

Coordination time: 8 h

### 3.5 Test Required Information.

The head part number of the seat and its level shall be provided with the seat. Obtain from the DRE, the design position of the seat, a top view of the cushion including all components, and, if applicable, critical section of the cushion including relevant components. Obtain from the Seat Subsystem Validation Engineer (SVE) the specific points to be loaded on the seat cushion based on the math or drawings provided. Further guidance for the loading locations is described in 4.1.1 of this specification.

GM Confidential

© Copyright 2018 General Motors Company All Rights Reserved

April 2018

Page 2 of 6



Documents  
Document Sharing Hub