



## **Climate Management Subsystem Heated, Vented, Cooled Seats Functional Test Procedure**

### **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 is intended to test the Heated, Vented, Cooled (HVC) seat functions of the Global A Architecture Climate Management Subsystem as defined in the Global A Climate Management HVC Subsystem Technical Specification (SSTS).

**1.2 Applicability.** This test procedure applies to the Climate Management Subsystem of Global A Electrical Architecture vehicle programs.

**1.3 Remarks.** This procedure tests the electrical functions that support the HVC function as defined by the Global A Architecture Climate Management HVC SSTS.

### **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.**

- CG2191 Global A Climate Management Subsystem HVC Test Procedure
- Global A Architecture Climate Management HVC SSTS

### **3 Resources**

**3.1 Facilities.** This procedure can be performed on a vehicle with production intent HVC Subsystem hardware, software, calibrations and serial data applicable to the platform under test. This may include, but is not limited to, the Heated, Heated/Vented or Heated/Cooled Seat Assemblies, HVC Modules, and the associated Control Modules, Switches, Wiring and General Motors Local Area Network (GMLAN) and Local Interconnect Network (LIN) Serial Data.

Testing may also be performed on the system bench or test frame with production intent HVC Subsystem hardware, software, calibrations and serial data applicable to the platform under test. This may include, but is not limited to, the Heated, Heated/Vented or Heated/Cooled Seat Assemblies, HVC Modules, and the associated Control Modules, Switches, Wiring and GMLAN/LIN Serial Data.

Testing should be performed on both vehicle and bench. Testing may also be done on a subsystem bench if the testing is during the development phase of the software, module, or subsystem. Seat or switch simulators shall not be used.

**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.

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April 2014

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### 3.2 Equipment.

**3.2.1** A serial data interface and supporting personal computer application software are required.

**3.2.2** Direct Current (DC) variable power supply, or equivalent, to simulate high and low vehicle battery voltage.

**3.3 Test Vehicle/Test Piece.** Test vehicles, benches or frames will require the production intent HVC Subsystem hardware, software, calibrations and serial data applicable to the platform under test. This may include but is not limited to the Heated, Heated/Vented or Heated/Cooled Seat Assemblies, HVC Modules, and the associated Control Modules, Switches, Wiring and GMLAN/LIN Serial Data to perform the test procedure.

### 3.4 Test Time.

Calendar time: 5 days

Test hours: 32 hours

Coordination hours: 8 hours

**3.5 Test Required Information.** Not applicable.

### 3.6 Personnel/Skills.

**3.6.1** The tests will require at least one Subsystem Validation Engineer that is responsible for the subsystem under test. Testing requires knowledge of GMLAN/LIN serial data, the ability to read and interpret the serial data, and the ability to transmit serial data messages.

**3.6.2** Knowledge of the Global A Architecture Climate Management HVC SSTS.

**3.6.3** Basic understanding of required/used calibration structure.

## 4 Procedure

**4.1 Preparation.** All components involved must have the latest production intent hardware, software, and calibrations.

### 4.2 Conditions.

**4.2.1 Environmental Conditions.** See test procedure CG2191.

**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. See test procedure CG2191, Global A Climate Management Subsystem HVC Test Procedure, for test conditions.

**4.3 Instructions.** See test procedure CG2191. The following features are based on the latest SSTS data dictionary 8.1. (Based on the future SSTS release, these features may get updated).

**4.3.1** Heated, Vented/Cooled Seats (HVC) Power Moding.

**4.3.2** HVC Remote Start.

**4.3.3** HVC System Latency.

**4.3.4** HVC Last Commanded Mode/Level Retention.

**4.3.5** HVC Load Shed Levels.

**4.3.6** HVC Vehicle System Voltage.

**4.3.7** HVC Switch and Display Interfaces.

**4.3.8** HVC Vent/Cool Mode Operation.

**4.3.9** HVC Fault Detection and Diagnostics.

**4.3.10** HVC Auto Stop.

**4.3.11** HVC Forced Air.

**4.3.12** HVC Single Mode Heat Operation.

**4.3.13** HVC Dual Mode Heat Operation.

**4.3.14** HVC Time Sensitive Set Temperature Reduction.

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