



Power Convertible Top

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. The purpose of this procedure is to test the Power Convertible Top (PCT) Controller and subsystem from an electrical perspective as it is controlled by Global A modules as defined in the Global General Assembly Service Electrical (GGSE) Functional Diagnostic Requirements Power Soft Folding Top. Although the mechanical motion of the system will be utilized to conduct testing on the electrical system, it is not the intention to verify the operation of the mechanical system as part of this test.

1.2 Applicability. This procedure applies to all Global A platform vehicles having a PCT. Every vehicle program will not incorporate all of the possible PCT features or functionality. Only the PCT features/functionality applicable to the vehicle program under test needs to be tested when running this test procedure.

1.3 Remarks. This is a multi-level test procedure that can be run on a vehicle, system bench, or subsystem bench. The components within this subsystem should have successfully completed component level testing prior to executing this 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.

- CG190 GM Evaluation Report.
- CG2312 - Global A PCT Subsystem Test Procedure.
- GGSE Functional Diagnostic Requirements, available at Uniform Resource Locator (URL): <http://avg.me.gm.com/standard/global/ggse.asp>

3 Resources

3.1 Facilities. Electrical Development Lab with System and/or Subsystem Level Bench with appropriate subsystem components and/or loads.

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 A serial data interface and supporting personal computer application software to monitor General Motors Local Area Network (GMLAN) signals.

3.2.2 Multimeter to measure voltage outputs.

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3.2.3 Oscilloscope to measure current, analog and digital signals.

3.2.4 Stopwatch to measure timing and latency.

3.3 Test Vehicle/Test Piece. Program System and/or Subsystem Bench, fully populated with necessary subsystem inputs/outputs (I/O), and with the appropriate revisions of hardware and software for each relevant module.

3.4 Test Time.

Calendar time: 15 days

Test hours: 120 hours

Coordination hours: 3 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. The minimum required skill set to fully understand and execute this test procedure includes familiarity with GMLAN and with the chosen Serial Data Interface Tool's hardware and software.

4 Procedure

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

4.2 Conditions. Battery voltage ≥ 9.0 V and ≤ 16.0 V. Specific test conditions are listed under "Test Conditions" at the beginning of each test step. These conditions may include, but are not limited to, setting up the GMLAN analyzer tool to view specified messages. Refer CG2312 for additional test conditions.

4.2.1 Environmental Conditions. Not applicable.

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. For each PCT feature/function available for a given Global A vehicle program, perform the applicable tests in CG2312. The table of contents within CG2312 summarizes the applicable testing devices (subsystem bench, system bench, and vehicle) to be used for each test step.

4.3.1 PCT open/close.

4.3.1.1 Power moding.

4.3.1.2 Fob operation.

4.3.1.3 Operating voltage – Under voltage and over voltage.

4.3.1.4 Running reset operation.

4.3.2 Vehicle speed – Maximum vehicle speed exceeded and warning vehicle speed.

4.3.3 PCT subsystem motion at minimum and maximum operating temperature.

4.3.4 PCT subsystem activation.

4.3.4.1 Manual top latch at header.

4.3.4.2 Valet mode.

4.3.4.3 Local switch request.

4.3.4.4 Fob remote request.

4.3.4.5 Window interaction with open of PCT.

4.3.4.6 Window interaction with close of PCT.

4.3.4.7 Confirmation of successful Fob operation.

4.3.4.8 Folding top state reporting.

4.3.4.9 Logistics mode.

4.3.4.10 Factory mode.

4.3.5 Top not secure.

4.3.6 Window operation.

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