



Power Windows

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. To test the functionality and arbitration of the Local Interconnect Network (LIN) based power window subsystem.

1.2 Applicability. This test procedure applies to all 2010 model year and beyond Global A and Global B electrical architecture based programs.

1.3 Remarks. This procedure tests the electrical functions that support the Global A Architecture Power Windows Electrical Subsystem Technical Specification (SSTS) and Global B Power Windows Feature - Functional Name Code (FNC) Document (Functional Technical Document).

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3110

2.3 Additional References.

- CG2324 Global A Architecture Power Windows Subsystem Test Procedure.
- CG4547 Global B Architecture Power Windows Subsystem Test Procedure.
- Global A Architecture Power Windows Electrical SSTS.
- Global B Power Window Feature - FNC Document (Functional Technical Document).

3 Resources

3.1 Facilities. This procedure should be performed on a Global A or Global B electrical architecture system bench and or a vehicle. Some steps are intended for system bench testing only, and are noted in the CG2324 (for Global A) and CG4547 (for Global B). The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

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 (PC) application software to monitor General Motors Local Area Network (GMLAN) signals.

3.2.2 An oscilloscope to measure current, analog or digital signals.

3.2.3 A stop watch to measure timing and latency.

GM Confidential

© Copyright 2017 General Motors Company All Rights Reserved

November 2017

Page 1 of 4

3.2.4 A Direct Current (DC) variable power supply or equivalent (to simulate high and low vehicle battery voltage).

3.3 Test Vehicle/Test Piece. This requires a system bench or vehicle with an updated Body Control Module (BCM), Door Switch Panels (DSP), and Power Window Lifters (PWL) with or without window electronics.

3.4 Test Time.

Calendar time: 11 days

Test time: 80 h

Coordination time: 8 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. A Subsystem Test Engineer with the following:

3.6.1 Knowledge of GMLAN serial data, including the ability to transmit serial data messages both functional and physical serial data messages.

3.6.2 Knowledge of the Global A Architecture Power Windows Electrical SSTS and Global B Architecture Power Windows Electrical Feature FNC documents.

3.6.3 Basic understanding of Global A BCM calibration structure/implementation (for Global A) and Global B BCM calibration structure/implementation (for Global B)

3.6.4 Knowledge and understanding of GMW3110 GMLAN Enhanced Diagnostic Test Mode Specification.

4 Procedure

4.1 Preparation. Verify the following:

4.1.1 All components on the system bench or vehicle have correct hardware and software levels.

4.1.2 The BCM has correct power window calibration files and operating software for the power window configuration/level.

4.1.3 All DSP are updated with latest software for the power window configuration/level.

4.1.4 The Power Window Electronics (PWE) software is updated and calibrated for the correct power window configuration/level.

4.2 Conditions. The full test procedure should be performed at a system voltage of 13 Volts Direct Current (VDC). Normal functionality should be tested at a system bench voltage of 9.0 VDC to 16.0 VDC.

4.2.1 Environmental Conditions. Test at room temperature. Temperature inputs will be varied as a part of the test procedure.

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 Power Window Feature Functionality, perform the steps in CG2324 (for Global A) and CG4547 (for Global B). The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results.

- Meets Requirement: Indicates that the test has been completed and the system is working as intended.
- Does Not Meet Requirements: Indicates that the test has been completed, but the system is not working as intended.
- Not Tested: Indicates that the test applies and has been delivered, but has not been completed.
- Not applicable: Indicates that the test does not apply.
- Not Delivered: Indicates that the test applies, but the function that allows completion of this test has not been implemented/calibrated-on yet.
- Not Calibrated On: Indicates that the calibration required for test is not turned on.

GM Confidential

© Copyright 2017 General Motors Company All Rights Reserved

November 2017

Page 2 of 4