



Rear Drive Control Module Subsystem Function Test

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 Rear Drive Control Module (RDCM) subsystem on a system bench or vehicle. This test procedure examines All Wheel Drive (AWD) and Electronic Limited Slip Differential (eLSD) functionality as covered under program specific RDCM Subsystem Technical Specification (SSTS) for General Motors Local Area Network (GMLAN) based systems.

1.2 Applicability. This procedure applies to Global A electrical architecture vehicles having the RDCM with AWD and/or the eLSD system content/option.

1.3 Remarks. This is a bench level test procedure that is to be used when testing the RDCM. 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.

GMW3110

2.3 Additional References.

- CG2218 RDCM Test Procedure
- Rear Drive Control Module (RDCM) SSTS

3 Resources

3.1 Facilities. Electrical development lab with access to Ethernet drops and Alternating Current (AC) power.

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. The minimum required set of equipment to perform this test procedure manually includes:

3.2.1 Oscilloscope.

3.2.2 Direct Current (DC) power supply.

3.2.3 Serial data interface tool set.

3.2.4 Additional real and/or simulated loads, if not part of bench setup, for the RDCM.

3.2.5 Multimeter.

3.2.6 Personal Computer (PC) with software to monitor serial data and capture trace files.

3.3 Test Vehicle/Test Piece. Program system and/or subsystem bench, fully populated with necessary subsystem input/output, with the appropriate revisions of hardware and software for each relevant module.

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3.4 Test Time.

Calendar time: (4 to 7) d
Test time: (32 to 56) h
Coordination time: 4 h

3.5 Test Required Information.

 Not applicable.

3.6 Personnel/Skills.

- Familiarity with specified serial data communications protocol and tool set.
- Ability to measure signal event to signal latency.
- Familiarity with GMLAN diagnostics.
- Familiarity with AWD/eLSD system.
- This procedure can be performed with one person.

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 levels.

4.2 Conditions.

4.2.1 Environmental Conditions. Conditions must be consistent with those specified in the RDCM Subsystem Technical Specification.

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.

4.2.2.1 Testing will be performed on a system or subsystem bench in the electrical lab.

4.3 Instructions. Follow instructions specified in CG2218 to verify the following features:

Note: CG2218 references GMW3110.

4.3.1 Driving Mode Control Support.

4.3.2 Mini-Spare Logic.

4.3.3 Thermal Management.

4.3.3.1 Thermal model.

4.3.4 Driver Display.

4.3.5 Diagnostics.

4.3.5.1 Diagnostic Trouble Codes (DTC).

4.3.5.2 Data Identifier (DID).

4.3.5.3 Parameter Identifier (PID).

4.3.5.4 Control Parameter Identifier (CPID).

4.3.5.5 Serial data.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. The detailed test procedures referenced in CG2218 document the user actions and expected results for each test step. The test engineer is to perform the test steps, compare the actual results to the expected results, and then determine if the subsystem does/does not meet the requirements. Some test steps may not be applicable to the configuration and/or calibration being tested.

5.3 Test Documentation. Noncompliances will be documented in the Electrical and Software Issue Management System (ESIMS) or Problem Resolution Tracking System (PRTS). Other test documentation may be maintained as needed for reference purpose only.

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