



Structural Laboratories Channels to Record

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 identify the Road Load Data Acquisition (RLDA) or Virtual Road Load Data Acquisition (vRLDA) analysis channels that are to be recorded or calculated for common laboratory tests.

1.2 Applicability. This standard is intended to provide baseline guidance for channel selection when planning an RLDA for Structural Durability Laboratory testing (See GMWs listed in Appendix A). In all cases, it may be necessary to add or modify channels for a given test, but the listed channels will typically allow development of a good, accurate laboratory 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.

GMW15242

GMW15243

3 Resources

3.1 Facilities.

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. Not applicable.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time. Not applicable.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

Appendix A, Table A1 contains the channels to record for various test procedures. These are to be considered the minimum channels. Review each test procedure for which data is being recorded for potential additional channels for correlation, etc. Reference GMW15243 for additional standards on channel naming, data quality, etc.

4.1 Preparation. Not applicable.

4.2 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. Not applicable.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. Not applicable.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

7 Notes

7.1 Glossary. See GMW15242.

7.2 Acronyms, Abbreviations, and Symbols.

4WD	Four Wheel Drive
BOF	Body on Frame
DOF	Degrees of Freedom
FWD	Front Wheel Drive
RLDA	Road Load Data Acquisition
RPM	Revolutions Per Minute
RVDT	Rotary Variable Differential Transformer
RWD	Rear Wheel Drive
vRLDA	Virtual Road Load Data Acquisition

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Test to GMW15268

9 Release and Revisions

This standard was originated in March 2006. It was first approved by the Global Durability Laboratory Expert Team in March 2008. It was first published in April 2008.

Issue	Publication Date	Description (Organization)
1	APR 2008	Initial publication.
2	JUN 2013	Updated for 5 year refresh. (Global Structural Durability Laboratory Expert Team)
3	MAR 2016	Updated content in Table A1 and added reference to vRLDA. (Body - Global Structural Durability Laboratory Expert Team)

Appendix A

Table A1: Channels to Record for Structural Durability Test Development

Channel	GMW15189 - Full Vehicle Lab Durability Test Note 1	GMW14045 - Four Post Laboratory Road Simulation Note 2	GMW14868 - Powertrain Mount System - Inertia-Reaction	GMW15263 - Exhaust System Durability - Longitudinal Mounted Powertrain	GMW15263 - Exhaust System Durability - Transverse Mounted Powertrain	GMW14299 - Rack and Pinion Attachment Durability	GMW14794 - Suspension Multiaxial (Front) Note 3, Note 4	GMW14794 - Suspension Multiaxial (Rear) Note 3, Note 4	Comments
Wheel Force Transducer LF 6 Degrees of Freedom (DOF)	6	-	-	-	-	-	6	-	Corrected to vehicle coordinates.
Wheel Force Transducer RF 6 DOF	6	-	-	-	-	-	6	-	Corrected to vehicle coordinates.
Wheel Force Transducer LR 6 DOF	6	-	-	-	-	-	-	6	Corrected to vehicle coordinates.
Wheel Force Transducer RR 6 DOF	6	-	-	-	-	-	-	6	Corrected to vehicle coordinates.
Spindle Vertical Acceleration	4	4	-	-	-	-	-	-	Each corner.
Frame/Body Vertical Acceleration	4	4	-	-	-	-	-	-	Each corner.
Front Lower Control Arm Angle	-	-	-	-	-	2	-	-	Rotary Variable Differential Transformer (RVDT) calibrated in angle. Left and Right or
Spindle Wheel to Body Displacement Front	Note 5	Note 5	-	-	-	-	2	-	RVDT or Hall Pot. Calibrated in Angle. Alternative is shock displacement.
Spindle Wheel to Body Displacement Rear	Note 5	Note 5	-	-	-	-	-	2	RVDT or Hall Pot. Calibrated in Angle. Alternative is shock displacement.
Frame Twist	1	1	-	-	-	-	-	-	Typically used on Body on Frame (BOF) trucks.
Stabilizer Bar Drop Link Force Front	2	2	-	-	-	-	2	-	Typical left and right. Revert to Stabilizer Bar Torque if the drop link is too difficult to gage.
Stabilizer Bar Drop Link Force Rear	2	2	-	-	-	-	-	2	Typical left and right. Revert to Stabilizer Bar Torque if the drop link is too difficult to gage or rear suspension is a twist axle.
Rear Track Bar Axial Force	1	-	-	-	-	-	-	1	Additional channels to collect when conducting an RLDA for a rear trailing arm twist axle.

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