| | | |
|---|---|---|
| GM WORLDWIDE ENGINEERING STANDARDS | Test Procedure | GMW15715 |

# Durability Event: Anti-Lock Brake System (ABS) - Durability Skid Pad

## 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 subject a vehicle to operation over a series of various coefficient of friction road surfaces to produce activations (forward and reverse) at various speeds of the vehicle's Anti-Lock Brake System (ABS).

**1.2 Applicability.** The test instructions covered in this standard are intended for use in passenger car and truck testing of vehicles equipped with an Anti-Lock Brake System and should be adapted at all major GM test sites:

- Cruz Alta Proving Ground – Brazil
- Guangde Proving Ground - China
- Lang Lang Proving Ground – Australia
- Milford Proving Ground – United States of America

This global test procedure is intended to document the test facility requirements and driving instructions necessary to properly execute this durability event. Regional test procedures exist in order to implement this global procedure at the various GM proving grounds. Each regional test procedure includes the driving instructions for the specific access roads to and from the test facility, references to local signs and landmarks, and any other region-specific information necessary to implement this GMW durability event.

## 2 References

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

**2.1 External Standards/Specifications.**

None

**2.2 GM Standards/Specifications.**

GMW15444 GMW15445

**2.3 Additional References.**

**2.3.1 Cruz Alta.** DR.CA.1322.

**2.3.2 Guangde.** DR.GD.AS.

**2.3.3 Lang Lang.** DR.LL.7AS.

**2.3.4 Milford.** DR.MF.AS.

## 3 Resources

**3.1 Facilities.** Durability Skid Pad facility or similar area. The specific location/facility used at each proving ground varies. Refer to the appropriate proving ground driving instruction document.

**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.



© Copyright 2018 General Motors Company All Rights Reserved



Documents Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW15715 2018

**3.2 Equipment.** Refer to the appropriate proving ground driving instructions document.

**3.3 Test Vehicle/Test Piece.** Not applicable.

**3.4 Test Time.** 4 minutes (proving ground dependent).

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

**3.6 Personnel/Skills.** Refer to the appropriate proving ground driving instructions document.

## 4 Procedure

**4.1 Preparation.** Refer to the appropriate proving ground driving instructions document.

**4.2 Conditions.**

**4.2.1 Environmental Conditions.** The polished concrete must be wet before using the durability skid pad. If the polished concrete is not wet, the watering system should be activated. If the region has weather conditions that do not allow a watering system during all seasons, an alternative method should be utilized to ensure the polished concrete surface is wet. In situations where severe weather makes driving unsafe, this event should be postponed until conditions improve.

**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.**

**4.3.1 Driving Procedure Durability Skid Pad.** This event is to be conducted in conjunction with other driving instructions that provide access to this facility (whenever possible).

**4.3.2** This driving event consists of three (3) passes of the Durability Skid Pad.

**4.3.2.1** See Appendix A “Driving Instructions” for driving speeds and maneuvers relating to procedure.

**4.3.2.2** See Appendix A Table A1 “ABS Application Summary” which summarizes ABS applications within this driving instruction.

**4.3.2.3** See Appendix A Figure A1 “Anti-Lock Brake System (ABS) Event” which shows a complete outline of the skid pad.

## 5 Data

**5.1 Calculations.** Refer to the appropriate durability test standard.

**5.2 Interpretation of Results.** Refer to the appropriate durability test standard.

**5.3 Test Documentation.** Refer to the appropriate durability test standard.

## 6 Safety

This standard may involve hazardous materials, operations, and equipment. This standard does not propose to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

In general, a risk assessment needs to be performed for every driving instruction prior to executing this standard. (**Note:** National law needs to be considered while performing a risk assessment.) The required rating of risk by exposure probability and possible violation will be done in a separate document. Every identified risk must be named inside the risk assessment for the relevant driving instruction in order to announce that risk to employees. Within the risk assessment, the vehicle equipment and different vehicle build stages have to be considered. After performing a risk assessment, non-acceptable risk needs to be mitigated by appropriate countermeasures. Here technical measures are preferred because these are independent from attendant circumstances. In case technical measures are not appropriate, organizational and/or personal measures will apply. This includes training, wearing of Personal Protection Equipment, or arrangement of idle time.

**6.1 Safety Precautions.**

**6.1.1** Instrumentation and other test equipment must be securely mounted in accordance with proving grounds traffic safety guidelines for mounting and usage of in-vehicle instrumentation.



© Copyright 2018 General Motors Company All Rights Reserved



Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW15715 2018

**6.1.2** All running lights and vehicle safety features must be operational according to proving grounds rules for running lights and power windows. Exterior lights must not be obscured by styling add-ons, covers or camouflage packages. The horn may be disabled because of steer angle transducer installation.

**6.1.3** A helmet is required in accordance with the regulations of the test facility. The vehicle should never be operated in a manner where the vehicle leaves the roadway or goes onto the shoulder for any reason.

**6.1.4** Check for proper attachment of the steering wheel to the gear via the intermediate shaft. If it feels loose or abnormal, do not run the test until the parts are properly assembled according to the intended design.

**6.1.5** Check to be certain that all wheel lugs are present and have the specified torque. Loose or missing wheel fasteners are to be replaced, installed or tightened before the test may begin.

**6.1.6** The driver's seatbelt must be worn at all times during the test. Passengers accompanying the test operator must also be safely belted in the vehicle, preferably in the right rear seat.

**Note:** Passengers are allowed for observation or training purposes.

**6.1.7** If a crossbar is used to hold the steering wheel angle transducer base plate, the passenger side airbag is to be disabled or disconnected.

## 7 Notes

**7.1 Glossary.** Refer to GMW15444 "Durability Definitions and Instructions" for definitions of terms. Also, refer to GMW15445 "Vehicle Ballast" for definitions of ballast related terms.

**7.2 Acronyms, Abbreviations, and Symbols.**

**ABS** Anti-Lock Brake System
**DS** Downshift
**DWB** Decelerate without Brakes
**LA** Light Acceleration
**LB** Light Brake
**M-STOP** Moderate Brake to Stop
**MPG** Milford Proving Ground
**PUMA** Product Usage Measurements and Applications
**TCS** Traction Control System
**VTS** Vehicle Technical Specification
**WOT** Wide Open Throttle

## 8 Coding System

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

Test to GMW15715

## 9 Release and Revisions

This standard was originated in October 2007. It was first approved by the Global Durability Test Development Team in January 2008. It was first published in February 2008.

| Issue | Publication Date | Description (Organization) |
|---|---|---|
| 1 | FEB 2008 | Initial publication. |
| 2 | AUG 2013 | Removed Ding Yuan Proving Ground; added Guangde Proving Ground; added full brake apply to first pass. Five year refresh. (Global Proving Ground Durability Test Development Team) |
| 3 | APR 2018 | Five year refresh; removed Beijing and Millbrook Proving Grounds. (Global Proving Ground Durability Test Development Team) |



© Copyright 2018 General Motors Company All Rights Reserved



Documents
Document Sharing Hub

Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW15715 2018