



Durability Event: City Course

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 steering maneuvers, speeds, accelerations, and brake operations similar to those experienced by customer vehicles in city-type driving.

1.2 Applicability. The test instructions covered in this standard are intended for use in passenger car and truck testing and should be adapted at all major GM test sites:

- Cruz Alta Proving Ground – Brazil
- Desert Proving Ground – Yuma, Arizona, United States of America
- Dudenhofen Proving Ground – Germany
- 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 module. Regional test procedures (see 2.3) 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.

- **Cruz Alta:** DR.CA.1258
- **Yuma:** DR.YU.CY
- **Dudenhofen:** DR.DH.City
- **Guangde:** DR.GD.CY
- **Lang Lang:** DR.LL.7CS4
- **Milford:** DR.MF.CY

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3 Resources

3.1 Facilities. The specific location/facility used at each proving ground varies.

A flat, level paved road surface that the driver can safely stop and back up on is required for the reverse area steering maneuver.

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. Refer to the appropriate proving ground driving instruction document.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time. The time required to execute this event varies by proving ground. Refer to the appropriate proving ground driving instruction document.

3.5 Test Required Information. Not applicable.

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

4 Procedure

4.1 Preparation. Refer to the appropriate proving ground driving instruction document.

4.2 Conditions.

4.2.1 Environmental Conditions. Inclement weather conditions may produce road conditions which do not allow safe operation at module speeds. In such cases, operation should be postponed until road conditions permit specified speeds. These conditions should be reported to the test responsible supervisor as soon as possible.

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.

No more than one cycle of the City module should be run in a row. This equates to five (5) laps of the Large City Course Facility and eight (8) laps of the Small City Course Facility.

4.3 Instructions. This driving module consists of either eight laps of the Small City Course Facility or five (5) laps of the Large City Course Facility. A FULL steering maneuver (see Definitions in GMW15444) is required where specified in the procedure, even when the vehicle can accomplish the turn without one. On the other hand, long wheelbase vehicles will experience a greater number of full steering turns to accomplish the same steering path.

Refer to Figure A1 in Appendix A for the Small eight (8) Lap City Course Driving Instructions and Figure B1 in Appendix B for the Large 5 Lap City Driving Instructions.

This Driving Instruction specifies a high number of vehicle stops/starts similar to customer vehicle operation in congested traffic areas. For test vehicles with manual transmissions, the driver is to avoid excessive clutch slip (or partial engagement of the clutch) when shifting gears. This is especially important when taking off from a stopped condition.

For most passenger cars with manual transmissions, the recommended maximum engine speed at launch during clutch engagement is 1500 rpm. This engine speed may need to be modified depending on the vehicle's power to mass ratio, ballast condition, final gear ratio, etc., to prevent engine stalling. Necessary modifications shall be agreed to by both Global Propulsion System (GPS) and Validation test personnel and shared with the Vehicle Chief Engineer.

The 5 laps of the City Course shall result in a total of 5 reverses while backing up in a straight line and 5 reverses while backing up in a turn.

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.

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