



Test of Ashtray and Small Compartments With Volume Less Than 1 Liter

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. Test the ashtray/compartment according to the various performance criteria.

1.2 Applicability. This specification is applicable to:

- Ashtrays/Compartments that rotate in a vertical direction.
- Ashtrays/Compartments with folding motion.
- Ashtrays/Compartments that rotate in a horizontal direction.
- Ashtrays/Compartments with drawer systems.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059 GMW14264

2.3 Additional References.

- Statement of Requirements (SOR) Appendix C2
- Subsystem Technical Specification (SSTS)

3 Test Preparation and Evaluation

3.1 Resources.

3.1.1 Facilities.

- a. Milford Proving Ground, GM Opel Dudenhofen Proving Ground or equivalent proving ground.
- b. Motorway, federal road, cobblestones.
- c. Climatic chamber.
- d. Durability test stand.

3.1.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.1.2 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.

3.1.2 Equipment.

3.1.2.1 Tensile/compression gauge with hook, piston with a diameter of 10 mm and clamp; measuring range 0 N to 50 N.

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3.1.2.2 Caliper gauge.

3.1.2.3 Tape measure.

3.1.2.4 Steel ruler.

3.1.2.5 Contactless device for measurement of Opening Time.

3.1.2.6 Filling for volumetric measurement.

3.1.3 Test Vehicle/Test Piece.

3.1.3.1 Ashtray/Compartment with rotating vertical system.

3.1.3.2 Ashtray/Compartment with folding system.

3.1.3.3 Ashtray/Compartment with rotating system.

3.1.3.4 Ashtray/Compartment with drawer system.

3.1.4 Test Time. Not applicable.

3.1.5 Test Required Information. Not applicable.

3.1.6 Personnel/Skills. Not applicable.

3.2 Preparation. Not applicable.

3.3 Conditions.

3.3.1 Environmental Conditions. Not applicable.

3.3.2 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.

3.4 Instructions. Not applicable.

3.5 Data. Not applicable.

3.6 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.

3.6.1 Safety Precautions.

3.6.1.1 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.

3.6.1.2 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.

3.6.1.3 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.

3.6.1.4 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.

3.6.1.5 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.

3.6.1.6 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.

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

3.7 Documentation. Samples of components or material released to this standard shall be tested for conformity with the requirements of this standard and approved by the responsible GM department prior to the start of delivery of production level components or materials.

Any change to the component or material, e.g., design, function, properties, manufacturing process and/or location of manufacture requires a new release of the product. It is the sole responsibility of the supplier to

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provide the customer, unsolicited, with documentation of any change or modification to the product/process, and to apply for a new release.

If not otherwise agreed to, the entire verification test shall be repeated and documented by the supplier prior to start of delivery of the modified or changed product. In some cases, a shorter test can be agreed to between the responsible GM department and the supplier.

3.7.1 Test Results. Variables are provided for values which are not explicitly listed. The required test result values are given in Table A2. Deviations of these values are defined in the Statement of Requirements (SOR) Appendix C2, if applicable. List the date of the measurement and the devices used in Appendix A, Table A1.

3.7.1.1 Subjective evaluation shall be made according to GMW14264.

3.7.1.2 The results shall be entered in the corresponding Data Sheets A1, A2, A3 and A4 in Appendix A.

3.7.2 Deviations from Test Procedure. Deviations from the test procedure requirements shall be agreed upon by GM Validation prior to test start. The deviations shall be specified on component drawings, test certificates, reports, etc.

3.7.2.1 In case nothing else is defined within the Subsystem Technical Specification (SSTS) C1 or SSTS C2, all performance specifications shall be fulfilled within a temperature range of $-30\text{ }^{\circ}\text{C} \pm 5$ to $+85\text{ }^{\circ}\text{C} \pm 5$.

3.7.2.2 The four temperature ranges in Table 1 shall be selected for the test:

Table 1: Temperature Ranges

Temperature Profile 1	$+23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$
Temperature Profile 2	$+85\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$
Temperature Profile 3	$-30\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$
Temperature Profile 4	$+40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$, Relative Humidity (RH) 95%

4 Requirements and Procedure

4.1 General Preparation. Each ashtray or compartment shall be checked for conformance to the current development/release status before each test.

4.1.1 All fasteners shall be present, undamaged and correctly installed. If this is not the case, the fasteners shall be supplemented or corrected. Any modifications shall be noted.

4.2 Measurement of Release Force F1.

4.2.1 Measurement of Release Force F1 with a Push-Push Release System. See example for a vertical rotating lid in Figure 1. The tensile/compression gauge with piston shall be used for measuring the Release Force F1 in the ashtray with push-push system.

4.2.1.1 The piston shall be applied to the ashtray at the maximum distance from the rotation axis or at the height of an actuation marking, if present, and shall be pushed in the direction of actuation until the ashtray is released (Figure 1).

4.2.1.2 Each measurement shall be performed three times, in the center and on the left and right sides.

4.2.1.3 Care shall be taken to avoid pushing against existing limit stops which are essential to the system.

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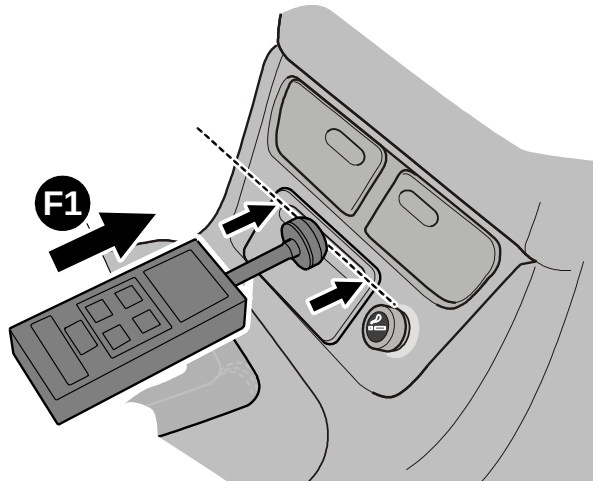


Figure 1: Measurement of Release Force F1 in Push-Push Systems

4.2.2 Measurement of Release Force F1 in Systems with Release Button. A tensile/compression gauge equipped with a piston shall be used to measure the system Release Force F1 on ashtrays or compartments with a release button.

4.2.2.1 The piston shall be applied to the release button and shall be pushed in the direction of actuation until the ashtray or compartment is released (Figure 2).

4.2.2.2 Measurement shall be performed three times.

4.2.2.3 Care shall be taken to avoid pushing against existing limit stops which are essential to the system.

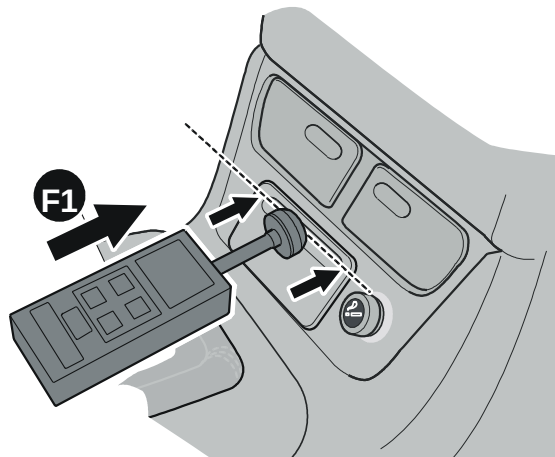


Figure 2: Release Force F1 in Systems with Release Button

4.2.3 Measurement of Release Force F1 in a Pull-to-Open System Systems. A tensile/compression gauge equipped with a hook or piston shall be used to measure the Release Force F1 on ashtrays or compartments with a Pull-to-Open system.

4.2.3.1 The hook/piston shall be applied to the grip recess on the ashtray or compartment cover and shall be pulled/pushed out of the detent position (Figure 3).

4.2.3.2 Each measurement shall be performed three times, at the center, left and right sides.

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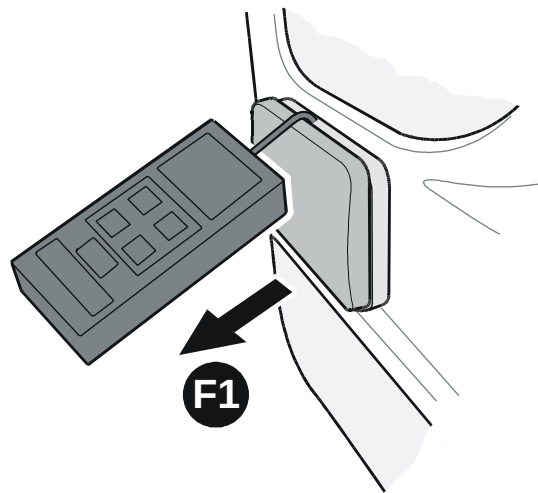


Figure 3: Release Force F1 in Folding Systems

4.2.4 Measurement of Release Force F1 in Rotating Horizontal Systems. A tensile/compression gauge equipped with a piston shall be used to measure the Release Force F1 on ashtrays or compartments with a rotating system.

4.2.4.1 The piston shall be applied on the ashtray or compartment at the maximum distance from the rotation axis or at the height of an actuation marking, if present, and shall be pushed in the direction of actuation until the ashtray or compartment is released (Figure 4).

4.2.4.2 Measurement shall be performed three times.

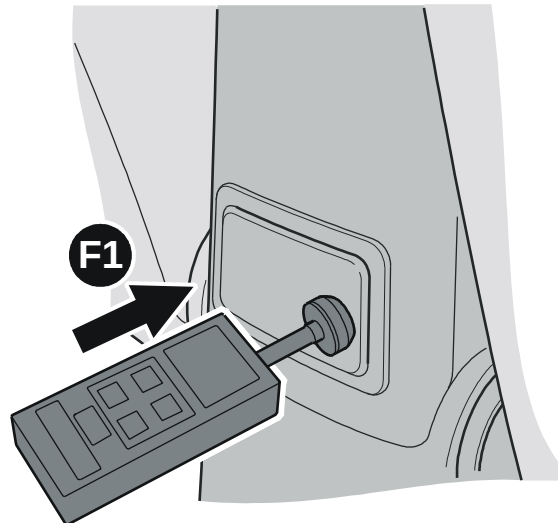


Figure 4: Release Force F1 in Rotating Horizontal Systems

4.2.5 Measurement of Release Force F1 in Drawer Systems. A tensile/compression gauge equipped with a hook shall be used to measure the Release Force F1 on ashtrays or compartments with a drawer system.

4.2.5.1 The hook shall be applied to the grip recess and shall be pulled in the direction of actuation until the ashtray or compartment is released (Figure 5).

4.2.5.2 Each measurement shall be performed three times, at the center, left and right sides.

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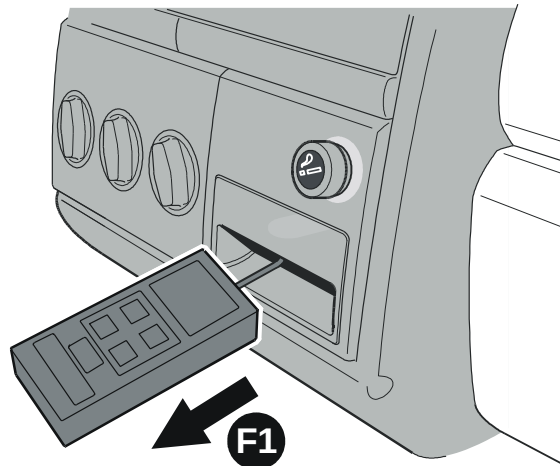


Figure 5: Release Force F1 in Drawer Systems

4.3 Measurement of the Opening Force F2.

4.3.1 Measurement of the Opening Force F2 in Pull-to-Open Systems. A tensile/compression gauge equipped with a hook or piston shall be used to measure the Opening Force F2 on the ashtray or compartment with a folding system.

4.3.1.1 The hook/piston shall be applied to the grip recess and shall be pushed/pulled starting from the F1 measurement point until fully open (Figure 6). The maximum force within the range of travel shall be recorded.

4.3.1.2 Each measurement shall be performed three times, at the center, left and right sides.

4.3.1.3 Care shall be taken to avoid pushing against existing limit stops which are essential to the system.

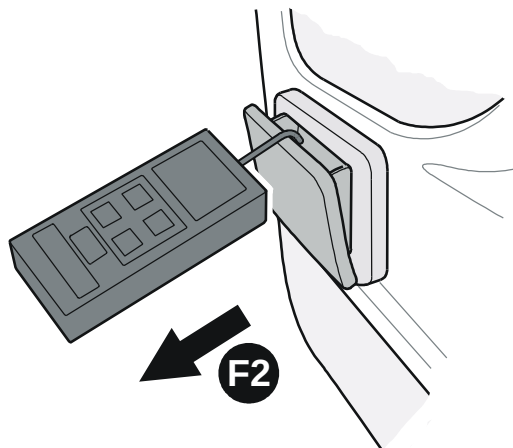


Figure 6: Opening Force F2 in Folding Systems

4.3.2 Measurement of the Opening Force F2 in Rotating Horizontal Systems. A tension/compression gauge equipped with a piston shall be used to measure the Opening Force F2 on the ashtray or compartment with a rotating system.

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4.3.2.1 The piston shall be applied at the maximum distance from the rotation axis or at the height of an actuation marking, if present, and shall be pushed starting from the F1 measurement point until full open (Figure 7). The maximum force within the range of travel shall be recorded.

4.3.2.2 Measurement shall be performed three times.

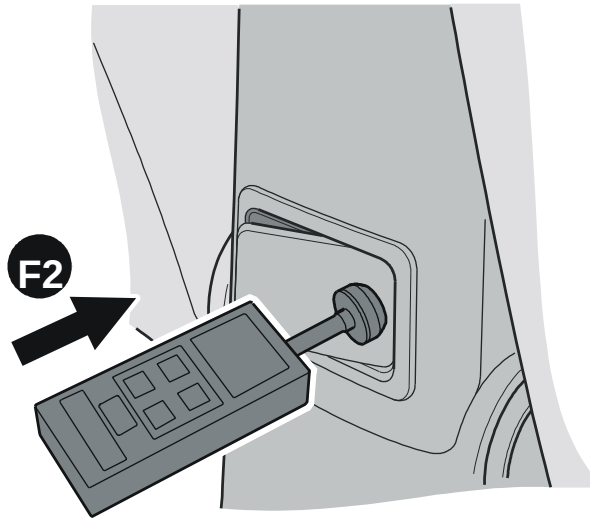


Figure 7: Opening Force F2 in Rotating Horizontal Systems

4.3.3 Measurement of Opening Force F2 in Drawer Systems. A tensile/compression gauge equipped with a hook shall be used to measure the Opening Force F2 on the ashtray or compartment with a drawer system.

4.3.3.1 The hook shall be applied to the grip recess and shall be pulled starting from the F1 measurement point until full open (Figure 8). The maximum force within the range of travel shall be recorded.

4.3.3.2 Each measurement shall be performed three times, at the center, left and right sides.

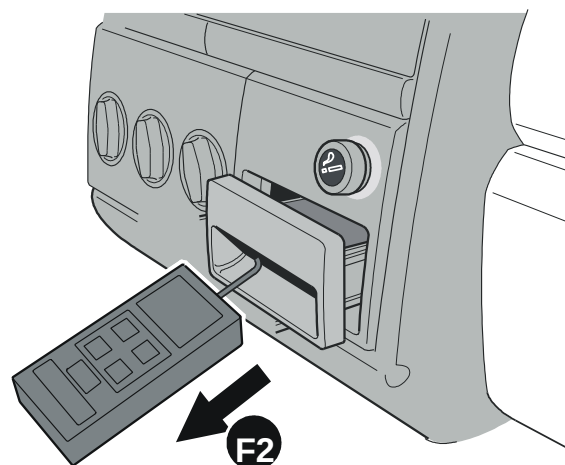


Figure 8: Opening Force F2 in Drawer Systems

4.4 Measurement of Closing Force F3. For the required Closing Force F3, see Table A2.

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4.4.1 Measurement of the Closing Force F3 with a Push-Push Release System. See example for a vertical rotating lid in Figure 9. A tensile/compression gauge equipped with a piston shall be used to measure the Closing Force F3 on the ashtray or compartment with a rotating vertical system.

4.4.1.1 The piston shall be applied at the maximum distance from the rotation axis or at the height of an actuation marking, if present, and shall be pushed starting from full open evenly in the direction of actuation until the latching mechanism contacts its interfacing part (Figure 9). The maximum force within the range of travel shall be recorded.

4.4.1.2 Each measurement shall be performed three times, at the center, left and right sides.

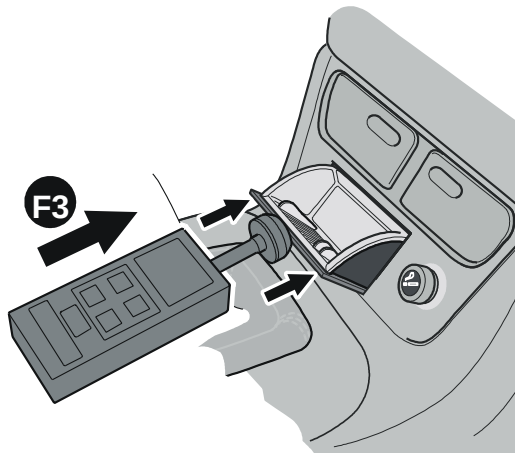


Figure 9: Closing Force F3 in Push-Push Systems

4.4.2 Measurement of the Closing Force F3 in Folding Systems. A tensile/compression gauge equipped with a piston shall be used to measure the Closing Force F3 on the ashtray or compartment with a folding system.

4.4.2.1 The piston shall be applied at the maximum distance from the rotation axis or at the height of an actuation marking, if present, and shall be pushed starting from full open evenly in the direction of actuation until the latching mechanism contacts its interfacing part (Figure 10). The maximum force within the range of travel shall be recorded.

4.4.2.2 Each measurement shall be performed three times, at the center, left and right sides.

4.4.2.3 Care shall be taken to avoid pushing against existing limit stops which are essential to the system.

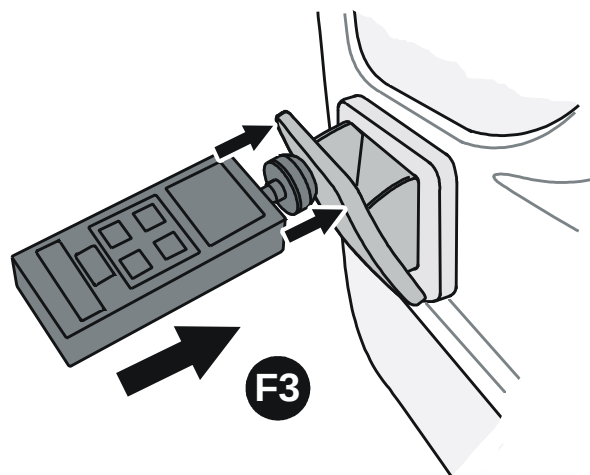


Figure 10: Closing Force F3 in Folding Systems

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