



Pillar Trim Panel and Inner Glass Trim Panel

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. This standard determines the test conditions and requirements for the testing of the pillar trim panel.

1.2 Applicability. Applicable for all pillar trim panels.

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

GMW14444

3 Test Preparation and Evaluation

3.1 Resources.

3.1.1 Facilities.

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.

3.1.1.3 Milford Proving Ground roads (Belgian Block, Expressway (Circle Track), Highway (Oval Track)) or equivalent proving ground.

3.1.1.4 Climatic Chamber.

3.1.2 Equipment.

3.1.2.1 Tensile/compression gauge (measuring range (0 to 500) N) with piston (diameter: 10 mm) and hook.

3.1.2.2 Thermometer.

3.1.2.3 Gauges.

3.1.2.4 Caliper gauge with depth gauge.

3.1.2.5 Steel ruler.

3.1.2.6 Finished sizes.

3.1.2.7 Device for attachment of a gauge.

3.1.2.8 Device for clip/retainer pull-off tests.

3.1.2.9 Contour marker and attachment.

3.1.3 Test Vehicle/Test Piece. Pillar and glass trim panels in installed condition.

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3.1.4 Test Time.

Calendar time: 14 d

Test time: 16 h

Coordination time: 8 h

3.1.5 Test Required Information. Not applicable.

3.1.6 Personnel/Skills. Not applicable.

3.2 Preparation. See 4.1.

3.3 Conditions.**3.3.1 Environmental Conditions.**

3.3.3.1 All performance specifications shall be fulfilled within a temperature range of (-30 to +80) °C.

3.3.3.2 The following three (3) temperature ranges shall be selected for the tests:

- (-30 to -25) °C
- (+20 to +25) °C
- (+65 to +80) °C

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 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.

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 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 shall be provided for values which are not explicitly listed. The values shall be entered in the drawing under the relevant variables.

- a. Subjective evaluation shall be performed according to GMW14264.
- b. The results shall be entered in the relevant data sheets (Appendix B, C, D and E (Data Sheets B1, C1, D1 and E1)). The supplier shall work with the GM Design Responsible Engineer to comprehend these requirements.

4 Requirements and Procedure

4.1 Preparation.

- a. The pillar and glass trim panels (inner) shall be checked for conformance to the current release status before each test.
- b. The correct installed assembly including door seals shall be checked.

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c. All deviations shall be noted and, if possible, corrected. Possible changes shall be documented.

4.2 General Requirements. Tests and requirements according to GMW14444.

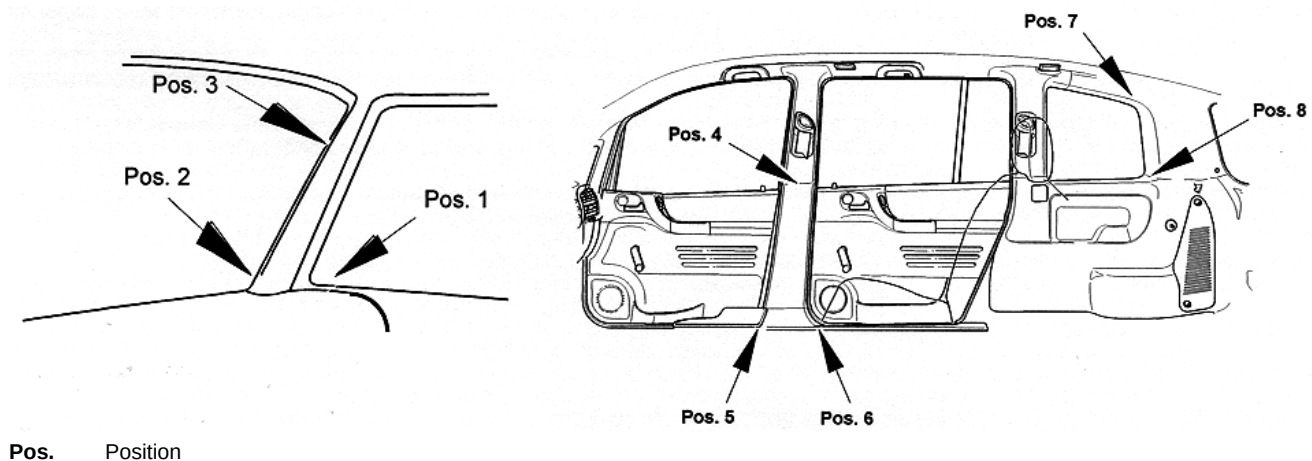
4.3 Appearance.

4.3.1 Gap Dimensions. The following gap dimensions shall be measured at the specified measuring points (see Figure 1).

- Trim panel A-pillar to instrument panel and to windscreen
- Trim panel B-pillar upper to trim panel B-pillar lower as well as trim panel B-pillar lower to rocker panel
- Trim panel C-pillar to side window as well as to cover side panel or cover load compartment
- Trim panel D-pillar to side window as well as to cover load compartment

Gap dimensions are as specified by drawing.

Figure 1: Location of Measuring Points



4.3.2 Fit. The fit of the fitting parts to the pillar/glass trim panels shall be evaluated according to GMW14264.

a. The following transitions shall be assessed:

- A-pillar/headlining
- B-pillar/headlining
- C-pillar/headlining
- D-pillar/headlining
- Glass trim panel (inner)/headlining
- Upper B-pillar/lower B-pillar

b. The fit shall achieve Rating 8 (GMW14264).

4.3.3 Surface Appearance. The surface of the pillar/glass trim panels shall be evaluated according to GMW14264.

- Plastic parts shall not show any sunk spots, flashes.
- Covered components shall have a uniform surface structure.
- Overall evaluation shall obtain Rating ≥ 8 (GMW14264).

4.4 Dimensional Stability of the Pillar Trim Panels.

4.4.1 Dimensional Stability with Force Impact. This test shall be applied to the B-pillar and C-pillar of vehicles with covered D-ring.

An example of the approximate position of force application is shown in Figure 2.

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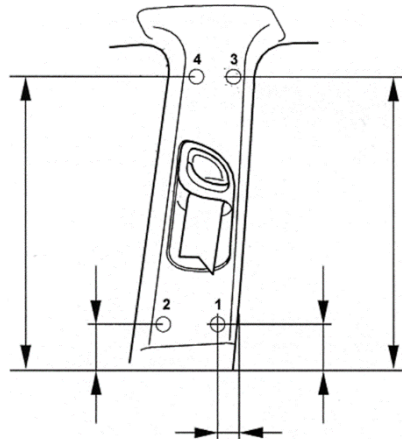
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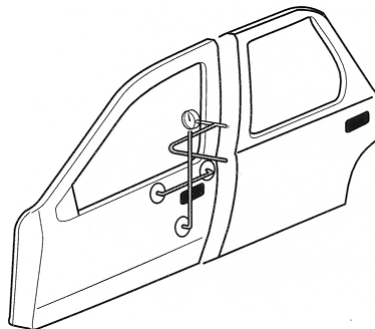
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Figure 2: Location of Measuring Points (example)



- The measuring points shall be located in the most instable areas (finger test) as shown in Figure 2.
- The exact position of the points of measurement shall be documented (e.g., relative to the belt line in height and distance to the edge of the component in width).
- A gauge shall be used for measuring the deformation distance. The gauge shall be attached to a tripod fastened to the door side (see Figure 3).
- With the door open, a tripod standing on the floor may be used.
- The maximum permissible deformation s_1 under force impact of 10 N, 20 N and 30 N shall be specified by drawing.

Figure 3: Tripod Fastened to the Door Side



- After marking the test positions, the gauge shall be positioned at the appropriate points perpendicular to the trim panel surface and reset.
- The tensile/compression gauge with piston (10 mm diameter) shall be used for force application. The force F_D shall be applied perpendicular to the surface of the trim panel. The force application point shall be located 10 mm next to the measuring point and in same height.

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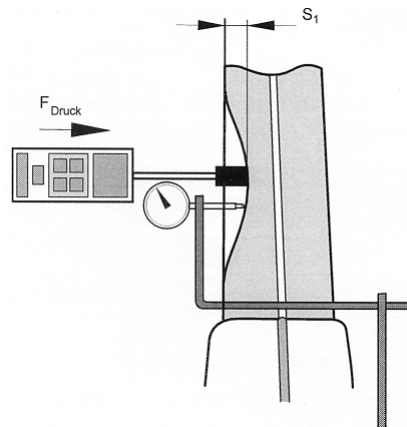
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Figure 4: Deformation of Pillar Trim Panel



- h. The load shall be performed with forces from 0 N to 30 N with an increase of 10 N steps. The deformation of the pillar trim panel (see Figure 4) shall be documented with each step. Three readings shall be documented per load and measuring point.
- i. After release the plastic deformation shall be measured.
- j. After the test function and appearance shall be evaluated.
- k. Remaining deformations of the components after the test are not permitted.

4.4.2 Dimensional Stability during Temperature Load.

4.4.2.1 Trim Panels Connected to Glass.

- a. For trim panels connected to glass:
 - the change of gap dimensions shall be determined by finished sizes (see 4.4.2.1.1)
 - the deformation dimension shall be determined parallel to the glass surface (see 4.4.2.1.2)
- b. The negative influence to the appearance of a possible deformation during and after the test shall be checked.
- c. The maximum permissible deformations s_2 at a temperature increase from $(+23 \pm 5)^\circ\text{C}$ to $(+80 \pm 3)^\circ\text{C}$ shall be $-2 \text{ mm} \leq s_2 \leq +2 \text{ mm}$.
- d. The permissible permanent deformation shall be in a range of $-1 \text{ mm} \leq s_{pl2} \leq +1 \text{ mm}$.

4.4.2.1.1 Determination by Finished Sizes.

- a. The measurement positions are identical as in 4.4.1. The gap dimension shall be measured by finished sizes. The finished sizes shall fit into the gap without any resistance.
- b. The measured values shall be documented and the pillar trim panel shall be heated to $(+80 \pm 3)^\circ\text{C}$ for ≈ 30 minutes. The gap dimensions of the heated part shall be documented. After cooling to $(+23 \pm 5)^\circ\text{C}$ the gaps shall be measured again (see Figure 5).

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