



Retention Performance of Exterior Emblems and Nameplates

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 test is to verify adhesively or mechanically attached exterior emblems/nameplates are compatible with the surface of the mating metal or plastic part through wet-out and retention testing.

1.1.1 The cleavage peel test will measure the maximum force required to separate the emblem/nameplate from the mating surface.

1.1.2 The dynamic sheer force test will apply a load to the edge of the emblem/nameplate, parallel to the mounting surface and measure the movement of the part.

1.2 Applicability. This standard applies to all adhesively or mechanically attached, rigid emblems/nameplates and includes inserts that are part of the badge assembly.

Note: Badge is a generic term for both emblems and nameplates.

This test is required for emblems/nameplates attached to both metal and plastic substrates. It does not apply to poured urethane, flexible emblems

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.

GMW16766

2.3 Additional References.

- Exterior Trim Subsystem Technical Specification (SSTS)
- GM Part Number T76145

3 Resources

3.1 Facilities. A laboratory with a tensile test machine or pull gauge with the proper tip application and an environmental chamber large enough to accommodate the emblem/nameplate and mating component. Alternately, heat lamps may be used to apply heat. See Figure 1.

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.

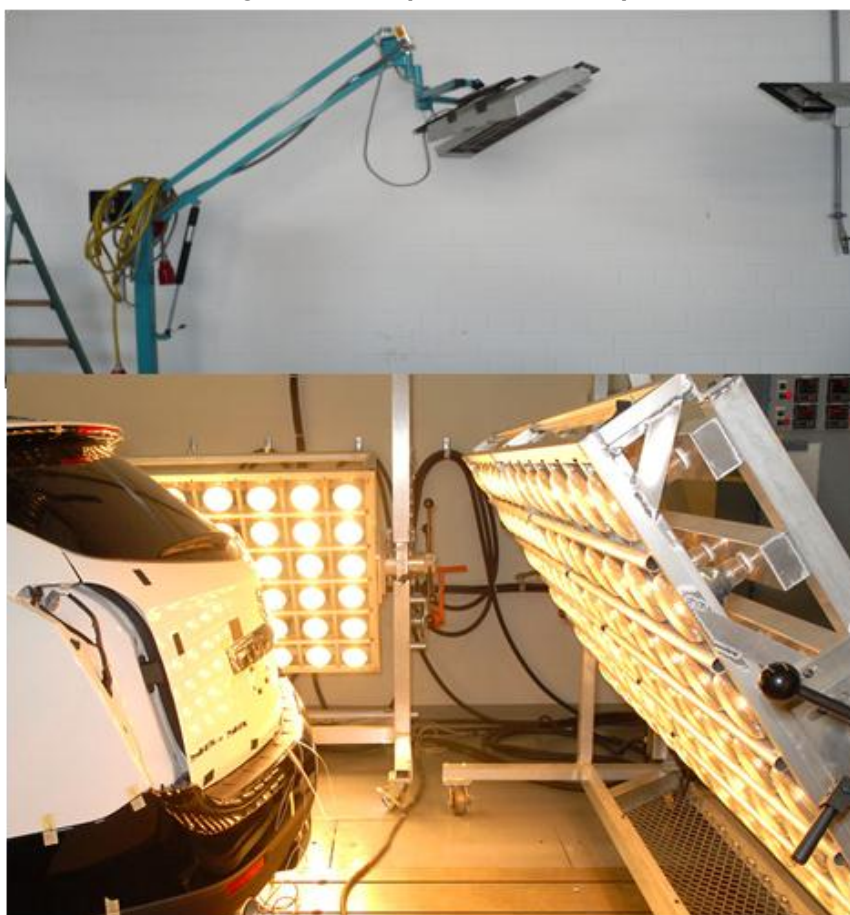
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Figure 1: Examples of Heat Lamps



3.2 Equipment. All testing is to be done using tensile test equipment unless otherwise approved by the Subsystem Validation Engineer (SVE) or the Design Engineer (DE).

3.2.1 Instrumentation.

3.2.1.1 Tensile Tester. Tensile tester with > 200 N load capability.

3.2.1.2 Handheld Pull Gauge. A handheld pull gauge with > 200 N load capability may be used if approved by the SVE or DE. The use of a handheld pull gauge can result in variation due to inconsistent pull speeds. In cases where a handheld pull gauge is the only option, pull as slowly and consistently as possible.

3.2.1.3 Force Recording Equipment. Force recording equipment with > 200 N capability.

3.2.2 Miscellaneous Tools.

3.2.2.1 Tension Tester Attachments.

3.2.2.1.1 An attachment per Figure 2 is required for this test.

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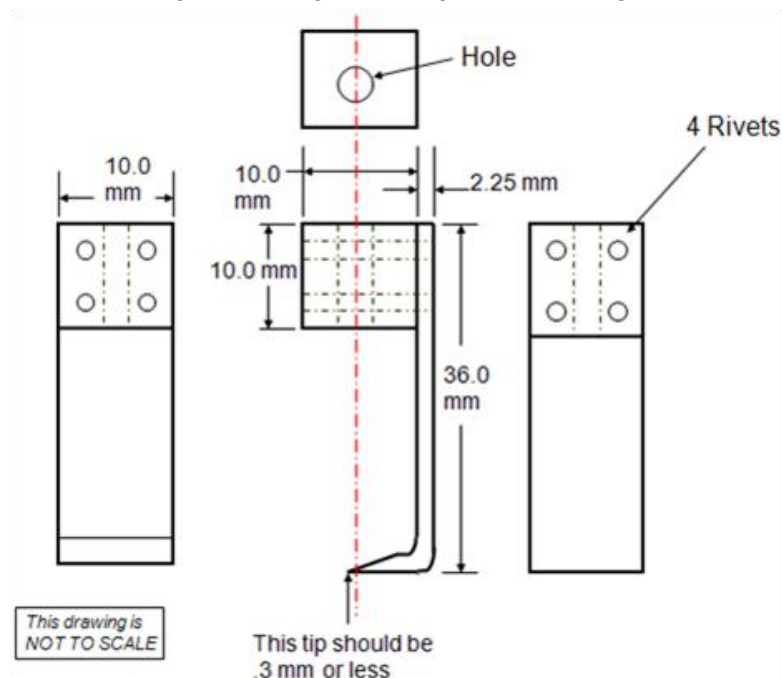
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Figure 2: Diagram of Tip for Pull Gauge



3.2.2.1.2 For areas not accessible by the point of the tip as detailed in 3.2.2.1.1, an aid (T-block, cable, etc.) may be bonded to the show surface of the emblem/nameplate with epoxy. Cables must be applied to the mating surface prior to installing the emblem/nameplate and must not interfere with the retention performance.

3.2.2.2 Roller. An adjustable clutch roller per Figure 3 is required to manually wet-out emblems/nameplates to the mating vehicle sheet metal surface.

3.2.2.3 Scale. Linear (millimeter).

Figure 3: Adjustable Clutch Roller



Clutch Roller

GM Tool Number:	T76145
Manufacturer.:	Guardian
Manufacturer Phone:	(734)591-1454

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3.3 Test Vehicle/Test Piece.

3.3.1 Assembly Plant Attached Emblems/Nameplates. The emblem/nameplate is to be attached to the mating surface which has the production released paint and topcoat system.

3.3.1.1 Use of Production Sheet Metal. The preferred testing method is on vehicles with the production paint, paint process and production mating surface contour. If the emblem/nameplate has > 0.25 mm crown, the test must be done on the production mating component. Examples of sheet metal parts that badges attach to include: hood, fenders, quarters, deck lid, etc.

3.3.1.2 Use of Painted Sheet Metal Plaques. Paint plaques can be used for flat emblems/nameplates that have < 0.25 mm crown. The use of paint plaques must be approved by the SVE and DE.

Note: Paint plaques can be procured by contacting the responsible GM Materials Engineer. GMNA plaques are purchased from an outside source.

3.3.1.3 Common Emblem/Nameplate Used in Multiple Locations. The same emblem/nameplate may be used in multiple locations on varying sheet metal contours. Separate tests must be run at each location.

3.3.2 Tier 1 Supplier Attached Emblems/Nameplates. The emblem/nameplate is to be attached to the mating plastic or metal component by the Tier 1 supplier using the production assembly process. An example would be a badge attached to a grille by the Tier 1 grille assembly supplier.

3.3.3 Carryover Emblem/Nameplate. Existing emblems/nameplates are often used on new programs. All carryover badges must be tested on the new production sheet metal per 3.3.1.1 or the mating component per 3.3.2 to validate the new interface.

3.3.4 Multiple Paint Systems. The same emblem/nameplate may be used on different paint systems. Separate testing must be run on each paint system.

3.4 Test Time.

Cure time: 72 hours

Test time: Facilities/equipment dependent

Coordination time: Facilities/equipment dependent

3.5 Test Required Information.

- Production released paint system
- Interfacing panel curvature
- Minimum wet-out force for assembly plant installed emblems/nameplates

3.6 Personnel/Skills. Prior experience in setting up and running similar tests, and experience in the use of the referenced test equipment is critical to achieving repeatable/reliable results. Test personnel must be able to determine the critical test points and critical angles or must contact the SVE or DE for assistance.

4 Procedure

4.1 Preparation.

4.1.1 All parts must be at the production release level.

4.1.2 All non-production intent items should be noted and the parts should be replaced if defect will affect the test results.

4.1.3 Clean the mating surface before application of the badge by wiping with a 50/50 distilled water/isopropyl alcohol saturated cloth to remove dust or contamination. Then dry with a lint-free clean cloth.

4.2 Conditions.

4.2.1 Environmental Conditions. Testing will be done at $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ (ambient) and at $70\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$.

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 Wet-out Test. A tape wet-out test is required prior to installation of the emblem/nameplate. Three (3) parts from each cavity of the tool are to be tested to GMW16766.

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