



Adhesion Audit of Adhesive Bead on Vehicle Fixed Glass or Body Openings After Reprocess Removal of Glass

1 Scope

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 describes a procedure to evaluate the adhesive on stationary, fixed glass and painted body openings. The evaluation is performed on residual adhesive beads on the glass or body after the fixed glass has been cut and removed from a vehicle body opening in a reprocess event.

The procedure gives an assembly operator the ability to define fixed glass adhesion as it relates to building consistent quality product for GM customers. It is to be used to evaluate glass adhesive on painted metal or fixed automotive glass to determine ongoing bonding capability of the stationary glass bonding assembly process.

1.2 Foreword. In lieu of a full engineering evaluation, this evaluation can be performed by a plant operator. It enables an audit of glass build materials and processes in an efficient and timely manner so as not to impede or distract assembly operations. This adhesion procedure is a modification of GMW3368, Quick Knife Adhesion Test for Stationary Glass Bonding Materials, used to qualify glass bonding adhesive materials.

1.3 Applicability. Bonded Stationary Automotive Glass removed from GM assembly plant vehicles in reprocess conditions.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3368

3 Resources

3.1 Facilities. Not applicable

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.

- 18 mm to 30 mm width putty knife, modified with sharpened edge.
- 18 mm to 30 mm wide chisel.
- Razor knife.
- Protective Gloves
- Table – fixed glass.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time. Not applicable.

3.4.1 Test Material. Fixed glass, windshields, rear windows, quarter windows, or painted body openings with residual adhesive bead.

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation.

4.1.1 Test Sample Preparation. Using existing assembly plant processes, remove the target fixed glass. Refer to reprocess/repair procedures found in local assembly Master Process Document (MPD).

4.1.2 If fixed glass is to be evaluated, locate to a glass table fixture that sufficiently secures sample. This equipment is generally specific to automotive glass geometry. Ensure the glass is secure enough that it will not move.

4.1.3 Test Procedure.

4.1.4 Ensure the subject glass is secure on the holding table.

4.1.5 Starting at any section/length on glass or body opening, and holding the cutting tool at approximately 30 degrees from the surface, cut the cured urethane as close as possible to the bonded substrate for 75 mm to 100 mm. Peel back the cut section of the urethane bead up and away from cutting tool. While still holding the cut section up and away, continue this action while intermittently cutting through the bead to the bonded glass or painted metal surface every 50 mm to 75 mm. Further continue this action in two (2) to three (3) 100 mm sections on all sides until complete. See pictured examples in Appendix A, Figure A1 and Figure A2.

4.1.6 At any point, if the bead releases or delaminates from the glass or painted metal where the substrate under the adhesive bead is exposed, continue along the entire length until the bead is no longer delaminating.

4.1.7 Examine the surface under the cured urethane. Record the separation mode as GO or NO GO considering NO GO as an area where the bead has released/delaminated from the glass or painted metal. NO GO observations are considered questionable and subject to further scrutiny. If the bead does not delaminate, it will be similar to example in Figure A3 of Appendix A. If it releases or partially separates, it will look similar to examples in Figure A4, Figure A5, and Figure A6. Separation modes on painted metal (body side) will be representatively the same.

4.1.8 Record the result on the audit sheet provided and report any release/delamination, NO GO observations to the shift supervisor immediately.

4.1.9 Retain all NO GO vehicles and glass audits for further action.

4.2 Conditions.

4.2.1 Environmental Conditions. Not applicable.

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. Not applicable.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation. Not applicable.

5.4 Report. Report the following:

- Vehicle Style, Color and last eight (8) digits of the Vehicle Identification Number (VIN).
- Where was audit performed.
- Glass opening location - windshield, rear window, or quarter window.
- Glass or body side.
- If delaminated, report approximate length.