



Rear Window Trim

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 specification establishes performance requirements, design constraints, and validation requirements for a Rear Window Trim Subsystem.

1.2 Applicability. All Rear Window Trim Subsystems except hard trim.

1.3 Remarks.

1.3.1 Classification. The Rear Window Trim Subsystem is listed under the following: Uniform Parts Classification (UPC), Functional Name Address (FNA) and Bill of Material (BOM) nomenclature.

- UPC = 1C4M FNA = 0890A (Notchback (NB) Vehicle Rear Window Trim).
- UPC = 1C4J FNA = 6000A (Hatchback (HB) Vehicle Removable Rear Window Trim).
- BOM Row = 40.03:06 Rear Window Trim.

1.3.2 The Rear Window Trim (RWT) Subsystem Technical Specification is a General Motors global document. All requirements herein shall be adhered to as GM Global Requirements for the Rear Window Trim Subsystem except where noted for specific GM Programs. Removable Rear Window Trim for Hatchback Vehicle should meet GMW14580 besides this document.

1.4 Order of Precedence. The requirements established in this document override the referenced general test procedure requirements, when the test procedure also has published requirements. Statement of Requirements (SOR) Appendix C2 requirements update the requirements in this document.

2 References

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

2.1 External Standards/Specifications. See also Table 6.

74/60/EEC	CNCA-C11-09:2014	FMVSS 302	Resolution 2933/09
78/632/EEC	CONTRAN 277/08	Resolution GB 7258-2004	SABS 1047
95/28/EC	CONTRAN 461/72-A	Resolution GB 8410-2006	SSA 449
2000/4/EC	CONTRAN 498/14	Resolution GB 11552-2009	Taiwan n. n.
2000/53/EC	CONTRAN 518/2015	Resolution GB 14166-2013	TIS 1468-2540
32002-1	CONTRAN 533/2015	Resolution GB 14167-2013	TRIAS 20
ABNT NBR 14400	CONTRAN 675/86	Resolution GSO 42:2017	TRIAS 34
ADR 34/01	Covenin 1439-79	GSO 98	TRIAS 48

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ADR 34/02	Covenin 1711-81	IS 15223:2002	TRIAS 22(5)
AIS-047:2009	Decree 26/2000	Item 3.3.03	UN R14.07
AIS-072:2009	Decree 48/2000	JS 1098/1998	UN R16
Annex XV	Decree 118/84	KMVSS 27-2	UN R21.01
Article 20	Decree 779/95	KMVSS 103-2	UN R44
Article 22-5	DTO 47/09	KMVSS Article 95	UN R129
Article 30/A	DTO 88/02	Reg.102/1995	
AS/NZS 1754:2013	DTO 167/13	Resolution 35/02	
CMVSS 201	DTO 205/14	Resolution 323/2014	
CMVSS 302	FMVSS 201	Resolution 838/99	
CMVSS 210.1	FMVSS 210	Resolution 1250/14	
CNCA-02C-060:2005	FMVSS 225	Resolution 2833/13	

2.2 GM Standards/Specifications.

GMW3026	GMW7294	GMW14196	GMW14652
GMW3059	GMW8518	GMW14223	GMW14838
GMW3116	GMW14011	GMW14231	GMW14892
GMW3208	GMW14086	GMW14234	GMW15064
GMW3232	GMW14124	GMW14444	GMW15785
GMW6992	GMW14194	GMW14580	GMW17204

2.3 Additional References.

- Auros/E2KS.
- CG3517 SOR Appendix G2.
- CG3690.
- Electronic Bill of Material (eBOM).
- Global Fastening Catalog.
- GM Bill of Process (BOP) for Rear Window Trim.
- GM Ergonomic Guidelines.
- Manufacturer's service manual diagnosis or repair procedure.
- Noise and Vibration Integration Resource Center Application.
- Rear Window Trim Best Practices.
- Rear Window Trim Subsystem Technical Specification (SSTS).
- Safety Specifications for Power-Driven Vehicles Operating on Roads.
- SOR Appendix B2.
- SOR Appendix C2.
- SOR Appendix G2.
- SOR Appendix H.
- Squeak and Rattle Noise Glossary.
- Statement of Requirements (SOR).
- Validation Cross Reference Index (VCRI).
- Vehicle Technical Specification (VTS).

3 Requirements

The use of "**shall**" in this document denotes a binding provision that must be adhered to. "**Should**" denotes a preference or desired conformance, which if not adhered to, must be documented and disclosed to General

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Motors. Unless otherwise noted, all requirements apply over the conditions and useful life as described herein. General Motors shall be the final arbiter of performance if the requirements stated herein are not objectively defined. The design and performance of the Rear Window Trim Subsystem shall meet all requirements in the standards and documents listed in Section 2.

3.1 System/Subsystem/Component/Part Definition.

3.1.1 Appearance. Refer to 3.2.1.1.2 in this document.

3.1.2 Content. The Rear Window Trim Subsystem physical and functional content is identified in the following paragraphs.

3.1.2.1 Physical Content.

- a. The typical content of a Rear Window Trim Subsystem should consist of the substrate assembly, fabric/carpet, speaker grille, child tether cover, acoustic provisions, air flow grille, Center High Mount Stop Lamp (CHMSL) cover, sun shade and vehicle assembly fasteners, as applicable.
- b. The typical content for a Pivoting trim cover and/or hard Cargo Cover Subsystem should consist of the substrate assembly, fabric/carpet, rubber bumpers, cord or retaining features, and pivot mechanisms, as applicable.
- c. Additional Rear Window Trim content that could be released is a noise abatement/sound path foam support component.

3.1.2.2 Functional Content. The Rear Window Trim Subsystem should provide the following basic functions as applicable:

3.1.2.2.1 An aesthetic appearance that covers the sheet metal and is in harmony with the rest of the vehicle interior.

3.1.2.2.2 Acoustic absorption for vehicle interior noise control.

3.1.2.2.3 A secure and stable position for all components which are functional to the occupants.

3.1.2.2.4 A soft feel when touched for both intentional and unintentional contacts.

3.1.2.2.5 Color fastness, indentation recovery, durability, cleanability, resistance to environmental influences, and retention of physical and structural integrity.

3.1.2.2.6 Allow for child tether provisions.

3.1.2.2.7 A controllable means of blocking the sun's rays (sun shade function).

3.1.2.2.8 A controllable means of blocking outside view of cargo area, when applicable.

3.1.3 Ambient Environment. The subsystem shall meet all ambient environment requirements of the Vehicle Technical Specification (VTS).

3.1.3.1 General Temperature Requirements. General performance requirements shall be fulfilled within a temperature range of (-30 to +115) °C. Evaluate the program design to modify the high temperature with the following recommendations:

- a. Glass angle of (90 - 120) degrees: Vertical glass applications with solar glass at 95 °C.
- b. Glass angle of (90 - 120) degrees: Vertical glass applications with non-solar glass at 105 °C.
- c. Glass angle of (121 - 180) degrees: Horizontal glass applications with solar glass at 105 °C.
- d. Glass angle of (121 - 180) degrees: Horizontal glass applications with non-solar glass at 115 °C.

3.1.3.1.1 Low Temperature Requirement. For the vehicles sold in selected countries only, see Appendix A, Table A1, the cold temperatures can be modified as shown in Table 1.

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Table 1: Low Temperature Deviation Temperatures

	Low	Normal	High
Glass Angle of (90 - 120) degrees with Solar Glass	-20 °C	Not applicable	95 °C
Glass Angle of (90 - 120) degrees with Non-Solar Glass	-20 °C	Not applicable	105 °C
Glass angle of (121 - 180) degrees with Solar Glass	-20 °C	Not applicable	105 °C
Glass angle of (121 - 180) degrees with Non-Solar Glass	-20 °C	Not applicable	115 °C
Relative Humidity	0%	(10 to 80)%	100%

3.1.3.1.2 High Temperature Requirement. For the vehicles sold in selected countries only, (see Appendix A, Table A2), the hot temperatures can be modified as shown in Table 2.

Table 2: High Temperature Deviation Temperatures

	Low	Normal	High
Glass Angle of (90 - 120) degrees with Solar Glass	-30 °C	Not applicable	65 °C
Glass Angle of (90 - 120) degrees with Non-Solar Glass	-30 °C	Not applicable	75 °C
Glass angle of (121 - 180) degrees with Solar Glass	-30 °C	Not applicable	75 °C
Glass angle of (121 - 180) degrees with Non-Solar Glass	-30 °C	Not applicable	85 °C
Relative Humidity	0%	(10 to 80)%	100%

Note: Table Usage assumes Solar Glass Usage.

3.1.4 Interfaces. The following paragraphs identify the interfaces and associated requirements that the Rear Window Trim Subsystem has with other entities.

3.1.4.1 General Assembly Process. The Vehicle Assembly Process imposes product requirements for the Rear Window Trim Subsystem.

3.1.4.1.1 Component Retention to Substrate. The extent of modularity is program and/or region specific. When modularity is required, all components, accessories, wiring, fasteners, etc., which comprise this subsystem shall be securely retained to the substrate in such a manner as to withstand the rigors of shipping and the vehicle assembly process.

3.1.4.1.2 Rear Window Trim Subsystem Mechanical Integrity during Assembly.

- The Rear Window Trim Subsystem shall have sufficient stiffness to permit handling without folding during installation and sufficient toughness and resiliency to avoid any noticeable crease lines/marks after installation is complete. Program-specific assembly procedures apply.
- Rear Window Trim shall show no damage to either the Garnish or Pivot hardware during installation.

3.1.4.1.3 Ergonomics during Assembly. The Rear Window Trim Subsystem shall meet all GM Ergonomic Guidelines (i.e., weight, fastener insertion force, etc.) for installation, per GMW14234.

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3.1.4.1.4 Appearance of Rear Window Trim from External to Vehicle.

- a. The Rear Window Trim edges shall not be visible through the back glass. For edges that may become visible from outside the vehicle, the edges shall be aesthetically covered.
- b. RWT trim edges behind the seats shall not have any raw material edges visible when the seats are up and latched. There should be no exposed sheet metal behind the seat. Metal that can be exposed when seats are folded shall be evaluated for export criteria.
- c. The trim lines shall show no evidence of fraying before or after testing. Consideration for edge treatments or covers shall be given to prevent sharp trim edges and cover exposed sheet metal.

3.1.4.2 Subsystem to Subsystem. Paragraphs 3.1.4.2.1 through 3.1.4.2.16.1 describe the interfaces between the Rear Window Trim Subsystem and other subsystems with which it has a physical or functional relationship.

- a. The Rear Window Trim Subsystem shall conform to the Rear Window Trim Best Practices for detailed subsystem-to-subsystem design interfaces. The Best Practices such as Rear Window Trim to: Rear Seat, Hard Trim, Rear Glass, etc., can be found in Auros/E2KS. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.1 Rear Window Trim Subsystem to Electrical Major Subsystem.

3.1.4.2.1.1 Provide clearance to all electrical hardware/wires. See Auros/E2KS for reference dimensions.

3.1.4.2.1.2 Provide clearance to mounting locations for electrical hardware and conduits. See Auros/E2KS for reference dimensions.

3.1.4.2.1.3 The location of the single connector between the Rear Window Trim Wiring Harness Assembly and the vehicle electrical system shall be in accordance with GM Electrical Engineering, through an Interface Control Document (ICD), as well as the GM Bill of Process (BOP) for Rear Window Trim.

3.1.4.2.2 Rear Window Trim Subsystem to Major Body Structure Subsystems.

3.1.4.2.2.1 Provide clearance to hardware and steel brackets, unless utilized for pivot features. See Auros/E2KS for reference dimensions.

3.1.4.2.2.2 Rear Window Trim attachment schemes to Major Body Structure Subsystems shall be in accordance with GM Bill of Process (BOP) for Rear Window Trim.

3.1.4.2.3 Rear Window Trim Subsystem to Heating, Ventilation and Air Conditioning (HVAC) Subsystem.

3.1.4.2.3.1 Rear Window Trim shall be compatible with and provide for airflow interior ventilation to the rear compartment. Area of opening is program specific. An ICD shall be agreed upon by the HVAC and RWT Engineers.

3.1.4.2.4 Rear Window Trim Subsystem to Interior Major Subsystem.

3.1.4.2.4.1 Clearance and/or access through the rear compartment shall be provided for a pass-through for the rear of the vehicle to the occupant area. See Auros/E2KS for reference dimensions.

3.1.4.2.4.2 Clearance shall be provided for the Rear Window Trim attachment and installation according to the GM Bill of Process (BOP) for Rear Window Trim. Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

3.1.4.2.5 Rear Window Trim to Seats.

3.1.4.2.5.1 Clearance shall be provided for all rear seat attachments and functions. Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

3.1.4.2.5.2 Clearance for latch covers/openings must meet export radii requirements.

3.1.4.2.5.3 Reclining Seats. For reclining seats, the RWT shall provide features to retain the cover extension from the seat. Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

3.1.4.2.5.4 Slouch Seats. For slouch seats, the RWT is to provide a flat surface that will support the seat back cover mechanism. The seats shall provide a closeout to the rear window trim surface to hide gaps between the two systems.

3.1.4.2.5.5 Adequate clearance shall be provided for seat swing and movement in pivoting trim hardware and movement.

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3.1.4.2.5.6 Noise factor from gaps between seats and RWT shall follow Best Practices for reducing/sealing for sound transmission, located in in Auros/E2KS. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.6 Rear Window Trim to Safety Belts Restraints.

3.1.4.2.6.1 Rear Window Trim Panel Subsystem shall not restrict seat belt or retractor operation. See Best Practices in Auros/E2KS for reference dimensions. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.6.2 Clearance shall be provided at all locations that require restraint hardware to be directly fastened to shelf sheet metal. See Best Practices in Auros/E2KS for reference dimensions. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.6.3 Seat Belt Bezels shall follow the recommended packaging guidelines according to agreed-upon ICDs between the restraints and RWT Engineers.

3.1.4.2.7 Rear Window Trim Subsystem to Body Major Subsystem.

3.1.4.2.7.1 Sheet metal surfaces shall provide attaching surfaces/attachment and/or holes for the Rear Window Trim Subsystem attachment, where required. See the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

3.1.4.2.7.2 Seat Pass-Through Trim. The trim clearance between the parts shall be reviewed with swing and clearance studies to prevent damage and allow proper installation of trim.

3.1.4.2.8 Rear Window Trim Subsystem to Sound System.

3.1.4.2.8.1 For sound transparency, see Best Practices in GM Auros/E2KS system. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.8.2 Speaker Grille Covers shall sit on the speaker foam gasket support. Consult the Best Practices located in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

3.1.4.2.9 Rear Window Trim Subsystem to Rear Seat Consoles.

3.1.4.2.9.1 When the RWT is required to interface with the Rear Seat Mounted Consoles, consideration must be given to the height of the required overlap. This should be maintained at the occupant shoulder height or higher for manufacturing reasons. Additionally, the rear window trim should stay in contact with the underlying sheet metal for support and closeout to the seats. When not possible, supports shall be provided to support the trim. Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

See the Design Guidelines in Auros/E2KS.

3.1.4.2.10 Pivoting Rear Window Trim Subsystem to Garnish.

3.1.4.2.10.1 Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

See the Design Guidelines in Auros/E2KS for recommended pivot execution.

3.1.4.2.10.2 Design of the pivots into the Garnish shall consider load requirements from GMW14580.

3.1.4.2.11 Rear Window Trim to RWT Power Sunshade.

3.1.4.2.11.1 Trim must meet the requirements for the RWT Power Sunshade given in GMW17204.

3.1.4.2.11.2 Consult the Best Practices in Auros/E2KS for reference dimensions (the supplier shall work with the GM Design Responsible Engineer to comprehend this requirement).

See the Design Guidelines in Auros/E2KS.

3.1.4.2.11.3 Attachment features shall be provided for both the RWT and Power Sunshade that do not damage the mating subsystems. Sharp fasteners ends may need to be covered.

3.1.4.2.12 Rear Window Trim to Active Noise Cancellation (ANC).

3.1.4.2.12.1 Consideration shall be given to the frequencies introduced to the RWT through the ANC system early in the design and product development.

3.1.4.2.13 Rear Window Trim to Rear Glass.

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3.1.4.2.13.1 The interface between RWT and Glass shall follow the Design Guidelines in the Best Practices. Consult the Best Practices in Auros/E2KS for reference dimensions. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.13.2 The glass blackout shall not allow exposed RWT edges. Any exposed edges must be covered.

3.1.4.2.14 Rear Window Trim to CHMSL.

3.1.4.2.14.1 Gap definition shall be defined based on Design Guidelines in Best Practices located in Auros/E2KS. The stack analysis shall be evaluated to confirm design is appropriate. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.4.2.14.2 Rear Window Trim to CHMSL interface must not have light leaks.

3.1.4.2.14.3 When mounted in overhead, the RWT Power Sunshade shall not touch or cover the CHMSL.

3.1.4.2.14.4 The interface between RWT and the light source shall follow the recommended design clearances by the Lighting Engineer through use of an ICD.

3.1.4.2.15 Rear Window Trim to Trunk Trim.

3.1.4.2.15.1 The RWT should overlap the trunk trim at interfaces. The interface shall be documented in an ICD.

3.1.4.2.16 Rear Window Trim to Tethers.

3.1.4.2.16.1 RWT shall allow access to tethers according to design Best Practices located in Auros/E2KS. The tethers shall permit compliance with all government regulatory requirements. The supplier shall work with the GM Design Responsible Engineer to comprehend this requirement.

3.1.5 Usage Definition. Not applicable.

3.2 Product Characteristics. Paragraphs 3.2.1 through 3.2.1.8.2 describe the Rear Window Trim Subsystem (RWTS) in terms of performance, reliability/durability, maintenance/service/repair, and user vehicle requirements. The RWTS shall satisfy all requirements, in 3.2.1 through 3.2.1.8.2, under the ambient environmental conditions defined in 3.1.3 and any additional conditions, which are indicated herein.

3.2.1 Performance Requirements.

- a. The following paragraphs (3.2.1.1 through 3.2.1.8) specify the functional performance requirements for the Rear Window Trim Subsystem. The subsystem is to perform as specified prior to and after exposure to durability and environmental conditioning as designated.
- b. In addition to the requirements stated in this document, all components, parts, pieces, fasteners or materials used in this subsystem shall comply with any applicable standards as set forth in the GM Material Standards. When applicable, subjective judgments shall be made by GM Engineering, unless otherwise stated.
- c. The functional performance of components shall show no signs of fracturing or loosening of attachments.

3.2.1.1 Rear Window Trim Subsystem (RWTS). The following paragraphs describe requirements of the Rear Window Trim Subsystem. Requirements satisfied at this level shall take precedence to requirements at a lower (i.e., component) level whenever conflicts occur.

3.2.1.1.1 Human Vehicle Interface. Child Anchor Integration. The Rear Window Trim Child Anchor shall take into account the Tether Envelope Criteria provided by the Restraints organization.

3.2.1.1.2 Rear Window Trim Appearance and Interface.

3.2.1.1.2.1 The color, pattern, aesthetics and other related qualities shall be evaluated and approved by the responsible engineering department as an acceptable match to the engineering approval sample when viewed under conditions set forth in GMW6992.

3.2.1.1.2.2 All visible rear window trim edges shall be aesthetically concealed. The following conditions shall not be visible from a normal standing or sitting position, inside or outside of the vehicle:

- Blisters.
- Cracks.
- Cut edges.
- Discoloring.
- Flashes.
- Flow lines.

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