



Component Technical Specifications for Hood Prop Rod System

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 document is to provide technical specifications for a prop rod system.

1.2 Applicability. All vehicles equipped with a hood prop rod system.

1.3 Remarks. The hood prop rod system may typically include a rod, pivot, grommet, thermal sleeve and retainer.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3044

GMW3059

GMW3116

GMW17698

2.3 Additional References.

- Statement of Requirements (SOR)

3 Requirements

3.1 System/Subsystem/Component/Part Definition.

3.1.1 Appearance. The appearance of the system as a whole as well as each component shall exhibit a high level of workmanship and not negatively affect the appearance of the vehicle. If graining is required refer to appropriate SOR appendix for details.

3.1.2 Content.

3.1.2.1 Physical Content. The hood prop rod system may typically include a rod, pivot, grommet, thermal sleeve and retainer.

3.1.2.2 Functional Content. Not applicable.

3.1.3 Ambient Environment. The classified specific combinations of environmental variables are used at a vehicle level to approximate the full range of environmental conditions for all usages are shown in Table 1.

Table 1: Vehicle Environment

Classification	Temperature	Humidity
Normal		
Nominal	23 °C ± 5 °C	Ambient
Humid	38 °C ± 3 °C	95% ± 5%
Hot	85 °C ± 3 °C	5% ± 5%

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Classification	Temperature	Humidity
Cold	-30 °C ± 3 °C	Ambient
Extreme		
Maximum Hot	120 °C ± 3 °C	5% ± 5%
Maximum Cold	-40 °C +0 °C/-3 °C	Ambient

Any deviations to Table 1 shall be documented in the vehicle program specific CTS and Analysis/Development/Validation Plan and Report (ADVP&R) documents.

3.1.4 Interfaces. Refer to Figure 1 for a typical prop rod system interfaces.

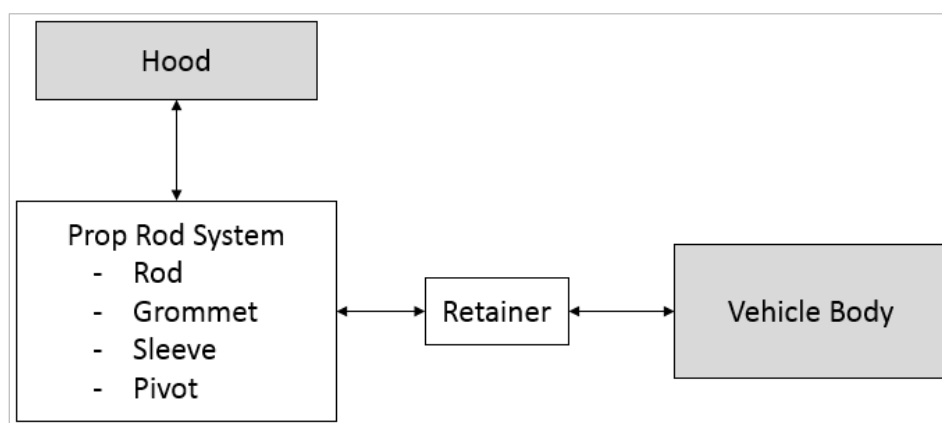


Figure 1: Prop Rod System Interface Block Diagram

3.1.5 Usage Definition. The simulated hood system is pulled fully open, and then slammed fully closed. One cycle is defined as an opening and closing of the hood/simulated hood. (Refer to Table 2.)

Table 2: Hood Target Life Cycles – 1 Life

	Cycle Count
Hood System	2000

3.2 Product Characteristics.

3.2.1 Performance Requirements.

3.2.1.1 Corrosion Resistance.

3.2.1.1.1 Coated Component Test. The prop rod shall meet the material finish/coating requirements as described in the SOR. The zinc plating shall be applied to prop rod after any necessary forming/machining operations. The supplier shall adhere to requirements listed in the appropriate GM documents; for example GMW3044 for zinc plating or GMW17698 for e-coat, etc. Evidence showing this compliance shall be documented and provided to the GM responsible engineer.

3.2.1.1.2 Corrosion at Delivery. This prop rod system shall have no visible corrosion (white or red rust) at delivery to the vehicle assembly plant.

3.2.1.1.3 Support Vehicle Level Corrosion Test. GM will be performing a full vehicle cyclic corrosion test. In case of failure to meet any of the vehicle level requirements for the prop rod system, the supplier shall be held responsible to provide component test evidence to GM for timely resolution of the issues.

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3.2.1.2 Prop Rod to Grommet Retention. Note: Grommet supplier is responsible for the performance related to grommet and will test with appropriate rod.

3.2.1.2.1 Retention Tensile Force. The grommet shall not disengage from the prop rod under application of 400 N tensile load as shown in Figure 2. The tensile pull vector intended to simulate the direction in which a hood may apply load on grommet.

3.2.1.2.2 Retention Torque. The grommet shall not exhibit angular displacement of > 10 degrees upon application of 5 Nm torque as shown in Figure 2. This test is intended to validate anti-rotation feature of the rod and grommet.

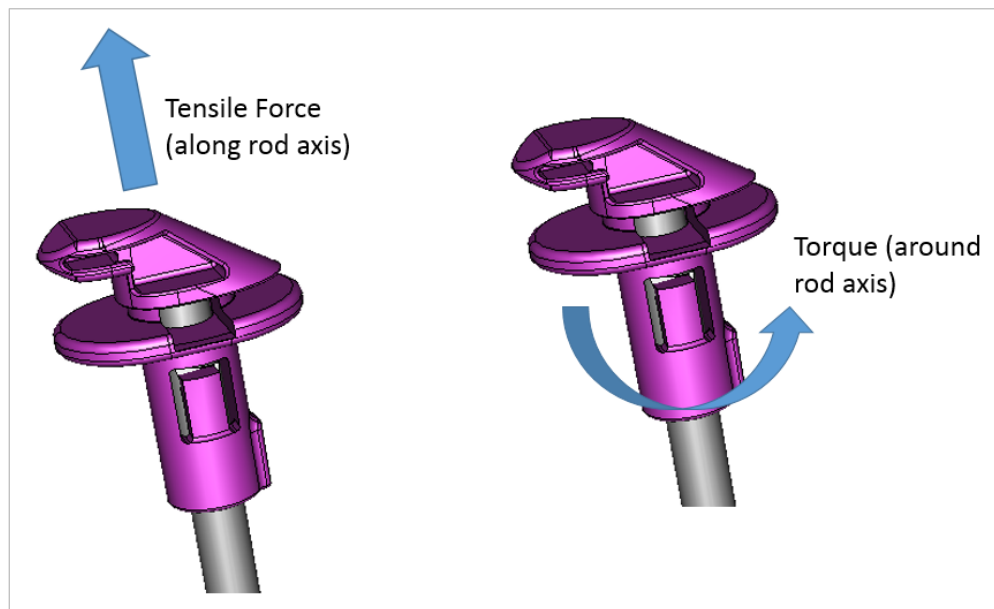


Figure 2: Prop Rod to Grommet Retention (Tensile and Torque)

3.2.1.3 Prop Rod Thermal Sleeve Requirements.

3.2.1.3.1 Thermal Sleeve Extreme Temperature Resistance. The prop rod thermal sleeve shall be capable to withstand 24 h of exposure at $+105^{\circ}\text{C}$ of hot temperature and -30°C of cold temperature without change to function and appearance.

3.2.1.3.2 Thermal Sleeve Sliding Resistance. The prop rod thermal sleeve shall not slip along the prop rod under 50 N axial sliding force. Note, as shown in Figure 3, a sliding tool with clearance condition to rod may be used to perform this test.

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