



Fuel Pulsation Damper

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 describes the performance requirements for a fuel pulsation damper that is designed to reduce pressure pulsations in the fuel line caused by the engine high pressure pump and injector nozzles.

1.2 Applicability. This standard is applicable for fuel pulsation damper assemblies made of steel, which are used in the low-pressure-side of the vehicle's fuel delivery system.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

SAE J2044

2.2 GM Standards/Specifications.

B 040 1195

B 040 1235

GM6130M

GM9080P

GMW3059

GMW14655

GMW14872

GMW15733

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.

3.1.2 Equipment. The test equipment shall be capable to generate the specified test conditions and to fulfill the corresponding procedures determined in paragraph 4.

3.1.3 Test Vehicle/Test Piece. There is no test vehicle required, only the fuel damper assembly is tested.

3.1.4 Test Time. The required test time can depend on the part location in the vehicle and the inherent splash protection.

Calendar time: Up to 71 days

3.1.5 Test Required Information. Not applicable.

3.1.6 Personnel/Skills. The personnel shall be appropriately skilled to operate the equipment safely, in order to perform the tests accurately.

3.2 Preparation. Not applicable.

3.3 Conditions.

3.3.1 Environmental Conditions. Unless otherwise specified, the test shall be performed at $(+23 \pm 5) ^\circ\text{C}$.

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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. Specified in the relevant paragraph.

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. The results for each test and test sample shall be collected in a table. The condition of the samples after the test shall be documented with overview- and detail-pictures.

4 Requirements and Procedure

4.1 Samples.

4.1.1 Sample Set-up. The assembly as used in our vehicles is used as a sample, however, the corresponding fuel line section limited to 300 mm maximum.

4.1.2 Number of Samples. For initial sample inspections and in arbitrary cases at least 6 samples shall be tested.

4.1.3 Temperature measurements shall be taken directly next to the samples.

4.1.4 In case of doubt the prepared test pieces shall be stored in a suitable glass tank so that the tempering of the test piece is not impaired.

4.2 Fuel Pulsation Damper Connection Test Requirements. The pulsation damper connection to the fuel lines and its fixation to the vehicle have to fulfill the following requirements:

4.2.1 Nylon Lines Connection. The nylon line must meet the applicable nylon line specification as called out on the fuel line assembly drawing.

4.2.2 Quick Fitting Connection. The quick connector assembly shall be done according SAE J2044 and must meet the applicable quick connector specification as called out on the fuel system assembly drawing.

4.2.3 Braided Teflon line Crimp Connection. The braided Teflon line (Teleflex) must meet GM6130M.

4.2.4 Rubber Hose Crimp and Clamp Connection. The rubber hose crimp and clamp connection must meet GMW15733.

4.2.5 Housing Retention of Pulsation Damper. If the pulsation damper is contained within a housing, the force required to separate the shells of the housing shall be 175 N minimum.

4.2.6 Housing Installation to Engine Mounting Bracket. If the pulsation damper is contained within a housing, the maximum force required to attach the housing to the engine mounting bracket shall be 80 N for installation with a full hand or 45 N for installation with fingers.

4.2.7 Housing Retention to Engine Mounting Bracket. If the pulsation damper is contained within a housing, a force of 200 N minimum, applied axially to the attachment point, shall be required to separate the housing from the engine mounting bracket.

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