GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW17568

Procedure for Qualifying Liquid Fuel Quick Connect Fittings for Nylon Fuel Line, PTFE Hose, and Elastomeric Hose Usage

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 covers quick connector fittings intended to be used with nylon fuel lines. The fuel system quick connector consists of a case, two O-rings, spacers, and a retaining clip.

1.2 Applicability. Add content.

1.3 Remarks.

1.3.1 The nylon quick-connector must meet the applicable nylon or metal material call-outs as referenced on the fuel system assembly drawing. The case material may consist of PA11, PA12, PA610, PA612, PPA, Stainless Steel Grade 304L, or Stainless Steel Grade 316L. Plastic case material must contain filler to meet minimum flexural modulus requirements and conductivity requirements.

This material specification requirement may be superceded by material requirements defined by the release engineer on the part number blueprint if required by the application.

1.3.2 The steel quick connector must meet the applicable material call-out and corrosion test requirements as referenced on the fuel system assembly drawing.

1.3.3 The O-rings used in the quick connector must have been used in quick connectors tested and approved to all GMW17568 and GMW17560 test procedures requiring quick connectors as part of the test sample. The Engineering Source Approval for the quick-connector will be specific for the O-ring material tested to these requirements and other additional material test requirements as specified by the responsible GM Materials Engineer. The O-rings required for use in these quick-connectors shall be GMW14754 Type E for the innermost O-ring in the quick-connector bore and GMW14754 Type B for the outermost O-ring in the quick-connector bore. All quick connects must use two O-rings in the bore of the quick connect. These O-ring specification requirements may be superceded by material requirements defined by the release engineer on the part number blueprint if required by the application.

1.3.4 The quick-connector must meet the performance requirements for liquid fuel quick-connects per specification SAE J2044, August 2009 publication.

1.3.5. The quick-connector must meet all requirements of GMW15986.

1.3.6 The other GM specifications defining the requirements for assemblies containing these quick-connects are GMW14638, GMW17560, and GMW17823.

2 References

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

2.1 External Standards/Specifications.

ISO 178	SAE J2044

2.2 GM Standards/Specifications.

GMW14638	GMW14872	GMW17560	GMW17823
GMW14754	GMW15986	GMW17568	

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3 Resources

3.1 Facilities.

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. Per Section 4 referenced procedures.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time.

Calendar time:	Per Section 4 referenced procedures
Test time:	Per Section 4 referenced procedures
Coordination time:	Per Section 4 referenced procedures

3.5 Test Required Information.

3.5.1 Quick connectors must be tested for conformance per 4.3.1 through 4.3.6

3.5.2 Engineering Source Approval. The quick connector supplier is responsible for the testing of each quick connector part number to the requirements of 4.3.1 through 4.3.6 for Engineering Source Approval. A minimum of five (5) samples from four (4) lots must be tested to these requirements. All samples tested must pass the requirements. Engineering source approvals generated through testing to prove compliance to this specification are specific for size, design, construction, supplier specifications and manufacturing procedures, and all materials incorporated into the quick connector

3.5.3 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.

3.6 Personnel/Skills. Per the requirements for lab accreditation.

4 Procedure

4.1 Preparation. Not applicable**.**

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. Per 4.3.1 through 4.3.6**.**

4.3.1 Leak Test.

4.3.1.1 Test Procedure. Test per SAE J2044, August 2009 publication, Sections 6.1.1 through 6.1.4.

4.3.1.2 Acceptance Determination. The quick-connect must meet the requirements of SAE J2044, August 2009 publication, Sections 6.1.1 through 6.1.4.

4.3.2 Pull Off Test.

4.3.2.1 Test Procedure. Test per SAE J2044, August 2009 publication, Sections 6.3 to 6.3.2. In addition to these tests, test must be conducted on new (unconditioned) quick-connectors at a temperature of (60 ± 2) °C. Quick-connector and mating tube end assembly must be equilibrated at 60 °C prior to conducting the test.

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