



AEROSPACE INFORMATION REPORT

AIR1616™**REV. B**

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Superseding AIR1616A

(R) Self-Sealing Breakaway Valves for
Crash-Resistant Aircraft Fuel Systems

RATIONALE

This document has been revised extensively for the following:

- Add requirements for specification and testing at all operating temperatures
- General revision to remove/replace references to cancelled standards and to improve the document readability
- Convert “shall” into “should/is/are/may/will” as appropriate
- Add reference to ARP8615 for design and verification requirements

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For more information on this standard, visit
<https://www.sae.org/standards/content/AIR1616B/>

Documents

Document Sharing Hub

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1. SCOPE

MIL-STD-1290, 14 CFR 27.952, and 14 CFR 29.952 provide crash resistant fuel system design and test criteria that significantly minimize fuel leaks and occurrence of post-crash fire in survivable impacts. This document does not change and does not authorize changes in or deviations from MIL-Standard or regulatory requirements. This document provides guidance for the design, performance, and test criteria for self-sealing breakaway valves.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

ARP868	Method-Pressure Drop Tests for Fuel System Components
ARP1401	Aircraft Fuel System and Component Icing Test
ARP8615	Fuel System Components: General Specification For
AS1055	Fire Testing of Flexible Hose, Tube Assemblies, Coils, Fittings, and Similar System Components
AS8879	Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter

2.2 Specifications

2.2.1 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

2.2.1.1 Federal

MIL-PRF-680 Performance Specification - Degreasing Solvent

2.2.1.2 Military

MIL-PRF-7024 Performance Specification – Calibrating Fluids, Aircraft Fuel System Components

MIL-DTL-5624 Detail Specification, Turbine Fuel, Aviation, Grades JP-4 and JP-5

MIL-DTL-83133 Specification, Turbine Fuel, Aviation, Kerosene Type, JP-8 (NATO F-34), NATO F-35, and JP-8+100 (NATO F-37)

2.2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D1655 Standard Specification for Aviation Turbine Fuels

2.3 Standards

2.3.1 Federal

14 CFR 27.952 Fuel system crash resistance, normal category rotorcraft

14 CFR 29.952 Fuel system crash resistance, transport category rotorcraft

2.3.2 ISO Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

ISO 10012 Measurement Management Systems - Requirements for Measurement Processes and Measuring Equipment

2.3.3 Military

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-130 Identification Marking for U.S. Military Property

MIL-STD-464 Department of Defense Interface Standard – Electromagnetic Environmental Effects Requirements for Systems

MIL-STD-810 Environmental Test Methods

MIL-STD-1290 Light Fixed - and Rotary-Wing Aircraft Crash Resistance

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specification procurement functions should be obtained from the procuring activity, or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Quality Assurance

This document makes provisions for recommended qualification and quality conformance testing.

3.2 Description

This Aerospace Information Report provides guidance for the specification of requirements for self-sealing breakaway valves, including the performance of the self-sealing mechanism and the frangible section of the valve.

3.3 Materials

Materials and processes used by the manufacturer of fuel system components should conform to applicable Government and Industry Documents. Materials used in the component should be sufficiently resistant to fluids in accordance with ARP8615.

3.3.1 Selection of Materials

Specifications and standards for materials, parts, and processes which are not specifically designated herein, and which are necessary for the development of the equipment should be as agreed upon by supplier and procuring activity.

3.3.2 Metals

Refer to ARP8615 for metal usage guidance.