



AEROSPACE INFORMATION REPORT

AIR1749™

REV. A

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Superseding AIR1749

Aircraft Fuel System Pressure Definitions

RATIONALE

The word "pressure" can be combined with a dozen of different words to define a wide range of technical definitions; this AIR is intended to present a list of such definitions in order to assist the industry's work.

The SAE Five-Year Review process identified that the reference section needed updating and some pressure definitions could be improved. The revision also has been considered beneficial because the document was in the old format (typewriter created).

Sections 4 and 5 have been added to the document as the committee has considered important and were absent in the original document

1. SCOPE

The information in this document is limited to aircraft engine fuel feed, refueling, and transfer components (see 2.1). It is assumed that isothermal, liquid fluid conditions exist, herein referred to as fuel. Where applicable and allowable, it is understood that a referee fluid may be substituted for fuel.

1.1 Purpose

The purpose of this document is to define commonly used pressure terms relating to aircraft engine fuel feed, refueling, and transfer components. It is not intended to exclude other pressure terms which may also be appropriate.

2. REFERENCES

2.1 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.1.1 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.

AIR1408 Aerospace Fuel System Specifications and Standards

AIR4783 Glossary of Terms - Aircraft Ground Refueling

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<https://www.sae.org/standards/content/AIR1749A/>

Documents

Document Sharing Hub

AIR6510	Fuel System Definitions and Glossary of Terms
ARP868	Method - Pressure Drop Tests for Fuel System Components
ARP1665	Definition of Pressure Surge Test and Measurement Methods for Receiver Aircraft
ARP4386	Terminology and Definitions for Aerospace Fluid Power, Actuation and Control Technologies
ARP5794	Centrifugal Aircraft Fuel Pump Requirements, Design and Testing, Aerospace Standard
ARP8615	Fuel System Components: General Specification for

2.1.2 U.S. Government Publications

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

JSSG-2009A with amendment 1 (Appendix E for fuel system)

MIL-F-17874 Fuel Systems, Aircraft, Installation of

MIL-P-5238 Pump Centrifugal, Fuel Booster, Aircraft General Specification for

3. PRESSURE TERMS

3.1.1 STATIC PRESSURE

Static pressure is defined as pressure exerted by the fuel at rest on its surroundings or exerted normal to its direction of flow.

3.1.2 RATED INLET PRESSURE

Rated inlet pressure is defined as pressure at the inlet fuel connection(s) of a component, at which its flow performance rating is established.

3.1.3 CASE DRAIN/BODY PRESSURE

Case drain pressure is defined as pressure in the case or body passages of a component by which internal fuel leakage is returned independently to the reservoir, return circuit, overboard, etc.

3.1.4 RATED DISCHARGE PRESSURE

Rated discharge pressure is defined as pressure against which a component flow performance rating is established.

3.1.5 MAXIMUM TRANSIENT PRESSURE

Maximum transient pressure is defined as the peak pressure of a pressure-time function, usually taken from a high-frequency response pressure transducer and data logger, or similar instrument capable of recording rapid variations of fuel pressure.

3.1.6 OPERATING PRESSURE

Operating pressures are defined as a range or variation in the pressure which may exist at the fuel connections of a component during system operation. The component or subsystem is required to operate at these pressures without malfunction.

The value of operating pressures are usually defined by the OEM as a result of a customer/certification requirement, a standard, or the own OEM's experience.