



AEROSPACE STANDARD

AS861™**REV. C**

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Superseding AS861B

(R) Minimum General Standards for Oxygen Systems

RATIONALE

This extensive revision is an attempt to bring the document up to date with most recent technologies, practices, and procedures which have been applied to the design, fabrication, testing, and packaging of oxygen breathing equipment. In addition, the general document format has been updated to follow the latest SAE editorial policies and procedures, including the correction of minor typos.

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1. SCOPE

This standard covers all types of oxygen breathing equipment used in non-military aircraft. It is intended that this standard supplements the requirements of the detail specification or drawings of specific components or assemblies (e.g., regulators, masks, cylinders, etc.). Where a conflict exists between this standard and detail specifications, detail specifications shall take precedence.

1.1 Purpose

This standard defines minimum general standards for the design, fabrication, testing, and packaging of oxygen breathing equipment.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. Unless otherwise indicated, 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.

2.1.1 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.

AIR171 Glossary of Technical and Physiological Terms Related to Aerospace Oxygen Systems

AIR825/13 Guide for Evaluating Combustion Hazards in Aircraft Oxygen Systems

AIR5742 Packaging and Transportation of Oxygen Equipment

ARP1176 Oxygen System and Component Cleaning

AS8010 Aviator's Breathing Oxygen Purity Standard

2.1.2 EASA Publications

Available from European Union Aviation Safety Agency, Konrad-Adenauer-Ufer 3, D-50668 Cologne, Germany (for visitors and for mail over 1 kg) and Postfach 10 12 53, D-50452 Cologne, Germany (for mail 1 kg or less); Tel: +49 221 8999 000, www.easa.europa.eu.

CS-23 Certification Specifications for Normal, Utility, Aerobatic and Commuter Aeroplanes

CS-25 Certification Specifications for Large Airplanes

CS-ETSO Certification Specifications for European Technical Standard Orders

2.1.3 FAA Publications

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.

14 CFR Part 21 Certification Procedures for Products, Articles, and Parts

14 CFR Part 23 Airworthiness Standards, Normal, Utility, Acrobatic and Commuter Category Airplanes

14 CFR Part 25 Airworthiness Standards, Transport Category Airplanes

AC 25-24 Sustained Engine Imbalance

PS-ANM-25.1441-01 Mitigating Fire Hazards in Gaseous Oxygen Systems

2.1.4 Transport Canada Publications

Transport Canada documents are available from Transport Canada, Tower C, Place de Ville, 330 Sparks Street Ottawa, Ontario K1A 0N5, Tel: 1-800-305-2059, www.tc.gc.ca.

AWM Chapter 525 Airworthiness Manual Chapter 525, Transport Category Airplanes

2.1.5 U.S. Government Publications

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

A-A-59503 Nitrogen, Technical

MIL-DTL-5541 Chemical Conversion Coatings on Aluminum and Aluminum Alloys

MIL-DTL-15024 General Specification for Plates, Tags, and Bands for Identification of Equipment

MIL-DTL-81706 Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys

MIL-PRF-8625 Anodic Coatings for Aluminum and Aluminum Alloys

MIL-STD-129 Military Marking for Shipment and Storage

MIL-STD-810 Test Method Standard for Environmental Engineering Considerations and Laboratory Tests

MIL-STD-889 Dissimilar Metals

QPL-81706 Qualified Product List of Products Qualified under Performance Specification MIL-DTL-81706

2.1.6 RTCA Publications

Available from RTCA, Inc., 1150 18th Street, NW, Suite 910, Washington, DC 20036, Tel: 202-833-9339, www.rtca.org.

RTCA DO-160 Environmental Conditions and Test Procedures for Airborne Equipment

2.1.7 Airlines for America (A4A) Publications

Available from Airlines for America (A4A), 1301 Pennsylvania Avenue, NW, Suite 1100, Washington, DC 20004, Tel: 202-626-4000, www.airlines.org.

ATA SPEC2000 E-Business Specification for Materials Management

2.2 Definitions and Abbreviations

The following definitions, abbreviations, acronyms, and terminologies, which form a part of this document to the extent specified herein, are provided to ensure clarity and completeness of understanding.

An additional list of accepted definitions can be found in AIR171, which presents a glossary of many technical and physiological terms that are used in this document; terms can also be found in literature covering issues related to aviation oxygen systems and associated topics.

2.2.1 Definitions

COMPONENT: Item with a predefined functionality assembled from multiple parts. Function and performance of the component can be fully tested on this level. Components are usually only shop replaceable. Examples: chemical oxygen generators, and passenger oxygen masks.

EQUIPMENT: Item with a predefined functionality assembled from parts and components. Function and performance of the equipment can be fully tested on this level. Items of equipment are usually line replaceable. Examples: passenger oxygen containers, seats, coffee makers, and PBE.

IRIDITE: A non-chrome chemical process (NCP) that produces a protective chromate conversion film coating on aluminum and its alloys.

PART: Item with one or more pieces joined together, which are not normally subject to disassembly without destruction of their designed use. Examples: hinges, adaptors, glued items, and welded items.

PIECE: Item without lower levels of construction. Examples: screws, washers, poppets, and seals.

SYSTEM: Combination of interrelated items (parts and items of equipment) arranged to perform a specific function. Systems are not considered as replaceable in their entirety, and the items forming the system need to be replaced singularly. Examples: gaseous crew oxygen system, aircraft galleys, and aircraft lavatories.

2.2.2 Abbreviations

14 CFR	Title 14 (Aeronautics and Space Section) of the Code of Federal Regulations (formerly referred to as FARs)
AC	Advisory Circular
ACMM	Abbreviated Component Maintenance Manual
AMC	Acceptable Means of Compliance
AMM	Aircraft Maintenance Manual
AMS	American Military Standards
AN	Army Navy (Standard)
AS	Aerospace Standards
ATA	Air Transport Association
AWM	Airworthiness Manual (TCCA equivalent to 14 CFR Part 25)
CAN-TSO	Canadian Technical Standard Order
CAR	Canadian Aviation Regulation (TCCA equivalent to 14 CFR other than Part 25)
CMM	Component Maintenance Manual
CS	Certification Specification (EASA equivalent to 14 CFR)
EASA	European Aviation Safety Agency
ETSO	European Technical Standard Order
FAA	Federal Aviation Administration