



<b>AEROSPACE STANDARD</b>	<b>AS50881™</b>	<b>REV. G</b>
	Issued	1998-04
	Revised	2019-08
Superseding AS50881F		
(R) Wiring Aerospace Vehicle		

## RATIONALE

This document was revised to incorporate comments (editorial and technical) received and coordinated by the SAE AE-8A System Installation Committee since 2015. Specification reference data was also updated.

## FOREWORD

This specification has been developed by the SAE AE-8A System Installation Subcommittee as an industry replacement for MIL-W-5088L. Conformance with the provisions of this document is intended to provide wiring system safety, performance, reliability, maintainability, service life, and life cycle cost equivalent to that achieved when conforming to the provisions of MIL-W-5088. When practicable, paragraph numbers of this specification have been arranged to agree with their counterparts in MIL-W-5088. It is recommended that this overall set of requirements be used as a part of an aerospace vehicle specification in order to provide an overall set of requirements for wiring system provision.

### 1. SCOPE

#### 1.1 Purpose

This specification covers all aspects in Electrical Wiring Interconnection Systems (EWIS) from the selection through installation of wiring and wiring devices and optical cabling and termination devices used in aerospace vehicles. Aerospace vehicles include manned and unmanned airplanes, helicopters, lighter-than-air vehicles, missiles, and external pods.

#### 1.1.1 Application

This specification establishes design requirements guidance for wiring and optical cable installation in aerospace vehicles. Although many of the requirements are written as mandatory and shall be considered as such, there is also considerable material which is intended to denote optional, preferential or guidance type requirements. In interpreting the material contained herein, it is intended that the philosophy of the entire document be considered for the wiring of each new type of vehicle. This philosophy is safety of the personnel, safety of the vehicle, satisfactory performance and reliability of the vehicle and ease of maintenance, and service life all at the least cost to the operator. The intent of this document will be fulfilled by tailoring the requirements in each new type or class of aerospace vehicle designed, to the proper application. ARP/AIR documents listed in this specification are for reference only. Any reference in this document to Military, Air Force, Navy, Army, or Coast Guard refers to systems managed or procured by the U.S. Department of Defense (DOD) or the U.S. Department of Homeland Security (DHS).

1.1.1.1 This document does not apply to wiring inside of airborne electronic equipment, but shall apply to wiring externally attached to such equipment.

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## 2. REFERENCES

### 2.1 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.

#### 2.1.1 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](http://www.sae.org).

AMS-STD-595	Colors Used in Government Procurement
AIR65	Thermoelectric Circuits and the Performance of Several Aircraft Engine Thermocouples
AIR1329	Electrical Connectors and Wiring, Compatibility of
AIR4465	Design and Handling Guide Radio Frequency Absorptive Type Wire and Cables (Filter Line, MIL-C-85485)
AIR5558	Ultraviolet (UV) Laser Marking Performance of Aerospace Wire Constructions
AIR6151	Torque, Threaded Application, Electrical Connector, Accessory and Terminal Board Installation
ARP6807	Guide for Identification of Terminal Lugs in Electrical Wiring Interconnect Systems (EWIS)
ARP6881	Guidelines for the Use and Installation of Bonded Cable Harness Supports
ARP1350	Procedure for Installation and Mounting of Single Hole Mount, Cylindrical, Electrical Connectors (for Pressure Differential Applications)
ARP1870	Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety
ARP5614	Guidelines for Harness Critical Clamp Locator Marker Installation on Electrical Cable Assemblies
ARP6400	Recommended Practice for Processing and Handling Wire and Cable with Silver Plated Conductors and Shields
ARP6903	Guide for Achieving Plating/Finish Compatibility with Connectors and Accessories Used in Electrical Wiring Interconnect Systems (EWIS)
ARP81490	Transmission Lines, Transverse Electromagnetic Mode
AS567	Safety Cable, Safety Wire, Key Washers, and Cotter Pins for Propulsion Systems, General Practices for Use of
AS3509	Cable, Safety, Kit, Nickel Alloy, UNS N0660
AS4461	Assembly and Soldering Criteria for High Quality/High Reliability Soldering Wire and Cable Termination in Aerospace Vehicles
AS4536	Safety Cable Kit Procurement Specification and Requirement for Use
AS5117	Clip, Spring Retention - Electrical Cable

AS5419	Cable, Thermocouple Extension, Shielded and Unshielded
AS5768	Tool, Stripper, Electrical Insulation, General Specification for
AS5942	Marking of Electrical Insulating Materials
AS6070	Aerospace Cable, High Speed Data, Copper
AS6136	Conduit, Electrical, Flexible, Shielded, Aluminum Alloy for Aircraft Installations
AS7351	Clamp, Loop Type Bonding
AS7928	Terminals, Lug: Splices, Conductor: Crimp Style, Copper, General Specification for
AS7928/14	Terminal, Electrical, Permanent, Crimp Style, Tin-Coated Copper, Insulated, Environment Resistant, Class 1, 150 °C, Heatless Sealing
AS7974	Cable Assemblies and Attachable Plugs, External Electrical Power, Aircraft, General Specification for
AS8700	Installation and Test of Electronic Equipment in Aircraft, General Specification for
AS10380	Coupling Installations, Standard Conduit, Electrical
AS18029	Cover Assembly, Electrical, for MS27212 Terminal Board Assembly
AS21980	Ferrule, Outer, Uninsulated Shield Terminating, Type I, Two Piece, Class I, for Shielded Cables
AS21981	Ferrule, Inner, Uninsulated, Shield Terminating, Type I, Two Piece, Class I, for Shielded Cables
AS21919	Clamp, Loop Type, Cushioned Support
AS22520	Crimping Tools, Wire Termination, General Specification for
AS22759	Wire, Electrical, Fluoropolymer-Insulated, Copper or Copper Alloy
AS23053	Insulation Sleeving, Electrical, Heat Shrinkable, General Specification for
AS23053/5	Insulation Sleeving, Electrical, Heat Shrinkable, Polyolefin, Flexible, Crosslinked
AS23053/8	Insulation Sleeving, Electrical, Heat Shrinkable, Polyvinylidene Fluoride, Semi-Rigid, Crosslinked
AS23053/11	Insulation Sleeving, Electrical, Heat Shrinkable, Fluorinated Ethylene Propylene, Non-Crosslinked
AS23053/12	Insulation Sleeving, Electrical, Heat Shrinkable, Polytetrafluoroethylene
AS23053/18	Insulation Sleeving, Electrical, Heat Shrinkable, Modified Fluoropolymer, Crosslinked
AS23190	Wiring, Positioning, and Support Accessories
AS25274	Cap, Electrical (Wire End, Crimp Style, Type II, Class 1), for 105 °C Total Conductor Temperature
AS25435	Terminal, Lug, Crimp Style, Straight Type, for Aluminum Aircraft Wire, Class 1
AS25436	Terminal, Lug, Crimp Style, 90° Upright Type, for Aluminum Aircraft Wire, Class 1
AS25438	Terminal, Lug, Crimp Style, Right Angle Type, for Aluminum Aircraft Wire, Class 1
AS25439	Splice, Permanent, Crimp Style, Two Way Type for Aluminum Aircraft Wire, Class 1