



AEROSPACE RECOMMENDED PRACTICE

ARP1350™**REV. A**

Issued 1975-07
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Reaffirmed 2021-12

Superseding ARP1350

(R) Procedure for Installation and Mounting of Single Hole Mount,
Cylindrical, Electrical Connectors (For Pressure Differential Applications)

RATIONALE

ARP1350A has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Aerospace Recommended Practice (ARP) specifies the methods, equipment, and materials to be used in the installation, mounting, and testing of receptacle connectors used in pressure differential applications requiring an effective connector seal.

1.1 Purpose

This document establishes standard methods for installing and mounting single hole mount, cylindrical, sealed-type electrical connectors (see 2.2).

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 724-776-4970 (outside USA), www.sae.org.

AS50151 Connectors, Electric, Circular Threaded, AN Type, General Specification For

2.1.3 NAS Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, www.aia-aerospace.org/.

AIA/NAS NASM20995 Wire, Safety or Lock

AIA/NAS NASM33540 Safety Wiring, Safety Cabling, Cotter Pinning, General Practices for

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<https://www.sae.org/standards/content/ARP1350A>

Documents
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2.1.2 TIA/EIA Publications

Available from Electronic Industries Alliance, 2500 Wilson Boulevard, Arlington, VA 22201-3834, Tel: 703-907-7500, www.ec-central.org/.

TIA/EIA-364-02 TP-02 Air Leakage Test Procedure for Electrical Connectors

2.1.3 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

MIL-DTL-26482	Connectors, Electric, (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacles and Plugs, General Specification for
MIL-DTL-38999	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded and Breech Coupling), Environment Resisting, Removable Crimp and Hermetic Solder Contacts, General Specification for
MIL-C-81511	Connectors, Electrical, Circular, High Density, Quick Disconnect, Environmental Resisting: and Accessories, General Specification for
MIL-DTL-83723	Connectors, Electric, Circular, Environment Resisting), Receptacles and Plugs, General Specification for
MIL-DTL-26500	Connectors, General Purpose, Electrical, Miniature, Circular, Environment Resisting, General Specification for
MIL-DTL-27599	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect, Environment Resistant, Solder Contacts, General Specification for
MIL-DTL-28840	Connectors, Electrical, Circular, Threaded, High Density, High Shock, Shipboard, Class D, General Specification for
MIL-PRF-28876	Connectors, Fiber Optic, Circular, Plug and Receptacle Style, Multiple Removable Termini, General Specification for
MIL-STD-889	Dissimilar Metals

2.2 Definitions

2.2.1 Single hole mount, cylindrical, sealed-type, electrical connectors.

These connectors are of the hermetic seal or fixed-contact type receptacles which are designed to preclude leakage through the connector and between the connector and case/panel. This classification does not include removable contact connectors with the exception of those which are encapsulated (potted) to provide a seal after wire termination.

3. GENERAL DESIGN REQUIREMENTS

3.1 Applicable Connectors

Connectors affected by this document shall be of the applicable configurations in accordance with AS50151, MIL-DTL-26482, MIL-DTL-38999, MIL-C-81511, MIL-DTL-83723, MIL-DTL-26500, MIL-DTL-27599 MIL-DTL-28840 & MIL-PRF-28876.

3.2 Dissimilar Metals

Unless protected against electrolytic corrosion, dissimilar metals shall not be employed in intimate contact with each other when mounting connectors. Dissimilar metals are defined in MIL-STD-889.

3.3 Finishes

The general finish of the box or panel shall be specified by the designer. The finish requirement is usually determined by the application. The actual connector mounting surface roughness shall be as specified herein.

3.4 Spacing and Layout

Adequate space shall be provided for mating and un-mating circular connectors without the use of tools. At least one inch shall be provided around the coupling rings of circular connectors, unless size of the equipment or area available for connector installation, and the number and size of the connectors prohibit this spacing. In such cases, at least 3/4-inch clearance shall be provided around the connector. Where connectors can be sequentially mated and unmated a 1-inch clearance in a swept area of at least 270 degrees around the connector at the start of the removal and replacement sequence shall be provided. Where the 3/4 inch or 1 inch/270 degree swept area requirement cannot be met, demonstration of connector removal and installation shall constitute compliance, when approved by the procurement activity.

Airframe connectors, when installed with the axis in a horizontal direction, shall be positioned so that the master keyway is located to the top. When the connector axis is vertical, the master keyway shall be positioned to the front of the vehicle. Both plug and receptacle shall be visible for engagement and orientation of the polarizing key(s).

3.5 Spot Facing

Connector mounting areas on boxes, panels, etc., shall be spot faced when specified by the designer to insure the required level of sealing to reduce wall thicknesses and to ensure flat mounting surfaces for proper torqueing and sealing requirements of the receptacle. The spot face finish shall be as specified herein for each applicable connector. Metal mounting surfaces that meet the specified requirements need not be spot faced.

3.5.1 Spot Face Diameter

The maximum diameter of the spot face area shall be left to the discretion of the designer. The minimum diameter of the spot face area, as specified herein, for mounting of connectors has been considered to facilitate a leak testing adapter as specified in TIA/EIA-364-02, .

4. PROCEDURES

4.1 Design, Installation, and Mounting

4.1.1 Clearance Mounting Holes

Mounting hole ("D" shape) dimensions shall be determined from the applicable connector drawing. The holes must be spaced to provide adequate room for connector coupling.

4.1.2 Spot Facing

Inner and outer connector mounting surfaces shall be parallel and of a surface finish sufficient to insure proper seating of connectors. When spot facing is required, the surface area which bears against the connector O-ring shall be of a $\sqrt{63}$ finish or better and the spot faced diameter shall be at least 0.010 in (0.25 mm) greater in diameter than the maximum connector flange dimension. Spot facing tool marks shall be concentric or spiral about the mounting hole.

4.1.3 Panel Thickness

The box or panel thickness of the mounting surface shall be determined from the applicable connector drawing.