AEROSPACE RECOMMENDED PRACTICE

ARP1892™	REV. B

Issued 1985-07
Revised 1997-12
Reaffirmed 2020-09

Superseding ARP1892A

Electrical Connectors for Use in Battery Powered Ground Support Equipment

RATIONALE

ARP1892B has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 This SAE Aerospace Recommended Practice (ARP) describes a two-pole electric connector for use in battery powered ground support equipment, i.e., traction batteries. Alternatively, the connector can have two or more auxiliary contacts for auxiliary circuits. A handle may be added as an option to assist in connecting and disconnecting.

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 U.S. Government Publications: Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-C-7947

3. GENERAL DESCRIPTION:

3.1 The connector shall have two power contacts.

3.2 The amperage rating of the contacts shall be compatible with the size of the electrical conductors. The electrical conductors and contacts must provide sufficient cross-section of copper and carry both the operating currents and charging currents of the electrical vehicle.

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https://www.sae.org/standards/content/ARP1892B

3.3 The connector color shall designate the operating voltage and a key shall be provided to prevent mismatching connectors of different colors. The key must be an integral part of the connector housing and may not be removed.

3.4 The connector shall be clearly marked for polarity (+ and -). It shall be designed such that the positive contact of one connector cannot be mated with the negative contact of the mating connector. Further, it shall not allow even momentary contact between the positive and negative, so as to draw an arc.

3.5 Live parts shall be recessed from the face of the connector to reduce the possibility of shorting.

3.6 The removable portion of the connector pair shall be provided with means of being grasped during removal.

3.7 The connector shall be a recognized component by U.L.* and C.S.A.*

*Underwriters Laboratories, Inc.
1285 Walt Whitman Road
Melville, Long Island, New York 11747

*Canadian Standards Association
178 Rexdale Boulevard
Toronto (Rexdale) Ontario
Canada M9W IR3

4. PHYSICAL REQUIREMENTS:

4.1 Housing:

4.1.1 The housing shall be insulated to operate at 600 V. It shall be designed to pass a dielectric strength test of 2200 V without leakage. The voltage should be applied for 60 s between each contact and between each contact and ground.

4.1.2 The housing insulation material shall be impact resistant and shall withstand the impact of normal service conditions. The supplier shall supply impact test data on request.

4.1.3 The connector housing shall be color coded to designate voltage per the list below:

a. Yellow - 12 V
b. Orange - 18 V
c. Red - 24 V
d. Gray - 36 V
e. Blue - 48 V
f. Green - 72 V
g. Black - 80 V
h. Brown - 96 V
i. Purple - 128 V
j. White - 144 V

In addition, the connector housing may be permanently marked to indicate voltage or an adhesive label may be attached to specify the designated voltage.

4.1.4 The housing shall provide a means to secure mounting to the vehicle or battery.

4.2 Contacts:

4.2.1 All contacts shall be silverplated copper to provide minimum voltage drop and heating. The contact design shall be such that the contacts shall wipe when engaged and disengaged.

4.2.2 The main contacts shall be marked or stamped to indicate the proper wire sizes.

4.2.3 The connector shall be designed to plug and unplug 10,000 times minimum without electric load. These connectors are not load-breaking devices except in an emergency.

5. PERFORMANCE:

5.1 Temperature Rise:

5.1.1 The resistance across mated pairs of connectors including the cable attachments shall be such that the temperature rise over ambient at rated amperage does not exceed 30 °C (86 °F) when wired with a cable of the proper rating.

5.2 Cable Attachments:

The cable shall be crimped or soldered or both to the main and auxiliary contacts. When the mechanical connection of the wire to the contact barrel is pulled to the minimum tensile strength listed below (per MIL-C-7947-latest revision), it shall not break or become distorted to the extent that it is unfit for further use.