



AEROSPACE RECOMMENDED PRACTICE

ARP1817™

REV. A

Issued 1984-09
Revised 1998-03
Reaffirmed 2020-09

Superseding ARP1817

Battery Industrial, Lead-Acid Type,
for Use in Electric Powered Ground Support Equipment

RATIONALE

ARP1817A has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

This SAE Aerospace Recommended Practice (ARP) describes an industrial battery, lead-acid type, for use in electric powered ground support equipment.

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 or other 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, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

ARP1247 General Requirements for Aerospace Ground Support Equipment Motorized and Nonmotorized
ARP1816 Charger for Battery Powered Ground Support Equipment

2.1.2 ANSI Publications: Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI B56.1

2.1.3 ASTM Publications: Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 530
ASTM D 639

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Full document details: SAE ARP1817A

For more information on this standard, visit
<https://www.sae.org/standards/content/ARP1817A>

Documents

Document Sharing Hub

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

O-S-801
WB-133C

- 2.1.5 UL Publications: Available from Underwriter Laboratories Publications, 333 Pfingsten Road, Northbrook, IL 60062.

UL583 Section 13-1

- 2.2 Other Publications:

Underwriters Laboratories Inc. Subject 1564 to be published

3. PHYSICAL REQUIREMENTS:

3.1 Tray:

- 3.1.1 The following minimum requirements shall apply for batteries of 36 V and above:

TABLE 1

Minimum Steel Thickness			
Bottom of Tray	1/4 in	No. 3 gage	6.35 mm
Ends	1/4 in	No. 3 gage	6.35 mm
Sides	3/16 in	No. 7 gage	4.76 mm
Partitions	1/8 in	No. 10 gage	3.17 mm

The outer surface of the tray shall be smooth.

1-3/8 in (35 mm) lifting holes shall be provided on the tray as required. Each pair of holes shall be positioned in line with the center of gravity of the complete battery assembly, so that during lifting, the battery will remain stable. Each lifting hole shall be capable of carrying the full weight of the battery.

Protection shall be provided to prevent accidental contact between lifting hooks and terminals.

3.1.1 (Continued):

The tray shall be designed to provide adequate ventilation and to prevent the accumulation of hydrogen gas under the cover. The tray shall provide an adequate number of drain holes in the bottom of the tray and adequate cell partition for rigidity of the tray.

When battery covers are provided, a means of support shall be provided when the cover is in the open position. (See ARP1247, 3.4.3.2 and next several paragraphs.)

- 3.1.2 Trays for 12 V batteries shall be 12 gage (2.8 mm) minimum with 16 gage (1.6 mm) partitions. Trays for 24 V batteries shall be 7 gage (4.8 mm) minimum steel with hinged cover optional. The cover shall be supported in such a way as to prevent the cover from touching the top of the cell in the event that the hinge is damaged. The tray lifting slot and hinge arrangement shall be per vehicle manufacturer's specification. Each lifting hole shall be capable of carrying the full weight of the battery.
- 3.1.3 All battery trays shall be protected from damage by sulfuric acid. Coating shall be fused epoxy powder or equivalent applied on a clean dry, steel surface.
- 3.1.4 All batteries shall be stamped at the lifting point with the actual service weight of the individual battery per ANSI B56.1.
- 3.1.5 Means shall be provided to prevent corrosion between cell and tray and partitions.

3.2 Cell Containers and Covers:

- 3.2.1 All cell containers and covers shall meet the acid absorption test of ASTM D 639 and impact, rupture, and distention tests of ASTM D 530. As a minimum standard, cell containers and covers shall conform to Federal Specification WB-133C and shall have a minimum resistance of 240 in-lb (27.12 J).
- 3.2.2 The seal between the cell cover and the cell container, and all openings on the top of the battery other than the filling vents shall be gas tight and effectively sealed against seepage of electrolyte. The seal can utilize asphalt, epoxy, or heat seal. If sealing compound is used to seal the cover-container joints, it shall be virgin, acid-resisting material. It shall be capable of maintaining an unbroken seal between the cover and container throughout a temperature range of -25 to +140 °F (-32 to +60 °C) ambient. Sealing compound recovered from batteries previously in use shall not be reused.
- 3.2.3 Cell container and cover material shall be compatible to each other in melt properties in a heat seal joint. An impact test on actual jar to cover seal sample shall show cover or container material failure only. No sealing failure shall be permitted.
- 3.2.4 Jar to cover seal shall be maintainable throughout the life of the battery.
- 3.2.5 Battery post seal to cover shall have a positive seal against leakage throughout the battery life.