Designation: F3235 – 17

Standard Specification for Electrical Storage Batteries in Small Aircraft[1]

This standard is issued under the fixed designation F3235; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers international standards for the electrical storage battery aspects of airworthiness and design for "small" aircraft.

1.2 The applicant for a design approval must seek the individual guidance of their respective CAA body concerning the use of this specification as part of a certification plan. For information on which CAA regulatory bodies have accepted this specification (in whole or in part) as a means of compliance to their Small Aircraft Airworthiness regulations (hereinafter referred to as "the Rules"), refer to ASTM F44 webpage (www.ASTM.org/COMMITTEE/F44.htm) which includes CAA website links.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 Following is a list of external standards referenced throughout this specification; the earliest revision acceptable for use is indicated. In all cases, later document revisions are acceptable if shown to be equivalent to the listed revision, or if otherwise formally accepted by the governing civil aviation authority; earlier revisions are not acceptable.

2.2 *ASTM Standards:*[2]

F3060 Terminology for Aircraft

F3061/F3061M Specification for Systems and Equipment in Small Aircraft

3. Terminology

3.1 Terminology specific to this specification is provided below. For general terminology, refer to Terminology F3060.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *aircraft type code, n*—an Aircraft Type Code (ATC) is defined by considering both the technical considerations regarding the design of the aircraft and the airworthiness level established based upon risk-based criteria; the method of defining an ATC applicable to this specification is defined in Specification F3061/F3061M.

4. Electrical Storage Batteries

NOTE 1—Table 1 provides correlation between various Aircraft Type Codes and the individual requirements contained within this section; refer to 3.2.1. For each subsection, an indicator can be found under each ATC character field; three indicators are used:

An empty cell ( ) in all applicable ATC character field columns indicates that an aircraft must meet the requirements of that subsection.

A white circle (○) in multiple columns indicates that the requirements of that subsection are not applicable to an aircraft *only* if all such ATC character fields are applicable.

A mark-out (×) in any of the applicable ATC character field columns indicates that the requirements of that subsection are not applicable to an aircraft if that ATC character field is applicable.

Example—An aircraft with an ATC of 1SRLLDLN is being considered. Since all applicable columns are indicated for 4.1.1, that subsection is applicable to the aircraft.

4.1 *Nickel Cadmium Batteries:*

4.1.1 Each nickel cadmium battery installation capable of being used to start an engine or auxiliary power unit must have provisions to prevent any hazardous effect on structure or essential systems that may be caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of its individual cells.

4.1.2 Nickel cadmium battery installations capable of being used to start an engine or auxiliary power unit must meet the requirements of either 4.1.2.1, 4.1.2.2, or 4.1.2.3.

4.1.2.1 If the requirements of either 4.1.2.2 or 4.1.2.3 are not met, nickel cadmium battery installations capable of being used to start an engine or auxiliary power unit must have a system to control the charging rate of the battery automatically so as to prevent battery overheating.

4.1.2.2 If the requirements of either 4.1.2.1 or 4.1.2.3 are not met, nickel cadmium battery installations capable of being used to start an engine or auxiliary power unit must have a battery temperature sensing and over-temperature warning system with a means for disconnecting the battery from its charging source in the event of an over-temperature condition.

4.1.2.3 If the requirements of either 4.1.2.2 or 4.1.2.3 are not met, nickel cadmium battery installations capable of being

[1] This specification is under the jurisdiction of ASTM Committee F44 on General Aviation Aircraft and is the direct responsibility of Subcommittee F44.50 on Systems and Equipment.

Current edition approved Feb. 15, 2017. Published March 2017. DOI: 10.1520/F3235-17.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.