



Advisory Circular AC43-12

Non-Aeronautical Lead Acid Batteries

04 February 2016

- 1. GENERAL.** Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Authority has found to be acceptable for compliance with the associated rule. Consideration will be given to other methods of compliance which may be presented to the Authority. When new standards, practices or procedures are found to be acceptable they will be added to the appropriate AC. In addressing a subject the use of the imperative *must* or *is to*, terms not normally welcome in an AC, is because it is associated with mandatory provisions of the Rule itself. Each reference to a number in this AC, such as 43.15, is a reference to a specific rule within Part 43.
- 2. PURPOSE.** This AC provides methods acceptable to the Authority for showing compliance with the general maintenance rules in Part 43.
- 3. CANCELLATION.** There was no previous issue, so there is no cancellation.
- 4. FOCUS.** This material is intended to provide guidance for persons intending to modify aircraft to incorporate non-aeronautical lead acid batteries.

- 5. RELATED CAR.** This AC relates specifically to Part 43 General Maintenance Rules and Part 21 Certification of Products and Parts.
- 6. CHANCE NOTICE.** Subject to "Memorandum for Technical Cooperation" between the CAA of Mongolia and New Zealand on mutual cooperation in implementation of the International Civil Aviation Organization Resolution of Global Rule Harmonization, which urges States to promote global harmonization of national rules, dated 6th of May, 1999, Mongolian Civil Aviation Safety Regulation has been reconciled to the Civil Aviation Regulation of New Zealand.

Amendment 164 of Annex 1 to the Chicago Convention on International Civil Aviation urges flight crew members, ATC personnel and aircraft maintenance engineers to comply with the language proficiency requirements; and

Under Article 14 of the Civil Aviation Law of Mongolia 1999, "Use of foreign language in civil aviation" the AC has been released in English version only, in order to prevent any mistranslation and misuse of the aviation safety related documents

This AC43-12 was developed based on NZ AC43-12 revision, dated on 03 March 1997.

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Use of Non-Aeronautical Lead Acid Batteries in Aircraft

General

Under Part 91 operators are required to ensure that their aircraft is maintained in an airworthy condition. Part 43 contains requirements for maintenance that must be complied with to assure this airworthiness. Part 43 includes the requirement that approved parts be used and that an aircraft remain in its original or properly modified condition.

Non-aeronautical lead acid batteries may be approved for installation in the following aircraft types:

- Non-aerobatic aircraft operating under VFR only
- Gliders

The conditions for fitting a non-aeronautical lead acid battery include:

- Only new batteries should be used. Rebuilt, re-plated, or reconditioned batteries will not be considered acceptable
- Batteries should comply with the standards in this advisory circular
- A modification for the fitment of the battery must be raised for approval in accordance with Part 21

Acceptable standards

The following standards are acceptable for the development of modifications to utilise non- aeronautical batteries:

- British Standards;
BS 3911
BS 6475
- Society of Aeromotive Engineers;
SAE J537
- International Electrotechnical Commission:
IEC 95-1
IEC 95-2
IEC 952-1
IEC 952-2
IEC 952-3

Batteries in the YUASA NP series are also acceptable.

Modification information

The following factors shall be addressed in the modification package submitted for approval in accordance with Part 21:

- Installation
 - Mounting and restraint should be provided appropriate for the aircraft's type of operation
 - There should be clear and permanent identification of battery lead polarity
 - Suitable insulation should be fitted to either the battery or surrounding aircraft structure to prevent any exposed terminal or inter-cell connector coming into contact with the aircraft structure
 - A load analysis should be provided to check that the battery provides adequate capacity for the anticipated electrical loads
 - Appropriate aircraft weight and balance should be calculated
- Maintenance
 - Terminals, preferably non- interchangeable terminals, should provide good continuing contact with the battery terminals
 - Suitable access should be provided to allow maintenance tasks to be carried out in-situ or the battery should be readily removable for inspection or servicing
- Operation
 - There should be adequate venting, draining, and acid proofing provided for the battery compartment

When the battery being used is of the lead acid paste or gel cell type, there is no requirement for a battery compartment drain.
