PRODUCT SAFETY ADVISORY

Altered, Modified, or Rebuilt Lithium Metal Batteries

Advisory No.: PSA-26001 **Revision:** A **Date:** November 3, 2026
Applies to: Dukane Seacom non-rechargeable lithium metal batteries produced as TSO articles under TSO-C142a or TSO-C142b

Audience: Aircraft owners and operators, maintenance organizations, distributors, and installers

Purpose

Dukane Seacom issues this advisory to inform the aviation community of the safety, airworthiness, and transport risks associated with lithium metal batteries that have been altered, modified, or rebuilt after manufacture. This includes batteries that still carry Dukane Seacom's part number and TSO marking. Dukane Seacom does not alter, modify, or rebuild its lithium metal batteries; expired or depleted batteries must be replaced as a complete assembly.

What this advisory covers

For purposes of this advisory, an altered battery is any Dukane Seacom battery that has undergone one or more of the following:

- Replacement of one, several, or all cells
- Substitution of cells from a different manufacturer, design, part number, or production lot
- Disassembly, reconstruction, re-potting, or re-encapsulation of the battery pack
- Removal, replacement, or bypassing of protective components
- Re-labeling, re-marking, or changes to the Remove Battery By date

This advisory applies to altered batteries regardless of the source or approval of the data used to perform the alteration.

This advisory does not address replacement batteries produced under a separate FAA production approval, such as a Parts Manufacturer Approval (PMA).

Why altered batteries present a risk

The qualification applies to the complete battery as designed and built. Dukane Seacom batteries are qualified under TSO-C142a (RTCA DO-227) or TSO-C142b (RTCA DO-227A) using a specific cell design from a specific source, assembled into a specific construction. Qualification testing, together with any testing required by applicable special conditions for installation, demonstrates how that exact combination behaves under fault conditions. A substituted cell, even one with the same nominal chemistry, voltage, and size, can behave differently under those conditions. The original qualification does not cover the altered configuration.

Lithium metal failure behavior cannot be verified by inspection. The characteristics that matter most are resistance to thermal runaway, controlled venting, and behavior under short circuit. Visual inspection, open-circuit voltage, and load testing do not demonstrate any of them. A battery that passes a functional test after alteration can still fail in a hazardous manner.

Mixed cells create a known failure mechanism. In a series cell string, the cell with the lowest remaining capacity depletes first and is driven into reversal by the remaining cells. Forced discharge of a lithium metal cell generates heat and can lead to venting or fire. Combining new and aged cells, or cells from different lots or manufacturers, creates the capacity and internal resistance mismatch that drives this condition. Dukane Seacom controls this risk through rigid material and lot controls within its production processes.

Protective components prevent hazardous charging. Non-rechargeable lithium metal cells can vent violently if subjected to charge current. Where a design incorporates protective components, they prevent the equipment from charging the cells. Their omission, substitution, or improper installation creates a hazard that functional testing is not designed to detect.

Useful life cannot be established for an altered battery. For emergency locator transmitters, 14 CFR 91.207(c) requires battery replacement when 50 percent of useful life has expired, as established by the transmitter manufacturer under its approval. That useful life derives from characterization of the qualified cell design. A Remove Battery By date applied to an altered battery has no established technical basis, and the equipment may not achieve

its required operating duration in an emergency. Approval of alteration data does not establish the useful life that § 91.207(c) requires the transmitter manufacturer to establish under its approval.

Transport classification changes. Under 49 CFR 173.185, each lithium cell and battery type must be shown to meet UN Manual of Tests and Criteria, Part III, subsection 38.3. A change of cell or construction negates Dukane Seacom's UN 38.3 testing and can create a new battery type that requires its own testing. Dukane Seacom's UN 38.3 test summaries do not apply to altered batteries. FAA data approvals do not address these transport requirements. Shipping batteries without proper UN 38.3 testing can result in significant financial and legal penalties.

Regulatory considerations

Maintenance on TSO articles must return the article to at least its original or properly altered condition with respect to qualities affecting airworthiness (14 CFR 43.13(b)). In Dukane Seacom's assessment, alterations to the basic design of these articles not made in accordance with the manufacturer's recommendations constitute major alterations under 14 CFR part 43, appendix A, which must be performed using data approved by the FAA. Approval of alteration data, whether by the FAA or an FAA designee, does not constitute a change to the approved TSO design and does not extend Dukane Seacom's TSO authorization, qualification data, or UN 38.3 test summaries to the altered battery.

Dukane Seacom position

- Dukane Seacom does not provide data for cell replacement or internal repair of its lithium metal batteries. Maintenance is limited to the inspections and tests in the applicable Component Maintenance Manual/Technical Manual and replacement of the battery as a complete assembly.
- Dukane Seacom has not concurred with alteration or repair data developed by others for its lithium metal batteries, and cannot confirm that such data demonstrates continued compliance with the minimum performance standards of TSO-C142a or TSO-C142b.
- An altered battery is not a Dukane Seacom product, even if it carries Dukane Seacom's part number or TSO marking.
- Dukane Seacom's warranty does not cover altered batteries. Installation or use of an altered battery voids the Dukane Seacom warranty on the equipment in which it is installed.

Recommended actions

Owners and operators: Confirm that replacement batteries installed in your equipment are genuine Dukane Seacom batteries or were produced under a separate FAA approval, and that the maintenance record documents the source.

Maintenance organizations and installers: Obtain replacement batteries directly from Dukane Seacom or an authorized distributor. Verify that each battery is accompanied by a Certificate of Conformance (CofC) or FAA Form 8130-3 traceable to Dukane Seacom. Do not install a battery whose source and approval status cannot be verified. Before installing a battery altered under third-party data, confirm that the data package includes abuse and environmental test results for the altered configuration equivalent to RTCA DO-227 or DO-227A, a UN 38.3 test summary for the resulting battery type, and a documented technical basis for any Remove Battery By date.

If you suspect a battery has been altered: Remove it from service and segregate it. Do not attempt to open, load test, or charge it. Contact Dukane Seacom for evaluation and return shipping instructions, because a suspect or damaged lithium battery may be subject to additional transport restrictions under 49 CFR 173.185(f). You may also report a suspected unapproved part to the FAA using FAA Form 8120-11.

Identifying genuine Dukane Seacom batteries

Genuine Dukane Seacom batteries carry the Dukane Seacom part number, serial number or date code, TSO-C142a or TSO-C142b marking, and a Remove Battery By date, and ship with documentation traceable to Dukane Seacom. Because an altered battery may retain these markings, markings alone do not confirm that a battery is unaltered. A battery bearing a Dukane Seacom part number together with another company's labels, markings, or repair identification may have been altered. To verify a specific battery, contact Dukane Seacom for assistance.

Contact

Dukane Seacom, Inc. | 7135 16th Street East, Suite 101, Sarasota, FL 34243, USA
(941) 739-3200 | www.dukaneseacom.com

This advisory is provided for informational purposes. It does not replace applicable regulations, airworthiness directives, or the instructions for continued airworthiness for the equipment or battery. Dukane Seacom makes no determination regarding the airworthiness of any specific article it did not produce.