

Intermixing of Cells in Nickel-Cadmium Batteries for Aircraft Usage

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Background

- RTCA SC-211 committee addresses the design, performance, operational and testing issues for Ni-Cd, Lead Acid and rechargeable Lithium batteries
- Issues have been raised at RTCA SC-211 meetings regarding the intermixing of cells within Ni-Cd batteries used in aircraft
- It is typical practice to replace individual cells within the battery as they reach their end of life, and there are aftermarket PMA cells approved for direct replacement
- Manufacturers claim that this intermixing of cells from different producers results in a safety of flight issue in the form of reduced battery performance, increased maintenance, and an increase in thermal runaway potential

Planned Work

- FAA is in the process of obtaining necessary battery analyzer/test equipment and will be running a series of tests to determine the extent of any issues that may arise from intermixing of cells.
- Planned tests include:
 - Capacity tests under various conditions
 - Discharge tests under various conditions
 - Duty cycle performance tests
 - Cyclic endurance tests
 - Induced destructive overcharge tests
- Tests will be carried out following the specifications set forth in RTCA document DO-293