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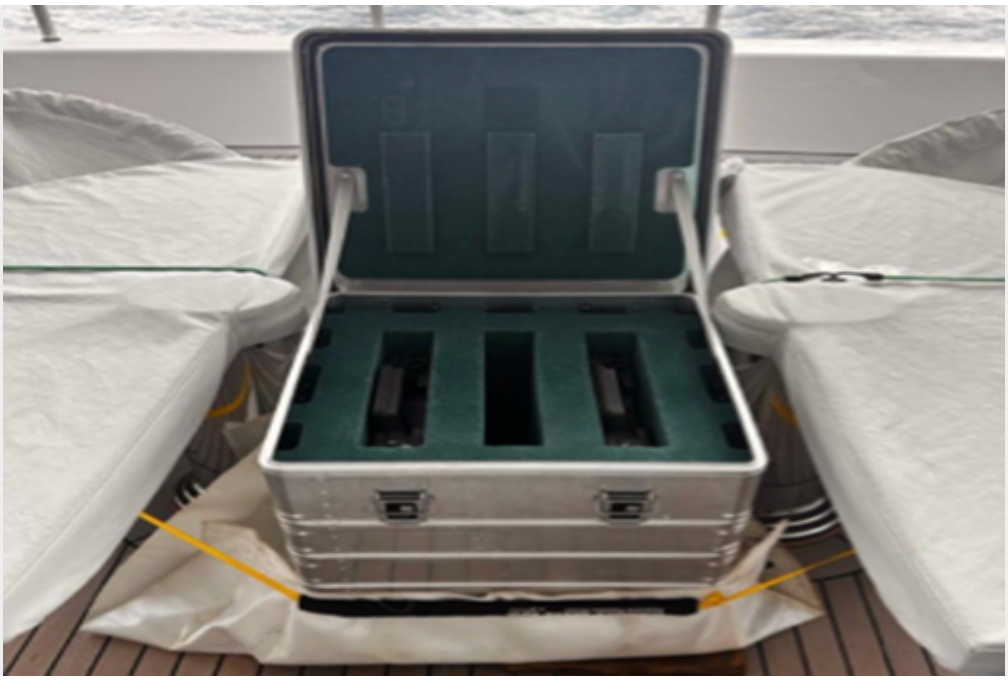
Posted on 18.01.2024 by Adam Parnell



Category: Superyachts

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Report Title Lift E-Foil Battery Thermal Run-away

Initial Report

During a routine inspection by the deck crew, one of two Lift E-Foil lithium-ion batteries, stored inside a purpose-built battery storage box, was significantly warmer than the other. The batteries were charged the day before for routine maintenance, and no abnormalities were detected during the charging.

Upon finding the warm battery, a temperature reading was taken of 37°C. The storage box with both batteries inside was moved to the main deck aft to a location visible by CCTV. The box was placed on top of a fire blanket.

Hourly inspections of the battery and readings of the temperature were added to the hourly rounds of the deck crew. By noon the following day, the temperature of the battery had risen to 47°C, and

the captain gave the order to dispose of the battery overboard. The battery was disposed of at the recorded position at sea and time. The incident was recorded in the official logbook, and the disposal was recorded in the garbage record book.

The investigation revealed that there was a suspected thermal run-away developing. The cause of this was potentially a faulty cell within the battery.

Comment

A commendable and very professional response by the master and the crew to mitigate the potential of a severe fire on board the vessel.

The master adopted a short-term strategy approach to managing this situation with everyone involved by identifying the problem, setting priorities, checking the plans, and monitoring the situation. The master took decisive action to mitigate the threat to the vessel when it was suspected that a “thermal runaway” was developing and adequately documented all actions taken in the official logbook and the garbage record book.

CHIRP urges all owners and masters carrying LIB on their Super Yachts to understand the manufacturer’s guidelines clearly. Importantly, they must train the crew to be aware of potential harm from LIB, including how to respond to a possible thermal runaway incident.

There is excellent guidance in the UK MCA (MGN 550) and the C-SAR No.101A.

Company SMS should be reviewed to see if changes are required using the latest industry information on LIBs, including guidance for handling LIBs and emergency preparedness if a battery malfunctions and shows potential for a thermal runaway event.

It is recommended that the life history of the lithium-ion battery should be documented from the factory to their disposal. CHIRP notes that while the industry is still discovering more about LIBs and their life cycle, greater information sharing should be provided on LIBs within the superyacht industry. A standardised logbook within the super yacht sector should be considered.

Key Issues

Teamwork- An excellent, coordinated response to mitigate the threat. A good example of a short-term strategy in action.

Design- It is unsure if the quality of the E-Foil battery was the primary causal factor for the potential for thermal runaway because other batteries with similar usage history did not start to overheat. Poor handling resulting in physical damage to the battery may also contribute to overheating. It is crucial to treat batteries that have been damaged, e.g., being dropped, with caution, and prudent overreaction is required.

Alerting- The company's management team that procures LIBs for the water sports equipment should adopt robust procedures to mitigate the threat of poor-quality batteries. How do you do this in your company? Would your crew notify the master if a battery was dropped?

teamworkTeamwork

designDesign

alertingAlerting