

SPHL battery charging – build-up of hydrogen

Safety Flash Published on 22 November 2016 Generated on 28 January 2026 IMCA SF 31/16

A Member has reported an incident in which there was a build-up of hydrogen gas inside the cockpit of a Self-Propelled Hyperbaric Lifeboat (SPHL), and has submitted information to IMCA for use in a safety flash.

The following points were noted:

- Many designs of battery charging ventilation systems consist of a forced air system from battery compartments/boxes in order to comply with Prevention of explosions during battery charging in relation to diving systems.
- The member's SPHL had a ventilation system consisting of a fan on one battery box that pushed air through a further two battery boxes via vent pipes to a discharge pipe overboard. This was complemented by an alarm system if the fan failed.
- It was discovered that there was no flow in the ventilation system.
- It was shown in this case that if the vent pipes are blocked or have a restricted flow then the fan alarm will not register
- In this particular incident, the original equipment manufacturer indicated that faulty battery lid seals have also been recorded as a potential problem (causing venting through the lid and into the cockpit instead of the vent pipe).

For designs of HLB battery charging systems that consist of a forced ventilation system, our member recommended the following actions:

- Check that fan(s) are operational and unobstructed.
- Check vent pipe openings on the inside of any battery boxes are clear of obstructions.
- Check vent pipes between boxes are free from damage (not kinked).
- Check battery lid seals are intact and lid catches are fully engaged.
- Check there is a flow through the actual system (easiest method is to put a polythene bag over the final discharge vent pipe).
- Modify planned maintenance systems to require a weekly check of the air flow of the ventilation system.
- If the final discharge point is on the outboard side of the SPHL, then check the flow by disconnecting the vent pipe from the hull penetration inside the cockpit, using a polythene bag or similar over the pipe.

Members may wish to refer to the UK Health and Safety Executive (HSE) industry guidance *Using electric storage batteries safely* which can be found at [hse.gov.uk/pubns/indg139.pdf](https://www.hse.gov.uk/pubns/indg139.pdf).

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