

Near-miss: Potential use of petroleum-based grease in an oxygen-rich environment

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A member has reported a near-miss incident involving the use of hydrocarbon-based grease in an oxygen-rich environment.

What happened?

A diving supervisor had asked an electrician to remove a seized CO₂ scrubber motor from a deck decompression chamber (DDC) for repair. The electrician removed the motor to the workshop, where it was dismantled, cleaned and the bearing lubricated with petroleum-based grease.

The use of petroleum-based grease on a motor to be used in an oxygen-rich environment (as on a CO₂ scrubber in a diving bell) could cause self-ignition and fire, with resulting injuries or fatalities.

It was realised that petroleum grease had been used before the motor was refitted. The motor was discarded and a new motor used instead.

The following points were noted:

- The diving supervisor had not advised the electrician that petroleum-based grease should not be used.
- The electrician was unaware that petroleum-based grease was not to be used.
- The fact that grease was applied to the bearing was detected and immediately the scrubber motor was discarded.

The company involved has made the following recommendations:

- Procedures for repair or maintenance of any item should specify special requirements (if any) for that item.
- Diving/life support equipment should only be serviced by appropriately experienced and qualified personnel.
- Diving/life support equipment should always be checked by appropriately qualified personnel following repair, to ensure all appropriate service and maintenance safety precautions are taken.

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