Filter failure in diver gas reclaims boosters

Safety Flash Published on **1 December 2002** Generated on **18 February 2026** IMCA SF 11/02

A Member has reported the following near-miss incident, whereby a diver experienced narcotic effects, possibly due to the effect of additional filters being placed in a gas reclaim system which obstructed free gas flow within the system.

What happened?

Additional filters had been fitted in the booster gas circuit – upstream of the bypass regulator, in line with the booster bypass circuit – with the intention of protecting the regulator seat from the effects of Teflon dust emanating from the piston rings.

However, the insertion of the specific type of filter may have caused an obstruction to free gas flow between the outlet and the inlet of the compressors. If the compressors were run in 'bypass' mode (i.e. while the divers were not on closed circuit), there would be a risk of compromising the safe operation and reliability of the equipment, because the potential would exist for small quantities of air to be drawn into the reclaim system via the first stage piston top set of cross-head chevron seals.

The following advice has been issued by the Member to its dive ships/sites:

- Carry out a full system inspection of the booster bypass pipework, specifically that area between the compressor outlet and its inlet, to determine that no in-line filter or other potential obstruction has been installed and that pipework has not been modified in any other way.
- Remove any such items from service until the modification has been fully assessed and written approval given by the responsible company department.
- Check that inter-stage gauges are fully operational and in working order (they should give a tell-tale signal if a flow restriction exists).
- Check that the compressor running temperature is normal while running for extended periods in the 'bypass' mode.

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