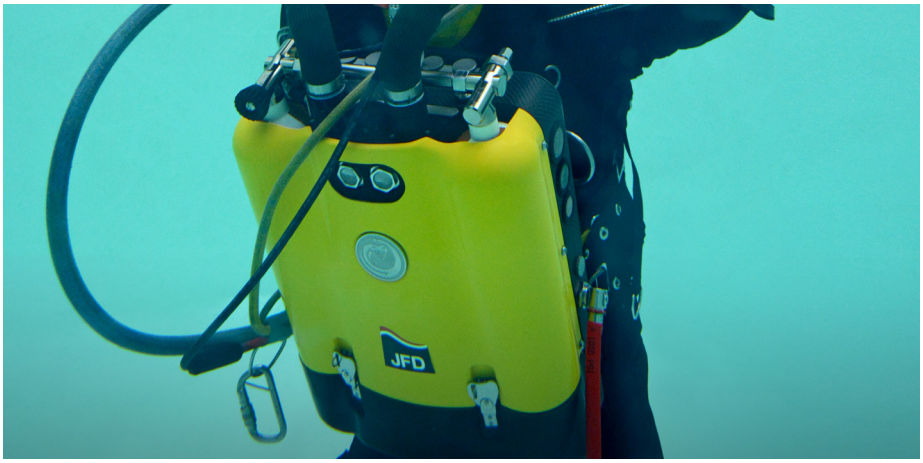
ADVISORY NOTICE

Background

After a sustained period of use and extensive diver drills, a client has provided JFD with detailed information on the behaviour of the COBRA set in working conditions. Some of the feedback has identified aspects of the set which may require additional improvement, and some has identified the need for additional user guidance.



ISSUE 1
Diver occasionally experiences insufficient gas on initial activation

During standard operations, the counterlungs on the COBRA set are fully inflated when the set is in standby mode. This provides the diver with sufficient gas for his initial breath.

However JFD acknowledge that the time taken for the diver to fully activate the set with full engagement of the mouthpiece, determines the initial volume of gas available from the counterlungs, as any delay during the activation in this action will cause gas to vent from the counterlungs into the helmet and be unavailable to the diver.

SOLUTION
To ensure access to all of the gas available, the diver must activate the set swiftly and get the mouthpiece into his mouth to seal the breathing loop.

The demand valve on the COBRA set is intended to provide any additional gas which is required by the diver at any time. However the demand valve may not provide sufficient flow for a large initial breath. The gas will come through, but not at the rate that the diver is perhaps expecting. After the initial breath, there is sufficient gas in the breathing loop and the diver will feel no further restriction.

JFD are currently conducting further tests investigating the cause of this flow restriction and will report further in approximately one month.

It is important to note that the gas injection system has been flow tested and that the lee-jet flow is sufficient to maintain lung volume and PPO_2 within the breathing loop.

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ISSUE 2
Divers experience significant over-pressure on ascent to bell (hamster cheeks)

This is a common effect with a semi-closed rebreather. The gas which is being constantly added and the gas expansion due to the ascent have to be vented from the relief valves in the back of the set.

When the diver is ascending, the height difference between the relief valves and the helmet is at its maximum. The pressure the diver experiences on his face is equal to the relief valve setting plus the height difference.

SOLUTION
When discomfort is experienced, the diver should vent excess gas from the side of his mouth or his nose. The mouthpiece must remain in the diver's mouth at all times. A seal between the mouthpiece and the diver's mouth must be maintained at all times except when the diver needs to vent excess gas.

If the diver releases the mouthpiece, the counterlungs will vent to the hat. Upon engaging the mouthpiece again and trying to breathe, the diver may experience a shortage of gas as detailed in issue 1. Additionally, if the mouthpiece is not engaged in the divers mouth, the COBRA set may freeflow leading to rapid depletion of the onboard gas.

These effects are likely to be most obvious when returning to the bell on ascent or during conditions of significant vessel heave.