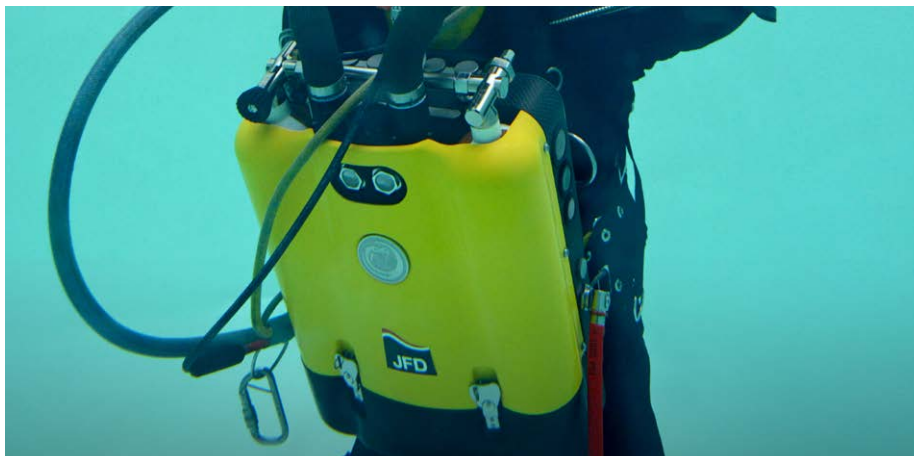




COBRA Guidance Note

Background

A user of COBRA has recently reported concerns regarding the suitability of the 2L composite cylinders contained within the set. JFD is highlighting to market the reported concerns and the follow on investigation that has been undertaken to demonstrate suitability of the composite cylinders for the application in COBRA.



REPORTED ISSUES

1. The user reported blistering and flaking of the lacquer on the cylinder exterior.
2. The user reported premature, excessive corrosion on the exposed aluminium at the cylinder neck.



Figure 1 - Flaking External Lacquer



Figure 2 - Excessive Corrosion at Cylinder Neck



SOLUTION

Issue 1:

JFD has investigated and worked closely with the cylinder manufacturer (Worthington Industries) who have categorically stated that flaking of the lacquer is a known but trivial characteristic of composite cylinders. The typical cause is due to air, which is trapped in the composite matrix during manufacture, being forced out during cylinder charging. It is thought that use in a hyperbaric environment can cause this issue to re-occur due to helium migrating under the lacquer over a period of time and then expanding when the set is removed from the dive system.

The manufacturer has explicitly stated that the voids are too small to allow any water ingress at diving pressures.

The manufacturer has also explicitly stated that these cylinders are suitable for the duty experienced by a COBRA set (surface, dry hyperbaric helium environment, diving, reasonably fast decompression out of system).

Issue 2:

JFD carried out an evaluation of the cylinders in question which were certainly corroded beyond what was acceptable for the time in service and, in fact, subsequently failed inspection at an IDEST facility. JFD has contacted the manufacturer to investigate the possibility of a problem with this particular batch of cylinders. To date, the manufacturer has not responded with any information. Your ongoing understanding and support in this matter is much appreciated.

Some COBRA sets have been in service for much longer periods without reported feedback of excessive corrosion, with the original cylinders still fitted, and others have had replacement cylinders after varying periods of time.

JFD advises users to check the external condition of the COBRA cylinders every time the COBRA set is removed from the dive system for maintenance, recharging or any other reason. If the cylinder condition is deemed questionable, a replacement should be fitted and the cylinder inspected by an IDEST facility, or similar nationally approved body in the relevant jurisdiction, before re-use.

Additionally, JFD are currently investigating the possibility of supplying a different brand of composite cylinder which has a stainless steel liner. This should eliminate all corrosion issues.

Contact:

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