



COBRA Guidance Note

Background

Two users have recently reported incidents where they have found a COBRA breathing hose no longer connected to the backpack. Some time ago, 2 users also reported a breathing hose becoming detached at the helmet connector.



ISSUE

When the breathing hose is not properly connected, the COBRA set will flood and no longer be capable of supplying safe bail-out gas to the diver. Even if the issue is subsequently rectified, the backpack will remain flooded. Even if the backpack is only partially flooded, there is a risk that caustic liquid (water+sodalime) will be delivered to the diver when inhaling.



SOLUTION

In all the reported cases, JFD believes that the hose nut was not fully engaged with the thread on the backpack / helmet connector. Due to the stowage / working arrangements in some bells, JFD understands that it is necessary to fit the breathing hoses to the backpack with the connectors facing away from the user. If this is the case, it is essential that the connection is properly inspected afterwards to ensure proper engagement.



Figure 1 - Backpack Connector and Hose End



Figure 2 - Backpack Connection Correctly Made Up (no thread visible)



Figure 3 - Helmet Inhale Connector and Hose End

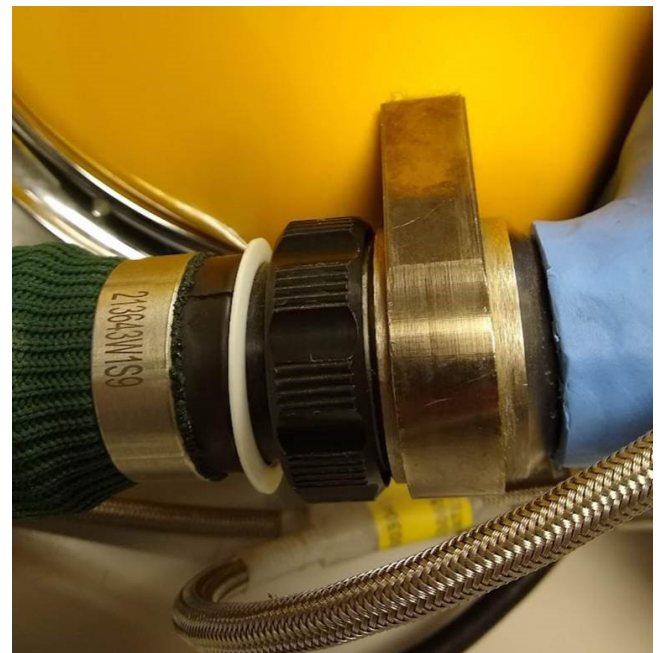


Figure 4 - Helmet Inhale Connection Correctly Made Up (no thread visible)



Figure 5 - Helmet Exhale Connector and Hose End



Figure 6 - Helmet Exhale Connection Correctly Made Up (no thread visible)

The hose has a piston sealing arrangement. The hose nut should be fastened by hand, until it bottoms out and stops. At this point, the connection must be visually inspected to ensure full engagement. It is not necessary (nor is it recommended) to use any mechanical aid to tighten the hose nut. If the connection leaks with the hose fully inserted and the threads fully engaged, further tightening will not help rectify the leak. The connection should firstly be checked for correct engagement and then the o-ring and surface finish of the connector should be inspected for wear / damage.

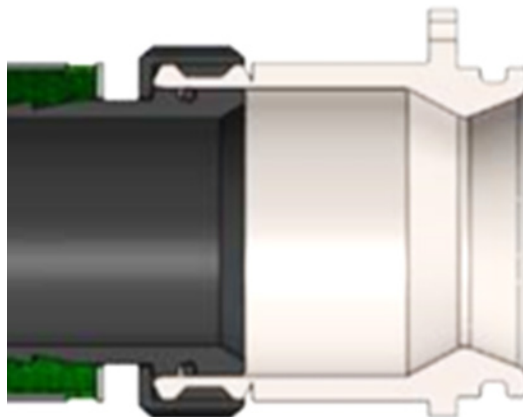
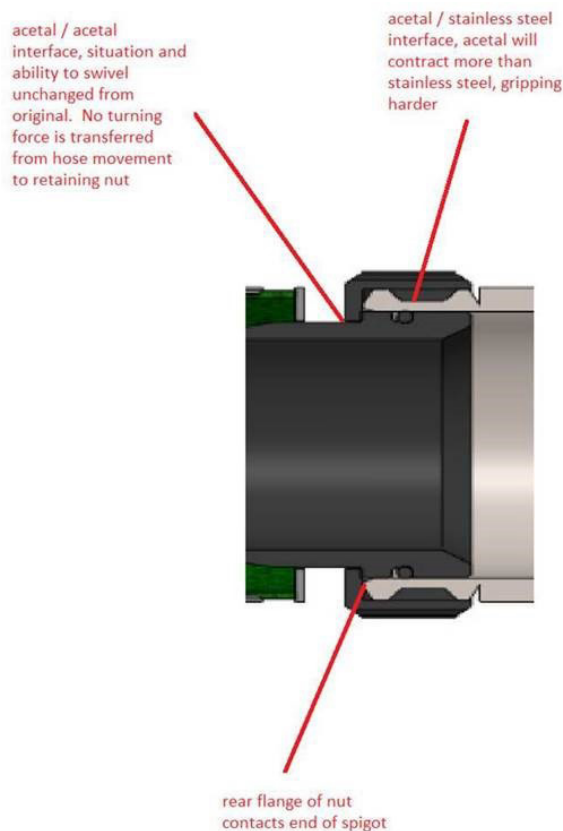


Figure 7 - Sealing Arrangement



Users have speculated if the recent material change (from acetal to stainless steel) to the connector has increased the likelihood of the nut backing off during a dive. JFD does not believe that this is the case for the following reason:-

The thermal expansion coefficient for stainless steel is 16 micron/metre/deg C, for acetal 110 micron/metre/deg C. The stainless steel item will contract less than the plastic item (for the same temperature drop), therefore the contracting acetal nut will grip the stainless steel connector more than the acetal connector (assuming a temperature drop from the bell to the water). It is important to note that the acetal nut is still fitted to an acetal hose end i.e. the nut is no more likely than before to grip on to the hose end and be turned by movement of the hose.



CONTACT

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