IMCA Safety Flash 08/04

August 2004

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learned from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted to webmaster@imca-int.com

1 Diving Helmets – Damage to Emergency Valve

Keywords: Mask

IMCA has received the attached Caution Bulletin (number 1 of 2004) issued by Kirby Morgan Dive Systems relating to possible damage to emergency valve main body between male pipe threads and the 'B' side block body's, as well as the manifold block body at the mating female pipe threads.

This alert, together with other safety-related information, is also available on the company's website at www.kirbymorgan.com/safety.html

2 Disguised Transportable Gas Cylinders

Keywords: Gas

IMCA has been passed a copy of the attached safety alert issued by the European Industrial Gases Association (EIGA). A number of recent incidents have been reported in various locations around the world where gas cylinders have been tampered with and deliberately disguised. A number of these have been where acetylene cylinders have been marked as oxygen cylinders, including replacement of the cylinder valve. The EIGA alert sets out a number of ways of spotting modified cylinders, which should be brought to the attention of anyone dealing with them.

KIRBY MORGAN®

Kirby Morgan Dive Systems, Inc.
425 Garden Street
Santa Barbara, California 93101
Telephone (805) 965-8538 **Fax** (805) 966-5761
Email info@KMDSI.com **Web** www.KMDSI.com

Caution Bulletin
Number 1 of 2004
JULY 28, 2004

Subject: **Possible damage to emergency valve main body (550-140) between male pipe threads and the "B" side block body's (550-029) as well as the manifold block body (350-050) at the mating female pipe threads.**

Products Affected: **Any Kirby Morgan helmets or masks incorporating a side block or manifold block, or separate manifold block assembly**

An incident has occurred where an emergency valve assembly, 505-070, had cracked causing an air leak, then upon inspection, broken off from the side block assembly, (505-024) on a KMB 18 mask. Extensive tests have been performed by KMDSI, to try and determine what if anything during assembly or manufacture, may have led to this happening. Also, metallurgical analysis has been performed to determine if the proper material was used based on the material certification on file. Nothing in the testing points to anything obvious being wrong either before or after testing. The material analysis performed, provided a match with what is stated on the material certificates of Conformance

In looking into the fit of the mating parts taken from inventory, the parts as brass "RAW" condition were consistent with the fit and function requirements of KMDSI as well as other referenced industrial standards. However, some Variations were found between the parts that were chrome plated. This extra plating may lead to misalignment of the parts when using KMDSI recommended procedures, and possibly cause an overstress condition while trying to tighten far enough to obtain proper valve handle alignment.

The emergency valve body assembly (505-070) must be indexed (clocked) enough to allow access to the control knob for proper use of the valve. If there is excess plating between the side block/ manifold block body pipe threads, and the emergency valve body pipe threads, this may cause the end user, during any scheduled maintenance,to go beyond normal procedure in tightening these threads. Overstressing and weakening the parts may result. Make certain to carefully follow recommended procedures in the KMDSI operations and maintenance manuals. If excess chrome interference is found, it is acceptable to have the control knob slightly misaligned to keep from applying too much force to the valve body, as long as the user can reach the emergency valve.

Recommended Procedure:

Before installing any pipe sealant, check the fit of the valve assembly pipe threads to the mating threads of the side block. There should be 2 turns of hand make up before needing to use a wrench. If there is less make up, then the threads will need to be chased with a 1/4" NPT tap to obtain the proper make up , If tapping is required, the bent tube assembly, the one way Valve assembly and steady flow components must all be removed and the side block body must be thoroughly cleaned to remove any loose particles. Remove the valve assembly from hand tight.

Doc #020909001

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Recommended Procedure Continued:

Before installing the valve assembly, wrap the pipe threads with 1-1/2 turns of teflon tape starting after the first thread. The amount of tape used should be based on what is found in the fit check . Apply the tape with slight tension to allow the tape to fill into the threads. If another type of sealant is used, it must be oxygen compatible as well as not pose any health hazard to the diver. Hand tighten the valve, then continue an additional 1-1/2 to 2 turns with a wrench keeping in mind the proper alignment of the control knob to the side block. Also, there should be at least one male thread visible. Check to be certain the valve is tight by trying to loosen the fit by hand. **DO NOT TIGHTEN THE VALVE BODY TIGHTER THAN NECESSARY!!! OVER TIGHTENING MAY OVERSTRESS THE PART AND CAUSE THE PART TO FAIL.**

If there are any questions please call or Email KMDSI

SAFETY ALERT

Safety Alert SA-05 – June 2004

Disguised transportable gas cylinders

Gas companies around the world and their customers operate in excess of 200 million high pressure gas cylinders. The high level of safety during use and transportation of these gas cylinders is shown by the very low level of incidents caused by failures of gas cylinders or associated safety devices which sometimes is followed with the release of gas. To support this high level of safety are a number of European and International standards for the design, retest, filling checks and handling of gas cylinders. One of the most important operating standards is that any modification to a gas cylinder e.g. repair, change of service or stamp markings is only permitted by authorized experts who ensure that the relevant standards are followed to ensure the continued safe service of gas cylinders.

An unauthorised change of a stamp markings of a cylinder e.g. re-test data, gas type or filling pressure, the changing of the required colour coding and labelling or the intentional damaging of a gas cylinder is a criminal act. This is because the health, safety and potentially the life of employees in filling stations and third party persons are endangered.

From time to time cylinders with modified markings or similar are reported to EIGA. As a reminder, EIGA urgently recommends that its members ensure that all persons involved with the inspection of cylinders before filling operations or with gas cylinder retest shall be sufficiently trained to detect Cylinders with unauthorised markings or those that may have been damaged.

The following details can be indicators of unauthorised modifications

- Are there any contradictions between the cylinder valve type, the colour coding, precautionary label and the identification of the gas (stamp-markings, label)?
- Are there any signs of modification of the cylinder marks, e.g. missing marks, unusual or wrong letters?
- Are there any signs of modification of the cylinder, e.g. strange colour coding or mechanical treatment (grinding or welding work)?
- Are there any signs of modification of the cylinder valve or its cap, e.g. loosened screws, missing components (gland nut, locking pin, burst disk, new or different cap)?
- Is the indication of the gas (stamp marks, colour, gas name etc) unusual?

EUROPEAN INDUSTRIAL GASES ASSOCIATION
AVENUE DES ARTS 3 – 5 ♦ B-1210 BRUSSELS
PHONE +32 2 217 70 98 ♦ FAX + 32 2 219 85 14 ♦ E-mail : info@eiga.org - www.eiga.org

- Is the weight of the cylinder unusual for the type of gas?
- Is the size (volume, diameter, length) or design of the cylinder unusual?
- Are privately (customer) owned cylinders presented with a brand-new or partly new coating, which was not applied at the filling plant where it is to be filled?

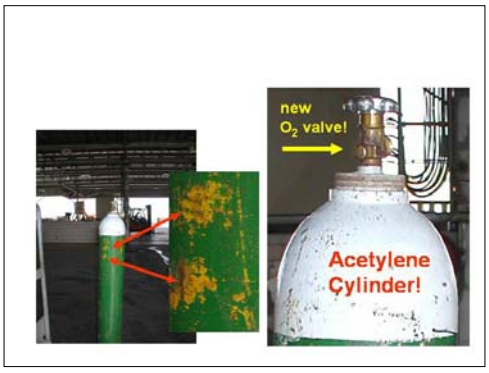
If one or more of the above mentioned should be answered with yes, a hammer test can give support. If the cylinder emits a dull sound, it could be an indication of that the cylinder has been modified. This is not applicable to acetylene cylinders and to aluminium cylinders.

Cylinders having one or more of the above defects or are suspected to have been modified shall be set aside for additional control measures.

« If in doubt, ask your supervisor »

The following examples show the importance of a sufficiently cylinder control before filling. All samples have been identified by the pre-filling checks:

- Conversion of an acetylene cylinder to a 150 bar oxygen cylinder (picture 1).
- Conversion of an acetylene cylinder to Argon mixture gas cylinder (picture 2).



Picture 2

Picture 1

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AVENUE DES ARTS 3 – 5 ♦ B-1210 BRUSSELS
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- A cylinder used by a smuggler (picture 3).
- A high pressure cylinder with a welded plug in the shell (picture 4).
- A cylinder with a falsified shoulder marking (picture 5).

Picture 3

Picture 4

Picture 5

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