IMCA Safety Flash 06/00

October 2000

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 Transponder/Beacon Explosion

A member has reported on an incident which occurred when a mini transponder/beacon exploded, injuring an employee in the face. The injury was caused by the end piece of the transponder being blown off.

The transponder, Applied Acoustic model 919 mini beacon, exploded when it was activated after being charged. The charger used was an Applied Acoustic model 982 smart charger.

The contractor involved has been in contact with the equipment manufacturer, who advised that these transponders should be dismantled/ depressurised until the reason for the explosion had been identified.

The manufacturer, Applied Acoustic Engineer, has proposed the attached procedure (Annex 1) on how to dismantle/depressurise the mini transponders/beacons in a safe manner.

Once the transponders have been depressurised there is no danger of an explosion.

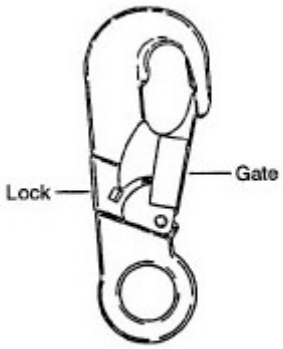
2 Personnel Lifting System Fatality

We have learned of a fatality when a worker fell from a full body harness boatswain's chair when ascending on a hoisting system. The initial information from the investigation team indicates that the individual fell when he became detached from the self-locked grip latch hook, similar to that depicted below. The latch on the hook depicted on the right opens outward.

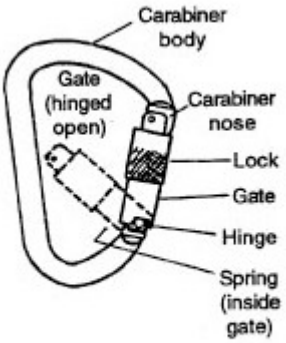
The company involved has implemented a survey of all personnel hoisting and fall arrest systems seeking:

- verification that all hook components are designed and manufactured and certified for lifting personnel;
- where such hooks are used, these should be self-locking and self-closing with an inward moving latch.

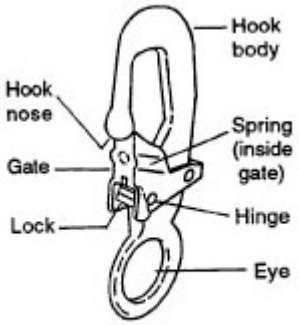
Examples of such hooks are shown overleaf.



Snaphook, Self-locking



Carabiner, Self-locking



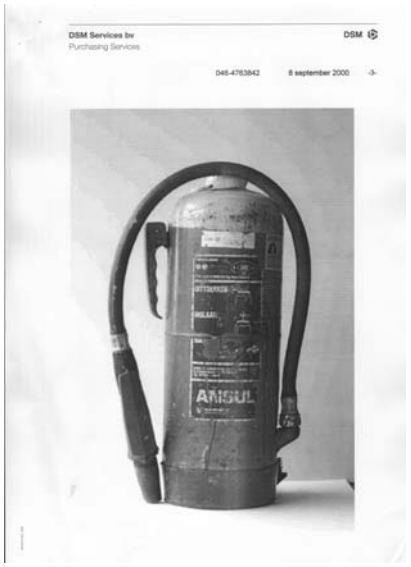
Snaphook, Self-locking

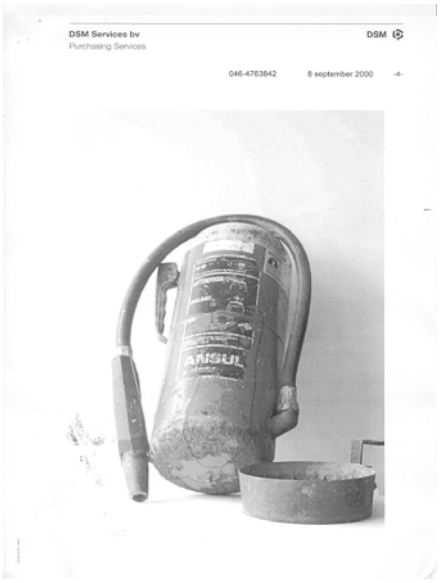
3 Serious Fire Extinguisher Alert

We have received a report of a fatality whilst using a fire extinguisher. A worker was using a fire extinguisher to put out a small fire when the extinguisher suddenly exploded, resulting in the person's death from the flying debris. Part of the extinguisher cracked open when the internal CO2 cylinder opened (225 psi/17 bar), hitting the user in the chest.

The cause of the incident was corrosion of the cylinder under the rubber protective foot. Water had entered the rubber lining, causing serious corrosion.

We understand that the vendor has distributed a warning to all owners of this type of fire extinguisher stating that the annual inspection should include visual inspection of the bottom of the cylinder after the rubber foot has been removed. Please see the photographs below:





4 Hydraulic Injury to Hand

Work was being undertaken servicing an engine. Immediately prior to the accident the first cylinder head had been removed using the equipment and procedures normally used for this task. The hydraulic power tool for tensioning the main retaining bolts (regulated at 500 bar) was applied and pressured up to 490 bar. The injured person's left hand was on the body of the jack. As he slackened the main nut on the tensioned bolt a small release of HP oil was injected into his left hand.

The cause of the release was the failure of an HP seal on the hydraulic jack that allowed a high velocity discharge of a small quantity of hydraulic oil to be released through a small aperture. The failure was attributed to a missing backup 'o'-ring seal. Even though the injured person was wearing PPE, the jet of oil penetrated his left hand.

The reason for the missing backup 'o'-ring could not be established. It was either omitted by the manufacturer or during maintenance. The risk assessment that was carried out did not identify that high pressure could be contained within the jack.

The company involved has identified the following:

- the need for a specific procedure regarding the changing of seal/'o'-ring assemblies;
- investigation and availability of gloves that provide additional protection against equipment that may involve high pressure hazards;
- hydraulic jacks should be included on planned maintenance system;
- additional PPE (full face visors) to be worn while performing this task in future.

Dismantling/Depressurising Procedure for AAE 91x 'Mini'-Beacons

Introduction

This note covers the following models: 919, 916, 915, 915H. All references to a 'beacon' include these four models.

To ensure that there can be no possibility of pressure build up inside one of the above models, or to relieve any possible pressure build up, the following procedure should be followed.

Please read this whole procedure and ensure that it is fully understood prior to undertaking any action.

The aim of this procedure is to remove the lower (connector) end-cap, thus relieving any possible internal pressure and allowing any unwanted gasses to disperse.

Note:

In the event of misuse or an unforeseen circumstance, there may be the potential for pressure to be built up inside the beacon because of heat or by venting of the battery pack. However unlikely, we will therefore assume that, for the purposes of this procedure, the beacon is: 1) Pressurised and 2) That the gasses may be ignited by a flame or spark.

Procedure

1) The beacon should be removed to a place free of electrical apparatus where the beacons can be disassembled.

2) In order to contain any possible rapid pressure relief, precautions should be taken to minimise the effect of any rapid ejection of one or other end-cap.

3) If any safety clothing or shatter proof mask is available, it should be worn. It is advisable that hand protection be worn when unscrewing the main securing screw.

Note

There is a possibility that a small amount of pressure will be inside the beacon simply due to the change in the volume of air as the temperature changes. For example if a beacon is assembled in a cold environment and it is subsequently taken to a warm room a small amount of pressure will exist. This very small amount of pressure is entirely normal and will be of no consequence or significance whatsoever.

4) To avoid the possibility of creating a spark inside the unit, the beacon should NOT be switched on.

5) The beacon should not point to any person or object which might be hurt or damaged from one or both of the end-caps of the beacon being expelled at high speed.

6) The central securing screw which is located on the lower (connector) end-cap should be unscrewed 2 or 3 times at which time it should be checked that the LOWER end-cap is being driven away from the beacon tube (cylindrical pressure housing) and that the transducer TOP end-cap remains close to the tube. The transducer TOP end-cap should be pushed onto the tube at this time if it has been seen to come away.

7) The LOWER end-cap securing screw man now be undone further. After a total of around 16 turns, the LOWER end-cap will have been driven away from the tube sufficiently for the two O rings to be free of the tube, thus allowing any pressure to escape.

8) The LOWER end-cap securing screw may now be unscrewed completely (about 7 - 8 turns) and the LOWER end-cap withdrawn from the body tube by a few centimetres. The LOWER end-cap is connected to the electronics inside the remaining beacon body by a grey ribbon cable which may now be disconnected from the LOWER end-cap circuit board.

Note

We would also suggest that the ribbon cable be pulled away from the circuit board inside the tube of the beacon so that there is no potential for this cable to be damaged whilst connected to the electronics and battery pack inside the beacon.

9) The beacon has now been separated thereby completely eliminating the possibility of any pressure build up inside the unit. Furthermore, any unwanted gasses are now free to disperse. These gasses, if present at all, are sufficiently small in volume that we do not suggest the need for any room ventilation.

The three beacon parts; Lower end-cap, main body and ribbon cable, can now be packed or stored as required.

Finally, it should be noted that, historically, hundreds of these beacons have been manufactured and used extensively in the field. This procedure has been written after just one beacon caused injury for reasons we do not yet know. As stated above, the chances of any operator experiencing a problem are very small, but until the cause of the problem is known, the above procedure should be followed to ensure the utmost safety.

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