

## ROV personnel injury

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One of our Members has reported a serious injury which one of its personnel received while completing maintenance on an ROV manipulator.

### What happened?

ROV personnel were in the process of repairing a hydraulic leak on one of the two seven function manipulator arms installed on their ROV. The injured person inadvertently placed his index finger in the actuator pivot pin hole while attempting to release the actuator from its original position. When the actuator came free it dropped approximately two inches amputating his finger at the first joint below the nail.

Personnel had previously removed a pin from the ram end of the actuator in order to establish a better position to continue with the maintenance operation. During the re-positioning of the actuator the supervisor took the weight of the manipulator arm while the injured person released the actuator from its original position.

Prior to the actuator coming free the injured person had unconsciously placed his left index finger in the pin hole misinterpreting the hole as one of the grooves of the ribbed section of the arm. When the actuator dropped his finger was between the fixed edge of the arm and the moving edge of the actuator.

### The company has identified the following contributing factors:

- Personnel had not completed a detailed Risk Assessment of the operation. A generic assessment of the overall maintenance procedure had been completed but this potential hazard had not been highlighted or recorded during the assessment.
- The maintenance work was completed at 04:30hrs. The ROV was located on an open deck and therefore exposed to the prevailing environmental conditions at the time of the work. These are often at their least hospitable at this time in the morning and at this time of year in the North Sea.
- A lapse of concentration and awareness of the positioning and location of his hand.
- A failure to follow the manual procedures and support the weight of the arm by a means other than human intervention.

### The company has made the following recommendations to its personnel:

- Personnel must complete detailed risk assessments and follow the warning and caution notices as detailed in the maintenance manuals prior to the commencement of repairs to all parts of the ROV systems even when they do not appear to present a serious risk to their safety, health and welfare.
- Personnel should ensure that all parts of the equipment are adequately supported during maintenance operations to minimise the requirement for human intervention to lift and hold the equipment in awkward positions while completing maintenance.
- Supervisors must ensure that all personnel are aware that the hinged sections of any equipment and especially the manipulators can be dangerous and can present a pinching and guillotine hazard when moved at the joints.
- Consideration must be given to placing covers over the retaining pinholes when pins have been removed to minimise the risk of personnel placing their fingers inside the holes when working on the arms.

## **The company concerned has identified the following further action to be taken:**

- An internal review of the maintenance procedure will be completed by the technical departments so that, where necessary, an addendum can be added to the relevant sections to highlight the potential hazards present especially when the retaining pins are removed.
- Details of the incident are to be passed to the manufacturers for their information and to determine whether they can make any further recommendations to prevent recurrence.

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