MARS

MARS Report 402 | April 2026

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**MARS 202612**

## Finger crush incident

An engine crew member was assembling the sewage air blower motor back into position after maintenance. He had to lower the motor vertically to align with the shaft below. Since it was a small motor, he thought it safe to align it with his hands while wearing gloves.

Once the motor was aligned, he had to lower it into the slot. While doing this, his grip loosened, and the motor slid down under gravity. The victim's right forefinger was severely pinched between the motor body and base plate. He was able to remove his finger, but the fingertip was badly mangled.

### Lessons learned

- When deciding how to do a job, bear in mind all the hazards and the worst-case scenario. An informal way of doing this is called **take five**. That is, take five minutes to review the task in your mind's eye. Ask yourself 'What could go wrong here?'
- Proper tools or engineering controls are your first line of defence. Personal Protective Equipment (PPE) is the final barrier and may ultimately fail to protect.
- Even the most mundane of tasks can leave lasting scars if proper methods of work are not adopted.

**MARS 202613**

## Watertight door shows no mercy

**As edited from KMST (Republic of Korea) report 2023-002**

A research vessel was at sea with no apparent rolling or pitching. An engine room crew member was undertaking maintenance on one of the watertight doors. He opened the cover of the door's power switchboard on the bulkhead and checked its condition. The switchboard's power was off.

He then opened the lower panel of the actuating system where the watertight door's control lever was installed, checked the hydraulic gauges, electric motors, and other items, and cleaned the inside. The watertight door remained closed throughout the process. He then took a short break, walking to the smoking area and chatting with other crew.

After his break, he returned to the watertight door under maintenance and attempted to open it, probably intending to check the door's condition, or to simply to save time by going through the

watertight door instead of the regular door on the other side. When the door was closed, as it normally was, a stopper was always put into the hole of its control lever in the corridor.

The crew member took out the stopper and opened the watertight door by turning and holding the lever to the right – the opening direction. Since the power switchboard for the watertight door was turned off, the door was operated by residual hydraulic pressure in the accumulator. Normally an alarm signal and visual strobe would sound/flash when opening or closing but since the power was off, there was no signal.

He probably intended to pass through the door, then close it while simultaneously putting the stopper into the control lever. While standing in the middle of the watertight door frame, he pushed the corridor-side control lever in the closing direction with his left hand. The residual hydraulic pressure then caused the door to return to the closing direction.

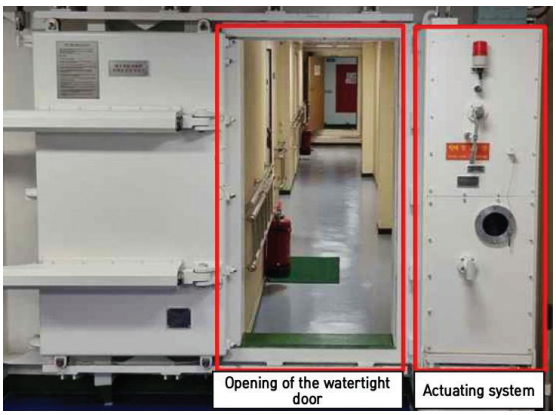
As the door was closing, he tried to put the stopper into the control lever, but somehow got trapped in the closing door. The watertight door pressed down on him powerfully from behind. The force of the closing door would have been weaker than the normal set pressure, but it was strong enough to trap him in the door.

It takes about 25 seconds for a watertight door to reclose. The time needed to trap the victim was likely to have been much shorter, given the space occupied by the victim who was standing and the remaining width of the watertight door.

Within minutes the victim was discovered trapped between the watertight door and its frame. The victim's body did not move but the arriving crew opened the door manually. The victim had stopped breathing and had no pulse.

The investigation found that the stopper on the actuating system had been installed in case the door needed to remain open for a long time during inspection or while work was being carried out. When the door is opened, its control lever is in neutral. As long as the lever is not turned to the closing direction, the door remains opened. The stopper is intended to prevent the door closing if the lever is activated due to negligence or malfunction.

The vessel's crew did not clearly understand the function of the stopper. They believed, incorrectly, that it was a safety pin which had to be inserted so that the control lever could not move. The victim probably also regarded it as a safety pin that should remain inserted. In other words, the victim's belief that he had to insert the stopper is likely to have contributed to this accident, along with his decision to pass through the door.





### Lessons learned

- It appears the crew were not very familiar with the use and operation of the watertight doors, and specifically the rationale for the 'stoppers'.
- It should be second nature to use Lock out tag out (LOTO) procedures for any machinery that has stored potential energy, to ensure safe operations. If you don't buy your LOTO ticket, you will never win!
- Watertight doors are an integral part of the safety of the ships that are fitted with them. Yet the doors themselves contain stored energy and potential for great harm. All crew on ships with watertight doors should be completely conversant with their operation.

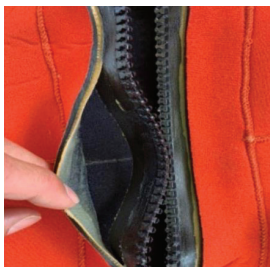
## MARS 202614

# Immersion suit best practices

Inspectors frequently find immersion suit defects caused by adhesive failures between the main zipper and the suit body. These failures compromise watertight integrity and pose serious survival risks from water ingress. Common contributing factors to the defects include:

- improper maintenance (eg, the use of non-approved petroleum-based lubricants or scented powders);
- improper storage, and
- neglecting to conduct periodic pressure testing.

Seam and closure deterioration may not always be detectable during routine visual inspections. Adhering to manufacturer instructions, IMO regulations and guidance, and performing regular inspections and testing are essential to ensuring immersion suit reliability.



**Zipper failure due to glue separation**

**Bottom of zipper failure due to glue separation**

### Lessons learned

- Conduct thorough inspections of all immersion suits, focusing on zipper-to-body seams and seam-taped areas such as boots, gloves, and hoods. Check for signs of delamination, seam tape lifting, adhesive failure, and zipper malfunction. Verify zipper function and proper lubrication using only manufacturer approved products.
- Store suits with zippers fully open and use monthly inspections as opportunities for crew donning practice.
- Conduct air pressure leak testing at least every three years, or at more frequent intervals for suits over ten years old.
- Address any identified defects immediately. Ensure repairs are performed by an authorised repair station in accordance with manufacturer instructions, and remove non-functional suits from service.
- Replace any suits that cannot be restored to a watertight condition to the satisfaction of the vessel's Flag Administration.
- Update maintenance procedures to ensure manufacturer directions are followed and only manufacturer-approved products are utilised to service and maintain equipment.
- Maintain detailed records of inspections, tests, defects, repairs, and replacements.

**As edited from USCG (USA) Safety Alert 03-26**

## MARS 202615

# Grinder Madness

On board a vessel, an electrician was cutting a steel pipe with a grinding tool. The protecting guard of the grinder had been removed to permit the use of a larger disc. Suddenly, the grinding disk shattered and flying disc parts caused a deep cut on the victim's right hand. The crew member could not subsequently fulfil his duties and had to be repatriated

The company investigation revealed that the disc in use had sustained initial fractures prior to the accident event use. Also, the victim was not wearing a face protection mask nor using working gloves.

The company review of grinding accidents within the industry found that the common causes of grinding accidents were:

- Using a damaged grinding wheel;
- Using the wrong type of disc for the job;
- The machine speed and disc speed are incompatible;
- Poor machine maintenance;
- Lack of training;
- Operator carelessness.

### Lessons learned

- There are so many! Let's start with the easy one – always wear appropriate PPE. And yet, this is your last line of protection.
- Never 'jury-rig' a tool. Taking the protecting guard off the grinder to insert a larger disc is a foolish and dangerous move.
- It is good practice to inspect the grinding disc for damage or small cracks prior to use.
- Before use, check to see if the disc has an expiry date. The shelf life of a grinder disc can vary depending on several factors, including storage conditions. Humidity and temperature can negatively affect disc shelf life.
- The switches on angle grinders can be sensitive, ie, easily knocked into ON position. When changing blades, switch off the power at the power point and pull the plug out of the socket.
- Never put a grinder down until the disc stops rotating.

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