

The Nautical Institute Marine Accident Reporting Scheme

MARS Report No 190 August 2008

MARS 200852

Main breaker malfunction

Most air circuit breakers used for generator and power switching systems are provided with an automatic release mechanism. Those that do not have an 'undervoltage' or 'no-volt' automatic release (or where one is fitted but is not working) may accidentally remain closed even when a 'trip' condition exists. In such a case, there is a serious fire hazard due to intense heating and/or arcing.

It is usual for shipboard generators also to be fitted with remote interlocks that open the main breakers under 'no-volt' or 'undervoltage' conditions. The first indication of a defective 'no-volt' or 'undervoltage' release is often that the remote release system of the breaker does not operate, requiring manual tripping of the release to keep the breaker open. This condition should be recognised as potentially dangerous, in that other breakers will probably be inoperative as well, and arrangements must be made for immediate checking, overhaul or renewal, as appropriate.

Such an accident happened recently on board one of our vessels, which resulted in serious damage to the main switchboard. Fortunately no one was hurt in the incident.

Lessons learned

After withdrawing any breaker, make sure that the switching contacts are open before returning it to the operating position. Do not rely on built-in trips or mechanical stops. While the breaker is withdrawn, check that the indicator is showing true by sighting the switching contacts, or by using an ohmmeter. Check the indicator is showing open again before returning the breaker to the operating position.

MARS 200853

Main engine failure

Official report: ATSB Transport Safety Investigation Report; Marine Occurrence Investigation no. 229

On a loaded mini-bulk carrier sailing close to coast, a low pressure alarm sounded for the main engine lube oil system. When the duty engineer changed over to the standby filter, the lube oil pressure dropped quickly and the main engine shut down. At the time, all electrical power was being supplied by the main engine driven shaft generator, and so with the main engine shutting down, all electrical power was also lost. Power was restored quickly using an auxiliary generator, and when the main engine was restarted, the main engine low lube. oil pressure alarm sounded again. After stopping the engine, the

Seaways August 2008

chief engineer carried out a main engine crankcase inspection and saw flecks of metal in the bottom of two of the crankcase spaces. Suspecting major damage to the bearings, the ship requested towage into the nearest port.

Investigations revealed that the gudgeon pin in no. five piston had failed and that the piston skirt was damaged.

Root cause/contributory factors

1. Undetected pre-existing flaw, causing fatigue cracking of the gudgeon pin;
2. Metal debris from the failed gudgeon pin and piston skirt caused the lube oil filter to choke;
3. Standby filter had not been primed and low lube oil pressure damaged the bottom end bearing;
4. Evidence suggests that the lube oil pump had been running in a damaged condition for some time before the engine breakdown led to the pump's failure being discovered.

Result of investigation

1. The engine manufacturer did not provide sufficient guidance for monitoring the fatigue life of the gudgeon pin or inspecting the gudgeon pin for early signs of impending failure.
2. The maintenance for a critical piece of equipment, the main lube oil pump, was not planned according to the manufacturer's recommendations, despite the fact that a previous failure had occurred.
3. The shipboard procedures and practices for operating, maintaining and monitoring the lube oil filter were inadequate. The standby filter was not checked to ensure that it was ready for use and the in-service filter's condition was not adequately monitored.

MARS 200854

Incorrect grade of fuel oil bunkered

An incorrect grade of fuel oil was bunkered on one of our vessels recently. The vessel was described as consuming IFO180 and the charterers had stemmed the grade correctly. However negligence on the part of the supplier resulted in vessel receiving IFO380 instead. Pre-supply documents had clearly indicated that the vessel was to receive the wrong oil; this was overlooked by the chief engineer and thus the vessel is considered to have contributed to the negligence. The discrepancy was detected three days after bunkering.

The supplier accepted responsibility for the wrong supply and the incorrect oil was de-bunkered and the correct grade was supplied. However, the vessel was put off hire during the time taken for this operation.

MARS 200855

Mooring failure, pollution

Source: IMO Flag State Implementation Sub-committee 11

An oil tanker was moored to, and discharging to, a single point mooring (SPM) buoy. At some time during these operations, the chain stopper opened and the chafing chain was released. The ship was then moored only by a pickup rope that parted shortly thereafter. As the vessel drifted from the monobuoy, the cargo hoses parted and approximately 12 tonnes of oil spilled into the sea.

Root cause/contributory factors

1. The bridge monitor that was used to control the cargo operation also used the same function keys to control different operations. The screen colour was different for each operation; however, the function keys and their sequence were not unique to a given operation.
2. It is believed that one of the officers performing cargo operations unintentionally opened the chain stopper and released the chafing chain while attempting to secure a forward hydraulic pump.
3. The function key sequence was the same for each operation and only the screen colour provided an indication as to which operation was being performed.

Lessons learned

1. Ergonomics, in the form of operator-machine interface, can be a critical element in shipboard safety.
2. Ships' crews should display warning signs where there is a possibility of confusion in the operator-machine interface.

MARS 200856

Ro-ro ships – manoeuvring difficulties

An inbound pure car and truck carrier (PCTC) was

approaching the pilot station at her scheduled time, in very confined waters. A gale warning was in force and with only two miles to go to the pilot embarkation point, the wind suddenly increased and pilotage services were abruptly suspended.

The master was instructed to await further orders and decided to head back to open waters rather than wait in the confined area or anchor there. The wind caught the beam of the high-freeboard and low draught vessel, and started setting her on to the lee shore, less than two miles downwind. Using full rudder and engine power, and transmitting appropriate signals on the air horn and VHF radio, the master just managed to turn the ship's head into the wind and execute the 180-degree turn and head out to open sea.

Once out of the lee of the land, the full force of the gale caused the ship to move sideways at about five knots, even with the engine going on harbour full ahead. The vessel remained stubbornly beam on to the wind despite all attempts to heave to with the head into the sea and swell.

This type of vessel has been rightly described as a 'ping-pong ball on the water' and under high wind conditions, ro-ros are almost impossible to control or manoeuvre. At the first indication of approaching strong winds, masters of ro-ros and similar high-sided vessels must not hesitate to leave port or confined waters and anchorages and head out to open sea. Maintaining a safe position under way in the lee of a high offshore island is a safe option, provided the location and predicted movement of the weather system is known.

If sailing from port is not possible, ships have been kept alongside with continuous use of tugs, and, in uncrowded anchorages, mooring to two bower anchors may be considered, but with engines in full readiness until the wind has abated. Even with full scope of chain on both anchors, ro-ro vessels tend to yaw violently in strong winds and the 'jerk' at the extremity of each yaw may cause the anchors to drag, especially if the holding ground is less than ideal.

Mariners whose vessels may be navigating or lying at anchor near a ro-ro vessel in high winds, must allow for a greater margin of safety.

The International Command Seminar Series 2008

The Command Team and the DP – Expectations, training, qualifications and competence

The Nautical Institute, in conjunction with its branch network and in partnership with the International Federation of Ship Masters' Associations (IFSMA), the Institute of Marine Engineering, Science and Technology (IMarEST), the Corporation of Trinity House and the Honourable Company of Master Mariners (HCMM), is pleased to be hosting the 2008 series of International Command Seminars.

The theme for this series is the relationship between



the Designated Person (DPA), the command team afloat and the rest of the industry.

The first seminar was held in Antwerp (see pp 10-12)

The next International Command Seminars will be held in:

- Panama - 9-10 September 2008 *
- Glasgow - 9 October 2008
- Hong Kong - 6 November 2008

*Thanks to RTI Marine for its sponsorship of the Panama Seminar, which will be held at the Four Points by Sheraton hotel, Panama City.

For more information, download brochure from www.nautinst.org

MARS 200857

Bent derrick boom



▲ This photograph shows a bent derrick boom. Seafarers must carefully check their ship's gear for such defects. This defect is usually caused by over-stressing the system. Following regulations, such a derrick must be unshipped, permanently repaired under class supervision, re-mounted, proof-tested and certified before being taken back into use.

MARS 200858

Derrick accident causes fatality

Source: Standard P&I Club, Safety issue, December 2007

A new ship was discharging steel plates with own cargo gear. While the derrick was lifting two steel plates slung together, the topping lift wire broke and the plates fell. One stevedore was killed at the scene and three others were badly injured. The accident was attributed to a seizure of the centre pulley bearing, causing wear and breakage of the lifting wire due to contact with the pulley sheave. The shipowner had established a programme of routine maintenance, which the crew should have performed under the supervision of the chief officer. It would appear that this had not been done properly and the sheave, because of its position and accessibility, had been overlooked.

The additional wear and tear leading to the wire parting must have occurred over a period of time and should have been noticed by the crew. The faulty bearing was supplied by the shipbuilder; however the ship had been in service for about six months and the owner should have ensured that all equipment was checked and serviced regularly.

All wires, sheaves, gears and other moving parts must be checked and greased as soon as possible after delivery, and at regular intervals thereafter.

MARS 200859

Collision with sinking and fatalities

Official report: Preliminary Inquiry no. 3 2006; www.mardep.gov.hk/en/publication/pdf/mai060823.pdf

A container ship collided with a small general cargo ship at *Seaways* August 2008

night in clear weather under slight sea conditions, immediately after which the smaller cargo ship sank, with the loss of three crew members.

Results of inquiry

1. The container ship had sailed from port about two hours before the incident and having disembarked the pilot, departed the fairway, and was increasing to her normal sea speed of 24 knots. The master and the third officer were on the bridge at the time of the incident.
2. The cargo ship was on a coastal voyage with steel cargo and at the time of the incident; the bridge was manned by the master and an officer, both of whom went missing, presumed dead.
3. The incident occurred within the surveillance area of the port's VTS, so the tracks of both vessels were recorded and used in this inquiry. Before the collision, the container ship was on a course of 149°T (and was altering rapidly to 180°T to avoid collision) and at a speed of about 20 knots. The cargo ship maintained a course of about 229°T at a speed of about 8 kts until the collision.

Root cause/contributory factors

1. The cargo ship, which was the give-way vessel, appeared to have failed to comply with Rule 15 of the Colregs, to keep out of the way of the container vessel in a crossing situation.
2. The container ship, being a stand-on vessel, appeared to have failed to comply with Rule 8 of Colregs, to take early action to slow down, stop or reverse her engine in order to avoid collision.
3. Fatigue, alcohol and drugs were not found to have contributed to this incident.

Lessons learned

1. Masters and navigating officers should comply with Colregs at all times.
2. When a close quarters situation or risk of collision is likely to develop, early action to avoid collision should be made in compliance with Colregs.

Feedback

MARS 200814

Propeller damaged by own refuse

I'm somewhat surprised that this report has been issued without any comment. Surely, there is some convention which precludes dumping waste of this sort at sea? Even if there isn't, I would imagine the company's environmental policy might (should?) preclude this sort of action. In any event, the report tries to give advice but actually demonstrates what a reckless operation took place, without any safe management. Amazing.

■ **Editor's note:** Marpol does not specifically address discarded ship's spares under its annexes, but such refuse may reasonably be considered as 'operational waste' under Annex V (Garbage), provided they do not contain or are not 'contaminated' with substances that come under any of the other Annexes: oil, noxious liquid substances (NLS), harmful substances, sewage and environmentally damaging substances. The dumping of the discarded heat exchangers on the 'high seas' in this case did not contravene Marpol if it was done more than 25 miles from nearest land outside special areas. However, lack of

seamanship, prudence and internal communications seem to have been the main reasons for the damage sustained by the propeller.

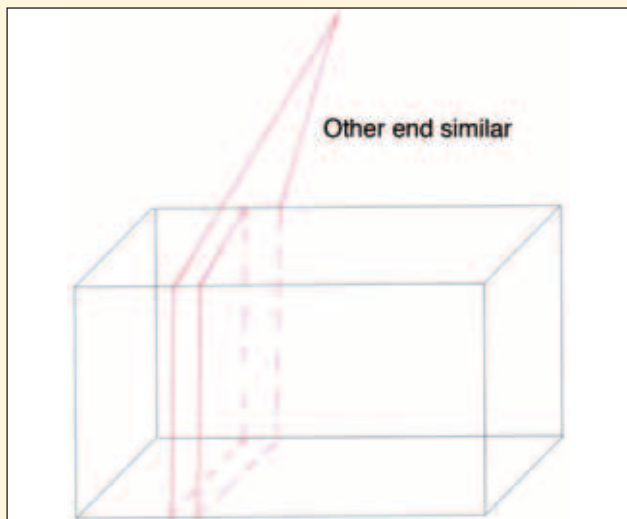
Feedback

MARS 200824

Crate dropped during lowering

There are various comments on this in the entry but I would take this opportunity to highlight the following:

- The value of the goods contained within the crate can easily be established, but the centre of gravity of the contents is (or was) a mystery. Based on the foregoing statement, the suggested method of proper slinging was incorrect as shown in the diagram.
- The only positive method of restraining any movement would be to sling it as shown in the diagram below. This method is an age-old traditional method known as a 'body and soul' slinging arrangement.



■ **Editor's note:** While this arrangement is definitely superior, in the original report, it was mentioned that the case was unusually tall, which would probably mean that each of the pair of slings required would measure upwards of, say, 15 metres in length. Ideally, an efficient slinging arrangement for awkward packages should be provided by the packer. From the report, it appears either that the slings used were not long enough for this method or that the ship could not produce or improvise a pair of slings of suitable length.

The method suggested by the Editor involves shorter slings like those illustrated in the original report and the 'tightening' is achieved simply by a person holding or tapping down the unloaded eye as the weight is taken by the lifting appliance. This method has been successfully used by stevedores the world over for decades, if not centuries.

Feedback

MARS 200832

Near loss of tug

All tugs should have an emergency hook release mechanism. For overall safety, a tug's skipper must ensure, among other things, the following are also complied with before commencing a towing operation:

1. Tow winch(es) operation and quick release(s) checked, as applicable
2. Towing ropes / wires / gear are in good condition
3. The bridge radio is functioning correctly
4. Ship's whistle, fire and general alarms are tested
5. All watertight doors and openings on and below the main deck are battened down.

Vessels must not tow an idle escort tug. The Nautical Institute publication, *Tug Use in Port*, by Captain Henk Hensen FNI includes valuable information on the safe deployment of tugs.

MARS: You can make a difference!

Can you save a life, prevent injury, or contribute to a more effective shipping community?

Everyone makes mistakes or has near misses but by contributing reports about these events to MARS, you can help others learn from your experiences. Reports concerning navigation, cargo, engineering, ISM management, mooring, leadership, ship design, training or any other aspect of operations are always welcome.

MARS is strictly confidential and can help so many – please contribute.

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