The Nautical Institute
Marine Accident Reporting Scheme
MARS Report No 196 February 2009

MARS 200905

Mooring problems at exposed port

Our capesize bulk carrier arrived at Kashima, Japan, with a full cargo of iron ore. Vessels calling at this port on the eastern seaboard will generally be exposed to a) severe gales in advance of and following the passage of a frontal system; and b) moderate to heavy swell coming in from the Pacific Ocean. The effects can be particularly severe if weather systems move slowly or erratically.

We approached the anchorage, drawing nearly 19 metres. On the final heading, the swell came on to the beam and the ship, being stiff, rolled very heavily. Fearing bottom contact due to the increase in draught with each roll, we turned around and slowly steamed out to deeper waters and hove to until conditions improved the next day.

The next morning, we embarked the pilot and proceeded up the buoyed channel. The heavy swell abeam made the ship roll very heavily all the way to the breakwater entrance, causing us much anxiety. Upon berthing, (moored to four+two+two fore and aft, all with rather short leads) we continued to feel the effects of the swell as the vessel continued to roll, heave and surge alongside. On the inner berth ahead of us, another capesize vessel was about half-way discharged, and she too was straining at her moorings. While we had almost new 70mm, eight-stranded polypropylene mooring lines, the other vessel was secured with old plaited nylon 'Dan' ropes of similar size.

Then began a nightmarish port stay, when our ropes kept parting with monotonous regularity. We tried everything, including deploying additional lines, bights, automatic and manual tensioning and anti-chafing measures; however we were unable to control and equalise the loads on the highly stressed and constantly surging ropes. We were extremely lucky that there was no injury, as our ropes kept parting all through the first 24 hours at the berth, often with violent snap-back. Our demoralised crew watched in disbelief at the intact moorings of the other vessel, while our protest against an 'unsafe berth' was rejected by our charterer, who coincidentally happened to own the other vessel. He alleged that the poor quality of mooring ropes on our vessel was the cause of the problem. The next morning, as the other ship sailed past us after completing discharge, her crew cast a pitying glance on our yarn-strewn deck and ugly, bowline-knotted mooring lines.

The test certificates of our mooring ropes indicated the normal breaking stress of about 70 tonnes, but we felt that the rope had an extremely 'soft' lay (the strands felt unusually loose). This led us to suspect that there could be a material or construction defect in its manufacture.

Another explanation could be that our berth, being the first one inside the breakwater, was more exposed to the ocean swell. Also, given our 180,000-tonne displacement, the forces resulting from our vessel's movement were far greater than those imposed on the other vessel's ropes, given her more protected position and her lighter displacement, estimated to be only half ours.

The conditions improved by the following evening and we were able to start on the mammoth task of resplicing our ropes and we sensibly put in a requisition for nylon mooring ropes.

In retrospect, I should have been assertive enough to demand immediate unberthing and proceeded to wait offshore for conditions to improve, placing safety ahead of the certain off-hire situation that would have resulted. Having read about the new 'rope-less' suction moorings (*Seaways*, December 2006), I feel that operators of such exposed berths should have these systems installed in the interests of safety and efficiency.

MARS 200906

Fuel oil quick closing valves

Official report: condensed from USCG *Alert* 8-08

Investigations into a shipboard fire incident showed that more than half of the fuel oil quick-closing valves (FOQCVs) failed to close properly, which prevented the ship's service generators from being secured. The valves had not been well maintained and the testing protocol used onboard the ship did not test the valves properly.

The US Coast Guard strongly recommends that owners and/or operators, ship's crews, marine inspection personnel and others ensure that:

1. The closing system is capable of closing all valves remotely and that the system is tested as designed, either to close valves sequentially or simultaneously.
2. The ship's crew should be familiar with the operation, technical manuals and the associated maintenance requirements for all components.
3. Records of maintenance and testing are maintained.

MARS 200907

Auxiliary blower failure

While approaching the pilot station of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals. A Lloyd's open form (LOF) was signed in haste and salvage tugs were called for immediate assistance. A serious casualty was averted, the vessel anchored safely and both blowers were repaired with shore assistance.

On investigation, the following facts came to light. Both blowers had been used occasionally for several days prior to approaching port. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank. While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out. At the same time, no.2 blower motor was checked and the insulation was observed to be zero. Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.

Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation.

Mariners should take note that the auxiliary blowers are meant to be used only during starting and low RPM manoeuvring, when the turbochargers cannot deliver the minimum required scavenge pressure to ensure efficient combustion. Should there be any need to use an auxiliary blower under normal sea speed, it is a definite indication of a fault in the scavenge system and immediate attention to identify and rectify this is needed. Auxiliary blowers are vital for main engine manoeuvring and their planned maintenance schedules should never be compromised.

Root cause

The crew grossly underestimated the risk involved in attempting to run the blower with zero motor insulation while proceeding to pick up the pilot in closed waters.

MARS 200908

Engine turbocharger failures

On one vessel I commanded, the generators were barely able to produce 40 per cent of their rated capacity. More worryingly, there were frequent blackouts, endangering the safety of own and other vessels, and of the port, when in or near harbour. Although it was suspected that the auxiliary diesel engines driving the alternators were under-performing, the engineers chose first to rectify the numerous defects they discovered in the alternators – clogged ventilation ducts, low insulation, unstable exciter current etc. This took several days of work and testing with the assistance of shore experts, with only very marginal improvement in output and reliability.

Eventually, the diesel engines came in for greater attention and when the turbochargers were opened up for inspection, it was discovered that there was nothing left of the turbine blades. It took more crucial weeks before new spares arrived and the long standing problem was finally resolved.

On another vessel, soon after disembarking the pilot after sailing from a very busy port, the main engine was put full ahead from the bridge control. Almost immediately, a loud crash was heard, and the main engine stopped. The engineers reported that the after turbocharger rotor had contacted the casing and was certainly destroyed.

We broadcast a safety alert and fortunately slowly drifted out of the traffic separation scheme and into safe waters. Some two hours later, with the after turbocharger blanked off, we were able to resume passage at slow speed. Upon arrival at our next port, the ship went off-hire for nearly two days for investigations, renewal of the damaged turbocharger and surveys. It was thought that a recent passage through stormy conditions and/or faulty balancing of the rotor after the previous overhaul led to the incident, which reportedly involved costs of about US$ 100,000.

Lessons learned

1. Diesel engine makers' maintenance routines must be strictly adhered to.

2. Careful control must be maintained over fuel and lubricating oil quality, and associated purification and circulation systems.

3. Close monitoring, recording and analysis of diesel engine parameters will expose abnormalities as well as improving efficiency and economy.

4. Under-performance of diesel engines must be properly investigated, with the assistance of special equipment and/or personnel, if necessary.

5. Turbochargers of large engines are susceptible to surges and vibrations that occur when a vessel is working in heavy seas. It may be prudent to carry out internal checks on arrival at the first port following a particularly rough sea passage.

MARS 200909

Near-miss in the Suez canal

Because of morning fog, there was a build-up of slow-moving traffic in the Great Bitter Lake. The lake anchorages were congested with vessels in the large southbound convoy that anchors here while the northbound convoy passes through. As a result of the bottleneck, and the limited anchorage space available, the northbound vessels were fanning out on entering the lake, and idling through the lake within and alongside both marked lanes of the channel.

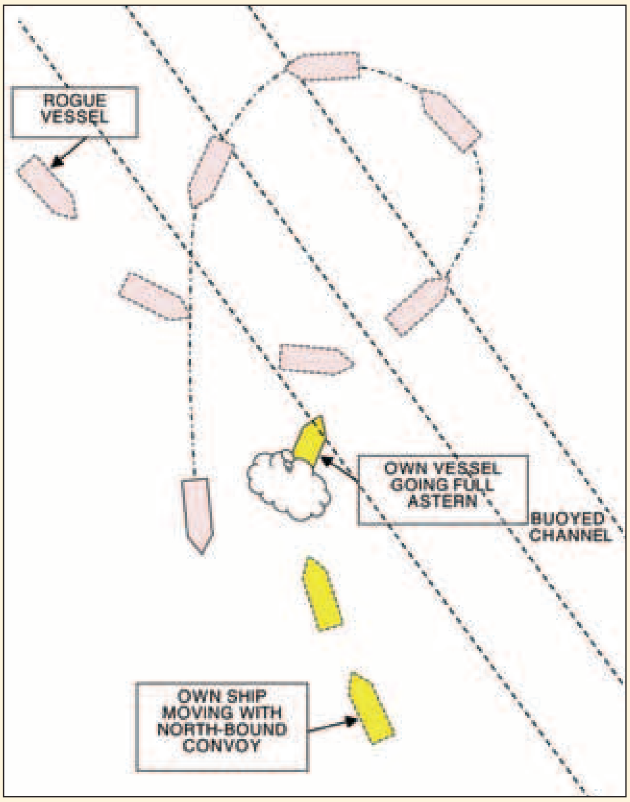
Own ship was transiting northbound, about midway in the convoy of 40-odd vessels. We were proceeding outside and parallel to the West Branch channel, on a heading of about 325T, making three to four knots with the engine variously dead slow ahead and stopped. The incident I am about to describe occurred shortly after noon, by which time the fog had completely lifted and the bottlenecked north-bound traffic was proceeding out from the northern exit of the lake.

Among the many anchored ships, a southbound vessel was observed, two miles ahead, fine on the port bow and making an almost reciprocal course. As this vessel approached, she appeared to make small adjustments of course to port until she was showing a fine green aspect and was plotted to cross own ship's bow at a narrow angle and too close for comfort. Upon consultation with own ship's canal pilot, he confirmed that he had agreed with his colleague on the other vessel to pass port to port – which was the logical action. We continued to monitor the slow approach, waiting for the expected alteration to starboard of the other vessel, which never came. Own ship's course was altered to starboard as far as possible, being constrained at this time by one of the West Branch channel beacons close in on the starboard bow, and two or three small fishing dhows near the channel.

A warning whistle signal of five short blasts was sounded by own vessel to alert the approaching ship of the perceived danger. Shortly thereafter, at what was deemed to be the cut-off point for effective action, she suddenly altered sharply to port, to cross own ship's bow, and increased engine speed, as indicated by a surge of her propeller wake. Own ship's engine was put to full astern, while the crossing vessel continued her swing to port across our bows, causing her stern to shear even closer towards our bow. The general alarm was sounded.

Collision was avoided by perhaps 15 metres, as reported by own ship's bow lookout. The crossing vessel continued her swing after clearing, finally turning a full 360 degrees counter-clockwise, crossing the West Branch channel twice in the process, before straightening out and finally passing down the side of our own vessel port to port as originally expected.

There was no conceivable explanation for the decision aboard the southbound vessel to alter course to port, which was in contravention of the Colregs and defied the logic of the situation presented.



Own ship's pilot had been asked perhaps four times during the approach of the other vessel to confirm absolutely that a port-to-port agreement had been made with the other pilot. After the incident, upon questioning our pilot again, he claimed that the other pilot had definitely agreed this, and did not know why this agreement was not followed. (The two pilots had a VHF radio conversation afterwards, but in their own language, which I did not understand.)

I would warn masters under pilotage in the Suez Canal to brief their bridge teams very carefully to monitor the actions of the pilots closely. While you are not going to meet counterflow traffic in the Canal proper, situations such as the one described can occur in the lakes, and in the approach channels, so be on the alert.

MARS 200910

Communications overload from VTS

I am the chief officer on board a 1000gt+ commercial charter yacht. Since the completion of the Rion-Andirrion Bridge in the Gulf of Patras a few years ago, I have been regularly accosted by the VTS when passing through this stretch of water in connection with collision avoidance. On one occasion, two potentially dangerous incidents occurred in quick succession during a night transit.

The first happened when my own vessel was rounding Oxia Island from the north and heading into the Gulf. There were two vessels on my port side exiting the gulf which would pass safely ahead of me (A and B on chart below). As I cleared the island a little more, I picked up two more targets on my port side (C and D), also exiting the Gulf. I began to monitor both vessels closely by radar/Arpa as well as visually. I determined that I should hold my course until well clear of the point and then make my turn to port, to enter the Gulf, allowing the second two vessels to pass safely astern of me before my turn (intended track shown in red below). As the targets would pass at less than a mile, my Arpa alarms sounded as usual (which in itself is an unnecessary and unwelcome distraction at potentially critical moments like this). At the same time, when I most needed to concentrate on monitoring the targets as well as my course etc, the VTS called me up to inform me at great length (including names, types of vessels, ranges, speeds and exact positions) that I had two targets to my port side which I should pass red to red. One of the vessels was a tug with towing lights and the only potentially useful information, which would have been about the tow, was not given until I asked.

The second incident which occurred soon afterwards, took place while approaching the Rion-Andirrion bridge. My own vessel had been gradually overtaking a small cargo ship (E) during the previous watch and my own watch. At 12 miles from the bridge, the other vessel was abeam and slightly astern of my own vessel. I reported to the bridge VTS as required and continued. At the five-miles reporting station we were fairly well clear of her and the final turn before the bridge would have put us well ahead of her. At two miles, the other vessel called VTS and asked whether she was to follow us under the bridge. VTS told her to wait and then called us, instructing me to reduce speed to 10 knots and follow the other vessel under the bridge (plus long instructions about how to pass under the bridge, where the centre of the bridge is, how many spans on either side etc). I informed VTS that

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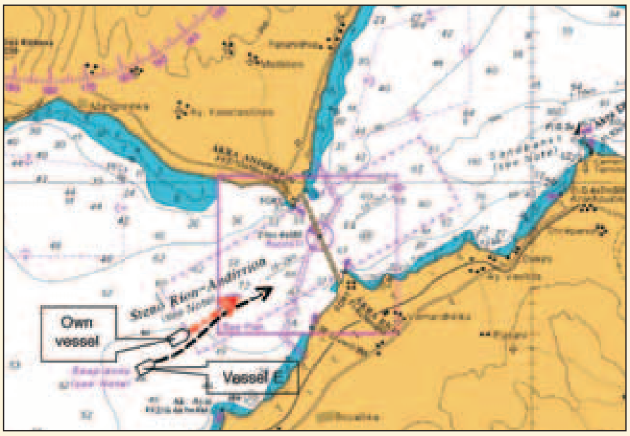
the other vessel was actually behind us but after two more sets of barely intelligible instructions, it was finally confirmed that the other vessel should be allowed to pass ahead. I reduced speed accordingly and held my course to allow the other vessel to pass. This meant that she came to within just over two cables as she overtook us. The other captain seemed very unsure of which was the overtaking vessel in this very strange situation. I told him that I believed that he was well aware of the VTS instructions I was following and that I believed that he was now the overtaking vessel. In any case, this potentially dangerous situation would never have arisen in the first place if VTS were not micromanaging the passage of traffic under the bridge.

I believe that this style of vessel traffic service is potentially very dangerous and most certainly of no service whatsoever to vessels or traffic. If there is so much concern, surely the safest thing would be to have a TSS put into place through the Gulf, plus some clearly defined east/west channels to be laid out beneath the bridge with small craft channels under each of the outer spans. As it is, the bridge is lit up like a Christmas tree with green and red lights flashing just about everywhere. While competent VTS has its place, it is extremely dangerous to believe that it can replace the vessel's own bridge team.



MARS 200911

Gangway accidents

While the starboard gangway was being lowered on one of our vessels, to embark the pilot during a canal transit, the hinged support below the upper platform failed to deploy properly and instead of engaging on the shell plating, got stuck between the platform and the deck edge. As a result of the torsional stress, the turntable retaining bolt sheared off, causing the turntable to detach from the upper platform. Fortunately, the fall wire rope rove through the deckhead sheaves held and prevented the entire ladder from falling into the water. The crew recovered the gangway with the help of chain blocks.

On another vessel, as the accommodation ladder was being hoisted before sailing, the fall wire parted and the gangway fell on the jetty. Investigations revealed no test certificate or reliable record of the age of the wire rope.

Root cause/contributory factors

1. Inadequate inspection, maintenance and lubrication of the accommodation ladder, fall wires and moving parts;

2. Inadequate record-keeping systems.

Lessons learned

1. Gangway and associated components must be maintained as part of hull planned maintenance system (PMS) and must be carried out meticulously.

2. Inspection, lubrication, renewals of parts including the wire and rigging must be carried out with due diligence.

3. Certificates and records for the wire ropes in use must be readily available on board.

4. Accidents caused by gangways can be fatal and may often involve shore personnel, with attendant legal complications.

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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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