MARINE ACCIDENT

INVESTIGATION BRANCH

Summary of Investigations No 1/90

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This summary contains facts which have been determined up to the time of issue. This information is published to inform the shipping industry and the public of the general circumstances of accidents and must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

INDEX

INTRODUCTION

The Merchant Shipping (Accident Investigation) Regulations 1989 require the publication by the Secretary of State for Transport of the report of an Inspector's Inquiry unless there is good reason for not so doing. There is also a requirement for the Chief Inspector of Marine Accidents to publish from time to time collective summaries of investigations.

A large number of marine accidents are investigated each year covering both ships and people. To publish a report of every accident which is investigated would be extremely time consuming and result in a continuous stream of publications which probably would only be read by a very small number of people. However, some accidents are serious enough to merit an Inspector's Inquiry which will result in the publication of a separate report. For other accidents though, it will be of greater benefit to the shipping industry if a selection is made of those which have a useful lesson to be learnt and then publish them in a collective form from time to time. There may also be accidents which are important enough to merit separate publication but were not the subject of an Inspector's Inquiry. However, it is felt the collective summaries will normally be the most useful way of making known to the shipping industry the lessons learnt from our investigations, and in so doing improve safety of life at sea. Publication will be quarterly, but this will be kept under review.

These summaries are not in any specified order, except that accidents related to fishing vessels are grouped together as these will be of significant interest to that industry. They have not necessarily occurred since MAIB came into operation in July 1989; accidents before that time have been included if there is a useful lesson to be learnt. Recommendations resulting from an investigation are reflected in the "Comment" section which forms a part of each summary.

Some of the summaries relate to non-UK registered vessels in which accidents have been investigated by MAIB. In those cases copies of the Inspectors' reports are sent to the appropriate Administration for them to take any necessary action.

It will come as no surprise that a number of the accidents included in the summaries are the type which have happened in the past and will continue to happen. By including such examples it will bring home the fact that these accidents continue to occur, and it is only by learning from the mistakes of others that we can hope to reduce the numbers of those types of accident.

A summary of every accident which is investigated is not included in this publication for the reasons explained. To give a clearer picture of the work undertaken, a list of MAIB investigations is given in the Appendix to these summaries. The list includes all those investigations which have begun since MAIB became operational on 3.7.89 and up to 31.12.89. It gives the date on which the accident occurred, name and particulars of the vessel and the type of accident. It should be noted that summaries relate to accidents which occurred over a longer period than that covered by the list and also a number of the investigations listed are still not completed.

This publication is not just addressed to the policy and regulation makers, or ship owners, or associations, or ship masters, or crews; it is intended for the shipping industry at large. It is hoped that it will have as wide a circulation as possible and that those reading its contents will learn the lessons which are to be found in the summaries. It is only by looking at the operations for which they are responsible and applying those lessons will we achieve the goal of avoiding accidents in the future.

Chief Inspector of Marine Accidents
January 1990

1. ACCIDENT INVOLVING A MOVABLE CAR DECK

Narrative

In a ro-ro passenger/vehicle ferry, on arrival at Dover, instructions were given to car drivers and passengers to go to their vehicles to be ready to disembark. One family, consisting of husband and wife and two children, proceeded to the mezzanine deck, which was in the raised position. There was a gap of 165 mm width between the deck and the centre casing, and the couple's three year old daughter fell through this gap to the deck below, a distance of 2.65 metres. Fortunately she was not seriously injured and, after examination in hospital, she was released later the same day.

Comment

1. Marine Directorate of the Department of Transport have instructed Surveyors to examine similarly constructed vessels and ensure that gaps of this size are not present or, if they exist, that hinged plates or handrails and a kick-plate are provided to stop a child falling through.

2. The owners of the ferry took action to prevent a recurrence.

2. WATERTIGHT DOOR ACCIDENT

Narrative

A watertight door which was under local control in the crew accommodation area of the ship was partly opened by a member of the crew. While stepping through he operated the closing lever, which resulted in him being jammed between the door and its frame. Injuries sustained included a badly injured leg, large loss of blood, and shock. Fortunately other members of the ship's crew, together with two nurses and a doctor who were passengers, were at hand to administer first aid.

Observations

This accident occurred when using a watertight door which was designated for use only in emergencies. The injuries sustained would have been even worse had the door not been on local control at the time.

Comment

1. The door operating instructions, printed on the door, had not been followed.

2. The reason for not following the instructions was attributed to the effects of tiredness and the possible earlier consumption of alcohol while off-duty ashore.

3. Merchant Shipping Notices Nos M.1283, M.1326 and M.1344 emphasize the safety procedures to be followed in respect of watertight doors.

4. A practical demonstration of the crushing power of a watertight door when closing would be educational during on-board training.

5. The owners of the ship concerned agreed necessary amendments to their standing orders and training instructions in the use of watertight doors, particularly for new crew joining the ship.

3. FIRE: BAD WORKING PRACTICES

Narrative

Whilst in port the engine room bilge contents of an oil rig stand-by vessel were being pumped ashore to a road tanker using a portable pump and 7.5cm diameter plastic flexihose.

The hose split, causing a mixture of oil and water to spray on to an AC switchboard, which caught fire. The fire was quickly brought under control by the Chief Engineer Officer, who extinguished the fire inside 10 minutes using portable C02 extinguishers.

The oil in the bilges was fuel oil, which had leaked from a fractured fuel oil filter. The filter was situated between the main engine and floor plates so that it would be difficult to detect a leak unless the pressure was sufficiently high to cause a substantial spray.

The leak was discovered only when it was noticed that the fuel consumption was greater than normal. The leakage occurred over a long period of time, and some of the oil had been removed from the bilges using the oily water separator.

Observations

The fire was caused by fuel oil bursting from a temporarily rigged plastic pipe onto a hot surface.

It is likely that the filter failed because of long-term fretting between the filter spring and the bottom of the filter casing. The filter casing was probably 19 years old - the same age as the vessel.

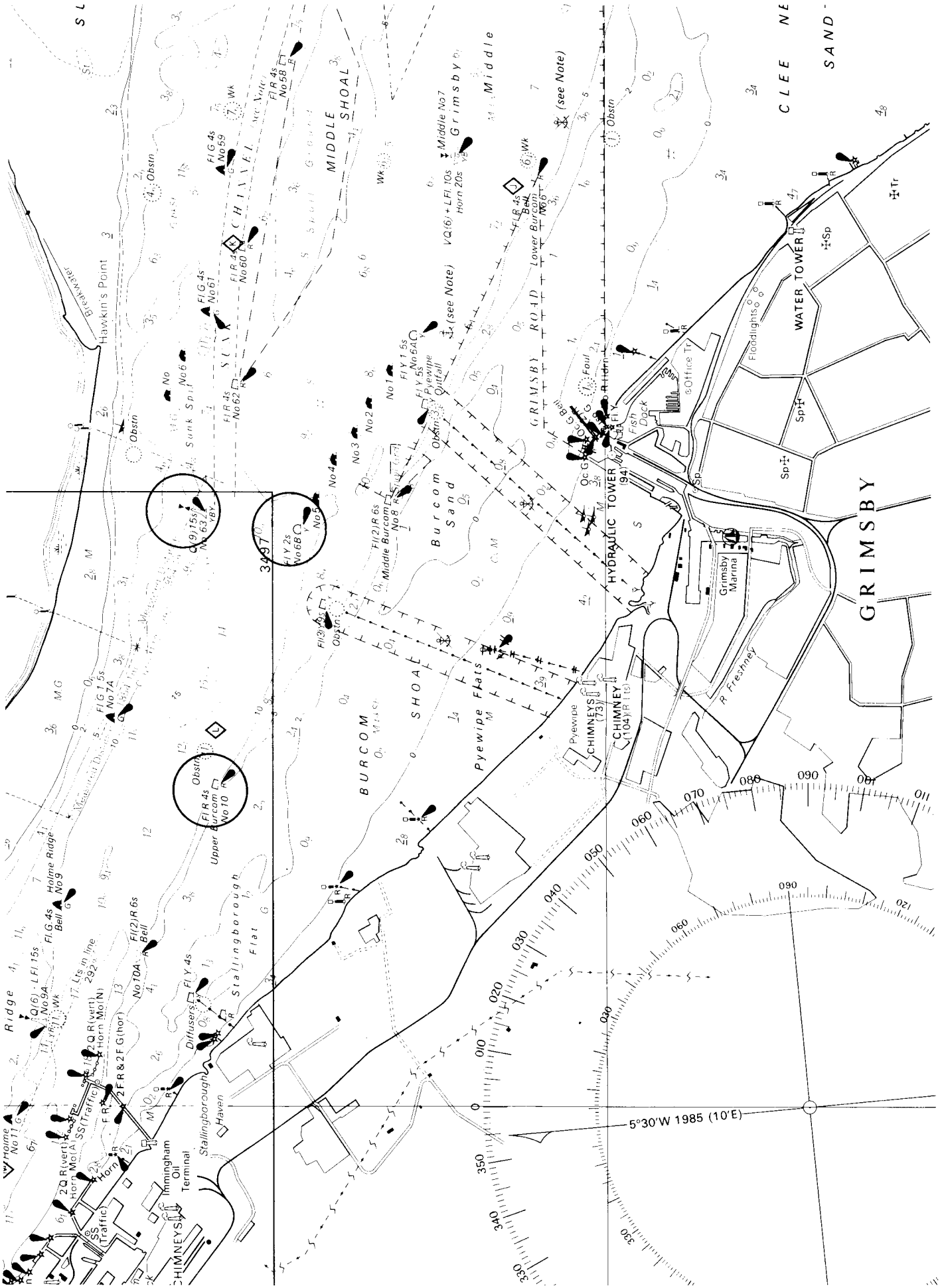
Comment

1. Merchant Shipping Notice No M.1229 describes similar incidents, and ship's personnel should be aware of the dangers of the use of plastic pipes for the transfer of oil. It is fortunate that a more serious fire did not occur.

2. The presence of oil in the bilges should have been recognised earlier and the reason established.

Extract from Admiralty Chart No. 109

Figure 1



4. COLLISION BETWEEN A CHEMICAL TANKER AND A RO-RO CARGO SHIP

Narrative

A collision occurred in the Humber Estuary between a 1599 gross registered tonnage (grt) chemical tanker loaded with Propylene Oxide, and a ro-ro cargo ship of 9386 grt. Both vessels had a pilot on board.

The collision occurred within one cable of a position 0.22 miles, 030 degrees (T) from No 10 Buoy. There was dense fog at the time, and the tide was flooding at rather more than 2 knots. A copy of the relevant chart is at Figure 1.

The ro-ro ship, having cleared Immingham Lock at 0600 hours, was outward bound; at 0616 hours she passed Immingham Oil Terminal and course was set at 115 degrees (T), engines to half ahead. Speed made good between 0616 hours and the collision was about 10.5 knots, despite the fog and the flood tide. A small tanker was ahead and at 0619 hours, in order to overtake, the ro-ro ship altered to 100 degrees (T), reverting to 115 degrees after a short period.

The chemical tanker, inward bound for Immingham, cleared the Bull Anchorage at 0525 hours, and proceeded up river with her engine at slow ahead. Passing South Shoal Buoy, fog was seen ahead. Between buoys 6B and 63 steering was changed to manual, the course being 300 degrees (T); speed made good was about 9.4 knots. The ro-ro ship was seen on the radar, and course was altered to starboard by either 10 or 20 degrees, (there is a conflict of evidence as to which) to allow more room. At 0625 hours the chemical tanker's pilot called the ro-ro ship by VHF and said he was "pulling her a little bit to the north". He also increased speed to half ahead, as he considered a close quarters situation seemed to be developing. At about this time those on the bridge of the chemical tanker heard a whistle apparently from ahead, and the chemical tanker sounded her own whistle in response. One further whistle blast was heard by the chemical tanker, almost immediately after which the ro-ro ship was seen and the two ships collided. No 2 cargo tank in the chemical tanker was holed and the cargo took fire.

Emergency action was quickly taken by the ship's crew, by other vessels in the vicinity and by Harbour Control, who initiated the Humber Emergency Plan (HESMEP). As a result, the fire was brought under control, and was extinguished within about two hours. There were no major casualties.

Comment

1. Both vessels were properly manned, with the Master on the Bridge accompanied by an experienced pilot who was conning.

2. As they approached each other, the vessels were closing, in dense fog, at a combined speed of some 20 knots. Neither was proceeding at a safe speed, as required by the Collision Regulations.

3. The chemical tanker was not on her own starboard side of the channel (the proper side under the Collision Regulations). The ro-ro ship was on her own starboard side, but not so far over as she would have been had she not just overtaken the small tanker; it would have been better not to overtake until clear of No 10 Buoy.

4. The chemical tanker was not regularly sounding the proper fog signals on her whistle.

5. When the chemical tanker appreciated that a close quarters situation was developing, and at about the same time heard the ro-ro ship's whistle, she did not reduce speed to the minimum as required by the Collision Regulations, but instead INCREASED to half ahead. The ro-ro ship did not, it appears, recognise danger until almost immediately before the collision occurred.

6. With a hazardous cargo of Propylene Oxide and No 2 cargo tank breached, the potential existed for this accident to have very grave consequences indeed. The Master and crew are to be commended for the prompt and efficient way in which they tackled the fire which broke out at once after collision, which did much to reduce the immediate danger; the emergency services are also to be much commended for their action, which brought the situation under control and eventually restored safety. The Emergency Plan HESMEP underwent a severe test and came through it well. However, it is noted that one of the two fire-fighting tugs stationed on the Humber was locked in at Immingham docks, and it was only fortuitous that the other was outside the locks and immediately able to assist. There is a strong case for one of these tugs to be stationed outside the docks, so as to be readily available at all times.

7. The Port Authority subsequently imposed restrictions on the movement of vessels with hazardous cargoes in restricted visibility.

5. NON-DECLARED CHEMICAL ABOARD A RO-RO PASSENGER FERRY

Narrative

A ro-ro passenger ferry accepted for shipment an enclosed trailer, the contents of which were described in the accompanying shipping note as ''groceries''. The road haulage company concerned had previously accepted the consignment from a shipper in good faith that the goods were as described. The consignment itself gave no visible indication that it contained anything hazardous. On arrival at its destination, after transportation by sea, the rear doors of the trailer were opened. A strong acidic odour was detected and it was subsequently found that a drum containing the chemical Formaldehyde had been stowed within the consignment and had leaked during transit.

Observation

Formaldehyde is a class 9 dangerous substance as defined in the International Maritime Dangerous Goods (IMDG) Code and it should be stowed ''away from'' foodstuffs.

Comment

1. Following this incident, the shipper and haulier were reminded of the IMDG code which clearly states the required procedures for proper documentation, packing, marking and labelling of dangerous goods requiring shipment. The Code also gives specific instructions regarding stowage and segregation of substances where applicable.

2. Revised procedures for the shipment of dangerous substances were formulated between the shipper and the haulier to ensure that the IMDG Code was followed.

6. FAILURE OF LIFTING GEAR ON A CONTAINER VESSEL

Narrative

The starboard hatch lid of a large container vessel was lifted from its stowed position up to about 2 metres above the hatch using the back reach of a docks crane. The portable hatch lifting adaptors at the hatch failed and the 30 tonne hatch cover fell onto the deck. There were no reported injuries.

These hatch lifting adaptors were part of the ship's lifting equipment. Known as pots, they were inserted and locked into hatch cover fixtures positioned at the four corners of the hatch. The spreaders of the crane were attached to the pots. Two of the pots failed: the first because of obvious structural weakness due to inadequate weld penetration. The other pot failed because of subsequent overload after failure of the first.

Comment

At the time of the incident there was no evidence on board to show that these pots had been suitably tested by a competent authority, as is now required by the Merchant Shipping (Hatches and Lifting Plant) Regulations 1988. Following this incident, new pots with the relevant test certificates were placed on board.

7. HAZARDOUS INCIDENT: NEAR COLLISION

Narrative

A car/passenger ferry and a ro-ro cargo ship nearly collided when both vessels were making their approach to Cherbourg Eastern harbour entrance. The sea state was slight; it was daylight with clear visibility and a westerly tidal stream was being encountered by both ships. A copy of the relevant chart is at Figure 2.

The two vessels were heading from separate directions towards the same harbour entrance, and as a consequence they were on converging courses. They were both travelling at full or nearly full speed, the car ferry being the faster of the two and therefore the overtaking vessel. Although initially the car ferry was one to two points abaft the ro-ro vessel's starboard beam, the latter made a navigational alteration of course to port which increased the relative bearing of the former further abaft her starboard beam. However the car ferry maintained her course and relative greater speed until she was very close to the ro-ro vessel's starboard quarter. The car ferry then altered course to starboard and proceeded to pass down the ro-ro vessel's starboard side, on a parallel course, at a distance of approximately 18 metres. Because the two vessels were slightly to the right of the leads into the entrance, the car ferry realised that she was being forced towards the starboard arm of the breakwaters. At a position where the ro-ro ship's bow was in line with the mid-length of the car ferry, the latter altered course to port. This alteration of course caused the port quarter of the car ferry to converge rapidly onto the starboard bow of the ro-ro, which altered her course to port and reduced her speed in order to avoid a possible collision.

Comment

1. The fundamental cause of the near miss was that the car ferry, being the overtaking vessel, did not "keep out of the way of the vessel being overtaken" by Rule 13(a) of the International Regulations for Preventing Collision at Sea 1983.

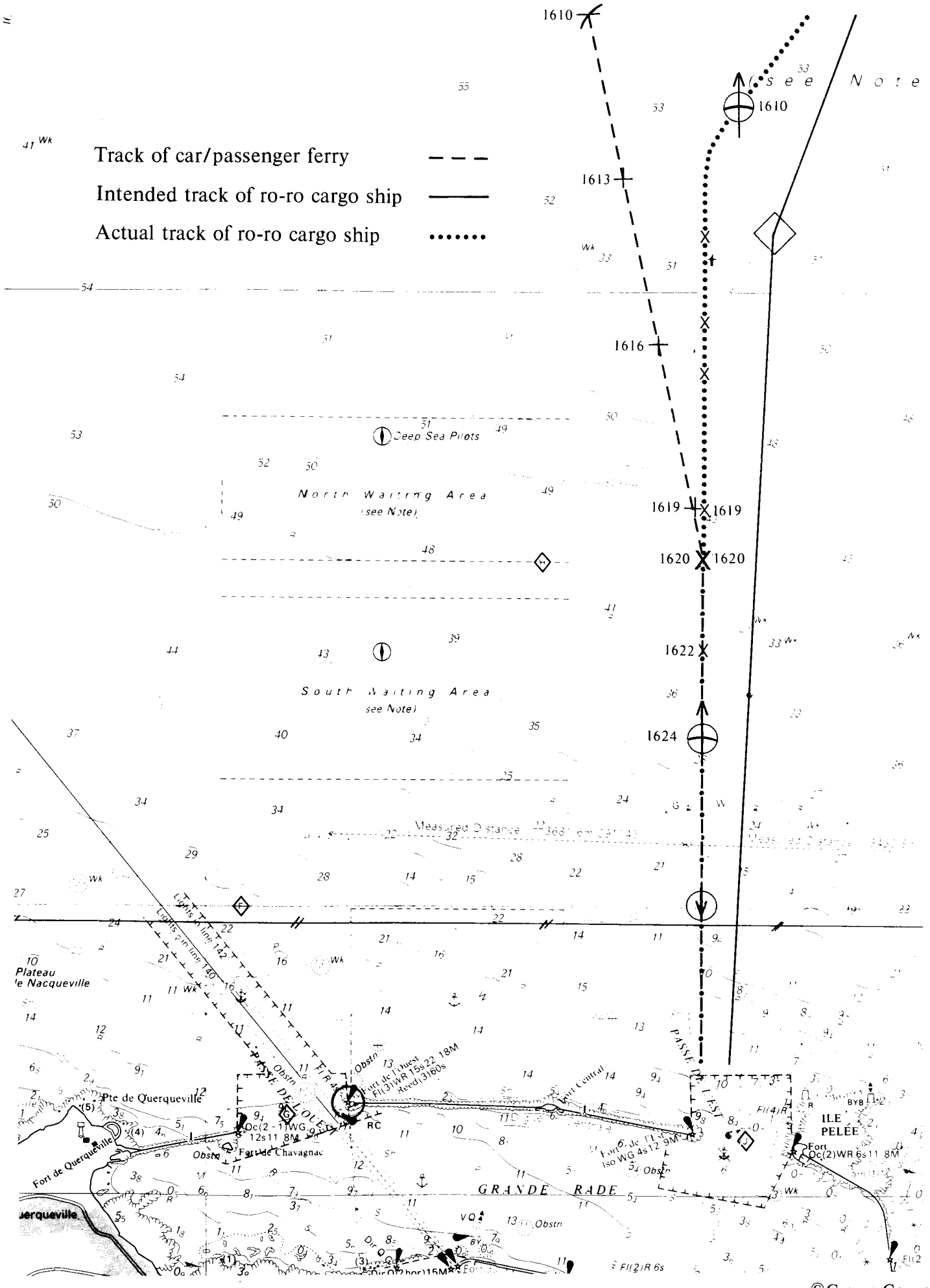
2. The car ferry approached and passed the ro-ro ship at far too close a distance. Both ships were travelling at rates which were imprudent for approaching a harbour entrance and a dangerous shoal. The car ferry also made a dangerous alteration of course to port across the bows of the ro-ro ship "before finally past and clear" (Rule 13 (d)) and thus aggravated an already dangerous situation to a point where both ships nearly collided.

3. The ro-ro ship was also at fault in that those responsible for the navigation did not show their doubt of the intentions or actions of the car ferry's approach by sight or by sound (Rule 34(d) of the Collision Regulations). When it became apparent that the car ferry was not taking appropriate action in compliance with the Collision Regulations, the ro-ro ship did not take action to avoid collision by her manoeuvre alone (Rule 17 (a)(ii)).

4. Both vessels were travelling at imprudent speeds when approaching a dangerous reef and a harbour entrance, thus allowing themselves no margins of safety in which to escape any dangerous situations.

Extract from Admiralty Chart No. 1106

Figure 2



8. SCALDING AND IMPACT INJURIES

Narrative

While the second Engineer Officer on a ro-ro ferry, working from a restricted access space, was topping up one of the main engine cooling water header tanks, the tank overflowed. The hot water caused him to fall several feet to a platform before he could jump clear of the overflow water. Injuries sustained included scalding and impact injuries which required the man to be off work for several weeks.

Observation

Because of the low engine room headroom, the cooling water in the tanks tended to get hot and had to be topped up regularly. Also access to the tanks was restricted and the vertical ladder to the sight glasses was located close to the tanks, giving restricted toe-hold.

Comment

1. The system was subsequently modified by arranging the overflow to lead down to an accessible level, by having a common filling point away from the tanks and by making all the engine header tanks common through interconnecting drain lines. Valves were retained for individual isolation during maintenance.

2. The arrangement for filling the tanks was changed to allow access to the filling line and inspection of the tanks' overflow at a safe point closeby. A low level alarm was already incorporated.

3. Improvement of the access ladder arrangements to the tanks was considered to be impractical in this case. However, the modifications resulted in the ladder only rarely needing to be used.

9. FIRE IN A CARGO TANK

Narrative

Whilst at ship repairers undergoing a Classification Society Special Survey, there was a fire in one of the cargo tanks of a 33,751 deadweight tonne tanker. Fortunately the persons working in the tank were able to make their escape without sustaining any injury, and damage to the ship involved no more than the tank coatings in the immediate vicinity of the fire.

The Classification Society Survey required the removal of the suction pieces (the so-called elephant's feet) at the end of the cargo lines in the cargo tanks and the last of the securing bolts had to be burnt off. When a pipe section was removed there was a release of liquid which was then ignited from the naked flame of the torch used for the burning operation. A fireman standing by attempted to extinguish the fire using water from a hose but was forced out of the tank due to the smoke. The fire was finally extinguished by the shore fire brigade using foam equipment and breathing apparatus; the incident being declared over some 3 hours after the alarm was raised.

The cargo tank had been washed and gas freed by the ship's personnel. A gas free certificate was obtained but it was valid only for tank entry, and not for hot work. This information was not clearly conveyed to the ship repairer, and consequently hot work commenced in the tank.

Comment

1. Merchant Shipping Notice No M.957 advises that there should be a clear written agreement which confirms that the responsibility for taking suitable precautions against fire, testing and certification of spaces for hot work has passed to the repairer. An acknowledgement of the acceptance of this responsibility should always be provided by the ship repairer to the owner and master.

2. Unambiguous communication between the ship management and ship repairers would almost certainly have prevented the fire.

10. VARIABLE PITCH PROPELLER MALFUNCTION

Narrative

During passage in the North Sea, a passenger ship was operating under automatic pilot when one of its two variable pitch propellers went into the full astern mode. An extract from the ship's log reads:

"Vessel losing speed and steering. Starboard pitch going astern."

After making port on one engine, the ship was dry-docked for investigation and repairs, and resumed service after two days.

Observation

When examined it was found that the variable pitch propeller controller shaft had fractured causing loss of control of pitch. The forward motion of the ship pushed the blades into the astern mode and the starboard engines developed full astern power. As the vessel was on automatic pilot the helm moved to correct the starboard astern drag and the ship lost most of its forward motion.

Comment

1. This was the second such incident to the same shaft on that ship within a year, the ship being only two years old.

2. The relevant organisations examined the failed parts and established that one of the support sleeves was undersize. Failure, it was concluded, was possibly due to fatigue occurring as a result of "whirling" and weak spots created in heat affected zones.

3. The manufacturer's welding/brazing materials and procedures were subsequently modified on later shafts.

11. FAILURE OF A PUMP CASING ON A SAND SUCTION DREDGER

Narrative

A 61 metre length sand suction dredger, while anchored in the Bristol Channel area loading sand aggregates and sea water, suffered a failure of the suction loading pump casing. Weather at the time was wind force 6/7 forecast 8. This failure took the form of a crack extending approximately 3/4 of the casing circumference, the consequence of which was flooding of the two pump rooms and the connecting walkway void spaces. As a result, the ship took a 6 degree list. As soon as the crew became aware of the flooding, loading was stopped and suitable action was taken to prevent the further ingress of water. The ship was accompanied to a sheltered anchorage and later to her berth while pumping out the flood water: this was estimated to be of the order of 200-300 tons.

Observation

The delay in becoming aware of the entry of water into the hull contributed to the seriousness of the accident. Although reasonably prompt action was then taken to commence closing the ship's side valve and lift the suction pipe from the sea-bed, this was a slow process, taking between 20-30 minutes, during which time flooding of the ship continued.

Comment

1. The owners subsequently agreed to fit bilge alarms in the pump rooms to give early warning of any excess of water accumulating.

2. The ship's side closing valve was fitted with new and quicker closing equipment.

3. Merchant Shipping Notice No M.590 emphasises the danger of loose water in void spaces.

12. FIRE ON A PASSENGER SHIP

Narrative

A fire occurred inside a ventilation trunking in a Fan Room on a passenger vessel. Sparks emitting from the stone of an angle grinder used by a contract worker to cut an access ignited accumulated dust inside the trunking.

The fire was discovered by a laundry man when smoke and fire discharged into the linen store. The ventilation trunking channels fresh air and recycled air to the swimming pool and changing room area and a linen store.

The fire was successfully extinguished, but of the four water-pressure type portable extinguishers used, two were inoperable. One failed because the gas cartridge was empty due either to the strike pin at some time having been dislodged sufficiently to release the gas, or to the gas having leaked through a faulty seal. The second extinguisher failed because the strike pin failed to fully puncture the gas cartridge.

Observations

The owners could not show any evidence that correct precautions were taken to avoid the possibility of fire during hot work.

Comment

1. Correct hot work procedures are advised in Merchant Shipping Notice No M.957 and in chapter 13 of the Code of Safe Working Practice.

2. The importance of the maintenance and the ready availability of fire appliances is clearly expressed in Merchant Shipping Notice No M.765.

13. LOSS OF A SMALL CARGO SHIP

Narrative

This accident is the loss of a 199 gross registered tonnage cargo ship off the Isle of Man. All hands abandoned successfully into a life-raft and were picked up by a fishery protection vessel.

The vessel had loaded some 302 tons of bagged cement in Magheramorne, Northern Ireland and sailed early morning for Ramsey. On sailing, the vessel had a slight starboard list. At about 1220 she was off Point of Ayre and course was altered to starboard, bringing wind and sea on the beam; wind was reported as WSW, force 8 with a rough sea and heavy swell. Soon after the alteration of course the vessel shipped two particularly large seas, rolled heavily to starboard and did not recover. The Mate, who was on watch, had just called the Master and the latter came quickly to the bridge and assessed the situation and ordered the port life-raft to be launched. He then sent a MAYDAY which was immediately answered by Coastguard. Abandonment followed shortly after and the vessel sank within a few minutes. A ro-ro vessel and the fishery protection vessel were on the scene very quickly, the former made a lee and the latter picked up the survivors and recovered the life-raft.

Observations

The cargo had been stowed so that the first tier of the bags was winged out but the second tier was in the square of the hatch only; presumably when the ship rolled heavily after altering course this second tier shifted. The Inspector considered that another factor in the casualty was probably the presence of slack water in the ballast tanks: these tanks were thought to have been pumped out but they were not checked by sounding, and a comparison of known deadweight against draught suggested that some additional weight was carried. A third factor in the casualty may have been insufficient securing of the hatches: the covers were in place and the side dogs secured, but the wedges on top of the covers were not hammered home.

Of these factors, it is thought that the first two are likely to have been the most significant in this particular case. It is most probable that the cargo in the square of the hatch shifted first causing a list which will have been exacerbated by any free surface in the tanks and by water on deck, so that eventually - indeed soon - the cargo shifted bodily. This would in turn lead to a list so great that flooding would be inevitable however well the hatches were secured. This, of course, does not mean that the proper securing of hatches is not important - indeed it is vital.

Comment

1. This accident emphasises the need to ensure that ALL cargo is stowed so as to minimise the risk of shifting - even if only a small quantity shifts its movement may be compounded by other factors and initiate a cumulative effect.

2. It also shows the importance of a check of deadweight against draught being made and any discrepancy being investigated.

14. GROUNDING OF A RO-RO PASSENGER FERRY

Narrative

A ro-ro passenger ferry made contact with the ground whilst manoeuvring inside the breakwater entrance of St Peter Port harbour, Channel Islands. A copy of the relevant chart is at Figure 3.

The weather at the time of the accident was wind north westerly force 2, it was during daylight and the visibility was good. The state of tide was approaching low water, creating a slight southerly tidal stream at the entrance to the harbour.

At the time of the accident the Chief Officer had the con with the Master taking a supervisory role on the bridge. The harbour is entered from the east and, on this occasion, the vessel was approaching from the south with the intention to enter the harbour on the leading line at slow speed. It was then the intention to alter course to port before making a swing to starboard in order to berth stern first to the link span at the appropriate berth.

On passing the end of the south breakwater, it was appreciated that the vessel was further to the south than normal and, as the swing to starboard was commenced, the vessel grounded on a shallow area to the south of the harbour in way of her port quarter.

Observations

1. The vessel was proceeding at too slow a speed for the alteration of course which was undertaken whilst entering the harbour resulting in a slow response to the helm and, thus, difficulty in steadying the vessel efficiently.

2. The tidal stream and wind set the vessel in a southerly direction which was not allowed for in the course of the vessel's approach.

3. The approach course was not established at an early enough stage in order to assess and allow for the rate of southerly set, and thus ensure the vessel remained on the correct leading line until inside the harbour entrance.

4. Navigating by eye alone in the close proximity of the harbour, the shallow area to the southern side of the harbour may not have been appreciated in its true extent, particularly as no navigational marks were present in the area.

5. The manoeuvre to swing the vessel to starboard was normally preceded by a small alteration of course to port made inside the harbour entrance in order to gain more room for turning. On this occasion, the alteration of course to port would appear to have commenced outside the harbour entrance resulting in the vessel being south of her position on her entry into the harbour.

6. When it was appreciated that the vessel was to the south of her normal position, (ie when the port bridge wing was abeam of the end of the south breakwater) no corrective action was taken by the Chief Officer. Also the Master failed to take over control of the vessel or to offer any advive to the Chief Officer, who was in control at the time.

Comment

1. The vessel concerned is considered to be at the limiting size for safe manoeuvring within this harbour.

2. Navigational marking within the harbour, particularly of the shallow area where the grounding occurred, is being reviewed by the Harbour Authority.

3. The manoeuvring procedures necessary in berthing have been discussed with those responsible, and are being reviewed.

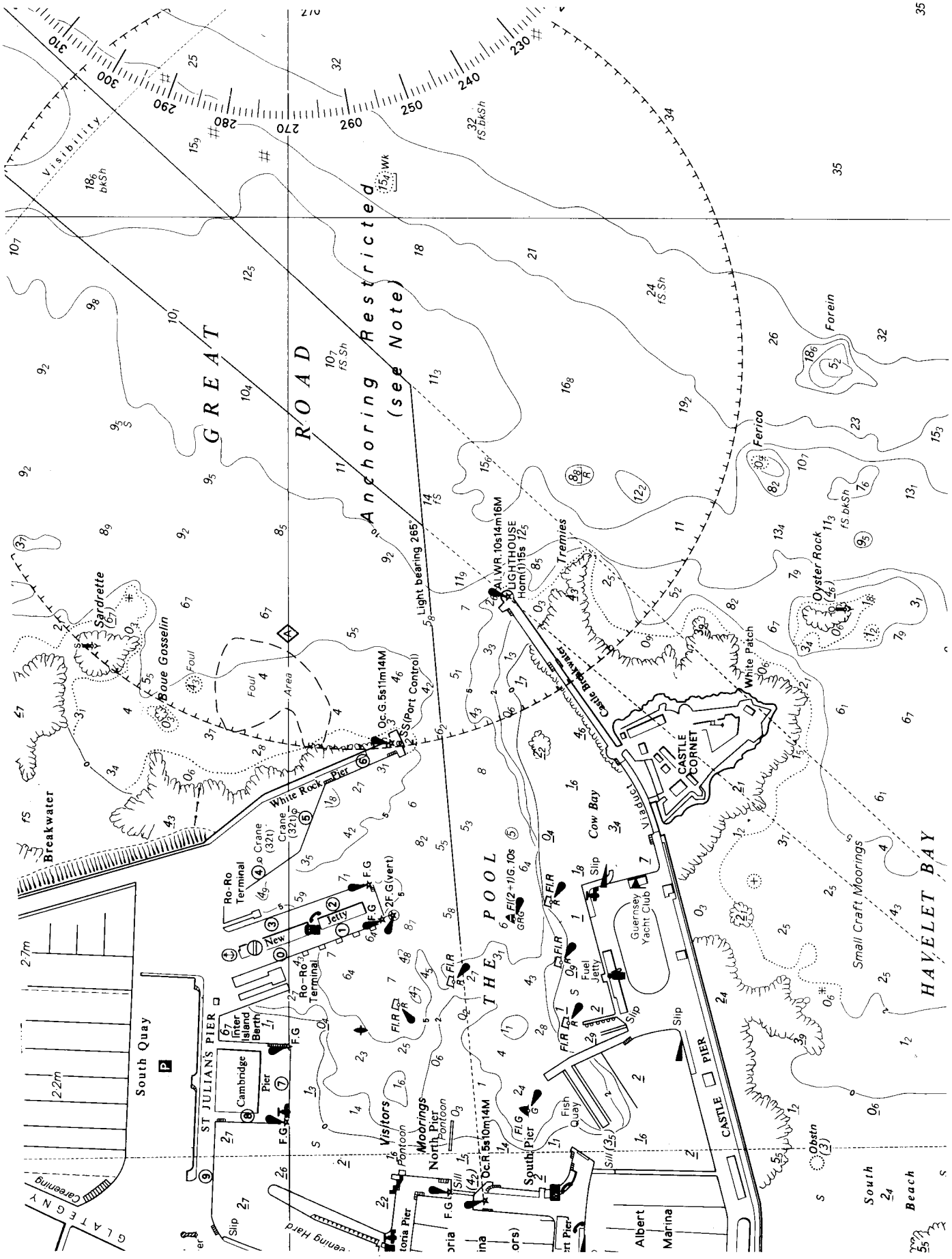
4. A vessel is generally more controllable when moving ahead than astern; therefore, as far as possible manoeuvres should be planned so that astern movements are made when leaving the harbour and thus gaining more sea-room, rather than when entering.

5. The vessel concerned had a bow thruster; the accident emphasized the advantage of a stern thruster also being provided in vessels which are required to manoeuvre in very restricted waters.

6. The practice of allowing a Chief Officer to handle and berth the ship is to be encouraged, but Masters must exercise close supervision and must not hesitate to take control if the manoeuvre is not going according to plan.

Extract from Admiralty Chart No. 3140

Figure 3



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15. ALERTNESS AND GOOD SHIPBOARD OPERATIONS

Narrative

During October in the North Atlantic, a 65,000 deadweight tonne bulk carrier encountered severe storm weather conditions, resulting in the Master having to adjust course and speed to minimise the motions of the ship. On arrival at port, the Chief Officer discovered two small fractures in the shell-plating together with various related cracks in the longitudinal stiffener connections on the shell and topside tank structure. Suitable repairs were put in hand immediately, and the necessary authorities were duly notified.

Observation

This case emphasises the benefit of alertness in that the damage sustained was promptly identified with suitable repairs being undertaken at the next port of call.

Comment

Had these actions not been taken it is likely that the damage would, as a result of corrosion, propagation of cracks and stress concentrations being created in the damaged areas, have become more serious during subsequent voyages.

16. LOSS OF A FISHING VESSEL

Narrative

This accident concerns the loss of a 49.1 metre fishing vessel wrecked on the Collie Rocks near Macduff. She was inward bound for Macduff and arrived off the port at about 0400 hours on a December morning, laying off as it was low tide. At 0440 hours Macduff harbour called on VHF to say that there was now sufficient water to enter. The Skipper called all hands and began to steam inwards. He made no attempt to verify his position, and made no note of the shore lights, which include leading lights and a red sector light covering the Collie Rocks. He was very experienced and had extensive local knowledge and conned his ship purely relying on this. Unfortunately, this method of navagation proved inadequate; the vessel was further east than he recognised, and she struck the rocks, at a speed of about 6 knots.

Comment

1. This accident offers a rather extreme example of familiarity breeding contempt. The Skipper was very seriously at fault in neither checking his ship's position before standing in towards the harbour nor making note of the lights provided to assist entry or other navigational aids.

2. He handled the abandonment of his vessel most ably, and there was no evidence of general fault in the manner in which he ran the ship.

3. No action was taken against his Certificate; but he was prosecuted under Section 27 of the Merchant Shipping Act 1970, found guilty and fined.

17. STRANDING OF A FISHING VESSEL

Narrative

An 18.7 metre fishing vessel was returning to Fraserburgh from the fishing grounds. The passage was being made during the hours of darkness in early March; visibility was about 3 miles, with light winds and a low swell.

The vessel carried a crew of five, one of whom held a Skipper's Certificate and one a Second Hand's Certificate. Despite this, from about 0300 hours onwards the watch was taken by an uncertificated deckhand; this was not a breach of Regulations since the vessel was less than 24 metres in length. The deckhand was alone on watch although it was dark and the vessel was approaching land, and this is against the advice given in Merchant Shipping Notice No M.1190.

The only instruction as to navigation given to the deckhand was to follow the track on the vessel's video plotter. He was also told to call the Skipper either 3 or 5 miles from Fraserburgh; the evidence differs as to which, but in the event he did call the Skipper when he thought there were 5 miles to go. However, the vessel was to the south of the intended track and before the Skipper reached the wheelhouse the vessel struck the ground, about halfway between Kinnairds Head and Rattray Head.

After grounding the vessel quickly filled with water and was abandoned, all hands boarding the life-raft which drifted ashore. They were able to gain dry land; there was no loss of life or serious injury. The vessel was subsequently refloated.

Comment

1. It was found that the deckhand made no use of any navigational aids other than the video plotter. No use was made of charts, and a proper look-out in terms of the International Collision Regulations was not kept. He was not considered to be capable of carrying out the watch-keeping duties assigned to him.

2. The Owner, who was on board at the time though not acting as Skipper, was prosecuted under the Collision Regulations and the Merchant Shipping Act 1979, found guilty and fined.

18. LOSS OF A SMALL FISHING VESSEL

Narrative

The vessel was a 9.45 metre Versatility class boat built of fibre-glass and with three compartments within the hull, separated by bulkheads; a cabin forward, an engine compartment, and a small hold aft. She had been used as escort to a converted bath-tub in which two men crossed from Whitehaven to Ramsey - a sponsored trip in aid of a charity for handicapped children. The crossing was made successfully and uneventfully in good weather in July. At about 0300 hours the following morning the vessel set out to return to Whitehaven, with the bath-tub now stowed on deck, on the starboard side aft and with containers of water on the port side to counteract the list. With the crew of the bath-tub, interested parties and her own crew, a total of nine people (eight men and one woman) were on board. Weather continued good with a light southerly breeze and moderate visibility. Most of those on board were used to handling small craft and the skipper was very experienced. He was also the owner.

At about 0440 hours it was found that the vessel was making water, already to a depth of about 0.6 metre in the engine compartment. The cooling water intake valve was closed, but the water continued to rise and at 0444 hours a MAYDAY signal was broadcast. The crew and passengers donned life-jackets and as no life-raft was carried, the bath-tub was launched. Very soon after this the vessel sank. All hands used the bath-tub as a survival craft, most people remaining in the water but clinging to the side of it both for support and in order to keep together.

A Search and Rescue operation was initiated by HM Coastguard. Due perhaps to the speed of sinking an accurate position was not sent with the MAYDAY and it was not until 0747 hours that the survivors were sighted by an RAF Nimrod aircraft. An RAF helicopter and Douglas life-boat went to the scene and all nine people were successfully rescued at 0829 hours, suffering from hypothermia but otherwise unharmed.

Observations

The cause of water ingress was not established. Five possibilities have been identified:-

1. Metal fatigue in the inlet valve of the cooling system causing the valve to fracture.

2. The pipe leading from the inlet valve to the engine fracturing or being insecurely fastened.

3. The cooling water outlet pipe from the engine fracturing which could mean that the engine would pump water directly into the boat instead of overside.

4. The exhaust pipe fracturing or coming loose and the outlet at the stern taking in water due to the weight on the boat. The outlet was about 23 cms above the water line at normal trim.

5. The vessel had a dry exhaust which passed through the hull. The heat from the exhaust could have caused charring and a breakdown in the fibreglass around the actual exhaust opening.

Comment

1. With nine people on board, and the bath-tub and water containers on deck aft, the vessel was heavily laden. Freeboard was not recorded.

2. The vessel was fitted with a bilge alarm, but this had been out of order for at least two and a half years. An operational alarm, as recommended by Merchant Shipping Notice No M.1327, would have provided early warning of the flooding, perhaps in time for its cause to be discovered and action taken.

3. It is probable that none of the possible causes would alone have led to the sinking if the bulkheads between the three under-deck compartments had all been watertight; but it was established that a plate in the bulkhead between the hold and the engine space had been left off and this allowed water from the leaking compartment to flood the one adjacent to it. The forward cabin appears to have remained dry until the vessel sank, which suggests that apart from the missing plate, the bulkheads were watertight.

4. The availability of the bath-tub as a make-shift survival craft was most fortunate, as no life-raft was carried despite the advice in Merchant Shipping Notices Nos M.1017 and M.1311.

5. Although it is very understandable that, with the extreme urgency of the situation, the MAYDAY signal did not give an accurate position, the omission led to a protracted Search and Rescue operation and to the survivors being nearly 4 hours in the water, despite their proximity to land and the ready availability of rescue craft. In less favourable weather it is unlikely that all would have survived. The difficulty of search at sea, and the consequent importance of making every possible effort to give a good position when sending a distress signal, are underlined by the accident.

19. FLOODING OF FISHING VESSELS

Narrative

There has been a variety of accidents involving fishing vessels where flooding has resulted, often with the sinking of the vessel being the final outcome. The events prior and subsequent to the actual ingress of water into the hull are as diverse as are the sizes of vessels involved.

Observation

None of the causes and events can be said to be new, but nonetheless given their recurring nature it is considered necessary to draw attention to a selective sample.

Flooding, in all cases serious, has been reported as a result of:-

1. failure of piping due to corrosion/erosion;
2. failure of caulking;
3. shaft and rudder stock gland wear;
4. various valve malfunctions;
5. lack of non-return valves in pumping systems.

Action following flooding is often hampered as a result of:-

1. malfunction of or no bilge alarm being fitted;
2. lack of a suitable or accessible pump;
3. blockage of suction strums as a result of debris or bad design;
4. non-watertight integrity of, or lack of, suitably positioned bulkheads.

In case of abandoning ship:-

1. flares should be suitably stowed to ensure their ready accessibility and that they remain in operational condition in the event of an emergency, such as serious flooding;
2. life-saving appliances such as life-jackets and life-belts should also be suitably stowed and regularly checked;
3. although the provision of a life-raft may not be required on a small boat, it is nevertheless strongly recommended;
4. exposure suits can prove to be a most useful addition to safety equipment.

Comment

1. The safety requirements and recommendations with respect to all of these types of failure are emphasised in Merchant Shipping Notices such as Nos M.631, M.788 and M.1327.

2. Merchant Shipping Notices Nos M.1017 and 1385 emphasise the importance of life-rafts as part of the overall safety equipment.

3. Training of the crew and general preparedness of the boat will prove most important in the event of a flooding emergency.

INVESTIGATIONS COMMENCED IN THE PERIOD 3.7.89 - 31.12.89

DATE OF ACCIDENT	NAME OF VESSEL	TYPE OF VESSEL	FLAG	SIZE	TYPE OF ACCIDENT
25.04.89	DRUPA/KLAZINA	Tanker F.V.	UK Netherlands	39796 grt -	Collision
18.06.89	ST GERRANS/ VIGIL	Passenger Yacht	UK -	73 grt -	Collision
21.06.89	ST CLAUDE	F.V.	UK	34.2M	Accident to person
24.06.89	THALASSA	F.V.	UK	19.8M	Grounding
30.06.89	HA'BURN	F.V.	UK	11.5M	Explosion
04.07.89	CORAL ESSBERGER/ VEGALAND	Tanker Ro-Ro	W. Germany Sweden	1089 grt 3234 grt	Collision
04.07.89	SWANAGE QUEEN/ DAR MLODZIEZY	Passenger Sail Training	UK Poland	127 grt -	Collision
05.07.89	SAPPHIRE/GREEN ISLE II	F.V. F.V.	UK UK	16.5M 11.6M	Collision
06.07.89	FAY	F.V.	UK	9.4M	Capsize
10.07.89	ST COLUM I	Ro-Ro	UK	5284 grt	Accident to person
11.07.89	EILEAN CROINE	F.V.	UK	33.1M	Accident to person
14.07.89	ANN II	Cargo	St Vincent	1203 grt	Foundering
16.07.89	SANDPIPER	Canal Boat	-	-	Capsize
16.07.89	SEA PEARL QUEEN/ FALKENBURGH	Passenger F.V.	- UK	12 grt 18.4M	Collision
18.07.89	WESTWIND OF THE STOUR	Yacht	-	-	Grounding
18.07.89	SEABOARD INVINCIBLE	Off Shore Support	UK	1276 grt	Fire
21.07.89	PINNAU	Cargo	Antigua	497 grt	Grounding
26.07.89	UN-NAMED	Dingy	-	-	Capsize
25.07.89	ABILITY	F.V.	UK	23.2M	Contact
29.07.89	WESWEAR	Tug	UK	149 grt	Accident to person
30.07.89	WELSH PRINCESS	Yacht	Cayman Is	-	Fire
02.08.89	NATICIA	Passenger	UK	288 grt	Fire
02.08.89	PRIDE OF HYTHE	Ro-Ro	UK	5044 grt	Explosion
03.08.89	PRIDE OF WINCHESTER	Ro-Ro	UK	6387 grt	Accident to person
08.08.89	SAPPHIRE	Pleasure Launch	-	-	Engine Failure
12.08.89	LLANISHEN	Cargo	St Vincent	446 grt	Fire
12.08.89	PACIFIC PRINCESS	Passenger	UK	20636 grt	Accident to person
15.08.89	IDENA	F.V.	UK	39.3M	Equipment Damage
19.08.89	EARL OF GRANVILLE	Ro-Ro	UK	4657 grt	Grounding

DATE OF ACCIDENT	NAME OF VESSEL	TYPE OF VESSEL	FLAG	SIZE	TYPE OF ACCIDENT
19.08.89	PRIDE OF PORTSMOUTH/ TREGASTEL	Ro-Ro Ro-Ro	Bahamas French	1577 grt 3999 grt	Near miss
20.08.89	MARCHIONESS/ BOWBELLE	Passenger Sand Carrier	UK UK	46grt 1475 grt	Collision
20.08.89	INTEGRITY	F.V.	UK	11.9M	Foundering
22.08.89	ANJA/RAPID	F.V. Yacht	UK -	15.5M	Collision
25.08.89	VARAGEN	Ro-Ro	UK	928 grt	Damaged Propeller
26.08.89	GOLDEN VALLEY/ NORRIS CASTLE	F.V. Ro-Ro	UK UK	- 922 grt	Near Miss
28.08.89	FAIRWEATHER V/ GOLDEN DAWN	F.V. F.V.	UK UK	28.3M 30.2M	Collision
28.08.89	CAM SEARCHER	Off shore Support	UK	594 grt	Machinery/ Contact Damage
30.08.89	LONDON BROADCASTING COMPANY/ UN-NAMED	Passenger Catamaran Barge	UK -	52 grt -	Collision
31.08.89	ECLIPSE	F.V.	UK	23.5M	Fire
02.09.89	IDENA	F.V.	UK	39.3M	Equipement Damage
03.09.89	ROBERT M	Tanker	UK	1583 grt	Engine Failure
06.09.89	HUNKY DORY	F.V.	UK	4.2M	Capsized
07.09.89	DEERSOUND	Cargo	UK	635 grt	Contact
09.09.89	PRINS ALBERT	Ro-Ro	Belgium	6112 grt	Accident to person
09.09.89	ERNEST T	Cargo	UK	1409 grt	Engine Failure
11.09.89	LYRAWA BAY	Ro-Ro	UK	101 grt	Fire
12.09.89	KEVELLA	F.V.	UK	19.8M	Fire
13.09.89	BRESSAY SOUND	Cargo	UK	664 grt	Accident to person
13.09.89	L'OISEAU MIGRATEUR	F.V.	Guernsey	16.5M	Fire/Explosion
13.09.89	IRENE	F.V.	UK	7.8M	Foundering
15.09.89	DAISY CHRISTIANE	F.V.	UK	11.3M	Accident to person
17.09.89	PHILLIPS OKLAHOMA/ FIONA	Tanker Tanker	Liberia Malta	26974 grt 28709 grt	Collision
18.09.89	PENGLAS	F.V.	UK	15.8M	Flooding
20.09.89	PINEWOOD	Cargo	Bahamas	1599 grt	Machinery Failure
25.09.89	CALF SOUND	Cargo	UK	392 grt	Listing/Capsize
26.09.89	ROZEL	Ro-Ro	Bahamas	8987 grt	Grounding
10.10.89	DE VROUW MELANIE	F.V.	UK	35.3M	Grounding

DATE OF ACCIDENT	NAME OF VESSEL	TYPE OF VESSEL	FLAG	SIZE	TYPE OF ACCIDENT
11.10.89	BONITA	Cargo	Malta	498 grt	Grounding
11.10.89	BENELLA/ 7 FISHING VESSELS	Off Shore Support	UK -	750 grt -	Collision
13.10.89	T.N.T. EXPRESS	Bulk Carrier.	UK	29223 grt	Accident to person
20.10.89	SAND DIAMOND	Sand Dredger.	UK	770 grt	Flooding
24.10.89	ESPERANS	F.V.	-	-	Fire
25.10.89	NANNA	F.V.	-	-	Fire
25.10.89	LONDON BROADCASTING COMPANY	Passenger Catamaran	UK	52 grt	Engine Failure
29.10.89	AL KWATHER I	Cargo	Malta	495 grt	Listing
29.10.89	ORCADES VIKING II	F.V.	UK	54.4M	Accident to person
30.10.89	CAM LEOPARD	Off Shore Support	UK	321 grt	Contact
02.11.89	PROSPECTIVE	F.V.	UK	20.7M	Machine Damage
07.11.89	LOIS ANNE	F.V.	UK	17.4M	Flooding/Sinking
08.11.89	VOW 56	Barge	Netherlands	-	Hazardous Incident
15.11.89	DALE/HUMBER RENOWN	Cargo Barge	St Vincent UK	458 grt 295 grt	Collision
16.11.89	WESWEAR/ 6 FISHING VESSELS	Tug	UK	149 grt	Collision
20.11.89	TENACIOUS	F.V.	UK	14.3M	Accident to person
22.11.89	TEXACO WESTMINSTER/ GLENGARTH	Tanker Tug	UK UK	49809 grt 292 grt	Collision
24.11.89	GREY FLAMINGO	F.V.	UK	22M	Capsize
24.11.89	SECRET	F.V.	UK	10.9M	Engine Failure
24.11.89	PETREL	Cargo	St Vincent	699 grt	Grounding
29.11.89	SHIELDSMAN	Passenger	UK	-	Hazardous Incident
30.11.89	STRATHISLA	F.V.	UK	18.9M	Fire/Sinking
03.12.89	FRUGAL/ ACT 8	Catamaran (Yacht) Container	- Isle of Man	16.7M 52055 grt	Collision
04.12.89	BEEDING/ HOXA SOUND	Cargo Cargo	Isle of Man UK	1595 grt 945 grt	Collision
08.12.89	STENA WELLSERVICER	Off Shore Support	UK	9158 grt	Accident to person
11.12.89	PRIDE OF KENT	Ro-Ro	UK	7951 grt	Accident to person
14.12.89	PRIDE OF KENT	Ro-Ro	UK	7951 grt	Accident to person
16.12.89	DESTINY	F.V.	UK	10.9M	Foundering
16.12.89	CITY OF LONDON	Dredger	UK	3660 grt	Near Miss
22.12.89	MARINO TORRE	Ro-Ro/ Cargo	UK	Italy	Fire/Explosion