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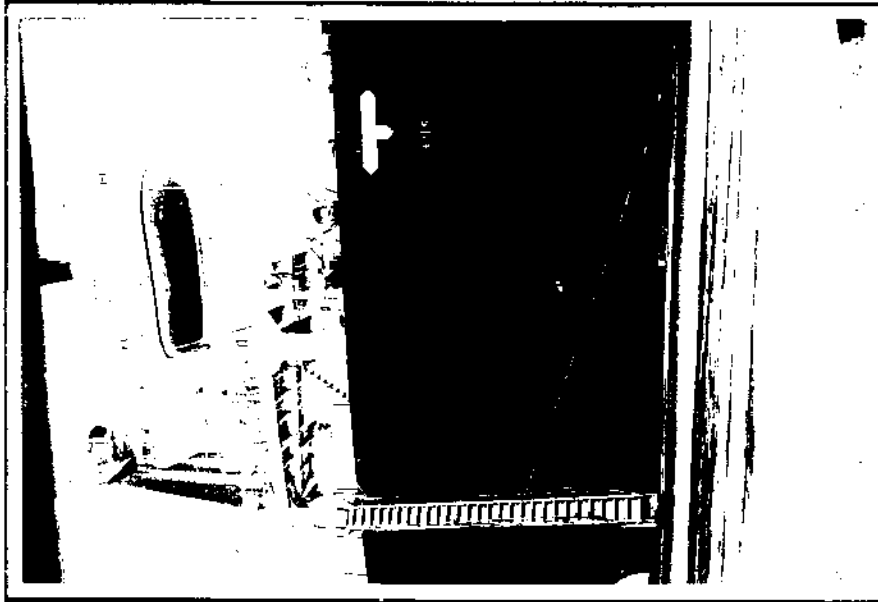
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Damaged lifeboat recovered



Port lifeboat davits



Starboard boat
indicating distance fallen

Summary

At about 1100 on 9 August 1994, the Panama flag bulk carrier Kayax was alongside in the port of Portland, Victoria, to load a full cargo of grain.

A Surveyor from the Australian Maritime Safety Authority boarded the vessel to undertake a grain loading inspection and a port state control inspection.

As part of the port state control inspection, the port lifeboat was lowered to the boat deck and then recovered to its embarkation position at the davit head. In this position the

surveyor asked to see the lifeboat engine run ahead and astern. After some minutes, with the engine running but the shaft in neutral, the boat suddenly became detached from the lifeboat falls and fell to the water, a distance of a little under 20m.

In the boat were the Master, Second Mate and two ratings. The four men were admitted to hospital with significant injuries, the Second Mate suffering serious head and spine injuries requiring prolonged hospital care and rehabilitation.

The boat was recovered from the water and an investigation initiated into the circumstances and causes of the incident.

Sources of information.

The Inspector acknowledges the assistance of the following in the preparation of this report:

The Australian Maritime Safety Authority

The Harbour Master, the port of Portland

Shigi Shipbuilding Co Ltd, Osaka, Japan

First Line Corporation, Seoul, South Korea

Pt Jewoong Mitra Jaya International, Jakarta, Indonesia.

The Kayax

The motor vessel Kayax was built in the Nagasaki yard of Oshima Shipbuilding Co. Ltd., Japan, under Nippon Kaiji Kyokai Classification Survey as a bulk carrier. Built for Roscoe Vesselping S.A., it was delivered to the owners on 11 September 1991 and registered under the flag of the Republic of Panama. It is currently operated by First Line Corporation, Seoul, South Korea and has remained under the Panamanian flag.

The vessel has a gross tonnage of 23,277 tonnes. Its overall length is 180 m, the beam is 30.5 m and the moulded depth is 15.8 m. Propulsion is by means of a single screw directly driven by a Sulzer 6RTA52 slow speed diesel engine of 6,230 kW. This machinery gives the vessel a service speed of 14 knots.

On 9 August 1994 the vessel had a crew of 17, the Master being a South Korean national and the rest of the crew being composed of nearly equal numbers of Indonesians, Chinese and South Koreans.

Narrative - 9

August 1994

On 20 July 1994, Kayax sailed in ballast from the Port of Bukpyong, South Korea, bound for Portland, Victoria, where it was to load 40,000 tonnes of grain for the Egyptian port of Safaga.

The vessel arrived off Portland on the morning of 6 August 1994 and anchored. The pilot embarked at 0748 on 9 August and by 0850 the vessel was secured alongside the K.S.Anderson wharf. The after draft was 4.0m aft.

As soon as the vessel was secured at the berth, a surveyor from the Australian Maritime Safety Authority (AMSA) boarded Kayax to conduct a grain loading inspection. AMSA's instructions to surveyors include provision for a Port State Control (PSC) inspection to be carried out on a grain vessel in cases where the vessel has not had such an inspection within the previous six months.

AMSA records showed that the Kayax had not had a PSC inspection within the last six months, and the master was informed a PSC inspection would be undertaken.

When the grain loading inspection was finished, the surveyor started the PSC inspection, which was to have included a test of the emergency fire pump supplying two hoses, an inspection of the vessel's navigation charts and lifeboats.

The PSC inspection started with the port lifeboat being swung out and lowered to the boat deck. There was some difficulty experienced in retrieving the boat due to a problem with the electrical contactor for the winch. After two or three attempts, however, it was successfully retrieved to the point of automatic cut-out of the winch, at the davit head. The engine of the boat was then run for the surveyor to see the propeller turning ahead and then astern.

The Mate, a Korean national, sent the Second Mate, an Indonesian national, into the boat to start the engine. The engine started immediately and idled. The surveyor then again asked to see the propeller running ahead and astern, however after some 5 or 6 minutes the engine had still not been put into gear and the propeller remained stationary. The Mate shouted some instructions to the Second Mate in a language which the surveyor did not understand. The surveyor had earlier noticed the Master standing above them on the embarkation platform watching the proceedings.

Unknown to anyone else at the time, an oiler (of South Korean nationality) and an ordinary seaman (OS) (of Chinese nationality) had entered the lifeboat, presumably with the intention of assisting the Second Mate in getting the engine into gear.

The Master, who had been watching the proceedings of the PSC inspection, had made his way to the embarkation platform after he had become aware of some language difficulties between those involved in the lifeboat operation.

Hearing the surveyor requesting the engine be put into gear, ahead, he moved towards the entry hatch of the lifeboat to relay the surveyor's request to the Second Mate, by shouting over the noise of the running engine. After a minute or two he saw that the propeller was still not rotating. He half entered the lifeboat and his eyes started to adjust from the bright daylight to the comparative darkness in the boat.

Suddenly the boat fell from the falls. The left side of the Master's body struck the embarkation platform on which he had been standing, throwing him into the boat. The lifeboat fell to the deck below, hitting the davit stops as it fell, which pierced the boat's hull. It hit the deck and turned on its side before falling to the water. In all the boat fell about 20 m.

From a vehicle, some distance along the wharf from the stern of the vessel, the grain terminal manager observed the boat roll upside-down before hitting the water on its starboard side with the bow pointing down at an angle of approximately 45°.

The surveyor, who could no longer see the boat from where he was standing, ran to the Master's office expecting to find the Master. As he arrived, he was informed that the Master was in the lifeboat. Using his cellular telephone the Surveyor first contacted the Harbour Master requesting him to call an ambulance, then the Harbour Pilot asking for the assistance of the pilot boat before calling the owner's agents and finally AMSA in Melbourne. The Harbour Pilot despatched the pilot launch to the scene to assist and instructed his secretary to call for an

ambulance. He advised the Harbour Master of what had happened before driving down to the vessel from the port offices. The time was approximately 1103.

The Master lost consciousness after being thrown into the boat. When he regained his senses, he became aware of a lot of water in the boat. His face was bruised and swollen to the point where he had difficulty opening his eyes which, in addition, were full of blood from a gash across his forehead. He was able to see, however, two of the crew lying face-down in the water in the bottom of the boat and pulled them clear of the water. The hatch of the boat was open and he put his head outside, shouting to members of the vessel's crew who were still standing at the boat station, to throw a line to the boat. The boat was being carried away from the vessel's side by a moderate breeze.

A lifebuoy, attached to a line, was thrown from the vessel but fell short of the boat. The Master, seeing this, jumped into the water and swam to the lifebuoy. The Mate had, by this time, run to the starboard side of the vessel, down the gangway and onto the wharf from where he also jumped into the water and swam out towards the boat. A heaving line was thrown from the vessel, the line this time falling across the canopy of the boat.

The Mate and the Master climbed into the boat. The Master instructed the Mate to attend to the three injured crew in the boat while he attempted to make the line fast to the boat, which was difficult as he only had use of one arm, his other having been injured in

the fall. The shore end of the line was then passed down to the wharf from the vessel and members of the crew, together with a number of shore workers who had now gathered on the wharf, started pulling the boat around the stern of the vessel towards the wharf.

The pilot launch arrived as the lifeboat was nearing the wharf and, on instructions from the Harbour Pilot, rendered assistance to the boat as it reached the wharf, where he boarded the pilot launch and, from there, the lifeboat. The vessel's Master was assisted from the lifeboat and onto the wharf where he lapsed into a state of semi-consciousness.

The lifeboat was taking water, settling by the stern, and the Harbour Pilot shouted to the crew on the wharf to assist in removing the injured crew from the boat. There was a considerable language difficulty experienced throughout this operation, but two of the injured crew were eventually removed to the wharf. The remaining casualty in the lifeboat, the vessel's Second Mate, was evidently the most severely injured being unconscious, convulsing, having difficulty breathing and vomiting blood. The decision was taken not to remove him until ambulance staff arrived. In the meantime a stretcher was obtained from the pilot launch.

The Harbour Pilot obtained an axe, also from the pilot launch, and set to enlarging a hole in the forward end of the lifeboat's canopy - damage which had occurred to the boat when it hit the water. With the assistance of one of the port workers, who had had some

first aid training, the injured Second Mate was eased onto the stretcher and strapped in.

At about 1118, an ambulance arrived. The single ambulance officer started to attend to the Second Mate, clearing his airway and administering oxygen. There were further language difficulties as he attempted to get the Korean crew, some of whom were now helping in the lifeboat, to turn the Second Mate onto his side into the "recovery position" on the stretcher. The Master, the oiler and the ordinary seaman, who had been in the lifeboat, were also showing evidence of severe injuries and the ambulance officer had to delegate first aid to bystanders on the wharf. He radioed for a doctor and another ambulance as backup. At about 1149, having done what he could, he left with a police escort for the Portland and District hospital, his ambulance carrying the first three of the injured men.

As the lifeboat had been continuing to take water, the crew of the pilot launch rigged a hand pump and pumped water from the lifeboat, successfully keeping the level down until a shore crane was arranged and which was later able to lift the boat out of the water onto the wharf.

The second ambulance, despatched from the nearby town of Heywood, arrived on the scene a little later, as did a doctor and two nurses from Portland. The doctor examined the Second Mate before he too was taken to Portland and District hospital where he was found to be in a critical condition with severe head injuries. Arrangements were made to transport him to the

Monash Medical Centre in Melbourne by air ambulance.

The Oiler was found to have numerous fractures to spinal vertebrae, several broken ribs, a punctured and collapsed lung, a broken arm and lacerations and bruising to his head and other parts of his body.

The OS was found to have a fractured vertebrae and lacerations and bruising to the head and body.

The Master, although having a severe gash on his forehead and lacerations and bruising around his spine and left arm, had escaped serious injury.

The vessel's Radio Officer went to the hospital and provided his services as an interpreter in Korean for the hospital staff until the following day when the vessel's Master was sufficiently recovered to take over this role.

Lifeboats

Two 28-man lifeboats are fitted to the vessel, one on the port side and one on the starboard side. These lifeboats are carried in conventional gravity davits situated on a boat deck one deck above the main deck. The winch for raising and lowering the boat is situated adjacent to the base of the aft davit in each case. Leading off the next deck above the boat deck is an embarkation platform used to embark members of the crew, during an emergency, while the boat is still in the stowed position. There is no embarkation point on or below the boat deck.

The lifeboats were built in 1991 by the Shigi Shipbuilding Co.Ltd. of Osaka, Japan. The boats had extreme dimensions of 6.7 m in length, 2.75 m beam and weighing 2,640 Kg without occupants but with equipment. Fully loaded, the weight of a boat would be approximately 4,740 Kg. Each boat is fitted with a water-cooled diesel engine capable of giving it a speed of 6 knots when fully-loaded.

They are of the totally enclosed type, built to comply in all respects with the requirements of the SOLAS convention and with classification society rules. These requirements include a quick release mechanism for the simultaneous release of the forward and after lifeboat falls, with or without the weight of the boat being taken by the falls.

The boats are constructed from glass reinforced plastic and the enclosure is designed to provide complete protection for the crew from the elements as well as from smoke and toxic vapours. In addition, they are designed such that, by using buoyant materials, they retain positive stability and remain afloat even when flooded and open to the sea.

At the after end of the boat is a raised conning position with a seat for the helmsman, the wheel for the tiller, an instrument panel for the engine and a single lever for combined control of the engine speed together with ahead-astern directional control. (See photograph, page 23) The lifeboats can be lowered from inside the boat canopy by a wire control connected to the boat winch on the boat deck.

BOARDING

Open inboard door and secure in open position. Crewmembers board one by one and take seats.



2 SEAT BELTS

Fasten seat belts.

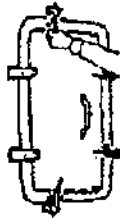


3 ENGINE STARTUP

See emergency start instructions posted near helmsman's seat.

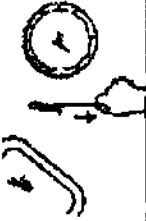
4 OPENINGS CLOSED

Close all openings such as manholes, and hatches to maintain water tightness.

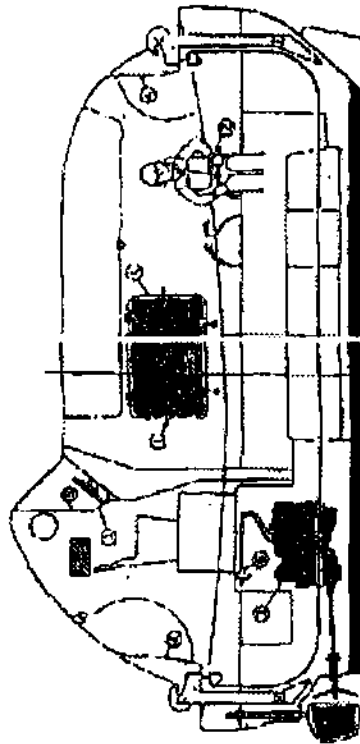


5 LOWERING

When helmsman pulls lowering lead wire, boat begins to descend. maintain a steady pull until waterborne.



Emergency Operating Manual For Shigi's Totally Enclosed Lifeboat as a Rescue boat



**REMAIN CALM
FOR A QUICK
ESCAPE FROM
THE DANGER**

**6 LAUNCH AND
DISENGAGEMENT**

When waterborne, boat is disengaged from falls when pulls disengaged handle.



8 COMMUNICATION

Erect radar reflector. Try to communicate via emergency radio.



7 FULL - SPEED ESCAPE

Set throttle at full speed and steer away dangerous area as quickly as possible.



SHIGI SHIPBUILDING CO., LTD.

2-1 188-2, HAKEN-MACHI, SAKAI, 562, JAPAN
TEL : 0722 - 41 - 2020
FAX : 0722 - 45 - 1725
Cable Address : SHIGI SHIP CO JAP

Extract from the Emergency Operators Manual

The quick release mechanism is operated by a lever at the starboard side of the engine casing. To slip the boat, assuming that the release gear had been properly reset and the operating lever stowed correctly after it was last in the water, it is necessary to:-

1. Remove the toggle pin securing the operating lever in its "stowed" position.
2. Straighten the lever to the vertical position and lock it by dropping down a locking sleeve.
3. Lift up a hinged section of floor chequer-plate.
4. Insert one's arm below the level of the deck plates, locate the safety pin (not readily visible), rotate the pin then withdraw it.
5. Pull the lever fully back to release the boat from the falls.

This routine is described on the plaque fitted in the boat and shown in the photograph on page 23.

Operation of the release lever, as per step "2" rotates a quadrant under the

deck plates which, by means of a cable operating cams and pawls beneath each hook, allows the two hooks to pivot simultaneously thus releasing the boat from the falls.

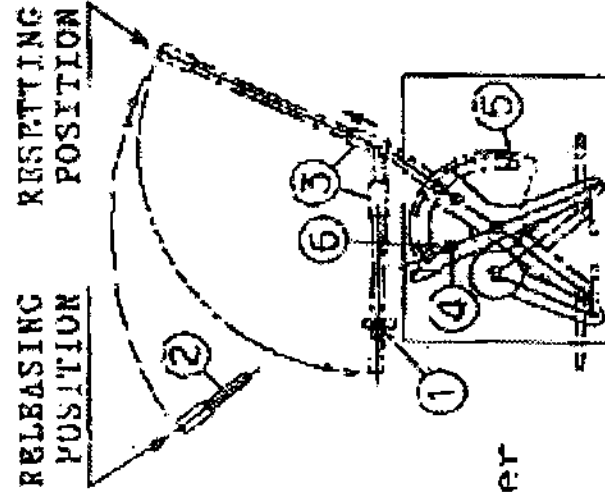
When the boat is retrieved from the water, the release mechanism must be reset once the release hooks are in position to again engage the falls. To reset the mechanism, the instructions given are:

1. Insert safety pin (4) into pin hole (6)
2. Reset hooks to the closed position.
3. Return lever (2) to the original position.
4. Remove safety pin (4) and insert into lock hole (5).
5. Slide up socket (3) and lower hinged lever (2).
6. Set small safety pin (1).

Situated around the interior of the lifeboat are a number of signs in both English and in Japanese, showing instructions for the operation of the engine, the safety equipment in the boat and the operation of the quick-release mechanism for the falls.

HOOK RESETTNG PROCEDURE

1. Insert safety pin (4) into pin hole (6).
2. Reset hooks to the closed position.
3. Return lever (2) to the original position.
4. Remove safety pin (4) and insert into lock hole (5).
5. Slide up socket (3) and lower hinged lever (2).
6. Set small safety pin (1).



Instruction Plaque

Hook Resetting Procedure

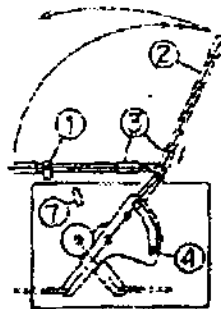
DANGER

THIS HOOK RELEASE DEVICE IS CAPABLE OF RELEASING THE BOAT FROM THE FALLS AT ANY HEIGHT, ON OR ABOVE SEA LEVEL.

EXERCISE EXTREME CAUTION TO AVOID ACCIDENTAL OR PREMATURE RELEASE.

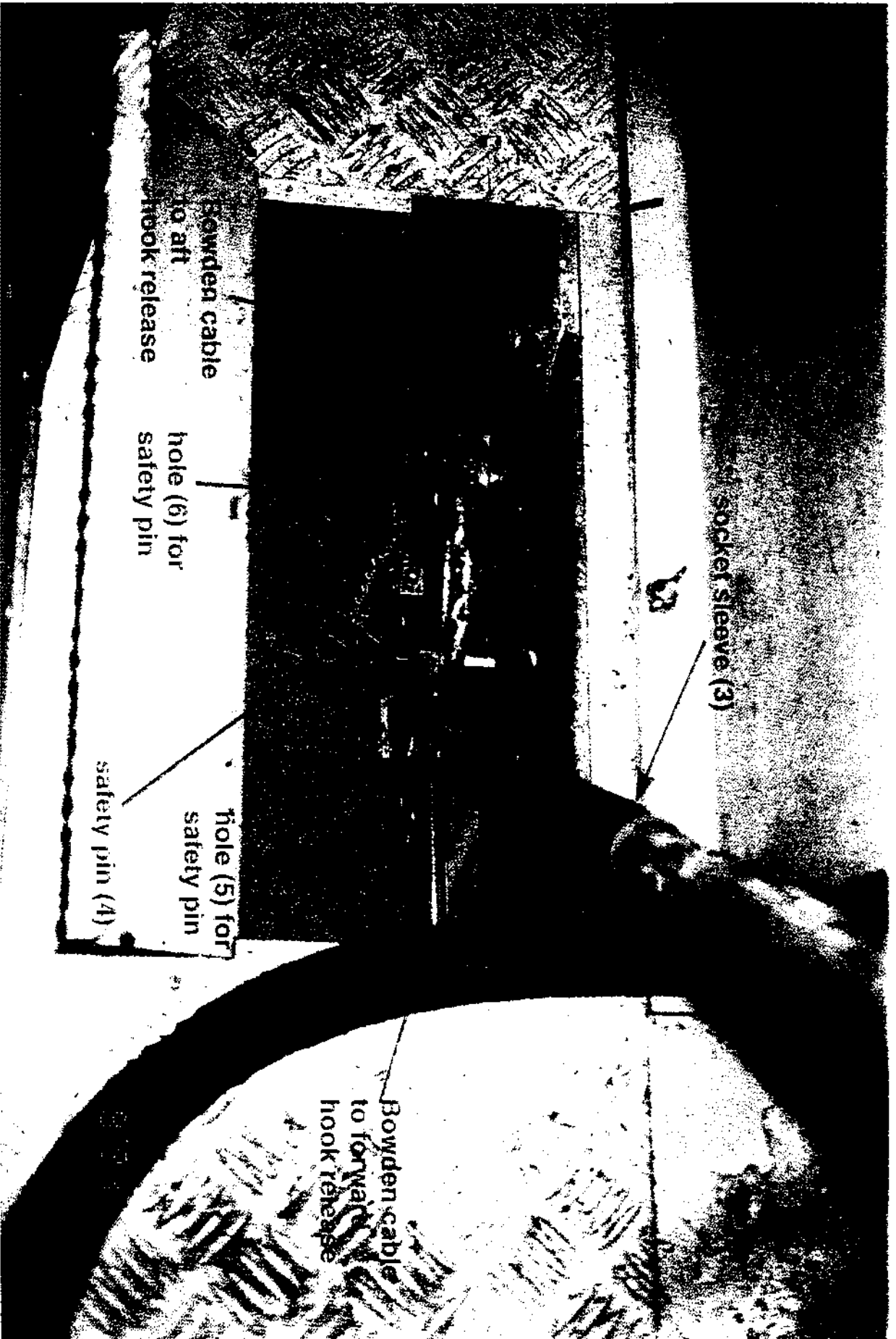
HOOK RELEASE PROCEDURE

1. Remove small safety pin ①.
2. Raise lever ② and set socket ③ in place.
3. Remove safety pin ④ only when you are close to the water.
4. Pull lever to the stopper ⑦.



Instruction Plaque

Danger Notice/Release instructions



socket sleeve (3)

Bowden cable
to aft
hook release

hole (6) for
safety pin

hole (5) for
safety pin (4)

Bowden cable
to forward
hook release

Lifeboat falls Release Lever in armed position with deck plate lifted
(safety pin not fitted in locking hole (5))

Comment and Analysis

Introduction

The accident involving Kayax's lifeboat was the third accident involving lifeboats fitted with on-load release gear, known to the Australian authorities that has occurred within a year.

In 1994 the Deputy Commissioner of Maritime Affairs, Republic of Vanuatu, issued a report on the investigation into the dropping of the starboard lifeboat and resultant injuries aboard the m.v. Ivory Ace on 29 October 1993 (CASREP 93014). This incident was also investigated by the United Kingdom's Marine Accident Investigation Branch, the observations and findings of which were included in the Vanuatu report.

Also in January 1994, the Lebanese livestock carrier Danny F is known to have lost a lifeboat while carrying out maintenance at sea, an injured crew member, who was in the boat at the time, being landed in Australia.

Chapter 3, sub Regulation 41.7.6.2.2 of the Safety of Life at Sea Convention 1974 (SOLAS) requires:

an on-load release capability which will release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat

under any condition of loading from no-load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release capability shall be adequately protected against accidental or premature release. (The emphasis is the Inspector's.)

The lifeboat manufacturers designed the release capability to meet these requirements based on:

1. "The structure of the safety device should be such that, in the confusion of emergencies, when crew members may be in an agitated mental state, the release capability cannot be activated in one action, even in error."
2. "The safety device should be installed to facilitate routine maintenance inspections, and in a place within easy reach of crew members. Additionally, the mechanism should not be so complex as to cause confusion in times of use."

The accident involving the Kayax's lifeboat resulted from accidental release. The on-load release mechanism apparently met the SOLAS requirements and the procedures to arm the release mechanism would have seemed to offer some protection against accidental or premature release. However, this was not the case, nor does it seem to be an isolated accident.

Accidents involving the launching of lifeboats, whether the more traditional off-load or the more recent on-load types, are not uncommon.

Accidents with the off-load releases involving less than effective simultaneous release gear, have resulted in injuries to hands and heads from the fall block and, most seriously, lifeboats only releasing one fall and up-ending.

Lifeboat handling, including launching, requires expertise born of practice and experience. A current problem is that, with quicker turn-around time in port and reduced crew sizes the opportunity for launching lifeboats has been reduced. Just as importantly, because of the lack of skill and training, the risk of accidents is increased when exercising lifeboats, which in turn may deter masters from initiating drills, thus the problem becomes self-perpetuating.

In designing lifeboat release mechanisms, full account should be taken of the lack of practice available to ships' crews in launching and handling ship's lifeboats, notwithstanding the SOLAS requirements for launching lifeboats, discussed later in this report

At the time of the incident, the port lifeboat had been successfully lowered and raised as part of a port state control inspection. It had been retrieved almost to the "stowed" position, with the davits retracted. (This is just short of its fully-stowed position, requiring the winch to be turned by the manual winding handle for the remaining lift until the lifeboat seats against its chocks on the davits.) In this position, the davits were retracted but the lifeboat was still hanging on the falls and was not secured by the gripes.

The accident to the Master, Second Mate and the two crew members could

have been avoided if an interlock device had been fitted.

Statutory Certificates

The ship's Cargo Ship Safety Equipment Certificate, issued on 13 December 1993 under the provisions of the International Convention for the Safety of Life at Sea, indicates that the safety equipment fitted to the vessel complies in all respects with the requirements of that convention. The certificate was valid until 4 September 1995. All other statutory certificates were valid.

The Crew

The Master, Mate and two senior Engineers were South Korean nationals, the Second Mate, the junior of the three engineers and the Radio Officer were Indonesian. The ratings consisted of three South Koreans, two Indonesians and five Chinese.

The languages spoken on board were Korean, Indonesian and Chinese. However, the language used for the day-to-day running of the vessel was English while, between themselves, the senior officers used their native tongue, Korean.

It became apparent during the investigation, that few of the vessel's crew were conversant in English. This was further demonstrated by the reported language difficulties experienced in the immediate aftermath of the incident and during the time the casualties were in hospital.

It appears that, in practice, although most of the crew were familiar with and understood a number of basic words and instructions, much of the communication on board was in a mixture of languages, together with much use of gestures and sign language.

The Master was able to speak reasonable English and was interviewed on the day after the incident. As he was just entering the boat at the moment the incident occurred, he was unable to offer any information as to the exact cause of the release of the boat.

Two ratings in the boat, the oiler and the ordinary seaman, were interviewed with the assistance of an interpreter at the Portland District Hospital as soon as their medical condition allowed.

The Second Mate, who had been the most seriously injured, was flown to the Monash Medical Centre in Melbourne immediately after the incident. He was interviewed at a rehabilitation centre in mid-October with the aid of an interpreter. Medical advice was that he had no recall of the incident itself, or of the time immediately before the accident.

The Second Mate was thirty years of age. He underwent training at a Nautical College in Indonesia first going to sea in 1988. He obtained a certificate as a Second Mate Ocean Going at Jakarta in October 1989 and served on two cargo vessels and, briefly, on a tanker under the

Indonesian flag. These vessels were equipped with open lifeboats, which were used regularly by the vessels' crews when at anchor or in port.

The Second Mate joined Kayax in October 1993. He recalled that the boat drills were held regularly, at least once every month, as required by the flag State. The lifeboat engines were started every week by the Second Engineer and run for a period. The boats were swung out regularly, but he could not recall them being lowered to the water and the lifeboat falls release gear being used.

The vessel's Official Log Book contained no reference to the port lifeboat having been in the water, although it was recorded that the starboard boat had been lowered to the water on 15 April 1994. The release mechanism in the starboard boat was found, upon inspection, to have been correctly reset and secured. The last entry in the Log was made on 25 July and stated simply "Boat drill and fire fighting exercise" and "boat engine tested found in good order". There is no reference to which boat engine was tested and the drill carried out was indicated verbally to the Investigator, to have been a muster and not a drill involving lowering either of the lifeboats. The bulk of the vessel's crew had been with the ship for some time, while the Master and Mate had joined at Bukpyong some fifteen days earlier, none of the ship's crew that were interviewed were able to give an indication of when the boat had last been in the water.

Examination of the lifeboat

On the instructions of the Harbour Master, as soon as it had been recovered from the water, the lifeboat was secured in a shed belonging to the harbour authority. The following day, an examination of the boat was carried out by an investigator from the Marine Incident Investigation Unit.

The hull of the boat was damaged in a number of places, notably a large split in the starboard bow, a split around the canopy in the vicinity of the coxswain's position, and damage to the starboard forward end of the canopy - this latter having been opened up with an axe in order to remove the Second Mate as described earlier. There was also a hole in the hull at the port quarter, just adjacent to the stern tube and another immediately above the bow skeg. These two holes are consistent with the boat hitting the two stops for the davits which are situated on the boat deck immediately below the falls, and the splits in the starboard bow and starboard forward end of the canopy are consistent with the boat having hit the water on its starboard side with the bow angled downwards.

Inspection of the gear-shift lever on the coxswain's control console indicated that the plunger mechanism for locking the gear-shift in the neutral position was broken. This may have contributed to the difficulty experienced by the Second Mate in getting the engine into gear.

Critical to the accident is the lifeboat falls release mechanism. It was found that the mechanism was "armed" and in a condition for instant, on-load,

release. The two safety pins were hanging free on the end of their short chains, the lever for release of the falls was raised with the locking sleeve in position and the lever was in the "released" position. A "Danger" notice, written in English, immediately above the disengaging lever was missing from the port boat, although present in the starboard boat.

The release mechanism, i.e. the quadrant, the cables, the cams and the pawls etc. of the hook release were all found to be in good condition and, where applicable, well greased. The Investigator reset and released (on "no load") the mechanism several times and in every instance it functioned correctly.

The instructions, adjacent to the lever, for resetting the mechanism and for releasing the boat, were in English and Japanese. The occupants of the boat at the time were Korean, Indonesian and Chinese. At interview neither the Oiler nor the OS showed any ability to read or understand English and it is probable that they did not understand Japanese and could not have read and understood any of the notices and instructions. The Second Mate, although he knew how to lower the boat, did not seem to understand the operation of the release mechanism.

All the instruction plaques and warning notices within the lifeboats were in English and Japanese. For the reasons outlined above, it seems likely that few of the crew would have understood the text of these notices, only the diagrams. In the case of the quick-release mechanism, there is little possibility of understanding its

operation without studying, and fully understanding, the text. This takes some time even for a person who's first language is English.

It is possible to reset the release mechanism, remove the safety pin from the hole in which it is required for resetting (hole 6), but then to fail to transfer it to the other hole (hole 5) in order to render the mechanism "safe". This would leave the release mechanism in the "armed" condition. This would be especially dangerous if, in addition, the lever had been left in the upright position and not folded down and stowed.

In the Inspector's opinion, it is unlikely that one of the three persons in the boat would have gone through the release sequence and it is highly probable that neither the two ratings nor the Second Mate had operated it before or understood the mechanism. The most likely explanation is that the boat was lowered and raised with the release gear "armed", following a previous lowering after which the reset had been carried out in the manner described above.

The evidence is that the safety pin was not replaced in "hole 5". In the effort to put the lifeboat into gear, it is probable that one of those in the lifeboat either pulled the already upright release handle, or raised the release handle, so that the sleeve dropped in place, and then pulled the handle. The investigating team, all experienced mariners, were struck by the similarity of this handle, when raised, to the ahead and astern gear

levers on certain open lifeboats, although this lever was alongside the engine rather than aft of it.

It cannot be established with absolute certainty how the lifeboat came to be released. The Master, although wishing to help the investigation, was not in a position to see what happened. The two ratings, in a foreign country and faced with an investigator speaking through an interpreter, appeared mistrustful, apprehensive and unwilling to cooperate. The Second Mate, although very cooperative, was unable to remember the immediate events of the accident.

The Second Mate, who was most probably at the conning position, could not have reached the lever from there, neither could the Master, who was outside the boat at the entrance. On the basis of the evidence available it seems likely that one of the two ratings manipulated the lever, possibly believing it to be the ahead and astern lever. Neither could read or understand the notices, and the red danger notice was missing from the boat.

This in no way suggests any blame on either rating or any other person in the boat, rather they were probably the unwitting and innocent seafarer trying their utmost to assist in fulfilling the Mate's orders and satisfy the Surveyor. The Inspector is satisfied that they had no effective training in how and when to operate the Shigi on-load release gear.

Crew training and preparedness

Kayax was a relatively new ship and was well found and well maintained.

However, the accident involving the lifeboat exposed serious shortcomings in the level of awareness and training in the operation of the life saving appliances and of this type of lifeboat in particular.

Chapter III, Regulation 18 of the Safety of Life at Sea Convention 1974 and amendments made by Protocols, requires that:

1. Training manuals in life saving and emergency procedures be provided to the crew, either in mess rooms or in individual cabins.
2. Practice muster and drills be conducted within 24 hours of the ship leaving port (if more than 25 per cent of the crew have not participated in a life boat drill on board that particular ship in the previous month) and thereafter at least once every month.
3. In addition each lifeboat "Shall be launched with its assigned operating crew aboard and manoeuvred in the water at least once every three months . . ."
4. On-board training in the use of the ship's life-saving appliances,

including survival craft, shall be given as soon as possible but not later than 2 weeks after a crew member joins the ship.

5. Details of drills shall be recorded in the log book.

The evidence is that practice musters were held regularly, the fabric of the boats was well maintained and the boat engines run regularly.

However, the examination of the inside of the boat after the incident revealed that the seat belts, provided for all occupants in this type of boat, which should be fitted at each position where a person is to be seated during the lowering of the boat, were all still in a box supplied by the manufacturer. This in boats that were stated to be inspected regularly. Also the investigator was not able to establish whether the manuals required under Regulation 18 were in fact carried and if so whether they were in a language or languages that would be understood by all crew members.

The failure to have the seat belts fitted and ready for use, together with the circumstances of the accident, examination of the log books and from statements made, satisfies the Inspector that, although the boats were swung out at regular intervals, they were not launched every three months, and had not been launched and manoeuvred in the water for over a year. This was compounded by the fact that any training given to the crew was ineffective.

Only the Master and Mate joined at Bukpyong, so that there was no requirement to hold a drill of the crew

within 24 hours of sailing, assuming that all crew had been involved in drill prior to arrival. The Master stated that the voyage from Bukpyong was undertaken in heavy weather conditions resulting from a typhoon. A drill had been held on passage to portland from, but because of the bad weather it was restricted to only a few of the crew in a general drill, running boat engine and the emergency fire pump. The Inspector is satisfied that the crew had not been given on-board training in the operation of the lifeboat during their service on board.

The ship's owners or operators are responsible for ensuring that an environment is created in which the Convention requirements can be fulfilled and for supporting the Master to ensure that they are. It is not sensible or safe to rely on a few senior staff to be available to launch boats in an emergency. It could be, particularly with reduced crew numbers, that all senior staff may be lost in an accident. It is therefore important that all the crew understand the operation of safety equipment, including lifeboats.

Chapter III, Regulation 9 of the Safety of Life at Sea Convention requires that posters and signs shall be provided on

or in the vicinity of survival craft and their launching controls and shall:

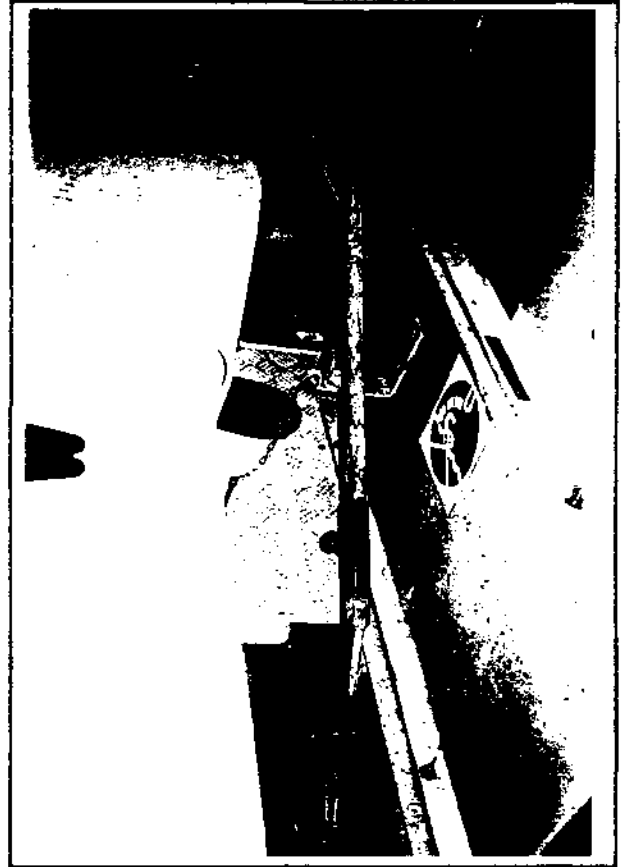
1. illustrate the purpose of the controls and the procedures for operating
2. be easily seen under emergency lighting conditions;
3. use symbols in accordance with the recommendations of the Organization.

Notwithstanding the missing danger notice in the port boat, the ship was provided with notices meeting this requirement. However, the language differences and general communication problems meant that the crew members' main source of information for operating the lifeboat was the symbols and drawings.

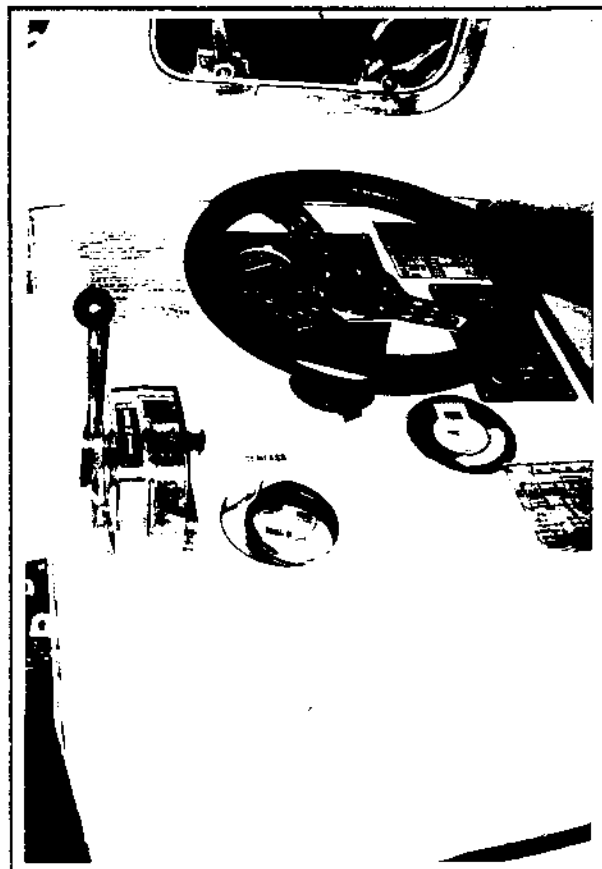
In the Inspector's opinion, the drawing showing the operation of the release mechanism of the lifeboat was not clear, without some understanding of the Japanese or English text. The instructions, particularly the diagram, for retrieving the boat, were not possible to follow without a good knowledge of Japanese or English.



Life boat falls release lever
in stowed position (note sleeve)



Life boat falls release lever
in armed position with
deck plate lifted



Coxswain's position showing gear lever
The black knob on the side of the control was
defective

Conclusions

These conclusions identify the different factors contributing to the accident and should not be read as apportioning blame or liability to any particular organisation or individual.

1. The boat was released by the operation of the releasing handle by one of three people actually in the boat.
2. The port lifeboat on-load release mechanism safety pin preventing movement of the quadrant was not in position and the release system was in the “armed” condition.
3. Although the boats were swung out at regular intervals and the general maintenance ensured the boats were in good working order, the vessel’s crew were insufficiently practiced in using the on-load release gear.
4. None of the three people in the boat understood how the on-load release mechanism operated.
5. The two languages used in the instruction manual and on notices inside the boats were inappropriate, given the nationalities of those involved, and the instruction diagrams were not fully understandable without a good knowledge of either Japanese or English.
6. Difficulties in communication through the differing nationalities was a factor in understanding the release mechanism and in passing instructions covering non standard operations.
7. The incident could have been prevented by the fitting of an operational interlock designed to ensure a two stage release.

Submissions

The Manufacturers of the lifeboat, the Shigi Shipbuilding Co Ltd of Osaka, cooperated fully with the investigation. In a letter commenting on the report the Company made a number of specific points.

In relation to the fact that the seat belts were not fitted they wrote:

“Seat belts cannot be fitted at each position before delivery to the (building) yard, as they get in the way during testing conducted at the yard. Consequently, we will make the point from now on of sending letters to the yard and owner to confirm that the seat belts have been properly fitted as required.”

In relation to the languages for the instruction manuals and notices, they make the point that they do not know what nationality or nationalities of crew will sail on ships using Shigi lifeboats. The Inspector is of the view that this responsibility is one for the ship’s owners or operators.

In addressing conclusion 7 Shigi Shipbuilding Company states:

“The release mechanism of our newest lifeboat model (1993), incorporates a hydrostatic interlock designed to ensure a two-stage release. Its capabilities were demonstrated during prototype testing conducted in accordance with IMO Res. A689(17) as fully satisfactory. We have already incorporated this interlock release system in two other models, and will do so in all of our lifeboat models in the near future.”

Details of vessel

Name	Kayax
IMO Number	9000924
Flag	Panama
Classification Society	Nippon Kaiji Kyokai
Vessel type	Bulk carrier
Owner	Roscoe Vesselping S.A.,
Operators	First Line Corporation, Seoul, S.Korea
Crew	17 (7 S.Korean; 5 Indonesian, 5Chinese)
Year of Build	1991
Place of Build	Oshima Vesselbuilding Co Ltd, Nagasaki
Gross Registered Tonnage	23,277
Net Registered Tonnage	13,807
Summer deadweight	42,226 tonnes
Summer draught	11.228m
Length overall	180m
Moulded breadth	30.5m
Engine power	6,230kW