Report of Investigation into the Fatal Accident on Inadvertent Release of Lifeboat from the Hong Kong Registered Ship “OOCL Britain” on 5 March 2006
Purpose of Investigation

This incident is investigated, and published in accordance with the IMO Code for the Investigation of Marine Casualties and Incidents promulgated under IMO Assembly Resolution A.849(20). The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department is to determine the circumstances and the causes of the incident with the aim of improving the safety of life at sea and avoiding similar incident in future.

The conclusions drawn in this report aim to identify the different factors contributing to the incident. They are not intended to apportion blame or liability towards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSPB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.
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1. Summary

1.1 At about 0845 hours on 5 March 2006 (time specified in the report refers to local time), while alongside at Seattle Container Terminal, a Hong Kong registered ship “OOCL Britain” (the Vessel) conducted a lifeboat lowering exercise during a Safety Equipment Survey by the ship’s Classification Society. During the lowering of the port side lifeboat from its stowage position, it swung and struck the side of the vessel. As it swung, the lifeboat forward skates was caught by the gangway stowed at the shipside. This acted as a pivot point on which the lifeboat overturned to almost 90° causing the forward and aft hooks to disengage from their positions. The forward skate later detached from its securing. As a result the lifeboat unhooked from its securing and dropped approximately 20 metres into the water. The Third Officer assigned to lower the lifeboat died in the incident. Three other crewmembers managed to escape after the accident with one injury.

1.2 The port lifeboat sustained structural damage to the top canopy after dropping into the sea. At the material time, the weather was good, with a slight wind and a smooth sea.

1.3 The investigation revealed that the probable cause of the incident was due to the design of recess opening above the stowed gangway and the inadequate size of the lifeboat skates that were caught by the gangway locating at the recess opening. During launching the Third Officer might have incorrectly applied the hand brake causing the lifeboat to swing excessively.
2. **Sources of Evidence**

2.1 “**OOCL Britain**” - the Master and the crew involved in the accident

2.2 Law Offices - Le Gros Buchanan & Paul

2.3 Operator of “**OOCL Britain**”– Orient Overseas Container Line Ltd.

2.4 American Bureau of Shipping
3 Description of Vessel

3.1 “OOCL Britain”

Port of Registry: Hong Kong
IMO No.: 9102318
Type: Container
Built: 1996
Gross Tonnage: 66046
Length Overall: 276 m
Breadth: 40 m
Class: American Bureau of Shipping

“OOCL Britain” (fig. 1) is a container vessel trades between ports in Asia and North America. “OOCL Britain” was manned by mainland PRC crew at time of the incident in accordance with the requirements of the Minimum Safe Manning (MSM) Certificate issued by the Marine Department of Hong Kong SAR.

Fig. 1 Photo of OOCL Britain
4. Outline of Events

4.1 On 5 March 2006, “OOCL Britain” was alongside at Seattle Container Terminal No. 18. During a Safety Equipment Survey, a Class Surveyor requested the port side lifeboat to be lowered for a water-borne exercise.

4.2 At about 0834 local time the lifeboat was lowered to embarkation deck with no one inside. It was heaved back to its stowed position after verifying all equipment had been functioning properly.

4.3 On instruction of the Chief Officer, the Third Officer and three other crewmembers boarded the port side lifeboat at its stowed position. The Third Officer began lowering the lifeboat from inside using the lifeboat’s internal remote control wire.

4.4 The Chief Officer stated that he had briefed the boat crew of the safety precautions and the proper procedures in handling the lifeboat before the lowering. He also reminded the Third Officer not to make any “‘inching’” operation in the course of lowering, i.e. not to apply the hand brake intermittently while descent, as it might shake the boat. After the Third Officer confirmed his understanding, the Chief Officer granted the “Permission to lower”.

4.5 During lowering, the lifeboat was intermittently stopped twice. The lifeboat began to swing violently and banged against the shipside for at least twice as the lowering continued.

4.6 As the lifeboat lowered to the level beneath the embarkation deck, at least one of the lifeboat skates was caught on the stowed gangway at the shipside. This acted as a pivot point on which the lifeboat overturned to almost 90° causing the forward and aft hooks to disengage from their positions. The forward skate later detached from its securing. As a result the lifeboat unhooked from its securing and dropped approximately 20 metres into the water.

4.7 The impact was so severe that it broke open one of the slide-hatch doors. The lifeboat began to fill with water and slowly capsized.
The crewmembers tried to escape from the capsizing boat but the Third Officer was entangled by the safety harness inside. The survived crew attempted to rescue him but without success. The Chief Officer jumped into the water and joined the rescue. He managed to retrieve the Third Officer from the capsized boat and pulled him out of water in an unconscious condition. He was immediately sent to hospital and was pronounced dead upon arrival. The cause of death was later determined to be drowning.
5. Lifeboats of “OOCL Britain”

5.1 “OOCL Britain” is equipped with two 30-man totally enclosed lifeboats. The lifeboats are of the model HDL 71CT constructed by Hyundai Precision & Ind. Co. Ltd. of Korea. The lifeboats are stowed on davits located at the port and starboard sides on the boat deck, i.e. the first accommodation deck above the gangway deck.

5.2 The lifeboats are constructed of glass fibre-reinforced plastics and each boat has a length of 7.10 m, a breadth of 2.40 m and a depth of 1.125 m. The lifeboats davits are of gravity type. They comprise of davit arms mounted on rollers which travel within fixed inclined trackways. The speed of launching of a boat is controlled by a centrifugal brake through the brake lever. According to the requirement of the Safety of Life at Sea Conventions (SOLAS), the davits should be capable of swinging out the lifeboat from its stowed position and lowering it into the water with its full complement of persons when the ship has a list either way of up to 20 degrees and a trim of up to 10 degrees.

5.3 The internal layout of the lifeboats is typical of many modern totally enclosed boats. A hook release mechanism is located at amidships. Seats for the rest of the crew are provided around the periphery of the boat and along the centre-line forward of the coxswain’s position. Access hatches for boarding are located amidships on both sides of the canopy and additional hatches are provided at the forward and after ends to allow access to the lifting hooks.

5.4 The boat can be lowered either by lifting the brake release lever locally at the winch, or in this case by pulling the davit winch brake remote release rod inside the lifeboat. Propulsive power is provided by a 4-stroke diesel engine, which gives the boat a fully laden speed of 6 knots.

5.5 The lifeboats are fitted with on-load release mechanism designed and manufactured by the boat builder. The main components of this mechanism are the forward and after hook units, and the control mechanism located at amidships. The release levers are connected to the two hooks units by connecting rods. The system is designed to be operable by one person with simultaneous release of both hooks when the release lever is actuated after it has been unlocked.
5.6 Two skates were fitted at the side of the lifeboat at size of approx. 400 x 400 mm. They were used to prevent direct contact between the lifeboat and the ship structure when the boat swings. They can also act as a sliding block when the boat is lowered at a heeled condition. The skates were fastened to the lifeboat by canvas belt (fig. 2).

Fig. 2 Skates of the other intact lifeboat at stowed position
6. Analysis of Evidence

Certification and Experience of Master and Officers

6.1 The Master and Officers of the Vessel hold valid national certificates of competency with appropriate Hong Kong Licenses. The Master and the Third Officer were qualified with experience for their post.

Weather and Sea State

6.2 Weather was fine on 5 March 2006 in the waters of Seattle Container Terminal. At the time of the incident, there was a slight wind blowing with a smooth sea state. “OOCL Britain” was lying starboard alongside without appreciable rolling and pitching motions.

Condition of Equipment

6.3 The condition of the port lifeboat and its davit were reported to be in good working order before the incident. Both the lifeboat and the launching davit were built with proper certification. The port lifeboat had been launched to water level in December 2005 and was found in normal condition. No abnormalities were noted in the previous launching operation.

6.4 After the incident the port davit and its associate gears were examined to be in normal working condition.

On Board Training and Drills for Lifeboat Operation

6.5 According to the Master of the Vessel the Third Officer was experienced in the lowering of the lifeboat with the remote control wire. He had performed a number of lifeboat waterborne drills in similar enclosed lifeboat on board other vessels.

Cause of Lifeboat Swinging

6.6 During launching of the lifeboat, the Third Officer controlled the descent by pulling the remote control wire inside the lifeboat. As the wire was pulled it released the hand brake of the winch and the davit was turned out. The lifeboat was lowered by means of gravity of its own weight. In accordance with the instruction of the launch davit operation manual the operator should not make
any ‘inching’ operation (lowering should not be stopped momentarily in the course of turning out the lifeboat), as this action could shake the boat and cause it to swing (appendix).

6.7 According to the statements of the crew, it was noticed that during lowering, the lifeboat had been stopped at least twice. It is believed that the Third Officer might have failed to release the brake steadily with the internal remote control wire. This ‘inching’ action or intermittent braking of the winch stopped the descent of the boat momentarily on one or more occasions and caused the lifeboat to swing. As a result, one or both fender skates at the side of the lifeboat might hit the shipside.

6.8 During lowering of the lifeboat, the Third Officer was sitting at the coxswain’s seat which is located at the stern of the lifeboat. Most of the boat’s controls are accessible from this position, including the winch brake remote release cable rod. The coxswain’s seat is raised to allow an all round vision from a small ‘conning bubble’ above the top of the canopy. Therefore the Third Officer should be able to view outside and gained full control of the lifeboat during the lowering.

6.9 The person controlling the lowering of lifeboat should keep an eye on the lifeboat and the surrounding situation throughout the operation to ensure everything is working in order. According to the Master, the Third Officer was experienced in lowering similar lifeboat with remote control wire. There is no reasonable explanation as to why the Third Officer had initially caused the lifeboat to swing and secondly, did not stop the lowering completely to allow the swinging to settle down when he found that the lifeboat was in excessive swinging.

**Consequence in Swinging of Lifeboat during Descending**

6.10 Swinging of lifeboat during launching at sea is a foreseeable event particularly when it is launched in rough weather as the ship could be subject to uncontrolled rolling and pitching movement. In this incident, although the ‘inching’ operation did cause the lifeboat to swing and contact with the shipside, it should not cause the lifting hook assembly to detach from securing. The lifeboat might have contacted with the shipside, but the skates would protect the lifeboat from damage when it is lowered in rough weather conditions.
Extent of Damages

6.11 There was no sign of damage to the davit, wire blocks and falls. In examining the lifeboat, several cracks were found at the forward port canopy of the lifeboat. One of the hatch doors was detached from position. The forward suspension ring was also deformed (fig. 3). Cracks were found in way of the aft hatch door. There was a trace of set-in in way of the forward skate at side of the lifeboat. No marked damages inside the lifeboat were found.

![Fig. 3 Damages found on the lifeboat after the accident](image)

6.12 After the accident the forward skate at the lifeboat was detached from the lifeboat. The loosen skate was found lying loosely near the gangway. The guard plates at the aft hook assembly which are designed to prevent accidental detachment of the hook were missing and the forward one was crushed (fig. 4). At the shipside structure, a dent was found at the guided frame beneath the boat deck. A mark of contact was also observed at top of the stowed gangway (fig. 5).
6.13 The contact marks at the guide frame and the gangway evidenced that the skates had been in contact with the shipside. In close examination of the damaged equipment, it revealed that the fore and aft hooks had been forced open sideway instead of a normal release in fore and aft direction. As the hook was improperly released sideway, the lifting hook deformed the suspension ring during the course
of opening. The guard plate of the lifting hook was also crushed by the side force.

6.14 The hook release mechanism and control lever inside the lifeboat were found in secured position and had not been tampered. The evidence revealed that the release of hooks was unlikely to be caused through improper triggering of the release mechanism (fig. 6).

Fig. 6 Lifeboat release mechanism

Possible Cause of Inadvertent Release of The Lifeboat

6.15 In examining the cause of inadvertent release of the lifeboat, it is believed that the forward skate had landed on the guide frame heavily during the swinging. This is evidenced by the contact mark found at the forward guide frame (fig. 5). Due to the heavy impact the canvas belt securing of the skate might have been damaged and caused the skate to have slacken from position. (fig. 7a).

6.16 The Third Officer who is controlling the descent inside the lifeboat appeared to have not noticed the situation and did not stop launching. As the lifeboat was further lowered the slacken skate was caught by the gangway and the lifeboat
started to topple to its side (fig. 7b).

6.17 At this position the keel of the lifeboat might also come in contact with the gangway deck edge. The keel would act as a pivot point causing the lifeboat to topple further as the lifeboat continued to be lowered (fig. 7c).

6.18 When the lifeboat is toppled, the fore and aft lifting hooks turned athwart causing the suspension link to twist. This action could force the hooks to detach when the lifeboat is toppled to a large angle (fig. 7d).
Fig. 7  Sketch of possible sequence of events leading to inadvertent release of the lifeboat (Not to Scale)
Danger with the Short Lifeboat Skate and the Recess Opening

6.19 The clearance of the recess opening above the gangway is sufficiently wide to allow the skates to enter during launching. As the lifeboat swung, the short skates might be caught at the upper section of the stowed gangway in way of the recess opening. When short sized skate is employed with the existence of recess opening, they could pose a danger to the launching of lifeboat. This is particularly true when the lifeboat is subject to swing in heavy weather.

Capability to Launch the Lifeboat at 20° List per SOLAS Requirement

6.20 According to the class survey report the davits and winches were tested for turning out of the lifeboat at conditions of trim of up to 10° and a list of 20° on 10 October 1995. The requirement for lifeboats to be launched against unfavourable conditions of trim of up to 10° and a list (transverse heel of vessel) of up to 20° either way is laid down in the SOLAS Convention.

6.21 Under existing design of the short skates and the existence of recess opening, it is doubtful that the lifeboat is able to be launched safely when the Vessel has an adverse list of 20°. When the lifeboat is launched by sliding against the shipside, the skates could enter into the recess opening and caught by the gangway. If the person controlling the descent was unaware of the situation and the descent could not be stopped in time, the lifeboat would be toppled over causing the lifting hooks to detach from position.

Preventive Measures

6.22 Although there is no statutory requirement to the design of lifeboat skates and the recess opening, the launching appliance shall be so arranged that the lifeboat can be launched safely in accordance with the SOLAS requirement.

6.23 In some vessels shipbuilder would build an extended protective steel guided frame at the shipside in order to cover the recess opening, thus preventing the skates to enter (fig. 8). Alternatively the skates can be made more robust and longer in size to fit the keel of the lifeboat (fig. 9). The longer skates cannot enter into the recess opening and the robust design should prevent any contact damage as a result of heavy swinging.
Fig. 8  Extended guided frame

Fig. 9  A design of longer skate
Guidelines on Safety during Abandon Ship Drills using Lifeboats

6.24 The Merchant Shipping Information Notes (MSIN) No. 28/2006 has promulgated the “Guidelines on Safety during Abandon Ship Drills using Lifeboats”. Amongst other important issues, the notes stipulate that:

“Before placing persons onboard a lifeboat, it is recommended that the boat first be lowered and recovered without persons on board to ascertain that the arrangement functions correctly. The boat should then be lowered into the water with only the number of persons on board necessary to operate the boat”.

6.25 The deployment of crew during launching of a lifeboat should be carefully considered to minimise any possible risk arising from malfunctioning of equipment in the lifeboat’s associated equipment.
7. **Conclusions**

7.1 At about 0845 hours on 5 March 2006, while alongside at Seattle Container Terminal, a Hong Kong registered ship “OOCL Britain” conducted a lifeboat lowering exercise during a lifeboat safety inspection by the ship’s Classification Society. During launching of the port side lifeboat from its stowage position, it swung and struck the side of the *Vessel*. The lifeboat overturned, detached from its securing and dropped approximately 20 metres into the water.

7.2 At time of the incident, the weather was good with slight wind and smooth sea. The *Vessel* was berthing to starboard side without appreciable rolling and pitching motions.

7.3 The port lifeboat sustained structural damage to the top canopy after dropping into the sea. One of the crew assigned to the port lifeboat, namely, the Third Officer died in the incident and one crewmember suffered from injury.

7.4 During launching the Third Officer might have applied the hand brake incorrectly inside the lifeboat and caused the lifeboat to swing. As a result of swinging the lifeboat banged against the shipside and caught on the gangway. Secondly he did not stop the lowering when the lifeboat swung and hit heavily against the shipside.

7.5 The investigation revealed that the probable cause was due to the forward skate being caught by the stowed gangway as the lifeboat swung in the lowering operation. When the lifeboat continued to go down, it overturned to almost 90° causing the forward and aft hooks to disengage from their positions and dropped into the water.

7.6 The design of short skate and the recess opening above the stowed gangway might pose a danger to the launching of the lifeboat from the *Vessel*. It is also doubtful that the lifeboat can be safely launched when the ship is listed to 20°.

7.7 Launching of a lifeboat should be carefully considered in accordance with the MSIN No. 28/2006. Before placing persons onboard a lifeboat, the boat should first be lowered and recovered without persons on board to ascertain that the arrangement functions correctly. The boat should then be lowered into the water with only the number of persons on board necessary to operate the boat.
8. **Recommendations**

8.1 A copy of the report should be sent to the ship management company, Classification Society and the Master of “OOCL Britain” advising the findings of the incident. They should consider reviewing the design of recess opening and the lifeboat skates on this ship, as well as her sister ships and the launching procedures of lifeboats.

8.2 A Merchant Shipping Information Note should be issued to draw the attentions of all concerned parties to the lessons learnt in the accident.
9. **Submissions**

9.1 In the event that the conduct of any person or organization is commented in an accident investigation report, it is the policy of the Marine Department that a copy on the relevant part of the draft report is sent to that person or organization for their comments so that they have an opportunity to rebut the comments or offer evidence not previously available to the investigating officer.

9.2 The draft report has been forwarded to the following parties:

The Master of “OOCL Britain”

Management Company of “OOCL Britain”

Classification Society of “OOCL Britain”

9.3 Submissions on the report were received from the management company of ‘OOCL Britain’. The Investigating Officer has taken into account some of the views from the submissions and the draft report has been amended where appropriate. Other submissions that have not been incorporated into the report were responded separately to the party concerned.
Appendix