MA2021-2

MARINE ACCIDENT
INVESTIGATION REPORT

February 18, 2021

Japan Transport Safety Board

The objective of the investigation conducted by the Japan Transport Safety Board in accordance with the Act for Establishment of the Japan Transport Safety Board is to determine the causes of an accident and damage incidental to such an accident, thereby preventing future accidents and reducing damage. It is not the purpose of the investigation to apportion blame or liability.

TAKEDA Nobuo
Chairperson
Japan Transport Safety Board

Note:

This report is a translation of the Japanese original investigation report. The text in Japanese shall prevail in the interpretation of the report.

MARINE ACCIDENT INVESTIGATION REPORT

January 20, 2021
Adopted by the Japan Transport Safety Board
Chairperson TAKEDA Nobuo
Member SATO Yuji
Member TAMURA Kenkichi
Member KAKISHIMA Yoshiko
Member OKAMOTO Makiko

Accident type	Fatality of a crew member
Date and time	Around 11:20 on November 16, 2019 (local time, UTC+9 hours)
Location	Wakayama Shimotsu Port, Wakayama Prefecture Around 252 true bearing, 1.6 nautical miles (M) from Wakayama Hokko West Breakwater Lighthouse (approximately 34°13.6'N, 135°05.3'E)
Summary of the Accident	While the cargo ship ORANGE PHOENIX with the master and 20 crew members aboard was anchoring at Wakayama Shimotsu Port, Wakayama Prefecture, a crew member died of a fall from a lifeboat to the deck when engaging in the lifting and recovery of the lifeboat in an abandon ship drill.
Process and Progress of the Investigation	(1) Set up of the Investigation The Japan Transport Safety Board appointed an investigator-in-charge and one other investigator to investigate this accident on November 18, 2019. (2) Collection of Evidence November 19, 2019: On-site investigations and interviews November 28, December 16, 2019, March 2, 5, 6 and 26, August 5, 12 and 18, 2020: Collection of questionnaires (3) Comments from Parties Relevant to the Cause Comments on the draft report were invited from parties relevant to the cause of accident. (4) Comments from the Flag State and the substantially interested State Comments on the draft report were invited from the Flag State and the substantially interested State of ORANGE PHOENIX.
Factual Information	
Vessel type and name	Cargo ship ORANGE PHOENIX (Republic of Panama registry)
Gross tonnage	107,229 tons
Vessel number	9700835 (IMO number)
Owner, etc.	EL SOL MARITIME S.A.
Management Company	TOYO SANGYO CO., LTD. (hereinafter referred to as "Company A")
Class	Nippon Kaiji Kyokai
L×B×D, Hull material	299.94 m x 50.00 m x 24.70 m, Steel

Engine, Output Date of launch, etc.	Diesel engine, 16,420 kW August 2, 2014 (See Figure 1)  Figure 1 ORANGE PHOENIX
Crew Information	Master (Nationality: Republic of the Philippines), male, 60 years old Endorsement attesting the recognition of certificate under STCW regulation I/10 Certificate of Master (issued by the Republic of Panama) Date of issue: December 5, 2016 (valid until August 25, 2021) Navigation Officer A (Nationality: Republic of the Philippines), male, 47 years old Endorsement attesting the recognition of certificate under STCW regulation I/10 Certificate of Chief Officer (issued by the Republic of Panama) Date of issue: March 20, 2017 (valid until January 7, 2021) Navigation Officer B (Nationality: Republic of the Philippines), male, 33 years old Endorsement attesting the recognition of certificate under STCW regulation I/10 Certificate of Navigation Officer (issued by the Republic of Panama) Date of issue: September 6, 2019 (valid until March 26, 2023)
Injuries to Persons	Death of one person (Navigation Officer B)
Damage to Vessel (or Other Facilities)	None
Weather and Sea Conditions	Weather: Weather - clear, Wind - southeast, Wind force - 2 Sea conditions: Sea surface - calm
Events Leading to the Accident	The cargo ship ORANGE PHOENIX (hereinafter referred to as the "Vessel") with the master, Navigation Officer A, Navigation Officer B, and 18 crew members (all of them were the nationals of the Republic of the Philippines) aboard started anchoring around 10:00 on November 16, 2019 in Wakayama Shimotsu Port, Wakayama Prefecture, for the purpose of waiting for entry into the port. On the Vessel, the master instructed the crew members to conduct launching of a lifeboat in an abandon ship drill that has been implemented every month, and Navigation Officer A, Navigation Officer B, and eight crew members started the launching work. The crew members dropped a free-fall lifeboat that was installed on

the stern deck of the Vessel in an empty state to the sea surface while hanging it with a hoisting wire. After that, they hoisted the lifeboat up to the original lifting and recovery position and hooked the hook of the release system installed at the stern of the lifeboat on the ring of the boat davit. (See Figures 2 and 3.)

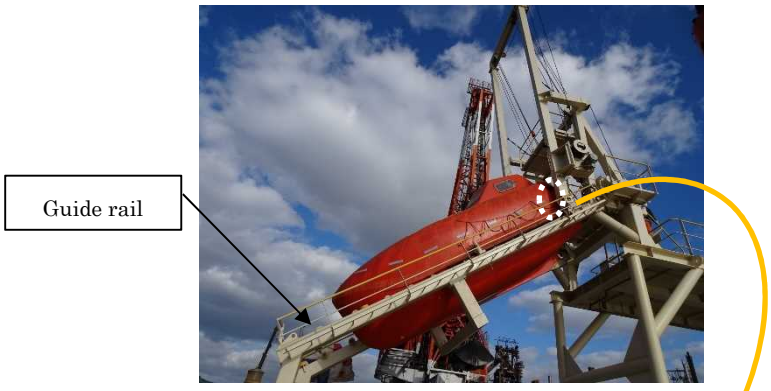


Figure 2 Lifeboat stored in the boat davit

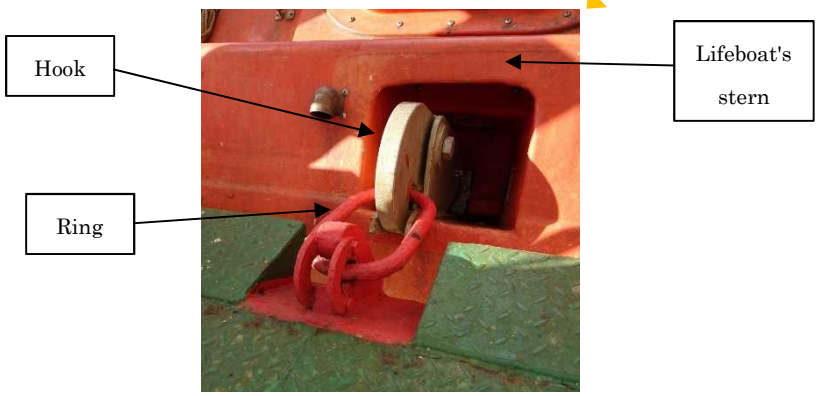


Figure 3 Hook of the release system and ring of the boat davit

After that, Navigation Officer A entered the lifeboat from the doorway on the stern side of the lifeboat for the purpose of conducting operation to restore the release system that fixes the hook hooked on the ring. Navigation Officer B was taking photographs near the doorway in the bent-over posture to keep the photographs as a record of the drill. (See Figures 4 and 5.)

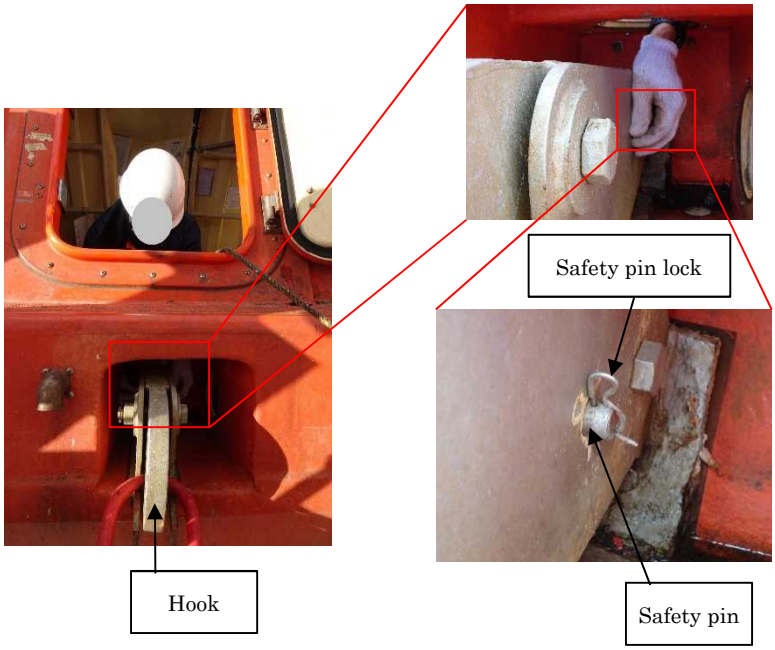


Figure 4 Status of Navigation Officer A's work (re-enactment)

Figure 5 Conditions of Navigation Officer B before the fall (re-enactment)

Around 11:20, when Navigation Officer A operated the release system and slightly inserted the safety pin, the hook was suddenly released and the lifeboat moved approx. 1.5 to 2.5 m downward on the guide rail. Thereby, Navigation Officer B lost his physical balance and fell head-first to the deck that was approx. 6 m below. (See Figure 6.)

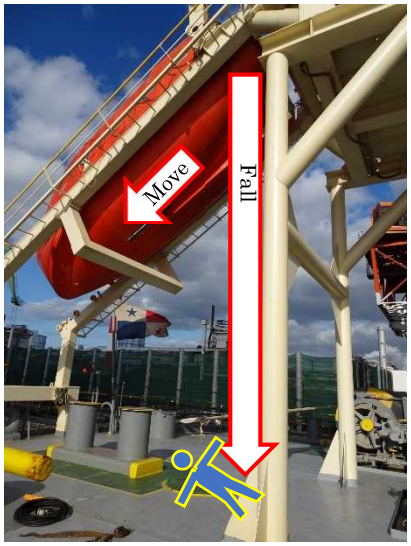


Figure 6 Status of Navigation Officer B's fall (image)

Upon receipt of a report by radio from Navigation Officer A that Navigation B fell to the deck, the master notified the agent of the fall and called for rescue. The agent notified Japan Coast Guard of the fall.

Navigation Officer B was transferred to Japan Coast Guard's helicopter that came to assist upon receipt of the notification, and was then taken by ambulance to a hospital in Osaka Prefecture. However, he was pronounced dead by a doctor, and the cause of death was confirmed as brain contusion.

Other Matters

(1) Operation to restore the release system

The release system comprises a release system part, a hand pump part, and an oil-pressure cylinder part. (See Figure 7.)

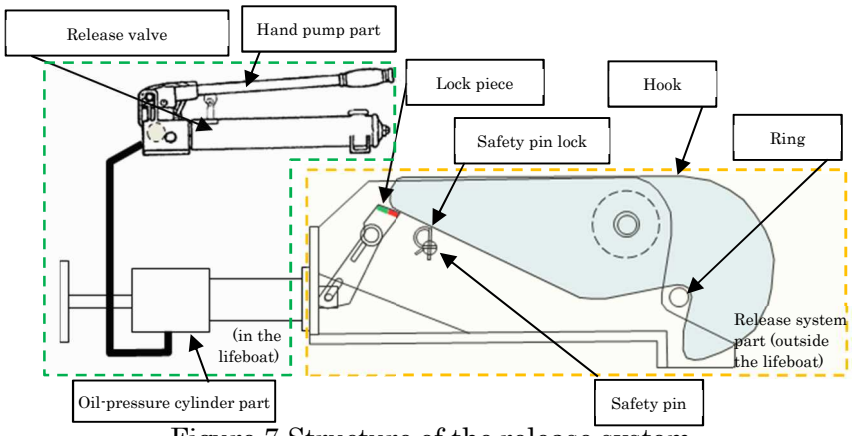


Figure 7 Structure of the release system

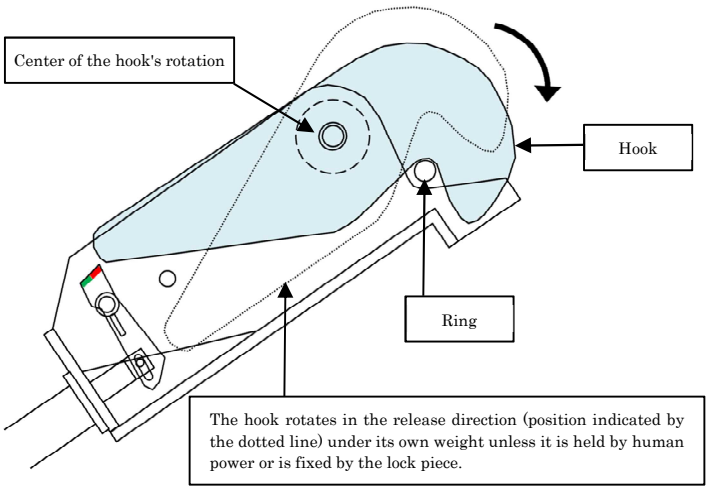
Procedures for the operation to restore the release system were as follows.

- Hook the hook of the release system on the ring of the boat davit and hold the hook as it is. (See Figure 8 (a).)
- The lock piece is hooked on the hook (rear underside) when the release valve of the hand pump is relaxed in the state of

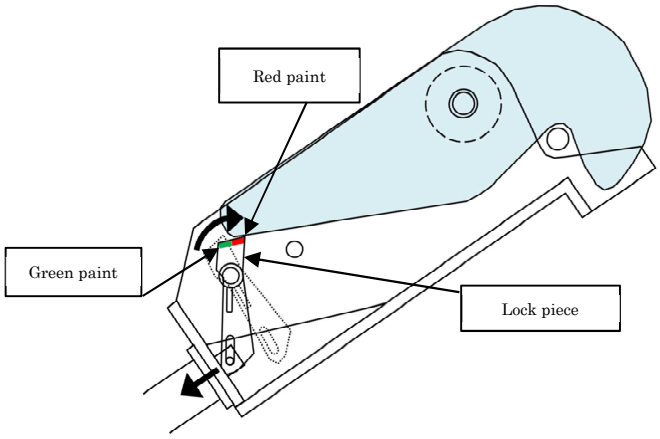
holding the hook. At this time, if the end of the hook is normally hooked on the lock piece, only the green paint of the lock piece is seen from the position of the operator in the lifeboat and the red paint thereof cannot be confirmed. (See Figure 8(b).)

- Insert the safety pin, and put in the safety pin lock. (See Figure 8(c).)

(a)



(b)



(c)

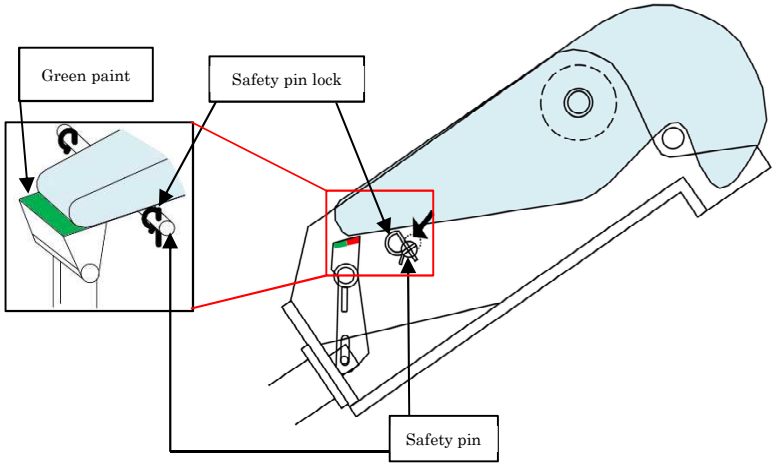


Figure 8 Operation to restore the release system

According to Navigation Officer A, the status at the time of operation to restore the release system was as follows.

- Navigation Officer A could see only the green paint of the lock piece before he tried to insert the safety pin.
- Navigation Officer A tried to insert the safety pin but could not insert it as the safety pin was blocked by the hook.

Regarding the operation to restore the release system, the opinion of the lifeboat manufacturing company was as follows.

- The fact that Navigation Officer A could see only the green paint of the lock piece and the fact that the safety pin was blocked by the hook are incompatible for the structural reason as stated below.

① If only the green paint of the lock piece can be seen, the hook is in the reset position (the state where the lock piece is normally hooked on the end of the hook) and the safety pin can be inserted.

② The fact that the safety pin was blocked by the hook indicates that the lock piece was not hooked on the hook and that the hook was not in the reset position.

(2) Approval and inspection of the lifeboat

The lifeboat of the Vessel had obtained Nippon Kaiji Kyokai's type approval under the International Life-Saving Appliance Code and MSC.81(70).

On September 28, 2019, the lifeboat manufacturing company conducted the fifth-year inspection of the lifeboat, including the overhaul maintenance of the release system and operation test, and confirmed that the release system operated normally.

In addition, after the accident, the lifeboat manufacturing company conducted an inspection of the lifeboat with the port state control officer of the port state control and conducted a series of operation confirmations for the release system, but no abnormalities were revealed.

(3) Safety management

The safety management manual of the Vessel stated as follows with regard to work done in a high place.

2.1.1 When having work done in a high place of 2 or more meters from the floor and in a place where there is a risk of falling, the following measures shall be taken.

a) Have the worker use a protective helmet and safety belt / harness.

According to the statement of Navigation Officer A and the reply to the questionnaire by Company A, Navigation Officer B was wearing a workwear, safety shoes, and helmet at the time of the accident, and at the beginning of the launching of a lifeboat, he was also wearing a safety belt and hooking the hook of the belt. However, when he got onto the doorway at the stern of the

	lifeboat, he removed the safety belt itself as the rope of the belt was not long enough to reach the position on which the hook of the belt was hooked. According to the reply to the questionnaire by Company A, before getting onto the lifeboat, Navigation Officer B confirmed that the lifeboat was connected to the hoisting wire. However, he did not notify anyone that he would get onto the lifeboat. According to the reply to the questionnaire by Company A, Navigation Officer A had known that Navigation Officer B removed the safety belt itself, but said nothing special to Navigation Officer B. According to the statement of the master, the Vessel was not being shaken by waves, etc. at the time of the accident. (4) Taking the photographs of the abandon ship drill The purpose of taking the photographs of the abandon ship drill was to keep a record of implementation of the drill on paper and present a port state control officer with the fact that the drill was implemented without fail at the time of receiving a port state control. For the Vessel, no person in charge of taking photographs had been decided in advance, and Navigation Officer B was taking photographs at the time of the accident.
Analysis	
Involvement of crew members	Applicable
Involvement of vessel, engine, etc.	Not Applicable
Involvement of weather and sea conditions	Not Applicable
Analysis of the findings	The cause of death of Navigation Officer B was brain contusion. It is considered probable that Navigation Officer B lost his physical balance and fell to the deck because after getting to the doorway at the stern of the lifeboat with the safety belt itself removed, when taking photographs in the bent-over posture for the purpose of keeping a record of implementation of the abandon ship drill, the hook of the release system was released from the ring of the boat davit and the lifeboat moved downward along the guide rail. It is considered probable that the hook of the release system was released from the ring of the boat davit during the operation to restore the release system because the safety pin could not be inserted as it is likely that the lock piece was not hooked in the appropriate place. It is considered somewhat likely that before getting onto the lifeboat, Navigation Officer B removed the safety belt itself because he thought that the lifeboat would not move as the hook of the lifeboat

	release system was hooked on the ring of the boat davit and the lifeboat was connected to the hoisting wire although the rope of the safety belt did not reach the lifeboat from the place on which the hook of the safety belt was hooked. It is considered probable that Navigation Officer B get onto the lifeboat without notifying Navigation Officer A and other crew members of it. It is considered probable that although Navigation Officer A had known that Navigation Officer B was not wearing the safety belt when working outside the lifeboat, he said nothing to Navigation Officer B about the removal of the safety belt itself because the rope of the safety belt did not reach the lifeboat from the place on which the hook of the belt was hooked. It is considered probable that when engaging in the lifting and recovery of the lifeboat in the abandon ship drill, Navigation Officer B needed to wear the safety belt and hook the hook of the belt during the work in a high place on the assumption of the risk of a fall, as stated in the safety management manual.
Probable Causes	It is considered probable that the accident occurred in a manner that, when the Vessel was doing the lifting and recovery work of the lifeboat in the abandon ship drill while anchoring at Wakayama Shimotsu Port, Navigation Officer B lost his balance and fell to the deck because he was taking photographs in a bent-over posture at the doorway at the stern of the lifeboat without wearing the safety belt, and the hook of the release system was released from the ring of the boat davit and the lifeboat moved downward along the guide rail. It is considered probable that the hook of the release system was released from the ring of the boat davit because it is likely that the lock piece was not hooked in the appropriate place.
Safety Actions	Company A issued a document concerning the accident to gain the attention of all the vessels it manages and also implemented the following measures following the accident. - The master and the chief officer provide the crew members with on-site education concerning the release system restoration procedures using an actual lifeboat on a regular basis. - The master provides the crew members with on-site education concerning appropriate equipment, such as a safety belt, for work in a high place. - The master holds a meeting before an abandon ship drill and provides explanation to the crew members concerning the prediction of danger, thereby having each crew member become aware of safe work. - Before conducting a lifeboat lifting and recovery work, the chief officer confirms and thoroughly ensures the following key points

	of the work: the hook of the release system is hooked on the ring of the boat davit; the hoisting wire is not released until the hook is completely fixed; the reset position of the hook is confirmed by the green paint of the lock piece; the hook is surely fixed with the safety pin lock by inserting the safety pin. - Each vessel holds an onboard safety meeting and gives explanation about the details of the accident, and reports the record of implementation of on-site education to Company A. - Company A's supervisor visits the vessels Company A manages and confirms that the release system is actually operated in an appropriate manner. It is probable that the following actions will be useful in preventing the reoccurrence of a similar accident and reducing damage. - When lifting and recovering a lifeboat, crew members make sure to do the next work after confirming that the lifeboat was fixed by surely conducting the lifeboat release system restoration operation. - When doing work at a place involving the risk of a fall, crew members appropriately use a safety belt.

Attached Figure 1 Outline Map of the Accident Location