

# **Passenger Cargo Ship TAIMA STAR Major Marine Occurrence**

## **Executive Summary**

At 0432 hours on June 3rd, 2023, a Taiwanese-registered passenger ship "Taima Star", IMO number 9684938, with a gross tonnage of 4982, lost propulsion at approximately 34 nautical miles southeast of Nangan Island, Lienchiang County. The ship carried 22 crew members and 385 passengers, 407 people totally on board. At around 1500 hours on the same day, the tugboat "Dong Yan No.1" successfully towed the "Taima Star" to Fuaao Port, Lienchiang County. No casualties or environmental pollution resulted from this occurrence.

In accordance with the Taiwan's Transportation Occurrence Investigation Act and the Casualty Investigation Code of the International Maritime Organization, the TTSB is an independent transportation occurrence investigation agency responsible for conducting this investigation. The investigation team also included members from the Maritime and Port Bureau of the Ministry of Transportation and Communications, the Lienchiang County Government, the Lienchiang County Matsu Lienchiang Navigation Ltd. the Ocean World Engineering & Technology Co., Ltd. (ship management company) and the CR classification society.

After comprehensive investigation and analysis of the factual data, a total of 12 findings and 6 safety recommendations were obtained.

### **The findings related to probable causes are as follows:**

1. Before "Taima Star" departed from Port of Keelung, the ship's fuel oil purifier failed to purify the heavy fuel oil due to a malfunction of the electric-actuated steam control valve. Additionally, no engineer assisted the chief engineer in

verifying the fuel level in the heavy fuel oil service tank. The chief engineer estimated the tank's fuel level only by checking the fuel level on the engine room monitoring system. However, due to an incorrect estimation of the fuel level in the heavy fuel oil service tank, the "Taima Star" experienced a fuel shortage in the heavy fuel oil service tank during the voyage.

2. Due to insufficient fuel in the heavy fuel oil service tank, a series of alarms were continuously triggered before the generator and main engine stopped. The duty third engineer did not understand the cause of these continuous alarms and failed to switch the fuel supply from heavy fuel oil to diesel oil in time when the alarms occurred. Consequently, the "Taima Star" lost both electrical power and propulsion due to the lack of fuel supply to the generator and main engine.

**The findings related to risk are as follows:**

1. The duty engineer switched the fuel supply from heavy fuel oil to diesel oil after the "Taima Star" lost power and propulsion, and the generator returned to normal operation. However, the electrical power and propulsion were still unable to recover because the crew of the engine department was not familiar with the reset procedure and reinstallation steps for the main switchboard air circuit breakers.
2. During the voyage of the "Taima Star", the second engineer noticed a low fuel level in the heavy fuel oil service tank at a shift handover. However, the actual fuel level situation and alarm information were not verified, and the second engineer neither immediately reported to the chief engineer nor took any appropriate measures, thus missing the opportunity to prevent the loss of power.
3. After the third engineer completed the shift handover with the second engineer, the third engineer did not verify the fuel level in the service oil tank

as reminded by the second engineer.

4. There were no equipment operation and emergency procedure documents placed near the main switchboard and related devices, which affected the timing of the emergency response.
5. The interim verification conducted before the departure of “Taima Star” did not identify the risk of the ship's seaworthiness and crew competent.
6. Following the occurrences of the "Taima Star", the port authority convened multiple meetings to review deficiencies, track progress, and discuss ship return-to-service plans. These meetings included several notes regarding the ship management company and the "Taima Star", highlighting systemic deficiencies in crew familiarization training, ship equipment, and safety management procedures.
7. The "Taima Star" and the ship management company lacked effective systemic implementation of safety management capabilities before the occurrences. If the port authority could develop effective audit criteria and scope, especially for the new management company and newly hired crew, it would help identify risks early and discover systemic issues related to the ship. This proactive approach could reduce risk, enhance the operational safety of the ship, improve crew equipment familiarity, and mitigate accident risk.
8. Current procedures for delivering the "Taima Star" focus on inventorying the ship's condition and belongings of the ship, rather than ensuring the receiving ship management company is familiar with the operations of the "Taima Star". If Matsu Lienchiang Marine Co., Ltd. could supervise or assist the ship management company during the handover period, ensuring their familiarity with the operation of "Taima Star's" equipment and emergency procedures, it would reduce the risk of accidents related to unfamiliarity with equipment

operation.

**The other findings are as follows:**

1. The rudder, main engine, and navigation equipment of the "Taima Star" were all functioning normally.
2. The captain and duty crew of the "Taima Star" hold valid certificates issued by the competent authority of our country.

**Safety Recommendations**

During the occurrence investigation process, the Maritime and Port Bureau MOTC convened multiple meetings involving external expert committees, the CR Classification Society, and relevant agencies. These meetings focused on identifying shortcomings, tracking improvements, and discussing ship return-to-service plans. Additionally, 3 times additional verifications were conducted on the ship management company and the "Taima Star". Recommendations for safety improvements for the ship management company and the "Taima Star" are under the supervision of the Maritime and Port Bureau MOTC. This case will no longer raise related safety recommendations. Below are additional safety recommendations provided by TTSB to enhance maritime safety.

**To the Maritime and Port Bureau, Ministry of Transportation and Communications**

1. Enhance and implement the interim verification system for our nation's ships by the requirements of the National Vessel Safety Management (NSM) and the International Safety Management (ISM) Code. Strengthen the capabilities of auditors to ensure that ship management companies and ships achieve effective safety management.

**To the Lienchiang County Government**

1. Oversee the review process of current ship handover procedures by the Lienchiang County Matsu Lienchiang Navigation Ltd. Establish a supervisory

mechanism for familiarizing with ship operations, and assist newly assigned crew members in becoming acquainted with the operation of all equipment on the ship. Ensure that the ship management company can safely operate those ships under their management.

**To the Lienchiang County Matsu Lienchiang Navigation Ltd.**

1. Review the current handover procedures for the ships under management, establish a supervisory mechanism for familiarizing crew members with ship operations, and assist newly assigned crew in becoming acquainted with the operation of all ship equipment. Ensure that the ship management company can safely operate the ships under their management.

**To the Ocean World Engineering & Technology Co., Ltd.**

1. Review the current safety management system procedures to ensure they align with the ship's real conditions. Clearly define the company's supervisory role in critical operations and ensure the implementation of relevant documentation and checklists.
2. Enhance the on-the-job training for crew members on watchkeeping and equipment operation to ensure they are familiar with their watch duties and emergency procedures with the requirements of the National Vessel Safety Management (NSM) system.
3. Review the relevant ship equipment and place operation and emergency procedure documents at the main switchboard and other critical equipment locations. This ensures that the crew can follow these procedures during emergencies.

**Note:** The final report of this occurrence investigation is published in Chinese. To facilitate understanding for non-Chinese readers, the Executive Summary has been translated into English. While every effort has been made to ensure accuracy, discrepancies may occur. In the event of any inconsistency, the Chinese version shall prevail.