

Container Vessel YM UNICORN Major Marine Occurrence

Executive Summary

At about 2310 hours on December 11, 2024, the Taiwan-flagged container vessel YM Unicorn (IMO No. 9462732, gross tonnage 91586, length overall 333.20 m, beam 42.80 m, carrying 8,664 TEU) grounded at the west breakwater of the Port of Keelung during inbound navigation. The vessel's bow sustained damage, but no injuries or pollution were reported.

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, Ministry of Transportation and Communications; Taiwan International Ports Corporation, Ltd.; the Keelung Pilot Office; and the Yang Ming Marine Transport Corporation.

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. Prior to entering port, the pilot anticipated a west-setting current and therefore guided YM Unicorn along the eastern side of the entrance channel to the Port of Keelung. However, the actual current differed from the pilot's expectation, and the pilot did not adjust the vessel's heading in a timely manner based on the Course over Ground (COG). As a result, as the vessel approached the breakwater entrance, its position remained on the eastern side of the channel.

2. YM Unicorn maintained a relatively high speed during the initial inbound leg. Although the vessel had reduced to Dead Slow Ahead when nearing the breakwater entrance, its speed remained about 10 knots. Because the propeller wash was insufficient relative to the vessel's speed, the hard-to-port rudder order did not produce adequate turning effect. The master subsequently increased engine power in an attempt to enhance rudder effectiveness; however, the vessel was already too close to the west breakwater and ultimately grounded there.

The findings related to risk are as follows:

1. The Master–Pilot Information Exchange (MPX) had not been conducted in accordance with the principles set out in IMO A.960(23), and the pilot did not provide the bridge team with complete and clear information on the inbound maneuvering strategy, risk assessment, and contingency planning. The pilot also did not fulfill the requirements of Article 34 of the Regulations for Adminstrating Pilots to provide the pilotage plan and supplemental information, which affected the bridge team's ability to monitor risks and intervene in a timely manner.
2. The bridge team of YM Unicorn questioned the pilot several times regarding the vessel's heading and position, but did not recommend corrective actions or intervene in the maneuver. As a result, the bridge team did not effectively perform its monitoring and intervention functions.
3. The ship management company's Navigation Safety Manual did not specify the detailed content required during the Master–Pilot Information Exchange (MPX), such as the pilotage plan or relevant information on sea and weather conditions. This made it difficult for the master and pilot to establish shared situational awareness and a common understanding of the maneuvering plan.
4. The required items in YM Unicorn's voyage plan did not include contingency

plans for inbound navigation, such as abort points or alternative actions. As a result, when the vessel's position continued to deviate from the intended track, the bridge team lacked clear criteria to determine an appropriate intervention point.

5. The Master–Pilot Information Exchange (MPX) was not effectively conducted, and a shared understanding of the maneuvering plan had not been fully established. As a result, operational decisions relied on individual judgment, increasing the likelihood of missing critical opportunities for corrective action. This observation is consistent with findings from previous TTSB investigations involving pilotage operations, indicating that the risk is systemic rather than isolated.

The other findings are as follows:

1. Steering gear, main engine, and navigation equipment were operating normally at the time of the occurrence.
2. The master, on-watch bridge team, and the pilot of YM Unicorn all held valid certificates issued by the competent authority of Taiwan, and no evidence of fatigue was identified.
3. At the time of the occurrence, the area off the Port of Keelung experienced a north-northeasterly wind with an average speed of 24 knots. Within the port, the vessel transited during an ebb tide, approximately 1.5 hours before low water.
4. During interviews, the pilot stated that two fishing vessels displaying two white lights were present in the channel and affected the inbound maneuvering. However, a review of available recordings, including shore-based video, shore-based radar, Automatic Identification System (AIS) data, and Voyage Data Recorder (VDR) data, confirmed that, aside from two

tugboats and one pilot boat displaying white lights near the breakwater entrance, no other vessels were present in the vicinity during the occurrence.

5. Some major international ports (such as those in Japan) provide written pilot information cards. These materials can effectively supplement verbal information exchange and help the master and pilot establish a shared understanding of key maneuvering information.

Safety Recommendations

To the Keelung pilot office

1. Strengthen the Master–Pilot Information Exchange (MPX) prior to pilotage by ensuring that essential information, including heading and speed control strategies, turning points, port-specific operational considerations, and contingency arrangements, is clearly communicated. This will help the master and pilot establish shared situational awareness and a common understanding of the maneuvering plan.
2. Ensure that pilots comply with the Pilotage Procedures and Precautions set out in the Regulations for Administating Pilots. In particular, when actual conditions deviate from the pilotage plan, pilots should maintain continuous communication with the master and make timely adjustments.

To the Yang Ming Marine Transport Corporation

1. Expand existing crew training programs by incorporating Bridge Resource Management (BRM) scenario-based exercises focused on pilotage during port entry and departure, including monitoring and intervention skills when hazards or abnormalities are identified.
2. Specify within the company’s Safety Management System (SMS) the requirement for masters to proactively confirm pilotage-related operational

details with the pilot, and incorporate this into internal audit procedures to ensure consistent implementation.

To the Maritime Port Bureau, MOTC

1. Strengthen oversight to ensure that all ports consistently implement the Master–Pilot Information Exchange (MPX). Drawing on IMO A.960(23) and practices adopted in some international ports (e.g., pilot information cards), evaluate options for providing standardized written pilotage information to enhance shared situational awareness between masters and pilots.
2. Ensure that pilots fully comply with the requirements of Article 34 of the Regulations for Adminstrating Pilots, including continuous communication with the master and timely adjustments when actual conditions deviate from the pilotage plan.

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.