

CMA CGM Boxship Hit Beacon Due to Lack of Crew Understanding and Procedures



CMA CGM Puccini hit the beacon because its steering gear was incorrectly set and the crew lacked information (Bahnfrend - CC BY-SA 4.0)

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Lack of proficiency in the steering gear operation and change of control modes due to ambiguous procedures caused a containership to strike a navigation beacon while departing the Port of Melbourne in May 2023. The Australian Transport Safety Bureau (ATSB) released its report saying it found an incomplete understanding of how the steering gear operated among the ship's engineers and ambiguous language in the company's fleetwide procedures.

The boxship CMA CGM Puccini (6,300 TEU) was transiting the Yarra River in Melbourne, Australia on May 25, 2023, when it hit a navigational beacon. The initial investigation showed erratic behavior by the ship leading the ATSB to investigate why the steering gear was not performing correctly. The 2004-built ship, registered in Malta went off its intended track towards the edge of the navigable channel causing it to strike the beacon. The pilot aboard and the crew reported the rudder was responding erratically to helm orders.

Investigators pieced together the cause of the erratic steering, determining that it was due to a hydraulic bypass valve being left open by the crew after an AMSA port state control inspection the day before the incident. This resulted in the steering system hydraulics being incorrectly configured for normal operation.

It was established that with the hydraulic bypass valve being left open, the steering operated sufficiently well with minimal load on the rudder to pass pre-departure visual inspection. However, when the hydrodynamic loads on the rudder increased, with increasing ship's speed and rudder

movements, the open bypass valve allowed leakage of hydraulic oil and system pressure around the pump leading to erratic response of the rudder.



CMA CGM Puccini severely damaged the beacon while departing Melbourne, Australia (ATSB)

ATSB determined that several officers on board were not as proficient with steering gear operation and change of control modes as was required by regulations. The situation was complicated by the fact that the steering terminology used on board and within the CMA CGM fleet was not clearly and explicitly defined. For the giant shipping liner, the official fleet terminology was “steering gear failure” and did not recognize common industry terms such as “emergency” and “local steering.”

“The ship’s responsible officers had an incomplete understanding of how the steering gear operated, and therefore incorrectly configured the steering system hydraulics,” said Angus Mitchell Chief Commissioner. The report notes they were unaware of the dangers and further AMSA told the investigators manipulation of the steering hydraulics was not required for the demonstration during the inspection.

The ATSB final report on the incident shows that in the early hours of May 25, CMA CGM Puccini sailed from Swanson Dock in Melbourne after route safety checks under the conduct of a pilot and initially with two tugs in attendance. During the turn to leave Swanson Dock, the master and chief mate noticed that the rudder response appeared sluggish, as if only one steering pump was running (both pumps were operating). Neither raised their observations with each other, or the pilot, and there were no alarms to indicate a pump had stopped or other abnormal conditions.

By 0436, the ship was moving along the channel in Yarra River after both tugs had been dismissed and a few minutes later passed under the Westgate bridge at a speed of 6.6 knots when the helmsman reported that the rudder was not responding to the wheel. With its speed increasing, the ship moved further off course and tracked toward the western edge of the dredged navigable Yarra River channel striking navigation beacon 32. At the time, the ship’s speed was 7.7 knots.

The two tugs were nearby and returned, and helped control the ship's erratic movement. The ship was then moved to Webb Dock for inspection. The ship sustained minor paint damage but the beacon was significantly damaged.

"Any loss of steering can imperil the safety of the ship, and life at sea," said Mitchell. "Unclear or ambiguous operating instructions and terminology should be corrected as soon as they are identified."

CMA CGM has taken measures to address the ambiguity by revising the steering guidance across its fleet. The liner's fleetwide "steering gear failure" procedure has been amended and titled to become the "emergency steering procedure."

Ports Victoria has also updated the harbor master's directions for Melbourne to enhance towage requirements while transiting the Yarra River. This now includes advice for the crews of ships that experience a main engine or steering failure while transiting port waters.

Top photo by [Bahnfrend](#) of CMA CGM departing Fremantle in 2020 ([CC BY-SA 4.0](#))