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MARINE OCCURRENCE REPORT

Striking of a Ship Arrester in the St. Lambert Lock
by the Bulk Carrier "FEDERAL MACKENZIE"
08 June 1994

REPORT NUMBER M94L0014

SYNOPSIS

On 08 June 1994, the "FEDERAL MACKENZIE", en route from Chicago, USA, was transiting in the Seaway toward Dalhousie, New Brunswick. At about 1150¹, the vessel entered the St. Lambert Lock in Quebec, with a pilot on board, in light condition and at a speed of about 1.25 knots. The vessel moved normally into the lock until she reached the 25-metre mark, located 29.6 metres from the ship arrester, at which time the bridge control gave the order to reverse the propeller pitch. A few seconds later, the propeller was moved to half astern and, when the vessel reached the 10-metre mark, which is 14.6 metres from the ship arrester, the order for full astern was given. The manoeuvre did not occur as planned; the vessel struck ship arrester No. 2 and deflected it about four feet. The vessel was not damaged and no injuries were reported.

Following this accident, the St. Lambert Lock was closed temporarily for repairs to the ship arrester. The repairs delayed four other vessels moving through the Seaway for about 12 hours.

¹ All times are EDT (Coordinated Universal Time (UTC) minus five hours).

FACTUAL INFORMATION

Name	"FEDERAL MACKENZIE"
Port of Registry	Manila
Flag	Philippines
Official Number	231726
Type	Bulk carrier
Gross Tons	22,146.86
Length	222.54 m
Draught	F: 5.20 m A: 7.21 m
Built	Steel
Propulsion	Sulzer diesel engine, 8,003 kW, driving one controllable-pitch propeller
Owners	Maple Shipping Corp. Manila, Philippines

The dimensions of the "FEDERAL MACKENZIE" correspond to the maximum dimensions for vessels using the Seaway.

A test of the electronic circuits revealed a failure in the module used to simultaneously control the propeller pitch mechanism and the engine rpm when the system is actuated from the bridge control.

Thus, when the propeller-pitch control lever was moved to reverse, the system did not respond up to the percentage ordered by the bridge control.

This resulted in a slow speed astern, which was clearly not enough to bring the vessel to a stop and to prevent the striking of ship arrester No. 2.

FINDINGS

1. The bridge control system did not perform as it was supposed to.
2. It was reported that the manoeuvring orders were carried out normally and promptly by the bridge personnel.

CAUSES AND CONTRIBUTING FACTORS

The Transportation Safety Board of Canada determined that the "FEDERAL MACKENZIE" struck ship arrester No. 2 in the St. Lambert Lock because of an electronic failure in the bridge control system that limited the percentage pitch of the propeller and the engine rpm to 28 per cent of capacity.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Gerald E. Bennett, Zita Brunet, the Hon. Wilfred R. DuPont and Hugh MacNeil, authorized the release of this report on 16 September 1994.