# Case Study- Steering Gear Failure

What happened

* The vessel was approaching the basin of Montreal port with a pilot on board and a tug in assistance as required by the Canadian regulations
* Control of the port ruder was lost and vessel started steering to port and pilot ordered all to starboard
* The port side rudder was found jammed in a hard to port position and had gently touched a bank in its forward part
* The vessel repositioned to the center of the basin by using main engines and with the tug’s assistance and dropped anchor
* No damage was sustained and the vessel docked safely thereafter
* All parties were duly advised

Causes and contributory factors

Despite following all Pre-departure and Pre- Arrival checks the contactor of the port steering gear system unexpectedly failed causing the rudder to move hard to port and remain in that position

* The issue occurs only in follow up mode and when operating either one or both steering pumps at the same time
* The port amplifier circuit board dropped the voltage that was driving the solenoids of the steering pumps
* The board was replaced by the manufacturer and tensions on the Bridge panels at various rudder positions were checked and found in order
* Tests from the Bridge selector control of the various modes (Follow-up-Joystick, Autopilot, Auto-Nav and No Follow up) carried out and whilst tests were positive the wiring systems connections were found loose. The Bridge selector was therefore changed and tested by an approved manufacturer representative and found working well

Corrective actions

**Vessels:**

1. **Monitor and report any Steering Gear anomalies**
2. **Re-train all deck and engine officers on Bridge steering failure Emergency and related procedures on steering gear modes (No Follow up, Follow up, Autopilot)**
3. **Discuss with other parties concerned incl. electricians / electronic engineers onboard**

**The Company:**

1. **Circulate a Case Study fleetwide**

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