



Ocean Networks Canada

Ferry Maintenance Report – Queen of Alberni

Date: Feb 12, 2015

Arrival: Called Tsawwassen terminal supervisor day before to confirm it was ok to go on QoA for the 12th. Ship was docked at berth 4 and would stay there for another week or so. We left on the 9am Swartz Bay sailing and arrived at the supervisor office for badges at about 10:45.

Reporter/Attending: Ian Beliveau (Servicing/Reporter), Joao Pedro (Servicing)

Reason for Visit

To track down a leak that was observed by ferry engine room staff on Thursday Feb. 5th and to flush the plumbing system for the following week in layup.

Observations

The instrument box drain pan was filled just up past the wheel (about 2 inches). Leak detector was not submersed. Opened the PC box, the PC and other network gear were running, nothing unusual seen. Opened the instrument box and it had water droplets, mainly in the bottom half as well as some pooling. Some water had pooled on top of the optode housing, up higher. The pump control box had no lights on.

The PC running WinXP will not recognize a mouse/keyboard when plugged in after power-up so it was decided to do a power cycle on the PC. The power switch did not work however, so a system power cycle was done by tripping the PC box breaker, leaving it off for 20 seconds. When turned back on the systems in the PC box did not turn on. A volt meter was used to confirm that power was coming in to the box and out of the cable that goes to the topside box. No power was being sent back down from the topside box. The power cycle was repeated twice, same results. It was determined the problem probably likely lay in the topside box.

The topside box was opened and water was seen in the bottom of the box. The Web Power Bar had box symbols on the display, indicating a failure mode. The water seepage was traced to the top-vent on the right side of the box, just above the Web Power Bar Ethernet port. The left vent appeared dry. The power was shut off at the PC box breaker. Due to weather hampering further troubleshooting and multiple issues with the topside box, it was determined that the box should be removed.

A leakage test was attempted on the instrument housing by opening the ball valve and running the pump using a bench power supply. The ball valve was opened first. The pump was run with a 3A limit.



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For the first 10 seconds it ran at about 2.7A, then began working significantly harder and demanded more current. No leakage was seen, but the test was stopped as the voltage available to the pump fell. The test was repeated with the same results. Next the current limit on the supply was increased. Similar results occurred, the pump used 2.7A to begin with, then began using current up to the limit. The test was conducted again with the sample valve open, and the hose running into a bucket. The pump worked fine at about 2.7A to 3A steadily and pumped about 6 litres into the bucket with no problem. No leaks were detected. The ball valve was then closed and gear packed up.

Actions Taken

1. Removed the topside box, bagged the cables.
2. Took photos of the cut wires from the backbone cable into the top box.
3. Turned off PC box breaker. Email request sent to ship to lock out panel EL-7, circuit 7.
4. Some plumbing fittings and cut lengths of clear rigid FEP tube were left behind in the Alberni tool box. Otherwise no actions were taken on leakage repair except for the testing.

Future Actions

1. The web power bar in the topside box will need to be replaced.
2. The top box vent leaks need to be investigated further. It will need to be determined how the vent leaked – **it appears that water seeped in around the nut**. Fixing a gasket on the nut as well as a bead of marine sealant around the outer perimeter of the vent are two solutions to this.
3. The power connectors on the backbone cable to the topside box will need to be re-terminated. Crimp pins, sockets, housings and tools will be needed for this. Pictures of the connectors should be used to generate a wire map.
4. It is thought that the dramatic current pull on the pump may be due to the fact the instruments were riding above the waterline, causing the pump to work harder. The resulting higher pressure in the line may be causing a weak link in the plumbing to leak. This seems to be an intermittent problem, maybe due to weather conditions and/or ship loading. The compression fittings/rigid line run are a likely culprit for the weak link. New clear rigid FEP pipe has been cut to replace the existing one on the pump outlet. Action item 5 is probably a better alternative though...



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5. It is recommended to review using flexible PVC tube (5/8 barb to ½ NPT) on the pump to manifold line. This makes pump replacement easier and avoids the need to replace unseated rigid tubing currently installed. The tubing in stock is similar to the 3/16 ID tubing used on the manifold.

ADDENDUM/NOTE:

More pictures can be found on Alfresco at
TBD

PICTURES



Figure 1 - water level in overflow bin



Figure 2 - water spray



Figure 3 - water pooling on optode

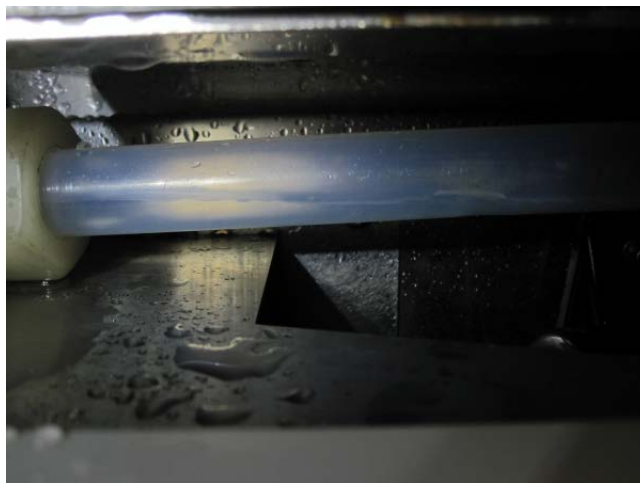


Figure 4 - rigid line with water spray



Figure 5 - topside box - right side vent and ethernet port on Web Power Bar pictured



Figure 6 - Web Power Bar has entered a non-recoverable failure mode



Figure 7 - pooling at bottom of topside enclosure