

Cycle-PO₄ and HydroCycle-PO₄ Product Problems and Service-time Update



Service times for Cycle-PO₄ and HydroCycle-PO₄ have become significantly affected by instrument component issues and a growing backlog of instruments in for service. Service times are currently around 3-4 months for Cycle. We realize the time an instrument is in service and downtime due to sensor problems means that users are not collecting much needed data. We sincerely apologize for our current difficulties and wanted to update users on the status, details, and path forward.

The issues are 1) swelling duckbill check valves in the pumps, 2) increased baseline noise and 3) pump pressure compensation at low temperatures.

1) Swollen Duckbill Check Valves: Swollen duckbill check valves have been found primarily in warmer waters and where users are needing to bleach clean more frequently (e.g., every 2 weeks rather than 6-8 weeks). We tested this change before making it, but we now think this change could be related to the baseline noise quality issue.

3: Increased baseline noise) A few months after the duckbill valve material change a noisy baseline was observed for some units in our 5-m deep “silo” mock deployment. This test uses tap water, rather than the lab water used in most factory testing. We did not have test criteria around the silo noise, but an experienced service technician noticed unusually noisy pump performance, raised flags, and we have evolved our test criteria to set limits for baseline pumping noise during this test. We sincerely apologize for this error and if your recently serviced unit is affected by increased baseline noise please contact support@seabird.com (see example raw data below). We have yet to fully identify the root cause of the baseline noise and will continue to investigate this issue until we have a solution.

3) Pressure compensation at low temperatures: While instruments undergo extensive temperature testing during development, periodic temperature testing found that ~1/6 units can experience pump “skipping” at low (<10°C). The root cause of this issue is the viscosity change of the pump pressure compensation fluid. A new fluid was tested and in early March of 2017 we started switched fluid for both service and new builds. Since this change we have not had any internal testing issues or customer issues associated with the change.

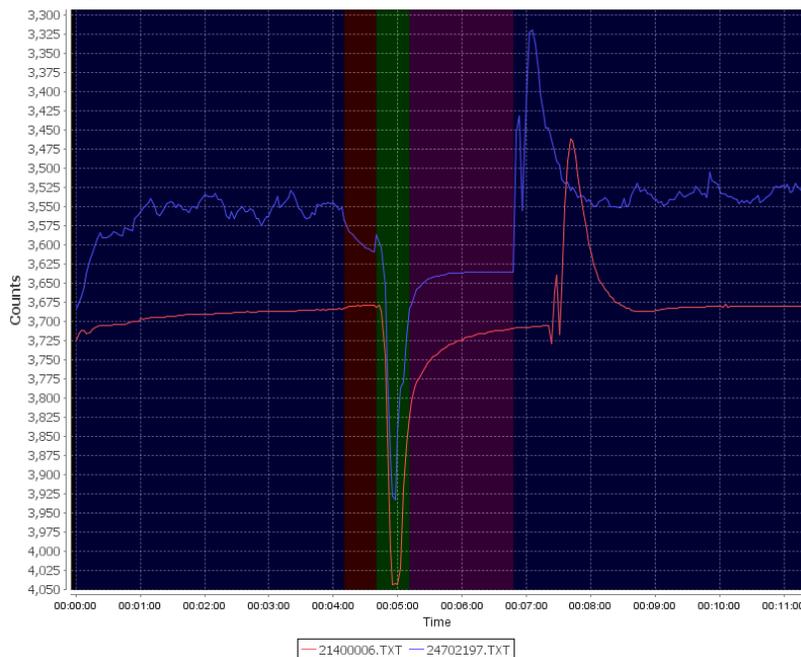
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Moving forward: Until we can resolve the baseline noise issue we suspect that service times will be between 3-4 months for Cycle. We are highly focused on resolving this issue and will continue to work diligently until it is resolved. Once resolved, we will continue to work to reduce service times for Cycle and HydroCycle. Besides adding more service personnel, we are working to apply new servicing strategies, and new management systems. In response to customer requests for more up-to-date feedback about service status, a big improvement in customer communication will come in the late fall, when users will be able to use a web link to track the status of their instruments in for service in a web-based portal.

We understand that our issues are causing you to lose data. We know that this is unacceptable and are working hard to overcome it. We will go the distance to make these issues right and continue working to make in-situ phosphate determination a viable research and monitoring method. We apologize for our shortfalls and hope you stay with us as we improve. . If you have any questions, please contact our Product Management group at feedback@seabird.com.

Example of baseline noise issue:



Note the relative flatness of the ideal red trace (lower) in the first 4 minutes and the regular “random” noise in the baseline noise affected blue trace (upper).