



MicroBulk Systems

# Technical Service Bulletin

**Component Change**

TSB-MBS-1014

**Date:** April 25, 2017

**Subject:** Replacing the Capacitance Probe with the PT/XT Full Trycock Dip Tube Upgrade Kit (PN 20678996) to eliminate Flowcom® S8 Flow Meter System Flow Processor errors with relation to the liquid level in the XT/PT Orca™ MicroBulk Delivery System tank.

**Products Affected:** This issue affects XT Series Orca MicroBulk Delivery units manufactured up to and including the year 2010 and all PT-1000 Orca MicroBulk Delivery units.

**Description:** The top of the Pulse Tank develops ice during normal use and this icing can potentially cause the electrical connection between the Capacitance Probe and Capacitance Probe cable to fail. When the Capacitance Probe malfunctions, the Flowcom S8 Flow Processor will display incorrect (negative) liquid levels for the Pulse Tank liquid level.

**Resolution:** The remedy to fix this issue is to replace the Capacitance Probe and Capacitance Probe Junction Box with a Full Trycock Dip Tube to measure the liquid level of the Pulse Tank. Listed below are the components that are included in the Upgrade Kit XT/PT Full Trycock (PN 20678996). Step-by-step instructions for removing the Capacitance Probe/related components and installation instructions of the Upgrade Kit XT/PT Full Trycock follow on the next page.

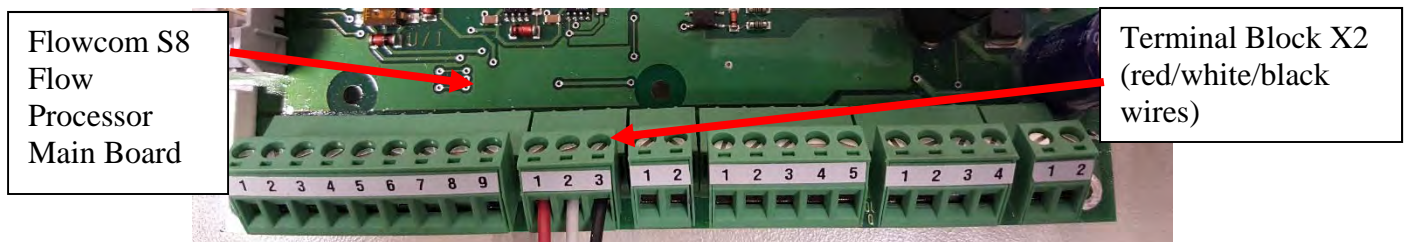
Part Number	Description	Quantity
10879936	Union SS 3/8 ODT x 3/8 ODT	1 ea.
2710481	Tube SS .375" OD .049W WLD	20 ft.
10552749	Conn SS 3/8 ODT x 3/8 FPT	1 ea.
11707263	Nipple SS 3/8 NPT x 3 SCH 80	1 ea.
1713202	Valve Shutoff 3/8 FPT	1 ea.
10502004	Elbow SS 90D 3/8 ODT x 3/8 MPT	1 ea.
2913461	Washer Flat SS 3/8 18-8 B18	4 ea.
2921261	Bolt Hex SS .375-16 NC x 1-1/4 LG	2 ea.
2910901	Nut Hex SS 3/8-16	2 ea.
20682315	Full Trycock Valve Stand	1 ea.
20682319	Full Trycock Dip Tube	1 ea.
AAA0185	Tape Cart ¼ Teflon Fed	1 ea.
10507809	Ferrule SS 3/8" ODT (front)	1 ea.
10507817	Ferrule SS 3/8" ODT (back)	1 ea.

**Contact:** If you have concerns or questions relative to this action, please contact your Chart Technical Service Representative at 1-800-400-4683. Thank you for depending on Chart for high product quality and service.

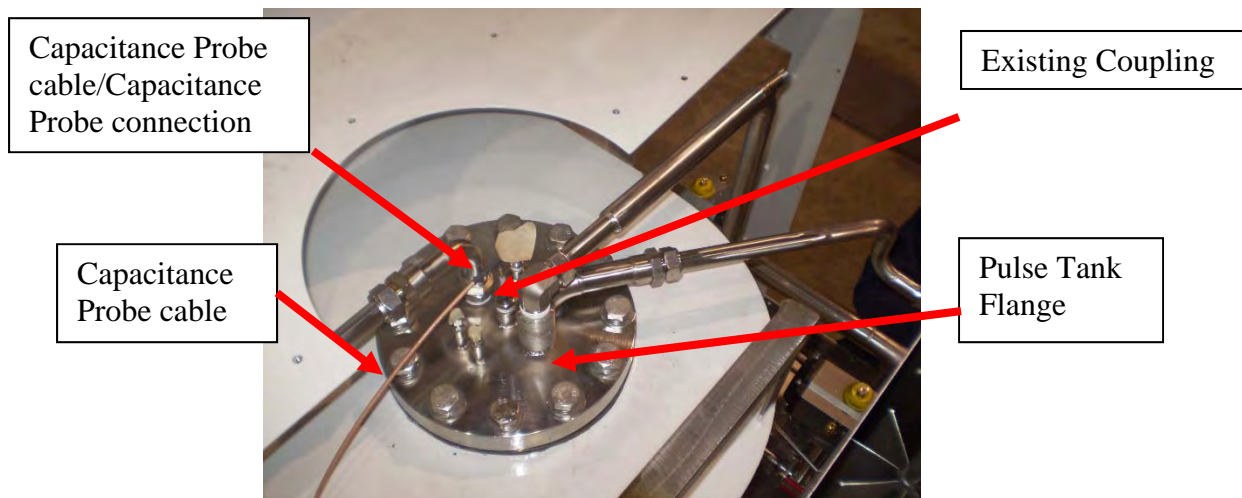
# Instructions:

**IMPORTANT!** – If there is cryogenic liquid/pressure in the Orca MicroBulk Delivery unit (main tank/pulse tank), both the Pulse Tank and the Main Tank Vent Valves should be opened to decrease the pressure to 0 psi. It is imperative that the Orca vessel vent valves remain **OPEN** (main tank/pulse tank) while installing the new Upgrade Kit XT/PT Full Trycock components.

1. Remove the plumbing cabinet pulse tank access panel and the plumbing cabinet curb side access panel.
2. Remove the capacitance probe cable from the capacitance probe and discard.
3. Open the Flowcom S8 Flow Processor door to access the capacitance probe wiring.
  - a. Remove the capacitance probe wiring (red/white/black wires) from the terminal block X2 in the Flowcom S8 Flow Processor Main Board.



4. Remove the capacitance probe junction box and discard.



5. Unthread the capacitance probe from the pulse tank flange and discard. Install the Full Trycock Dip Tube (PN 20682319) into the existing coupling on the Pulse Tank Flange. **IMPORTANT!** – Ensure the threads are properly wrapped with the provided Teflon Tape prior to installation.
6. Bend the stainless tube provided (PN 2710481) to fit into the Swagelok fitting and route to the outside edge of the plumbing cabinet before routing down to the bottom and front of the plumbing cabinet.
  - a. A Swagelok union can be used if needed to connect the tubing that runs from the bottom rear of the plumbing cabinet to the front of the plumbing cabinet. This tubing will be connected into the Pulse Tank Full Trycock Valve Shutoff (PN 1713202) utilizing a Swagelok fitting.

7. Once the stainless steel tube is fitted properly, insert the tube into the Swagelok fitting and secure.

**IMPORTANT!** – Ensure new ferrules (front/back) are installed onto the tubing prior to installing the new tubing into the Swagelok fitting and securing.



8. The Full Trycock Valve Stand (PN 20682315) is then mounted to the floor of the plumbing cabinet utilizing the supplied SS hardware.
9. The tubing exiting out of the Pulse Tank Full Trycock Valve Shutoff should be directed down to exit out of the floor of the Plumbing Cabinet. This can be accomplished by drilling a 3/8" hole in the floor of the plumbing cabinet. This will allow the operator to monitor the gas/liquid exiting this circuit and determine when the pulse tank is full of liquid.
10. Due to the Capacitance Probe elimination the Orca Flowcom S8 Flow Processor will require one of the following:
  - a. CPU02 Board upgrade (required if current CPU Board software revision level is below P.6.79.1)
  - b. Modify the existing Flowcom S8 Flow Processor parameters (if current CPU02 board software revision level is P.6.79.1 or higher).

Please contact a Chart Technical Service Representative at 1-800-400-4683 for assistance in obtaining a new CPU02 Board or modifying the current Flowcom S8 Flow Processor parameters.

