Differential Pressure (DP) Gauge Sensitivity

A Differential Pressure gauge is a device used to measure the volume of liquid in a tank and is based on the actual difference in pressure between the top head space gas pressure (low phase) and the liquid weight (high phase) from the bottom of the tank. That difference in pressure is very small, for example, a 300 lb. CO_2 beverage tank with a full reading of 36" is only 1.3 psi, a 6000 lb. CO_2 MicroBulk tank with a full reading of 98" at 125 psi is only 3.5 psi. So, a very small leak or partial blockage in the high phase side of the gauge will show a lower level reading than what is in the tank. Another thing that can give low readings, which only seems to happen on beverage tanks, is high pressure in the tank around 300 psi. The high pressure in the tank could be from an oversized tank at the location and the customer not using enough product to overcome the NER or faulty PB or Economizer regulators.

For tanks that are operating in the normal pressure range but have low level readings, here are some steps to troubleshoot the situation.

1) Check for leaks on all the connections from the tank to the level gauge, concentrating on the high phase side (empty side) of the gauge. A leak as small has the foam from a Guinness beer can affect the level dramatically.
2) If no leaks are found, turn the valves off to the gauge.
3) Disconnect the gauge from the tank.
4) Safely open the high phase valve 1/4 - 1/2 until liquid comes out for a couple seconds.
5) Close the valve and let thaw.
6) Connect the gauge back up.
7) Open the high phase valve first which will peg the needle to full.
8) Open the low phase valve (level may drop to empty).
9) Leak check all connections again.
10) Wait at least 30 minutes to see if the reading is better.
11) If the level reading does not improve, then the gauge may be faulty. Please contact Chart's technical service team with questions at techservicemn@chartindustries.com.