

All Filter Controllers: Advice Using Murphy Differential Pressure Gauges.

Issue: Tender Loving Care for Your PD Gauge.

Details on caring for your PD gauge to improve longevity.

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Folks, In this bulletin we'll discuss how to use and care for the Murphy 0-15 or 0-30 PSI differential pressure gauge; this gauge is not manufactured by Alex-Tronix, but is purchased by us and implemented into our controllers. It is currently the only one we have found that meets customers needs at a reasonable cost. **The Murphy PD is a sensitive measuring instrument**, and must be handled and used with that in mind. When planting season kicks in, I'll get calls from the field about defective PD's, often due to improper installation, usage, or misunderstanding as to what the gauge's limits are, sooo... let's go over some of the issues:

1) **PLUMBING:** On the gauge, you will notice the two 1/8-27 NPTM brass nipples protruding from the bottom of the PD gauge. The nipple in the middle is the *high pressure side* marked "**H**" and is plumbed to the inlet side of the filter system. The outer nipple is the *low pressure side* marked "**L**", and is plumbed to the outlet side of the filter system. The filter itself will have high and low pressure nipples or fittings; this is where the tubing from the PD gauge will be plumbed to. Plumbing these lines in reverse will force the pressure needle to go backwards, and may damage the gauge, so **use caution here**.

2) **INSTALLATION:** In most cases, filter manufacturers will have pre-installed the controller along with PD gauge; however if you yourself ever need to service the lines, replace gauge, etc. Follow these precautions: "**CAUTION This port must be held with wrench. Not doing so will result in damage to gage**". This note is written on a tag, attached to new UN-installed PD gauges. The average lay person servicing these filter systems may never see this warning because it was removed when pre-plumbed at the factory. ***It is VERY IMPORTANT to heed this warning!***, and carefully handle the gauge while installing. ***If you twist the nipples protruding from the PD case, you will certainly damage it.*** This damage is easy to do with a box wrench.

All fastening should be done on the tubing/fitting side while holding the nipple side steady with a box wrench ensuring it will not turn. Failure to properly hold the PD nipples while attaching the fittings will break-loose sensitive components internal to the gauge, *though it may not appear damaged from the outside*. DON'T RISK IT! PD's aren't cheap!

Additionally, whether mounting the gauge in our chassis box or some other location on the filter's manifold, do not over-tighten the mounting clamp that holds the gauge in place. Overtightening the clamp nuts could crack the case, damaging it. The PD case is sealed from the environment, so even slightly overtightening the gauge may eventually split the case at a later time. Tighten the clamp nuts with just enough force to firmly hold it in place. Ensure the gauge is not subject to vibration from machinery or water hammer. Don't allow tubing to shimmy or shake against the gauge when in use. If so, isolate it or move it to another location.



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3) **OPERATION:** There are two working elements to the gauge. One is the orange colored **differential pressure needle** which moves across the dial as differential pressure increases or decreases. The other is the **set pin** which is connected to a knob that protrudes out from the dial's glass face. This knob is used to set the pressure level at the point the filter controller kicks on into a backwash cycle. As the filter system collects more dirt, the differential pressure increases across the filter's manifold, and the pressure needle moves along the dial until it makes contact with the set pin. When this happens, of course the controller takes over, and initiates a backwash cycle. After backwash, the pressure needle must drop down in pressure again, and this same systemic cleaning cycle repeats itself.

4) **TESTING:** When the set pin and pressure needle touch (by viewing the dial), there should be electrical contact made between the two terminals marked **N.O.** And **C** on the gauge. To check if the PD is indeed making contact, you can either observe the controller and see if in "Idle with PD" or use an ohmmeter to check continuity using the least resistance scale on your meter. If there is no continuity while the two are touching (making contact). The PD is defective.

If you observe the PD's pressure needle making contact with the set pin somewhere in the middle of the dial while the pump is off, relieve system pressure, and look at the dial again. If the pressure needle is still stuck in the same position, the PD may be defective.

The first thing to do is check for clogged line tubing. **IMPORTANT: YOU MUST DEPRESSURIZE THE SYSTEM FIRST, NOT DOING THIS MAY DAMAGE THE GAUGE WHEN DETACHING THE TUBING FROM THE NIPPLES.** This will keep the pressure needle from slamming, or burst the innards of the gauge. With both fittings removed, pressurize the system, and purge the hoses. A nice steady stream of water should squirt out both the high and low sides. If not, replace the hose, or service the filter to correct the problem. If you find that the tubing clogs up frequently, consider installing an in-line filter; consult your filter manufacturer on doing this.

If you find that the tubing is clear of any obstructions and other external manifold gauges show differential pressure being at odds with the Murphy gauge, the needle may be sticking or stuck. Replace gauge. If there is moisture or water ingress under the glass dial, the PD is defective. In some cases the PD may still function or be intermittent, but eventually its life will be shortened due to corrosion.

**DO NOT'S:** Brace yourself folks... new ways of doing things don't come easy....

- Do not remove PD tubing while system is under pressure.
- Do not exceed a differential pressure of 30 PSI. If you peg the needle, you will not have a clue what the pressure is. You'll damage it!
- Do not twist or attempt to fasten fittings onto nipples without supporting them.
- Do not over tighten the clamp nuts.
- Do not drop the gauge.
- Do not exceed system pressure of 200 PSI.
- Do not allow gauge vibration.

Questions??? Tech Support: Aram Tokatian 888-224-7630 Ext. 16.

