

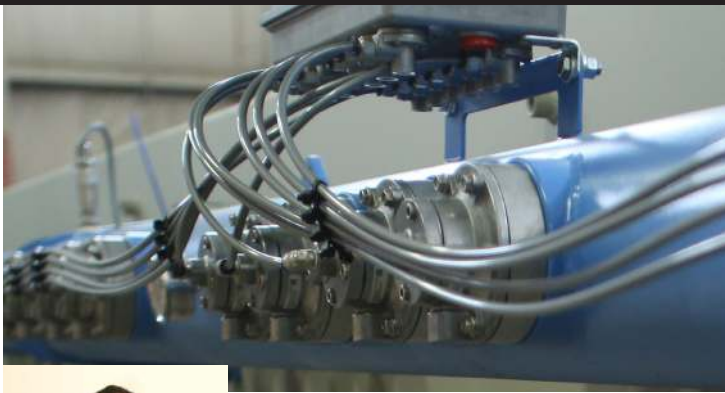
# DUSTY JOBS

## QUARTERLY

### IMPERIAL SYSTEMS NEWSLETTER

ISSUE  
I

## *Just Ask Russ* HOW TO TROUBLESHOOT A DIAPHRAGM VALVE LEAK



If you have a dust collector that cleans the filters with compressed air, you've got diaphragm valves controlling the air flow. When there's a diaphragm valve leak, you can lose a lot of compressed air.

Fortunately, there are some easy ways to troubleshoot this common problem, and our fix-it-all guy Russ is here to walk you through them. However, if the problem isn't an easy fix, you can schedule for Russ or one of our other knowledgeable dust collector service professionals for a [ServiceMAXX](#) visit!

To start troubleshooting, it helps to know how the system works when it's

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## GOOD LUCK WITH THAT A MAN NAMED EARL

By: Charlie Miller



I began my career in this crazy world of dust collection as a young draftsman. Back in the dark ages we used pencil and ink and created our masterpieces on cloth, mylar, and velum. Doesn't that sound much more interesting than saying we spread a bunch of electrons across an LCD monitor? Back in those days I didn't know a CFM from a PSI so I was placed under the tutelage of a man named Earl.

Earl was a large Irishman with a gap-tooth smile and happy disposition. If you just glanced at him across the room without knowing him, you would think he looked a few bricks shy of a load. But if you were lucky enough to work alongside of him you soon learned of his knowledge and years of experience. He liked to tell me how he had forgotten more things than I could learn and I've come to accept that as a true statement. In leisure times he also liked

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## THE 3 CHALLENGES OF MANAGING WELDING FUMES

By: Jeremiah Wann  
[TheFabricator.com](#)



## AT ARM'S REACH

By: Jeremiah Wann  
[WeldingProductivity.com](#)

not having trouble. The solenoid valves, which are normally closed, receive a signal that causes them to open.

Opening the solenoid releases pressure in the tube that connects the solenoid to the diaphragm. The loss of pressure opens the diaphragm, letting a pulse of compressed air go through to clean the filters.

This means that if one of the diaphragm valves isn't closing, there are three possible problems:

- 1) The solenoid is not closing, so the pressure can't build up in the tube
- 2) The tube has a leak or hole and is losing air
- 3) The diaphragm valve itself is not closing

**STEP ONE:**

Check the solenoid.

- The solenoid can be open or leaking because there's dirt or ice trapped in the valve
- The solenoid seal may be worn out
- To check which solenoid is leaking, put a hand under the exhaust ports. If one of the ports has air coming through when there shouldn't be, this solenoid is the first place to check.

**STEP TWO:**

If there is no exhaust from any of the solenoids, check the hose going to the diaphragm valve.

- A hole in the hose will cause an air leak
- The hose can also become plugged with ice in cold weather

**STEP THREE:**

If the solenoids and hoses are in good shape, move on to the diaphragm valve itself.

- The valve may have specks of dirt or ice preventing it from sealing
- Part of the valve may be worn out and need to be replaced.

Following these simple troubleshooting steps should track down the source of your diaphragm valve leak. If you're still having problems, or you need to order replacement parts, reach out to us and we'll help you! Our ServiceMAXX team provides all types of dust collector service and inspection. A diaphragm valve leak is something you can probably fix yourself, but bigger problems require bringing in the professionals.

If you have a problem you think Russ should share here on our blog, email us [HERE](#). And if you have a question you'd like us to feature in our Q&A section, send it over! If your question is something our readers would like to know about, we'll feature it on our website. <<

to spin tales of brown billed ducks, one legged men, and myopic snakes, but those are stories for another time. Coming in as a greenhorn, Earl was my tutor. He was 25 years my senior and took me under his wing as I ventured out into the world of dust collection system design. I remember months of drawing and redrawing ductwork systems that he had sized, calculated, and designed.

Earl was also the first guy that I travelled with to work on a jobsite away from the office. A few months after my initial hire Earl and I spend a cold February week together in upstate New York trouble shooting several dust collection systems in a limestone facility. The quarry was in operation during the day so we had to work from midnight to 6 AM to complete our work. I didn't know a thing about dust collection on that trip. I thought my main purpose was to be Earl's "goffer". I still remember carrying the tool bag up and down those icy stairways of the dust collectors, wondering what a VP was, and being mystified as Earl calculated air volumes and duct velocities on his Texas Instrument. It was later that I realized I was really there to learn.

Earl was an excellent teacher if you took the time to listen to him. In those days we still used water filled slack tubes to read system pressures. By the end of that first trip Earl taught me to read static pressure, velocity pressure and total pressure and how to use all three in system design. It was the first basic tool I learned to use. I also remember once early in my tutelage I thought I could do something better then how Earl had shown me. All he said was, "Good luck with that!" In future blogs I'll share some more of Earl's legacy to me. <<

