

FROM THE FIELD

Callback from hell

BY DAN FOLEY CONTRIBUTING WRITER

Most service calls are typical. You receive a call for “no heat,” go to the call, diagnose the problem, fix it, collect a check, and then move on to the next one. These calls are routine, mundane and quickly fade from memory. The ones that stick in your mind are the dreaded callbacks.

I once interviewed a service tech who was applying for a job with my company. I like to give prospective employees a chance to brag; to tell me something about themselves that separates them from the competition. When prompted to tell me something unique about himself, he responded, “I have never had a callback.” Now, one of two things was certain: 1.) He had never run service or 2.) He was not being truthful.

If you have ever run service, you have had a callback. It is never a good thing and the goal is to minimize them. But, if you run service you will have callbacks. There is a 100 percent chance you will have callbacks.

I recently ran into a situation trying to repair a Variable Refrigerant Flow (VRF) system in a commercial building. This was a single-phase VRF unit on a rooftop (See photo) connected to four wall-mounted indoor



Rooftop VRF Unit serving four computer server rooms.

cassettes. This system cooled four server room closets that ran cooling 24-7-365. The computer servers were stacked from floor to ceiling on four floors of this building. They were critical systems. When the cooling goes down, so do the servers. When that happens, their IT department is quickly on the phone with us.

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In the span of two weeks, we were called out to the site not once, twice or three times. Would you believe SIX times we were out there, trying to fix the problem?! We were doing our best but we were trying our client’s patience, and people were getting upset.

The first time out, my lead tech Mark Wilson found the system in lock-out and simply reset it. There were no codes and everything checked out. The airflow, charge, and cooling all checked out. Rather than chase a ghost, he chalked it up to an electrical surge or power blink, and went on his way.

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Two days later, it was down again. This time, it coded out as a high discharge temperature, which could be caused by a low refrigerant charge or a bad condenser fan motor. Again, he reset it and all was well. Everything checked out. He stayed and watched it run for two hours. Again, nothing to indicate there was a problem.

The next morning at 6:00a.m., I received an e-mail from the client. The system was down again. At this

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I also know when it is time to call on our business partners for help. Joe and Jeffrey from The Joyce Agency stepped up and helped us out of a jam. I doubt I would have ever figured out the bad sensor without their help. Parts do not always fail the way you expect them to. Be prepared to deal with this, whether you are a service tech, rep or manufacturer.

point, nerves were frayed, including ours. I sent Mark back out, and again the system reset and ran fine. As this was a critical system, Mark was not going to take chances. He ordered the main control board and main inverter board for the unit and had them red-label shipped to us. He went back the next day and replaced both. This time, the system ran fine for two days, then failed again. We were out of ideas. What was so exasperating was that the unit did not code out. There were no error codes on the display.

I called the local rep and suggested tech support meet me and Mark at the site. Joe Caruso and Jeffrey "Heatboy" Young met us at the site. We spent three hours going over every nut, bolt, and connection on the system. Joe hooked his laptop directly in to the main control board to read parameters. We still could not get the system to run. The IT department had resorted to propping open the server room doors with a chair and a box fan balanced on the chair cool the computer servers. It was an embarrassment.

Joe could read the parameters on his computer, but we could not get the system to start. The condenser fans checked out. The compressor was ohmed and tested for ground, but it checked out as well. The electrical connections were checked, fuses tested, and Molex connectors checked. We looked at everything. Still, we had no luck.

Joe called the factory tech support. They asked us to power down, power up, and hit reset. For anyone at factory tech support reading this column, trust me when I say that by the time we call you, we are out of ideas. We have already tried everything we know, including cycling the power. The reset button has been pushed 200 times before we call you. If it was that easy, we would not have to call you. And no, this one was not just a power down and reset.

After several phone calls and multiple tests, we were finally on to something. Joe noticed an anomaly with one of the sensors. The discharge sensor was reading 253°F, yet the ambient temperature was 50°F and the system had not run in days.

After talking to a factory engineer, we determined that when this sensor read high, it would not code out. It simply shut the system down until it cooled to a reading within operating parameters. Typically when a sensor fails, it either shorts or opens. This one failed in a way that just gave a false reading.

I was a bit skeptical, but I went ahead and ordered



Foley Mechanical Service Technician Mark Wilson replacing the discharge temperature sensor.

the sensor. What other choice did I have? I seriously considered replacing the entire outdoor unit, but I decided to try the sensor first. It came in FedEx the next morning, and I sent Mark with the part.

Since we had so many problems here, I decided to meet Mark at the site. By the time I got there, he was just about done replacing the discharge sensor (See photo). Mark plugged the sensor into the control board, powered up, and set the four thermostats to 65°F. Success! The outdoor unit fired up, and soon the suction line was ice cold. Both condenser fans modulated with the load, and the refrigerant charge was dead-on. This little thermistor sensor had brought us to our knees.

Two weeks later, all was well. The system was operating fine, and no more callbacks. There were several lessons learned. The No. 1 lesson is to never give up. Do not walk away from a problem job, no matter how bad. Your name and reputation are dependent on this. Don't quit. Mark stuck with this and finally resolved it, no matter how many tries it took.

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This is one callback that I won't forget. ●

Dan Foley is president and owner of Foley Mechanical, Inc. based in Lorton, Va. FMI specializes in radiant, hydronic and steam systems as well as mechanical systems for large custom homes. He can be reached at 703-339-8030, dfoley50@verizon.net, or www.foleymechanical.com.