

SERVICE CALL



Bearing Wear & Failure -

Bearing failure can result in costly repairs and considerable downtime. Proper bearing lubrication and monitoring vibration levels to ensure they are within tolerable range are key to preventing wear and failure. Some critical loads use bearing wear indicators to detect excessive heat rise as an alarm point. Be sure to check lubrication and vibration as part of your PM program.



3 Way Mixing Valves -

Make sure 3-way mixing valves are ported properly. Errors are common and costly to correct. Also, on many 3-way valves, Cv on the bypass port is lower than main port capacity. Be sure bypass port Cv is equivalent to main port flow if there is a chance that reduced bypass flow will cause problems.

TROUBLESHOOTING VFD PROBLEMS

When a variable-frequency drive, or VFD, malfunctions, costly downtime often ensues. It is important to take the correct measures to determine the cause and resolve the problem expediently.

Check the controller display. Most VFDs will self-diagnose and display fault code(s) on its LCD indicator screen. VFD fault codes are not universal, so technicians should reference faults per the specific manufacturer. If a listing of codes is not readily available, they can be easily obtained from the manufacturer's website.

Check your connections. Loose connections are frequently the culprit when a VFD goes down. Visually inspect connections, then check for voltage drop across the connection if still powered up, or for resistance if you are powered down. Be sure to isolate the connection for an accurate reading. You can also tell if a connection is loose if its temperature is hotter than the connecting wires.

Check drive and motor temperatures. A frequent cause of VFD problems is overheating due to insufficient or degraded motor insulation, causing shorts. Oftentimes these shorts are too small to blow a fuse, or too intermittent to trip an overload, but enough to shut down a controller.

New installations. VFD problems on new installations are often due to improper application, drive selection, setup, or installation of the motor or drive. Other issues can be traced to problems in the sequence of operation.

Breaker trips. Where applicable, most drives should use a soft start function to reduce inrush current. Verify that breakers are sized and/or adjusted properly

If the problem still cannot be traced, you should also check: excess distance from the motor; current to the motor; voltage notching; inductive noise in signal, control, or power wiring; cable routing; damaged signal, control, or power wiring; power and control wire intermixed; and current through the controller during sudden load changes or during speed ramps.

For more information about variable-frequency drives, or if you are experiencing difficulties, please call Steve Meigh at (973) 884-5000, extension 116.

TECH CAREERS ON THE RISE

A decade-long nationwide shortage of HVAC service technicians is ongoing – bad news for our industry, but good news for those considering a career. Dwindling interest in skilled trades, baby boomers retiring in large numbers, and a lack of qualified workers in line to replace them coincide with an increased need for HVAC services. As a result, an estimated 57,000 new HVAC workers are needed each year, and HVAC service technician employment is expected to increase by 28% between 2008 and 2018.

Because skilled trades have been deemphasized over the last few decades in favor of 4-year college programs and white collar careers, there is still a lack of sufficient interest in (and perhaps bias against) these professions. Many students are still not getting the message that HVAC technicians and other skilled trades can be an excellent career choice, and that, while the unemployment rate hovers at record levels, there is no shortage of available jobs. An HVAC service technician in New Jersey earns a respectable income, significantly above the national average.

Modern HVAC equipment is far more complicated than older systems, and young people considering their future might be interested to know that today's service technician job requires considerable computer savvy. HVAC service techs must possess an understanding of mechanical, electronic and technological systems and how to integrate them, as well as the mechanical inclination to perform the hands-on work. Trade school and community college HVAC programs can take from 6 months to 2 years to complete, and apprenticeships, which run 3 to 5 years, include paid on-the-job training. Most cost far less than a typical 4-year college program, require less time, and upon completion, jobs are virtually guaranteed.

Despite all of the obvious advantages, our industry still has to work surprisingly hard to convey the promise of a career in HVAC. Hopefully, young people are becoming more receptive to skilled trades as a fulfilling and valuable career choice.

Sealing Ductwork Saves Green

Duct leakage in air handlers and ductwork systems is a chief source of energy waste, increasing blower energy consumption by as much as 50%. If you are considering going green, you should first tackle sealing up, cleaning up and air and water balancing your systems.

A surprising percentage of commercial ductwork and air handlers have never been tested for leaks. The worst leakage culprits are air handler doors, duct work joints, VAV and CV boxes and coils. Leakage tested at 5% or above is considered significant and should be corrected. Many inexpensive products such as high pressure caulk, hard cast tape and gasketing for air handler doors and access doors can be purchased and installed fairly easily.

MSC recently took on a project where major duct leakage was identified in the main supply and exhaust systems. VFDs were running at 60Hz, or 100% capacity. Though it was not originally part of the project upgrades, the owners wisely decided to make the repairs when the extent of the problem became clear. After the ductwork was sealed and tested, all of the drives are now running at an average of 43.7%. Talk about utility savings.



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