

Ductless Service Steps to Success

- 1. Patience** – It is Your #1 ally
- 2. No Gauges** – Leave your gauges in the truck
- 3. Be a Detective** - Ask questions, understand the history
- 4. Check system with Clean Coils and Air Filters**
- 5. Have the Model and Serial number** at the ready for support agents
- 6. Must Have the Service and Installation manual**, it's your road map
- 7. The error in Error Codes**, Don't be over reliant, Find the root cause
- 8. Power In and Power Out**, Understand the input/output power flow
- 9. Go, No Go Temperatures > Discharge Air Temperatures** (Leaving Air Temperatures) 40F ~ 50F Cooling Mode 110F ~ 130F Heating Mode @ AHRI Conditions
- 10. Find the root cause**, Don't be a parts changer

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11. Find the “Why” – There can be up to ten thermistors and pressure transducers in a single zone system. All that data is flowing to the main printed circuit board (PCB). What is the “why”? It is the algorithms in the software. Its the conductor in a sophisticated symphony. The “Why” in the behavior of the system. Every action in the system is programmed.

Things to know:

- Inverter is only half the story
- Learn about the multiple voltages a ductless inverter system has (5VDC, 12VDC, Comm Buss VDC, Fan Motor VDC, Compressor VAC)
- Learn computer and electronics terminology
- 50% of the errors can be cleared by resetting the power, Use this wisely.
- Reading a service manual is a skill within itself, Be patient with yourself.
- Build expectations with the customer, Let them know that it will take a minimum of three (3) hours for ductless service calls.
- Embrace experimentation, it is fundamental to learning. Read it, write it, speak it, do it.
- To be a master technician, one must be a master installer
- 90% of all service related issues within the first year of operation is installation related.
- Befriend technical experts, Get certified with every manufacturer, Watch You Tube videos, Join online groups.
- Superheat and subcooling is pre-programmed, no need to check. You can't adjust it anyway. Use the below formulas to determine capacity. Also check supply discharge temperatures.
- $\Delta h \times \text{CFM} \times 4.5 = \text{Operating Cooling Btu's (Enthalpy)}$
- $\Delta T \times \text{CFM} \times 1.085 = \text{Sensible Heat Btu}$