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Indoor Comfort Marketing

Oilheat
HVAC
Renewable Fuels
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Action required

Telling customers about their clean fuel option is more important than ever

- MA Tackles All-Electric
- Humidifier Solenoid Valve
- High Temperature Radiation & Condensing Boilers

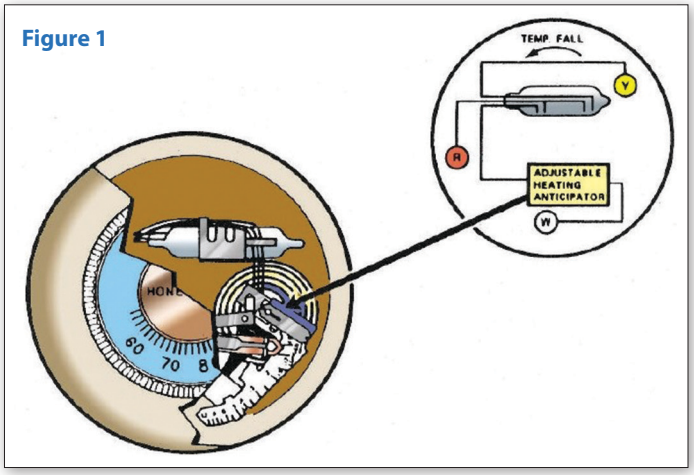
Thermostats, Fan Board Efficiency & Technology....

Alan Mercurio

We sure have come a long way from the old Honeywell T87 Thermostat and the combination Fan & Limit control. I'd like to share some of the things I've learned and perhaps some you may not have yet learned yourself. Remember, with an open heart and open mind you can learn more each day. After more than 30 years in the trade, I'm still learning.

I'll begin with the thermostats. Years ago when installing a new device, we often checked to make sure the heat anticipator was set correctly to connect to, or to replace, the thermostat (**Figure 1**). The heat anticipator was a small electrical resistance heater that fooled

Figure 1



the thermostat into thinking it was warmer in the room than it actually was. You needed to make sure that the heat anticipator was set to match the amps from the thermostat's control device. You could have also used an ammeter connected to the wires at the thermostat—this would've shown you the amp reading; you would have then matched the heat anticipator to that reading.

With today's thermostats, from the very basic to the programmable, we have Cycles Per Hour (CPH). We adjust CPH via dip switches (**Figure 2**) depending on the model of programmable thermostat. Instead of setting the CPH via dip switches, we set that from within the programming/setup mode.

The thermostat is designed to control temperature to +/- 1°F. The cycle rate setting is one factor that helps the thermostat maintain a temperature setting. How often the heat turns on and off depends on many factors, including the type of heating system or how much the system needs to run to maintain your temperature setting (in other words, how cool or cold it is outside).

A typical forced air system will cycle about five times in an hour—this is normal. A typical hot water system should cycle less than that. Every heating system type will deliver heat to the house at a slightly different rate. Some thermostats provide the flexibility to set the cycle rate to match your specific heating system, whether it is forced air, high efficiency forced air, electric forced air or baseboard hot water. The thermostat's operating manual will tell you to match the cycle rate setting to your heating system type. For those thermostats that learn your usage, the CPH sets a target point for the learning algorithm.

AIR

Here's another acronym for you, *AIR*. It stands for Adaptive Intelligent Recovery. This is where that algorithm comes into play. Through the algorithm, AIR enables the thermostat to "learn" how long a heating system and air conditioner take to reach the programmed temperature settings. It will then start the system early enough for it to reach that preferred temperature on schedule.

For example, if the thermostat was programmed to bring the temperature up to 70°F at 7:00 a.m., it might come on around 6:45 a.m. to gradually reach that temperature efficiently. As it gets colder outside, the thermostat will recognize (learn) that it took longer to reach 70°F at 7:00 a.m., and the next morning it would start a little earlier, maybe 6:35 a.m. Once it warmed back up outside, the thermostat would resume its normal mode of operation.

It's important to understand these things, as little as they may seem. It's equally important to educate consumers—our customers—on things of this nature. If they are not aware of AIR, they may think something is

Figure 2

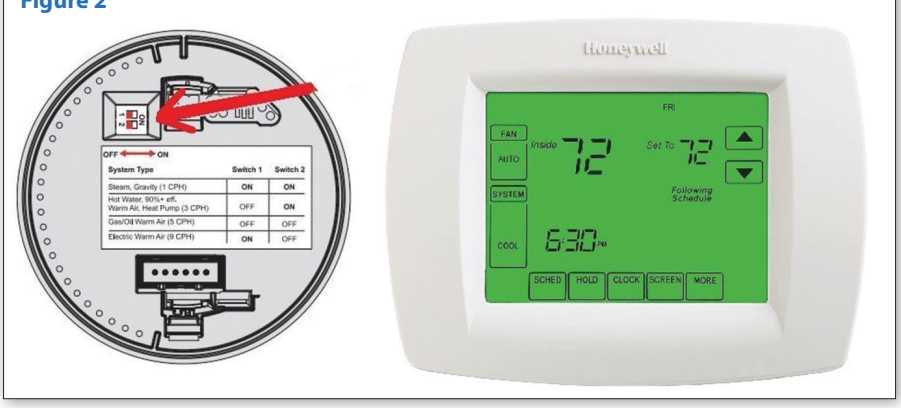
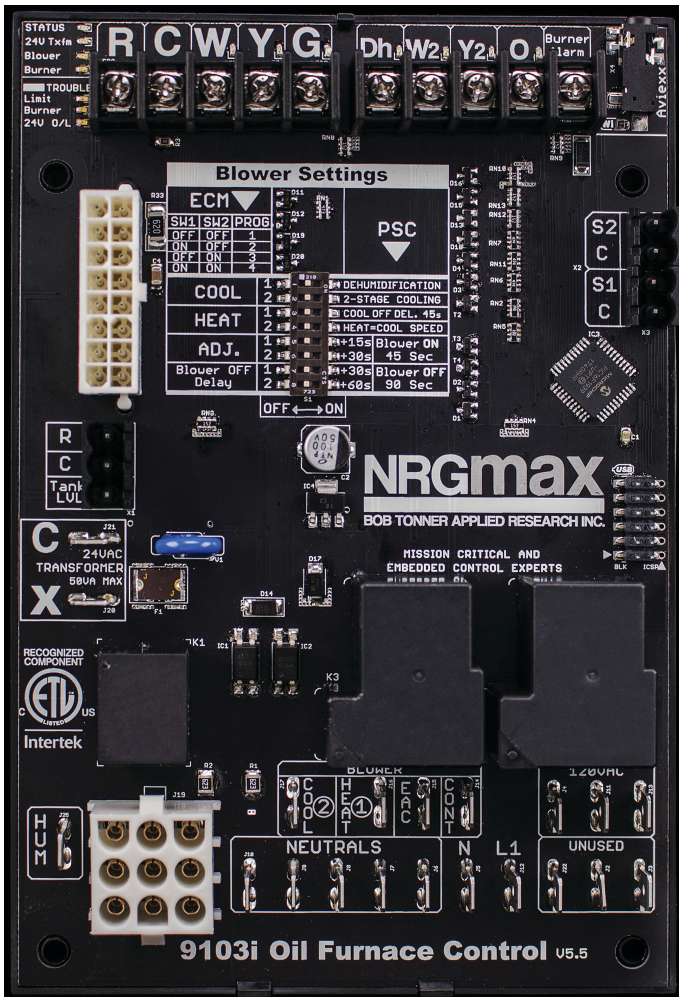


Figure 3



wrong with their thermostats and you'll end up going out on unnecessary service calls. If you explain ahead of time that a system automatically defaults to AIR upon installation, you may also learn it's not a feature they wish to utilize and can turn it off for them during thermostat installations.

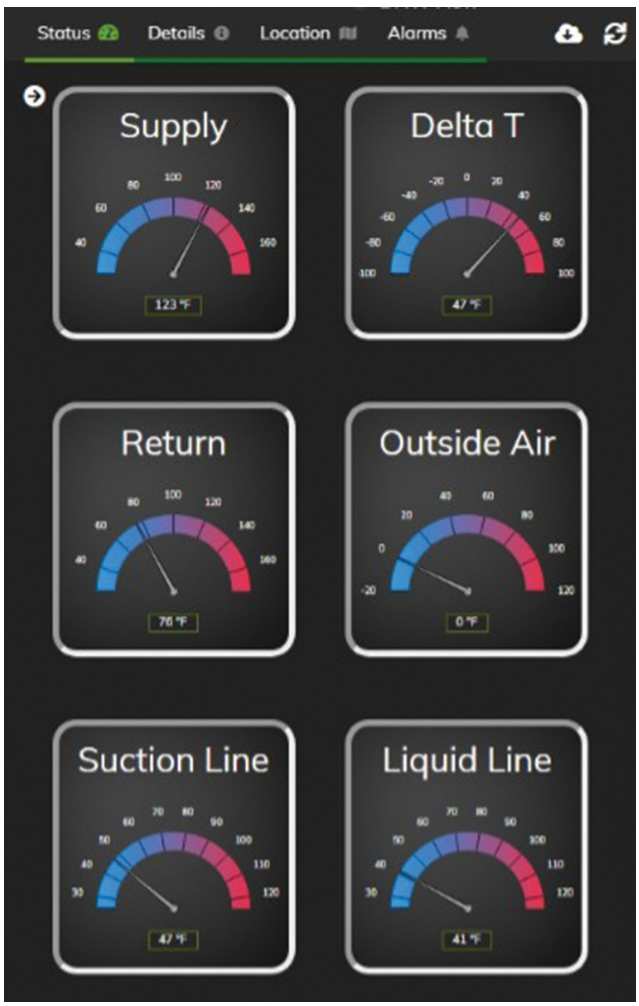
Electronic fan board

Another item that has come a long way in our industry is the electronic fan board. We've gone from electronic fan boards that offer the basic control of turning the burner and blower "On" and "Off" to electronic fan boards that can also control multi-speed blowers, ECM blowers, humidifiers and both heat and AC.

Today's advances in electronic board technology have really stepped up their game. Universal electronic fan boards are not new, but the type seen in **Figure 3** offer much more—such as being adaptable for multi-speed PSC or ECM driven blowers, diagnostic lights for troubleshooting, status lights, supply and return duct temperature monitoring, fuel tank level monitoring and much more.

With its Wi-Fi capability, a technician can access the system from a device wherever they may be (**Figure 4**), perform some initial troubleshooting and test run cycles without even being on-site. This feature is very valuable, because information is also available from the technician's device, identifying the model and serial number of the appliance. Whatever component the tech believes he/she may need, it can be packed before traveling to the customer's home. We have come a long way with technology and I'm looking forward to what's next.

Figure 4



Thank you

This wraps up the series of articles I wanted to share with you regarding change and acceptance in today's industry, and the technologies that come along with them.

Thank you for taking the time to read my articles and allowing me to share my thoughts and perspective and thank you to our friends at *Indoor Comfort Marketing* for giving me the platform to do so.

I look forward writing more articles later this year; I hope you all look forward to reading them. **ICM**

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