An Uncomfortable Convenience Store

BY JIM JOHNSON

E-mail your real-life troubleshooting problem—along with the ultimate solution you found—to jim@techtrainassoc.com. Be sure to include as much supporting documentation as possible—wiring diagrams, model/serial numbers, etc. If your problem is published, you will be rewarded with a free heat-pump training video, “Uncomplicating the Heat Pump: Refrigeration and Air Flow Systems.”

[Note: The following troubleshooting problem was presented by RSES International President Joe Marchese, CMS, during round three of The Battle of the Regions competition held at the 76th Annual RSES Conference in Pittsburgh, PA.]

It is the middle of summer and your customer—who cannot provide you with any helpful information about the history of this situation since they just recently purchased the business—is complaining that the temperature inside their small convenience store will not get comfortable whenever the outdoor temperature gets over 90°F. The equipment is a three-phase, 5-ton rooftop unit (see Figure 1), and when you evaluate the operation of the system, you find the following:

- A visual inspection of the filters and coils proves that they are clean, and there is water in the condensate drain pan;
- An accurate check of the supply air shows it to be 65°F dry bulb;
- The liquid-line sight glass is clear, and the oil level in the compressor is at one-half the sight glass; and
- Both the condenser and evaporator fan motors are operating normally.

You also note that after several hours of continuous operation, all system components remained relatively unchanged. All continued to operate and none shut down on any safeties.

Your troubleshooting question is:

What is the next step you need to take to address this situation?

The answer to this month’s problem will be published in the February 2014 issue of RSES Journal.

If you have the answer to this question, submit your name, home address, a day and evening phone number, the month in which the question you are answering was published and your answer to: Jordan Brandes, Associate Editor, RSES Journal, 1911 Rohlwing Road, Suite A, Rolling Meadows, IL
And the winner is...

The answer the October 2013 problem, “A Split-system Heat Pump that is Not Cooling,” is that the defrost timer failed. We proved this with an ohmmeter check between terminals 2 and 3 and found that the NC switch was open when it was supposed to be closed. The sequence of events that led to the complaint was that the failure of the defrost timer caused the outdoor fan motor to remain off on a call for cooling and, as a result, the system shut down on the high pressure control.

The winner of the October 2013 drawing is Brian Mahoney of Lake Ronkonkoma, NY. The winner should call 520-625-6847 or e-mail Johnson to facilitate shipment of their prize. Drawing must be claimed by Jan. 31, 2013.

Jim Johnson, Director of Training, Technical Training Associates, develops technician training workshops, DVDs, audio books and e-books, many of which are available at the RSES online store. Two new videos, “A Heat Pump That Won’t Cool” and “A Heat Pump That’s Not Delivering Any Air,” are now available for $20 each or $30 for the pair. 40 minutes in length, the videos provide information on a specific approach to troubleshooting a particular problem. Also be sure to check out the new website at www.hvactroubleshooting.com, which focuses on equipment servicing and allows technicians and students to post comments and questions relative to specific troubleshooting situations detailed on the site. For more information, visit www.techtrainassoc.com, write HC 70, Box 3172, Sahuarita, AZ 85629 or e-mail jim@techtrainassoc.com.

WINNER

Brian Mahoney
Lake Ronkonkoma, NY
is the winner of the October 2013 Troubleshooting Challenge.