



SERVICE AND APPLICATION NOTES

C-14-05
July 30, 2014

Potential Contaminants Affecting TXV Operation and Performance in Residential Air Conditioner and Heat Pump Systems

AFFECTED PRODUCT:

Thermal expansion valve (often abbreviated as TEV, TXV, or TX valve)

OVERVIEW:

Lennox has seen an increase in TXV warranty claims year to date, particularly in the 2 – 3 ton range, and we have received reports from the field regarding alleged TXV failures. Other manufacturers and suppliers have issued service announcements and notifications indicating industry-wide TXV issues across a variety of TXV manufacturers. Service technicians are also noticing issues due to TXV failures, and are currently replacing the TXV to resolve the problem.

OBSERVATIONS:

Failed TXVs returned to our labs and torn down have a black foreign substance on the valve seat and pin that is restricting refrigerant flow and creating low suction pressures. Initial laboratory analysis indicates that the black substance is formed from contaminants that are introduced into the system. Given that the problem is very similar to that discovered by competitors, it is likely to be caused by a third-party supplier. Lennox is working hard with a number of labs and with our suppliers to isolate the source of the problem. We are not, however, in a position to definitively identify the problem at this time. The preliminary evidence does not indicate that the TXV is the source of the issue.

RECOMMENDED ACTION:

While we are working diligently to determine where the substance is coming from, bound the problem, and work to determine next steps, we recommend the following when you see an unusual TXV failure until we have more definitive answers:

1. Replace the TXV.
2. Install or replace the liquid line drier at the the indoor TXV.
3. Use *Best Practices* when installing or opening a system and replacing components.
 - A. Use nitrogen when brazing
 - B. Pressure test for leaks
 - C. Evacuate system
4. Charge the system with HFC-410A and verify the operation of system.

NOTE: *If the system is a heat pump, verify proper operation of the outdoor expansion valve in heating mode. For more information regarding Best Practices, refer to the system's installation instructions.*

CONCLUSION:

We will continue to take the proper actions to determine root cause and will share information with you as we learn additional details regarding the nature of the TXV failure. We apologize for the inconvenience. Please contact us at (800) 453-6669 for additional information or questions.

Sincerely,
Lennox Technical Support