

## Ten Tips for Servicing Heat Pumps

Since a heat pump system runs year-round and is constantly in operation, seasonal maintenance and servicing is essential to optimum performance. A well-maintained system will help minimize costly breakdowns, extend equipment life, and keep the unit operating at maximum efficiency, lowering homeowner utility bills and increasing overall customer comfort. But it's important to remember that service begins the moment you walk up to a customer's door. So, your presentation is nearly as important as the service you provide.

By putting the following 10 service tips into practice, you will reinforce your dealership's dedication to customer satisfaction and its commitment to quality service.

1. **Always present a professional image.**

Be on time and ensure your uniform is always neat and clean. Carry a spare uniform if possible.

Be considerate of your customer. If your uniform is dirty, brush it off before entering your customer's home. Always remember to remove dirty shoes before walking through the home. Good service technicians even carry an extra pair of "indoor" shoes.

2. **Communicate with your customer.**

Ask questions and listen to what your customers have to say. Not only can the information they provide lead to a faster, more accurate diagnosis, but the open dialogue will help to build stronger customer relationships.

Recommend replacements when necessary. For example, a good service tech will advise a homeowner to replace questionable parts such as pitted contacts, motors with excessive bearing play, or burned or discolored electrical connectors.

Good communication with the homeowner will reduce callbacks, which can create customer dissatisfaction and jeopardize future business with them.

3. **Inspect electrical connections.**

Check for corroded electrical connections, including disconnects and breakers. Ensure tightness of the thermistors and sensors to confirm the parts are securely fastened to their lines. If thermistors or sensors are loose, clean and/or retighten as required.

If the indoor thermostat uses mercury bulbs, calibrate by making sure the thermostat is level and securely fastened to the wall.

Poor conductivity can cause delayed defrost or premature defrost termination. This can lead to incomplete defrost and reduced heating capacity. Cooling operations can also be negatively impacted.

4. **Thoroughly clean the indoor coil.**

Clean or replace the indoor filter to maintain proper airflow and prevent dirt from reaching the coil. Encourage homeowners to do this monthly.

Inspect the indoor coil-clean the coil and the drain pan as necessary. Use a germicidal cleaner designed for indoor coils.

Clear the condensate trap and line with a high-pressure air hose. Remember to prime the trap when done. Flush the drain line with one part household bleach to four parts water solution.

Clean the blower wheel (rebalance if necessary).

Lubricate the motor and blower bearings (if required). Do not over-lubricate. On older units, make sure the belts are in good condition and adjusted with the recommended tension.

**5. Take steps to prevent the growth of molds and microorganisms.**

After each cleaning, apply a thorough coating of a biochemical to reduce the chances of a foul-smelling coil.

Install a time-released algaecide during each spring service to minimize algae growth and the chance of condensate overflows.

**6. Thoroughly clean the outdoor heat pump.**

Brush away any surface contaminants and then apply a non-acid or low alkaline coil cleaner, rinsing thoroughly with water. Follow the manufacturer's instructions. Clean out the base pan and ensure that all drainage ports are not plugged. Check the fan blades for loose rivets or cracks.

**7. Check for proper voltage and amperage draw as recommended by the manufacturer's instructions.**

Review the rating plates of both the indoor and outdoor units for the proper data. Verify the proper amperages and voltages of both indoor and outdoor electrical components, such as motors, blowers, and compressor. Check the thermostat heat anticipator amp draw.

**8. Examine and adjust (if necessary) the refrigerant charge of the system. Accurate pressure and temperature readings will ensure proper system setup.**

For optimal results, refrigerant charge should be checked when the ambient temperature is above 70 degrees Fahrenheit for cooling operation and above 40 degrees Fahrenheit for heating operation.

If the outdoor coil was washed, ensure it is completely dry before checking the refrigerant charge. A wet outdoor coil can give false pressure readings in the cooling mode.

Measure and record the suction and discharge pressures and temperatures. Measure and record the dry bulb and wet bulb temperatures. Measure and

record the dry and wet bulb temperatures of the air entering and leaving the indoor coil.

Refer to the manufacturer's recommended charging procedures and data when adjusting system charge.

Some units are charged by subcooling, and others by the superheat method. Refer to the manufacturer's recommended method for maximum performance. If system data is not available, one of the most reliable methods of charging in the heating mode is liquid line temperature measurement. But when in doubt, or when initially charging the system, weigh in the correct amount of refrigerant, adding the proper amount for the size and length of the liquid line. (Example: a 3/8 inch line requires 0.58 ounces per foot.)

Ensuring the correct charge maximizes equipment efficiency.

#### 9. **Run the system.**

Check the system for leaks.

Verify proper system operation in both the heating and cooling modes (weather permitting).

Conduct a complete defrost cycle to ensure that all components are functional. Also inspect check valves by observing for frost lines and by touching to detect any temperature drop across the valve.

Check for proper airflow (approximately 400 cfm per ton) during cooling mode by checking the external static pressure and during the heating mode by checking the external static pressure or temperature rise.

Listen for any unusual operational noise.

Squeaks and rattles are sometimes easily fixed by tightening loose screws or using vibration isolators.

#### 10. **Go the extra mile.**

When the job is complete, dispose of any debris, sweep the area that was serviced, and move any household items back to their original positions.

Wash off the outdoor unit casing. Wipe dry and then buff with car wax. It helps the unit last longer and it's amazing how much better it makes the unit look, even a vintage unit!

#### **Reference:**

<http://www.hvacnews.com/editorials/1099btentips.htm>