

Heating

Module 3, Task 9	Course of Study Crosswalk:	H 9
Module	Heat Pumps	
Task / Topic	Determine the condition of the reversing valve	
Content Standard	The student will demonstrate the ability to test and replace components of an electric heat pump.	
Overview/Annotation		
Evaluation	Given a heat pump trainer and necessary tools and equipment, the student will determine the condition of the reversing valve by using temperature and pressure readings. The pressure and temperature reading will be within 5 degrees or pounds of pressure of the actual condition.	
Resources	Heat pump trainer Thermometers Gauge manifold set Pressure-temperature charts Basic tool kit	
Lesson Length		
Instructional Method		
<input type="checkbox"/> Lecture <input type="checkbox"/> Class Discussion <input type="checkbox"/> Team Work <input type="checkbox"/> Review <input type="checkbox"/> Demonstration <input type="checkbox"/> Multimedia <input type="checkbox"/> Individual Work <input type="checkbox"/> Other		
Assessment Strategy		
<input type="checkbox"/> Homework <input type="checkbox"/> Written Test <input type="checkbox"/> Teacher Observation <input type="checkbox"/> Other <input type="checkbox"/> Class work <input type="checkbox"/> Performance Test <input type="checkbox"/> On-Task Ability <input type="checkbox"/> Other		
Integrated Content Code		
<input checked="" type="checkbox"/> R <input type="checkbox"/> SS <input type="checkbox"/> IR <input type="checkbox"/> PS <input type="checkbox"/> SO <input type="checkbox"/> MS Other <input checked="" type="checkbox"/> W <input checked="" type="checkbox"/> M <input type="checkbox"/> CL <input type="checkbox"/> CT <input type="checkbox"/> LD <input type="checkbox"/> WA _____ <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> S <input type="checkbox"/> DM <input type="checkbox"/> IM <input type="checkbox"/> ES <input type="checkbox"/> TW _____		

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Module 3, Task 9	Teaching Points (<i>Procedures/Activities/Learning Experiences</i>)
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1. Explain the operation of the heat pump.
2. Describe the operation of the reversing valve.
3. Explain the pressures that control the reversing valve.
4. Explain what each tube on the reversing valve hooks to.
5. Explain what happens to the heat pump when the reversing valve fails to change positions.
6. Explain what happens to the heat pump when the reversing valves begin to leak high pressure refrigerant into the low pressure side of the system.
7. Explain the procedure for determining that the reversing valve is stuck.
8. Explain the procedure for determining if the reversing valve is leaking high pressure refrigerant into the low pressure side of the system.
9. Demonstrate how to determine the condition of the reversing valve.
 - a. Start the heat pump trainer and allow it to operate for thirty minutes and settle out.
 - b. Change the thermostat selector from heating to cooling and determine if the reversing valve is changing.
 - c. If the valve fails to change, turn off the power to the heat pump and remove one of the wires to the reversing valve solenoid coil and using the ohmmeter check it for an open circuit.
 - d. Replace the wire and turn on the power to the reversing valve coil. Place the heat pump trainer into the mode of operation that will energize the reversing valve solenoid coil.
 - e. Remove the coil from the reversing valve and determine that it is producing a magnetic field by placing a small screw driver into the center of the coil and feeling the magnetic field.
 - f. If the reversing valve solenoid coil produces the magnetic field when the thermostat calls for the reversing valve to be energized, the valve is stuck and must be replaced.
 - g. If the reversing valve will change position, test it for leakage from the high pressure side to the low pressure side.
 - h. Measure the temperature of the suction line on both sides of the reversing valve about ten inches from the valve.
 - i. If the temperature of the suction line on opposite side of the reversing valve is more than seven to ten degrees, it is leaking high pressure to the low side. Always check the manufacturer's specifications on the correct temperature difference for your trainer.

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Module 3, Task 9	Provision for Individual Differences
Extension	
Remediation	
Accommodation	
Modification	
Definitions and Suggested Modifications <u>Attention Deficit Disorder</u> <u>Autism</u> <u>Deaf-Blindness</u> <u>Deafness/Hearing Impairment</u> <u>Emotional Disturbance</u> <u>Mild Intellectual Disability</u> <u>Orthopedic Impairment</u> <u>Specific Learning Disability</u> <u>Speech or Language Impairment</u> <u>Tourette's Syndrome</u> <u>Traumatic Brain Injury</u> <u>Visual Impairment</u>	