Task Title: Air Conditioning Replacement Parts

OALCF Cover Sheet – Practitioner Copy

Learner Name: _____

Date Started: _____

Date Completed: _____

Successful Completion: Yes ☐ No ☐

Goal Path: Employment ■ Apprenticeship ■

Secondary School ☐ Post Secondary ☐ Independence ☐

Task Description: Conduct internet searches to find information about air conditioning parts and common problems.

Main Competency/Task Group/Level Indicator:

- Find and Use Information/Read continuous text/A1.3
- Use Digital Technology/D.2

Materials Required:

- Pen/pencil and paper
- Computer or digital device

Learner Information

HVAC Technicians have expertise related to the air conditioners and furnaces they install and fix. They may conduct internet searches to find additional information about common problems and solutions.

Learner Instructions

Open a search engine on the web browser of the computer. Perform internet searches to complete the tasks.

Work Sheet

Task 1: What functions do capacitors serve in air conditioners?

Answer:

Task 2: How can you tell if an air conditioner capacitor is defective by inspecting it?

Answer:

Task 3: How can you determine if an air conditioner capacitor is no longer working if it looks normal?

Answer:

Task 4: What tools are used to test the air conditioner capacitor?

Answer:

Task 5: Explain how to discharge the electricity from the air conditioner capacitor.

Answer:

Answers

Task 1: What functions do capacitors serve in air conditioners?

Answers will vary. A couple of sample responses are:

- A capacitor for an AC unit provides the initial jolt of electricity the air conditioner's compressor motor and fan motor need to run successfully. It stores electricity and sends it to the system's motors in powerful bursts that get the unit revved up as it starts the cooling cycle.

- It helps the motor run or start depending on what type of capacitor it is.

  A start capacitor roughly performs the function of a centrifugal switch. There is a brief pulse to the start winding that causes the motor to rotate. This is because the voltage across a cap can't change instantaneously, so it initially acts as a short.

  The run capacitors are designed to provide some sort of phase shift for the motor.

  Single-phase motors in applications like air conditioners use capacitors to provide additional torque for starting and to use less electricity once they are running. The motors have both start and run capacitors, which make them more efficient.

Task 2: How can you tell if an air conditioner capacitor is defective by inspecting it?

Answer: The capacitor leaks or the top is bulging.

Task 3: How can you determine if an air conditioner capacitor is no longer working if it looks normal?

Answer: It will need to be tested.

Task 4: What tools are used to test the air conditioner capacitor?

Answers will vary. Alternative testing tools include:

- Test a Capacitor with an Ohmmeter of a Multimeter

- Test a Capacitor with a Multimeter in the Capacitance Setting
- Test a Capacitor with a Voltmeter
- Digital Multimeter
- Analog Multimeter

Task 5: Explain how to discharge the electricity from the air conditioner capacitor.

Answer: Answers will vary. Sample responses are:

- Remove the start capacitor. The easiest and most convenient way to discharge the capacitor is to attach the terminals of a low wattage 120v light bulb (about 20 watts) to the capacitor terminals. This will safely discharge the electricity which may still be stored into it.

  Touch a device to the capacitor leads for several seconds. Doing this will provide a path for the electricity to go and discharge the capacitor. You can use a 5- to 10-watt resistor, volt meter, test light or ordinary light bulb.

  Using a meter or light will show the progress of the discharging, either with a digital display or a progressively dimming bulb.

- Using a discharge resistor is another method to discharge a capacitor besides using an insulated screwdriver. By connecting an appropriate discharge resistor across the terminals of the capacitor, the stored energy can be gradually released after the power supply is disconnected, achieving the purpose of discharging.

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
A1.3	integrates several pieces of information from texts			
	manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks			
	identifies the purpose and relevance of texts			
	skims to get the gist of longer texts			
	infers meaning which is not explicit in texts			
	uses organizational features, such as headings, to locate information			
	follows the main events of descriptive, narrative, informational and persuasive texts			
	obtains information from detailed reading			
	identifies sources, evaluates and integrates information			

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
D.2	selects and follows appropriate steps to complete tasks			
	locates and recognizes functions and commands			
	makes low-level inferences to interpret icons and text			
	begins to identify sources and evaluate information			
	performs simple searches using keywords (e.g. internet, software help menu)			

This task: Was successfully completed ☐ Needs to be tried again ☐

Learner Comments:

Instructor (print): _____

Learner (print): _____