

CDX Tasksheet Number: MHT5G005

Student/Intern Information

Name _____ Date _____ Class _____

Vehicle, Customer, and Service Information

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Materials Required

- Vehicles or simulators with electrical faults within the auxiliary power systems
- Vehicle manufacturer's workshop materials, including schematic wiring diagrams
- Digital volt-ohmmeter (DVOM), PC-based software, and/or data scan tools
- Vehicle/component lifting equipment if applicable

Task-Specific Safety Considerations

- Activities require you to measure electrical values. Always ensure that the instructor/supervisor checks test instrument connections prior to connecting power or taking measurements. High current flows can be dangerous; avoid accidental short circuits or grounding the battery's positive connections.
- Air-conditioning systems have refrigerant gas within the system. When the system is running, high-pressure gas and liquid refrigerant will be circulating in the system. Use extreme caution when working around high-pressure hoses.
- This activity may require you to work with solenoid actuators. Actuators may create a crush injury hazard; keep fingers away from mechanisms.
- Electric motors may start up when you least expect it; keep fingers and clothing away from the mechanism.
- Activities may require test-driving the vehicle on the school grounds or on a hoist, both of which carry severe risks. Attempt this task only with full permission from your supervisor/instructor, and follow all the guidelines exactly.
- Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with federal, state, and local regulations.
- Always wear the correct protective eyewear and clothing, and use the appropriate safety equipment, as well as wheel chocks, fender covers, seat protectors, and floor mat protectors.
- Make sure you understand and observe all legislative and personal safety procedures when carrying out practical assignments. If you are unsure of what these are, ask your supervisor/instructor.

► **TASK** Understand the operation of power inverters, protection devices, connectors, terminals, wiring, and control components/modules of auxiliary power systems.

MTST
V.G.5; P3

Time off _____

Time on _____

Total time _____

Student Instructions: Read through the entire procedure prior to starting. Prepare your workspace and any tools or parts that may be needed to complete the task. When directed by your supervisor/instructor, begin the procedure to complete the task and check the box as each step is finished.

Procedure:	Step Completed
<p>1. Locate the wiring diagram for the auxiliary power outlet circuit that you are testing. Determine the purpose and operation of the components. Knowledge of how to read a wiring diagram is critical in diagnosing malfunctions in any given circuit. Understanding how components are designed to operate within a circuit will make problems easier to diagnose.</p> <p>(Note: The auxiliary power outlet or inverter can be used to power some convenient appliances, like TVs, microwaves, and toaster ovens, that operate on 110 volts.)</p>	<input type="checkbox"/>
<p>2. Test the auxiliary power outlet with a DVOM to make sure it has the proper operating voltage required.</p>	
<p>a. Operation of the auxiliary power outlet:</p> <p>Pass: <input type="checkbox"/> Fail: <input type="checkbox"/></p>	<input type="checkbox"/>
<p>b. Voltage applied to the outlet: _____ volts</p>	<input type="checkbox"/>
<p>3. Check the mounting hardware for tightness.</p>	<input type="checkbox"/>
<p>4. If the outlet fails to operate as designed, consult the manufacturer's service manual for proper procedures for testing. Make recommendations for repair or replacement:</p>	<input type="checkbox"/>
<p>5. Check all connectors and terminals on control modules for looseness, cracking, and burn marks that may cause the system to malfunction.</p>	
<p>a. Condition of connectors:</p> <p>Good: <input type="checkbox"/> Bad: <input type="checkbox"/></p>	<input type="checkbox"/>
<p>(Note: Any burn marks or discoloration of the connectors may indicate excessive amperage running through them.)</p>	
<p>6. If connectors and/or terminals are bad, make recommendations for repairing or replacing the connections:</p>	<input type="checkbox"/>

7. Test modules for proper operation.	
a. Consult the manufacturer's service manual, and record the proper procedures to test these components:	<input type="checkbox"/>
8. Check all wiring that is present to that circuit for bare spots, cracked insulation, and no connection to the connector or component. Perform voltage-drop tests to the circuit if necessary.	
a. Condition of wiring: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
9. If the condition of the wiring is bad, make recommendations for repairing or replacing the wiring:	<input type="checkbox"/>
10. Return the vehicle to its beginning condition, and return any tools to their proper locations.	<input type="checkbox"/>
11. Consult with your supervisor/instructor and record any recommendations to bring the circuit back to manufacturer specifications:	<input type="checkbox"/>

Non-Task-Specific Evaluations:	Step Completed
1. Tools and equipment were used as directed and returned in good working order.	<input type="checkbox"/>
2. Complied with all general and task-specific safety standards, including proper use of any personal protection equipment.	<input type="checkbox"/>
3. Completed the task in an appropriate time frame (recommendation: 1.5 or 2 times the flat rate).	<input type="checkbox"/>
4. Left the workspace clean and orderly.	<input type="checkbox"/>
5. Cared for customer property and returned it undamaged.	<input type="checkbox"/>

Student signature _____ Date _____

Comments:

Have your supervisor/instructor verify satisfactory completion of this procedure, any observations made, and any necessary action(s) recommended.

Evaluation Instructions: The scoring box below is intended to act as a guide for both student and supervisor/instructor. Each criterion listed will help students understand what is expected of them and help supervisors/instructors articulate the level of success at a particular task. The scoring is set up to allow a second attempt at each task (see the Test and Retest columns). Scoring is also designed to award students points only for task criteria that were completed correctly. Points are lost for failure to complete the employability requirements (see Non-Task-Specific Evaluation criteria). When all criteria are evaluated, tally the points for a total at the bottom of each column.

Tasksheet Scoring

	Test		Retest	
Evaluation Items	Pass	Fail	Pass	Fail
Task-Specific Evaluation	(1 pt)	(0 pts)	(1 pt)	(0 pts)
Student used the appropriate service information to research the auxiliary power systems.				
Student accurately tested and inspected the auxiliary power systems.				
Student compared the results to the specifications, then correctly determined any necessary actions.				
Student reinstalled all removed components undamaged and in working order.				
Non-Task-Specific Evaluation	(0 pts)	(-1 pt)	(0 pts)	(-1 pt)
Student successfully completed at least three of the non-task-specific steps.				
Student successfully completed all five of the non-task-specific steps.				
Total Score: <total # of points/4 = %>				

Supervisor/Instructor:

Supervisor/instructor signature _____ Date _____

Comments:

Retest supervisor/instructor signature _____ Date _____

Comments:

