CDX Tasksheet Number: MHT5B002

Student/Intern Information

Name _____ Date _____ Class _____

Vehicle, Customer, and Service Information

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Materials Required

- Vehicle with possible battery concern
- Vehicle manufacturer's workshop materials
- Digital volt-ohmmeter (DVOM), conductance/capacitance tester
- Personal protection equipment (PPE)

Task-Specific Safety Considerations

- Diagnosis of this fault may require running the engine and managing an environment of dangerous gases and chemicals that carry severe risks. Attempt this task only with full permission from your supervisor/instructor, and follow all the guidelines exactly.
- Use extreme caution when working around batteries. Immediately remove any electrolyte that may come in contact with you. Electrolyte is a mixture of sulfuric acid and water. Batteries may produce explosive mixtures of gas containing hydrogen; avoid creating any sparks around batteries. Please consult with the shop safety and emergency procedures when working with or around batteries.
- Make sure you follow the manufacturer's operation procedures. Also make sure you have your supervisor's/instructor's permission to use any particular type of lifting equipment.
- 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 Confirm proper battery capacity for application; perform battery state-of-charge test; perform battery capacity test; determine needed action.

MTST V.B.2; P1

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.

Note: This tasksheet will require the use of a vehicle or simulator with an electrical fault. Ask your supervisor/instructor which vehicle or simulator you are to use.

Procedure:	Step Completed
1. Locate "Open-Circuit Voltage Test" (to measure battery state-of-charge) in the assigned vehicle service manual. List the steps for this procedure: (**Note:** Open-circuit voltage testing should not be used to make a final determination for battery replacement.)	☐
2. Make sure the engine is off and the battery is stabilized. If the battery has just been recharged, you must load test the battery to remove the surface charge. Turning the headlights on for 30 seconds can be used to remove the surface charge of a battery. Wait at least 10 minutes after the load test before measuring the open-circuit voltage. Follow the manufacturer's recommendations closely.	☐
3. Prepare the DVOM to measure voltage.	☐
4. Measure the battery voltage with the meter. Place the red lead on the positive post/terminal and the black lead on the negative post/terminal.	
a. Measured voltage (state-of-charge) of the battery: _____ volts	☐
5. The chart below represents the state-of-charge of the battery. Please mark the state of charge of the battery as it relates to the voltage measured.	☐

12.6V or greater	100% charge	
12.4–12.6V	75–100% charge	
12.2–12.4V	50–75% charge	
12.0–12.2V	25–50% charge	
11.7–12.0V	0–25% charge	
11.7–0.0V	0% or no charge	

6. Connect the digital battery analyzer to the vehicle. Place the red lead on the positive post/terminal and the black lead on the negative post/terminal. Follow the on-screen prompts to test battery conductance.	
a. Describe test results:	☐
7. Determine any necessary action(s):	☐

8. Return the vehicle/simulator to its beginning condition, and return any tools you used to their proper locations.	☐
9. Discuss your findings with your supervisor/instructor.	☐

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

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 to 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 how to conduct "Open-Circuit Voltage Test" and measure battery state-of-charge.				
Student successfully performed battery capacitance test.				
Student used a digital multimeter (DMM) and digital battery analyzer as directed and required.				
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: