

## CDX Tasksheet Number: MHT5F002

### Student/Intern Information

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_

### Vehicle, Customer, and Service Information

Vehicle used for this activity:

Year \_\_\_\_\_ Make \_\_\_\_\_ Model \_\_\_\_\_

Odometer \_\_\_\_\_ VIN \_\_\_\_\_

### Materials Required

- Vehicle or simulator with gauge and warning device concerns
- Vehicle manufacturer's workshop materials including schematic wiring diagrams
- Test lamp, digital volt-ohmmeter (DVOM)
- Personal protection equipment (PPE)

### 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.
- 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** Diagnose faults in the sensor/sending units, gauges, switches, relays, bulbs/light-emitting diodes (LEDs), wires, terminals, connectors, sockets, printed circuits, and control components/modules of the instrument cluster, driver information systems, and warning systems; determine needed action.

**MTST**  
V.F.2; P2

**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.

Time off \_\_\_\_\_

Time on \_\_\_\_\_

Total time \_\_\_\_\_

Procedure:	Step Completed
1. List the customer concern regarding the instrument cluster/driver information system:	<input type="checkbox"/>
2. If the gauges are not operating correctly, go to Step 3. If the warning devices are not operating correctly, go to Step 9.	<input type="checkbox"/>
3. Research the particular complaint/concern in the appropriate manufacturer's service manual.	
a. List the possible causes:	<input type="checkbox"/>
b. List any relevant gauge or sending unit specifications:	<input type="checkbox"/>
4. Diagnose the cause of the concern using the appropriate service information and wiring diagrams. List your tests and their results:	<input type="checkbox"/>
5. Perform any voltage-drop tests necessary to diagnose any causes or concerns in the instrument cluster system.	<input type="checkbox"/>
6. Check the conditions of all wiring, connectors, and terminals in the circuit.	
a. Condition of wiring: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
b. Condition of connectors: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
c. Condition of terminals: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
7. List the cause of the concern/complaint:	<input type="checkbox"/>

8. Determine any necessary action(s) to correct the fault:	<input type="checkbox"/>
9. Consult the appropriate manufacturer's service manual for the correct wiring diagram information to do this task.	<input type="checkbox"/>
10. Inspect and test all warning devices (lights and audible sensor circuits) by operating them and checking for illumination of all lights in the circuit.	
a. Are the warning devices working? Yes: <input type="checkbox"/> No: <input type="checkbox"/>	<input type="checkbox"/>
b. If No, consult the appropriate service information to repair or replace the faulty components.	<input type="checkbox"/>
11. Check all switch connections for corrosion and connector tightness.	<input type="checkbox"/>
12. Check all connectors to sockets and control modules for looseness, cracking, and burn marks that may cause the system to malfunction.	
a. Condition of connectors: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
(Note: Any burn marks or discoloration of the connectors may indicate excessive amperage running through them.)	
13. If the connectors are found to be bad, make recommendations for repairing or replacing the connections:	<input type="checkbox"/>
14. Test all modules for proper operation.	
a. Consult the manufacturer's workshop materials, and record the proper procedures to test these components:	<input type="checkbox"/>
15. Check all wiring that is present to the circuit for bare spots, cracked insulation, and no connection to a 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"/>

16. If the wiring is found to be bad, make recommendations for repairing or replacing the wiring:	
a. Condition of wiring: Good: <input type="checkbox"/> Bad: <input type="checkbox"/>	<input type="checkbox"/>
17. If the condition of the wiring is bad, make recommendations for repairing or replacing the wiring:	<input type="checkbox"/>
18. Return the vehicle to its beginning condition, and return any tools to their proper locations.	<input type="checkbox"/>
19. Consult with your supervisor/instructor and record any recommendations to bring the circuit back to manufacturer specifications:	<input type="checkbox"/>

<b>Non-Task-Specific Evaluations:</b>	<b>Step Completed</b>
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 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 the customer complaint.				
Student accurately tested and inspected the gauge or warning device circuit.				
Student compared the results to the specifications and 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.				
<b>Total Score:</b> <total # of points/4 = %>				

### Supervisor/Instructor:

Supervisor/instructor signature \_\_\_\_\_ Date \_\_\_\_\_

### Comments:

Retest supervisor/instructor signature \_\_\_\_\_ Date \_\_\_\_\_

### Comments: