Vehicle Electrification System Standards

IX. On-Board High Voltage Battery Charging Systems

IX.e On-Board High Voltage Battery Charging System Diagnostics and Service

Overview:

On-Board High Voltage Battery Charging System Diagnostic and Service

- Scan Tool PIDs
- Scan Tool Special Function (Bidirectional) Tests
- Testing Output Current
- Testing Output Ripple
- Testing Output Voltage Ripple
- Charge Connector Diagnostic Tool
- Digital Volt-Ohmmeter

Description:

Students will be able to monitor and test the On-Board Charger system using specified processes and equipment to confirm its output current and voltage regulation performance throughout its entire output range.

Outcome (Goal):

Students will utilizing a test vehicles, graphics and diagrams to test and check the functionality of the OBC, OBC charging controls, and service of the OBC system using specialized tools, electronic testers, and Scan Tool.

Objective:

When provided with graphics, diagrams, and live vehicles students will be able to perform diagnostic and service procedures to tests the operation and functionality of the OBC system.

Task:

Using a test vehicle and lab worksheets, students will be able to:

1. Test On-Board Charger Current Output and Ripple using a Current Clamp, and Oscilloscope (or Voltmeter with Snap-Shot feature)
2. Test On-Board Charger Voltage Regulation and Ripple using an Oscilloscope
3. Monitor On-Board Charger PIDs with a Scan Tool during High Voltage Battery Charging to compare commanded vs. actual output performance
4. Utilize Scan Tool Output Control functions to test CAN communications that control the On-Board Charger output
5. Use a Charge Connector diagnostic tool to test the operation of a live high voltage charger connector (instructor installs a failure)
6. Use Scan Tool Output Control functions to test the operation of OBC cooling pumps and valves.

To comment or offer suggestions on this standard, contact Ken Mays:

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