
Fuel Cell Standards

XX Fuel Cell High Voltage Systems

XX.a Fuel Cell Vehicle High Voltage Safety

Overview:

Classroom and lab topics

- Review topics from Vehicle Electrification System Standards
 - I. Vehicle Level Vehicle Electrification High Voltage System Architectures
 - II. High Voltage Safety and Personal Protective Equipment
 - III. High Voltage Vehicle Safety
- Nonconductive versus static dissipative and fire-resistant garments
- Potentials of high voltage in a fuel cell that is not in operation
- Live/dead/live testing review Fuel Cell High Voltage Disable Procedure
- Dissipative resistors internal and temporary external

Description:

High voltage vehicle safety systems provide layers of safety to vehicle operators, technicians, and engineers by ensuring that high voltage energy is not permitted to be transferred onto the high voltage bus when the vehicle is powered off and/or disabled. Working on a fuel cell system requires the same PPE and precautions as any other high voltage system. Additional knowledge of high voltage generated in a fuel cell stack and other unique subsystems is required.

Outcome (Goal):

Student will be able to identify high voltage vehicle safety systems on a fuel cell electric by utilizing OEM diagrams, graphics, live vehicle, and components and how to disable the fuel cell high voltage system.



Objectives:

Students shall be able to:

1. When provided a with a fuel cell electric vehicle, graphics, or sub-system components students will be able to visually identify high voltage vehicle safety system components and locations
 2. Describe types of PPE necessary to service a fuel cell high voltage system including where and when to wear each type of PPE
 3. Explain the differences in high voltage safety systems when comparing a fuel cell vehicle and a BEV.
 4. Disable a fuel cell high voltage system using OEM procedures
 5. Articulate why a resistor is required to dissipate residual energy from a fuel cell stack
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Tasks:

Students will:

1. Demonstrate how to properly wear and use High PPE necessary to perform service on a Fuel Cell High Voltage system
 2. Demonstrate how to field test PPE before using
 3. Identify unique fuel cell system high voltage components
 4. Demonstrate how to disable a fuel cell high voltage system using OEM service procedures
 5. Utilize a load resistor to dissipate residual energy from the fuel cell stack
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