
Fuel Cell Standards

XVIII. Anode Subsystem

XVIII.c Hydrogen Recirculation Pump

Overview:

Classroom and lab topics

- Primary functions of the hydrogen recirculation subsystem
- Pump and blower mechanizations
- Pump control methodology
- Logic in determination of a fault
- Schematic representations versus actual components
- Trouble codes associated with hydrogen recirculation issues
- Pump mechanical noise mitigation

Description:

The anode subsystem is generally dead ended so that unreacted hydrogen is not exhausted during normal operation. This requires mechanisms to remove nitrogen and water from the dead end and re-pressurize the remaining hydrogen for reintroduction upstream of the stack anode inlet. The pressurization is achieved using a pump or a blower

Outcome (Goal):

Student will be able to explain the functions of the hydrogen recirculation subsystem

Objectives:

Students shall be able to:

1. When provided with a vehicle student will be able to identify the hydrogen recirculation pump location



2. Identify leaks and repair

Tasks:

Students will

1. Students will use a schematic, OEM service instructions and an OEM vehicle or complete fuel cell system to identify the pump and associated harness
 2. When provided with a vehicle student will be able to troubleshoot the recirculation pump
 3. Remove and replace recirculation pump using OEM service instructions
 4. Using OEM service instruction determine any preventative maintenance or service interval
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