
Fuel Cell Standards

XVII. Cathode Subsystem

XVII.a Cathode Subsystem Mechanization

Overview:

Classroom and lab instruction on the operation of the cathode subsystem and its components

- Primary functions of the cathode subsystem in an OEM system
- Schematic representations versus actual components
- Trouble codes associated with cathode subsystem errors
- Faults caused by air flow restriction in the cathode subsystem
- Faults caused by leakage of air from the cathode subsystem
- Faults caused by out of specification temperature of cathode subsystem compressed air at the membrane

Description:

The cathode subsystem or cathode loop supplies air from the air filtration unit, routes it through the mass air flow sensor to the compressor, then the charge air cooler and humidification unit before supplying it to the cathode side of the fuel cell membrane. The cathode subsystem also allows for rapid depressurization in shutdown situations to avoid membrane damage and controls the oxygen depleted air's exit through the exhaust.

Outcome (Goal):

Student will be able to explain the functions of the cathode subsystem including air filtration, exhaust gases and water removal as well as conditions requiring rapid pressure reduction



Objectives:

Students shall be able to:

1. Follow the air flow path through a schematic and an actual fuel cell system
 2. Identify major cathode components
 3. Explain the operation of cathode subsystem components
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Tasks:

Students will

1. Use a schematic, OEM service instructions and an OEM vehicle or complete fuel cell system to identify major cathode subsystem components
 2. Describe the functions of the major cathode subsystem components
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To comment or offer suggestions on this standard, contact Ken Mays:

Ken Mays

NEVTEX

541-383-7753

kmays@cocc.edu

