

03.113 Fuel Cell Injector Purge (03. HSS Procedure)

OBJECTIVE:

To periodically clear out solidified carbon that may build up in the injector lines for the carbon fuel cells.

EQUIPMENT:

PPE safety glasses
Orange caution cone

1. SAFE FUEL CELLS (IF ACTIVATED)

- 1.1 Remove floor panel 1C and temp stow. Place orange caution cone to the side of opening.
- 1.2 Don PPE safety glasses.
- 1.3 Check 15 amp circuit breaker is not tripped by verifying there is no white ring visible on the circuit breaker (see Figure 1).
- 1.3.1 If tripped, reset and inform MCC through text or call down.

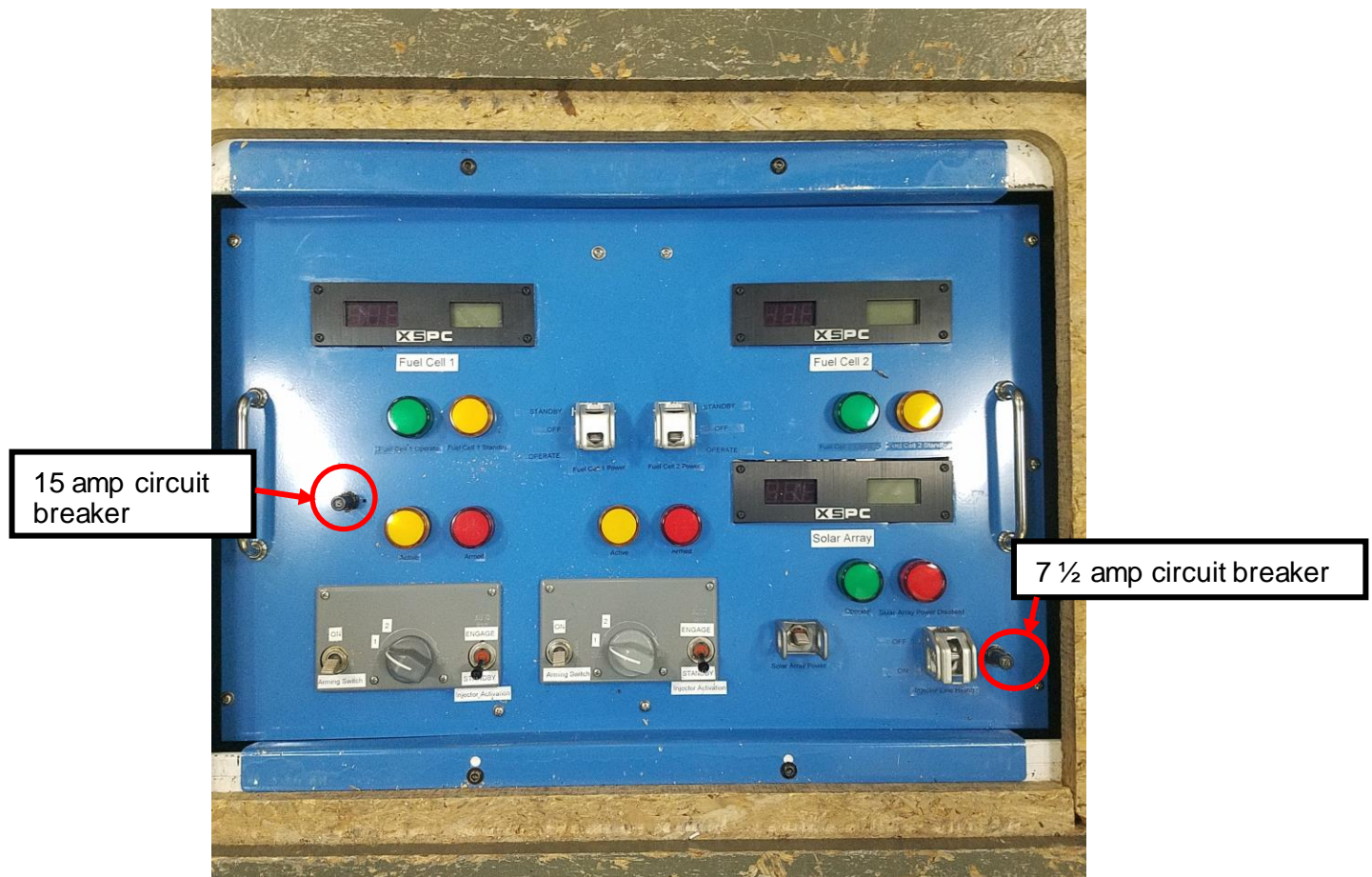


Figure 1: Fuel Cell Control Panel

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- 1.4 Check fuel cell 1 and 2 green operate lights are illuminated (see Figure 2).



Figure 2: Fuel Cell Operate Light

NOTE

Fuel cell power switch has three positions:

Down = Operate Mode

Neutral (Center) = Power Removed

Up = Standby Mode

- 1.5 Lift switch guards for fuel cell 1 and 2 power and flip power to Standby Mode.
- 1.6 Check fuel cell 1 and 2 yellow standby lights are illuminated and green operate lights are off (see Figure 3).



Figure 3: Fuel Cell Standby Light

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NOTE

Heater is required to loosen the carbon buildup on the injector lines before manual purge.

L1C Subf 2. ACTIVATE INJECTOR LINE HEATER



Figure 4: Injector Line Heater Switch

- 2.1 Check 7 ½ amp circuit breaker is not tripped by verifying there is no white ring visible on the circuit breaker (see Figures 1 and 4).

If tripped, reset and inform MCC through text or call down.

- 2.2 Lift Injector Line Heater switch guard.
- 2.3 Flip Injector Line Heater switch to “ON” (down).



Figure 5: Fuel Cell Temperature Sensor (on right)

- 2.4 Monitor temperature of both fuel cells until they both reach 29 C or greater (see Figure 5).

This typically takes ~2-3 minutes.

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3. ARM INJECTOR SWITCHES



Figure 6: Injector Panel

3.1 Move Arming Switch to “ON” for both fuel cells 1 and 2 (see Figure 6).



Figure 7: Injector Active Light

3.2 Confirm yellow active light illuminates for both fuel cells 1 and 2 (see Figure 7).

3.3 Turn Arming Dial from position 1 to 2 for both fuel cells 1 and 2 (see Figure 6).

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Figure 8: Injector Armed Light

- 3.4 Confirm red armed light illuminates and blinks for both fuel cells 1 and 2 and the yellow active lights are off for both fuel cells 1 and 2 (see Figure 8).

L1C Subf 4. PURGE INJECTOR LINES

- 4.1 Flip Injector Activation switch for fuel cell 1 from “STANDBY” to “ENGAGE” and hold for 3 seconds (see Figure 6).
- 4.2 Confirm audible hiss of injector line as it is cleaned.
- 4.3 Release switch to return it to “STANDBY”.
- 4.4 Flip Injector Activation switch for fuel cell 2 from ‘STANDBY’ to ‘ENGAGE’ and hold for 3 seconds (see Figure 6).
- 4.5 Confirm audible hiss of injector line as it is cleaned.
- 4.6 Release switch to return it to ‘STANDBY’.

L1C Subf 5. REACTIVATE FUEL CELLS

- 5.1 Turn Arming Dial from position 2 to 1 for both fuel cells 1 and 2 (see Figure 6).
- 5.2 Confirm red armed light is off for both fuel cells 1 and 2 and the yellow active light illuminates for both fuel cells 1 and 2 (see Figure 8).
- 5.3 Move Arming Switch to “OFF” for both fuel cells 1 and 2.
- 5.4 Confirm yellow active light for both fuel cells 1 and 2 is off.

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- 5.5 Flip Injector Line Heater switch to "OFF" (up).
- 5.6 Close Injector Line Heater switch guard.
- 5.7 Flip power switch for fuel cells 1 and 2 power to Operate Mode.
- 5.8 Check fuel cell 1 and 2 green operate lights are illuminated.
- 5.9 Flip switch guard to closed for fuel cells 1 and 2.
- 5.10 Doff PPE safety glasses.
- 5.11 Retrieve and reinstall floor panel 1C.
- 5.12 Stow all equipment including orange cone.