03.113 Fuel Cell Injector Purge
(03. ECLSS)

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 1x

L1C Subf

1. SAFE FUEL CELLS (IF ACTIVATED)

1.1 Remove floor panel 1C and temp stow. Place orange caution cone to side of opening.

1.2 Don PPE safety glasses.

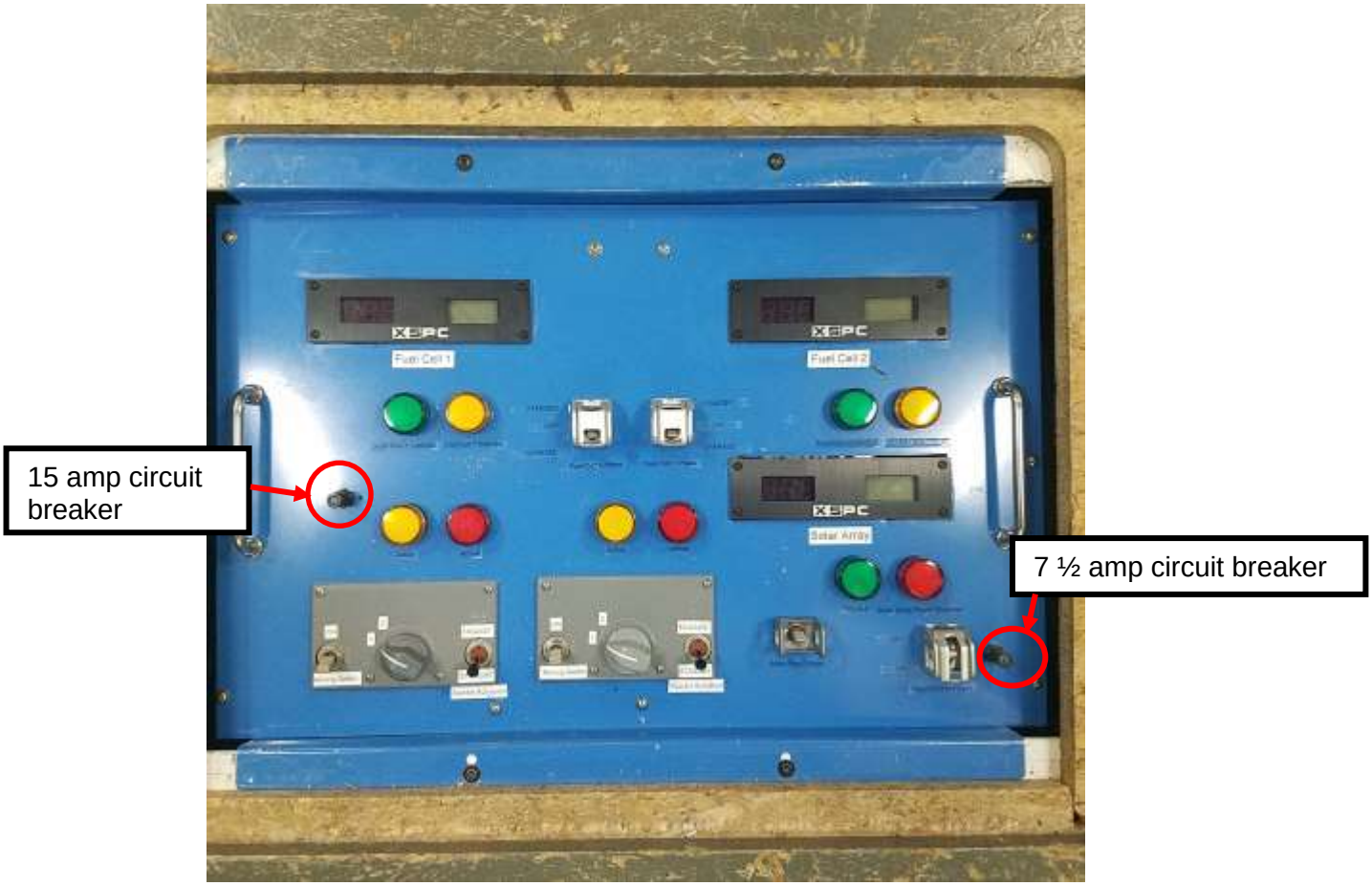

Figure 1: Fuel Cell Control Panel

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).

If tripped, contact MCC and reseat.

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

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, contact MCC and reseat.

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 32 C or greater (see Figure 5).

This typically takes ~2-3 minutes.

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).

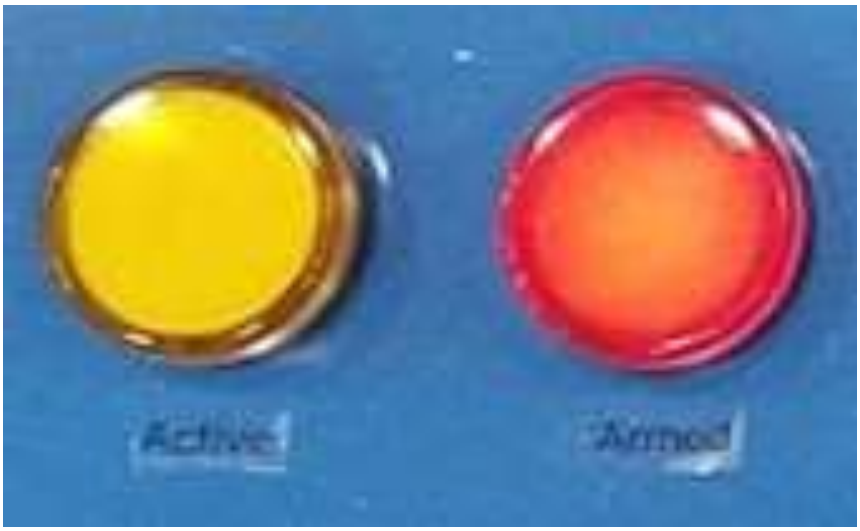

Figure 8: Injector Armed Light

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. <u>PURGE INJECTOR LINES</u>

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. <u>REACTIVATE FUEL CELLS</u>

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.

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.