

**USA Ground Operations CIL Sheet**

**Critical Item:** Programmable Logic Controller  
**NASA Part No:** None  
**Mfg/Part No:** Allen-Bradley / PLC 5/20  
**System:** Fixed Environmental Control System

**Criticality Category:** 2  
**Total Quantity:** 3

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	1	OPF -1	C70-1207	052.00	80K57580 / 41
None	1	OPF -2	C70-1207	052.00	80K57580 / 41
None	1	OPF -3	C70-1207	052.00	80K57580 / 41

**Function:**

Performs control for the Enviromental Control System.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09GS05-012.002	Internal component failure or software failure.	None	2
Unsolicited output	Flow control valve could be commanded open causing damage to flight hardware due to overpressurization.	Immediate	

**ACCEPTANCE RATIONALE**

**Design:**

- Designed to industry standards.
- PLC cycles all valves prior to start.
- The PLC is electrically isolated from external voltages/currents.

**Test:**

- PLC software was validated and tested.
- Prior to ECS startup the PLC runs a pre-start cycling of all flow control valves to verify valve and PLC functionality.
- OMRSD File VI requires the PLC to be rebooted and expected performance verified after cycling the PLC internal diagnostics once a month.

**Inspection:**

- None.

**Failure History:**

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and no data was found on this component in the critical failure mode.

**Operational Use:**

Correcting Action	Timeframe
There is no action which can be taken to mitigate the failure effect.	Since no correcting action is available, timeframe does not apply.