USA Ground Operations CIL Sheet

MAY 3 1 2000

Critical Item: Motion Controller (MC)

Criticality Category: 2

NASA Part No: None

Total Quantity: 1

Mfg/Part No: Ormec / ORN-70/CFE

System: Payload Bay Area Access Bridge System

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
MC	1	OPF-2	A70-0883	288.00	80K57568 / 3

Function:

Performs control for the motion of the aft bridge in OPF Highbay 2. The motion producing inputs from the pendants and the aft bridge are sent to the Programmable Logic Controller (PLC) via a single network consisting of analog input modules and touch panels. Once the analog values are received, the PLC processes and sends the commands to the Motion Controller which handles all the motor controls for the bridge.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FTP3-014.011 Unsolicited command	Internal component failure of the Motion Controller or software failure. Motion Controller could initiate or continue a motion in an uncommanded direction or speed resulting in loss/damage to flight hardware.	Abnormal movement Immediate	2

ACCEPTANCE RATIONALE

Design:

- The Motion Controller is electrically isolated from external voltages/currents.

- The E-stop circuit is independent from the Motion Controller circuit.

- Internal diagnostics verify all bridge controls each time the aft bridge is used.

Test:

- OMRSD File VI requires the performance of a daily functional check before use of the bridge to verify proper operation of all bridge controls. The test will cycle the PLC/MC internal diagnostics to check e-stops and to check that the PLC/MC perform as expected.

- OMRSD File VI requires the performance of an annual operational test to verify proper operation of all limit switches, e-stops, and controls of the PLC/MC perform as expected.

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:

Corrective Action	Timeframe
There is no action which can be taken to mitigate the failure effect.	Immediate