USA Ground Operations CIL Sheet

Critical Item: P.A.T. System
Criticality Category: 2
NASA Part No: None
Total Quantity: 1
Mfg/Part No: Piech Automotive Design / DC 350
System: 130 Ton Tadano Mobile Crane

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
A921	1	KSC	H72-1500	330.00	22-001-38-0046D / 1 TO 9

Function:

Processes commands from the operator inputs through the joystick or switches and sends the command to the corresponding solenoid valve.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
00004.004 Unsolicited command	Internal component failure or software failure of any microprocessor card P.A.T. could initiate or continue a crane motion in an uncommanded direction or speed possibly lowering or moving a load into an object resulting in loss (damage) to flight hardware.	Visual Seconds	2

ACCEPTANCE RATIONALE

Design:

- The design of the overload safety devices (including the 102 card in the P.A.T. system) is subject to the directives of the Association of German Engineers (VDI) standard 3750.
- Overloads are detected by a separate card (102) that will prevent crane movements leading to instability.

Test:

- Before crane operation the system goes through a series of self diagnostics to detect any fault in the system.
- OMRSD File VI requires the performance of an annual operational test to verify proper operation of all crane controls.

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
If the load was not in close proximity to an object, the operator can take correcting action by shutting down the crane.	Seconds to minutes.