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Attachment  
Sheet 7 of 11  
SEP 22 1998

**USA Ground Operations CIL Sheet**

**Critical Item:** Programmable Industrial Computer (PIC) CPU Module  
**NASA Part No:** None  
**Mfg/Part No:** Giddings And Lewis Electronics / PIC 409  
**System:** 30 Ton Bridge Crane

**Criticality Category:** 1  
**Total Quantity:** 2

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
PIC	2	OPF-3	H70-1379-01	380.00	Ederer EB-2286 / All

**Function:**

Performs control and monitor functions of the hoist subsystem.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FY091-007.017 Unsolicited Command	Internal component failure or software failure.  PIC could initiate or continue a crane motion in an uncommanded direction or speed resulting in loss of life and/or vehicle or loss (damage) to a vehicle system.	Visual  1 Second	1

**ACCEPTANCE RATIONALE**

**Design:**

- Designed to industry standards. UL listed.
- Internal diagnostics verify the configuration of crane controls upon PIC startup.
- The PIC utilizes optical isolation to ensure integrity of internal power.
- Integrated scanner module capable of trapping most system faults.

**Test:**

- Crane software was validated per the acceptance test procedure.
- Operational check of the crane (no load) performed monthly in accordance with OMI Q3516.
- Pre-operational set-up includes verification of crane's operational readiness prior to each use per OMI Q3516.
- Before each use, functional checks of the limit switches and E-stops are performed per OMI Q6331.
- OMRSD File VI requires the performance of an operational test to verify proper operation of all crane controls. The test will cycle the PIC internal diagnostics and show that the crane PIC performs as expected.

**Inspection:**

- Visual inspection of crane components prior to each use in accordance with OMI Q3516.
- Verification of valid E-stop certification prior to each use.

**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 three (3) Problem Reports were found on this component: P-V6-192504, P-V6-312616 & P-V6-224434.

**Operational Use:**

Correcting Action	Timeframe
Operator or observers may mitigate the failure effect by pushing the E-stop.	3 seconds.