

SAA09FY36-001

JAN 23 1994

B/L: 505.20
 SYS: ONE TON
 BRIDGE
 CRANE

Critical Item: Hoist Down Pushbutton Switch (1 Item Total)
Find Number: PB4
Criticality Category: 2

SAA No:	09FY36-001	System/Area:	Ordinance Storage Facility / Ordinance Lab
NASA Part No:	None	PMN/ Name:	K61-2860 One Ton Bridge Crane
Mfg/ Part No:	Euclid Electrical and Manu- facturing Co. / 2015-C2	Drawing/ Sheet No:	72-K-L-11083 4, 5

Function: Provides hoist lowering capability in slow or high speed.

Critical Failure Mode/Failure Mode No: Falls Closed / 09FY36-001.003

Failure Cause: Welded contacts

Failure Effect: Hook/Load will not cease operation in the down direction unless the main circuit breaker (SW-1) is opened. Possible loss (damage) to flight hardware if close proximity of hook/lifting sling does not allow sufficient time for the operator to take correcting action.
Detection Method: Visual. **Time to Effect:** 10 Seconds.

ACCEPTANCE RATIONALE

Design:

- The pushbutton switch in the control pendant meets the National Electrical Manufacturers Association (NEMA) standard (CS2-88 section 2-125.20 contact rating B150.
 The pushbutton contacts are rated for 3 amps interrupted and 5 amps continuous. The relay coils that the pushbuttons energize have a nominal current draw of 0.64 amps while making contact and 0.1 amps while holding contact.
- The pushbutton contacts are silver plated. A slight wipe is produced by the action of the movable contact which promotes self cleaning for good conductivity.
- The contact block to which the stationary and moveable contacts and terminals are assembled is molded from a glass-fiber reinforced alkylid. The material is highly resistant to shock, arc, and tracking.

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Test:

- Preoperational set up verifies proper operation of the pushbutton switch.
- OMI Q6103 requires a monthly operational check of the hoist lowering and raising functions.

Inspection:

- Contacts can be visually inspected by removing the back cover of the control pendant.
- OMRSD File VI requires an annual visual inspection of the pushbutton contacts for signs of wear, contamination, or overheating.
- OMI Q6103 requires a monthly exterior visual inspection of the control pendant for broken pushbuttons.

Failure History:

- The PRACA database was researched and no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange system was researched and no failure data was found on this component in the critical failure mode.

Operational Use:

- Correcting Action:

The use of circuit breaker SW-1 is effective in mitigating these failures if there is sufficient time/distance for the operator to react.

- Timeframe:

15 Seconds