

SAA09FY12-005
REV. B MAR 11 1994

B/L: 389.00
SYS: 250-TON
BRIDGE
CRANE, VAB

Critical Item: Switch, Swivel Control (2 Total, 1/Crane)
Find Number: 5MC
Criticality Category: 2

SAA No:	09FY12-005	System/Area:	250-Ton Bridge Crane (#1 & #2)/VAB
NASA Part No:	NA	PMN/ Name:	K60-0533, K60-0534/ 250-Ton Bridge Crane (#1 & #2)/VAB
Mfg/ Part No:	General Electric/ Type SB-1	Drawing/ Sheet No:	69-K-L-11388/ 14

Function: Provides control for direction and speed of hook swivel.

Critical Failure Mode/Failure Mode No:

- a. N.O. contact SS4-2 fails closed/09FY12-005.068
- b. N.O. contact SS4-1 fails closed/09FY12-005.069

Failure Cause: Welded contact, binding mechanism

Failure Effect: (For both failures) Unable to de-energize relay CW (with contact SS4-2) or CCW (with contact SS4-1) to disengage clockwise or counterclockwise hook swivel. The critical load (Orbiter or ET) will continue to swivel when commanded to stop, possibly contacting the work platforms or the shuttle stack causing possible damage to a vehicle system. Time to effect: seconds.

ACCEPTANCE RATIONALE

Design:

<u>Contact Ratings</u>	<u>Actual</u>
600 volts	120 volts
20 amps	Testing required

- This switch was off-the-shelf hardware selected by the crane manufacturer for this application.

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Test:

- OMRSD file VI requires verification of proper performance of hoist operational test annually.
- OMI Q3008, Operating Instructions, requires all crane systems be operated briefly in all speeds to verify satisfactory operation before lifting operations.

Inspection:

- OMI Q6003 requires annual check of contacts and contact members for burning, pitting proper alignment and discoloration caused by overheating.

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:
 - 1) When the failure indication is noticed, the operator can stop all crane operations by pressing the E-Stop button.
 - 2) Operators are trained and certified to operate these cranes and know and understand what to do if a failure indication is present.
 - 3) During all critical lifts, there is at least one remote Emergency Stop (E-Stop) operator observing the load lift, and can stop the crane if a failure indication is noticed.
- Timeframe:
 - Estimated operator reaction time is 3 to 10 seconds.

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