

SAA09FY121-001
B/L: 389.00
SYS: 15-TON
BRIDGE CRANE
VAB

Critical Item: Push Button Switch (5 Items)

JAN 23 1995

Find Number: S5, S6, S7, S8, S9

Criticality Category: 2

SAA No: 09FY121-001

System/Area: 15-Ton Bridge Crane/
VAB - Low Bay Cell 7

NASA
Part No: None

PMN/
Name: K60-0532/15-Ton Bridge
Crane

Mfg/
Part No: Duct-o-wire/PB-5

Drawing/
Sheet No: 79K16769/1-9

Function: Energizes control relays for hoist down, trolley right/left, and Bridge Forward/reverse functions.

Critical Failure Mode/FM No: Fails Closed/09FY121-001.004
09FY121-001.005
09FY121-001.006
09FY121-001.007
09FY121-001.008

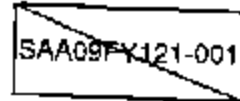
Failure Causes: Switch sticks, welded contacts (2 to 6), broken spring

Failure Effect: Hoist, trolley or bridge will not cease operation in the last commanded direction unless commanded by the stop, remote stop, disconnect switches or a limit switch. Possible loss (damage) to flight hardware if close proximity to an obstruction does not allow sufficient time for the operator to take correcting action. Failure is detectable when motion fails to stop when commanded. Time to effect: seconds.

Acceptance Rationale

Design:

Two push button switches per module, two blades per switch, six contact balls per switch.



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Contacts:	Rated (NEMA 4)	Actual
Voltage:	125V AC	120V AC
Current:	6 amps continuous 8 amps intermittent	.25 amps continuous 1.9 amps intermittent

Test:

- Pre-operational set up (attaching and positioning sling over the load) to support lifting operations in OMI B5303 Task 04 verifies proper operation of crane components and all functions.
- A full operational check of the crane is performed monthly (no load) in accordance with OMI Q6166.
- An operational check of the crane is performed under full rated load as part of the annual load test in accordance with OMI Q6166.
- OMRSD File VI requires annual performance of an operational test at rated load.
- Reliability testing was performed by the manufacturer. This type switch was subjected to over 500,000 cycles without failure.

Inspection:

- The pendant control is visually inspected monthly for missing nomenclature and physical damage such as loose screws, torn dust covers or damage pushbuttons in accordance with OMI Q6166.

Failure History:

- The PRACA database was queried and no failure data was retrieved against this component.
- The GIDEP failure data interchange system has been researched and no failures of this component were found.

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Push Button Switch (Continued)

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Operational Use:

o Correcting Action:

Use of stop button or E-stop is effective in mitigating these failures if there is sufficient time/distance for the operator to react.

o Timeframe: Seconds