

SAA09EL18-003
REV. C

B/L: 131.80
SYS: Ball/Bar Lights
- SLF

Critical Item: Fusible Disconnect Switch (2 Items Total) JUL 31 1992
Find Number: FS1
Criticality Category: 1 (Night Landing Only)

SAA No: 09EL18-003 System/Area: Ball/Bar Lights - SLF
NASA Part No: None PMN/ Name: U72-1335 Ball/Bar Lights
Mfg/ Part No: I-T-E D322N Drawing/ Sheet No: 80K51820 8

Function: Provides Circuit Overload Protection for the Phase "A," "B," and "C" legs of the Ball/Bar Light System.

Critical Failure Mode/Failure Mode No: Premature Open of the Phase "B" leg/
09EL18-003.039, 09EL18-003.040

Failure Cause: Heat/Faulty Mechanism/Corrosion

Failure Effect: Loss of power to the Ball Lights. Loss of ability to acquire and maintain the proper inner glideslope during Orbiter landing operations. Possible loss of life/vehicle.

ACCEPTANCE RATIONALE

Design:

| <u>Rated</u> | <u>Estimated Operating</u> |
|----------------|----------------------------|
| 0 to 240 volts | 120 volts |
| 60 amps | 31 amps |

- Switch is mounted in a rainproof NEMA 3R Enclosure which is located within an air conditioned structure.

Test:

Switches are certified in accordance with the requirements of National Electrical Manufacturers Association (NEMA) Standard KSI-1983 for type HD switches and Underwriters Laboratories Standard UL98, "Standard for Safety, Enclosed and Dead Front Switches."

Certification testing included the following with no malfunctions:

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920724akPS0100

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- **Operational Testing:**
50 make and break cycles at 850 amps
- **Endurance Testing:**
8,000 cycles with 84 amperes of current applied and
7,000 without current applied
- **Dielectric Voltage Withstand Testing:**
2 times max rated voltage plus 1,000 volts at a frequency of 60 Hz for 1 minute applied:
 - 1) Between live parts and the enclosure with the switch closed.
 - 2) Between terminals of opposite polarity with the switch closed,
and
 - 3) Between the line and load terminals with the switch open.

OMI I3134 requires verification of proper operation and equipment setup prior to each Shuttle launch and landing flow.

Inspection:

- Visual inspections for corrosion, contamination and/or physical damage are accomplished annually during performance of OMI I3134 system verification.

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:**

There is no action which can be taken to mitigate the failure effect.

- **Timeframe:**

Since no correcting action is available, timeframe does not apply.

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