

B/L: 131.80 DEC 20 1951
SYS: BALL/BAR LIGHTS
(PORTABLE SYSTEM)

Critical Item: Fusible Safety Switch (3 Items Total) (1/System)
Find Number: FS1
Criticality Category: 1 (Night Landing Only)

SAA No: 29LA01-003 **System/Area:** Visual Landing Aids at SLS #1
NASA Part No: **PMN/ Name:** U72-1336-02 Ball/Bar Lights
Mfg/ Part No: Gould Electric NR 422 **Drawing/ Sheet No:** 80K51889 9

Function: S1B contact applies power to Bar Light Assemblies 2, 4, 6 and Ball Lights 1 and 2.

Critical Failure Mode/Failure Mode No: Premature open S1B side/29LA01-003.015, 29LA01-003.016, 29LA01-003.017.

Failure Cause: Heat/Faulty Mechanism/Corrosion

Failure Effect: Loss of power to Bar Light assemblies 2, 4, 6 and Ball Lights 1 and 2. Loss of ability to acquire and maintain the proper inner glideslope during landing operations. Possible loss of life/vehicle.

Time to Effect: Immediate, during inner glideslope use.

ACCEPTANCE RATIONALE

Design:	<u>Rated</u>	<u>Estimated Operating</u>
	0 To 240 Volts	120 Volts
	60 Amps	22 Amps

- o Short circuit withstand rated at 10,000 RMS symmetrical amperes.
- o Switch is mounted in a rain proof NEMA 3R enclosure.
- o 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 UL88, "Standard for Safety, Enclosed and Dead Front Switches."

Test: Certification testing included the following with no malfunctions:

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o Operational Testing:

50 make and break cycles at 850 amps

o Endurance Testing:

8,000 cycles with 84 amperes of current applied and
7,000 cycles without current applied

o 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.

o The OMRSD, File VI will require verification of proper operation prior to each operational use.

o GEGS Technical Directives TD 1-4 and 1-5 require verification of proper operation the day before, and again the day of Shuttle training aircraft and Orbiter landing operations.

Inspection: GEGS Technical Directives will require that equipment is physically inspected for corrosion, contamination and/or physical damage annually.

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.