

USA Ground Operations CIL Sheet DEC 15 1999

Critical Item: Brake Micro Switch

Criticality Category: 1S

NASA Part No: None

Total Quantity: 4

Mfg/Part No: Square D / C54C

System: FSS Electrical Passenger Elevators

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	1	Pad-A	K60-0597-01	420.00	E835001E /
None	1	Pad-A	K60-0597-02	420.00	E835001E /
None	1	Pad-B	K60-0597-06	420.00	E828801D /
None	1	Pad-B	K60-0597-07	420.00	E828801D /

Function:

Energizes or de-energizes Brake Picked Input in order to release or set the brake.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FY018-001.233 Fails open	Internal piece part failure. Possible loss of car mobility and/or failure of door operation. Loss of elevator function would prevent / delay ingress of rescue personnel during Flight Crew /Red Crew/Close-Out Crew rescue operations. Possible entrapment of personnel during hazardous fuel spill or fire. Could result in loss of life during a hazardous condition.	Loss of car mobility. Immediate	1S
09FY018-001.234 Fails closed	Internal piece part failure. PLC will detect failure and remove power from the safety circuitry, shutting down the elevator. Possible loss of car mobility and /or failure of door operation. Loss of elevator function would prevent / delay ingress of rescue operations. Possible entrapment of personnel during hazardous fuel spill or fire. Could result in loss of life during a hazardous condition.	Loss of car mobility. Immediate	1S

ACCEPTANCE RATIONALE**Design:**

- This switch is typical equipment used in industry for the intended application.
- The design of the FSS elevator systems are consistent with ASME A17.1 (1994) Safety Code For Elevators And Escalators.

Test:

- The State of Florida requires bi-annual elevator inspection and certification.
- Annual testing and certification of elevators is performed per ANSI/ASME A17.1.
- OMRSD File VI requires that the FSS elevators are functionally tested (Ref. OMI S0007VL2) at T-8 hours.
- The Pad Close-out Crew performs additional functional check-out at T-25 Minutes.

Inspection:

- OMI Q3018 requires inspection and functional test after each launch.
- OMI Q6009 requires monthly inspection of Pad Electrical Passenger Elevators.

Failure History:

- Failures have been experienced with the elevator systems, however they have been attributed to burn-in

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type causes which do not represent current elevator operation. Critical failure modes identified are not represented in the burn-in type failures experienced.

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and no data was found on this component in the critical failure mode.

Operational Use:

Correcting Action	Timeframe
There is no action which can be taken to mitigate the failure effect.	Since no correcting action is available, timeframe does not apply.