

USA Ground Operations CIL Sheet DEC 15 1999**Critical Item:** Programmable Logic Controller**Criticality Category:** 1S**NASA Part No:** None**Total Quantity:** 4**Mfg/Part No:** GE Fanuc Automation / GE 90-30**System:** FSS Electrical Passenger Elevators

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
Car Control PLC	1	Pad-A	K60-0597-01	420.00	80K58931 / All
Car Control PLC	1	Pad-A	K60-0597-02	420.00	80K58931 / All
Car Control PLC	1	Pad-B	K60-0597-06	420.00	80K58931 / All
Car Control PLC	1	Pad-B	K60-0597-07	420.00	80K58931 / All

Function:

Provides electrical control of all elevator car functions.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FY018-001.207 Fails to operate	Internal component failure/ software failure Possible loss of car mobility. Possible 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
09FY018-001.208 Erroneous operation	Internal component failure/ software failure Possible loss of car mobility. Possible inadvertent operation. Possible erratic operation of elevator. Possible 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 or erratic operation. Immediate	1S

ACCEPTANCE RATIONALE**Design:**

- The GE Fanuc Programmable Logic Controller is specifically designed for industrial control applications.
- 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:

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