

USA Ground Operations CIL Sheet DEC 15 1999

Critical Item: Hoist Motor
NASA Part No: None
Mfg/Part No: Otis Elevator Company / 219 HT
System: FSS Electrical Passenger Elevators

Criticality Category: 1S
Total Quantity: 4

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	1	Pad-A	K60-0597-01	420.00	80K58931 / All
None	1	Pad-A	K60-0597-02	420.00	80K58931 / All
None	1	Pad-B	K60-0597-06	420.00	80K58931 / All
None	1	Pad-B	K60-0597-07	420.00	80K58931 / All

Function:

Provides torque for elevator car hoist system.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FY018-001.203 Fails Inoperative	Bearing seizure/ windings fail open or shorted/ brake mechanism or brake DC power supply failure/ loss of AC input power. Loss of car mobility. 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
09FY018-001.204 Brake Fails To Engage	Mechanism seizure / corrosion Control System will sense failure and execute a safe system shut-down. 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

ACCEPTANCE RATIONALE**Design:**

- Hoist motor components are part of the original FSS elevator installation and are typical of 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.
- Motor is rated at 265 Volts 96 Amps, 33HP, 68 RPM

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.

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- 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 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.