

ATTACHMENT
S 4024K 3-218-F 2-11
SA05FY12-011
REV. B

Critical Item: Solenoid Holding Brake

Find Number: 10

Criticality Category: IR

SA# No: 09FY12-011

System/Area: 10-Ton Bridge Crane, SSME
Assembly Area, YAB Low Bay

NASA
Part No: None

Part/
Name: H70-1382

Mfg/
Part No: Hannischfeger Corporation/
HL-728-7

Drawing/
Sheet No: 69-K-L-11635
4

Function: The solenoid holding brake provides torque for stopping and holding load when power to motor is turned off.

Critical Failure Mode:

Failure of the electric brake following the undetected failure of the load brake will allow the load to drop. FM No. 09FY12-011.002

Failure Effect: Load will drop, possibly damaging SSME hardware or loss of life. Falls redundancy screen b. Requires failure of both the solenoid holding brake and the mechanical load brake.

ACCEPTANCE RATIONALE

Design:

- a The solenoid holding brake design is in accordance with DMA standards.
- o The solenoid holding brake is a disc type. Whenever the hoist motor is energized, the DC magnetic motor brake is energized to pull the armature against the brake compression spring and free the disc type brake linings. When the hoist motor is de-energized, the motor brake is also de-energized and releases the armature, allowing the compression spring to exert force on the disc type brake linings, which in turn apply braking torque to the motor pinion shaft.

Test:

The OMRSD requires verification of the annual load test (100% of rated load).

Acceptance test was performed in the VAS in 1982 at 125% of rated load.

Inspection:

The following inspection is performed by OMI Q6095.

- o Visual and operational check of crane is performed monthly per OMI.
- o A maintenance check of the crane brakes is performed annually.

Failure History:

- o The PRACA Data Base was queried, and there was no failure data found on the brakes.
- o The GIDEP Failure Data Interchange System has been researched, and no failure data on this component was found.