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Critical Item: LOWER HINGE ACTUATOR (2 Items Total)

Find Number: A101364

Criticality Category: 1S

SAA No: 09VE14-001

System/Area: ORBITER ACCESS ARM /
LC-39 PAD A&B

**NASA
Part No:** 75M12560

**PMN/
Name:** U70-0503
ORBITER ACCESS ARM

**Mfg/
Part No:** FLOTORK
NONE

**Drawing/
Sheet No:** 79K06013 , 79K40015
1

Function: Extends and retracts the Orbiter Access Arm. Lower actuator assembly (A101364) is redundant with Upper Actuator Assembly (A101349).

Critical Failure Mode/Failure Mode No: Fails to actuate / 09VE14-001.002

Failure Cause: Seizes, severe leakage.

Failure Effect: Arm cannot be extended or may exceed the 30 second maximum allowable time due to mechanical seizure or severe leakage. Possible loss of life.

ACCEPTANCE RATIONALE

Design:

- Four (4) piston actuators coupled to the hinge post weldment act in a redundant manner.
- Seal design (square cross-section) minimizes tendency to roll and .035" piston land clearance reduces possibility of seal causing seizure.
- Combination of bronze liner and steel piston extremely reliable with respect to seizure.

Test:

- Emergency Extend and Retract test is performed prior to each launch, File VI OMRSD requirement.

Inspection:

- Actuator inspected for external leakage annually per OMI V6C50.

Failure History:

- The PRACA database was researched and no failure data was found on this component in the critical failure mode.

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- 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.