

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
FEEDWATER RELIEF VALVE, ITEM 135 ----- SV769404-7 (1)	3/1RB	135FM03 External water leakage, reservoir side. Housing seal failure.	END ITEM: Water leakage past one of two 0-seals. GFE INTERFACE: None for single 0-seal failure. Depletion of the water reservoir with failure of second seal. Loss of cooling. Possible helmet fogging. MISSION: None for single 0-seal failure. Terminate EVA for double 0-seal failure, when the water supply drops below CWS limits. CREW/VEHICLE: None for single or double failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. If there is insufficient water to provide cooling, or if	A. Design - External leakage is prevented by the use of silicone 0-ring seals providing squeeze under all loading conditions. B. Test - Component Acceptance Test - An external leakage test is run per AT-E-135 using one of two methods. In the first method the relief valve is pressurized to 16.0-17.0 psig with nitrogen. No bubbles are allowed from the outlet for a 5 minute minimum test period. (If any bubbles are seen they are collected for a 30 minute period. Leakage must not exceed 1.0 scc/hr.). If this test is not passed, the relief valve is then pressurized to 16.0-17.0 psig with water for 60 minutes minimum. The water leakage is not to exceed 0.01 cc/hr. PDA Test - A water circuit leakage test is run per SEMU-60-010. With the water circuit pressurized to 15.7-15.9 psig with water, the maximum allowable leakage for the circuit is 6.0 cc/hr. A housing seal failure would be detected during this test. Certification Test - Certified for a useful life of 20 years (ref. EMUM-1079). C. Inspection - The interfacing surfaces between the valve module housing and the valve housing are 100% inspected to meet dimensional and surface finish requirements. The 0-seals are 100% inspected for surface characteristics per SVHS 3432; Class II. An inprocess test is run to check for external leakage. No leakage is allowed. D. Failure History - None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Water Servicing, Leakage and Gas Removal. None for EET processing. F. Operational Use - Crew Response - PreEVA: No response, single failure undetectable by crew or ground. EVA: No response, single failure undetectable by crew or ground. Training - No training specifically covers this failure mode. Operational Considerations - Flight rules define go/no go criteria related to EMU thermal control. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data system allows ground monitoring of EMU systems.

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135FM03

there is
helmet
fogging,
activate the
SOP by opening
the purge
valve.

TIME
AVAILABLE:
Minutes.

TIME REQUIRED:
Seconds.

REDUNDANCY
SCREENS:
A-PASS
B-FAIL
C-PASS

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-135 FEEDWATER RELIEF VALVE
CRITICAL ITEM LIST (CIL)
EMU CONTRACT NO. NAS 9-97150

Prepared by: *J. Roman, Jr 3/27/02*
HS - Project Engineering

Approved by: *RMB [Redacted]*

M. Snyder
HS - Reliability

[Redacted]

Alan Plough for RMB
HS - Engineering Manager

[Redacted]

Samy G. Snow

[Redacted]

[Redacted]