

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
WATER SHUTOFF VALVE, ITEM 137 ----- SV767660-10 (1)	2/1R	137FM05 External water leakage. Housing seal failure.	END ITEM: Water leakage to ambient when sublimator (140) is on- line. GFE INTERFACE: Depletion of the water reservoir. Loss of cooling. Possible helmet fogging. MISSION: Terminate EVA when the water supply drops below CWS limits. CREW/VEHICLE: None for single failure. Possible crew loss with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. If cooling, defog is required. Open purge valve to activate the SOP. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds.	A. Design - External leakage path is through a radial type "o" seal. The "o" ring design dimensions and the rigidity of the assembly provide squeeze under all loading conditions. Operating fluid temperature and pressure is not extreme. Fluid is feedwater at 15 psid and 35 to 120F. B. Test - Vendor Acceptance Test (Kaiser-Eckel Valve Co.) - Checked with 47 psig at inlet, no bubbles in 1 minute. PDA Test - A combined water circuits leakage test is run per SEMU-60-010. In this test the water circuits are pressurized to 15.7-15.9 psig with water for 60 minutes minimum. Leakage must not exceed 6 scc/hr. Certification Test - Certified for a useful life of 20 years (Ref. EMUM-1030). C. Inspection - Housing seal failure. O-ring grooves are 100% inspected per drawing dimensions and surface. O-rings are inspected for surface characteristics per SVHS 3432; 100% for class I & II, and at least 1.5 AQL for class III. D. Failure History - None. E. Ground Turnaround - None. F. Operational Use - Crew Response - EVA: When CWS data confirms activation of reserve water tank, terminate EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - Flight rules require termination of EVA when minimum primary consumables remain. 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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137FM05

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

EXTRAVEHICULAR MOBILITY UNIT
 SYSTEMS SAFETY REVIEW PANEL REVIEW
 FOR THE
 I-137 FEEDWATER SHUTOFF VALVE
 CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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