

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
GAS TRAP, ITEM 141 2/1R ----- SV784943-5 (1) OR SV805257-2 ----- (1)		141FM04A External leakage. Failure, housing seal bypass leakage.	END ITEM: Water leakage to ambient. GFE INTERFACE: Depletion of the water reservoir. Possible helmet fogging. MISSION: Terminate EVA when the water supply drops below CWS limits. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. Terminate EVA when CWS warning is issued. If there is insufficient cooling water to permit return, activate the SOP. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds.	A. Design - P/Ns SV784943 and SV805257: There are two external leak paths through radial type o-rings. The o-ring seal design configuration dimensions and the rigidness of the assembly provide squeeze under all load conditions. Water temperature and pressure are not extreme. LCVG outlet water pressure is 20 psid. B. Test - Component Acceptance: P/Ns SV784943 and SV805257: The item is proof pressure tested by pressurizing the housing to 85.2-87.2 psia for 5 minutes and pressurizing the series orifice cover to 36.9-37.9 psia for 5 minutes. Sequentially the item is external leakage tested by pressurizing the inlet to 47.0-49.0 psig for 5 minutes minimum. The outlets are capped. Leakage shall be 0 bubbles/5 min. PDA: P/Ns SV784943 and SV805257: The item is tested at a systems level test by pressurizing the water circuit through the fill port to 15.7-15.9 psig over a 60 minute minimum period. The leakage must not exceed 6 cc/hr H2O measured with a volumetric micrometer. Certification: Certified for a useful life of 112 hours (ref. EMUM-583). P/N SV805257 Certified for a useful life of 188 hours (ref. EMUM-680). C. Inspection - P/Ns SV784943 and SV805257: The O-seals are 100% inspected for dimensional requirements and surface defects. D. Failure History - (Old Design: P/N SV784943) H-EMU-141-D003 (8/19/83)- External leakage by epoxy seal between housing and cover. Gas trap redesigned to use an o-ring between housing and cover. None for the SV805257 configuration. E. Ground Turnaround - Inspected for non-EET processing per FEMU-R-001, SEMU H2O and O2 Servicing for Flight. None for EET processing. F. Operational Use - P/Ns SV784943 and SV805257: Crew Response - EVA: Failure probably not detectable unless water is visually detected or failure message is annunciated. In either case, terminate EVA when CWS data confirms loss of water. Training - Standard training covers this failure mode. Operational Considerations - Flight rules define loss of EMU for loss of thermal control. RTDS allows ground

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		141FM04A	REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	monitoring of EMU systems. EVA check list procedures verify hardware integrity and systems operational status prior to EVA. Terminate EVA, return to vehicle when CWS warning is issued. If there is insufficient cooling water to permit return, activate the SOP by opening the Purge Valve. If pre or post EVA, discontinue use of EMU.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-141 GAS TRAP
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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

Approved by: *RMB 4/3/02*
NASA - ~~SSA~~/SSM
25

M. Snyder
HS - Reliability

W. E. [Signature]
NASA - EMI/SSM

Alan Poyner for Rose
HS - Engineering Manager

[Signature]
NASA - S & MA

James J. [Signature] 10-15-02
NASA - MOD

Reid [Signature] 10-22-02
NASA - Crew

[Signature] 10/24/02
NASA - Program Manager