NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		140FM09		
POROUS PLATE SUBLIMATOR, ITEM 140 ---------- SV783850-24 (1) OR ---------- SV805279-5 (1)	2/1R	External leakage, ventilation circuit. Failure, seal bypass leakage.	END ITEM: Suit gas leakage to ambient. GFE INTERFACE: Excessive consumption of the primary oxygen supply. The SOP is automatically activated during EVA if the suit pressure drops below 3.33 psid. MISSION: Terminate EVA. Loss of use of one EMU. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: Minutes. TIME REQUIRED: Immediate. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	A. Design - External leakage is prevented by elastomeric 0-ring seals. The 0-ring design dimensions and rigidness of assembly provide 0-ring squeeze under all load conditions. The temperature and pressure are not extreme (32 degree F to 120 degree F and 4.3 psid). B. Test - Component Acceptance Test - During the vent loop leakage test performed per AT-E-140-2 the vent loop is pressurized to 5.6 psig with nitrogen for 60 minutes minimum. PDA Test - A vent loop external leakage is performed per SEMU-60-010. The vent loop is pressurized to 18.9-19.1 psia with oxygen and the pressure is allowed to stablize. The external leakage must not exceed 4.66 scc/min 02. Certification Test - Certified for a useful life of 25 years (ref. EMUM1-0243, EMUM1-1269). C. Inspection - 0-ring grooves are 100% inspected per drawing dimensions and surface finish. 0-rings are inspected for surface characteristics per SVHS3432; 100% for Class I and II 0-rings, and at least 1.5 AQL for Class III. D. Failure History - J-EMU-140-A001 (8-23-82) - Leakage between sublimator and valve module which was caused by bent alignment pins causing misalignment of the sublimator to the valve module. Corrective action changed the pin material from aluminum to stainless steel and also the receptacle diameter was increased to make mating easier. H-EMU-140-D018 (7-29-86) - Excessive vent circuit leakage was observed at the vent outlet interface caused by a cut o-seal on the vent outlet test fixture. corrective action was to add a lead-in chamfer to mimimize seal damage during assembly of the test fixture. also, a vent circuit leakage test was added to IPT. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Final SEMU Gas Structural and Leakage. None for EET processing. F. Operational Use - Crew Response - PreEVA: Trouble shoot problem, if no success, consider EMU 3 if available. EVA: When CWS data confirms an accelerated primary 02 use rate, terminate EVA. If CWS data confirms an accelerated primary 02 use rate coupled with loss of suit pressure regulation, abort EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - Flight rules define go/no go criteria related to EMU suit pressure regulation. Flight rules require termination of EVA upon activation of SOP. EVA checklist

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		140FM09		and FDF procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT

SYSTEMS SAFETY REVIEW PANEL REVIEW

FOR THE

I-140 SUBLIMATOR

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: _____ 3/27/02
HS - Project Engineering

Approved by: _____ 9/30/02
NASA – ~~SSA~~ ES5/SSM

_____
HS - Reliability

_____
NASA – EMU/SSM

_____
HS - Engineering Manager

_____
NASA - S & MA

_____ 10-15/02
NASA - MOD

_____ 10/22/02
NASA - Crew

_____ 10/24/02
NASA - Program Manager