

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
-----				
		100FM03		
PACKAGING (PLSS), ITEM 100 (PIVOTED) ----- SV799100-14 (1)	1/1	External gas leakage beyond SOP makeup capability.	END ITEM: Suit gas leakage to ambient.	A. Design - The tube is made of AMS 5556 (347 Stainless Steel), and the Retaining Clip (SV774103-4) which secures it to an outlet port of the Item 120 Valve is made of AMS 5512 (also 347 Stainless Steel).
OR (PLANAR) ----- SV799100-15 (1)		Relief valve tube rupture.	GFE INTERFACE: Depletion of primary O2 supply and SOP. Rapid depressurizatio n of SSA beyond SOP makeup capability.	B. Test - Component Acceptance Test - The tube is proof and leakage tested to 36 +/- 2 and 25 +/- 2 psig respectively.  PDA Test - A leakage test is performed per SEMU-60-010 in which the vent loop is pressurized to 18.9 - 19.1 psia with oxygen. Leakage is not to exceed 4.66 scc/min.
OR (ORU) ----- SV799100-16 (1)			MISSION: Abort EVA.  CREW/VEHICLE: Possible loss of crewman.  TIME TO EFFECT /ACTIONS: Seconds.  TIME AVAILABLE: N/A  TIME REQUIRED: N/A  REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	C. Inspection - The tube material is inspected on a lot basis to meet the material strength requirements. As a brazed assembly, the joints are 100% visually inspected for braze fillets. Proof pressure and leakage tests are performed on the assembly.  D. Failure History - B-EMU-115-A004 (11/04/97) - Item 120 lower relief valve tube support bracket displaced due to screw, washer and nut not holding tube bracket to shear plate. Investigation found retention washer diameter inadequate to bridge the tube fitting slot cutout under all tolerance conditions. EC 182135-156 issued to incorporate an over-sized washer to ensure washer/screw/nut assembly engages the lower relief valve tube support cutout.  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 - EVA: When CWS data confirms SOP activations with accelerated primary O2 use rate, abort EVA. Training - Standare training covers this failure mode. Operational Considerations - EVA checklist procedures verify hardware integrity and system operational status prior to EVA. Flight rules define go/no go criteria related to EMU pressure integrity. Real Time Data System allows ground monitoring of EMU system.

EXTRAVEHICULAR MOBILITY UNIT  
SYSTEMS SAFETY REVIEW PANEL REVIEW  
FOR THE  
I-100 PRIMARY LIFE SUPPORT SUBSYSTEM (PLSS)  
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: *J. Johnson* 3/27/02  
HS - Project Engineering

*M. Snyder*  
HS - Reliability

*Alan H. Ployer Sr.* R. Mc  
HS - Engineering Manager

Approved by: *RMB* 4/11/02  
~~NASA - SSA/SSM~~

*L. P. Jones* 4/16/02  
~~NASA - SSA/SSM~~

*J. Jones* 5/8/02  
~~NASA - SSA/SSM~~

*Boyd J. Jett* 5-3-02  
~~NASA - SSA/SSM~~

*Chick* 5/7/02  
~~NASA - SSA/SSM~~

*G. L. L. L.* 5-10-02  
~~NASA - Program Manager~~