NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		120CFM01		
CHECK VALVE, ITEM 120C ---------- SV785844-17 (1)	2/1R	Restricted flow. Contamination causes flapper to stick to the seat.	END ITEM: O2 flow path restricted from regulator outlet to water tank cavity. Unable to maintain the water reservoir and coolant loop pressure at 15 psig. GFE INTERFACE: Drop in coolant loop pressure to suit pressure (4.3 psid). Pump cavitation. Dissolved gases in water will come out of solution. Loss of cooling loop degassing capability. Reduced LCVG cooling water circulation. MISSION: Terminate EVA if cooling is insufficient. Loss of use of one EMU. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. If	A. Design - The check valve consists of a silicone flapper, stainless steel washer and stainless steel seat. The washer provides the preload of the check valve against the valve seat. The valve is protected by a 25 micron filter during normal operation. A flapper blocking disk is located between the silicone flapper and screen (filter) to prevent the flapper from over-extending, masking the screen, and blocking flow. The filtration at test port F is provided in the rig thereby minimizing contaminants during testing. B. Test - Component Acceptance Test - A pressure drop test is performed on the check valve per AT-E-120-2. At a maximum pressure drop of 1.7 in H20 the check valve must allow a minimum flow of 145 scc/min N2 in the flow direction. All rig lines and test fixtures are cleaned to HS3150 EM50A and a 2 micron filter is installed just upstream of the item to keep contamination from entering the check valve. PDA Test - During testing per SEMU-60-010, a failed closed check valve would prevent the Dual Mode Relief Valve from passing any of its performance tests. Certification Test - Certified for a useful life of 25 years (ref EMUM-1418). C. Inspection - Cause: Flapper stuck to the seat due to contamination. A cleanliness level of HS3150 EM50A is maintained during assembly and testing of the valve. This cleanliness level requires a mandatory inspection for verification. D. Failure History - H-EMU-120-D002 (9-21-83) Reduced flow rate through Item 120C check valve due to the valve flapper adhering to the retainer/seat assembly after the reverse proof test. Acceptance test revised to flow 7 pph Nitrogen through the check valve in the normal flow direction between the reverse proof test and the forward differential pressure test. H-EMU-120-D009 (2/2/93) The Item 120C check valve failed the pressure drop requirement of .63 inches of H2O max. at 145 sccm N2 due to the higher check valve preload caused by adding a check valve washer (to flapper) for improved reverse flow performance. Per EC 163402-507-006, the pressure drop requirement will be raised to 1.7 inches of H2O max. at 145 sccm N2. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Item 113D and 113E regulation. The 113E regulation shall be measured at TPG and the demand flow will be provided by the Item 120 circuit. None for EET processing. F. Operational Use - Crew Response - PreEVA: Trouble shoot problem, if no success consider EMU 3 if available, otherwise continue. PostEVA: N/A EVA: When CWS data confirms loss of feedwater gas pressure, terminate EVA if cooling is insufficient.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		120CFM01		
			cooling is insufficient open purge valve to activate SOP. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	Training - Standard EMU training covers this failure mode. Crewmembers are trained for one man EVA scenario. Operational Considerations - Flight rules define go/no go criteria related to EMU thermal control. Flight rules define EMU as go to remain on SCU (available for rescue if required). EVA checklist and FDF procedures verify hardware integrity and 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-120 DUAL MODE RELIEF VALVE

CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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

Approved by: _____
NASA - SR&QA/SSM

_____
HS - Reliability

_____
NASA - EMU/SSM

_____
HS - Engineering Manager

_____
NASA - S&MA

_____
NASA - MOD

_____
NASA - Crew

_____
NASA - Program Manager