

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CHECK VALVE, ITEM 113A ----- SV778873-15 (1)	2/2	113AFM03 External gas leakage, fill line side. Seal failure.	END ITEM: Oxygen leakage to ambient when the O2 fill line is attached and pressurized for recharge and IVA. GFE INTERFACE: Depletion of the vehicle oxygen supply. MISSION: Loss of use of one EMU. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - Leakage path is through radial type silicone O-seal. Seal design configuration, dimensions, and rigidity of assembly provide squeeze under all load conditions. B. Test - Component Acceptance Test - The manufacturer, CTI, performs an external leakage test to assure seal integrity. PDA Test - The oxygen check valve is leak tested by pressurizing the bottles to 850-950 psia with a mixture of 98% N2 and 2% He. A helium mass spectrometer is then used to "sniff" for evidence of external leakage. Certification Test - Certified for a useful life of 20 years (Ref. EMUM-0083). C. Inspection - Details, including the O-ring, O-ring grooves and sealing surfaces, are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties. The running and final torques of all threaded connectors are verified by vendor and DCAS inspection, a trial assembly is run on all details and then they are visually inspected. D. Failure History - None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, O2 Fill Line and Item 113C External Leakage. None for EET processing. F. Operational Use - Crew Response - PreEVA: No response, failure unlikely to be detectable on orbit. PostEVA: No response, failure unlikely to be detectable on orbit. Training - No training specifically covers this failure mode. Operational Considerations - Flight rules define require EVA termination when minimum primary consumables remain. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-113 PRIMARY PRESSURE CONTROL MODULE
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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