NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PRESSURE GAGE ITEM 492 ---------- SV792695-1 (1)	2/1R	492FM01: Reads High. Stress relief of Bourdon tube with time: Binding of display mechanism due to misalignment.	End Item: Numerical gage pressure indication is higher than the actual suit pressure. GFE Interface: False indication of high suit pressure. Suit pressure is manually controlled to a lower pressure than the desired 7.5 - 8.0 psig. Mission: Reduced bends treatment capability. Crew/Vehicle: Possible loss of crewman from decompression sickness.	A. Design - The Bourdon tube stress relief is prevented by utilizing a configuration whose yield strength is 3.4, and ultimate strength is 4.2 times the stress at normal operating conditions. Predicted fatigue life is in excess of 10E+7 pressure cycles. Actual expected use is less than 50 cycles. To avoid binding, the mechanism that interfaces on pivoting members within the gage are machined to a 125 microinch surface finish. Swinging members are positioned at least 0.035 inch away from adjacent parts. B. Test – Component Acceptance Test - The item is accuracy tested per vendor test sheets for proper operation and freedom from stiction/hysteresis. PDA Test - The item is accuracy tested at the BTA assembly level per SEMU-60-016. Certification Test - The BTA completed the following Certification Cycles in 9/90: Test — Actual Cycles — Spec. Cycles Proof Pres. (13.3 psi) 16 16 Crack/Max Flow 2100 2100 Mate/Demate 598 Latch Seal 500 Latch Seal Poppet Keeper Retraction 312 312 Burst Pres. (32.2 psi) 1 1 The BTA Assembly completed the 15-year random vibration (48 minutes per axis), sinusoidal vibration, design and bench shock testing in 9/89.

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	2/1R	492FM01		C. Inspection - Details, including the Bourdon tube, are manufactured from material with certified physical and chemical properties. Details are 100% inspected per drawing dimensions and surface finish characteristics. The pointer assembly is inspected after swaging to verify that the pointer is perpendicular to the hole in the pointer bushing. Freedom of movement, of the movement assembly and pointer, is verified and inspected to assure smooth movement through the entire indicating range. D. Failure History - None. E. Ground Turnaround Checked per FEMU-R-001, BTA Gage Accuracy Check. F. Operational Use Post-Suit Doffing Bends Treatment: Crew Response - Post EVA: If discrepancy noted, use suit pressure gage to calibrate the difference between it and the faulty pressure gage. Adjust pressure accordingly. Training - Standard EMU training covers this failure mode. Operational Considerations - Not applicable. In-Suit Bends Treatment: Criticality is 2/1RB. Suit pressure can be determined via the Item 132A Feedwater Supply Pressure Transducer. Crew Response – Bends Treatment: IV crewmember will terminate the Bends Treatment procedure if the pressure on the BTA Gauge increases while the O2 Actuator is in the PRESS position. The IV crewmember has 10 seconds to detect and react in order to keep suit pressure below 11 psid. 11 psid is the max cert. vent loop burst pressure. Consider use of another suit to continue Bends Treatment procedure. Training – Standard EMU training covers this failure mode. Operational Considerations - Prior to EVA, EMU pressurization functions are verified. EMU function for nominal operation is also monitored during EVA. IV crewmember must monitor suit pressure to detect and respond to an increase in suit pressure. Inability to do so will result in suit overpressurization, suit failure, rapid suit depressurization, and loss of crewmember undergoing Bends Treatment.

Extravehicular Mobility Unit (EMU)
Contract NAS 9-97150
June, 2001

CRITICAL ITEMS LIST (CIL)

FOR THE

EXTRAVEHICULAR MOBILITY UNIT (EMU)

Updates Due To On Orbit Bends Treatment Procedure:

CIL
113DFM01B
113EFM01B
492FM01
492FM02

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