NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
RELIEF VALVE ITEM 493 --- SV792696-3 (1)	2/1R	493FM01: Fails closed. CAUSE: Jamming, filter clogs, seat stiction.	END ITEM: Oxygen flow through valve poppet curtailed. CFE INTERFACE: Unable to provide suit overpressure protection in the event of a failed open 1130 regulator. MISSION: None for single failure. CREW/VEHICLE: None for single failure. Possible damage to suit if 1130 or 113E regulator also fails open, or 402 gauge fails low. Possible loss of crewman from decompression sickness.	A. Design - Jamming: The fit and wheelbase of the valve guide provides close concentricity control while allowing free pitch and alignment to seat the valve. With this geometry, jamming due to side loads is prevented while valve seating is maintained under all tolerance conditions. Clogged Filter: The filter screen area is made as large as possible (1.4 square inches) to prevent flow interruption except under severe contamination conditions. The valve is cleaned to, and maintained and tested in an environment of cleanliness, level EH150B per SVHS3150. B. Test - Component Acceptance Test - The item is maximum flow tested by pressurizing the inlet to 8.30 psig and requiring the minimum flow to be 7.08 lbs 02/hr. PBA Test - A maximum flow test, identical to the test defined above is conducted during PBA 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/Res Flow: 2108 / 2100 Mate/Demate: 598 Latch Seal / 500 Latch Seal Poppet Keeper Retraction: 312 / 312 Burst Pressure (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. C. Inspection - The spring and sliding surfaces of the poppet and housing are 100% inspected for dimensional and surface finish requirements. The parts are cleaned to level EH150B per HS3150 prior to assembly.

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	2/IR	493FM01:		

D. Failure History -
H-EMU-493-0002 (10-29-88)
During BTA certification testing, the suit pressure exceeded the 8.8 psig limit at the maximum flow condition. Failure caused by a greater than expected pressure drop (75%) across the 146 relief valve with poppet physically held open. EC 163402-265 issued to readjust the relief valve to reduce the BTA relief valve control pressure (inlet pressure) to outlet pressure from 8.4 psig to 8.45 psig.

H-EMU-493-A001 (10-26-88)
The pressure drop across the valve was above specification limit during maximum flow testing due to relief valve "chattering" in the test rig configuration. The test rig utilizes an air line to feed the BTA while the actual BTA installation has a 146 valve upstream which acts as an upstream orifice to dampen frequency effects. Acceptance test for 491 was changed to include an upstream 146 (or equivalent) on the test rig.

H-EMU-493-A002 (5/15/89)
The pressure drop across the valve was above specification limit during maximum flow testing because the valve was manufactured at the upper pressure limit with no margin for drift or test repeatability. EC163402-334 provides for an additional 0.15 PSI margin between the vendor's Acceptance Test requirements, 8.30 psig and ASME PDA requirement, 845 psig.

H-EMU-493-A003 (1/27/92) and H-EMU-493-0001 (2/14/92) - The BTA relief valve failed closed during Acceptance testing. The vendor's pressure gage was found to be incorrectly calibrated. The gage calibration vendor was changed to the gage manufacturer.

E. Ground Turnaround -
Tested per FEMU-R-001. BTA relief valve checkout.

F. Operational Use -
Crew Response -
PostEVA: No response, single failure undetectable by crew or

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	2/1R	493FM01:		ground. Training - Standard EMU training covers this mode. Operational Considerations - N/A