NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
AIRLOCK ADAPTER PLATE, STEM 470 --- SV767688-03 (2)	2/2	470FM02: EMU/AAP lower support pin fracture or pin disengagement. CAUSE: Spring failure. Support pins overstress or fatigue.	END ITEM: Loss of lower EMU/AAP support pin or pin retraction. OFE INTERFACE: Redistribution of loads to three remaining pins. The remaining lower pin loading deforms the shear plate and results in oxygen leakage, constricted flow and binding of the O2 actuator linkage. MISSION: Loss of use of one EMU. CREW/VEHICLE: None.	A. Design - The EMU is attached to the Airlock Adapter Plate (AAP) by four mounting pins. There are two fixed upper support pins and two retractable lower support pins. The lower pins are operated by individual latch assemblies. The pins are made from AMS 5662 (Inconel 718) bar stock and springs of latch assembly are made from 17-7 on stainless steel wire. Analysis of the spring in the latch assembly under normal operating conditions results in a factor of safety of 1.6 against yield. The spring is designed with a fatigue life in excess of one hundred thousand full actuator stroke cycles. The current latch assembly cycles requirement is 729 cycles over a 15 year life. Failure of one lower mount pin will cause deformation, resulting in separation of mechanical joints, yielding of tubes constricting their flow areas, and warpage of the actuator guides. These damages, in turn cause leakage at mechanical joints, reduced flow in tubes and excessive force to operate the actuator switch, so that the PLSS is rendered inoperative or unsafe for EVA. B. Test - Component: None. PDA: Installation of PLSS to AAP is verified during AT-EMU-470, paragraph 4.0, Mounting Force to PLSS/SOP. The force required to move each of the handles through the full range of travel must not exceed 10 lbs. The extension of the support pins in the handles in the unlocked, donning, and locked positions is also measured. Certification: The item completed the 15 year structural vibration and shock certification requirement during 10/85. C. Inspection - All detail parts of the AAP are 100% inspected for dimensional and surface finish requirements. All dimensions on the AAP assembly which interface with the EMU are 100% inspected during PDA.

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/2	470FM02:		D. Failure History - H-EMU-470--001 (11/15/90) - Excessive force required to actuate AAP latch during STS-31. Investigation revealed that the latch assembly detent rod was not fully disengaged from latch cam prior to latch handle rotation. Force test in AAP PDA has been revised to include a verification step to ensure that the detent rod is fully disengaged prior to handle rotation. E. Ground Turnaround - Tested per PEMU-R-001, V0103-02 EMU to Orbiter Checkout. F. Operational Use - Crew Response - Launch and reentry: None possible. Training - No training covers this failure mode. Operational Considerations - Not applicable.