

CAL  
EMU CRITICAL ITEMS LIST

12/24/91 SUPERSEDES 08/31/90

ANALYSIS:

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Date: 12/03/91

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
OXYGEN HIGH PRESSURE LINE, ITEM 411 SV778865-2 (1)	2/2	411FROF: External leakage, oxygen, EMU attached.  CAUSE: Hose fitting seal failure.	EMO ITEM: Leakage of high pressure vehicle oxygen to ambient.  OFF INTERFACE: Excessive consumption of vehicle oxygen.  MISSION: Terminates EMU. Unable to use one EMU during airlock activity.  CREW/VEHICLE: None.	A. Design - The inner core of the hose is made of extruded teflon impregnated with carbon. The core is covered with stainless steel (304, 321, or 317 cross) wire braid. The operating pressure requirement for the hose is 1050 psi and burst pressure is 2000 psi. Each hose assembly is required to withstand 1000 operating pressure cycles, minimum. The actual operating pressure rating for the hose is 1500 psi and the minimum burst pressure is rated at 12,000 psi at room temperature.  The hose fittings are progressive tapered design, fabricated of 17-4 PH stainless steel. The fittings are a vendor-patented design using threads per MIL-S-8879. The internal threads are dry-film lubricated (Everlube # 628H) and assembly torque is controlled to 10-16 ft-lbs. The hose fitting seal is a metal lip seal. Sealing is provided by surface finish control and the preload provided by the lip seal.  B. Test - PDA: A leakage test with the oxygen line mated is performed per SEMU-60-005. With the oxygen line mated, it is pressurized to 850-950 psia with oxygen. Leakage is monitored for a minimum of 10 minutes and is not to exceed 30 cc/minute.  Certification: The item completed leakage testing to 909 psig, and proof pressure testing to 1700 psig during 10/83. No applicable engineering changes have been incorporated since that time.  C. Inspection - At receiving inspection, the fitting seal surfaces and the external hose surfaces are visually inspected. At final inspection after PDA test the hose (assembled to SCU at this point) is examined for damage to the external surface. During assembly, a double wrench technique is used to prevent relative movement of the two halves of the metal to metal seal to prevent galling of the seal surfaces.

CPA  
EMU CRITICAL ITEMS LIST

12/26/91 SUPERSEDES 00/31/90

ANALYST:

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NAME P/N QTY	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/2	411P001:		<p>D. Failure History - None.</p> <p>E. Ground Turnaround - Tested per FEMU-R-001, EMU checkout in orbiter (V1183) Oxygen System functional check.</p> <p>F. Operational Use - Crew Response - Pre/PostEVA: Was airtight panel O2 valve to isolate leak between O2 recharge operations. Use other SCV for O2 recharge operations. Special Training - Standard EMU training covers this failure mode. Operational Considerations - EVA checklist procedures verify hardware integrity and systems operational status prior to EVA.</p>