

CIL  
EMU CRITICAL ITEM LIST

12/24/91 SUPERSEDES 10/31/90

ANALYST:

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NAME P/N QTY	CRIT	FAILURE MODE & EVIDES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CONTAMINANT CONTROL CARTRIDGE, ITEM 480 ----- 87792608-00 (1)	Z/IR	480FNR06: External leakage, gas.  CAUSE: Vent loop interface seal leakage.	END ITEM: Suit O2 leakage to ambient.  GPE INTERFACE: Excessive consumption of the primary oxygen supply. The RDP is automatically activated during EVA if the suit pressure drops to 3.33 psid.  MISSION: Terminate EVA, loss of use of one EMU.  CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP.	A. Design - External leakage is prevented by a Viton O-seal mounted on the cover and radial silicone seals at the inlet and out- let ports. The O <sub>2</sub> ring seal design configuration, dimen- sions and rigidness of assembly provide squeeze under all load conditions. Lead-in chamfers and a hard coated seal- ing surface on the transfer allows prevent damaging the O-seal during CCC installation.  B. Test - PDA: An external leakage test is performed per SEMU-40-003 in which leakage from the item must not exceed 10 acc/hr when the item is pressurized to 6.0 - 7.8 psig with oxygen.  Certification: The item completed 5,208 installation cycles with the same set of O-rings during 4/86 which fulfilled the cycle certification requirement of 5,150. No Class I engineering changes have been incorporated since this configuration was certified.  C. Inspection - Details, including the O-ring, O-ring grooves, and sealing surfaces, are 100% inspected per drawing dimensions and surface finish characteristics. Lubricated O-rings (Braycote 5YRS 6573) are carefully installed and leak tested at IPI to insure proper assembly.  D. Failure History - J-EMU-480-003 (1/24/84) Item 480 experienced high external leakage because the cover O <sub>2</sub> ring was not properly installed and also damaged. The leak test has been revised to verify seal integrity. J-EMU-480-006 (11/4/85) High EMU suit leak due to a damaged O-ring on the outlet port of the CCC. Reassembly and inspection procedures have been modified and added.  E. Ground Turnaround - Tested per FEMU-R-001, CCC external leakage.

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NAME P/N DTY	CNT	FAILURE MODE & CRUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
	2/1R	480FMS6:		<p>F. Operational Use -            Crew Response -            PreEVA: Troubleshoot problem, if no success, discontinue use of EMU, consider third EMU if available.            EVA: When CMS data confirms an accelerated drop in primary O2 tank pressure, terminate EVA.            Special Training - Standard EMU training covers this failure mode.            Operational considerations - DCN purge valve not used for nominal operations during EVA. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Flight rules define go/no go criteria related to EMU pressure integrity and regulation. Real time Data System allows ground monitoring of EMU systems.</p>