

CRITICAL ITEMS LIST
FILE CIL-SOP/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PACKAGING ISOP ITEM200 SV76710- 04-B, OXYGEN MANIFOLD SV77554 FC17-1 A	2/1R	200. H02B1 EXTERNAL GAS LEAKAGE, TUBE FROM BOTTLE TO REGULATOR. CAUSE1 MANIFOLD TUBE RUPTURE.	END ITEM: LEAKAGE OF O2 SUPPLY TO MIBENT. D/E INTERFACE: LOSS OF BACKUP O2 SUPPLY. MISSION: TERMINATE EVA MISSION MIEN LOH SOP PRESSURE WARNING IS ISSUED, THE DOWNSTREAM REGULATOR (2130) WILL REMAIN CLOSED PROVIDING A CHECKING FUNCTION AS LONG AS THE SUPT PRESSURE REMAINS ABOVE 1.9 PSID DURING EVA. CREW/VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CREWMEN WITH LOSS OF PRIMARY O2 SUPPLY.	A. DESIGN - THE OXYGEN MANIFOLD TUBE HAS A MINIMUM WALL THICKNESS OF 0.055 IN., WHICH MAKES THE 0.250 O.D. (NOMINAL) TUBE A THICK WALLED CYLINDER. THE MAXIMUM OPERATING PRESSURE IN THE TUBE IS 2,400 PSI SUPPLIED BY THE SECONDARY OXYGEN BOTTLES. THE TUBE MATERIAL IS NIPREL-K 500. ANALYSIS INDICATES THAT THE MINIMUM TUBE FACTOR OF SAFETY IS 2.9 AT A BURST PRESSURE OF 14,600 PSI, AND 5.3 AT MAXIMUM OPERATING PRESSURE. B. TEST - POA TEST - AN EXTERNAL LEAKAGE TEST IS PERFORMED PER SEMI-60-087. THE SOP IS PRESSURIZED TO 6000-6100 PSID WITH A MIXTURE OF 90% N2 AND 10% O2. LEAKAGE IS MEASURED WITH A MASS SPECTROMETER AND CANNOT EXCEED 5.65 K 10-6 SCC/SEC. CERTIFICATION TEST - THE ITEM COMPLETED 904 HO FICH HOURS DURING 8/02 WHICH IS FIFTY (50) TIMES THE CERTIFICATION REQUIREMENT OF 18 HOURS. THE ITEM COMPLETED 112 BLOWDOWN CYCLES DURING 8/02 WHICH IS THREE (3) TIMES THE CYCLE CERTIFICATION REQUIREMENT OF 36. THE ITEM COMPLETED THE 18 YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 10/03. NO CLASS I ENGINEERING CHANGES HAVE BEEN INCORPORATED SINCE THIS ITEM WAS CERTIFIED. C. INSPECTION - MATERIALS INSPECTION VERIFIES THE CHEMICAL COMPOSITION OF THE TUBE AND FITTING MATERIAL. EACH BRAZE IS X-RAY INSPECTED PER MS1414 TYPE I. EACH ASSEMBLY IS HARDNESS INSPECTED (SPEC: BC27) AFTER BRAZING AND HEAT TREATMENT. O-RING SEALING SURFACES ARE 100% INSPECTED FOR SURFACE CHARACTERISTICS PER SNI35452 CLASS II. THE OXYGEN MANIFOLD FITTING IS TRIM ASSEMBLED, REMOVED, AND INSPECTED FOR EVIDENCE OF DAMAGE OR PARTICLES CAUSED BY THE ASSEMBLY PROCESS. THIS INSPECTION REQUIRES A MANDATORY INSPECTION POINT. THE O-RING IS LUBRICATED WITH BRAYCOTE (SVP213) PRIOR TO FINAL ASSEMBLY.

CEL
 CRITICAL ITEMS LIST
 FILE CEL-SOP/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PACROENG 1SOP 174H200 SV76710- 04-0, 0KXCF MANIOLD SV77539 PCB7-2 1	2/1R	200P1028: EXTERNAL GAS LEAKAGE, TUBE FROM BOTTLE TO REGULATOR.		D. FAILURE HISTORY - NONE. E. GROUND TURNAROUND - TESTED FOR LEAKAGE PER FEMU-R-001, SOP SERVICING FOR FLIGHT. F. OPERATIONAL USE - CREW RESPONSE - EVA: SINCE EVA TERMINATION IS REQUIRED AS SOON AS SOP IS FLOWING, CREW WOULD ABORT EVA WHEN EXCESSIVE SOP RATE IS DETECTED. SPECIAL TRAINING - STANDARD ENU TRAINING COVERS THIS FAILURE MODE. OPERATIONAL CONSIDERATIONS - EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA. FLIGHT RULES DEFINE GO/NO GO CRITERIA RELATED TO ENU PRESSURE INTEGRITY AND REGULATION. FLIGHT RULES DEFINE ENU AS LOST FOR LOSS OF OPERATIONAL SOP. REAL TIME DATA SYSTEM ALLOWS GROUND MONITORING OF ENU SYSTEMS.