

CRITICAL ITEMS LIST

Reference Designator: N/A
 Part Name (Qty): Glove Assy. FP (2)
 Drawing Reference: SED33105591

Project: Government Furnished Equipment
 LRU Name (Qty): ACES Glove Assy (2)
 LRU Part No.: SED33105591

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 Subsystem: CES
 Effectivity: All Orbiters

Failure Mode Number 8.1.1	Criticality 1R/2	Failure Effect	Retention Rationale
Function Part of the ACES counter pressure garment. Required for the garment to maintain pressure.		End Item ACES counter pressure garment unable to maintain pressure and provide physiological protection against low atmospheric pressures	1. DESIGN FEATURES TO MINIMIZE FAILURE MODE A. The glove bladder material (tri-laminate Goretex) is ultrasonically sealed. B. The glove restraint layer and cover are fabricated of Nomex and act as protective covers. C. Designed with a burst pressure of at least 2.5 times operating pressure of 3.5 psig (8.0 psig). 2. TEST OR ANALYSIS TO DETECT FAILURE MODE A. Acceptance Test (P328/CEE-1037) 1. Structural test, 7.0 psig (2 times operational) for 15 minutes (no damage) 2. Leakage test at 3.5 psig (30 secm max) B. Certification (JSC 38024) 1. Overpressure test at 9.0 psig for 60 seconds with subsequent leakage test 2. Pressure cycle tested, 500 cycles 3. Mate/demate cycle test of interface connector, 1000 cycles 4. Rotation cycle test of interface connector, 10,000 cycles 5. Manned hypobaric chamber testing to 75,000 ft. and rapid decompression from 25,000 to 85,000 ft. Certified to 100,000 ft. by examination of Air Force data and similarity to previous full pressure suit designs
Failure Mode and Cause Mode: External leakage/rupture Cause: 1. Defective/damaged material 2. Defective/damaged glove assembly disconnect		Mission N/A Crew/Vehicle Loss of crewmember	
Redundancy Screens A - Pass B - N/A C - Pass	Remaining Paths - 1 Requires previous critical Orbiter failure (decompression) for mid pressurization	Interface N/A	
Mission Phase	Time to Effect	Time to Correct	
Abort	Seconds	N/A	

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Subsystem: CE
 Effectivity: All Orbiters

Failure Mode Number 6.1.1	Criticality 1R/2	Failure Effect	Retention Rationale
Function Part of the ACES counter pressure garment. Required for the garment to maintain pressure.		End Item ACES counter pressure garment unable to maintain pressure and provide physiological protection against low atmospheric pressures	C. Turnaround Testing (P528/CEE-M1088) 1. Structural test at 36 months, 7.0 psig for 5 minutes (no damage) 2. Leakage test, 3.5 psig for 5 minutes (30 acm max.) 3. INSPECTION A. Acceptance Inspection (P526/CEE-1143) 1. Government source inspection for seam assembly, cementing, and sewing procedures. 2. Visual inspection of restraint/cover for defects during assembly B. Turnaround Inspection (P528/CEE-1136) 1. Inspection of seams, restraint/cover for physical damage and structural integrity (PIA) 4. FAILURE HISTORY None - New Item 5. OPERATIONAL USE A. Operational effect of failure - Possible loss of crewmember B. Crew action - None C. Crew training - Crew trained in proper use of ACES D. Mission constraints - None, mission would be terminated prior to use of this equipment E. Inflight checkout - None, crew could inspect glove assembly for damage but probably not repair
Failure Mode and Cause Mode: External leakage/rupture Cause: 1. Defective/damaged glove assembly disconnect		Mission N/A	
Redundancy Screens A - Pass B - N/A C - Pass		Crew/Vehicle Loss of crewmember	
Remaining Paths - 1 Requires previous critical Orbiter failure (decompression) for suit pressurization		Interface N/A	
Mission Phase	Time to Effect	Time to Correct	
Abort	Seconds	N/A	

Prepared BY: P.E. Hooper

Superseding Date: N/A

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