

CRITICAL ITEMS LIST

Reference Designator:
Name/Quantity: Harness Assembly
Drawing Reference: MXH 31

Project: Quick Don Mask Assy.
LRU Name/Quantity: QDMA
LRU Part Number: SED33104528-303

Subsystem: CEE
Effectivity: ALL ORBITERS

Failure Mode Number QDMA-FM-008	Criticality 1R/2	Failure Effect	Retention Rationale
Function Secures mask to crewmember face.		End Item Unable to secure mask assembly to face.	1. DESIGN FEATURES TO MINIMIZE FAILURE MODE A. Harness Assembly is fabricated of silicone liner with flame resistant stretch polyamide Nomex material. Minimum age life 12 years. B. Harness assembly designed to withstand a pull force of 35 pounds. C. Harness assembly designed to withstand a minimum of 10,000 cycles. D. Harness assembly burst pressure of 580 psig (operational pressure of 95 psig) E. Design incorporates safety locking device between harness and regulator. 2.0 TEST OR ANALYSIS TO DETECT FAILURE MODE A. Acceptance Test (1) Harness inflation test, at 60 psi supply pressure. Specification. Full inflation of harness within one second. (2) Visual inspection for evidence of damage or defect. (3) All harnesses are proof tested to 130 psig. B. Certification (1) Certification in accordance with TSO-C89, FAA Technical Standard Order, Protective Breathing Equipment. (2) Subjected to temperatures of 160° F for 12 hours and -67° F for 2 hours after which a complete functional test is performed. (3) Cycle tested 10,000 cycles. Complete functional test after cycling. C. Turnaround Testing (per PDA/PIA procedure) (1) Complete PDA testing every 24 months or before flight. Testing includes mechanism cycling and harness inflation. (2) Replacement of softgoods and overhaul every 6 years. Complete PDA testing after overhaul.
Failure Mode and Cause Rupture/Leakage 1. Defective/damaged material		Mission None	
		Crew/Vehicle Possible loss of crewmember due to inability to don mask. No protection from contaminated atmosphere	
Redundancy Screens Remaining Paths Requires previous single point Orbiter failure. A-P B-N/A C-P		Interface	
Mission Phase	Time to Effect	Time to Correct	
Orbiter Emergency	Seconds	None	

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Function Secures mask to crewmember face.		End Item Unable to secure mask assembly to face.	3. INSPECTION A. Manufacturing (1) Visual inspection for defects or damage. (2) Verify material is certified by manufacturer. (3) Verify internal cleanliness to level 100C and external cleanliness to level GC per JSCM 5322. B. Turnaround Inspection (per PDA/PIA procedure) (1) Visually inspect for damage or defects every 24 months or prior to flight. (2) Verify harness assembly is leak tested at required intervals. 4. FAILURE HISTORY This mask assembly is utilized in commercial applications (Grumman Gulfstream, Boeing 747-400). No service failures reported. 5. OPERATIONAL USE A. Operational Effect of Failure: Possible loss of crewmember due to inability to don mask. No protection from contaminated atmosphere. B. Crew action: Crew could attempt to manually hold mask to face or attempt to repair, damaged area of harness with gray or multipurpose tape. C. Crew training: Crew is trained in correct function and use of QDMA. D. Mission constraints: None E. Inflight checkout: None
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