

CRITICAL ITEMS LIST

PAGE 1 OF 13

U.S. Gov't
U.S. Gov't

REFERENCE DESIGNATOR
NAME/QUANTITY: Demand Breathing Reg 12
DRAWING REFERENCE: F243-3750-1

PROJECT: Emergency Oxygen Mask Assy
LRU NAME/QUANTITY: EOMA
LRU PART NUMBER: SDP11100275-301, -303, -305

SUBSYSTEM
EFFECTIVITY: All Orbiter

FAILURE MODE NUMBER EOMA-FM-001	CRITICALITY 1R/2	FAILURE EFFECT	RETENTION RATIONALE
FUNCTION Supplies oxygen on demand to the face cavity.		END ITEM Free flow of regulator. Excessive consumption of oxygen.	1. DESIGN FEATURES TO MINIMIZE FAILURE MODE A. A stainless steel 20 micron screen filter is incorporated on the inlet port to prevent contamination of regulator B. The diaphragm and packings are fabricated from silicone elastomer C. Regulator designed to withstand a minimum of 100,000 cycles at a rate of 15 to 18 cycles per minute. 2. TEST OR ANALYSIS TO DETECT FAILURE MODE A. Acceptance Test (1) Safety pressure test at 70, 100 psig and 100 slpm flow. Specification: 0.5 to 1.0 in. water (2) External leakage test at 50 and 100 psig. No leakage allowed (3) Internal leakage test at 70 psig. Specification < 1 in water rise at 5 min B. Certification (1) Certified in accordance with MIL-R-19171, "Regulators, Aviators Miniature Oxygen Breathing." (2) Subjected to temperatures 160 +/- 5 Deg. F and -65 +/- 5 Deg. F. for 3 hours. At completion must pass complete functional test. (3) Cycle tested 100,000 cycles at a rate of 15 to 18 cycles per minute after a complete functional test was performed. (4) Proof pressure test at a 140 psig after which a complete functional test was performed.
FAILURE MODE AND CAUSE Fails Open/Leakage Cause: 1. Defective diaphragm material 2. Contamination 3. Defective demand valve		MISSION None.	
		CREW/VEHICLE Possible loss of crewmember due to premature depletion of oxygen.	
REDUNDANCY SCREENS A - P B - N/A C - P	REMAINING PATHS Requires previous single point Orbiter failure		
MISSION PHASE	TIME TO EFFECT	TIME TO CORRECT	
Orbiter Emergency	Seconds	N/A	
		INTERFACE Excessive PPO, in cabin.	

PREPARED BY:

REVISION:

SUPERSEDING DATE:

DATE:

SDP0237N
ATTACHMENT
PAGE 36 OF 50

CRITICAL ITEMS LIST

REFERENCE DESIGNATOR
NAME/QUANTITY Demand Breathing Reg. J1
DRAWING REFERENCE: F243-376B-7

PROJECT Emergency Oxygen Mask Assy.
LRU NAME/QUANTITY: EOMA
LRU PART NUMBER: SOO11100275-301, -303, -305

SUBSYSTEM
EFFECTIVITY: All Orbiters

FAILURE MODE NUMBER EOMA-FM-001	CRITICALITY 1R/2	FAILURE EFFECT	RETENTION RATIONALE
FUNCTION Supplies oxygen on demand to the face cavity.		END ITEM Free flow of regulator. Excessive consumption of oxygen.	<p>2. TEST OR ANALYSIS TO DETECT FAILURE MODE (Continued)</p> <p>C. Turnaround Testing (per PDA/PIA JSC 22130)</p> <p>(1) Complete PDA performed every 24 months including positive pressure flow tests and leakage tests.</p> <p>(2) Replacement of regulator softgoods and PDA every 24 months.</p> <p>3. INSPECTION</p> <p>A. Manufacturing</p> <p>(1) Verify all materials, parts and assembly processes meet requirements.</p> <p>(2) Visual inspection of parts for defects.</p> <p>(3) All parts cleaned for oxygen service per MIL-STD-1759, paragraph 5.7.</p> <p>B. Turnaround Inspection (Per PDA/PIA JSC 22130)</p> <p>(1) Visual inspection of parts for defects</p> <p>(2) 100% visual inspection during regulator assembly/overhaul</p> <p>(3) Verify regulator operates within leakage specifications</p> <p>(4) Verify regulator operates within positive test specifications</p> <p>(5) Replacement of regulator softgoods 24 months after PDA per JSC 22130</p> <p>(6) Verify parts and regulator are cleaned for oxygen service.</p> <p>(7) Verify external cleanliness per JSCM 5322, level GC.</p>
FAILURE MODE AND CAUSE Fails open Cause: 1. Defective diaphragm material 2. Contamination 3. Defective demand valve		MISSION None.	
REUNDANCY SCREENS A - P B - N/A C - P		CREW/VEHICLE Possible loss of crewmember due to premature depletion of oxygen.	
REMAINING PATHS <i>Requires previous single point Orbiter failure</i>		INTERFACE Excessive PPO ₂ in cabin.	
MISSION PHASE	TIME TO EFFECT	TIME TO CORRECT	
Orbiter Emergency	Seconds	N/A	

PREPARED BY:

REVISION:

SUPERSEDING DATE:

DATE:

CRITICAL ITEMS LIST

REFERENCE DESIGNATOR
NAME/QUANTITY: Demand Breathing Reg. II
DRAWING REFERENCE: E249-2260-P

PROJECT: Emergency Oxygen Mask Assy
LRU NAME/QUANTITY: EOMA
LRU PART NUMBER: 5DD11P00275-301, -302, -305

SUBSYSTEM:
EFFECTIVITY: All Orbiters

FAILURE MODE NUMBER EOMA-FM-001	CRITICALITY 1R/2	FAILURE EFFECT	RETENTION RATIONALE
FUNCTION Supplies oxygen on demand to the face cavity.		END ITEM Free flow of regulator. Excessive consumption of oxygen.	<p>4. FAILURE HISTORY</p> <p>This regulator Assy has been in use by DOD (NAVY, CRU 79/P) and NASA for approximately 30 years. No failures reported for this or similar programs.</p> <p>5. OPERATIONAL USE</p> <p>A. Operational effect of failure: Potential loss of crewmember due to premature depletion of air and contaminated atmosphere</p> <p>B. Crew action: No work around if failure occurs</p> <p>C. Crew training: None</p> <p>D. Mission constraint: None</p> <p>E. In-flight Checkout: None</p>
FAILURE MODE AND CAUSE Fails open Cause: 1. Defective diaphragm material 2. Contamination 3. Defective demand valve		MISSION None.	
REUNDANCY SCREENS A - P B - N/A C - P		CREW/VEHICLE Possible loss of crewmember due to premature depletion of oxygen.	
REMAINING PATHS Requires previous single point Orbiter failure.		INTERFACE Excessive PPO, in cabin.	
MISSION PHASE	TIME TO EFFECT	TIME TO CORRECT	
Orbiter Emergency	Seconds	N/A	

PREPARED BY:

REVISION:

SUPERSEDING DATE:

DATE: