

# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: OXYGEN REGULATOR

SYSTEM: CREW ESCAPE SYSTEM

REVISION

ASSY P/N: F241-1700-1

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.3.3		OXYGEN REGULATOR (1), 18951G-02	1/1	<p>3.3.3 Mode: Fails closed</p> <p>Cause:</p> <ul style="list-style-type: none"> <li>• defective material</li> <li>• contamination</li> <li>• broken demand spring</li> </ul>	No oxygen to crewmember.	<p>1. DESIGN FEATURES TO MINIMIZE FAILURE MODE</p> <ul style="list-style-type: none"> <li>a. The regulator is in use by the Air Force.</li> <li>b. The cover and body are cast aluminum</li> <li>c. The diaphragm and packings are silicone elastomer.</li> <li>d. Internal parts are stainless steel and phosphor bronze</li> <li>e. A screen filter is installed on the inlet port to prevent contamination of the regulator</li> </ul> <p>2. TEST OR ANALYSIS TO DETECT FAILURE MODE</p> <ul style="list-style-type: none"> <li>a. <u>Acceptance Testing.</u> <ul style="list-style-type: none"> <li>(1) Leakage test at 2 inches of H<sub>2</sub>O at 120 psig. leakage allowed (0.9 - 1.65 inches H<sub>2</sub>O).</li> <li>(2) Flow test: 0 slpm at 55 psig; 90 slpm at 55 psig; 0 slpm at 90 psig; and 90 slpm at 90 psig</li> <li>(3) Flow test at altitude: 0 alpm (40,000 feet) at 50 psig; 90 alpm (40,000 feet) at 50 psig; 0 alpm (43,000 feet) at 50 psig; 90 alpm (43,000 feet) at 50 psig; 0 alpm (40,000 feet) at 90 psig; 90 alpm (40,000 feet) at 90 psig; 0 alpm (43,000 feet) at 90 psig; and 90 alpm (43,000 feet) at 90 psig.</li> </ul> </li> <li>b. <u>Certification Test.</u> <ul style="list-style-type: none"> <li>(1) High altitude chamber test, Brooks Air Force Base.                             <ul style="list-style-type: none"> <li>(a) Unmanned test series of gradual ascents and descents from ground level to 100,000 feet and rapid decompressions.</li> </ul> </li> </ul> </li> </ul>

PREPARED BY: R. L. ALLISON

SUPERSEDING DATE:

APPROVED BY: J. O. SCHLOSSER

DATE:

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# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: OXYGEN REGULATOR

SYSTEM: CREW ESCAPE SYSTEM

REVISION

ASSY P/N: F241-1700-1

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CMTY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.1.3		OXYGEN REGULATOR (1), 10951G-02	1/1	<p>3.1.3 Mode: Fails closed</p> <p>Cause:  <ul style="list-style-type: none"> <li>• defective material</li> <li>• contamination</li> <li>• broken demand spring</li> </ul> </p>	No oxygen to crewmember	<p>(b) Manned test series.</p> <ol style="list-style-type: none"> <li>1 Gradual ascents and descents to 100,000 feet.</li> <li>2 Rapid decompression to 90,000 feet.</li> <li>3 Endurance runs rapid decompression to 100,000 feet for 37 minutes.</li> </ol> <p>(2) Live jumped at Naval Weapons Center</p> <ol style="list-style-type: none"> <li>(a) At 200 knots, 25,000 feet, four jumps.</li> <li>(b) At 110 knots, 10,000 feet, four jumps.</li> <li>(c) At 110 knots, 6,000 feet, four jumps.</li> <li>(d) At 170 knots, 15,000 feet, four jumps.</li> <li>(e) At 185 knots, 20,000 feet, four jumps.</li> <li>(f) Water drop at 30 feet per second (fps), two jumps.</li> <li>(g) Water drop at 27 fps, two jumps.</li> </ol> <p>c. <u>Turnaround Test.</u> (In accordance with PIA 23033)</p> <ol style="list-style-type: none"> <li>(1) Leak test at 120 psig (leakage allowable 0.9 - 1.65 in H<sub>2</sub>O).</li> <li>(2) Regulator positive pressure test: at 55 psig, 0 lpm; at 55 psig, 135 lpm, pressure should be equal to or greater than 0.1 in H<sub>2</sub>O; at 110 psig, 135 lpm, pressure should be equal to or greater than 0.1 in H<sub>2</sub>O; at 110 psig, 0 lpm, pressure should be (0.9 - 1.65 in H<sub>2</sub>O); at 140 ± 10 psig, 45 lpm, pressure should be equal to or greater than 0.6 in H<sub>2</sub>O; at 140 ± 20 psig, 0 lpm, pressure should be (0.9 - 1.65 in H<sub>2</sub>O).</li> </ol> <p>J INSPECTION</p> <ol style="list-style-type: none"> <li>a. Visual inspection of parts for defects.</li> <li>b. One hundred percent visual inspection during assembly of regulator.</li> <li>c. Verify regulator operates within leakage specifications.</li> </ol>

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# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: OXYGEN REGULATOR

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: F247-1700-1

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CNTY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.1.3		OXYGEN REGULATOR (1), 18951G-02	1/1	<p>3.1.3 Mode: Fails closed</p> <p>Cause:</p> <ul style="list-style-type: none"> <li>■ defective material</li> <li>● contamination</li> <li>● broken demand spring</li> </ul>	No oxygen to crewmember	<p>d. Verify regulator operates within positive pressure test specifications</p> <p>e. Verify parts and regulator are cleaned to level 300 in accordance with JSCM 5322</p> <p><u>Turnaround Inspection:</u> (In accordance with PIA 23033)</p> <p>a. Visual inspection of parts for defects.</p> <p>b. One hundred percent visual inspection during assembly of regulator.</p> <p>c. Verify regulator operates within leakage specifications.</p> <p>d. Verify regulator operates within positive pressure test specifications.</p> <p>e. Verify parts and regulator are cleaned to level 300 in accordance with JSCM 5322</p> <p>4. FAILURE HISTORY</p> <p>None. This regulator is used by the Air Force in high altitude suits for high performance aircraft and Dryden Flight Research Center.</p> <p>5. OPERATIONAL USE</p> <p>a. Operational Effect of Failure - Possible loss of crewmember</p> <p>b. Crew Action: None</p> <p>c. Crew Training - Not applicable.</p> <p>d. Mission Constraints: None. Mission would be terminated prior to emergency use of the O<sub>2</sub> regulator</p> <p>e. In-Flight Checkout: None. Crew cannot disassemble, repair, or replace a defective regulator.</p>

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SUPERSADING DATE:

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DATE:

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