

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: BOTTOM NECK SEAL

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: 14062P-07

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	QTY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR LIMIT	RATIONALE FOR ACCEPTANCE
REF	REV					
3.5.2	1	BOTTOM NECK SEAL (1), 18951G-02	1/1	<p>3.5.2.1 Mode: Neck seal fails</p> <p>Cause: • defective material • overstress</p>	Cannot maintain suit pressure	<p>1. DESIGN FEATURES TO MINIMIZE FAILURE MODE</p> <p>a. Neck seal is in use by the Air Force.</p> <p>b. Same material utilized for face seal flown on STS-1 - STS-4 ejection escape suit.</p> <p>2. TEST OR ANALYSIS TO DETECT FAILURE MODE</p> <p>a. <u>Acceptance Testing</u></p> <p>(1) Leakage test at 156 ± 5 mmHg pressure</p> <p>(2) Verify neck seal is sized to individual crewmembers</p> <p>b. <u>Certification Test</u></p> <p>(1) High altitude chamber test, Brooks Air Force Base.</p> <p>(a) Unmanned testing series of gradual ascents and descents from ground level to 100,000 feet and rapid decompressions.</p> <p>(a) Manned test series</p> <p>1 Gradual ascents and descents to 100,000 feet.</p> <p>2 Rapid decompression to 90,000 feet.</p> <p>3 Endurance runs rapid decompression to 100,000 feet for 37 minutes</p> <p>(2) Live jumps at Naval Weapons Center.</p> <p>(a) At 700 knots, 25,000 feet, four jumps.</p> <p>(b) At 110 knots, 10,000 feet, four jumps.</p> <p>(c) At 110 knots, 6,000 feet, four jumps.</p> <p>(d) At 170 knots, 15,000 feet, four jumps.</p> <p>(e) At 185 knots, 20,000 feet, four jumps.</p> <p>(f) Water drop at 30 feet per second (1ps), two jumps.</p> <p>(g) Water drop at 27 fps, two jumps.</p>

PREPARED BY: R. J. ALLISON

SUPERSADING DATE:

APPROVED BY: J. O. SCHLOSSER

DATE

CEE/ES-19

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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *BOTTOM NECK SEAL*

SYSTEM: *CREW ESCAPE SYSTEM*

REVISION:

ASSY P/N: *14062P-07*

SUBSYSTEM: *LAUNCH ENTRY SUIT*

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRITY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.5.2	.1	BOTTOM NECK SEAL (1), 18951G-02	1/1	3.5.2.1 Mode: Neck seal fails Cause: • defective material • overstress	Cannot maintain suit pressure	<p>c. <u>Turnaround Test</u> (in accordance with PIA 23033)</p> <p>(1) Leakage test at 156 ± 5 mmHg pressure.</p> <p>(2) Verify neck seal is sized to individual crewmembers.</p> <p>3. <u>INSPECTION</u></p> <p>a. Visual inspection of material for defects.</p> <p><u>Turnaround Inspection</u> (in accordance with PIA 23033)</p> <p>a. Visual inspection of material for defects.</p> <p>4. <u>FAILURE HISTORY</u></p> <p>None. This bottom neck seal is used by the Air Force in high altitude suits for high performance aircraft and Dryden Flight Research Center.</p> <p>5. <u>OPERATIONAL USE</u></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 this equipment.</p> <p>e. In Flight Check-out - None. Crew could inspect neck seal during mission (not while suit was being worn), but could not repair or replace a defective seal.</p>

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