

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: DUAL SUIT CONTROLLER

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: F6642-53500-2

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRITY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON AND ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.9.3		DUAL SUIT CONTROLLER (1), 18951G-02	2/1R	3.9.3 Mode: Fails open Cause: contamination	Suit will not maintain pressure if second controller fails	<p>1. DESIGN FEATURES TO MINIMIZE FAILURE MODE</p> <ul style="list-style-type: none"> a. The controller was previously used in the ejection escape suit and is used by the Air Force. b. The controller has two complete separate systems. c. The seat is aluminum. d. The spring is stainless steel e. The diaphragm is silicone f. A filter is installed on the inlet port to prevent contamination of the orifice used to control suit pressure g. Designed to withstand 100 cycles between ground level and 80,000 feet. <p>2. TEST OR ANALYSIS TO DETECT FAILURE MODE</p> <ul style="list-style-type: none"> a. <u>Acceptance Testing.</u> <ul style="list-style-type: none"> (1) Vent resistance 4.5 inches H₂O maximum at 170 lpm and 340 lpm (2) Manual press to test 110 ± 18, -10 mmHg at 170 lpm and 340 lpm. (3) Overall leakage test at 110 ± 10 mmHg. (4) Dial to test resistance, suit pressure should be 5.5 inches H₂O maximum at 340 lpm vent flow. (5) Overall leakage at 156 ± 5 mmHg. (6) Secondary seal leakage and primary orifice flow at 110 ± 10 mmHg suit leakage 500 cc/minute maximum and orifice flow between 500 and 1300 cc/minute

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SUPERSEDING DATE:

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CRITICAL ITEMS LIST

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REF	REV					
3.9.3		DUAL SUIT CONTROLLER (1), 18951G-82	2/1R	3.9.3 Mode: fails open Cause: • contamination	Suit will not maintain pressure if second controller fails	<p>(7) Altitude test, secondary aneroid and seat leakage from 30,000 to 80,000 feet, flows at 15 alpm and 340 alpm, leakage at 60,000 feet, 500 cc/minute maximum</p> <p>(8) Primary seat leakage and secondary orifice flow suit pressure 156 ± 5 mmHg, seat leakage 500 cc/minute maximum orifice flow between 700 - 1,600 cc/minute.</p> <p>(9) Altitude test, primary aneroid and seat leakage from 30,000 to 80,000 feet, flows at 15 alpm and 340 alpm, seat leakage at 60,000 feet, 500 cc/minute maximum.</p> <p>b Certification Test.</p> <p>(1) High altitude chamber test, Brooks Air Force Base</p> <p>(a) Unmanned test series of gradual ascents and descents from ground level to 100,000 feet and rapid decompressions.</p> <p>(b) 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 jumped at Naval Weapons Center.</p> <p>(a) At 200 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 (fps), two jumps.</p> <p>(g) Water drop at 27 fps, two jumps.</p> <p>(3) Certified by the Air Force from 0 to 80,000 feet, 100 cycles, 50 cycles per controller side.</p>

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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: DUAL SUIT CONTROLLER

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: 76692-53500-2

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRITY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.9.3		DUAL SUIT CONTROLLER (1), 18951G-02	1/1R	3.9.3 Mode: Fails open Cause: contamination	Suit will not maintain pressure if second controller fails	<p>4. Turnaround Test. (In accordance with PIA 23033)</p> <ol style="list-style-type: none"> (1) Vent resistance 4.5 inches H₂O maximum at 170 lpm and 340 lpm (2) Manual press to test 110 ± 10, -10 mmHg at 170 lpm and 340 lpm. (3) Overall leakage test at 110 ± 10 mmHg. (4) Dial to test resistance, suit pressure should be 5.5 inches H₂O maximum at 340 lpm vent flow (5) Overall leakage at 156 ± 5 mmHg. (6) Secondary seat leakage and primary orifice flow at 110 ± 10 mmHg, seat leakage 500 cc/minute maximum and orifice flow between 500 and 1300 cc/minute. (7) Altitude test, secondary aneroid and seat leakage from 30,000 to 80,000 feet, flows at 15 alpm and 340 alpm, leakage at 60,000 feet, 500 cc/minute maximum. (8) Primary seat leakage and secondary orifice flow suit pressure 156 ± 5 mmHg, seat leakage 500 cc/minute maximum orifice flow between 700 - 1,600 cc/minute (9) Altitude test, primary aneroid and seat leakage from 30,000 to 80,000 feet, flows at 15 alpm and 340 alpm, seat leakage at 60,000 feet, 500 cc/minute maximum <p>3. INSPECTIONS</p> <ol style="list-style-type: none"> a. Visual inspection of parts for defects b. One hundred percent inspection during assembly c. Visual inspection for contamination.

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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: DUAL SUIT CONTROLLER

SYSTEM: CREW ESCAPE SYSTEM

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REF	REV					
3.9.3		DUAL SUIT CONTROLLER (1), 18954G-02	Z/R	3.9.3 Mode: Fails open Cause: • contamination	Suit will not maintain pressure if second controller fails	<ul style="list-style-type: none"> d. Verify flows are within specifications. e. Verify leak rates are within specifications. f. Verify cleaned to level 300 in accordance with JSCM 5322. <p><u>Turnaround Inspection</u> (In accordance with PIA 23033)</p> <ul style="list-style-type: none"> a. Visual inspection of parts for defects b. One hundred percent inspection during assembly c. Visual inspection for contamination. d. Verify flows are within specifications. e. Verify leak rates are within specifications f. Verify cleaned to level 300 in accordance with JSCM 5322. <p>4. FAILURE HISTORY</p> <p>None. This controller is used by the Air Force in high altitude suits for high performance aircraft and Dryden Flight Research Center.</p>

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REF	REV					
3.9.3		DUAL SUIT CONTROLLER (1), 18951G-02	Z/TR	3.9.3 Mode: Fails open Cause: • contamination	Suit will not maintain pressure if second controller fails	<p>5. OPERATIONAL USE</p> <p>a. Operational Effect of Failure: Possible loss of crewmember if second controller fails.</p> <p>b. Crew Action - None.</p> <p>c. Crew Training - Not applicable.</p> <p>d. Mission Constraints - None.</p> <p>e. In-Flight Checkout - None. Crew could not repair or replace a defective suit controller.</p>

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