

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: RELIEF VALVE ASSEMBLY

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: 9825-1

SUBSYSTEM: LAUNCH ENTRY SUIT

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	QTY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
3.10.1		RELIEF VALVE ASSEMBLY, (1) 18951G-02	1/1	3.10.1 Mode: Fails open Cause: • failed spring	Suit will not maintain pressure	<p>1. DESIGN FEATURES TO MINIMIZE FAILURE MODE</p> <ul style="list-style-type: none"> a. Spring is made out of stainless steel (Ss 302). b. This configuration was flown on STS-1 through STS-4 c. Sealing surface is Teflon/Silicone. d. The spring guide prevents the spring from jamming. e. This configuration has been flown by Department of Defense for over 40 years <p>2. TEST OR ANALYSIS TO DETECT FAILURE MODE</p> <ul style="list-style-type: none"> a. Acceptance Testing <ul style="list-style-type: none"> (1) Structural test, 5.6 ± 0.2 psig for 15 minutes with relief valve plugged. (2) Relief valve test, inflate gas container to approximately 4.0 psig or until rel. of valve opens, 4.75 psig maximum. (3) Air flow test, 150 slpm through rel of valve at a maximum pressure of 4.75 psig b. Certification Test <ul style="list-style-type: none"> (1) High altitude chamber test, Brooks Air Force Base. <ul style="list-style-type: none"> (a) Unmanned testing series <ul style="list-style-type: none"> 1 Gradual ascent/descent to 100,000 feet. 1 Rapid decompression to 90,000 feet. 1 Endurance run/rapid decompression to 100,000 feet for 37 minutes

PREPARED BY: R. L. ALLISON

SUPERSADING DATE:

APPROVED BY: J. O. SCHLOSSER

DATE:

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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					
3.10.1		RELIEF VALVE ASSEMBLY, (1) 189516-02	1/1	3.10.1 Mode: Fails open Cause: • failed spring	Suit will not maintain pressure	<p>(b) Manned testing series.</p> <ol style="list-style-type: none"> 1 Gradual ascent/descent to 100,000 feet. 2 Rapid decompression to 90,000 feet. 3 Endurance runs rapid decompression to 100,000 feet for 37 minutes. <p>< Turnaround Test. (In accordance with PIA 23033)</p> <ol style="list-style-type: none"> (1) Structural test, 5.6 ± 0.2 psig for 15 minutes with relief valve plugged. (2) Relief valve test, inflate gas container to approximately 4.0 psig or until relief valve opens, 4.75 psig maximum. (3) Air flow test, 150 s/min through relief valve at a maximum pressure of 4.75 psig. <p>3. INSPECTION</p> <ol style="list-style-type: none"> a. One hundred percent inspection of cementing valve into gas container. b. Verify opening pressure during relief valve test. c. Verify flow rate during flow test. d. One hundred percent inspection for defective materials <p>Turnaround Inspection. (In accordance with PIA 23033)</p> <ol style="list-style-type: none"> a. Verify opening pressure during relief valve test. b. Verify opening pressure during relief valve test

PREPARED BY: A. L. ALLISON

SUPERSEDING DATE:

APPROVED BY: J. O. SCHLOSSER

DATE:

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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *RELIEF VALVE ASSEMBLY*

SYSTEM: *CREW ESCAPE SYSTEM*

REVISION:

ASSY P/N: *9825-1*

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					
3.10.1		RELIEF VALVE ASSEMBLY, (1) 18951G-02	1/1	3.10.1 Mode: Fails open Cause: • failed spring	Suit will not maintain pressure	<p>4: FAILURE HISTORY</p> <p>None. This relief valve 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.</p> <p>e. In-flight Checkout - None. Crew could not repair or replace a defective relief valve.</p>

PREPARED BY: *A. E. ALLISON*

SUPERSADING DATE:

APPROVED BY: *L. O. SCHLOSSER*

DATE:

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