CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *REDUCER ASSEMBLY* SYSTEM: *CREW ESCAPE SYSTEM* REVISION: *A*

ASSY P/N: *882507?* SUBSYSTEM: *EMERGENCY OXYGEN SYSTEM* PAGE 34 OF 39

FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
S 4 5		REDUCER ASSEMBLY (2). 882507?	1/1	Mode: Rupture Cause: • Material failure • Stress corrosion	Loss of available oxygen	1. Design Features to Minimize Failures. a. Reducer body is made of Inconel 718 Yield strength 150,000 psi Ultimate strength 185,000 psi b. The reducer safety factor 2.5. Proof pressure test 4500. Burst pressure 7500 psi 2. Test or Analysis to Detect Failure Mode. a. <u>Acceptance Test</u> (1) Physical/chemical tests run on Inconel 718, certified by supplier (2) Subjected to 3080 psi high pressure and 250 psi low pressure leak test for 24 hours (3) Lot sample burst pressure test minimum 7500 psi. (4) Proof pressure tested to 4500 psi. (5) Functional outlet flow and outlet pressure test (6) Functional test during charge and discharge purge cycle (7) Relief valve cracking pressure test between 140 ± 10 psig at 3000 psig + 100 - 0 psig (8) Functional test at 38 slpm for 10 minutes minimum at 70 ± 10 psig. After 10 minutes, flow is increased to 90 slpm until gauge reads empty (9) The material is certified by the supplier by physical/chemical tests.

PREPARED BY: *R. Allison/R. Sauser* SUPERSEDING DATE: *10/24/88* APPROVED BY: DATE: *5/2/89*

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *REDUCER ASSEMBLY*

ASSY P/N: *8825071*

SYSTEM: *CREW ESCAPE SYSTEM*

SUBSYSTEM: *EMERGENCY OXYGEN SYSTEM*

REVISION: *A*

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FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON: END ITEM	RATIONALE FOR ACCEPTANCE
5 4.5		REDUCER ASSEMBLY (2), 8825071	I/1	Mode: Rupture Cause: • Material failure • Stress corrosion	Loss of available oxygen	b. Certification (1) A similar reducer is qualified in accordance with Rockwell International procurement specification, emergency oxygen assembly, bailout instructor (2) Proof pressure tested to 4500 psi + 10/-0 psig (3) Burst pressure tested to 7500 psi + 10/-0 psig for 1 minute (4) A similar system was live jumped at the Naval Weapons Center 12 jumps from 25,000 feet, 4 jumps from 12,000 feet, 12 jumps from 10,000 feet, and 8 water drop jumps. Turnaround Test (In accordance with PIA 23029) a. Internal/external leak check at 3000 psig + 100 - 0 psig b. 24-hour leak/decay check at 3000 psig + 100 - 0 psig. c. Proof pressure test to 4500 psi + 10/-0 psig every 4 years 3. Inspection. a. 100 percent DCAS inspection on all parts b. Cleaned and inspected for cleanliness to Level 100A in accordance with JSCM 5322, Contamination Control Plan c. Black light test - inspected for external contamination d. After reducer is assembled, the reducer is x-ray inspected to verify all parts and proper assembly

PREPARED BY *R Allison/B. Sauser*

SUPERSEDING DATE: *7/12/88*

APPROVED BY *J O Schlosser*

DATE *5/13/89*

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *REDUCER ASSEMBLY*
ASSY P/N. *8825071*
SYSTEM *CREW ESCAPE SYSTEM*
SUBSYSTEM *EMERGENCY OXYGEN SYSTEM*
REVISION *A*
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FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CR'TY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON ITEM/ITEM	RATIONALE FOR ACCEPTANCE
S 4 S		REDUCER ASSEMBLY (3) 8825071	1/1	Mode: Rupture Cause: • Material failure • Stress corrosion	Loss of available oxygen	e. Visual inspection to conformance of drawings. f. All moving parts are examined to ensure that they operate freely without sticking or binding Turnaround Inspection (In accordance with PIA 23029). a. Visual inspection for damage b. Verify clean and inspected to cleanliness level 100A. 4. Failure History. None. A similar reducer is used in the B-1 bailout system and Dryden Flight Research Center 5. Operational Use. a. Operational effect of failure. Possible loss of crewmember. b. Crew action. None. c. Crew Training. Not applicable d. Mission constraints. None. Mission would be terminated prior to use of this equipment e. In-flight checkout. None. Visual inspection of reducer/relief valve prior to use would not reveal failure

PREPARED BY. *R. Allison/B. Sauter*
SUPERSEDING DATE. *10/24/88*
APPROVED