

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: REDUCER ASSEMBLY
ASSY P/N: 0025071

SYSTEM: CREW ESCAPE SYSTEM
SUBSYSTEM: EMERGENCY OXYGEN SYSTEM

REVISION: A
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PMEA		NAME, QTY & DRAWING REF DESIGNATION	QNTY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON FUNCTION	RATIONALE FOR ACCEPTANCE
REF	REV					
544		REDUCER ASSEMBLY (2), 0025071	1/1	Mode: External Leakage Cause: • Defective material • Full port failure	Loss of available oxygen	<p>1. Design Features to Minimize Failures.</p> <ul style="list-style-type: none"> a. MIL-T-27730 teflon tape is applied to the male pipe thread on the reducer b. The diaphragm is 1 inch in diameter, dacron 15004/1 impregnated with Dow Corning silicone rubber #DC35U, thickness = $0.76 \pm .002$ c. The O-rings are made of viton d. O-rings are lubricated with Krytox <p>2. Test or Analysis to Detect Failure.</p> <ul style="list-style-type: none"> a. <u>Acceptance Test</u> <ol style="list-style-type: none"> (1) System leak tested at 3000 psi high pressure and 250 psi low pressure for 24 hours (2) Leak test on relief valve, filler valve, and pressure gauge prior to reducer assembly (3) Reducer seal leakage and body leakage test. (4) Flow test and pressure test (5) Relief valve cracking pressure test between 140 ± 10 psig at 3000 psig + 100 -0 psig (6) 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 (7) Halogen purity test

EXPEDITE PROCESSING

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	QTY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR CONDITION	RATIONALE FOR ACCEPTANCE
REF	REV					
544		REDUCER ASSEMBLY (2), 0025071	1/1	Mode: External Leakage Cause: • Defective material • Fill port failure	Loss of available oxygen	3. Inspection: a. 100 percent DCAS inspection on all parts b. Cleaned and inspected for cleanliness to Level 100A in accordance with JSCM 5324, 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 e. Visual inspection to conformance of drawings. f. All moving parts are examined to ensure that they operate freely without sticking or binding <u>Intergrund inspection</u> (In accordance with PIA 23029) a. Verify no leakage b. Visual inspection for damage c. Verify clean and inspected to cleanliness level 100A 4. Failure History: None - A similar reducer is used in the #1 bailout system and Dryden Flight Research Center

EXPEDITE PROCESSING

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	QNTY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR SYMPTOM	RATIONALE FOR ACCEPTANCE
REF	REV					
544		REDUCER ASSEMBLY (2), BR25071	VI	Mode: External Leakage Cause: • Defective material • Fill port failure	Loss of available oxygen	<p>2. Operational Use.</p> <ul style="list-style-type: none"> 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/reel valve prior to use would not reveal failure

PREPARED BY **R. ANSON/B. Sauer**

SUPERSEDING DATE: **10/2/00**

APPROVED BY **J. O. SCHMIDT**

DATE **5/2/00**

CCE/EOS-30