CRITICAL ITEMS LIST

ASSY NOMENCLATURE *OXYGEN MANIFOLD* | SYSTEM. *CREW ESCAPE SYSTEM* | REVISION.

ASSY P/N: *10030-01* | SUBSYSTEM *LAUNCH ENTRY SUIT* |

FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
3.3.2		OXYGEN MANIFOLD (1), 18951G-02	2/1R	3.3.2 Mode: Orbiter O_2 supply on/off valve fails closed Cause: • defective material • piece part failure	No Orbiter O_2 supply to suit if unable to reconnect Orbiter O_2 supply hose to the EOS connection	1. **DESIGN FEATURES TO MINIMIZE FAILURE MODE** a. The housing is constructed of aluminum. b. The diverter valve is manually actuated with a guard to retain the valve lever position c. The valve (hoke) is lubricated with Braycote. d. The valve actuation is such that when the lever is moved to the "On" position it acts as a fulcrum, forcing the valve to open. e. The spring is centered around the valve stem, preventing any jamming of the valve by the spring. f. The valve stem is made of 303 stainless steel. 2. **TEST OR ANALYSIS TO DETECT FAILURE MODE** a. <u>Acceptance Testing</u> (1) Leak test, pressurize manifold to 150 ± 10 psig with manifold lever in the "On" position. (2) Proof test, pressurize manifold to 300 ± 10 psig for 5 minutes with manifold lever in the "On" position (3) Leak test, pressurize manifold to 150 ± 5 psig with manifold lever in the "Off" position b. <u>Certification Test</u>. (1) High altitude chamber test, Brooks Air Force Base. (a) Unmanned testing series. 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

PREPARED BY *R. L. ALLISON* | SUPERSEDING DATE | APPROVED BY: *L.O. SCHLOSSER* | DATE:

CEELES-13

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *OXYGEN MANIFOLD* | SYSTEM: *CREW ESCAPE SYSTEM* | REVISION:

ASSY P/N: *10030-01* | SUBSYSTEM: *LAUNCH ENTRY SUIT* |

FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
3.3.2		OXYGEN MANIFOLD (1), 10951G-02	2/1R	3.3.2 Mode: Orbiter O_2 supply on/off valve fails closed Cause: • defective material • piece part failure	No Orbiter O_2 supply to suit if unable to reconnect Orbiter O_2 supply hose to the EDS connection	(b) Manned testing series. 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. c Turnaround Test. (In accordance with PIA 23033) (1) Leak test, pressurize manifold to 150 ± 10 psig with manifold lever in the "On" position. (2) Proof test, pressurize manifold to 300 ± 10 psig for 5 minutes with manifold lever in the "On" position. (3) Leak test, pressurize manifold to 150 ± 5 psig with manifold lever in the "Off" position J. **INSPECTION** a. Visual inspection of parts for defects b One hundred percent inspection during assembly c. Verify seals are properly seated d Verify manifold is cleaned to level 100A in accordance with JSCM 5322. e Visual inspection after proof test for any anomalies. f. Verify leakage is within specification Turnaround Inspection (In accordance with PIA 23033) a. Visual inspection of parts for defects. b Verify seals are properly seated.

PREPARED BY: *R. E. ALLISON* | SHIPBUILDING DATE: | APPROVED BY: *J. O. SCHLOSSER* | DATE:

CEE/LES-14

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *OXYGEN MANIFOLD* ASSY P/N: *10030-09*

SYSTEM: *CREW ESCAPE SYSTEM* SUBSYSTEM: *LAUNCH ENTRY SUIT*

REVISION

FMEA REF	FMEA REV	NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
3.3.2		OXYGEN MANIFOLD (1), 18951G-02	2/1R	3.3.2 Mode: Orbiter O_2 supply on/off valve fails closed Cause: • defective material • piece part failure	No Orbiter O_2 supply to suit if unable to reconnect Orbiter O_2 supply hose to the EOS connection	c. Verify manifold is cleaned to level 100A in accordance with JSCM 5322. d. Verify leakage is within specification. 4. FAILURE HISTORY None. This manifold is a new item. 5. OPERATIONAL USE a. Operational Effect of Failure. (Note: This failure mode applies only to loss of ship-supplied O_2 due to O_2 manifold failing closed. Design precludes loss of emergency O_2 due to manifold failure.) Possible loss of crewmember if cabin atmosphere is contaminated during flight and O_2 manifold cannot be bypassed. b. Crew Action - Disconnect Orbiter O_2 supply hose and emergency O_2 hose from O_2 manifold, attach Orbiter O_2 hose to emergency O_2 inlet on manifold. Note: This should be considered a hazardous procedure, performed as a last resort only. c. Crew Training - The crew is trained to perform this procedure if necessary. d. Mission Constraints - None. Mission would be terminated prior to emergency use of O_2 manifold. e. In-Flight Checkout - None. Visual inspection would not reveal failure; crew cannot disassemble, repair, or replace a defective manifold.

PREPARED BY: *R. C. ALLISON* SUPERSEDING DATE:

APPROVED BY: *J. O. SCHLOSSEN* DATE

CEI/LES-15