

NON-CIL 1R ITEMS

SYSTEM: Electrical  
SUBSYSTEM: L02 Level System

REV & DATE: J, 12-19-97

DCN & DATE:

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Per NSTS 22206, certain failure modes of the following items in subsystem 3.1 (L02 Level System) meet the criteria to be designated "Non-CIL 1R". Rationale for Retention is not required.

FMEA Item Codes: 3.1.2.2, 3.1.3.2, 3.1.4.2, 3.1.5.2, 3.1.6.2, 3.1.7.3, 3.1.8.3, 3.1.9.3 and 3.1.10.3.

CRITICAL ITEMS LIST (CIL)

SYSTEM: Electrical  
 SUBSYSTEM: LO2 Level System  
 REV & DATE: J, 12-19-97  
 DCN & DATE:  
 ANALYSTS: J. Bowski/A. Oser

FUNCTIONAL CRIT: 1R  
 PHASE(S): a  
 HAZARD REF: E.01

FAILURE MODE: Fails with False Dry Signal  
 FAILURE EFFECT: a) Loss of mission and vehicle/crew due to fire/explosion caused by LO2 flowing out of vent valve.  
 TIME TO EFFECT: Minutes  
 FAILURE CAUSE(S): Sensor Resistance in False Dry Range  
 REDUNDANCY SCREENS: Screen A: PASS  
 Screen B: N/A - Item nonfunctional in flight.  
 Screen C: PASS

FUNCTIONAL DESCRIPTION:

<u>Sensor Grouping</u>	<u>Function</u>
98% No. 1 & No. 2	Provides signals for transition from fast fill to topping and termination of vent valve cycling.
100% (-), 100% No. 1 & No. 2	Provides signals for transition from topping to replenish.
100% (-), 100% No. 1 & No. 2, 100% (+)	Provides signals used as a redline to stop flow when both 98% sensors fail dry.
100% No. 1 & No. 2, 100% (+)	Provides signals for replenish control.
100% (+)	Provides signals used as a redline to stop flow when in transition from topping to replenish if 100% (-) and 100% No. 1 & No. 2 fail.
Overfill	Provides signals to stop flow when other sensors fail.

<u>FMEA Item Code</u>	<u>Part Name</u>	<u>Measurement No.</u>
3.1.2.2	98% Sensors No. 1 & No. 2	T41X1765E, T41X1766E
3.1.3.2	100% (-) Sensor	T41X1767E
3.1.4.2	100% Sensors No. 1 & No. 2	T41X1768E, T41X1769E
3.1.5.2	100% (+) Sensor	T41X1770E
3.1.6.2	Overfill Sensor	T41X1771E

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
3.1.2.2	74L4-1 (326A07, 326A06)	LO2 98% Sensors No. 1 & No. 2	2	LWT-54 & Up
3.1.3.2	74L4-1 (326A08)	100% (-)Sensor	1	LWT-54 & Up
3.1.4.2	74L4-1 (326A09, 326A10)	100% Sensors No. 1 & No. 2	2	LWT-54 & Up
3.1.5.2	74L4-1 (326A11)	100% (+)Sensor	1	LWT-54 & Up
3.1.6.2	74L4-1 (326A12)	LO2 Overfill Sensor	1	LWT-54 & Up

REMARKS: Level sensors are grouped by the specific function performed in the loading sequence. Items meet criteria for Non-CIL 1R. Rationale for Retention is not required.