

CRITICAL ITEMS LIST

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REFERENCE DESIGNATOR: F4
 NAME / QUANTITY: FUSE/1
 DRAWING REFERENCE: 10120-20022

PROJECT: IFM BREAKOUT BOX
 LRU NAME / QUANTITY: IFM BREAKOUT BOX / 2
 LRU PART NUMBER: 5ED99121772

SUBSYSTEM: NONE
 EFFECTIVITY: All Orbiters

FAILURE MODE NUMBER	CRITICALITY	FAILURE EFFECT	RETENTION RATIONALE
7	2/1R		
FUNCTION Fuse outlet 1 provides fuse protection for the IFM breakout box (outlet 1) and downstream equipment		END ITEM No power output at outlet 1; loss of redundant power to CWE	A. DESIGN - The part is a miniature cartridge fuse with leads. It is rated at 5 A, with a capacity to interrupt 1,000 A at 60 V, and is not to exceed 3 g. The current load used to power the CRW System is nominally .7 A. B. TESTS - The part is screened and qualified to the requirements of Rockwell International specification MC451-0010. Tests and inspections are done on the entire product to check burn-in (100 percent rating, 2-hr minimum), terminal strength (2 in-lb, 1 min) examination of product vibration (sinusoidal sweep), leakage, dc resistance, and radiographics. Tests and inspections are done on a sample from each lot to check terminal strength, vibration (random), leakage, dc resistance, radiographics, and time current characteristics. The tests and inspections done on a periodic basis for qualification include dc resistance, case leakage, time current characteristics,
FAILURE MODE AND CAUSE Mode: Fuse opens prematurely Cause: Defective material		MISSION None	
REUNDANCY SCREENS A - Pass B - Pass C - Pass	REMAINING PATHS Replace fuse Use backup IFM box	CREW / VEHICLE This failure followed by failure of the remaining Orbiter essential bus powering the CWE would create an undetected fuel cell emergency due to loss of fuel cell coolant pump	
MISSION PHASE	TIME TO EFFECT	TIME TO CORRECT	
Orbit/Landing	Minutes	Immediate	

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PREPARED BY: Luis Vasquez

REVISION: Basic

SUPERSEDING DATE: 8/91

DATE: 8/91

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CRITICAL ITEMS LIST

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REFERENCE DESIGNATOR: F9
NAME/QUANTITY: FUSE/1
DRAWING REFERENCE: 10120-20022

PROJECT: IFM BREAKOUT BOX
LRU NAME/QUANTITY: IFM BREAKOUT BOX/2
LRU PART NUMBER: SED39121772

SUBSYSTEM: NONE
EFFECTIVITY: All Orbiters

RETENTION RATIONALE (Concluded)

terminal strength, thermal shock, humidity, interrupting capacity, mechanical shock, and vibration. A visual and mechanical examination is also performed.

- C. INSPECTION - The part is inspected according to the requirements of Rockwell International specification MC451-0010, which includes visual inspections and burn-in and screening tests as described in item 2. In addition, Rockwell International periodically audits the device manufacturer to ensure that the design, processing assembly, inspection, and testing of devices are adequately controlled.
- D. FAILURE HISTORY - None. There have not been any documented failures of a fuse to function on the Orbiter program.
- E. OPERATIONAL USE -
 1. Fuse failure would be annunciated in Orbiter failure scenario 2. The fuse failure may be detected in Orbiter failure scenario 1 by indicator lights on the IFM breakout box. The fuse could then be replaced.
 2. The second failure, loss of the Orbiter essential bus, would be detected by the ground except during LOS. There would be 5-10 min (9 min nominal) available to shut down the affected fuel cell.

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PREPARED BY: Luis Vazquez

REVISION: Basic

SUPERSEDING DATE: 8/91

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ATTACHMENT -
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