

USA Ground Operations CIL Sheet

DEC 15 1999

**Critical Item:** Fuse  
**NASA Part No:** None  
**Mfg/Part No:** Bussman / GBA-3  
**System:** Fixed Hydrogen Leak Detection System

**Criticality Category:** 1S  
**Total Quantity:** 18

Flnd No.	Qty	Area	PMN	Baseline	Drawing / Sheet
F1	1	Pad-A	S70-1220	010.00	79K09203 / 30
F1	1	Pad-B	S70-1220	010.00	79K40032 / 27
F16	1	Pad-A	S70-1220	010.00	79K09203 / 30
F16	1	Pad-B	S70-1220	010.00	79K40032 / 27
F17	1	Pad-A	S70-1220	010.00	79K09203 / 30
F17	1	Pad-B	S70-1220	010.00	79K40032 / 27
F18	1	Pad-A	S70-1220	010.00	79K09203 / 30
F18	1	Pad-B	S70-1220	010.00	79K40032 / 27
F2	1	Pad-A	S70-1220	010.00	79K09203 / 30
F2	1	Pad-B	S70-1220	010.00	79K40032 / 27
F22	1	Pad-A	S70-1220	010.00	79K09203 / 30
F22	1	Pad-B	S70-1220	010.00	79K40032 / 27
F23	1	Pad-A	S70-1220	010.00	79K09203 / 30
F23	1	Pad-B	S70-1220	010.00	79K40032 / 27
F3	1	Pad-A	S70-1220	010.00	79K09203 / 30
F3	1	Pad-B	S70-1220	010.00	79K40032 / 27
F8	1	Pad-A	S70-1220	010.00	79K09203 / 30
F8	1	Pad-B	S70-1220	010.00	79K40032 / 27

**Function:**

Circuit overload protection for each leak detection sensor.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09SY07-014.003  Premature operation	Current overload, mechanical damage or random failure due to vibration or excess heat.  System would fail to detect a hydrogen leak at the associated sensor. Possible loss of life/vehicle or damage to a vehicle system during a hazardous condition.	LPS console monitor or end-to-end testing.  Seconds to hours.	1S

**ACCEPTANCE RATIONALE****Design:**

- Fuse is operating below rated limits:
  - Rated: 3 Amp and 125 Volts
  - Operating: 1 Amp or less and 28 Volts

**Test:**

- OMRS File VI requires a two-point local functional test of each sensor each flow by checking the zero level in air and by stimulation with a certified concentration of 2% hydrogen air.

**Inspection:**

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- OMRSD File VI requires an end-to-test of each sensor circuit, each flow. Accomplishment of the end-to-end test validates fuse integrity.

**Failure History:**

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and the following data was found on this component in the critical failure mode.

-There were no problem reports identified for the "Premature operation" failure mode.

- The GIDEP failure data interchange was researched and no failure data was found on this component in the critical failure mode.

**Operational Use:**

Correcting Action	Timeframe
Per OMI V1040.002, all of the H2 detector sensors on the Orbiter Mid-Body Umbilical Unit (OMBUU) are mandatory for cryo flow start. Loss of one detector on the 155 foot level of the FSS, with use of portable detectors, is acceptable. Loss of the detection system is not cause to terminate cryo flow after chilldown is completed. OMI V1040.002, Emergency Instructions provide contingencies for loss of Hydrogen Leak Detectors (HLDs).	Minutes.