Critical Item: Relay for Damper Actuator
(1 each MLP, 3 total)

Find Number: 18

Criticality Category: 1S

SAA No: 09SY01-002

System/Area: Halon 1301 Fire Protection System/MLP

NASA Part No: None

PMN/ Name: M61-0739-01
M61-0740-01
M61-0741-01

MFG Part No.: Struthers Dunn A314XBX48P

Drawing/ Sheet NO.: 79K30091 11

Function: Removes power from damper actuator causing dampers to close when halon system is activated.

Critical Failure Mode: Fails to Open. FM09SY01-002.004

Failure Cause: Internal failure (short) - contact failure

Failure Effect: Dampers would not close causing a reduction of halon concentration which could allow a fire to spread. Possible loss of life and damage/loss of a Space Shuttle Vehicle.

Acceptance Rationale

Design:

- Component specification:

  D.C. Coil:

VOLTAGE	RESISTANCE
24	472

  Operate: 80% Nominal voltage
  Max. overvoltage: 110% nominal voltage

  Temperature: -45° to 50° C

- Materials:

  Contacts: Silver Cadmium Oxide

- Relays are listed by Underwriters Laboratories (UL) file E13224 and Canadian Standards Association (CSA) Certified file LR40787.

Test:

- o File VI OMRSD requires an annual test:
  - Ensure Halon System is in the automatic mode. Activate two ionization detectors on separate circuits to perform end-to-end test and verify dampers close and halon actuator pins do extend approximately 1/4 inch.
- o PMI requires:
  - Quarterly verification of electrical components by energizing initiating and signaling circuits.

Inspection:

- o Verify functional operation annually and at component replacement.

Operational Use:

- o None. response by Fire Services Personnel when MLP at Launch Pad:
  1. During normal Pad operation (routine operation/maintenance personnel present), Fire Services Personnel will respond within 2-9 minutes after notification from LCC Room 1P10.
  2. During hazardous operations at the Pad (access limited to essential personnel only), response time after notification of a fire would be 2-9 minutes. Fire Services Personnel will be on-site or in near proximity during all hazardous operations.
  3. During post-launch operations (no operation/maintenance personnel present), response time after notification of a fire is expected to typically be within 20 minutes.

Failure History

- o No KSC PRACA History of Failure in the Critical Failure Mode
- o No GIDEP ALERTs were reported.
- o No trouble tickets were reported.