

SRB CRITICAL ITEMS LIST

SUBSYSTEM: STRUCTURES AND MISCELLANEOUS ITEMS

ITEM NAME: Vent Port Barometric Switch Orifice Assembly

PART NO.: 10180-0015

FM CODE: A01

ITEM CODE: 60-02-22

REVISION: Basic

CRITICALITY CATEGORY: 1

REACTION TIME: Immediate

NO. REQUIRED: 6 per SRB

DATE: March 1, 2001

CRITICAL PHASES: Boost, Separation

SUPERCEDES: March 1, 1995

FMEA PAGE NO.: E-26D

ANALYST: K. Davis/S. Parvathaneni

SHEET 1 OF 2

APPROVED: S. Parvathaneni

DCN 042

DCN 042

DCN 042

DCN 042

FAILURE MODE AND CAUSES: Failure of Vent Port Barometric Switch Orifice Assembly caused by:

- Improper Installation
- Improper Fabrication
- Loctite Failure

FAILURE EFFECT SUMMARY: Loss of mission, vehicle and crew due to loss of an orifice assembly from the vent port barometric switch orifice assembly becoming debris impacting/damaging the Orbiter/ET.

RATIONALE FOR RETENTION:

A. DESIGN

- The Vent Port Barometric Switch Orifice Assembly is used for sensing the altitude of SRB. The Loctite locking compound is part of the Frustum Vent Port Barometric Switch Orifice Assembly.
- The materials selected in design were CRES types in accordance with QQ-S-763 and QQ-S-766; Silver Brazing Alloy per QQ-B-654.
- The welding process was conducted per MSFC-SPEC-135. Brazing process was performed per MIL-B-7883.
- The Vent Port Barometric Switch Orifice Assembly was qualified for flight by analysis (Ref. LBT-011-90-E). Analysis shows that a design factor of safety of 2.0 exists between Vent Port Barometric Switch Orifice Assembly and the predicted maximum loading during ascent.

B. TESTING

- O No testing is performed during each flow applicable to this failure mode.

C. INSPECTION

VENDOR RELATED INSPECTION

- O USA SRBE SIP 1453 controls the USA SRBE QAR inspection criteria at the vendor's facility. (Improper Fabrication)
- O Materials are accepted on the basis of supplier certifications. Certifications are verified by USA SRBE QAR per SIP 1453. (Improper Material)
- O CRITICAL PROCESSES/INSPECTIONS:
 - o Brazing per MIL-B-7883

DCN 042

ASSEMBLY/CHECKOUT RELATED INSPECTION

- O The Vent Port Barometric Switch Orifice Assembly is installed per MIL-F-18240. (Improper Installation)
- O The installation of Vent Port Barometric Switch Orifice Assembly is performed per 10180-0015 and is verified by USA SRBE QA. (Improper Installation)
- O Visual Inspection is performed during structural integrity walkdown inspection, prior to isle transfer, in accordance with 10REQ-0021, para. 4.1.8.1. (Improper Installation)

PRELAUNCH CHECKOUT RELATED INSPECTIONS

- O Visually verify that Vent Port Barometric Switch Orifice Assembly vent ports are clear of foreign material per OMRSD File V, Vol. I, Requirement number B08SB0.061. (Improper Installation)

D. FAILURE HISTORY

- O Criticality Category 1:
 - o Failure histories maybe obtained from the PRACA data base.

E. OPERATIONAL USE

- O Not applicable to this failure mode.