

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: MO-AB1-100000-00-001-X

SUBSYSTEM NAME: GAMMA RAY OBSERVATORY

REVISION : 1 01/22/91

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ P PART :	SWITCH, TOGGLE	ME452-0102-7252

PART DATA

- EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
TWO-POLE, TWO-POSITION, LEVER-LOCKED TOGGLE SWITCH
- REFERENCE DESIGNATORS: 31P73A12A352
- QUANTITY OF LIKE ITEMS: 1  
ONE, S2 ON THE DEPLOYMENT AND POINTING PANEL.
- FUNCTION:  
THE S2 (ENABLE/DISABLE) SWITCH INTRODUCES POWER TO THE RETRACT/OFF SWITCH S3.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
NUMBER: MO-AB1-100000-00-001-03

SUBSYSTEM: GAMMA RAY OBSERVATORY

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ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS  
FAILURE MODE:2/2

- FAILURE MODE:  
FAILS OPEN, FAILS TO CLOSE - BOTH POLES

MISSION PHASE:  
00 ON-ORBIT

- VEHICLE/PAYLOAD/KIT EFFECTIVITY: 103 DISCOVERY  
: 104 ATLANTIS  
: 105 ENDEAVOUR

- CAUSE:  
STRUCTURAL FAILURE - BROKEN PART OPENS ONE POLE - LOOSE PART(S) MIGRATE TO OTHER POLE, SHORTING IT TO GROUND, CREATING AN OPEN; BROKEN HANDLE; HANDLE STUCK; VIBRATION; MECHANICAL SHOCK; PROCESSING ANOMALY

- CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

- REDUNDANCY SCREEN A) N/A
- B) N/A
- C) N/A

PASS/FAIL RATIONALE:

- A)
- B)
- C)

- FAILURE EFFECTS -

- (A) SUBSYSTEM:  
LOSS OF ~~ARMING~~<sup>POWER</sup> TO BOTH POLES OF THE RETRACT SWITCH (S3).
- (B) INTERFACING SUBSYSTEM(S):  
LOSS OF BOTH SURS COMMAND CIRCUITS, LOSS OF ABILITY TO COMMAND DISCONNECT OF BOTH SURS CONNECTORS, CANNOT RETRACT SURS ARMS.

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- (C) MISSION:  
CANNOT DISCONNECT SURS CONNECTORS, CANNOT RETRACT SURS ARMS, CANNOT DEPLOY PAYLOAD; LOSS OF MISSION.
- (D) CREW, VEHICLE, AND ELEMENT(S):  
NO EFFECT.
- (E) FUNCTIONAL CRITICALITY EFFECTS:  
N/A

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- DISPOSITION RATIONALE -  
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- (A) DESIGN:  
REFER TO APPENDIX A, ITEM NO. 1, TOGGLE SWITCH
- (B) TEST:  
REFER TO APPENDIX A, ITEM NO. 1, TOGGLE SWITCH
- (C) INSPECTION:  
REFER TO APPENDIX A, ITEM NO. 1, TOGGLE SWITCH
- (D) FAILURE HISTORY:  
REFER TO APPENDIX A, ITEM NO. 1, TOGGLE SWITCH
- (E) OPERATIONAL USE:  
EVA CREWMAN CAN MANUALLY DISCONNECT SURS CONNECTORS, RETRACT AND STOW SURS ARMS.

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- APPROVALS -  
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RELIABILITY SUPERVISOR : M. P. RAGUSA  
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