
CRITICAL ITEMS LIST

CIL NUMBER: OIU-CIL-0003 **ORIGINATOR:** R. V. Abshier

PROJECT: Shuttle

PART NAME: SWITCH, TOGGLE

QUANTITY: 1

PART NUMBER: ME452-0102-7203 or -7703

SYSTEM: N/A

LRU NAME: STANDARD SWITCH PANEL - L12

SUBSYSTEM: OIU

LRU PART NUMBER: TBD

DRAWING NUMBER: TBD

LOCATION: SHUTTLE AFD/STANDARD SWITCH PANEL - L12

EFFECTIVITY/AFFECT STAGE: OV-103, OV-104, OV-105/ STS-91, ALL ORBITER BASED ISS
ASSEMBLY AND UTILIZATION FLIGHTS

CRITICALITY CATEGORY 1/1

INTACT ABORT MODE CRITICALITY: N/A

FMEA REFERENCE: OIU-FMEA-0001, -0002 & -0003

FMEA/CIL IDENTIFICATION NUMBER: JSC No. 27273

FUNCTION: The toggle switch provides manual select capability to apply power to either Orbiter Interface Unit No. 1 or No. 2.

FAILURE MODES: Fails closed, premature closed, contact-to-contact short, pole-to-pole short, fails open, premature open, short to case (ground)

CAUSE:

Piece part structural failure, contamination, vibration, mechanical shock, processing anomaly

-FAILURE EFFECTS-

END ITEM:

Worst case failure will result in loss of ability to route power to either.

SUBSYSTEM:

Worst case failure will result in inability of either OIU to perform desired functions.

MISSION:

Worst case failure will cause loss of mission to due inability to perform desired ISS assembly command functions.

CREW/VEHICLE :

Failure during time critical operation could result in possible loss of vehicles (Shuttle and/or ISS), and/or loss of crew .

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SUCCESS PATHS: 1

SUCCESS PATH REMAINING AFTER FIRST FAILURE: 0

END ITEM EFFECTIVITY: STS-91, ISS BUILD 2A AND SUBS

MISSION PHASES: Assembly and On-orbit

TIME TO EFFECT: Minutes

TIME TO DETECT: Minutes

TIME TO CORRECT: Hours

WORKAROUNDS: See OIU per Crew Procedures No. TBS

REDUNDANCY SCREENS: Check All that Fail

A B C

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. C/O PRELAUNCH: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. C/O ON ORBIT: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. DETECTION FLIGHT CREW: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. DETECTION GROUND CREW: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. LOSS OF REDUNDANCY FROM SINGLE CAUSE: |

A - Redundant hardware item capable of checkout during normal ground turnaround

B - Loss of redundant hardware item is readily detectable during flight

C - Loss of all redundant hardware items cannot be the result of a single credible cause

HAZARD INFORMATION:

HAZARD: No

HAZARD ORGANIZATION CODE: N/A

HAZARD NUMBER: N/A

REMARKS:

None.

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-RATIONALE FOR ACCEPTABILITY-

(A) DESIGN:

Refer to NSTS 08399 "Space Shuttle Program Critical Item List - Orbiter Book 00", General CIL Retention Rationale used for ME452-0102-7XXX family of toggle switches. The information is contained in NSTS 08399, Appendix A, Item No. 1 - Toggle Switch.

(B) TEST/ANALYSIS:

Refer to NSTS 08399 "Space Shuttle Program Critical Item List - Orbiter Book 00", General CIL Retention Rationale used for ME452-0102-7XXX family of toggle switches. The information is contained in NSTS 08399, Appendix A, Item No. 1 - Toggle Switch.

Ground Turnaround tests per ORMSD RCN No. SS13034DM.

(C) INSPECTION:

Refer to NSTS 08399 "Space Shuttle Program Critical Item List - Orbiter Book 00", General CIL Retention Rationale used for ME452-0102-7XXX family of toggle switches. The information is contained in NSTS 08399, Appendix A, Item No. 1 - Toggle Switch.

(D) FAILURE HISTORY:

Refer to NSTS 08399 "Space Shuttle Program Critical Item List - Orbiter Book 00", General CIL Retention Rationale used for ME452-0102-7XXX family of toggle switches. The information is contained in NSTS 08399, Appendix A, Item No. 1 - Toggle Switch.

(E) OPERATIONAL USE:

The crew procedures will be contained in Crew Procedures No. TBD. Failure of the switch will result in loss of mission and/or loss of crew and/or vehicles (Shuttle or ISS).

(F) MAINTAINABILITY:

There are no on-orbit maintainability requirements or in-flight maintenance (IFM) requirements for the toggle switch.

PREPARED BY: R. V. Abshier

REVISION:

DATE: 3/29/97

WAIVER NUMBER

APPROVED BY:

R. G. Alexander

DATE:

7/17/97