

PAGE: 1

PRINT DATE: 09/27/89

SHUTTLE CRITICAL ITEMS LIST - ORBITER NUMBER: 05-6R-320701-X

SUBSYSTEM NAME: EPC&C - INSTRUMENTATION (05-6R)

REVISION : 2 09/27/89

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ LRU	: PANEL 017	V070-730397
■ SRU	: SWITCH, TOGGLE	ME452-0102-7301

■ EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

■ REFERENCE DESIGNATORS: 33V73A17S14

QUANTITY OF LIKE ITEMS: 1

■ FUNCTION:

PROVIDES CONTROL POWER TO RPC'S 6,7 & 34 THAT SUPPLY POWER TO SIGNAL CONDITIONERS OR1 AND OR2.

PAGE: 2

PRINT DATE: 09/27/89

SHUTTLE CRITICAL ITEMS LIST - ORBITER NUMBER: 05-6R-320701-01

REVISION# 2 09/27/89

SUBSYSTEM: EPD&C - INSTRUMENTATION (05-6R)

LRU :PANEL 017

ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS
FAILURE MODE: 1R2

-
- FAILURE MODE:
FAILS OPEN, SHORTS TO CASE (GROUND)

MISSION PHASE:

PL PRELAUNCH
LO LIFT-OFF
OO ON-ORBIT
DO DE-ORBIT
LS LANDING SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
: 103 DISCOVERY
: 104 ATLANTIS
: 105 ENDEAVOUR

- CAUSE:
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION,
MECHANICAL SHOCK, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? Y
RTLS RETURN TO LAUNCH SITE

-
- REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:

- A)
- B)
- C)

-
- MASTER MEAS. LIST NUMBERS: V75S216EE

- FAILURE EFFECTS -

-
- (A) SUBSYSTEM:
LOSS OF CONTROL BUS POWER TO RPC'S THAT SUPPLY MAIN BUS POWER TO

SHUTTLE CRITICAL ITEMS LIST - ORBITER NUMBER: 05-6R-320701-01

DEDICATED SIGNAL CONDITIONERS OR1 AND OR2.

- (B) INTERFACING SUBSYSTEM(S):
LOSS OF DSC OR1 AND OR2 FUNCTION.
- (C) MISSION:
FIRST FAILURE: POSSIBLE EARLY MISSION TERMINATION DUE TO LOSS OF CRITICAL DATA.
- (D) CREW, VEHICLE, AND ELEMENT(S):
FIRST FAILURE: LOSS OF BOTH DSC'S AND UP TO 120 VEHICLE MEASUREMENTS.
SECOND FAILURE: LOSS OF DSC MEASUREMENTS MAY CONCEAL A CRITICAL SUBSYSTEM FAILURE WHICH MAY CAUSE LOSS OF CREW/VEHICLE.

CRIT 1/1 RTLS ABORT EFFECTS

LOSS OF SWITCH RESULTS IN A LOSS OF POWER TO DSC'S OR1 AND OR2 WHICH PROCESS UP, DOWN AND YAW RIGHT AFT JET CHAMBER PRESSURES. AS A RESULT, THESE CHAMBER PRESSURES DROP TO ZERO, CAUSING REDUNDANCY MANAGEMENT TO DESELECT 2 JETS IN THE SAME DIRECTION WHICH COULD RESULT IN POSSIBLE RECONTACT WITH THE EXTERNAL TANK DURING SEPARATION IN AN RTLS ABORT, AND/OR CAUSE EXCESSIVE ROLL/YAW EXCEEDING FLIGHT CONTROL LIMITS FOR MM602 TAKEOVER.

- (E) FUNCTIONAL CRITICALITY EFFECTS:

- DISPOSITION RATIONALE -

- (A) DESIGN:
REFER TO APPENDIX A, ITEM NO.1 - TOGGLE SWITCH
- (B) TEST:
REFER TO APPENDIX A, ITEM NO.1 - TOGGLE SWITCH
GROUND TURNAROUND TEST: POWER REDUNDANCY TEST ON ALL DSC'S ARE PERFORMED DURING TURNAROUND.
- (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:
NONE

SHUTTLE CRITICAL ITEMS LIST - ORBITER

NUMBER: 05-6R-320701-01

- APPROVALS -

RELIABILITY ENGINEERING: J. R. GODWARD
 RELIABILITY ENGINEERING: R. GREGORIAN
 RELIABILITY ENGINEERING: M. HOVE
 DESIGN ENGINEERING : R. V. BURNS
 DESIGN ENGINEERING : T. V. HO
 DESIGN ENGINEERING : J. MORGAN
 DESIGN ENGINEERING : L. C. MUCHOW
 DESIGN ENGINEERING : L. A. SHOCKLEY
 QUALITY ENGINEERING : E. GUTIERREZ
 NASA SUBSYSTEM MANAGER : J. Miller
 NASA EPO&C RELIABILITY :
 NASA QUALITY ASSURANCE :
 NASA EPO&C SUBSYS MGR : F. ALANIS
 NASA OI RELIABILITY :

: M. A. Flynn 10/13/89
 : R. Gregorian
 : M. Hove
 : R. V. Burns
 : T. V. Ho
 : J. Morgan
 : L. C. Muchow
 : L. A. Shockley
 : E. Gutierrez
 : J. Miller
 : F. Alanis 10/13/89
 : F. Alanis 10/14/89
 : C. M. ... 10/14/89