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PRINT DATE: 09/14/95

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE  
NUMBER: M5-6MR-0307-X**

**SUBSYSTEM NAME: ORBITER DOCKING SYSTEM/MIR-2**

**REVISION: 0 SEP 30, 1995**

	<b>PART NAME VENDOR NAME</b>	<b>PART NUMBER VENDOR NUMBER</b>
LRU	: STANDARD SWITCH PANEL-3	SED33101201-303
SRU	: TOGGLE SWITCH	MF452-0102-7201

**PART DATA**

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
SWITCH, TOGGLE, 2P2P MAINTAINED ON - ORBITER DOCKING SYSTEM (ODS) TRUSS  
CAMERA ON/OFF.

**REFERENCE DESIGNATORS: 31P73A12A2S7**

**QUANTITY OF LIKE ITEMS: 1  
(ONE)**

**FUNCTION:**  
ALLOWS THE CREW TO POWER THE TRUSS CAMERA. THIS NON-AXIAL CAMERA WILL  
VIEW THE SOYUZ TARGET ON THE DOCKING MODULE (DM). THIS CAMERA IS THE  
BACK UP FOR THE ODS CENTERLINE (CL) CAMERA.

**REFERENCE DOCUMENTS: 1) ECN 104-25017. ELECTRICAL CHANGE NOTICE,  
SHUTTLE/MIR MISSION #2. ORBITER DOCKING SYSTEM. 2)  
VS72-200143. INTEGRATED SCHEMATIC STS-74. 3) JSC-  
26736. STS-74 CARGO SYSTEM MANUAL. 4) VS70-953114.  
INTEGRATED SCHEMATIC - DOCKING SYSTEM, RUSSIAN  
MIR MISSION 2.**



**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL FAILURE MODE  
NUMBER: M5-6MR-0307-01**

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**- FAILURE EFFECTS -**

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**(A) SUBSYSTEM:**

LOSS OF CONTROL OF ODS TRUSS CAMERA POWER.

**(B) INTERFACING SUBSYSTEM(S):**

LOSS OF VIDEO OUTPUT FROM ODS TRUSS CAMERA.

**(C) MISSION:**

NO EFFECT. USE ODS CL CAMERA TO MATE DOCKING MODULE (DM) TO ODS.

**(D) CREW, VEHICLE, AND ELEMENT(S):**

NO EFFECT.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

POSSIBLE LOSS OF MISSION OBJECTIVES AFTER THREE FAILURES.

1) SWITCH S7 (ODS TRUSS CAMERA POWER) FAILS OPEN. LOSS OF VIDEO OUTPUT FROM ODS TRUSS CAMERA. USE ODS CL CAMERA.

2) SWITCH S8 FAILS OPEN (ODS CL CAMERA POWER). LOSS OF VIDEO OUTPUT FROM ODS CL CAMERA. PERFORM STANDARD SWITCH PANEL CABLE CHANGEOUT USING AN INFLIGHT MAINTENANCE PROCEDURE, AND USE SSP 2 SWITCH TO RECOVER FUNCTION.

3) SWITCH ON SSP 2 FAILS OPEN - UNABLE TO MATE ODS TO DM WITHOUT VIDEO FROM THE ODS CENTERLINE CAMERA OR ODS TRUSS CAMERA.

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**- TIME FRAME -**

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**TIME FROM FAILURE TO CRITICAL EFFECT: DAYS**

**TIME FROM FAILURE OCCURRENCE TO DETECTION: SECONDS**

**TIME FROM DETECTION TO COMPLETED CORRECTIVE ACTION: HOURS**

**TIME REQUIRED TO IMPLEMENT CORRECTIVE ACTION LESS THAN TIME TO EFFECT?  
YES**

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL FAILURE MODE

NUMBER: M5-6MR-0307-01

**-DISPOSITION RATIONALE-**

**(A) DESIGN:**

REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH.

**(B) TEST:**

REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH.

POWER CONTROL CIRCUIT OPERATION IS VERIFIED DURING GROUND CHECKOUT.  
ANY TURNAROUND TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

**(C) INSPECTION:**

REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH.

**(D) FAILURE HISTORY:**

REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH.

**(E) OPERATIONAL USE:**

PERFORM STANDARD SWITCH PANEL CABLE CHANGEOUT USING AN INFLIGHT  
MAINTENANCE PROCEDURE

**- APPROVALS -**

PRODUCT ASSURANCE ENGINEERING  
PRODUCT ASSURANCE MANAGER  
DESIGN ENGINEERING  
CHIEF ENGINEER  
NASA SS&MA  
NASA SUBSYSTEM MANAGER  
JSC MOD

:R. BLACKWELL  
:W. MARLOWE  
:T. NGUYEN  
:B. BRANDT  
:  
:  
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*D. Bon...*  
*W. R. Marlowe*  
*T. Nguyen*  
*B. Brandt*  
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