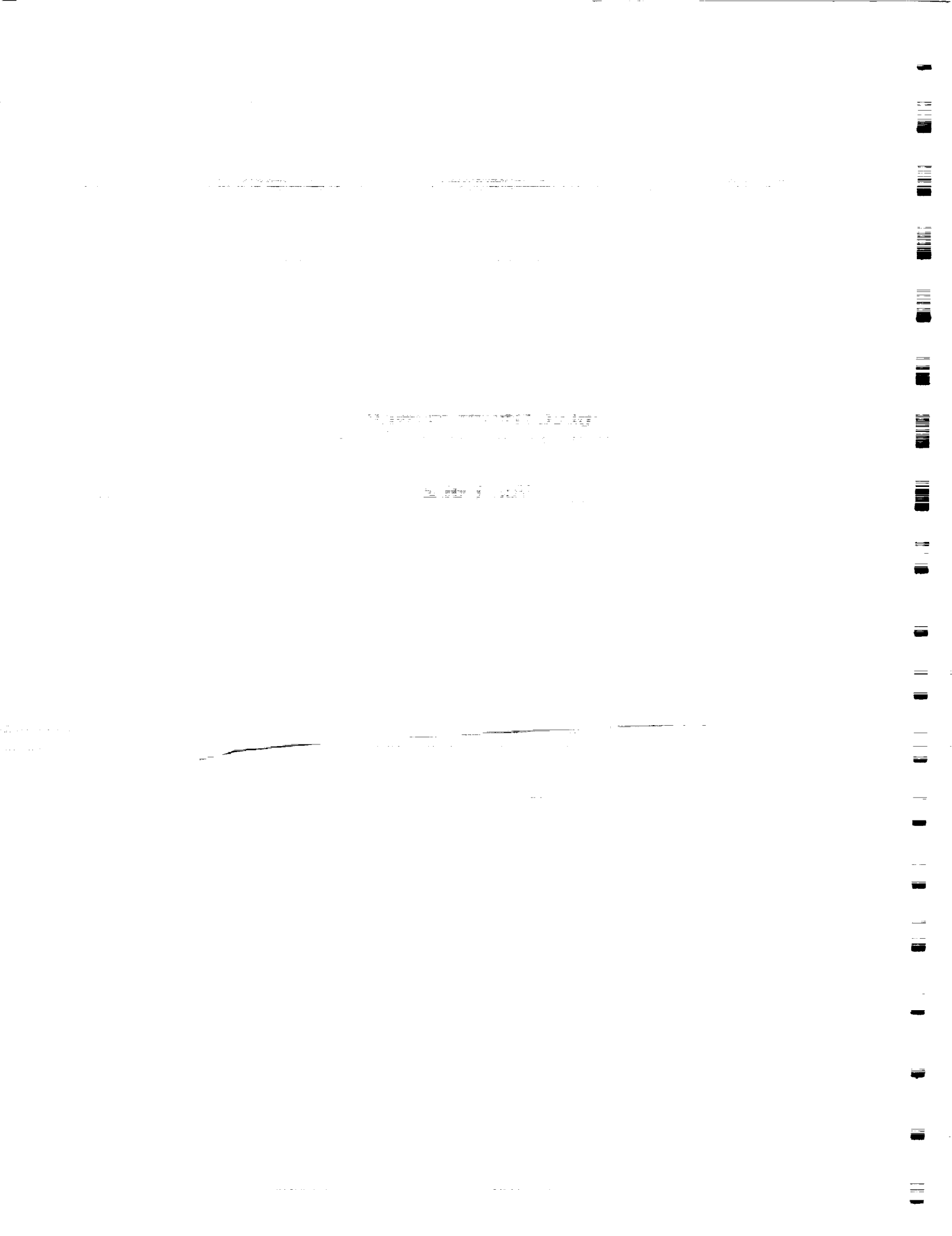


# **INDEPENDENT ORBITER ASSESSMENT**

## **ANALYSIS OF THE ELECTRICAL POWER DISTRIBUTION AND CONTROL SUBSYSTEM**

**Vol. 1 of 2**

**3 APRIL 1987**



MCDONNELL DOUGLAS ASTRONAUTICS COMPANY  
HOUSTON DIVISION

SPACE TRANSPORTATION SYSTEM ENGINEERING AND OPERATIONS SUPPORT

WORKING PAPER NO. 1.0-WP-VA86001-28

INDEPENDENT ORBITER ASSESSMENT  
ANALYSIS OF THE ELECTRICAL POWER DISTRIBUTION  
AND CONTROL SUBSYSTEM

3 April 1987

This Working Paper is Submitted to NASA under  
Task Order No. VA86001, Contract NAS 9-17650

PREPARED BY: *K. R. Schmeckpeper*  
K.R. Schmeckpeper  
EPD&C Lead  
Independent Orbiter  
Assessment

APPROVED BY: *G. W. Knori*  
G.W. Knori  
Technical Manager  
Independent Orbiter  
Assessment

APPROVED BY: *W. F. Huning*  
W.F. Huning  
Deputy Program Manager  
STSEOS



## CONTENTS

	Page
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	4
2.1 Purpose	4
2.2 Scope	4
2.3 Analysis Approach	4
2.4 EPD&C Ground Rules and Assumptions	5
3.0 SUBSYSTEM DESCRIPTION	6
3.1 Design and Function	6
3.2 Assemblies Description	6
3.3 Hierarchy	8
4.0 ANALYSIS RESULTS	10
4.1 Analysis Results - Main DC Distribution Assemblies	11
4.2 Analysis Results - Mid Power Control Assemblies	11
4.3 Analysis Results - Mid Motor Control Assemblies	11
4.4 Analysis Results - Aft Power Control Assemblies 4, 5, and 6	12
4.5 Analysis Results - Aft Power Control Assemblies 1, 2, and 3	12
4.6 Analysis Results - Aft Load Control Assemblies	12
4.7 Analysis Results - Aft Motor Control Assemblies	12
4.8 Analysis Results - Forward Power Control Assemblies	12
4.9 Analysis Results - Forward Load Control Assemblies	12
4.10 Analysis Results - Forward Motor Control Assemblies	13
4.11 Analysis Results - AC Generation & Distribution Assemblies	13
4.12 Analysis Results - Flight Deck Panel Controls & Displays	13
4.13 Analysis Results - Mid Deck Panel Controls & Displays	13
4.14 Analysis Results - MECs, ACAs, and Current Sensors	13
5.0 REFERENCES	14
APPENDIX A ACRONYMS	A-1

	Page
APPENDIX B DEFINITIONS, GROUND RULES, AND ASSUMPTIONS	B-1
B.1 Definitions	B-2
B.2 Project Level Ground Rules and Assumptions	B-4
B.3 EPD&C Specific Ground Rules and Assumptions	B-6
APPENDIX C DETAILED ANALYSIS	C-1
APPENDIX D POTENTIAL CRITICAL ITEMS	D-1

#### List of Figures

Figure 1 - EPD&C OVERVIEW ANALYSIS SUMMARY	3
Figure 2 - EPD&C SUBSYSTEM OVERVIEW	9

#### List of Tables

	Page
Table I - SUMMARY OF IOA FAILURE MODES AND CRITICALITIES	11
Table II - SUMMARY OF IOA POTENTIAL CRITICAL ITEMS	12

# Independent Orbiter Assessment Analysis of the EPD&C Subsystem

## 1.0 EXECUTIVE SUMMARY

The McDonnell Douglas Astronautics Company (MDAC) was selected in June 1986 to perform an Independent Orbiter Assessment (IOA) of the Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL). Direction was given by the STS Orbiter and GFE Projects Office to perform the hardware analysis using the instructions and ground rules defined in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986. The IOA approach features a top-down analysis of the hardware to determine failure modes, criticality, and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. This report documents (Appendix C) the independent analysis results corresponding to the Orbiter Electrical Power Distribution and Control (EPD&C) hardware.

The EPD&C hardware performs the functions of distributing, sensing, and controlling 28 volt DC power and of inverting, distributing, sensing, and controlling 117 volt 400 Hz AC power to all Orbiter subsystems from the three fuel cells in the Electrical Power Generation (EPG) subsystem. The EPD&C subsystem hardware components were grouped and analyzed according to their physical location in their hardware assemblies, as follows:

- o Main DC Distribution Assemblies (MDDA) 1, 2, and 3
- o Mid Power Control Assemblies (MPCA) 1, 2, and 3
- o Mid Motor Control Assemblies (MMCA) 1, 2, 3, and 4
- o Aft Power Control Assemblies (APCA) 4, 5, and 6
- o Aft Power Control Assemblies (APCA) 1, 2, and 3
- o Aft Load Control Assemblies (ALCA) 1, 2, and 3
- o Aft Motor Control Assemblies (AMCA) 1, 2, and 3
- o Forward Power Control Assemblies (FPCA) 1, 2, and 3
- o Forward Load Control Assemblies (FLCA) 1, 2, and 3
- o Forward Motor Control Assemblies (FMCA) 1, 2, and 3
- o AC Generation & Distribution Assemblies (AGDA)  
1, 2, and 3
- o Flight Deck Panel Controls & Displays (FDPC&D)
- o Mid Deck Panel Controls & Displays (MDPC&D)
- o Master Event Controllers, Annunciator Control  
Assemblies, and Current Sensors (MISC)

The IOA analysis process utilized available EPD&C hardware drawings and schematics for defining hardware assemblies, components, and hardware items. Each level of hardware was evaluated and analyzed for possible failure modes and effects. Criticality was assigned based upon the severity of the effect for each failure mode.

Figure 1 presents a summary of the failure criticalities for each of the fourteen subdivisions of the EPD&C. A summary of the number of failure modes, by criticality, is also presented below with Hardware (HW) criticality first and Functional (F) criticality second.

Summary of IOA Failure Modes By Criticality (HW/F)							
Criticality :	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
Number :	12	136	-	478	69	976	1671

For each failure mode identified, the criticality and redundancy screens were examined to identify critical items. A summary of Potential Critical Items (PCIs) is presented as follows:

Summary of IOA Potential Critical Items (HW/F)						
Criticality :	1/1	2/1R	2/2	3/1R	3/2R	TOTAL
Number :	12	136	-	292	28	468

Of the one thousand six hundred seventy-one (1671) failure modes analyzed, nine (9) single failures were determined to result in loss of crew or vehicle. Three (3) single failures unique to intact abort were determined to result in possible loss of the crew or vehicle. A possible loss of mission could result if any of one hundred thirty-six (136) single failures occurred. Six (6) of the criticality 1/1 failures are in two rotary and two pushbutton switches that control External Tank and Solid Rocket Booster separation. The other six (6) criticality 1/1 failures are fuses, one each per Aft Power Control Assembly (APCA) 4, 5, and 6 and one each per Forward Power Control Assembly (FPCA) 1, 2, and 3, that supply power to certain Main Propulsion System (MPS) valves and Forward Reaction Control System (RCS) circuits.



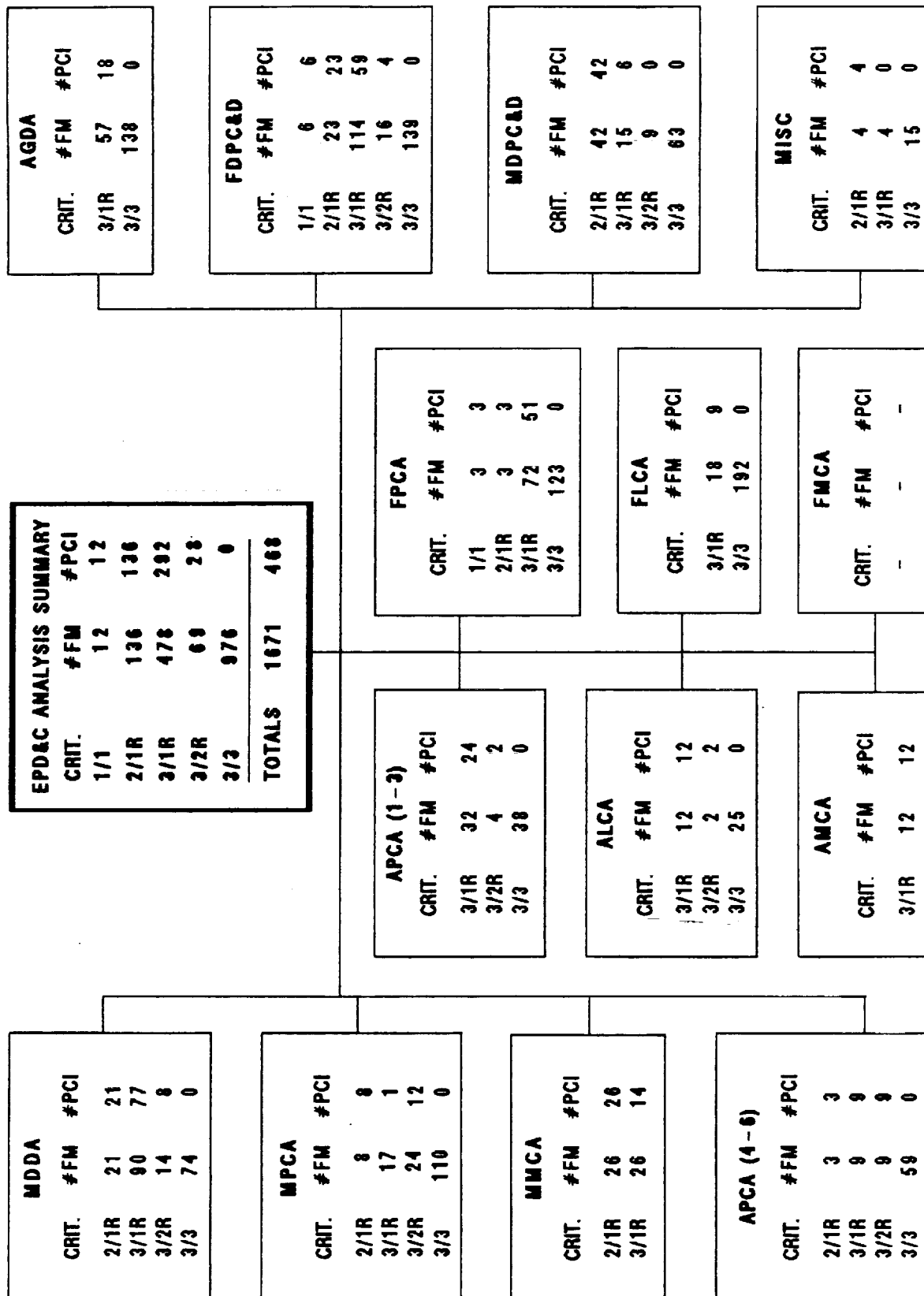


Figure 1 - EPD&C OVERVIEW ANALYSIS SUMMARY

## 2.0 INTRODUCTION

### 2.1 Purpose

The 51-L Challenger accident prompted the NASA to readdress safety policies, concepts, and rationale being used in the National Space Transportation System (NSTS). The NSTS Office has undertaken the task of reevaluating the FMEA/CIL for the Space Shuttle design. The MDAC is providing an independent assessment of the Orbiter FMEA/CIL reevaluation results for completeness and technical accuracy.

### 2.2 Scope

The scope of the independent FMEA/CIL assessment activity encompasses those Shuttle Orbiter subsystems and GFE hardware identified in the Space Shuttle Independent FMEA/CIL Assessment Contractor Statement of Work. Each subsystem analysis addresses hardware, functions, internal and external interfaces, and operational requirements for all mission phases.

### 2.3 Analysis Approach

The independent analysis approach is a top-down analysis utilizing as-built drawings to breakdown the respective subsystem into components and low-level hardware items. Each hardware item is evaluated for failure mode, effects, and criticality. These data are documented in the respective subsystem analysis report, and are used to assess the NASA and Prime Contractor FMEA/CIL reevaluation results. The IOA analysis approach is summarized in the following Steps 1.0 through 3.0. Step 4.0 summarizes the assessment of the NASA and Prime Contractor FMEAs/CILs that is performed and documented at a later date.

#### Step 1.0 Subsystem Familiarization

- 1.1 Define subsystem functions
- 1.2 Define subsystem components
- 1.3 Define subsystem specific ground rules and assumptions

#### Step 2.0 Define subsystem analysis diagram

- 2.1 Define subsystem
- 2.2 Define major assemblies
- 2.3 Develop detailed subsystem representations

#### Step 3.0 Failure events definition

- 3.1 Construct matrix of failure modes
- 3.2 Document IOA analysis results

Step 4.0 Compare IOA analysis data to NASA FMEA/CIL

4.1 Resolve differences

4.2 Review in-house

4.3 Document assessment issues

4.4 Forward findings to Project Manager

## 2.4 EPD&C Ground Rules and Assumptions

The EPD&C ground rules and assumptions used in the IOA are defined in Appendix B.

### 3.0 SUBSYSTEM DESCRIPTION

#### 3.1 Design and Function

The EPD&C subsystem starts at the outputs of the three fuel cells in the EPG subsystem and ends at the using subsystems. DC power from each fuel cell is routed through two wires to one of three main and one of three essential busses. Each main bus can be tied to either of the other two main busses through power contactors and each essential bus is also connected to the other two main busses through diodes and Remote Power Controllers (RPCs). Nine control busses are connected to the three main busses through diodes and RPCs with each control bus receiving power from two main busses. A control bus can be connected to the remaining main bus when the appropriate circuit breaker is closed. Each one of three Orbital Maneuvering Subsystem/Reaction Control Subsystem (OMS/RCS) DC busses are powered by two of three main busses through RPCs and diodes. Three DC busses to the payload (Payload Cabin, Payload Aux, and Payload Emergency busses) are powered through RPCs and diodes from Main DC Busses A and B. Larger payload DC loads are powered through power contactors from Main DC busses B and C and Fuel Cell #3.

AC power is generated by connecting each main DC bus to three of nine single-phase invertors, resulting in three three-phase AC busses. The three AC busses are connected to various loads through circuit breakers. These AC busses are further connected to three RCS/OMS AC busses, three Payload Bay Door (PLBD) AC busses, and three Payload Bay Mechanical (PLBM) AC busses.

#### 3.2 Assemblies Description

The EPD&C hardware performs the functions of distributing, sensing, and controlling DC power and inverting, distributing, sensing, and controlling AC power throughout the Orbiter. The EPD&C subsystem is broken down and described by the following fourteen assembly types:

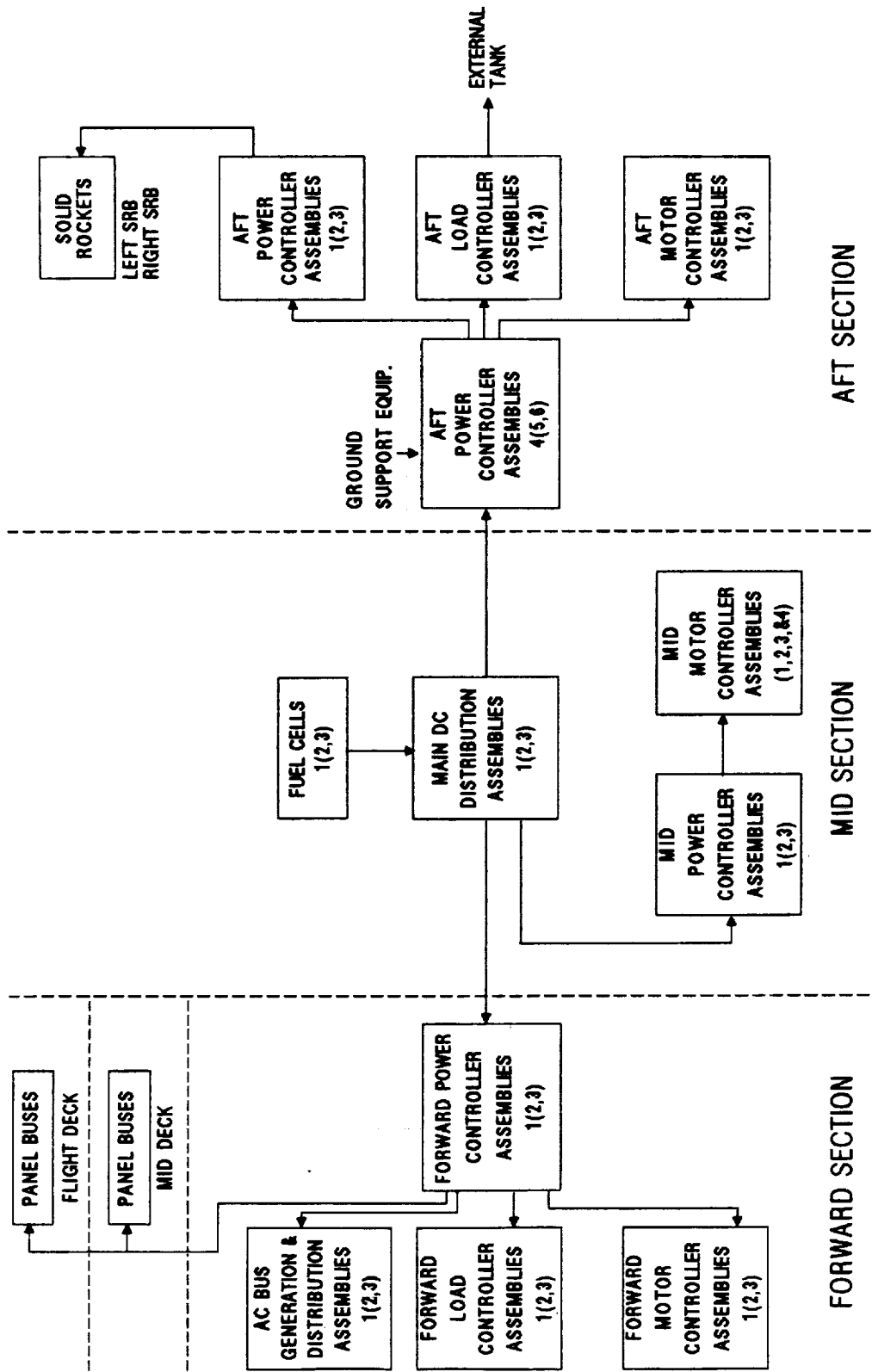
1. Three (3) Main DC Distribution Assemblies (MDDAs) connect the fuel cell outputs through power contactors to the three main DC busses and through diodes and fuses via Panel R1A1 to the three essential busses. Power contactors on the MDDAs allow tying the main busses together. Bus voltage and current levels can be measured directly on Panel F9A2 meters or observed indirectly via General Purpose Computer (GPC) output display via signal conditioners and Multiplexer/Demultiplexers (MDMs). Main and essential DC bus power is connected through fuses to the other assemblies in the system.

2. Three (3) Mid Power Control Assemblies (MPCAs) contain RPCs to connect main DC bus power to MMCAs, Payload busses (Cabin, Aux, and Emergency), and to essential busses. There are also RPCs which connect Pre-Flight Test Busses to MDDAs which allow Ground Support Equipment (GSE) control and monitor of fuel cells and main DC bus ties.
3. Four (4) Mid Motor Control Assemblies (MMCA) contain relays to connect the three PLBM and three PLBD AC busses to the three main AC busses. DC power is also routed to the Payload Bay motors and relays.
4. Three (3) Aft Power Control Assemblies (APCA-4, APCA-5, and APCA-6) contain RPCs that connect power to the three RCS/OMS DC busses, AMCAs, essential busses, and control GSE power to the MMDAs. GSE power is distributed from these assemblies through power contactors. DC power is also routed through fused connections to the ALCAs and the other three APCAs.
5. Three (3) Aft Power Control Assemblies (APCA-1, APCA-2, and APCA-3) contain RPCs that power Master Event Controllers #1 and #2. Fused DC power to the Payload Bay is routed through these assemblies also.
6. Three (3) Aft Load Control Assemblies (ALCAs) connect Main DC Bus power to various subsystems. They also contain Hybrid Device Controllers to connect GSE power to the essential busses.
7. Three (3) Aft Motor Control Assemblies (AMCAs) connect Main DC Bus power through diodes to the three RCS/OMS DC busses. They also contain the origin of the RCS/OMS AC busses.
8. Three (3) Forward Power Control Assemblies (FPCAs) contain the circuitry to connect the three main DC busses to the nine control busses. DC power is provided to the AC inverters through fuses and latching relays, RPCs are used to control DC power to FPCAs and fused DC power is provided to the FLCAs.
9. Three (3) Forward Load Control Assemblies (FLCAs) contain Hybrid Device Controllers to control the nine AC inverters and to allow GSE control of the same inverters.
10. Three (3) Forward Motor Control Assemblies (FMCAs) route AC and DC power to various subsystems.
11. Three (3) AC Generation & Distribution Assemblies (AGDAs) provide control and power circuits to the nine AC inverters. Over/under voltage sensors allow inverters to be monitored and disconnected from the AC Bus system.

12. The Flight Deck Panel Controls and Displays (FDPC&D) perform the switching and certain monitoring functions for the routing of power to all subsystems. These panels include L4, R13, R15, R1, R2, 013, 014, 015, 016, 017, 019, F9, F1, F6, C3, A11, A12, A15, and A6.
13. The Mid Deck Panel Controls and Displays (MDPC&D) perform the switching and monitoring functions for power to the inverters and various subsystems. These panels include M030F, M052J, M013Q, and MA73C.
14. The Master Event Controllers #1 and #2, certain channels in the Annunciator Control Assemblies, and Current Sensors are grouped in this last category for convenience.

### 3.3 Hierarchy

Figure 2 illustrates the hierarchy of the EPD&C hardware and the corresponding subassemblies.



**ELECTRICAL POWER DISTRIBUTION BLOCK DIAGRAM**

Figure 2 - EPD&C SUBSYSTEM OVERVIEW

#### 4.0 ANALYSIS RESULTS

Detailed analysis results for each of the identified failure modes are presented in Appendix C. Table I presents a summary of the failure criticalities for each of the fourteen major subdivisions of the EPD&C. Further discussion of each of these subdivisions and the applicable failure modes is provided in subsequent paragraphs.

Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
MDDA	-	21	-	90	14	74	199
MPCA	-	8	-	17	24	110	159
MMCA	-	26	-	26	-	-	52
APCA (4-6)	3	9	-	9	-	59	80
APCA (1-3)	-	-	-	32	4	38	74
ALCA	-	-	-	12	2	25	39
AMCA	-	-	-	12	-	-	12
FPCA	3	3	-	72	-	123	201
FLCA	-	-	-	18	-	192	210
FMCA	-	-	-	-	-	-	-
AGDA	-	-	-	57	-	138	195
FDPC&D	6	23	-	114	16	139	298
MDPC&D	-	42	-	15	9	63	129
MISC	-	4	-	4	-	15	23
<b>TOTAL</b>	<b>12</b>	<b>136</b>	<b>-</b>	<b>478</b>	<b>69</b>	<b>976</b>	<b>1671</b>

Of the one thousand six hundred seventy-one (1671) failure modes analyzed, nine (9) single failures were determined to result in loss of crew or vehicle. Three (3) single failures unique to intact abort were determined to result in possible loss of the crew or vehicle. A possible loss of mission could result if any of one hundred thirty-six single failures occurred. A summary of the potential critical items is presented in Table II. Appendix D presents a cross reference between each potential critical item (PCI) and a specific worksheet in Appendix C.



TABLE II Summary of IOA Potential Critical Items						
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	TOTAL
MDDA	-	21	-	77	8	106
MPCA	-	8	-	1	12	21
MMCA	-	26	-	14	-	40
APCA (4-6)	3	9	-	9	-	21
APCA (1-3)	-	-	-	24	2	26
ALCA	-	-	-	12	2	14
AMCA	-	-	-	12	-	12
FPCA	3	3	-	51	-	57
FLCA	-	-	-	9	-	9
FMCA	-	-	-	-	-	-
AGDA	-	-	-	18	-	18
FDPC&D	6	23	-	59	4	92
MDPC&D	-	42	-	6	-	48
MISC	-	4	-	-	-	4
<b>TOTAL</b>	<b>12</b>	<b>136</b>	<b>-</b>	<b>292</b>	<b>28</b>	<b>468</b>

#### 4.1 Analysis Results - Main DC Distribution Assemblies

There are one hundred ninety-nine (199) failure modes identified for the three MDDAs. Of these, twenty-one (21) are criticality 2/1R, ninety (90) are criticality 3/1R, fourteen (14) are criticality 3/2R, and seventy-four (74) are criticality 3/3. One hundred six (106) failures are identified as Potential Critical Items (PCIs). These failures are listed in Appendix D.

#### 4.2 Analysis Results - Mid Power Control Assemblies

There are one hundred fifty-nine (159) failure modes identified for the three MPCAs. Of these, eight (8) are criticality 2/1R, seventeen (17) are criticality 3/1R, twenty-four (24) are criticality 3/2R, and one hundred ten (110) are criticality 3/3. Twenty-one (21) failures are identified as PCIs. These failures are listed in Appendix D.

#### 4.3 Analysis Results - Mid Motor Control Assemblies

There are fifty-two (52) failure modes identified for the four MMCAs. Of these, twenty-six (26) are criticality 2/1R and twenty-six (26) are criticality 3/1R. Forty (40) failures are identified as PCIs. These failures are listed in Appendix D.

#### **4.4 Analysis Results - Aft Power Control Assemblies 4, 5, and 6**

There are eighty (80) failure modes identified for these three APCAs. Of these, three (3) are identified as criticality 1/1, nine (9) are criticality 2/1R, nine (9) are criticality 3/1R, and fifty-nine (59) are criticality 3/3. Twenty-one (21) failures are identified as PCIs and are listed in Appendix D. The three criticality 1/1 failures are fuses, one per APCA, that supply power to critical MPS valves.

#### **4.5 Analysis Results - Aft Power Control Assemblies 1, 2, and 3**

There are seventy-four (74) failure modes identified for these three APCAs. Of these, thirty-two (32) are criticality 3/1R, four (4) are criticality 3/2R, and thirty-eight (38) are criticality 3/3. Twenty-six (26) failures are identified as PCIs and are listed in Appendix D.

#### **4.6 Analysis Results - Aft Load Control Assemblies**

There are thirty-nine (39) failure modes identified for the ALCAs. Of these, twelve (12) are criticality 3/1R, two (2) are criticality 3/2R, and twenty-five (25) are criticality 3/3. Fourteen (14) failures are identified as PCIs and are listed in Appendix D.

#### **4.7 Analysis Results - Aft Motor Control Assemblies**

There are twelve (12) failure modes identified for the AMCAs. They are all criticality 3/1R and PCIs. They are listed in Appendix D.

#### **4.8 Analysis Results - Forward Power Control Assemblies**

There are two hundred one (201) failure modes identified for the FPCAs. Of these, three (3) are criticality 1/1, three (3) are criticality 2/1R, seventy-two (72) are criticality 3/1R, and one hundred twenty-three (123) are criticality 3/3. Fifty-seven (57) failures are identified as PCIs and are listed in Appendix D. The three criticality 1/1 failures are fuses, one per FPCA, that supply power to the forward RCS and are only criticality 1/1 during an intact ABORT. During normal flight these failures are criticality 3/1R.

#### **4.9 Analysis Results - Forward Load Control Assemblies**

There are two hundred ten (210) failure modes identified for the FLCAs. Of these, eighteen (18) are criticality 3/1R and one hundred ninety-two (192) are criticality 3/3. Nine (9) failures are identified as PCIs and are listed in Appendix D.

#### 4.10 Analysis Results - Forward Motor Control Assemblies

There are no failure modes identified for the FMCAs.

#### 4.11 Analysis Results - AC Generation & Distribution Assemblies

There are one hundred ninety-five (195) failure modes identified for the AGDAs. Of these, fifty-seven (57) are criticality 3/1R and one hundred thirty-eight (138) are criticality 3/3. Eighteen (18) failures are identified as PCIs and are listed in Appendix D.

#### 4.12 Analysis Results - Flight Deck Panel Controls & Displays

There are two hundred ninety-eight (298) failure modes identified for the FDPC&D. Of these, six (6) are criticality 1/1, twenty-three (23) are criticality 2/1R, one hundred fourteen (114) are criticality 3/1R, sixteen (16) are criticality 3/2R, and one hundred thirty-nine (139) are criticality 3/3. Ninety-two (92) failure modes are identified as PCIs and are listed in Appendix D. The six (6) criticality 1/1 failures are switches that control External Tank and Solid Rocket Booster separation.

#### 4.13 Analysis Results - Mid Deck Panel Controls & Displays

There are one hundred twenty-nine (129) failure modes identified for the MDPC&D. Of these, forty-two (42) are criticality 2/1R, fifteen (15) are criticality 3/1R, nine (9) are criticality 3/2R, and sixty-three (63) are criticality 3/3. Forty-eight (48) failures are identified as PCIs and are listed in Appendix D.

#### 4.14 Analysis Results - MECs, ACAs, and Current Sensors

There are twenty-three (23) failure modes identified for the MISC group. Of these, four (4) are criticality 2/1R, four (4) are criticality 3/1R and fifteen (15) are criticality 3/3. Four (4) failures are identified as PCIs and are listed in Appendix D.

## 5.0 REFERENCES

Reference documentation available from NASA and Rockwell was used in the analysis. The documentation used included the following:

1. VS70-976102 Integrated System Schematic - Electrical Power Distribution and Control Subsystem, Revision 14, 2 July 1986.
2. VS70-948102 Integrated System Schematic - Solid Rocket Booster Subsystem, Revision 14, 26 September 1985.
3. JSC-11174 Space Shuttle Systems Handbook, Volumes 1 and 2, Mission Operations Directorate, Systems Division, Revision C, DCN-5, 13 September 1985.
4. VS70-941102 Integrated System Schematic - Main Propulsion System, Revision E, 26 October 1979.
5. VS70-943102 Integrated System Schematic - Aft Propulsion System, OMS/RCS, Revision D08, 20 May 1986.
6. VS70-942102 Integrated System Schematic - Forward Reaction Control System, Revision H02, 19 September 1984.
7. JSC-19041 Shuttle Booster: Master Events Controller Overview, 1 October 1984.
8. SSR10-26 EPS Bus Loss Listing, Revision 025, 30 September 1985.
9. JSC 12820, STS Operational Flight Rules, Final PCN-3, 28 June 1985.
10. NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986.

APPENDIX A  
ACRONYMS

AOA	- Abort-Once-Around
ATO	- Abort-To-Orbit
CIL	- Critical Items List
CRIT	- Criticality
CWS	- Caution and Warning System
ECLSS	- Environmental Control and Life Support System (Subsystem)
EPDC	- Electrical Power Distribution and Control
EPG	- Electrical Power Generator
FC	- Fuel Cell
FCP	- Fuel Cell Power (Plant)
FMEA	- Failure Modes and Effects Analysis
FSSR	- Flight Systems Software Requirements
GAS	- Get-Away Special
GPC	- General Purpose Computer
GSE	- Ground Support Equipment
HDC	- Hybrid Driver Controller
IOA	- Independent Orbiter Assessment
MDAC	- McDonnell Douglas Astronautics Company
MDM	- Multiplexer/Demultiplexer
NA	- Not Applicable
NASA	- National Aeronautics and Space Administration
NSTS	- National Space Transportation System
OF	- Operational Forward
OMRSD	- Operational Maintenance Requirements & Specifications Document
PCA	- Power Control Assembly
PCI	- Potential Critical Item
PLS	- Primary Landing Site
PRCB	- Program Requirements Control Board
PRSDS	- Power Reactant Storage and Distribution System
PSA	- Power Section Assembly
RCS	- Reaction Control System
RI	- Rockwell International
RPC	- Remote Power Controller
RTL	- Return-to-Landing Site
STS	- Space Transportation System
TAL	- Transatlantic Abort Landing
TCS	- Thermal Control System (Subsystem)
WRS	- Water Removal Subsystem



**APPENDIX B**

**DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

- B.1 Definitions**
- B.2 Project Level Ground Rules and Assumptions**
- B.3 Subsystem-Specific Ground Rules and Assumptions**

**APPENDIX B  
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

**B.1 Definitions**

Definitions contained in NSTS 22206, Instructions For Preparation of FMEA/CIL, 10 October 1986, were used with the following amplifications and additions.

INTACT ABORT DEFINITIONS:

RTLS - begins at transition to OPS 6 and ends at transition to OPS 9, post-flight

TAL - begins at declaration of the abort and ends at transition to OPS 9, post-flight

AOA - begins at declaration of the abort and ends at transition to OPS 9, post-flight

ATO - begins at declaration of the abort and ends at transition to OPS 9, post-flight

CREDIBLE (CAUSE) - an event that can be predicted or expected in anticipated operational environmental conditions. Excludes an event where multiple failures must first occur to result in environmental extremes

CONTINGENCY CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

EARLY MISSION TERMINATION - termination of onorbit phase prior to planned end of mission

EFFECTS/RATIONALE - description of the case which generated the highest criticality

HIGHEST CRITICALITY - the highest functional criticality determined in the phase-by-phase analysis

MAJOR MODE (MM) - major sub-mode of software operational sequence (OPS)

MC - Memory Configuration of Primary Avionics Software System (PASS)

MISSION - assigned performance of a specific Orbiter flight with payload/objective accomplishments including orbit phasing and altitude (excludes secondary payloads such as GAS cans, middeck P/L, etc.)



MULTIPLE ORDER FAILURE - describes the failure due to a single cause or event of all units which perform a necessary (critical) function

OFF-NOMINAL CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

OPS - software operational sequence

PRIMARY MISSION OBJECTIVES - worst case primary mission objectives are equal to mission objectives

PHASE DEFINITIONS:

PRELAUNCH PHASE - begins at launch count-down Orbiter power-up and ends at moding to OPS Major Mode 102 (liftoff)

LIFTOFF MISSION PHASE - begins at SRB ignition (MM 102) and ends at transition out of OPS 1 (Synonymous with ASCENT)

ONORBIT PHASE - begins at transition to OPS 2 or OPS 8 and ends at transition out of OPS 2 or OPS 8

DEORBIT PHASE - begins at transition to OPS Major Mode 301 and ends at first main landing gear touchdown

LANDING/SAFING PHASE - begins at first main gear touchdown and ends with the completion of post-landing safing operations

**APPENDIX B  
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

**B.2 IOA Project Level Ground Rules and Assumptions**

The philosophy embodied in NSTS 22206, Instructions for Preparation of FMEA/CIL, 10 October 1986, was employed with the following amplifications and additions.

1. The operational flight software is an accurate implementation of the Flight System Software Requirements (FSSRs).

RATIONALE: Software verification is out-of-scope of this task.

2. After liftoff, any parameter which is monitored by system management (SM) or which drives any part of the Caution and Warning System (C&W) will support passage of Redundancy Screen B for its corresponding hardware item.

RATIONALE: Analysis of on-board parameter availability and/or the actual monitoring by the crew is beyond the scope of this task.

3. Any data employed with flight software is assumed to be functional for the specific vehicle and specific mission being flown.

RATIONALE: Mission data verification is out-of-scope of this task.

4. All hardware (including firmware) is manufactured and assembled to the design specifications/drawings.

RATIONALE: Acceptance and verification testing is designed to detect and identify problems before the item is approved for use.

5. All Flight Data File crew procedures will be assumed performed as written, and will not include human error in their performance.

RATIONALE: Failures caused by human operational error are out-of-scope of this task.

6. All hardware analyses will, as a minimum, be performed at the level of analysis existent within NASA/Prime Contractor Orbiter FMEA/CILs, and will be permitted to go to greater hardware detail levels but not lesser.

RATIONALE: Comparison of IOA analysis results with other analyses requires that both analyses be performed to a comparable level of detail.

7. Verification that a telemetry parameter is actually monitored during AOS by ground-based personnel is not required.

RATIONALE: Analysis of mission-dependent telemetry availability and/or the actual monitoring of applicable data by ground-based personnel is beyond the scope of this task.

8. The determination of criticalities per phase is based on the worst case effect of a failure for the phase being analyzed. The failure can occur in the phase being analyzed or in any previous phase, whichever produces the worst case effects for the phase of interest.

RATIONALE: Assigning phase criticalities ensures a thorough and complete analysis.

9. Analysis of wire harnesses, cables, and electrical connectors to determine if FMEAs are warranted will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

10. Analysis of welds or brazed joints that cannot be inspected will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

11. Emergency system or hardware will include burst discs and will exclude the EMU Secondary Oxygen Pack (SOP), pressure relief valves and the landing gear pyrotechnics.

RATIONALE: Clarify definition of emergency systems to ensure consistency throughout IOA project.

APPENDIX B --  
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS

B.3 EPD&C-Specific Ground Rules and Assumptions

1. The failure modes of a resistor shorting (e.g. little or zero resistance) and shorting to ground are not considered for all resistors in this analysis.

RATIONALE: A shorted resistor will still conduct current to the connected device. All Orbiter electrical components in this subsystem have built-in over-current protection and will continue to operate. A resistor shorting to ground has the same effect as a resistor opening, that is no current will be conducted to the rest of the circuit.

2. The failure modes of most switches, relays, power contactors, hybrid device controllers and remote power controllers are either a) fails open or off or b) fails closed or on. The failure modes a) fails to transfer or b) inadvertent transfer are specified only when the controlled subsystem functions would be adversely effected and specifically cause a higher criticality rating.

RATIONALE: Criticalities are assigned based on hardware and functional effects. The major percentage of the above components are doubly or triply, redundant in hardware and function. The functional failure of a component has more weight in determining its criticality than the hardware failure. If a switch fails to transfer or inadvertently transfers, it is either failed on and closed or failed off and open.

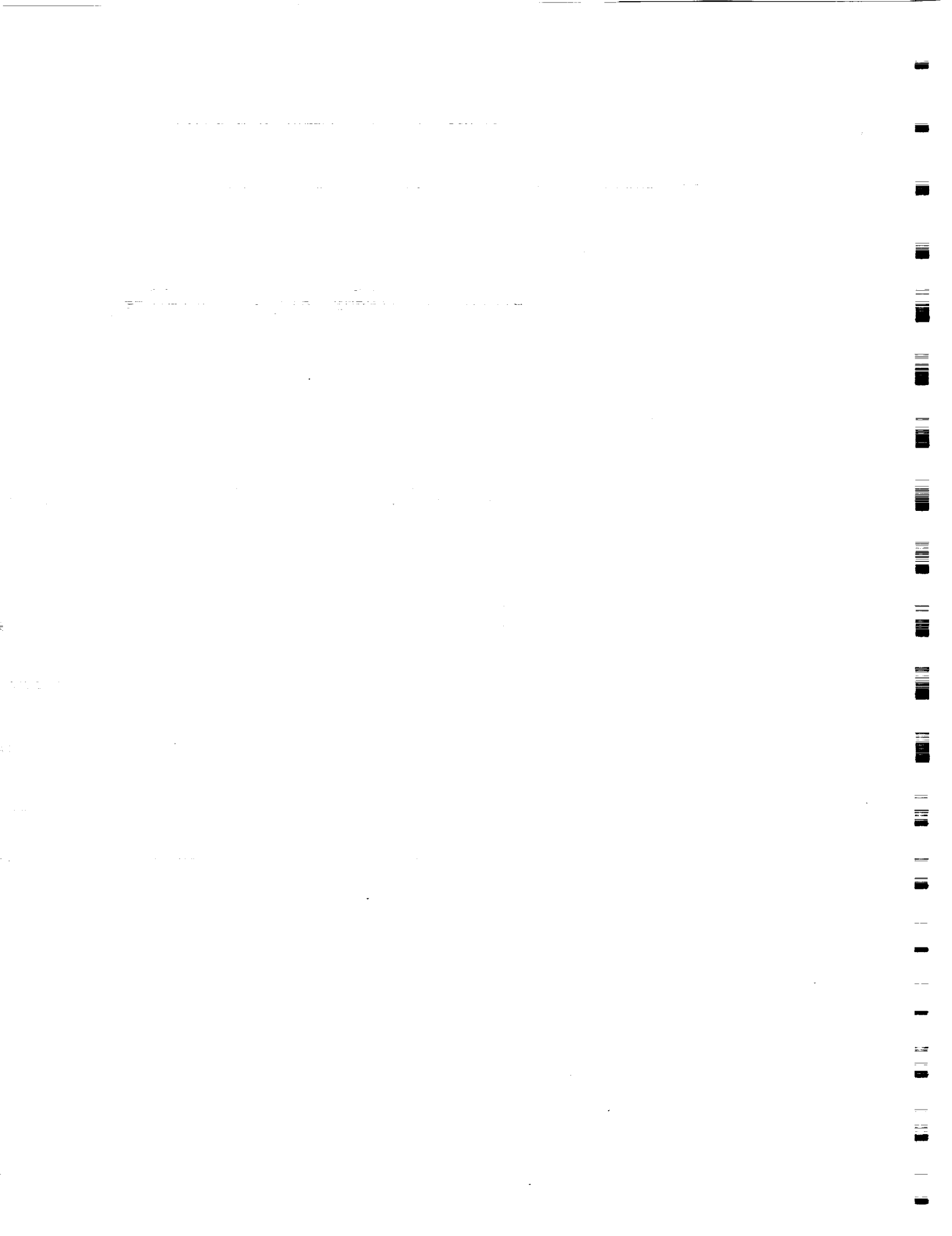
3. The assumption stated in 22206 that all other subsystems are operational within specifications is not used in this analysis where one or more failures in these subsystems would raise the criticality of the component analyzed.

RATIONALE: Several subsystems in the Orbiter have never been or are not planned to be used in the near future during an actual flight. Examples include but are not limited to, the BFS, fuel cell shutdown and restart, DC bus ties, and RMS jettison. Criticalities are

assigned to the components which supply and control power to these functions as if they are required.

4. All components directly related to fuel cell operation are assigned criticalities based on only one fuel cell failing.

RATIONALE: The EPD&C/EPG analysis was conducted under the assumption that two fuel cells had already failed. Therefore, the highest criticalities on fuel cell operations have already been assigned.



APPENDIX C  
DETAILED ANALYSIS

This section contains the IOA analysis worksheets employed during the analysis of this subsystem. The information on these worksheets is intentionally similar to the FMEA's written by Rockwell and the NASA. Each of these sheets identifies the item being analyzed, and parent assembly, as well as the function. For each failure mode, the possible causes are outlined, and the assessed hardware and functional criticality for each mission phase is listed, as described in the Rockwell Desk Instructions 100-2G. Finally, effects are entered at the bottom of each sheet, and the worst case criticality is entered at the top.

LEGEND FOR IOA ANALYSIS WORKSHEETS  
-----

Hardware Criticalities :

- 1 = Loss of life or vehicle
- 2 = Loss of mission
- 3 = Non loss of life or vehicle or mission

Functional Criticalities :

- 1R = Redundant identical hardware components or redundant functional paths all of which, if failed, could cause loss of life or vehicle.
- 2R = Redundant identical hardware components or redundant functional paths all of which, if failed, could cause loss of mission.

Redundancy Screen A :

- 1 = Is Checked Out PreFlight
- 2 = Is Capable of Check Out PreFlight
- 3 = Not Capable of Check Out PreFlight
- 4 = Do Not Know

Redundancy Screens B and C :

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5000 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN A OFF)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) RPC, 7.5A (GSE MAIN A OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:  
THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76B24F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5001 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN A OFF)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) RPC, 7.5A (GSE MAIN A OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76B24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
 SUBSYSTEM: EPD&C FLIGHT: 3/3  
 MDAC ID: 5002 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN A ON)  
 FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) RPC, 7.5A (GSE MAIN A ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC2  
 PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
 SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
 FLIGHT OPERATIONS.

REFERENCES: 76B23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5003 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN A ON)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) RPC, 7.5A (GSE MAIN A ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC2  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76B23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5004 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76B23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5005 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED ONLY DURING GROUND C/O AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76B23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5006 ABORT: 3/3

ITEM: RESISTOR, 1.2K (TO GSE PWR CONT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) RESISTOR, 1.2K (TO GSE PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134A1R55  
PART NUMBER: RLR42C122GM

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATION.

REFERENCES: 76B22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5007 ABORT: 2/1R

ITEM: FUSE, 200A TO MAIN DC DIST ASSY 1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) APCA - 4
- 3) FUSE, 200A TO MAIN DC DIST ASSY 1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A134F1  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF REDUNDANCY COULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS. A SECOND FAILURE WOULD REMOVE POWER FROM HELIUM BLOWDOWN VALVES WHICH WOULD PREVENT PURGING THE AFT COMPARTMENTS OF POSSIBLY EXPLOSIVE GASSES.

REFERENCES: 76B22C





INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5009 ABORT: 3/3

ITEM: FUSE, 3A TO GSE MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA - 4
- 4) FUSE, 3A TO GSE MONITOR
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134F17  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT OPERATIONS.

REFERENCES: 76B22F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5011 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76B19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5012 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R8  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76B16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5013 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R10  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76B13C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5014 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) ESS BUS 1BC
- 4) RESISTOR, 1.2K 2W
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R9  
PART NUMBER: RLR42C122GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS ITEM SUPPLIES NON-CRITICAL MEASUREMENT CIRCUITS.

REFERENCES: 76B16B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5015 ABORT: 3/3

ITEM: RESISTOR, 2K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 2K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R7  
PART NUMBER: RBR54L20000AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B9B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5016 ABORT: 3/3

ITEM: RESISTOR, 14K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 14K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R6  
PART NUMBER: RBR54L14001AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B8B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5017 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 200A TO APCA-4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F15  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF REDUNDANCY COULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS. A SECOND FAILURE WOULD REMOVE POWER FROM HELIUM BLOWDOWN VALVES WHICH WOULD PREVENT PURGING THE AFT COMPARTMENTS OF POSSIBLY EXPLOSIVE GASSES.

REFERENCES: 76B19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5018 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 200A TO APCA-4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F16  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF REDUNDANCY COULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS. A SECOND FAILURE WOULD REMOVE POWER FROM HELIUM BLOWDOWN VALVES WHICH WOULD PREVENT PURGING THE AFT COMPARTMENTS OF POSSIBLY EXPLOSIVE GASSES.

REFERENCES: 76B19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5019 ABORT: 3/3

ITEM: FUSE, 5A TO MPCA-1, FPCA-1, APCA-4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) CURRENT SENSOR EXCITATION #1,4,7
- 4) FUSE, 5A TO MPCA-1, FPCA-1, APCA-4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F14  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS IS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON  
CREW/VEHICLE/MISSION.

REFERENCES: 76B19B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5020 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN A)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO POWER ONE  
MAIN DC BUS FROM ANOTHER MAIN DC BUS. LOSS OF ALL CAPABILITY TO  
BUS TIE THE MAIN DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE AS  
CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76B17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5021 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN A)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN A)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE/MISSION AS TWO TIE BUS CONTACTORS MUST  
BE CLOSED BEFORE TWO BUSES ARE TIED TOGETHER. THE LOSS OF  
ISOLATION CAPABILITY BETWEEN TWO BUSES WOULD HAVE NO EFFECT AS  
THE TIE BUSES ARE FUSE ISOLATED.

REFERENCES: 76B17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5022 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F26  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76B16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5023 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F27  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76B16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5024 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F28  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76B16C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5025 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS A F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) SWITCH, MOTORIZED (MAIN DC BUS A F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF 1/3 OF VEHICLE POWER AND LOSS OF POWER TO CERTAIN CRITICAL MPS VALVES. BUS TIE CAPABILITY EXISTS TO POWER THE BUS. A FAILURE OF THE BUS TIE POWER SWITCH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL MPS VALVES. LOSS OF ALL POWER (REDUNDANCY) WOULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76B14C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5026 ABORT: 3/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS A F/C PWR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) SWITCH, MOTORIZED (MAIN DC BUS A F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL OPERATION.  
LOSS OF ALL ABILITY TO DISCONNECT FUEL CELLS FROM CRITICAL LOADS  
MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76B14C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5027 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F29  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76B12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5028 ABORT: 3/1R

ITEM: FUSE, 20A TO ESS BUS 1BC  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 20A TO ESS BUS 1BC
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F31  
PART NUMBER: ME451-0009-5200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO THE ESS BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER TO ORBITER ESSENTIAL LOADS RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 76B12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5029 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F33  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76B10B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5031 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (DC TIE BUS MAIN A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76B17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5032 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN A)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (DC TIE BUS MAIN A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76B17E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5033 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (DC TIE BUS MAIN A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76B18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5034 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN A)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (DC TIE BUS MAIN A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76B18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5035 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS A F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (MAIN DC BUS A F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76B14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5036 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS A F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (MAIN DC BUS A F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76B14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5037 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS A F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (MAIN DC BUS A F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76B15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5038 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS A F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) RPC, 7.5A (MAIN DC BUS A F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76B15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5039 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) DC TIE BUS MAIN A
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76B17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5040 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) DC TIE BUS MAIN A
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76B17E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5041 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) DC TIE BUS MAIN A
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76B18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5042 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) DC TIE BUS MAIN A
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR2

PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5043 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) MAIN DC BUS A F/C POWER
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
 SUBSYSTEM: EPD&C FLIGHT: 3/3  
 MDAC ID: 5044 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
 FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) MAIN DC BUS A F/C POWER
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR3  
 PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5045 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) MPCA - 1
- 4) MAIN DC BUS A F/C POWER
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A2CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76B15E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5047 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE A)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S13  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76B17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5048 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE A)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S13  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76B17H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5049 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC/MN BUS A)  
FAILURE MODE: FAILURE TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE SPDT (FC/MN BUS A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S10  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL COULD NOT BE CONNECTED  
TO MAIN DC BUS AFTER A FUEL CELL RESTART.

REFERENCES: 76B14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5050 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC/MN BUS A)  
FAILURE MODE: INADVERTENT TRANSFERS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE SPDT (FC/MN BUS A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S10  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL WAS INADVERTENTLY  
DISCONNECTED FROM MAIN DC BUS.

REFERENCES: 76B14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5051 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN A CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) ESS BUS 1BC
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN A CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 33V73A13CB2  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO PATHS TO CONTROL THE FUEL CELL TO MAIN DC BUS CONNECTION AND THE DC BUS TO BUS TIE CONNECTION. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER TO ORBITER SYSTEMS.

REFERENCES: 76B19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5052 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN A CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) ESS BUS 1BC
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN A CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CB2  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF CIRCUIT PROTECTION. IN AN OVERLOAD CONDITION, MULTIPLE ORDER FAILURE, THE OVERLOAD CAN BE CORRECTED BY VARYING THE LOADING OF THE MAIN DC BUSES THROUGH BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76B19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5053 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) MAIN DC BUS B
- 4) MAIN A CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 33V73A13CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE UNTIL THIRD FAILURE AND A MAIN DC BUS OR FUEL CELL MUST BE ISOLATED AND MAIN DC BUSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76B19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5054 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) MAIN DC BUS B
- 4) MAIN A CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REDUNDANT ISOLATION CAPABILITY BETWEEN ESS BUS AND MAIN BUS. CIRCUIT BREAKERS COULD BE OPENED IF ISOLATION REQUIRED. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5055 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) ESS BUS 1BC
- 4) MAIN A CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REDUNDANT ISOLATION CAPABILITY BETWEEN ESS BUS AND MAIN BUS. CIRCUIT BREAKERS COULD BE OPENED IF ISOLATION REQUIRED. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5056 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) 013 PANEL
- 3) ESS BUS 1BC
- 4) MAIN A CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 33V73A13CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE UNTIL THIRD FAILURE AND A MAIN DC BUS OR FUEL CELL MUST BE ISOLATED AND MAIN DC BUSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76B19H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5057 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A (MN A CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CIRCUIT BREAKER, 5A (MN A CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 33V73A15CB36  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF BACKUP POWER FOR THE CONTROL  
OF FUEL CELL POWER TO THE MAIN DC BUS. LOSS OF ALL REDUNDANCY  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76B20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5058 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A (MN A CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CIRCUIT BREAKER, 5A (MN A CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A15CB36  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76B20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5059 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) CBS FOR CONT BUS BC1,BC2,BC3 AND TV AND RADIOS
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F18  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76C20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5060 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CBS FOR SIG COND, MDMS, ACRS, DDUS, LIGHTS, MN C CONTR
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F19  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76C24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5061 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CBS FOR SIG COND, MDMS, ACRS, DDUS, LIGHTS, MN C CONTR
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/1R
LIFTOFF:	3/1R	TAL: 3/1R
ONORBIT:	3/1R	AOA: 3/1R
DEORBIT:	3/1R	ATO: 3/1R
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F20  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76C24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5062 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) ML86B PANEL
- 4) CBS FOR GALLEY,WASTE,PYROJETT KU ANT & STBD RMS,EMU, FLOODS
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F21  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76C18H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5063 ABORT: 3/3

ITEM: FUSE, 15A TO A6A1 PANEL (FUSE 8) & A14 PANEL  
(RCS/OMS HTRS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 15A TO A6A1 PANEL (FUSE 8) & A14 PANEL (RCS/OMS HTRS)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31F22  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT POWER SOURCE TO THE FORWARD RCS HEATERS WHICH WOULD HAVE LITTLE EFFECT ON ASCENT AND NONE ON ENTRY. POSSIBLE LOSS OF MISSION COULD RESULT ON ORBIT DEPENDING ON OPERATIONS REQUIRED.

REFERENCES: 76C21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5064 ABORT: 3/1R

ITEM: FUSE, 5A TO RESISTORS TO MN A CONT BUS PWR, ESS  
BUS SOURCE 3AB, ESS BUS SOURCE 2CA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FUSE, 5A TO RESISTORS TO MN A CONT BUS PWR, ESS BUS SOURCE  
3AB, ESS BUS SOURCE 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F25  
PART NUMBER: ME451-0009-5050

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE OF POWER TO  
THREE CONTROL BUSES AND TWO ESSENTIAL BUSES. LOSS OF ALL  
REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
POWER CRITICAL LOADS.

REFERENCES: 76C22H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:	3/11/87	HIGHEST CRITICALITY	HDW/FUNC
SUBSYSTEM:	EPD&C	FLIGHT:	2/1R
MDAC ID:	5065	ABORT:	3/3

ITEM: FUSE, 5A TO RMS PWR (FUSE 1), RMS HTRS (RESISTORS)  
& RJDA MANF DRS (FUSES 9 & 12)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER                      SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) A8A2 PANEL & 014 PANEL
- 4) FUSE, 5A TO RMS PWR (FUSE 1), RMS HTRS (RESISTORS) & RJDA  
MANF DRS (FUSES 9 & 12)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS:    A [ 1 ]                      B [ F ]                      C [ P ]

LOCATION:                      40V76A31F34  
PART NUMBER:                ME451-0009-5050

CAUSES:    CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO THE RMS. SECOND FAILURE WHILE ON ORBIT TO THE RMS POWER COULD LEAVE THE ARM IN A POSITION WHERE IT COULD NOT BE JETTISONED. THIS WOULD PRECLUDE A SAFE ENTRY.

REFERENCES:    76C23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5066 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:	3/11/87	HIGHEST CRITICALITY	HDW/FUNC
SUBSYSTEM:	EPD&C	FLIGHT:	3/3
MDAC ID:	5067	ABORT:	3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER                      SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS:    A [    ]            B [    ]            C [    ]

LOCATION:            32V73A2CR4  
PART NUMBER:    JANTX1N1204RA

CAUSES:    CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL BUSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES:    76C4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5068 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5069 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL  
BUSSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT  
BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76C4D

C-2

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5070 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5071 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL BUSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76C4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5072 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) M052J PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN A)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A124S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76C1F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5073 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN A)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) M052J PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN A)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A124S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76C1F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5074 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) 019 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN A)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A19S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76C1D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5075 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN A)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) 019 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN A)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A19S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76C1D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5076 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A (MN C CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CIRCUIT BREAKER, 5A (MN C CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 33V73A14CB38  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF BACKUP POWER FOR THE CONTROL  
OF FUEL CELL POWER TO THE MAIN DC BUS. LOSS OF ALL REDUNDANCY  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76Y20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5077 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A (MN C CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CIRCUIT BREAKER, 5A (MN C CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A14CB38  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE OR MISSION.

REFERENCES: 76Y20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5078 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN A UTIL PWR 019/M052J)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CIRCUIT BREAKER, 10A (MN A UTIL PWR 019/M052J)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A14CB10  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF POWER AT DC UTILITY OUTLETS, WHICH  
ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76C24A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5079 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN A UTIL PWR 019/M052J)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) 014 PANEL
- 4) CIRCUIT BREAKER, 10A (MN A UTIL PWR 019/M052J)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A14CB10  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF OVERLOAD PROTECTION AT DC UTILITY  
OUTLETS, WHICH ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76C24A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5080 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 10A (CONT BUS BC1, BC2, BC3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS BC1, BC2, BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A15CB62  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO THREE CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
CONTROL CRITICAL LOADS.

REFERENCES: 76C19G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5081 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (CONT BUS BC1, BC2, BC3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS BC1, BC2, BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A15CB62  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76C19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5082 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A1R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76F24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5083 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS CA2
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76F24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5084 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS CA2
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76F24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5085 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO FPCA-1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F11  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5086 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO FPCA-1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F12  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5087 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO FPCA-1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F13  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5088 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R4  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76E23E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5089 ABORT: 3/3

ITEM: RPC, 5A (FMCA-1 PWR CONT)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A (FMCA-1 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76E21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5090 ABORT: 2/1R

ITEM: RPC, 5A (FMCA-1 PWR CONT)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A (FMCA-1 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO LOADS  
ON THE MCA. SECOND FAILURE TO THESE LOADS MAY RESULT IN LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE FORWARD DOORS PRIOR TO  
ENTRY.

REFERENCES: 76E21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5091 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) FUSE, 150A TO MAIN DC DIST ASSY 1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22F6  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E21G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5092 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) FUSE, 150A TO MAIN DC DIST ASSY 1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22F7  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E21G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5093 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) FUSE, 150A TO MAIN DC DIST ASSY 1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22F8  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76E21G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5094 ABORT: 3/3

ITEM: RESISTOR, 5.1K TO TEST POINTS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RESISTOR, 5.1K TO TEST POINTS
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R75  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO CHECK MAIN DC BUS A. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE MEANS ARE AVAILABLE TO THE CREW.

REFERENCES: 76E10G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5095 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RESISTOR, 1.8K TO SIG COND OF1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R77  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76E8C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5096 ABORT: 1/1

ITEM: FUSE, 35A TO FLCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) FUSE, 35A TO FLCA-1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22F5  
PART NUMBER: ME451-0009-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER SOURCE TO LOADS CONNECTED TO THE PCA. LOSS OF ALL POWER TO THESE LOADS COULD CAUSE LOSS OF CREW/MISSION. DURING AN RTLS, THIS FAILURE WILL CAUSE LOSS OF FORWARD RCS MANIFOLD ISOL VALVE 1 WHICH WILL RESULT IN A CG PROBLEM DUE TO REDUCED DUMP CAPABILITY. THIS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76E10D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5097 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO FPCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA2
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO FPCA-1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A1R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76E24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5098 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A FWD 1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A FWD 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76E24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5099 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A FWD 1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A FWD 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76E24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5100 ABORT: 3/1R

ITEM: FUSE, 150A TO MPCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 150A TO MPCA-1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31F17  
PART NUMBER: ME451-0016-2150 (?-2100)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE SOURCES OF ESSENTIAL BUS POWER ON TWO ESSENTIAL BUSES. LOSS OF ALL POWER TO ESSENTIAL BUSES COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76F24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5101 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R5  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76F24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5102 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 5A (TO MMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76F21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5103 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 5A (TO MMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA  
FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76F21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5104 ABORT: 3/1R

ITEM: FUSE, 35A TO H2/O2 HTR CONT ASSY #1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 35A TO H2/O2 HTR CONT ASSY #1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F23  
PART NUMBER: ME451-0016-2035 (?3035)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76F7E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5105 ABORT: 3/1R

ITEM: FUSE, 50A TO H2/O2 HTR CONT ASSY #3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 50A TO H2/O2 HTR CONT ASSY #3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A31F24  
PART NUMBER: ME451-0016-2050 (?3050)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76F7C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5106 ABORT: 3/1R

ITEM: FUSE, 150A TO APCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) FUSE, 150A TO APCA-1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A134F3  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76G24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 1/1  
MDAC ID: 5107 ABORT: 1/1

ITEM: FUSE, 100A TO ALCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) FUSE, 100A TO ALCA-1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/1R	TAL:	1/1
ONORBIT:	3/1R	AOA:	1/1
DEORBIT:	1/1	ATO:	1/1
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 54V76A134F6  
PART NUMBER: ME451-0016-0100(?-2100)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ALL POWER (MAIN DC BUS A) TO BOTH HELIUM BLOWDOWN VALVES THAT ARE USED TO VENT THE AFT FUSELAGE WHICH MAY CONTAIN AN EXPLOSIVE MIXTURE OF GASSES.

REFERENCES: 76G9H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5108 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OA1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) RESISTOR, 1.8K 1/4W (TO SIG COND OA1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134A3R25  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76G9H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5109 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-4)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A1R4  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76H24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5110 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A AFT 1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A AFT 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S4  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT DC POWER TO MCA.  
SECOND FAILURE COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY  
TO CLOSE DOORS AND CONTROL RCS VALVES.

REFERENCES: 76H23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5111 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A AFT 1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A AFT 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S4  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE BECAUSE  
THIS SWITCH IS NORMALLY ON.

REFERENCES: 76H23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5112 ABORT: 2/1R

ITEM: RPC, 5A (TO AMCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) RPC, 5A (TO AMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A134RPC24  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE CAUSES LOSS OF ONE MCA BUS. CRITICAL LOADS ARE  
REDUNDANTLY POWERED. SECOND FAILURE TO ONE OF THESE LOADS MAY  
CAUSE LOSS OF CREW/VEHICLE, IF DOOR CLOSURE COULD NOT BE  
PERFORMED PRIOR TO ENTRY.

REFERENCES: 76H17H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5113 ABORT: 3/3

ITEM: RPC, 5A (TO AMCA-1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) RPC, 5A (TO AMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC24  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76H17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5114 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A1R3  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76J16H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5115 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S3  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76J16H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5116 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN A MID 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S3  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76J16H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5117 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-3)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 5A (TO MMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76J16E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5118 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-3)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 5A (TO MMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA  
FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76J16E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5119 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN B OFF)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) RPC, 7.5A (GSE MAIN B OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5120 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN B OFF)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) RPC, 7.5A (GSE MAIN B OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L24F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5121 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN B ON)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) RPC, 7.5A (GSE MAIN B ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC2  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5122 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN B ON)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) RPC, 7.5A (GSE MAIN B ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC2  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5123 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L23E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5124 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L23E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5125 ABORT: 2/1R

ITEM: FUSE, 200A TO MAIN DC DIST ASSY 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) APCA-5
- 3) FUSE, 200A TO MAIN DC DIST ASSY 2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 55V76A135F1  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF ALL REDUNDANCY WOULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO OPEN THE LH2 FILL AND DRAIN VALVE TO DUMP LH2 PRIOR TO DEORBIT. THIS WOULD ALLOW GH2 VENTING DURING ENTRY WHICH COULD CREATE AN EXPLOSIVE MIXTURE WITH ATMOSPHERIC O2.

REFERENCES: 76L22C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5126 ABORT: 2/1R

ITEM: FUSE, 200A TO MAIN DC DIST ASSY 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) APCA-5
- 3) FUSE, 200A TO MAIN DC DIST ASSY 2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 55V76A135F2  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF ALL REDUNDANCY WOULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO OPEN THE LH2 FILL AND DRAIN VALVE TO DUMP LH2 PRIOR TO DEORBIT. THIS WOULD ALLOW GH2 VENTING DURING ENTRY WHICH COULD CREATE AN EXPLOSIVE MIXTURE WITH ATMOSPHERIC O2.

REFERENCES: 76L22C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5127 ABORT: 3/3

ITEM: FUSE, 3A TO GSE MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) FUSE, 3A TO GSE MONITOR
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135F17  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT OPERATIONS.

REFERENCES: 76L22F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5128 ABORT: 3/3

ITEM: RESISTOR, 1.2K (TO GSE PWR CONT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA-5
- 4) RESISTOR, 1.2K (TO GSE PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135A1R55  
PART NUMBER: RLR42C122GM

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATION.

REFERENCES: 76L22D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5129 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R2  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76L76L20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5130 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76L19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5131 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) ESS BUS 2CA
- 4) RESISTOR, 1.2K 2W
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R9  
PART NUMBER: RLR42C122GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPLIES NON-CRITICAL MEASUREMENT CIRCUITS.

REFERENCES: 76L16B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5132 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R8  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76L16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5133 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R10  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76L13C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5134 ABORT: 3/3

ITEM: RESISTOR, 2K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 2K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R7  
PART NUMBER: RBR54L20000AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L9B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5135 ABORT: 3/3

ITEM: RESISTOR, 14K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 14K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATC:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R6  
PART NUMBER: RBR54L14001AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L8B





INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5137 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32F36  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76L10B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5138 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32F35  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76L12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5139 ABORT: 3/1R

ITEM: FUSE, 20A TO ESS BUS 2CA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 20A TO ESS BUS 2CA
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F34  
PART NUMBER: ME451-0009-5200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO THE ESS BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER TO ORBITER ESSENTIAL LOADS RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 76L12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5140 ABORT: 3/1R

ITEM: FUSE, 200A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 200A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F30  
PART NUMBER: ME451-0016-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5141 ABORT: 3/1R

ITEM: FUSE, 200A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 200A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F31  
PART NUMBER: ME451-0016-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5142 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F27  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5143 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F28  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5144 ABORT: 3/1R

ITEM: FUSE, 150A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F29  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5145 ABORT: 3/3

ITEM: FUSE, 5A TO MPCA-2, FPCA-2, APCA-5  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) CURRENT SENSOR EXCITATION #2,5,8
- 4) FUSE, 5A TO MPCA-2, FPCA-2, APCA-5
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32F14  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS IS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON  
CREW/VEHICLE/MISSION.

REFERENCES: 76L19B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5146 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-5  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 200A TO APCA-5
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 40V76A32F15  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF ALL REDUNDANCY WOULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO OPEN THE LH2 FILL AND DRAIN VALVE TO DUMP LH2 PRIOR TO DEORBIT. THIS WOULD ALLOW GH2 VENTING DURING ENTRY WHICH COULD CREATE AN EXPLOSIVE MIXTURE WITH ATMOSPHERIC O2.

REFERENCES: 76L19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5147 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-5  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 200A TO APCA-5
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/1R
LIFTOFF:	3/1R	TAL: 2/1R
ONORBIT:	2/1R	AOA: 2/1R
DEORBIT:	2/1R	ATO: 2/1R
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 40V76A32F16  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. LOSS OF ALL REDUNDANCY WOULD CAUSE POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO OPEN THE LH2 FILL AND DRAIN VALVE TO DUMP LH2 PRIOR TO DEORBIT. THIS WOULD ALLOW GH2 VENTING DURING ENTRY WHICH COULD CREATE AN EXPLOSIVE MIXTURE WITH ATMOSPHERIC O2.

REFERENCES: 76L19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5148 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO POWER ONE  
MAIN DC BUS FROM ANOTHER MAIN DC BUS. LOSS OF ALL CAPABILITY TO  
BUS TIE THE MAIN DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE AS  
CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76L17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5149 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN B)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE/MISSION AS TWO TIE BUS CONTACTORS MUST  
CLOSED BEFORE TWO BUSES ARE TIED TOGETHER. THE LOSS OF  
ISOLATION CAPABILITY BETWEEN TWO BUSES WOULD HAVE NO EFFECT AS  
THE TIE BUSES ARE FUSE ISOLATED.

REFERENCES: 76L17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5150 ABORT: 3/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS B F/C PWR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (MAIN DC BUS B F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL OPERATION.  
LOSS OF ALL ABILITY TO DISCONNECT FUEL CELLS FROM CRITICAL LOADS  
MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76L14C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5151 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS B F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (MAIN DC BUS B F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF 1/3 OF VEHICLE POWER AND LOSS OF POWER TO CERTAIN CRITICAL MPS VALVES. BUS TIE CAPABILITY EXISTS TO POWER THE BUS. A FAILURE OF THE BUS TIE POWER SWITCH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL MPS VALVES. LOSS OF ALL POWER (REDUNDANCY) WOULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76L14C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5152 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS C F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (MAIN DC BUS C F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF 1/3 OF VEHICLE POWER AND LOSS OF POWER TO CERTAIN CRITICAL MPS VALVES. BUS TIE CAPABILITY EXISTS TO POWER THE BUS. A FAILURE OF THE BUS TIE POWER SWITCH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL MPS VALVES. LOSS OF ALL POWER (REDUNDANCY) WOULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76Y14C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5153 ABORT: 3/1R

ITEM: SWITCH, MOTORIZED (MAIN DC BUS C F/C PWR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (MAIN DC BUS C F/C PWR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S2  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL OPERATION.  
LOSS OF ALL ABILITY TO DISCONNECT FUEL CELLS FROM CRITICAL LOADS  
MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76Y14C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5154 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE/MISSION AS TWO TIE BUS CONTACTORS MUST  
CLOSED BEFORE TWO BUSES ARE TIED TOGETHER. THE LOSS OF  
ISOLATION CAPABILITY BETWEEN TWO BUSES WOULD HAVE NO EFFECT AS  
THE TIE BUSES ARE FUSE ISOLATED.

REFERENCES: 76Y17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5155 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (DC TIE BUS MAIN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (DC TIE BUS MAIN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S1  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO POWER ONE MAIN DC BUS FROM ANOTHER MAIN DC BUS. LOSS OF ALL CAPABILITY TO BUS TIE THE MAIN DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE AS CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76Y17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5156 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (DC TIE BUS MAIN B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76L17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5157 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN B)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (DC TIE BUS MAIN B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76L17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5158 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (DC TIE BUS MAIN B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76L18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5159 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN B)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (DC TIE BUS MAIN B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76L18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5160 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS B F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (MAIN DC BUS B F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76L14E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5161 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS B F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (MAIN DC BUS B F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76L14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5162 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS B F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (MAIN DC BUS B F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76L15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5163 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS B F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) RPC, 7.5A (MAIN DC BUS B F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76L15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5164 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) DC TIE BUS MAIN B
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5165 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) DC TIE BUS MAIN B
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5166 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) DC TIE BUS MAIN B
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76L18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5167 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) DC TIE BUS MAIN B
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5168 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) MAIN DC BUS B F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L14E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5169 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) MAIN DC BUS B F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5170 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) MAIN DC BUS B F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5171 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 2
- 4) MAIN DC BUS B F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A2CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76L15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5172 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A (MN B CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) CIRCUIT BREAKER, 5A (MN B CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 33V73A16CB30  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF BACKUP POWER FOR THE CONTROL  
OF FUEL CELL POWER TO THE MAIN DC BUS. LOSS OF ALL REDUNDANCY  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76L20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5173 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A (MN B CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) CIRCUIT BREAKER, 5A (MN B CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A16CB30  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE OR MISSION.

REFERENCES: 76L20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5174 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN B CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) ESS BUS 2CA
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN B CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 33V73A13CB10  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO PATHS TO CONTROL THE  
FUEL CELL TO MAIN DC BUS CONNECTION AND THE DC BUS TO BUS TIE  
CONNECTION. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER  
TO ORBITER SYSTEMS.

REFERENCES: 76L20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5175 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN B CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) ESS BUS 2CA
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN B CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CB10  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF CIRCUIT PROTECTION. IN AN  
OVERLOAD CONDITION, MULTIPLE ORDER FAILURE, THE OVERLOAD CAN BE  
CORRECTED BY VARYING THE LOADING OF THE MAIN DC BUSES THROUGH  
BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76L20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5176 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) MAIN DC BUS C
- 4) MAIN B CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 33V73A13CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE UNTIL THIRD FAILURE AND A MAIN DC BUS OR FUEL CELL MUST BE ISOLATED AND MAIN DC BUSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76L19H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5177 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) MAIN DC BUS C
- 4) MAIN B CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REDUNDANT ISOLATION CAPABILITY BETWEEN ESS BUS AND MAIN BUS. CIRCUIT BREAKERS COULD BE OPENED IF ISOLATION REQUIRED. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5178 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) ESS BUS 2CA
- 4) MAIN B CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 33V73A13CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE UNTIL THIRD FAILURE AND A MAIN DC BUS OR FUEL CELL MUST BE ISOLATED AND MAIN DC BUSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76L19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5179 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) 013 PANEL
- 3) ESS BUS 2CA
- 4) MAIN B CONTR
- 5) DIODE, ISOLATION 12A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REDUNDANT ISOLATION CAPABILITY BETWEEN ESS BUS AND MAIN BUS. CIRCUIT BREAKERS COULD BE OPENED IF ISOLATION REQUIRED. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5180 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE B)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S14  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76L17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5181 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE B)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S14  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76L17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5182 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC/MN BUS B)  
FAILURE MODE: FAILURE TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE SPDT (FC/MN BUS B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S11  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL COULD NOT BE CONNECTED  
TO MAIN DC BUS AFTER A FUEL CELL RESTART.

REFERENCES: 76L14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5183 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC/MN BUS B)  
FAILURE MODE: INADVERTENTLY TRANSFERS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE SPDT (FC/MN BUS B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S11  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL WAS INADVERTENTLY  
DISCONNECTED FROM MAIN DC BUS.

REFERENCES: 76L14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5184 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD AFT MN B)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD AFT MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S30  
PART NUMBER: ME452-0102-7101

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE AFT PAYLOAD BUS. LOSS OF ALL POWER MAY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO PAYLOADS.

REFERENCES: 76L12H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5185 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD AFT MN B)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD AFT MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S30  
PART NUMBER: ME452-0102-7101

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE AFT PAYLOAD BUS. LOSS OF ALL POWER MAY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO PAYLOADS.

REFERENCES: 76L12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5186 ABORT: 3/3

ITEM: RELAY (TO AFT PAYLOAD BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) APCA-2
- 5) RELAY (TO AFT PAYLOAD BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 55V76A132K1  
PART NUMBER: MC455-0134-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES OF POWER TO THE AFT PAYLOAD. WORST CASE EFFECT IS LOSS OF MISSION DUE TO INABILITY TO SUPPLY POWER TO PAYLOADS.

REFERENCES: 76L8F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5187 ABORT: 3/3

ITEM: RELAY (TO AFT PAYLOAD BUS)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) APCA-2
- 5) RELAY (TO AFT PAYLOAD BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132K1  
PART NUMBER: MC455-0134-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76L8F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5188 ABORT: 3/2R

ITEM: FUSE, 80A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) APCA-2
- 5) FUSE, 80A TO AFT P/L MN B
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A132F26  
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

POSSIBLE LOSS OF MISSION DUE TO LOSS OF POWER TO AFT PAYLOAD  
AFTER TWO FAILURES.

REFERENCES: 76L9G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5189 ABORT: 3/3

ITEM: RESISTOR, 5.1K  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) APCA-2
- 3) RESISTOR, 5.1K
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A2R6  
PART NUMBER: RLR07C5101GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE EFFECTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L9G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5190 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CBS FOR MDMS, SIG CONDS, LIGHTS, ARS, GN&C, MN A CONTR
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F19  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76M24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5191 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CBS FOR MDMS, SIG CONDS, LIGHTS, ARS, GN&C, MN A CONTR
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F20  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76M23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5192 ABORT: 3/3

ITEM: FUSE, 10A TO RMS PWR & RJDA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) A8A2 PANEL & 015 PANEL
- 4) FUSE, 10A TO RMS PWR & RJDA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F37  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO THE RMS. SECOND FAILURE WHILE ON ORBIT TO THE RMS POWER COULD LEAVE THE ARM IN A POSITION WHERE IT COULD NOT BE JETTISONED. THIS WOULD PRECLUDE A SAFE ENTRY.

REFERENCES: 76M23H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5193 ABORT: 3/1R

ITEM: FUSE, 5A TO RESISTORS TO CONT BUS PWR MN B, ESS  
BUSSES 1BC & 3AB  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FUSE, 5A TO RESISTORS TO CONT BUS PWR MN B, ESS BUSSES 1BC &  
3AB
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F26  
PART NUMBER: ME451-0009-5050

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE OF POWER TO  
THREE CONTROL BUSES AND TWO ESSENTIAL BUSES. LOSS OF ALL  
REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
POWER CRITICAL LOADS.

REFERENCES: 76M21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5194 ABORT: 3/3

ITEM: FUSE, 15A TO A14 PANEL (RCS/OMS HTRS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 15A TO A14 PANEL (RCS/OMS HTRS)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32F22  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS A REDUNDANT POWER SOURCE TO THE FORWARD RCS HEATERS WHICH WOULD HAVE LITTLE EFFECT ON ASCENT AND NONE ON ENTRY. POSSIBLE LOSS OF MISSION COULD RESULT ON ORBIT DEPENDING ON OPERATIONS REQUIRED.

REFERENCES: 76M21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5195 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R15 PANEL
- 4) CBS FOR CONT BUS CA1, CA2, CA3, TV, RADIO, LIGHTS
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F18  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76M19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5196 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) ML86B PANEL
- 4) CBS FOR LIGHTS, GALLEY, WASTE, PYRO RMS, ARS
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F21  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76M18H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5197 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN B UTIL PWR F1/M013Q)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CIRCUIT BREAKER, 10A (MN B UTIL PWR F1/M013Q)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A15CB9  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF POWER AT DC UTILITY OUTLETS, WHICH  
ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76M24A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5198 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN B UTIL PWR F1/M013Q)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) CIRCUIT BREAKER, 10A (MN B UTIL PWR F1/M013Q)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A15CB9  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF OVERLOAD PROTECTION AT DC UTILITY  
OUTLETS, WHICH ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76M24A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5199 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 10A (CONT BUS CA1, CA2, CA3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS CA1, CA2, CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A15CB63  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO THREE CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
CONTROL CRITICAL LOADS.

REFERENCES: 76M19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5200 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (CONT BUS CA1, CA2, CA3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS CA1, CA2, CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A15CB63  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76M19G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5201 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) M013Q PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN B)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A81S11  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76M21B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5202 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN B)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) M013Q PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN B)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A81S11  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76M21B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5203 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) F1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN B)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A1S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76M21A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5204 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN B)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) 015 PANEL
- 4) F1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN B)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A1S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76M21A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5205 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO FPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO FPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A2R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76P24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5206 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B FWD 2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B FWD 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S5  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76P24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5207 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B FWD 2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B FWD 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S5  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76P24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5208 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO FPCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F11  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P24G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5209 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO FPCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F12  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5210 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO FPCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F13  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5211 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R4  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76P23E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5212 ABORT: 3/3

ITEM: RPC, 5A (FMCA-2 PWR CONT)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A (FMCA-2 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76P21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5213 ABORT: 2/1R

ITEM: RPC, 5A (FMCA-2 PWR CONT)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A (FMCA-2 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO LOADS  
ON THE MCA. SECOND FAILURE TO THESE LOADS MAY RESULT IN LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE FORWARD DOORS PRIOR TO  
ENTRY.

REFERENCES: 76P21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5214 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) FUSE, 150A TO MAIN DC DIST ASSY 2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23F6  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P21G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5215 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) FUSE, 150A TO MAIN DC DIST ASSY 2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R1	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23F5  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P21G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5216 ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) FUSE, 150A TO MAIN DC DIST ASSY 2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23F7  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76P21G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5217 ABORT: 1/1

ITEM: FUSE, 35A TO FLCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) FUSE, 35A TO FLCA-2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23F4  
PART NUMBER: ME451-0009-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER SOURCE TO LOADS CONNECTED TO THE PCA. LOSS OF ALL POWER TO THESE LOADS COULD CAUSE LOSS OF CREW/MISSION.

DURING AN RTLS, THIS FAILURE WILL CAUSE LOSS OF FORWARD RCS MANIFOLD ISOL VALVE 1 WHICH WILL RESULT IN A CG PROBLEM DUE TO REDUCED DUMP CAPABILITY. THIS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76P8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5218 ABORT: 3/3

ITEM: RESISTOR, 5.1K  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RESISTOR, 5.1K TO TEST POINTS
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R16  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO CHECK MAIN DC BUS B. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE MEANS ARE AVAILABLE TO THE CREW.

REFERENCES: 76P8G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5219 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RESISTOR, 1.8K 1/4W (TO SIG COND OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R86  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76P8C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5220 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A2R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5221 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S6  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76R24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5222 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S6  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5223 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A2R3  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5224 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S7  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76R24F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5225 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S7  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5226 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A3R3  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5227 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S8  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R24E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5228 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S8  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76R24E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5229 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A3R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24D

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5230 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 4)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S9  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

**EFFECTS/RATIONALE:**

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R24D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5231 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS BC3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B MID 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S9  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76R24D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5232 ABORT: 3/1R

ITEM: FUSE, 100A TO MPCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 100A TO MPCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32F17  
PART NUMBER: ME451-0016-2100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE SOURCES OF ESSENTIAL BUSS POWER ON TWO ESSENTIAL BUSES. LOSS OF ALL POWER TO ESSENTIAL BUSES COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5233 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R5  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76R24B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5234 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76R22H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5235 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA  
FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76R22H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5236 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC10  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R22G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5237 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC10  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76R22G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5238 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-3)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC22  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76R22E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5239 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-3)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC22  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76R22E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5240 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-4)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76R22D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5241 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-4)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 5A (TO MMCA-4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76R22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5242 ABORT: 3/1R

ITEM: FUSE, 35A TO H2/O2 HTR CONT ASSY #2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 35A TO H2/O2 HTR CONT ASSY #2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F23  
PART NUMBER: ME451-0016-2035 (?3035)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76R17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5243 ABORT: 3/1R

ITEM: FUSE, 50A TO H2/O2 HTR CONT ASSY #3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 50A TO H2/O2 HTR CONT ASSY #3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATC:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F24  
PART NUMBER: ME451-0016-2050 (?3050)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76R12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5244 ABORT: 3/1R

ITEM: FUSE, 50A TO H2/O2 HTR CONT ASSY #4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 50A TO H2/O2 HTR CONT ASSY #4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A32F25  
PART NUMBER: ME451-0016-2050 (?3050)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76R7H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5245 ABORT: 3/1R

ITEM: FUSE, 150A TO APCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) FUSE, 150A TO APCA-2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A135F3  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO LOADS. LOSS  
OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76S24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 1/1  
MDAC ID: 5246 ABORT: 1/1

ITEM: FUSE, 100A TO ALCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) FUSE, 100A TO ALCA-2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	1/1	TAL:	1/1
ONORBIT:	3/1R	AOA:	1/1
DEORBIT:	1/1	ATO:	1/1
LANDING/SAFING:	1/1		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 55V76A135F6  
PART NUMBER: ME451-0016-0100(?-2100)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE CAUSES LOSS OF POWER TO MPS LH2 VALVE SOLENOIDS.  
THIS RESULTS IN THE INABILITY TO DUMP RESIDUAL LH2 PRIOR TO  
DEORBIT WHICH COULD CAUSE LOSS OF CREW/VEHICLE DUE TO GH2 MIXING  
WITH ATMOSPHERIC GO2 WITH A PROBABLE EXPLOSION.

REFERENCES: 76S9H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5247 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OA2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) RESISTOR, 1.8K 1/4W (TO SIG COND OA2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135A1R63  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76S8H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5248 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-5)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC2
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-5)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A3R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76T24H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5249 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B AFT 2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B AFT 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S10  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD CAUSE THE LOSS OF CREW/VEHICLE DUE TO  
THE INABILITY TO CLOSE DOORS AND CONTROL RCS VALVES.

REFERENCES: 76T23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5250 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN B AFT 2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN B AFT 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S10  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS  
SWITCH IS NORMALLY ON.

REFERENCES: 76T23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5251 ABORT: 2/1R

ITEM: RPC, 5A (TO AMCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) RPC, 5A (TO AMCA-2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A135RPC24  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE CAUSES LOSS OF ONE MCA BUS. CRITICAL LOADS ARE REDUNDANTLY POWERED. SECOND FAILURE TO ONE OF THESE LOADS MAY CAUSE LOSS OF CREW/VEHICLE, IF DOOR CLOSURE COULD NOT BE PERFORMED PRIOR TO ENTRY.

REFERENCES: 76T17H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5253 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO P/L AUX BUS - MPCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) RESISTOR, 1.2K 2W (TO P/L AUX BUS - MPCA-1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A11R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO A P/L BUS. LOSS OF ALL REDUNDANCY COULD RESULT IN LOSS OF MISSION DUE TO LACK OF PAYLOAD POWER/CONTROL.

REFERENCES: 76U23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5254 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO P/L AUX BUS - MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) RESISTOR, 1.2K 2W (TO P/L AUX BUS - MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A11R2

PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO A P/L BUS. LOSS OF ALL REDUNDANCY COULD RESULT IN LOSS OF MISSION DUE TO LACK OF PAYLOAD POWER/CONTROL.

REFERENCES: 76U22H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5255 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO P/L CABIN BUS - MPCA-2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) RESISTOR, 1.2K 2W (TO P/L CABIN BUS - MPCA-2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A10R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO A P/L BUS. LOSS OF ALL REDUNDANCY COULD RESULT IN LOSS OF MISSION DUE TO LACK OF PAYLOAD POWER/CONTROL.

REFERENCES: 76U20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5256 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO P/L CABIN BUS - MPCA-1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) RESISTOR, 1.2K 2W (TO P/L CABIN BUS - MPCA-1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A10R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO A P/L BUS. LOSS OF ALL REDUNDANCY COULD RESULT IN LOSS OF MISSION DUE TO LACK OF PAYLOAD POWER/CONTROL.

REFERENCES: 76U18H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5257 ABORT: 3/3

ITEM: SWITCH, TOGGLE DPDT (PAYLOAD AUX)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUSES A & B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE DPDT (PAYLOAD AUX)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S29  
PART NUMBER: ME452-0102-7201

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:  
NO EFFECT AS THIS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76U24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5258 ABORT: 3/3

ITEM: SWITCH, TOGGLE DPDT (PAYLOAD AUX)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUSES A & B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE DPDT (PAYLOAD AUX)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S29  
PART NUMBER: ME452-0102-7201

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF MISSION DUE TO LOSS OF POWER TO PAYLOAD LOADS.

REFERENCES: 76U24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5259 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD CABIN)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUSES A & B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD CABIN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S25  
PART NUMBER: ME452-0102-7103

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76U20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5260 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUSES A & B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD CABIN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S25  
PART NUMBER: ME452-0102-7103

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF MISSION DUE TO INABILITY TO POWER PAYLOAD  
FUNCTIONS.

REFERENCES: 76U20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5261 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF4)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A12R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT  
ON CREW/VEHICLE/MISSION.

REFERENCES: 76U24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5262 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF4)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A12R2  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76U19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5263 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF4)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A12R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76U21H

C-4





INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5265 ABORT: 3/3

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC20  
PART NUMBER: MC450-0017-1200

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76U23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5266 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC21  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L  
PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A  
SWITCH IN PANEL R1A1.

REFERENCES: 76U20E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5267 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC21  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L  
PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE  
TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U20E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5268 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC22  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L  
PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A  
SWITCH IN PANEL R1A1.

REFERENCES: 76U20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5269 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC22  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5270 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC23  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L  
PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A  
SWITCH IN PANEL R1A1.

REFERENCES: 76U20C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5271 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC23  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L  
PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE  
TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U20C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5272 ABORT: 3/3

ITEM: RESISTOR, 1.8K (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 1.8K (TO MDM OF1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R9  
PART NUMBER: RLR07C1801GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76U24C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5273 ABORT: 3/3

ITEM: RESISTOR, 2.2K (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 2.2K (TO MDM OF1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R10  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76U24C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5274 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U19E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5275 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U19E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5276 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U19D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5277 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U19D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5278 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR7  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5279 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A25A2CR7  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5280 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR7  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U17C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5281 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR7  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U17C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5282 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U17D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5283 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U17D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5284 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) RIAL PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE MAIN BUS A AND MAIN BUS B TOGETHER AT THE OUTPUT OF AN RPC. DEPENDING ON P/L CABIN BUS LOADING, THE RPC COULD FAIL DUE TO EXCESSIVE REVERSE CURRENT. THIS WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO P/L LOADS.

REFERENCES: 76U17F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5285 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO PAYLOAD CABIN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A26A2CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF SIX SOURCES TO THE P/L CABIN BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE PROBABLE LOSS OF MISSION DUE TO LACK OF POWER TO P/L LOADS.

REFERENCES: 76U17F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5286 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC19  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L  
PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A  
SWITCH IN PANEL 1A1.

REFERENCES: 76U17F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5287 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC19  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L  
PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE  
TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U17F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5288 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC20  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L  
PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A  
SWITCH IN PANEL R1A1.

REFERENCES: 76U17E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5289 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC20  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5290 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC21  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS RPC IS NORMALLY ON AND THIS FAILURE WOULD KEEP THE P/L PANELS POWERED. POWER CAN BE REMOVED FROM THE P/L LOADS BY A SWITCH IN PANEL R1A1.

REFERENCES: 76U17D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5291 ABORT: 3/3

ITEM: RPC, 15A TO PAYLOAD CABIN  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 15A TO PAYLOAD CABIN
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC21  
PART NUMBER: MC450-0017-1150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO P/L  
PANELS. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION DUE  
TO INABILITY TO POWER P/L PANELS.

REFERENCES: 76U17D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5292 ABORT: 3/3

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC18  
PART NUMBER: MC450-0017-1200

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO  
THE PAYLOAD AUX BUS. WORST CASE EFFECT IS POSSIBLE LOSS OF  
MISSION.

REFERENCES: 76U22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5293 ABORT: 3/3

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 20A TO P/L AUX & P/L EMERGENCY BUSES
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC18  
PART NUMBER: MC450-0017-1200

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76U22D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5295 ABORT: 3/3

ITEM: RESISTOR, 2.2K (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RESISTOR, 2.2K (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R6  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76U22C





INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5297 ABORT: 3/3

ITEM: RPC, 7.5A (P/L PWR KILL MAIN B/C)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PAYLOAD EMERGENCY BUS
- 2) ESS BUS 2CA
- 3) MPCA - 2
- 4) RPC, 7.5A (P/L PWR KILL MAIN B/C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC27  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/VEHICLE ALTHOUGH LOSS OF MISSION IS POSSIBLE IF  
BACKUP POWER IS NOT AVAILABLE.

REFERENCES: 76U11H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5298 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #2 -  
P/L PWR KILL)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MPCA-2
- 3) DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #2 - P/L PWR  
KILL)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A2CR8  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT PATH TO KILL  
POWER TO THE P/L BAY. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO KILL POWER TO P/L BAY LOADS IF  
REQUIRED.

REFERENCES: 76U11G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5299 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #2 -  
P/L PWR KILL)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MPCA-2
- 3) DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #2 - P/L PWR  
KILL)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A2CR8  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD TIE THE P/L BAY POWER KILL REDUNDANT PATHS TOGETHER CAUSING THE REMOVAL OF MAIN BUS B AND C IF ONE OF THE MAIN DC BUSES IS SWITCHED OUT FROM PANEL R1A1. POSSIBLE LOSS OF MISSION DUE TO LOSS OF POWER TO THE P/L BAY LOADS.

REFERENCES: 76U11G

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5300 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #3 -  
P/L PWR KILL)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) ESS BUS 2CA
- 2) MPCA-2
- 3) DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #3 - P/L PWR  
KILL)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A2CR13  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**

FIRST FAILURE WOULD TIE THE P/L BAY POWER KILL REDUNDANT PATHS TOGETHER CAUSING THE REMOVAL OF MAIN BUS B AND C IF ONE OF THE MAIN DC BUSES IS SWITCHED OUT FROM PANEL R1A1.

REFERENCES: 76U11G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5301 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #3 -  
P/L PWR KILL)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MPCA-2
- 3) DIODE, ISOLATION 35A (TO MAIN DC DIST ASSY #3 - P/L PWR  
KILL)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A2CR13  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT PATH TO KILL  
POWER TO THE P/L BAY. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF  
CREW VEHICLE DUE TO INABILITY TO KILL POWER TO P/L BAY LOADS IF  
REQUIRED.

REFERENCES: 76U11G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5302 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MPCA-3
- 3) DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A27A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH TO KILL POWER TO P/L BAY FROM FUEL CELL #3. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF CREW/VEHICLE IF P/L BAY POWER IS REQUIRED TO BE TURNED OFF.

REFERENCES: 76U13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5303 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MPCA-3
- 3) DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
NO EFFECT

REFERENCES: 76U13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5304 ABORT: 3/3

ITEM: RPC, 7.5A (P/L PWR KILL F/C#3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PAYLOAD EMERGENCY BUS
- 2) ESS BUS 3AB
- 3) MPCA - 3
- 4) RPC, 7.5A (P/L PWR KILL F/C#3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC16  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO CUT POWER TO THE  
PAYLOAD FROM FUEL CELL #3. POSSIBLE LOSS OF CREW/VEHICLE IF  
POWER REMOVAL WERE REQUIRED.

REFERENCES: 76U13H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5305 ABORT: 3/3

ITEM: RPC, 7.5A (P/L PWR KILL F/C#3)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PAYLOAD EMERGENCY BUS
- 2) ESS BUS 3AB
- 3) MPCA - 3
- 4) RPC, 7.5A (P/L PWR KILL F/C#3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC16  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT POWER SOURCE TO  
THE PAYLOAD. LOSS OF ALL REDUNDANCY MIGHT CAUSE LOSS OF MISSION.

REFERENCES: 76U13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5306 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI MN B)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S26  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH DRIVES A MOTORIZED SWITCH TO CONNECT MAIN DC BUS  
POWER TO THE PAYLOADS. REDUNDANT POWER IS AVAILABLE. LOSS OF  
ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5307 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI MN B)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S26  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH DRIVES A MOTORIZED SWITCH TO CONNECT MAIN DC BUS  
POWER TO THE PAYLOADS. REDUNDANT POWER IS AVAILABLE. LOSS OF  
ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5308 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI F/C#3)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI F/C#3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S27  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH CONTROLS A MOTORIZED SWITCH THAT TRANSFERS POWER FROM FUEL CELL #3 TO PAYLOADS. REDUNDANT POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5309 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI F/C#3)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI F/C#3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S27  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH CONTROLS A MOTORIZED SWITCH THAT TRANSFERS POWER FROM FUEL CELL #3 TO PAYLOADS. REDUNDANT POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5310 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI MN C)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S28  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH DRIVES A MOTORIZED SWITCH TO CONNECT MAIN DC BUS  
POWER TO THE PAYLOADS. REDUNDANT POWER IS AVAILABLE. LOSS OF  
ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5311 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD PRI MN C)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD PRI MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S28  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS SWITCH DRIVES A MOTORIZED SWITCH TO CONNECT MAIN DC BUS  
POWER TO THE PAYLOADS. REDUNDANT POWER IS AVAILABLE. LOSS OF  
ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U13D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5312 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (MAIN DC BUS B TO PAYLOAD)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (MAIN DC BUS B TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32S3  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER PATH TO  
PAYLOAD. LOSS OF ALL REDUNDANT POWER TO PAYLOAD WOULD LIKELY  
CAUSE LOSS OF MISSION. NO EFFECT ON CREW OR VEHICLE.

REFERENCES: 76U10F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5313 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (MAIN DC BUS B TO PAYLOAD)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) SWITCH, MOTORIZED (MAIN DC BUS B TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32S3  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
SWITCH IS NORMALLY CLOSED FOR FLIGHT OPERATION.

REFERENCES: 76U10F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5314 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R12  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS. AN ALTERNATE INDICATOR (TALKBACK) IS AVAILABLE.

REFERENCES: 76UF

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5315 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) ESS BUS 2CA
- 4) RESISTOR, 1.2K 2W
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R13  
PART NUMBER: RWR71S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPLIES NON-CRITICAL MEASUREMENT CIRCUITS.

REFERENCES: 76U9F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5316 ABORT: 3/3

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 3 (PAYLOAD)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO MAIN DC DIST ASSY 3 (PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F39  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U9E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5317 ABORT: 3/3

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 3 (PAYLOAD)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 150A TO MAIN DC DIST ASSY 3 (PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F40  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U9E

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
 SUBSYSTEM: EPD&C FLIGHT: 3/1R  
 MDAC ID: 5318 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC 3 STRUCT RTN)  
 FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) ESS BUS 3AB
- 2) 013 PANEL
- 3) 012 PANEL
- 4) SWITCH, TOGGLE SPDT (FC 3 STRUCT RTN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 36V73A12S30  
 PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, VIBRATION

**EFFECTS/RATIONALE:**

FAILURE OF THIS SWITCH TO POWER THE CONTACTOR AFTER THE DC RETURN PATH HAS BEEN INTERRUPTED WOULD MEAN THAT MAIN DC BUS C LOADS WOULD BE LOST. BUS TIE COULD BE PERFORMED. LOSS OF ALL REDUNDANT POWER TO BUS C LOADS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76U6H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5319 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (FC 3 STRUCT RTN)  
FAILURE MODE: INADVERTENT TRANSFERS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) 013 PANEL
- 3) 012 PANEL
- 4) SWITCH, TOGGLE SPDT (FC 3 STRUCT RTN)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 36V73A12S30  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, VIBRATION

EFFECTS/RATIONALE:

FAILURE OF THIS SWITCH TO POWER THE CONTACTOR AFTER THE DC RETURN  
PATH HAS BEEN INTERRUPTED WOULD MEAN THAT MAIN DC BUS C LOADS  
WOULD BE LOST. BUS TIE COULD BE PERFORMED. LOSS OF ALL  
REDUNDANT POWER TO BUS C LOADS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76U6H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5320 ABORT: 3/3

ITEM: FUSE, 150A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MAIN DC DIST ASSY #3
- 4) FUSE, 150A TO PAYLOAD
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F41  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U6E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5321 ABORT: 3/3

ITEM: FUSE, 150A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MAIN DC DIST ASSY #3
- 4) FUSE, 150A TO PAYLOAD
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F42  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U7E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5322 ABORT: 3/3

ITEM: FUSE, 200A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO PAYLOAD
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F34  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5323 ABORT: 3/3

ITEM: FUSE, 200A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO PAYLOAD
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F35  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5324 ABORT: 3/3

ITEM: FUSE, 200A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO PAYLOAD
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F39  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U4E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5325 ABORT: 3/3

ITEM: FUSE, 200A TO PAYLOAD  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO PAYLOAD
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F40  
PART NUMBER: ME451-0016-2150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE PAYLOADS. LOSS OF ALL POWER TO PAYLOADS WOULD PROBABLY RESULT IN LOSS OF MISSION.

REFERENCES: 76U4E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:	3/11/87	HIGHEST CRITICALITY	HDW/FUNC
SUBSYSTEM:	EPD&C	FLIGHT:	3/3
MDAC ID:	5326	ABORT:	3/3

ITEM: RESISTOR, 1.2K 2W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER                      SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) ESS BUS 3AB
- 4) RESISTOR, 1.2K 2W
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS:    A [    ]                      B [    ]                      C [    ]

LOCATION:                      40V76A33R14  
PART NUMBER:                RWR80S1211FR

CAUSES:    CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS ITEM SUPPLIES NON-CRITICAL MEASUREMENT CIRCUITS.

REFERENCES:    76U4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5327 ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) ESS BUS 3AB
- 4) RESISTOR, 1.2K 2W
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R13  
PART NUMBER: RWR71S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPLIES NON-CRITICAL MEASUREMENT CIRCUITS.

REFERENCES: 76U7C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5328 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R12  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS. AN ALTERNATE INDICATOR (TALKBACK) IS AVAILABLE.

REFERENCES: 76U8B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5329 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R15  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS. AN  
ALTERNATE INDICATOR (TALKBACK) IS AVAILABLE.

REFERENCES: 76U8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5330 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT DC RETURN PATH FOR POWER CONTACTOR MOTOR. SECOND FAILURE WOULD CAUSE AN INABILITY TO CHANGE THE POWER CONTACTOR SUPPLYING THE P/L BAY POWER. LOSS OF ALL CONTROL OF P/L BAY MAY CAUSE LOSS OF CREW/VEHICLE IF PAYLOAD BAY POWER IS REQUIRED OFF.

REFERENCES: 76U5B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5331 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR5  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
NO EFFECT

REFERENCES: 76U5B

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5332 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
NO EFFECT

REFERENCES: 76U5C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5333 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO DC RETURN FROM P/L BAY)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR6  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT DC RETURN PATH FOR POWER CONTACTOR MOTOR. SECOND FAILURE WOULD CAUSE AN INABILITY TO CHANGE THE POWER CONTACTOR SUPPLYING THE P/L BAY POWER. LOSS OF ALL CONTROL OF P/L BAY MAY CAUSE LOSS OF CREW/VEHICLE IF PAYLOAD BAY POWER IS REQUIRED OFF.

REFERENCES: 76U5C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5334 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (F/C 3 TO PAYLOAD)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3 OUTPUT
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (F/C 3 TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S3  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER PATH TO  
PAYLOAD. LOSS OF ALL REDUNDANT POWER TO PAYLOAD WOULD LIKELY  
CAUSE LOSS OF MISSION. NO EFFECT ON CREW OR VEHICLE.

REFERENCES: 76U7C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5335 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (F/C 3 TO PAYLOAD)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3 OUTPUT
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (F/C 3 TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33S3  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS SWITCH IS NORMALLY CLOSED FOR FLIGHT OPERATION.

REFERENCES: 76U7C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5336 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (F/C 3 STRUCTURE RETURN)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3 OUTPUT RETURN
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (F/C 3 STRUCTURE RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S4  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

FAILURE OF THIS SWITCH TO POWER THE CONTACTOR AFTER THE DC RETURN PATH HAS BEEN INTERRUPTED WOULD MEAN THAT MAIN DC BUS C LOADS WOULD BE LOST. BUS TIE COULD BE PERFORMED. LOSS OF ALL REDUNDANT POWER TO BUS C LOADS MAY CAUSE LOSS OF CREW/VEHICLE. A SECOND FAILURE IN THE BUS TIE CIRCUIT WOULD CAUSE LOSS OF POWER TO MPS AND FORWARD RCS VALVES WHICH COULD CAUSE LOSS OF CREW/VEHICLE DUE TO AN EXPLOSIVE GAS MIXTURE IN THE AFT COMPARTMENT OR LACK OF CG CONTROL DURING ENTRY.

REFERENCES: 76U5B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5337 ABORT: 2/1R

ITEM: SWITCH, MOTORIZED (F/C 3 STRUCTURE RETURN)  
FAILURE MODE: INADVERTENT TRANSFERS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3 OUTPUT RETURN
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (F/C 3 STRUCTURE RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S4  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF THE MAIN DC BUS C RETURN PATH AND THE CONNECTED MAIN DC BUS C LOADS. BUS TIE COULD BE PERFORMED. LOSS OF ALL POWER TO MAIN DC BUS C LOADS COULD CAUSE LOSS OF CREW/VEHICLE.

A SECOND FAILURE IN THE BUS TIE CIRCUIT WOULD CAUSE LOSS OF POWER TO MPS AND FORWARD RCS VALVES WHICH COULD CAUSE LOSS OF CREW/VEHICLE DUE TO AN EXPLOSIVE GAS MIXTURE IN THE AFT COMPARTMENT OR LACK OF CG CONTROL DURING ENTRY.

REFERENCES: 76U5B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5338 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (MAIN DC BUS C TO PAYLOAD)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (MAIN DC BUS C TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/2R	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33S5  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER PATH TO  
PAYLOAD. LOSS OF ALL REDUNDANT POWER TO PAYLOAD WOULD LIKELY  
CAUSE LOSS OF MISSION. NO EFFECT ON CREW OR VEHICLE.

REFERENCES: 76U7E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5339 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (MAIN DC BUS C TO PAYLOAD)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SWITCH, MOTORIZED (MAIN DC BUS C TO PAYLOAD)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33S5  
PART NUMBER: MC455-0126-0001

CAUSES: PIECE PART STRUCTURAL FAILURE, MECH SHOCK,  
CONTAMINATION, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS SWITCH IS NORMALLY CLOSED FOR FLIGHT OPERATION.

REFERENCES: 76U7E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5340 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN C OFF)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) RPC, 7.5A (GSE MAIN C OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5341 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN C OFF)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) RPC, 7.5A (GSE MAIN C OFF)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC1  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5342 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN C ON)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) RPC, 7.5A (GSE MAIN C ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC2  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5343 ABORT: 3/3

ITEM: RPC, 7.5A (GSE MAIN C ON)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) RPC, 7.5A (GSE MAIN C ON)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC2  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y23F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5344 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y23D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5345 ABORT: 3/3

ITEM: SWITCH, MOTORIZED (GSE PWR CONTROL)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) SWITCH, MOTORIZED (GSE PWR CONTROL)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136S1  
PART NUMBER: MC455-0126-0001

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
THERMAL STRESS, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76Y23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5346 ABORT: 2/1R

ITEM: FUSE, 200A TO MAIN DC DIST ASSY 3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) APCA-6
- 3) FUSE, 200A TO MAIN DC DIST ASSY 3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 56V76A136F1  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. A SECOND FAILURE IN THE OTHER PATH WOULD CAUSE LOSS OF POWER TO MPS VALVE SOLENOIDS. IF CERTAIN VALVES ARE NOT CLOSED AT ET SEP, THE ET COULD RECONTACT THE VEHICLE CAUSING TPS DAMAGE AND OR CREW/VEHICLE LOSS.

REFERENCES: 76Y22C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5347 ABORT: 2/1R

ITEM: FUSE, 200A TO MAIN DC DIST ASSY 3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) APCA-6
- 3) FUSE, 200A TO MAIN DC DIST ASSY 3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 56V76A136F2  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. A SECOND FAILURE IN THE OTHER PATH WOULD CAUSE LOSS OF POWER TO MPS VALVE SOLENOIDS. IF CERTAIN VALVES ARE NOT CLOSED AT ET SEP, THE ET COULD RECONTACT THE VEHICLE CAUSING TPS DAMAGE AND OR CREW/VEHICLE LOSS.

REFERENCES: 76Y22C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5348 ABORT: 3/3

ITEM: FUSE, 3A TO GSE MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) FUSE, 3A TO GSE MONITOR
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136F17  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT OPERATIONS.

REFERENCES: 76Y22F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5349 ABORT: 3/3

ITEM: RESISTOR, 1.2K (TO GSE PWR CONT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 6
- 4) RESISTOR, 1.2K (TO GSE PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136A1R55  
PART NUMBER: RLR42C122GM

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATION.

REFERENCES: 76Y22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5350 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R2  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76Y20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5351 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76Y19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5352 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R8  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76Y16C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5353 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R10  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76Y13C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5355 ABORT: 3/3

ITEM: RESISTOR, 2K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 2K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R6  
PART NUMBER: RBR54L20000AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y9B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5356 ABORT: 3/3

ITEM: RESISTOR, 14K 1/4W (TO C&W)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 14K 1/4W (TO C&W)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R7  
PART NUMBER: RBR54L14001AR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y8B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5357 ABORT: 2/1R

ITEM: SHUNT, DC AMMETER (TO F/C 3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) SHUNT, DC AMMETER (TO F/C 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33R11  
PART NUMBER: MSB-501

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF POWER FROM FUEL CELL #3. LOSS OF ALL REDUNDANCY WOULD RESULT IN LOSS OF CREW/VEHICLE DUE TO LOSS OF ALL POWER.

A SECOND FAILURE IN THE BUS TIE CIRCUIT WOULD CAUSE LOSS OF POWER TO MPS AND FORWARD RCS VALVES WHICH COULD CAUSE LOSS OF CREW/VEHICLE DUE TO AN EXPLOSIVE GAS MIXTURE IN THE AFT COMPARTMENT OR LACK OF CG CONTROL DURING ENTRY.

REFERENCES: 76Y3B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5358 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-6  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO APCA-6
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 40V76A33F14  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. A SECOND FAILURE IN THE OTHER PATH WOULD CAUSE LOSS OF POWER TO MPS VALVE SOLENOIDS. IF CERTAIN VALVES ARE NOT CLOSED AT ET SEP, THE ET COULD RECONTACT THE VEHICLE CAUSING TPS DAMAGE AND OR CREW/VEHICLE LOSS.

REFERENCES: 76Y19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5359 ABORT: 2/1R

ITEM: FUSE, 200A TO APCA-6  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO APCA-6
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 40V76A33F15  
PART NUMBER: ME451-0016-2150(?-2200)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER PATH TO THE APCA. A SECOND FAILURE IN THE OTHER PATH WOULD CAUSE LOSS OF POWER TO MPS VALVE SOLENOIDS. IF CERTAIN VALVES ARE NOT CLOSED AT ET SEP, THE ET COULD RECONTACT THE VEHICLE CAUSING TPS DAMAGE AND OR CREW/VEHICLE LOSS.

REFERENCES: 76Y19C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5360 ABORT: 3/3

ITEM: FUSE, 5A TO MPCA-3, FPCA-3, APCA-6  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) CURRENT SENSOR EXCITATION #3,6,9
- 4) FUSE, 5A TO MPCA-3, FPCA-3, APCA-6
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F13  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS IS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON  
CREW/VEHICLE/MISSION.

REFERENCES: 76Y19B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5361 ABORT: 3/1R

ITEM: FUSE, 200A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F27  
PART NUMBER: ME451-0016-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76Y16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5362 ABORT: 3/1R

ITEM: FUSE, 200A TO DC TIE BUS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 200A TO DC TIE BUS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F28  
PART NUMBER: ME451-0016-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF A REDUNDANT PATH TO ALLOW BUS TIE OF THE MAIN DC BUSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76Y16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5363 ABORT: 3/3

ITEM: FUSE, 10A (NO LOAD CONNECTED)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A (NO LOAD CONNECTED)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F36  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

NO EFFECT AS THIS FUSE HAS NO LOADS CONNECTED TO IT.

REFERENCES: 76Y15C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5364 ABORT: 3/1R

ITEM: FUSE, 20A TO ESS BUS 3AB  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 20A TO ESS BUS 3AB
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F31  
PART NUMBER: ME451-0009-5200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO THE ESS BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER TO ORBITER ESSENTIAL LOADS RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 76Y12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5365 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F32  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76Y12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5366 ABORT: 3/3

ITEM: FUSE, 3A TO DC VOLTMETER  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 3A TO DC VOLTMETER
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F33  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76Y10B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5367 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN C CONTR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) 013 PANEL
- 3) ESS BUS 3AB
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN C CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 33V73A13CB16  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO PATHS TO CONTROL THE  
FUEL CELL TO MAIN DC BUS CONNECTION AND THE DC BUS TO BUS TIE  
CONNECTION. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF ALL POWER  
TO ORBITER SYSTEMS.

REFERENCES: 76Y20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5368 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 5A THERMAL (MAIN C CONTR)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) 013 PANEL
- 3) ESS BUS 3AB
- 4) CIRCUIT BREAKER, 5A THERMAL (MAIN C CONTR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CB16  
PART NUMBER: MC454-0026-2050

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF CIRCUIT PROTECTION. IN AN  
OVERLOAD CONDITION, MULTIPLE ORDER FAILURE, THE OVERLOAD CAN BE  
CORRECTED BY VARYING THE LOADING OF THE MAIN DC BUSES THROUGH  
BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76Y20H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5369 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE C)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S15  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76Y17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5370 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPDT (MAIN BUS TIE C)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE SPDT (MAIN BUS TIE C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	3/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S15  
PART NUMBER: ME452-0102-7105

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

IF A BUS TIE WERE REQUIRED, THIS FAILURE MAY CAUSE LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CONTROL MPS VALVES.

REFERENCES: 76Y17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5371 ABORT: 3/1R

ITEM: SWITCH, TOGGLE DPDT (FC/MN BUS C)  
FAILURE MODE: FAILURE TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE DPDT (FC/MN BUS C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S12  
PART NUMBER: ME452-0102-7355

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL COULD NOT BE CONNECTED  
TO MAIN DC BUS AFTER A FUEL CELL RESTART.

REFERENCES: 76Y14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5372 ABORT: 3/1R

ITEM: SWITCH, TOGGLE DPDT (FC/MN BUS C)  
FAILURE MODE: INADVERTENTLY TRANSFERS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE DPDT (FC/MN BUS C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S12  
PART NUMBER: ME452-0102-7355

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

POSSIBLE LOSS OF CREW/VEHICLE IF FUEL CELL WAS INADVERTENTLY  
DISCONNECTED FROM MAIN DC BUS.

REFERENCES: 76Y14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5373 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD AFT MN C)  
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD AFT MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S31  
PART NUMBER: ME452-0102-7101

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE AFT PAYLOAD BUS. LOSS OF ALL POWER MAY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO PAYLOADS.

REFERENCES: 76Y12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5374 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD AFT MN C)  
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE SPDT (PAYLOAD AFT MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S31  
PART NUMBER: ME452-0102-7101

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE AFT PAYLOAD BUS. LOSS OF ALL POWER MAY CAUSE LOSS OF MISSION DUE TO LOSS OF POWER TO PAYLOADS.

REFERENCES: 76Y12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5375 ABORT: 3/3

ITEM: RELAY (TO AFT PAYLOAD BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) APCA-3
- 5) RELAY (TO AFT PAYLOAD BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 56V76A133K1  
PART NUMBER: MC455-0134-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES OF POWER TO THE AFT PAYLOAD. WORST CASE EFFECT IS LOSS OF MISSION DUE TO INABILITY TO SUPPLY POWER TO PAYLOADS.

REFERENCES: 76Y8H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5376 ABORT: 3/3

ITEM: RELAY (TO AFT PAYLOAD BUS)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) APCA-3
- 5) RELAY (TO AFT PAYLOAD BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133K1  
PART NUMBER: MC455-0134-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76Y8H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5377 ABORT: 3/3

ITEM: FUSE, 80A TO AFT P/L MN C  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) APCA-3
- 5) FUSE, 80A TO AFT P/L MN C
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A133F13  
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

POSSIBLE LOSS OF MISSION DUE TO LOSS OF POWER TO AFT PAYLOAD  
AFTER TWO FAILURES.

REFERENCES: 76Y9G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5379 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (DC TIE BUS MAIN C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76Y17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5380 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN C)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (DC TIE BUS MAIN C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC3  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76Y17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5381 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (DC TIE BUS MAIN C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76Y18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5382 ABORT: 3/3

ITEM: RPC, 7.5A (DC TIE BUS MAIN C)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (DC TIE BUS MAIN C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC4  
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76Y18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5383 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS C F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (MAIN DC BUS C F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76Y14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5384 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS C F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (MAIN DC BUS C F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC5  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76Y14E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5385 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS C F/C PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (MAIN DC BUS C F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CONTROL OF A POWER CONTACTER  
USED TO CONNECT DC POWER TO THE MAIN DC BUS. THE WORST CASE  
EFFECT IS LAUNCH DELAY AS THIS RPC IS USED ONLY ON THE GROUND.

REFERENCES: 76Y15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5386 ABORT: 3/3

ITEM: RPC, 7.5A (MAIN DC BUS C F/C PWR)  
FAILURE MODE: INADVERTENT OPERATION

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) RPC, 7.5A (MAIN DC BUS C F/C PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC6  
PART NUMBER: MC450-0017-2075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CONNECT/DISCONNECT MAIN DC POWER FROM THE MAIN  
DC BUS. THE WORST CASE EFFECT IS A LAUNCH DELAY AS THIS RPC IS  
USED ONLY ON THE GROUND.

REFERENCES: 76Y15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5387 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) DC TIE BUS MAIN C
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO  
FLIGHT OPERATIONS.

REFERENCES: 76Y17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5388 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) DC TIE BUS MAIN C
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y17E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5389 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) DC TIE BUS MAIN C
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5390 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) DC TIE BUS MAIN C
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y18E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5391 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) MAIN DC BUS C F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y14E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5392 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) MAIN DC BUS C F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y14E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5393 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) MAIN DC BUS C F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5394 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) MPCA - 3
- 4) MAIN DC BUS C F/C PWR
- 5) DIODE, ISOLATION 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A2CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76Y15E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5395 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) CBS FOR MDMS, SIG CONDS, GN&C, ARS, LIGHTS
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F19  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AA24H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5397 ABORT: 3/3

ITEM: FUSE, 5A TO RJDA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) FUSE, 5A TO RJDA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F37  
PART NUMBER: ME451-0009-5050

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF POWER TO ONE FORWARD DRIVER LATCHING RELAY. SINCE THE RELAY IS LATCHED ON DURING PRELAUNCH THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE.

REFERENCES: 76AA23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/2R  
MDAC ID: 5398 ABORT: 3/3

ITEM: FUSE, 15A TO A14 PANEL (RCS/OMS HTRS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 15A TO A14 PANEL (RCS/OMS HTRS)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/2R	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33F22  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS A REDUNDANT POWER SOURCE TO THE FORWARD RCS HEATERS WHICH WOULD HAVE LITTLE EFFECT ON ASCENT AND NONE ON ENTRY. POSSIBLE LOSS OF MISSION COULD RESULT ON ORBIT DEPENDING ON OPERATIONS REQUIRED.

REFERENCES: 76AA22H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5399 ABORT: 3/1R

ITEM: FUSE, 5A TO RESISTORS TO CONT BUS MAIN C, ESS  
BUSSES 1BC & 2CA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FUSE, 5A TO RESISTORS TO CONT BUS MAIN C, ESS BUSSES 1BC & 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F26  
PART NUMBER: ME451-0009-5050

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE OF POWER TO THREE CONTROL BUSSES AND TWO ESSENTIAL BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AA21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5400 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) NO CONNECTION ON
- 4) DWG #76AA
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F17  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

**EFFECTS/RATIONALE:**

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AA21H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5401 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) CBS FOR TV, RADIO, LIGHTS, CONT BUS AB1, AB2, AB3
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F18  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AA21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5402 ABORT: 3/1R

ITEM: FUSE, 35A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) ML86B PANEL
- 4) CBS FOR LIGHTS, WASTE, EMU, RMS, PYRO JETT
- 5) FUSE, 35A
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F21  
PART NUMBER: ME451-0016-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF THREE SOURCES TO MAIN DC SUB-BUSSES IN FLIGHT DECK PANELS. OTHER PANELS WILL STILL BE ABLE TO CONTROL FLIGHT CRITICAL FUNCTIONS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AA20H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5403 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN C UTIL PWR A11/A15/M030F)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) CIRCUIT BREAKER, 10A (MN C UTIL PWR A11/A15/M030F)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A16CB9  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF OVERLOAD PROTECTION AT DC UTILITY  
OUTLETS, WHICH ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76AA23A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5404 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (MN C UTIL PWR A11/A15/M030F)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) CIRCUIT BREAKER, 10A (MN C UTIL PWR A11/A15/M030F)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A16CB9  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FAILURE WOULD CAUSE LOSS OF POWER AT DC UTILITY OUTLETS, WHICH  
ARE NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 76AA23A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5405 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 10A (CONT BUS AB1, AB2, AB3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS AB1, AB2, AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A15CB64  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AA18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5406 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 10A (CONT BUS AB1, AB2, AB3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) CIRCUIT BREAKER, 10A (CONT BUS AB1, AB2, AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A15CB64  
PART NUMBER: MC454-0026-2100

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO THREE CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES  
WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
CONTROL CRITICAL LOADS.

REFERENCES: 76AA18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5407 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5408 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL BUSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76AA16A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5409 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL BUSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76AA16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5410 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5411 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A2CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

ONE FAILURE WOULD HAVE NO EFFECT AS THE CONTROL BUS HAS REDUNDANT POWER SUPPLIED THROUGH TWO RPC'S. LOSS OF ALL REDUNDANT POWER TO THE NINE CONTROL BUSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5412 ABORT: 3/3

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF REVERSE CURRENT PROTECTION BETWEEN ONE TRIAD OF CONTROL BUSSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76AA16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5413 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) A15A1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A15A1S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5414 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) A15A1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A15A1S2  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5415 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) M030F PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A123S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5416 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) M030F PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A123S1  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5417 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) A11A1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A11A1S13  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5418 ABORT: 3/3

ITEM: SWITCH, TOGGLE (DC UTIL PWR MN C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) 016 PANEL
- 4) A11A1 PANEL
- 5) SWITCH, TOGGLE (DC UTIL PWR MN C)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A11A1S13  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, VIBRATION, PIECE-PART STRUCTURAL FAILURE,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS SWITCH PROVIDES POWER TO A NON-CRITICAL UTILITY OUTLET. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AA3E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5419 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO FPCA-3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO FPCA-3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A4R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76AC24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5420 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C FWD 3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C FWD 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S11  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AC24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
 SUBSYSTEM: EPD&C FLIGHT: 2/1R  
 MDAC ID: 5421 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C FWD 3)  
 FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C FWD 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S11  
 PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76AC24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5422 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 150A TO FPCA-3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F11  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76AC24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5423 ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 150A TO FPCA-3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F12  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT PATH FROM MAIN DC DIST ASSY TO FPCA. LOSS OF ALL PATHS TO FORWARD MAIN DC BUS MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTIONS.

REFERENCES: 76AC24G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5424 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R4  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AC24E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5425 ABORT: 3/3

ITEM: RPC, 5A (FMCA-3 PWR CONT)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A (FMCA-3 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AC21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5426 ABORT: 2/1R

ITEM: RPC, 5A (FMCA-3 PWR CONT)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A (FMCA-3 PWR CONT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24RPC12  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO LOADS  
ON THE MCA. SECOND FAILURE TO THESE LOADS MAY RESULT IN LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE FORWARD DOORS PRIOR TO  
ENTRY.

REFERENCES: 76AC21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5427 ABORT: 1/1

ITEM: FUSE, 35A TO FLCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) FUSE, 35A TO FLCA-3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	1/1
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24F4  
PART NUMBER: ME451-0009-3035

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT POWER SOURCE TO LOADS CONNECTED TO THE PCA. LOSS OF ALL POWER TO THESE LOADS COULD CAUSE LOSS OF CREW/MISSION. DURING AN RTLS, THIS FAILURE WILL CAUSE LOSS OF FORWARD RCS MANIFOLD ISOL VALVE 1 WHICH WILL RESULT IN A CG PROBLEM DUE TO REDUCED DUMP CAPABILITY. THIS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AC10D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5428 ABORT: 3/3

ITEM: RESISTOR, 5.1K  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RESISTOR, 5.1K TO TEST POINTS
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R13  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO CHECK MAIN DC BUS C. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE MEANS ARE AVAILABLE TO THE CREW.

REFERENCES: 76AC10G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5429 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RESISTOR, 1.8K 1/4W (TO SIG COND OF3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R73  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AC8C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5430 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A4R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76AD24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5431 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO MPCA-3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO MPCA-3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/2R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A4R3  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76AD24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5432 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S12  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE  
MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS  
OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON  
ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76AD24H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5433 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S12  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AD24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5434 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S13  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT DC POWER TO THE MCA. SECOND FAILURE COULD DISABLE THE MCA BUS ALTOGETHER. LOSS OF CREW/VEHICLE IS LIKELY DUE TO INABILITY TO CLOSE DOORS ON ENTRY AND THEREBY CAUSING DAMAGE TO VEHICLE.

REFERENCES: 76AD24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5435 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 4)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C MID 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S13  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AD24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5436 ABORT: 3/1R

ITEM: FUSE, 100A TO MPCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 100A TO MPCA-3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33F16  
PART NUMBER: ME451-0016-2100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE SOURCES OF ESSENTIAL BUSS POWER ON TWO ESSENTIAL BUSES. LOSS OF ALL POWER TO ESSENTIAL BUSES COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AD24D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5437 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO GSE MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R5  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AD24C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5438 ABORT: 3/1R

ITEM: FUSE, 35A TO H2/O2 HTR CONT ASSY #1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 35A TO H2/O2 HTR CONT ASSY #1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F23  
PART NUMBER: ME451-0016-2035 (?3035)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76AD22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5439 ABORT: 3/1R

ITEM: FUSE, 35A TO H2/O2 HTR CONT ASSY #2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 35A TO H2/O2 HTR CONT ASSY #2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F24  
PART NUMBER: ME451-0016-2035 (?3035)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76AD16B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5440 ABORT: 3/1R

ITEM: FUSE, 50A TO H2/O2 HTR CONT ASSY #4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 50A TO H2/O2 HTR CONT ASSY #4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 40V76A33F25  
PART NUMBER: ME451-0016-2050 (?3050)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO H2/O2 CONTROL BOX. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CRYO CONTROL AND ALL EPS CONTROL WHICH WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL HEATER LOADS.

REFERENCES: 76AD9B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5441 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 5A (TO MMCA-2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC10  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AD21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5442 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 5A (TO MMCA-2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC10  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76AD21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5443 ABORT: 3/3

ITEM: RPC, 5A (TO MMCA-4)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 5A (TO MMCA-4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AD21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5444 ABORT: 2/1R

ITEM: RPC, 5A (TO MMCA-4)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 5A (TO MMCA-4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC11  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER PATHS TO MCA  
FUNCTIONS. SECOND FAILURE IN OTHER PATH MAY LEAD TO LOSS OF  
CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS DURING ENTRY.

REFERENCES: 76AD21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5445 ABORT: 3/1R

ITEM: FUSE, 150A TO APCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) FUSE, 150A TO APCA-3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1RR	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A136F3  
PART NUMBER: ME451-0016-0150

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AE24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 1/1  
MDAC ID: 5446 ABORT: 1/1

ITEM: FUSE, 100A TO ALCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) FUSE, 100A TO ALCA-3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	1/1	TAL:	1/1
ONORBIT:	3/1R	AOA:	1/1
DEORBIT:	3/1R	ATO:	1/1
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ F ]

LOCATION: 56V76A136F6  
PART NUMBER: ME451-0016-0100(?-2100)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE CAUSES LOSS OF POWER TO MPS VALVE SOLENOIDS. IF CERTAIN VALVES ARE NOT CLOSED AT ET SEP, THE ET COULD RECONTACT THE ORBITER CAUSING TPS DAMAGE AND/OR DESTRUCTION OF THE VEHICLE/CREW.

REFERENCES: 76AE7H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5447 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OA3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) RESISTOR, 1.8K 1/4W (TO SIG COND OA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136A1R63  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS MEASUREMENT IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AE7H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5448 ABORT: 2/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-6)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA2
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-6)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A4R4  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF DC POWER TO MCA BUS. CRITICAL ITEMS ARE SUPPLIED BY TWO MCAS. SECOND FAILURE COULD CAUSE LOSS OF ABILITY TO CLOSE DOORS RESULTING IN STRUCTURAL DAMAGE TO VEHICLE ON ENTRY AND POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCES: 76AF24H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5449 ABORT: 2/1R

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C AFT 3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA2
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C AFT 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	3/3	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S14  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT DC POWER TO MCA.  
SECOND FAILURE COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY  
TO CLOSE DOORS AND CONTROL RCS/OMS VALVES.

REFERENCES: 76AF23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5450 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (MCA LOGIC MN C AFT 3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) CONT BUS CA2
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (MCA LOGIC MN C AFT 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S14  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS  
SWITCH IS NORMALLY ON.

REFERENCES: 76AF23H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5451 ABORT: 2/1R

ITEM: RPC, 5A (TO AMCA-3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) RPC, 5A (TO AMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A136RPC24  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE CAUSES LOSS OF ONE MCA BUS. CRITICAL LOADS ARE  
REDUNDANTLY POWERED. SECOND FAILURE TO ONE OF THESE LOADS MAY  
CAUSE LOSS OF CREW/VEHICLE, IF DOOR CLOSURE COULD NOT BE  
PERFORMED PRIOR TO ENTRY.

REFERENCES: 76AF17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5452 ABORT: 3/3

ITEM: RPC, 5A (TO AMCA-3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) RPC, 5A (TO AMCA-3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC24  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AF17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5453 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A4R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE. CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AK24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5454 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN B/C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2 & #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN B/C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S4  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AK24H,21H,11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5455 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN B/C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2 & #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN B/C)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1S4  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF MANUAL CONTROL TO CONNECT MAIN DC BUS POWER TO ESSENTIAL BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AK24H,21H,11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5456 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A4R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE. CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AK21H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5457 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A4R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76AK20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5458 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 1)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S7  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:  
NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AK19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5459 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S7  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT SOURCE TO THE  
ESSENTIAL BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF  
CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AK19F

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5460 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A7R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76AK18F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5461 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R2  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AK22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5462 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R7  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AK22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5463 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A1CR1  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AK24B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5464 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) RIAL PANEL
- 4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR1  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AK24B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5465 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AK23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5466 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AK23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5467 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #1 - ESS BUS 1BC  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 10A TO MDCA #1 - ESS BUS 1BC
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AK23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5468 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #1 - ESS BUS 1BC  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 10A TO MDCA #1 - ESS BUS 1BC
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING FLIGHT.

REFERENCES: 76AK23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5469 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #1 - ESS BUS 1BC  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 10A TO MDCA #1 - ESS BUS 1BC
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AK21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5470 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #1 - ESS BUS 1BC  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 10A TO MDCA #1 - ESS BUS 1BC
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN  
DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE  
MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING  
FLIGHT.

REFERENCES: 76AK21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5471 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1R3  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AK20C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5472 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1R4  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AK20C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5473 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A27A1CR3  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AK21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5474 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR3  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AK21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5475 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AK22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5476 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AK22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5477 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #1
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION 35A (ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AK19A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5479 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS..

REFERENCES: 76AK19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5480 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AK19A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5481 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) DIODE, ISOLATION 35A (ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AK19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5482 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) DIODE, ISOLATION 35A (ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS..

REFERENCES: 76AK19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5483 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #1
- 2) MAIN DC DIST ASSY #1
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS ANOTHER ISOLATION DIODE IN SERIES WOULD BLOCK REVERSE CURRENT.

REFERENCES: 76AK19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5484 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #1
- 2) MAIN DC DIST ASSY #1
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD POSSIBLY CAUSE LOSS OF CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AK19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5485 ABORT: 3/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31F2  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AK18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5486 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 1BC  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #1
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO ESS BUS 1BC
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F29  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AK19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5487 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 1BC  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #1
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO ESS BUS 1BC
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F30  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AK19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5488 ABORT: 3/3

ITEM: FUSE, 3A TO SIG COND/MDM MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 3A TO SIG COND/MDM MONITOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F1  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76AK17A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5489 ABORT: 3/1R

ITEM: FUSE, 15A TO APCA-4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 15A TO APCA-4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F8  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AK16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5490 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 5A TO H2/02 CONT BOX #2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F6  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:  
NO LOADS CONNECTED TO THIS FUSE.

REFERENCES: 76AK15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5491 ABORT: 3/1R

ITEM: FUSE, 10A TO ML86B PANEL  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO ML86B PANEL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31F9  
PART NUMBER: ME451-0009-5100 (?1005)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO CRYO LOADS. LOSS OF ALL POWER TO CRYO LOADS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AK15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5492 ABORT: 3/1R

ITEM: FUSE, 15A TO MPCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 15A TO MPCA-1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F3  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AK14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5493 ABORT: 3/3

ITEM: FUSE, 10A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO H2/02 CONT BOX #4
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31F5  
PART NUMBER: ME451-0009-5100 (?1005)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:  
NO LOADS CONNECTED TO THIS FUSE.

REFERENCES: 76AK13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5494 ABORT: 3/1R

ITEM: FUSE, 10A TO FPCA-1 & FLCA1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO FPCA-1 & FLCA1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF POWER TO CONTROL ONE AC BUS INVERTER SET. LOSS OF ALL INVERTER SETS CONTROL COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL AC POWER GENERATION.

REFERENCES: 76AK13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5495 ABORT: 3/1R

ITEM: FUSE, 10A TO R15 PANEL  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 10A TO R15 PANEL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A31F10  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO C & W PANEL AND ONE AC BUS SENSOR SWITCH. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AK12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5496 ABORT: 3/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A31F4  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AK11H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5497 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO ESS 1BC MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) RESISTOR, 5.1K 1/4W (TO ESS 1BC MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A31R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO TEST THE ESSENTIAL BUS 1BC. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE TEST MEASUREMENTS ARE AVAILABLE TO THE CREW,

REFERENCES: 76AK18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5498 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 1BC)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) RPC, 15A (TO ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT  
OPERATIONS.

REFERENCES: 76AK16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5499 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 1BC)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) RPC, 15A (TO ESS BUS 1BC)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AK16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5500 ABORT: 3/3

ITEM: RESISTOR, 5.1K (ESS BUS 1BC VOLTAGE)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) RESISTOR, 5.1K (ESS BUS 1BC VOLTAGE)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134A1R22  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY. NO EFFECT ON FLIGHT OPERATIONS.

REFERENCES: 76AK16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5501 ABORT: 3/1R

ITEM: FUSE, 7.5A TO ALCA-1 (MPS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) FUSE, 7.5A TO ALCA-1 (MPS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A134F10  
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR SIGNAL SOURCES TO THE LO2 PREVALVE IN ONE ENGINE. LOSS OF ALL REDUNDANCY WOULD LOSE THE VALVE WHICH COULD RESULT IN LOSS OF CREW/VEHICLE BY EXPLOSION OR LOSS OF CG MANAGEMENT ON ENTRY.

REFERENCES: 76AK16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5502 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #1
- 2) APCA-4
- 3) DIODE, ISOLATION 35A (TO ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AK16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5503 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #1
- 2) APCA-4
- 3) DIODE, ISOLATION 35A (TO ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AK16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5504 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 1BC)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #1
- 2) APCA-4
- 3) DIODE, ISOLATION 35A (TO ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AK16D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5505 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 1BC)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #1
- 2) APCA-4
- 3) DIODE, ISOLATION 35A (TO ESS BUS 1BC)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AK16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5506 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 1BC)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) ALCA-1
- 5) HYBRID DRIVER TYPE I (ESS BUS 1BC)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A121AR  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AK16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5507 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 1BC)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) ALCA-1
- 5) HYBRID DRIVER TYPE I (ESS BUS 1BC)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A121AR  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AK16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5508 ABORT: 3/3

ITEM: RESISTOR, 5.1K (ESS BUS 1BC TEST POINT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 1BC
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RESISTOR, 5.1K (ESS BUS 1BC TEST POINT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R74  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED IN A NON-CRITICAL MEASUREMENT CIRCUIT. NO  
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AK12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5509 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-5)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC1
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-5)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A5R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE OMS/RCS DC BUS. THE SECOND FAILURE COULD CAUSE LOSS OF THE BUSS. CRITICAL FUNCTIONS ARE PERFORMED OFF OF TWO BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AK4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5510 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS BC BUS
- 2) CONT BUS BC1
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S16  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO ONE OMS/RCS  
DC BUS. SECOND FAILURE WOULD LOSE THE BUS. LOSS OF ALL RCS/OMS  
DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A  
CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AK4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5511 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS BC BUS
- 2) CONT BUS BC1
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S16  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AK4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5512 ABORT: 3/1R

ITEM: RPC, 5A (TO RCS/OMS BC BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) RPC, 5A (TO RCS/OMS BC BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/3	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A135RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO THE OMS/RCS BUS. SECOND FAILURE TO OTHER SOURCE WOULD LOSE THE BUS. THIS MAY CAUSE LOSS OF CREW/VEHICLE IN A PROP CROSSFEED SITUATION.

REFERENCES: 76AK6E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5513 ABORT: 3/3

ITEM: RPC, 5A (TO RCS/OMS BC BUS)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) RPC, 5A (TO RCS/OMS BC BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:  
NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AK6E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5514 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS BC BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) AMCA-2
- 5) DIODE, 12A (TO RCS/OMS BC BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A115CR1  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AK6C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5515 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS BC BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) AMCA-2
- 5) DIODE, 12A (TO RCS/OMS BC BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 55V76A115CR1  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AK6C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5516 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS BC BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) AMCA-2
- 5) DIODE, 12A (TO RCS/OMS BC BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 55V76A115CR2  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AK5C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5517 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS BC BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) AMCA-2
- 5) DIODE, 12A (TO RCS/OMS BC BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A115CR2  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AK5C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5518 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN C/A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1 & #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN C/A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1S5  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF MANUAL CONTROL TO CONNECT MAIN DC BUS POWER TO ESSENTIAL BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AM24H, 21H, 11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5519 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN C/A)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1 & #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN C/A)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S5  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AM24H, 21H, 11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5520 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A5R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE.

CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AM24H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5521 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A5R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE. CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AM21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5522 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A5R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT  
ON CREW/VEHICLE/MISSION.

REFERENCES: 76AM20G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5523 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A8R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT  
ON CREW/VEHICLE/MISSION.

REFERENCES: 76AM18F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5524 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S8  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT SOURCE TO THE  
ESSENTIAL BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF  
CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AM19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5525 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 2)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #2
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S8  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AM19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5526 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR1  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AM23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5527 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR1  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AM23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5528 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-3 - ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AM24B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5529 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-3 - ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A27A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AM24B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5530 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1R1  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AM22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5531 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27A1R2  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AM22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5532 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #2 - ESS BUS 2CA  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 10A TO MDCA #2 - ESS BUS 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A27RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AM23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5533 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #2 - ESS BUS 2CA  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) RPC, 10A TO MDCA #2 - ESS BUS 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN  
DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE  
MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING  
FLIGHT.

REFERENCES: 76AM23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5534 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #2 - ESS BUS 2CA  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 10A TO MDCA #2 - ESS BUS 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AM21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5535 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #2 - ESS BUS 2CA  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 10A TO MDCA #2 - ESS BUS 2CA
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN  
DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE  
MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING  
FLIGHT.

REFERENCES: 76AM21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5536 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R3  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AM20C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5537 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R4  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AM20C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5538 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-1 - ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-1 - ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A25A1CR3  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AM21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5539 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-1 - ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-1 - ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR3  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AM21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5540 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AM22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5541 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AM22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5542 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD POSSIBLY CAUSE LOSS OF CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AM19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5543 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS ANOTHER ISOLATION DIODE IN SERIES WOULD BLOCK REVERSE CURRENT.

REFERENCES: 76AM19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5544 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS.

REFERENCES: 76AM19A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5545 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD POSSIBLY CAUSE LOSS OF CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AM19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5546 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD POSSIBLY CAUSE LOSS OF CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AM19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5547 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #3
- 3) MPCA-3
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS.

REFERENCES: 76AM19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5548 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS ANOTHER ISOLATION DIODE IN SERIES WOULD BLOCK REVERSE CURRENT.

REFERENCES: 76AM19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5549 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION 35A (ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD POSSIBLY CAUSE LOSS OF CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AM19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5550 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 2CA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 10A TO ESS BUS 2CA
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F32  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AM19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5551 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 2CA  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #2
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 10A TO ESS BUS 2CA
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F33  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AM19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5552 ABORT: 3/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32F2  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AM18A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5553 ABORT: 3/3

ITEM: FUSE, 3A TO SIG COND/MDM MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 3A TO SIG COND/MDM MONITOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32F1  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76AM17A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5554 ABORT: 3/1R

ITEM: FUSE, 15A TO APCA-5  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 15A TO APCA-5
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F8  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AM16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5555 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 5A TO H2/02 CONT BOX #1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32F6  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:  
NO LOADS CONNECTED TO THIS FUSE.

REFERENCES: 76AM15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5556 ABORT: 3/1R

ITEM: FUSE, 10A TO ML86B PANEL  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 10A TO ML86B PANEL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32F9  
PART NUMBER: ME451-0009-5100 (?1005)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO CRYO LOADS. LOSS OF ALL POWER TO CRYO LOADS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AM15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5557 ABORT: 3/1R

ITEM: FUSE, 15A TO MPCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 15A TO MPCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F3  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AM14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5558 ABORT: 3/1R

ITEM: FUSE, 10A TO FPCA-2 & FLCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 10A TO FPCA-2 & FLCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF POWER TO CONTROL ONE AC BUS INVERTER SET. LOSS OF ALL INVERTER SETS CONTROL COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL AC POWER GENERATION.

REFERENCES: 76AM13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5559 ABORT: 3/1R

ITEM: FUSE, 10A TO 013 & R15 PANELS  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 10A TO 013 & R15 PANELS
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A32F10  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO C & W PANEL AND ONE AC BUS SENSOR SWITCH. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AM12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5560 ABORT: 3/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A32F4  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AM11H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5561 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO ESS 2CA MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) RESISTOR, 5.1K 1/4W (TO ESS 2CA MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A32R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO TEST THE ESSENTIAL BUS 2CA. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE TEST MEASUREMENTS ARE AVAILABLE TO THE CREW,

REFERENCES: 76AM18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5562 ABORT: 3/3

ITEM: RESISTOR, 5.1K (ESS BUS 2CA TEST POINT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RESISTOR, 5.1K (ESS BUS 2CA TEST POINT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R15  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED IN A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AM12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5563 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 2CA)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) ALCA-2
- 5) HYBRID DRIVER TYPE I (ESS BUS 2CA)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR189  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AM16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5564 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 2CA)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) ALCA-2
- 5) HYBRID DRIVER TYPE I (ESS BUS 2CA)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR189  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AM16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5565 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 2CA)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) RPC, 15A (TO ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT  
OPERATIONS.

REFERENCES: 76AM16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5566 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 2CA)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) RPC, 15A (TO ESS BUS 2CA)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT  
OPERATIONS.

REFERENCES: 76AM16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5567 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-5
- 3) DIODE, ISOLATION 35A (TO ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135CR1  
PART NUMBER: JANTXIN1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AM16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5568 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-5
- 3) DIODE, ISOLATION 35A (TO ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AM16D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5569 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 2CA)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-5
- 3) DIODE, ISOLATION 35A (TO ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AM16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5570 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 2CA)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-5
- 3) DIODE, ISOLATION 35A (TO ESS BUS 2CA)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AM16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5571 ABORT: 3/3

ITEM: RESISTOR, 5.1K (ESS BUS 2CA VOLTAGE)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) RESISTOR, 5.1K (ESS BUS 2CA VOLTAGE)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135A1R1  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY. NO EFFECT ON FLIGHT OPERATIONS.

REFERENCES: 76AM16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5572 ABORT: 3/1R

ITEM: FUSE, 7.5A TO ALCA-2 (MPS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 2CA
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) FUSE, 7.5A TO ALCA-2 (MPS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/2R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 55V76A135F10  
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR SIGNAL SOURCES TO THE LO2 PREVALVE IN ONE ENGINE. LOSS OF ALL REDUNCANCY WOULD POSSIBLY CAUSE LOSS OF THE VALVE WHICH COULD RESULT IN LOSS OF CREW/VEHICLE BY EXPLOSION OR LOSS OF CG MANAGEMENT ON ENTRY.

REFERENCES: 76AM16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5573 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-6)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA1
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-6)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A5R3  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE OMS/RCS DC BUS. THE SECOND FAILURE COULD CAUSE LOSS OF THE BUSS. CRITICAL FUNCTIONS ARE PERFORMED OFF OF TWO BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AM4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5574 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 2/3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS CA BUS
- 2) CONT BUS CAL
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 2/3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S17  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO ONE OMS/RCS  
DC BUS. SECOND FAILURE WOULD LOSE THE BUS. LOSS OF ALL RCS/OMS  
DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A  
CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AM4G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5575 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 2/3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS CA BUS
- 2) CONT BUS CAL
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 2/3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S17  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AM4G

**INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5576 ABORT: 3/1R

ITEM: RPC, 5A (TO RCS/OMS CA BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) RPC, 5A (TO RCS/OMS CA BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

**CRITICALITIES**

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/3	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A136RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

**EFFECTS/RATIONALE:**

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO THE OMS/RCS BUS. SECOND FAILURE TO OTHER SOURCE WOULD LOSE THE BUS. THIS MAY CAUSE LOSS OF CREW/VEHICLE IN A PROP CROSSFEED SITUATION.

REFERENCES: 76AM6G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5577 ABORT: 3/3

ITEM: RPC, 5A (TO RCS/OMS CA BUS)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) RPC, 5A (TO RCS/OMS CA BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AM6G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5578 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS CA BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) AMCA-3
- 5) DIODE, 12A (TO RCS/OMS CA BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A116CR1  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AM5E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5579 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS CA BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) AMCA-3
- 5) DIODE, 12A (TO RCS/OMS CA BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 56V76A116CR1  
PART NUMBER: JANTXVIN1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AM5E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5580 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS CA BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) AMCA-3
- 5) DIODE, 12A (TO RCS/OMS CA BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 56V76A116CR2  
PART NUMBER: JANTXVIN1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AM6E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5581 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS CA BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) AMCA-3
- 5) DIODE, 12A (TO RCS/OMS CA BUS)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A116CR2  
PART NUMBER: JANTXVIN1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AM6E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5582 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS AB BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) AMCA-1
- 5) DIODE, 12A (TO RCS/OMS AB BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A114CR2  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AP6E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5583 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS AB BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) APCA-5
- 4) AMCA-1
- 5) DIODE, 12A (TO RCS/OMS AB BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 54V76A114CR2  
PART NUMBER: JANTXVIN1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AP6E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5584 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS AB BUS)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) AMCA-1
- 5) DIODE, 12A (TO RCS/OMS AB BUS)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 54V76A114CR1  
PART NUMBER: JANTXVIN1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON RCS/OMS BUS LOADING. IF THE RPC OPENS, IT WOULD REMOVE ONE SOURCE OF POWER TO TWO OMS/RCS BUSES. THE NEXT FAILURE COULD CAUSE THE LOSS OF ONE RCS/OMS BUS WHICH MIGHT CAUSE A LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL PROP VALVES DURING A CROSSFEED SITUATION.

REFERENCES: 76AP3E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5585 ABORT: 3/1R

ITEM: DIODE, 12A (TO RCS/OMS AB BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) AMCA-1
- 5) DIODE, 12A (TO RCS/OMS AB BUS)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ PP ]

LOCATION: 54V76A114CR1  
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO SOURCES TO THE OMS/RCS BUS. NEXT FAILURE TO THAT BUS WOULD CAUSE LOSS OF POWER TO PROP VALVES WHICH MIGHT CAUSE LOSS OF CREW/VEHICLE DURING A CROSSFEED SITUATION.

REFERENCES: 76AP3E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5586 ABORT: 3/1R

ITEM: RPC, 5A (TO RCS/OMS AB BUS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) RPC, 5A (TO RCS/OMS AB BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/3	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 54V76A134RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE OF TWO POWER SOURCES TO  
THE OMS/RCS BUS. SECOND FAILURE TO OTHER SOURCE WOULD LOSE THE  
BUS. THIS MAY CAUSE LOSS OF CREW/VEHICLE IN A PROP CROSSFEED  
SITUATION.

REFERENCES: 76AP6G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5587 ABORT: 3/3

ITEM: RPC, 5A (TO RCS/OMS AB BUS)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) APCA-4
- 4) RPC, 5A (TO RCS/OMS AB BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134RPC23  
PART NUMBER: MC450-0017-1050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:  
NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AP6G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5588 ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS AB BUS
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129S15  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO ONE OMS/RCS  
DC BUS. SECOND FAILURE WOULD LOSE THE BUS. LOSS OF ALL RCS/OMS  
DC BUSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A  
CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AP4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5589 ABORT: 3/3

ITEM: SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) RCS/OMS AB BUS
- 2) CONT BUS AB3
- 3) MA73C PANEL
- 4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129S15  
PART NUMBER: ME452-0102-7101

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION,  
MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AP4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5590 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO APCA-4)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3
- 2) MA73C PANEL
- 3) RESISTOR, 1.2K 2W (TO APCA-4)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/3	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 85V73A129A5R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE OMS/RCS DC BUS. THE SECOND FAILURE COULD CAUSE LOSS OF THE BUSS. CRITICAL FUNCTIONS ARE PERFORMED OFF OF TWO BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AP4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5591 ABORT: 3/3

ITEM: RESISTOR, 5.1K (ESS BUS 3AB TEST POINT)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RESISTOR, 5.1K (ESS BUS 3AB TEST POINT)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R12  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED IN A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AP12C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5592 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO ESS 3AB MONITOR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) RESISTOR, 5.1K 1/4W (TO ESS 3AB MONITOR)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED TO TEST THE ESSENTIAL BUS 2CA. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS ALTERNATE TEST MEASUREMENTS ARE AVAILABLE TO THE CREW,

REFERENCES: 76AP18A



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5593 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5594 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS ANOTHER ISOLATION DIODE IN SERIES WOULD BLOCK REVERSE CURRENT.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5595 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5596 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5597 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5598 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) DIODE, ISOLATION 35A (ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR3  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS AN RPC IN SERIES WOULD BLOCK REVERSE CURRENT UP TO 12 AMPS.

REFERENCES: 76AP19A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5599 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 3AB)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS ANOTHER ISOLATION DIODE IN SERIES WOULD BLOCK REVERSE CURRENT.

REFERENCES: 76AP19H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5600 ABORT: 3/1R

ITEM: DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 3A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 3A)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33CR4  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

NO EFFECT ON FIRST FAILURE AS TWO OTHER SOURCES FOR THE ESS BUS EXIST. NOT READILY DETECTABLE IF ANOTHER SOURCE IS POWERING THE ESS BUS. LOSS OF ALL REDUNDANCY WOULD LOSE CRITICAL LOADS AND CREW/VEHICLE.

REFERENCES: 76AP19H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5601 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 3AB  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A TO ESS BUS 3AB
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F29  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AP19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5602 ABORT: 3/1R

ITEM: FUSE, 10A TO ESS BUS 3AB  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) FUEL CELL #3
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A TO ESS BUS 3AB
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F30  
PART NUMBER: ME451-0009-5100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE PATH FROM THE FUEL CELL TO THE ESSENTIAL BUS. REDUNDANT PATH AND POWER SOURCES ARE AVAILABLE. LOSS OF ALL POWER TO ESSENTIAL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AP19G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5603 ABORT: 2/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33F2  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.  
SECOND FAILURE WOULD CAUSE THE LOSS OF THE BACKUP GPC USED BY THE  
BFS WHICH COULD LEAD TO LOSS OF CREW/VEHICLE IF BFS WERE  
REQUIRED..

REFERENCES: 76AP18A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5604 ABORT: 3/3

ITEM: FUSE, 3A TO SIG COND/MDM MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 3A TO SIG COND/MDM MONITOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F1  
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MONITORS AND INDICATORS ARE AVAILABLE TO THE CREW.

REFERENCES: 76AP17A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5605 ABORT: 3/1R

ITEM: FUSE, 15A TO APCA-6  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 15A TO APCA-6
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F8  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AP16A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5606 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 5A TO H2/02 CONT BOX #3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F5  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:  
NO LOADS CONNECTED TO THIS FUSE.

REFERENCES: 76AP15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5607 ABORT: 3/1R

ITEM: FUSE, 10A TO ML86B PANEL  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A TO ML86B PANEL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33F9  
PART NUMBER: ME451-0009-5100 (?1005)

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO CRYO LOADS. LOSS OF ALL POWER TO CRYO LOADS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AP15H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5608 ABORT: 3/1R

ITEM: FUSE, 15A TO MPCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 15A TO MPCA-3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F3  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE SOURCE OF POWER TO CRITICAL LOADS SUPPLIED THROUGH THE PCA. LOSS OF ALL ESSENTIAL BUS POWER TO THESE LOADS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AP14H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5609 ABORT: 3/1R

ITEM: FUSE, 10A TO FPCA-3 & FLCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A TO FPCA-3 & FLCA-3
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF POWER TO CONTROL ONE AC BUS INVERTER SET. LOSS OF ALL INVERTER SETS CONTROL COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL AC POWER GENERATION.

REFERENCES: 76AP13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5610 ABORT: 3/1R

ITEM: FUSE, 10A TO 013 PANEL  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 10A TO 013 PANEL
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 40V76A33F10  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO C & W PANEL AND ONE AC BUS SENSOR SWITCH. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER AND CONTROL CRITICAL LOADS.

REFERENCES: 76AM12H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5611 ABORT: 2/1R

ITEM: FUSE, 7.5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) FUSE, 7.5A
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A33F4  
PART NUMBER: ME451-0009-1019

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO PANELS.  
LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO  
INABILITY TO POWER CRITICAL LOADS.  
SECOND FAILURE WOULD CAUSE THE LOSS OF THE BACKUP GPC USED BY THE  
BFS WHICH COULD LEAD TO LOSS OF CREW/VEHICLE IF BFS WERE  
REQUIRED..

REFERENCES: 76AP11H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5612 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 3AB)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) ALCA-3
- 5) HYBRID DRIVER TYPE I (ESS BUS 3AB)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR189  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AP16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5613 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (ESS BUS 3AB)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) ALCA-3
- 5) HYBRID DRIVER TYPE I (ESS BUS 3AB)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR189  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND CHECKOUT ONLY. NO EFFECT ON FLIGHT  
OPERATIONS.

REFERENCES: 76AP16F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5614 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 3AB)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) RPC, 15A (TO ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT  
OPERATIONS.

REFERENCES: 76AP16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5615 ABORT: 3/3

ITEM: RPC, 15A (TO ESS BUS 3AB)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) RPC, 15A (TO ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/3
LIFTOFF:	3/3	TAL: 3/3
ONORBIT:	3/3	AOA: 3/3
DEORBIT:	3/3	ATO: 3/3
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136RPC3  
PART NUMBER: MC450-0017-2150

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GSE C/O ONLY AND IS NOT CRITICAL FOR FLIGHT  
OPERATIONS.

REFERENCES: 76AP16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5616 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-6
- 3) DIODE, ISOLATION 35A (TO ESS BUS 3AB)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AP16D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5617 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-6
- 3) DIODE, ISOLATION 35A (TO ESS BUS 3AB)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136CR1  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AP16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5618 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-6
- 3) DIODE, ISOLATION 35A (TO ESS BUS 3AB)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AP16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5619 ABORT: 3/3

ITEM: DIODE, ISOLATION 35A (TO ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) PRE-FLIGHT TEST BUS #2
- 2) APCA-6
- 3) DIODE, ISOLATION 35A (TO ESS BUS 3AB)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136CR2  
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT.

REFERENCES: 76AP16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5620 ABORT: 3/3

ITEM: RESISTOR, 5.1K  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) RESISTOR, 5.1K (ESS BUS 2CA VOLTAGE)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136A1R22  
PART NUMBER: RLR07C512GR (?)

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS USED FOR GROUND C/O ONLY. NO EFFECT ON FLIGHT OPERATIONS.

REFERENCES: 76AP16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5621 ABORT: 3/1R

ITEM: FUSE, 7.5A TO ALCA-3 (MPS)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) APCA-6
- 4) FUSE, 7.5A TO ALCA-3 (MPS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/2R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 56V76A136F10  
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR SIGNAL SOURCES TO THE LO2 PREVALVE IN ONE ENGINE. LOSS OF ALL REDUNDANCY WOULD LOSE THE VALVE WHICH COULD RESULT IN LOSS OF CREW/VEHICLE BY EXPLOSION OR LOSS OF CG MANAGEMENT ON ENTRY.

REFERENCES: 76AP16C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5622 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S9  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE REDUNDANT POWER SOURCE TO THE ESSENTIAL BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS. IF THE BFS WERE REQUIRED AND THIS BUS WAS LOST, LOSS OF CREW/VEHICLE WOULD RESULT.

REFERENCES: 76AP19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5623 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 3)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #3
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S9  
PART NUMBER: ME452-0102-7303

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AP19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5624 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A9R1  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76AP20G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5625 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OF4  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 5.1K 1/4W TO MDM OF4
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A6R3  
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT CIRCUIT. NO EFFECT  
ON CREW/VEHICLE/MISSION.

REFERENCES: 76AP18F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5626 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A6R2  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE.

CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AP24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5627 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A6R1  
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF MANUAL CONTROL TO CONNECT ONE MAIN DC BUS TO THE ESSENTIAL BUS. REDUNDANT POWER IS AVAILABLE.

CREW/VEHICLE LOSS IS CERTAIN IF ALL POWER TO ESS BUSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AP21H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5628 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN A/B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1 & #2
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN A/B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1S6  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF MANUAL CONTROL TO CONNECT MAIN DC BUS POWER TO ESSENTIAL BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

IF THE BFS WERE REQUIRED, THE LOSS OF ESSENTIAL BUS 3AB WOULD CAUSE THE LOSS OF CREW/VEHICLE.

REFERENCES: 76AP24H,21H,11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5629 ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN A/B)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB
- 2) R1A1 PANEL
- 3) MAIN DC DIST ASSY #1 & #2
- 4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN A/B)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S6  
PART NUMBER: ME452-0102-7301

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AP24H,21H,11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
 SUBSYSTEM: EPD&C FLIGHT: 3/3  
 MDAC ID: 5630 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-1 - ESS BUS 3AB)  
 FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-1 - ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR1  
 PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AP24B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5631 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-1 - ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-1 - ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A25A1CR1  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AP24B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5632 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AP23B



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5633 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1CR2  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AP23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5634 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R2  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AP22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5635 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25A1R1  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AP22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5636 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #3 - ESS BUS 3AB  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 10A TO MDCA #3 - ESS BUS 3AB
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A25RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AP23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5637 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #3 - ESS BUS 3AB  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) MPCA-1
- 4) RPC, 10A TO MDCA #3 - ESS BUS 3AB
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25RPC1  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING FLIGHT.

REFERENCES: 76AP23B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5638 ABORT: 3/1R

ITEM: RPC, 10A TO MDCA #3 - ESS BUS 3AB  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 10A TO MDCA #3 - ESS BUS 3AB
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 40V76A26RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER PATH TO THE ESSENTIAL  
BUS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE  
TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76AP21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5639 ABORT: 3/3

ITEM: RPC, 10A TO MDCA #3 - ESS BUS 3AB  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RPC, 10A TO MDCA #3 - ESS BUS 3AB
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26RPC2  
PART NUMBER: MC450-0017-2100 (?-1100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD RESULT IN THE INABILITY TO DISCONNECT THE MAIN DC BUS FROM THE ESSENTIAL BUS. THIS IS NOT A PROBLEM BECAUSE THE MAIN DC BUS IS NORMALLY CONNECTED TO THE ESSENTIAL BUS DURING FLIGHT.

REFERENCES: 76AP21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5640 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RESISTOR, 1.8K 1/4W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R3  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AP20C



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5641 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) MPCA-2
- 4) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R4  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AP20C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5642 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AP22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5643 ABORT: 3/3

ITEM: DIODE, BLOCKING  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) ESS BUS 3AB - GROUND C/O
- 2) MDM LF1
- 3) DIODE, BLOCKING
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR4  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS ONLY USED DURING GROUND C/O AND IS NOT CRITICAL FOR FLIGHT.

REFERENCES: 76AP22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5644 ABORT: 3/3

ITEM: DIODE, ISOLATION (TO MPCA-2 - ESS BUS 3AB)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1CR3  
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS DIODE IS USED FOR ISOLATION BETWEEN THE VEHICLE AND GROUND CIRCUITS AND IS NON-CRITICAL DURING FLIGHT OPERATIONS.

REFERENCES: 76AP21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5645 ABORT: 3/1R

ITEM: DIODE, ISOLATION (TO MPCA-2 - ESS BUS 3AB)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 3AB)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ P ] C [ P ]

LOCATION: 40V76A26A1CR3  
PART NUMBER: JANTXVIN4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE SOURCE TO THE ESS BUS.  
LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE  
DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AP21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5646 ABORT: 3/3

ITEM: FUSE, 3A TO GSE MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #2
- 3) APCA - 5
- 4) FUSE, 3A TO GSE MONITOR
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135F9  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT OPERATIONS.

REFERENCES: 76AS22G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5647 ABORT: 3/3

ITEM: FUSE, 10A TO ALCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-5
- 4) FUSE, 10A TO ALCA-2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A135F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND HAS NO EFFECT ON  
FLIGHT OPERATIONS.

REFERENCES: 76AS22G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5648 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) MPCA-2
- 4) FUSE, 5A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26F11  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS18G



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5649 ABORT: 3/3

ITEM: FUSE, 15A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) MPCA-2
- 4) FUSE, 15A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26F9  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:  
THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS16H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5650 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FPCA-2
- 4) FUSE, 5A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23F19  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS8H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5651 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FPCA-3
- 4) FUSE, 5A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24F10  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76AS7D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5652 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FPCA-1
- 4) FUSE, 5A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22F10  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS4C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5653 ABORT: 3/3

ITEM: FUSE, 15A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) MPCA-1
- 4) FUSE, 15A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25F9  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS11C

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5654 ABORT: 3/3

ITEM: FUSE, 5A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) MPCA-1
- 4) FUSE, 5A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A25F10  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS14B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5655

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/3  
ABORT: 3/3

ITEM: FUSE, 15A  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) MPCA-3
- 4) FUSE, 15A
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A27F9  
PART NUMBER: ME451-0009-1006

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USE FOR GROUND C/O ONLY AND IS NON-CRITICAL FOR  
FLIGHT OPERATIONS.

REFERENCES: 76AS16E

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5656 ABORT: 3/3

ITEM: FUSE, 10A TO ALCA-3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE
- 2) PRE-FLIGHT TEST BUS #2
- 3) APCA-6
- 4) FUSE, 10A TO ALCA-3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A136F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND HAS NO EFFECT ON FLIGHT OPERATIONS.

REFERENCES: 76AS22E



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5657 ABORT: 3/3

ITEM: FUSE, 10A TO ALCA-1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE
- 2) PRE-FLIGHT TEST BUS #1
- 3) APCA-4
- 4) FUSE, 10A TO ALCA-1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134F7  
PART NUMBER: ME451-0009-1005

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS ITEM IS USED DURING GROUND C/O ONLY AND HAS NO EFFECT ON  
FLIGHT OPERATIONS.

REFERENCES: 76AS22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5658 ABORT: 3/3

ITEM: FUSE, 3A TO GSE MONITOR  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLT TEST BUS #1
- 3) APCA-4
- 4) FUSE, 3A TO GSE MONITOR
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A134F9  
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS CIRCUIT IS USED FOR GROUND C/O ONLY AND IS NOT POWERED DURING FLIGHT OPERATIONS.

REFERENCES: 76AS22B

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5659 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFL'G:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18A7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5660 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5661 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5662 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5663 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18A8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT18F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5664 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-3
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18A8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT18F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5665 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5666 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT11F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5667 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT12F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5668 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT12F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5669 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT14F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5670 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #2
- 3) FLCA-2
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT14F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5671 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT5F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5672 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR7  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT5F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5673 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT7F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5674 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (INHIBIT BUS 2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE I (INHIBIT BUS 2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR6  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT7F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5675 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5676 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) GSE POWER
- 2) PRE-FLIGHT TEST BUS #1
- 3) FLCA-1
- 4) HYBRID DRIVER TYPE III (RESISTANCE TEST BUS)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR8  
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT4F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5677 ABORT: 3/1R

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN A)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN A)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S1  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THE THREE MAIN DC  
BUSS SOURCES TO THE CONTROL BUSES. LOSS OF ALL SOURCES MAY  
CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL  
LOADS.

REFERENCES: 76AU24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5678 ABORT: 3/3

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN A)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN A)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S1  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:  
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS THE NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AU24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5679 ABORT: 3/1R

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN B)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S2  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THE THREE MAIN DC  
BUSS SOURCES TO THE CONTROL BUSES. LOSS OF ALL SOURCES MAY  
CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL  
LOADS.

REFERENCES: 76AU17H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5680 ABORT: 3/3

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN B)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN B)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S2  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AU17H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5681 ABORT: 3/1R

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN C)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 32V73A1A1S3  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THE THREE MAIN DC  
BUSS SOURCES TO THE CONTROL BUSES. LOSS OF ALL SOURCES MAY  
CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL  
LOADS.

REFERENCES: 76AU10H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5682 ABORT: 3/3

ITEM: SWITCH, TOGGLE (CONTROL BUS PWR MN C)  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) R1A1 PANEL
- 3) SWITCH, TOGGLE (CONTROL BUS PWR MN C)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S3  
PART NUMBER: ME452-0102-7102

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK,  
CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT  
CONFIGURATION.

REFERENCES: 76AU10H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5683 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO CONT BUSES AB & CA RESET)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO CONT BUSES AB & CA RESET)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A1R1  
PART NUMBER: RWR71S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO TWO CONT BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU24H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5684 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO CONT BUSES AB & BC RESET)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO CONT BUSES AB & BC RESET)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A2R1  
PART NUMBER: RWR71S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO TWO CONT BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU17G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5685 ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO CONT BUSES CA & BC RESET)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) RESISTOR, 1.2K 2W (TO CONT BUSES CA & BC RESET)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 2 ] B [ F ] C [ P ]

LOCATION: 32V73A1A1A2R2  
PART NUMBER: RWR71S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

LOSS OF THIS ITEM WOULD RESULT IN LOSS OF REDUNDANT POWER TO TWO CONT BUSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU9G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5686 ABORT: 3/1R

ITEM: FUSE, 5A TO FLCA-1 (CONT BUS PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) FUSE, 5A TO FLCA-1 (CONT BUS PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 81V76A22F27  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE OF THREE POWER SOURCES TO SIX CONTROL BUSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU23G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5687 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA1 & AB1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA1 & AB1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 81V76A22RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5688 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA1 & AB1  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA1 & AB1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU23D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5689 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA2 & AB2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA2 & AB2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 81V76A22RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT  
SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL  
BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE  
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5690 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA2 & AB2  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA2 & AB2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5691 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA3 & AB3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA3 & AB3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 81V76A22RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU19D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5692 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA3 & AB3  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) RPC, 5A TO CONT BUS CA3 & AB3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU19D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5693 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5694 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES.

THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5695 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5696 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU23D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5697 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5698 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5699 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5700 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU21D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5701 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU18D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5702 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU18D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5703 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU18D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5704 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) FPCA-1
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A22CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU18D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5705 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & CA1
- 2) FPCA-1
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R1  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU23D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5706 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & CA2
- 2) FPCA-1
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R2  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5707 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & CA3
- 2) FPCA-1
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R3  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU18D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5708 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & CA1
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R35  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5709 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & CA1
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R36  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU22D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5710 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & CA2
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R37  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5711 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & CA2
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R38  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU20D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5712 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & CA3
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF1)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R39  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU18D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5713 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & CA3
- 2) FPCA-1
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1R40  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU18D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5714 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA1 & AB1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA1 & AB1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5715 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA1 & AB1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA1 & AB1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A16AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU24F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5716 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA2 & AB2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA2 & AB2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR2  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5717 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA2 & AB2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA2 & AB2)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 11 ] B [ F ] C [ P ]

LOCATION: 81V76A16AR2  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU21F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5718 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA3 & AB3)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA3 & AB3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5719 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS CA3 & AB3)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DC DIST ASSY #1
- 3) R1A1 PANEL
- 4) FLCA-1
- 5) HYBRID DRIVER TYPE I (CONT BUS CA3 & AB3)
- 6)
- 7)
- 8)
- 9) 05-6

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 81V76A16AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU19F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5720 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC1 & AB1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC1 & AB1)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU17F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5721 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC1 & AB1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC1 & AB1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATC:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A17AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU17F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5722 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC2 & AB2)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC2 & AB2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR2  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU14F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5723 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC2 & AB2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC2 & AB2)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A17AR2  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU14F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5724 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC3 & AB3)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC3 & AB3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU12F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5725 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC3 & AB3)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) R1A1 PANEL
- 4) FLCA-2
- 5) HYBRID DRIVER TYPE I (CONT BUS BC3 & AB3)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	3/3		RTLS:	3/1R
LIFTOFF:	3/1R		TAL:	3/1R
ONORBIT:	3/1R		AOA:	3/1R
DEORBIT:	3/1R		ATO:	3/1R
LANDING/SAFING:	3/3			

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A17AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU12F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5726 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC1 & CA1)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FLCA-3
- 5) HYBRID DRIVER TYPE I (CONT BUS BC1 & CA1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU9F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5727 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC1 & CA1)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FLCA-3
- 5) HYBRID DRIVER TYPE I (CONT BUS BC1 & CA1)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A18AR1  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU9F





INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5729 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC2 & CA2)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FLCA-3
- 5) HYBRID DRIVER TYPE I (CONT BUS BC2 & CA2)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A18AR2  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU7F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5730 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC3 & CA3)  
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FLCA-3
- 5) HYBRID DRIVER TYPE I (CONT BUS BC3 & CA3)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE INABILITY TO REMOVE POWER FROM TWO  
CONTROL BUSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS  
THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU5F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5731 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC3 & CA3)  
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) R1A1 PANEL
- 4) FLCA-3
- 5) HYBRID DRIVER TYPE I (CONT BUS BC3 & CA3)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/1R
LIFTOFF:	3/1R	TAL: 3/1R
ONORBIT:	3/1R	AOA: 3/1R
DEORBIT:	3/1R	ATO: 3/1R
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A18AR3  
PART NUMBER: MC477-0261-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,  
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:  
THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES  
TO TWO CONTROL BUSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS  
OF CREW/VEHICLE.

REFERENCES: 76AU5F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5732 ABORT: 3/1R

ITEM: FUSE, 5A TO FLCA-2 (CONT BUS PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) FUSE, 5A TO FLCA-2 (CONT BUS PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 82V76A23F32  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE OF THREE POWER SOURCES TO SIX CONTROL BUSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU16G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5733 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS BC1 & AB1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC1 & AB1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 82V76A23RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT  
SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL  
BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE  
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5734 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS BC1 & AB1  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC1 & AB1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5735 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS BC2 & AB2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC2 & AB2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 82V76A23RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT  
SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL  
BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE  
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU14D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5736 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS BC2 & AB2  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC2 & AB2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU14D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5737 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS BC3 & AB3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC3 & AB3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 82V76A23RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU12D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5738 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS BC3 & AB3  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) RPC, 5A TO CONT BUS BC3 & AB3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU12D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5739 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5740 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5741 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5742 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5743 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU13D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5744 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU13D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5745 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU14D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5746 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU14D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5747 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5748 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5749 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5750 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS AB3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DC DIST ASSY #2
- 3) FPCA-2
- 4) DIODE, ISOLATION 12A (TO CONT BUS AB3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 82V76A23CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5751 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & BC1
- 2) FPCA-2
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R19  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU16D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5752 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & BC2
- 2) FPCA-2
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R20  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU13D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5753 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & BC3
- 2) FPCA-2
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R21  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5754 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & BC1
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R51  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU15D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5755 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1 & BC1
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R52  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU15D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5756 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & BC2
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R53  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU13D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5757 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB2 & BC2
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R54  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU13D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5758 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & BC3
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF2)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R55  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5759 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB3 & BC3
- 2) FPCA-2
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A23A1R56  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU11D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5760 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3 & BC3
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R48  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU4D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5761 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3 & BC3
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R47  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5762 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA2 & BC2
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R46  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5763 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA2 & BC2
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R45  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5764 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA1 & BC1
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R44  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5765 ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO SIG COND OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA1 & BC1
- 2) FPCA-3
- 3) RESISTOR, 1.8K 1/4W (TO SIG COND OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R43  
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM SUPPORTS A MONITORING FUNCTION THAT IS NOT CRITICAL TO  
FLIGHT/VEHICLE OPERATION.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5766 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA3 & BC3
- 2) FPCA-3
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R17  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5767 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA2 & BC2
- 2) FPCA-3
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R16  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5768 ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA1 & BC1
- 2) FPCA-3
- 3) RESISTOR, 2.2K 1/2W (TO MDM OF3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R15  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE MONITORING OF THIS FUNCTION IS NOT CRITICAL TO VEHICLE  
OPERATION AND ALTERNATE MONITORS ARE AVAILABLE.

REFERENCES: 76AU8D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5769 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CRL  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5770 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR1  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5771 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5772 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC1)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC1)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR2  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU8D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5773 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5774 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR3  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5775 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR4  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU6D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5776 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC2)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC2)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR4  
PART NUMBER: JAN TX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU6D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5777 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5778 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS CA3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR5  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5779 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 3 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSES. IF ALL REDUNDANT SOURCES TO THE CONTROL BUS ARE LOST, THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5780 ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BC3)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) DIODE, ISOLATION 12A (TO CONT BUS BC3)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 83V76A24CR6  
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THE FIRST FAILURE WOULD CAUSE LOSS OF ONE REDUNDANT SOURCE TO A CONTROL BUS. AFTER THREE FAILURES THE CONTROL BUS WOULD BE LOST AND SOME CRITICAL LOADS WOULD BE AFFECTED. THIS COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5781 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA1 & BC1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA1 & BC1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES	
	HDW/FUNC	ABORT
PRELAUNCH:	3/3	RTLS: 3/1R
LIFTOFF:	3/1R	TAL: 3/1R
ONORBIT:	3/1R	AOA: 3/1R
DEORBIT:	3/1R	ATO: 3/1R
LANDING/SAFING:	3/3	

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 83V76A24RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT  
SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL  
BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE  
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU9D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5782 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA1 & BC1  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA1 & BC1
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC1  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU9D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5783 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA2 & BC2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA2 & BC2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 83V76A24RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT  
SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL  
BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE  
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU7D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5784 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA2 & BC2  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA2 & BC2
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC2  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU7D



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5785 ABORT: 3/1R

ITEM: RPC, 5A TO CONT BUS CA3 & BC3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA3 & BC3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 83V76A24RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

LOSS OF THIS RPC WOULD CAUSE THE LOSS OF ONE OF THREE REDUNDANT SOURCES TO TWO CONTROL BUSES. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/3  
MDAC ID: 5786 ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA3 & BC3  
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) RPC, 5A TO CONT BUS CA3 & BC3
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC3  
PART NUMBER: MC450-0017-2050

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH  
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD HAVE NO EFFECT ON CREW/VEHICLE/MISSION AS THIS  
IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5787 ABORT: 3/1R

ITEM: FUSE, 5A TO FLCA-3 (CONT BUS PWR)  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DC DIST ASSY #3
- 3) FPCA-3
- 4) FUSE, 5A TO FLCA-3 (CONT BUS PWR)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 83V76A24F12  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF ONE OF THREE POWER SOURCES TO SIX CONTROL BUSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU9G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5788 ABORT: 3/3

ITEM: FUSE, 1A TO P/L RETENTION LATCHES SYS 1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1
- 2) A6A1 PANEL
- 3) FUSE, 1A TO P/L RETENTION LATCHES SYS 1
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 36V73A6A1F1  
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDENT POWER TO P/L  
RETENTION LATCHES. SECOND FAILURE COULD CAUSE LOSS OF  
CREW/VEHICLE IF THE PAYLOAD HAD TO BE RELEASED PRIOR TO DEORBIT.

REFERENCES: 76AV13H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5789 ABORT: 3/3

ITEM: FUSE, 1A TO P/L RETENTION LATCHES SYS 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC1
- 2) A6A1 PANEL
- 3) FUSE, 1A TO P/L RETENTION LATCHES SYS 2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ P ] C [ P ]

LOCATION: 36V73A6A1F2  
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDENT POWER TO P/L  
RETENTION LATCHES. SECOND FAILURE COULD CAUSE LOSS OF  
CREW/VEHICLE IF THE PAYLOAD HAD TO BE RELEASED PRIOR TO DEORBIT.

REFERENCES: 76AV15F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5790 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS AB1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS AB1
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F83  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW7H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5791 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS AB2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS AB2
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F84  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW15G - NOT SHOWN

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5792 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS AB3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS C
- 2) MAIN DIST ASSY #3
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS AB3
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F85  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AV7F



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5793 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS BC1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS BC1
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F86  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY22F

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5794 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS BC2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS BC2
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F87  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY22E - NOT SHOWN

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5795 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS BC3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS A
- 2) MAIN DIST ASSY #1
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS BC3
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F88  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AV4D

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5796 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS CA1  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DIST ASSY #2
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS CA1
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F89  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW11C - NOT SHOWN

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5797 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS CA2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DIST ASSY #2
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS CA2
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F90  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY21B - NOT SHOWN

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 3/1R  
MDAC ID: 5798 ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS CA3  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) MAIN DC BUS B
- 2) MAIN DIST ASSY #2
- 3) R15 PANEL
- 4) R2 PANEL
- 5) FUSE, 5A TO CONT BUS CA3
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A2F91  
PART NUMBER: ME451-0009-1021

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THREE POWER SOURCES TO ONE CONTROL BUSS. LOSS OF ALL POWER TO CONTROL BUSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW22A

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5799 ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-1 & 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS AB1
- 2) R13A2 PANEL
- 3) FUSE, 1A TO MMCA-1 & 2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	3/3	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A13A2F1  
PART NUMBER: ME451-0018-0100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PLBM AC BUS. CRITICAL LOADS HAVE DUAL POWER SOURCES. SECOND FAILURE WOULD NOT ALLOW PAYLOAD DOORS TO CLOSE. THIS COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BC14H

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5800 ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-1 & 2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS CA1
- 2) R13A2 PANEL
- 3) FUSE, 1A TO MMCA-1 & 2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	3/3	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A13A2F16  
PART NUMBER: ME451-0018-0100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PLBM AC BUS. CRITICAL LOADS HAVE DUAL POWER SOURCES. SECOND FAILURE WOULD NOT ALLOW PAYLOAD DOORS TO CLOSE. THIS COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BC14H



INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5801 ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC1
- 2) R13A2 PANEL
- 3) FUSE, 1A TO MMCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	3/3	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A13A2F5  
PART NUMBER: ME451-0018-0100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PLBM AC BUS. CRITICAL LOADS HAVE DUAL POWER SOURCES. SECOND FAILURE WOULD NOT ALLOW PAYLOAD DOORS TO CLOSE. THIS COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BC14G

INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C FLIGHT: 2/1R  
MDAC ID: 5802 ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-2  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

- 1) CONT BUS BC2
- 2) R13A2 PANEL
- 3) FUSE, 1A TO MMCA-2
- 4)
- 5)
- 6)
- 7)
- 8)
- 9) 05-6

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	3/3	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [ 1 ] B [ F ] C [ P ]

LOCATION: 32V73A13A2F27  
PART NUMBER: ME451-0018-0100

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PLBM AC BUS. CRITICAL LOADS HAVE DUAL POWER SOURCES. SECOND FAILURE WOULD NOT ALLOW PAYLOAD DOORS TO CLOSE. THIS COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BC14G