INDEPENDENT ORBITER ASSESSMENT

ANALYSIS OF THE ELECTRICAL POWER DISTRIBUTION AND CONTROL SUBSYSTEM
Vol. 1 of 2

3 APRIL 1987
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

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APPENDIX A ACRONYMS

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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:

- Main DC Distribution Assemblies (MDDA) 1, 2, and 3
- Mid Power Control Assemblies (MPCA) 1, 2, and 3
- Mid Motor Control Assemblies (MMCA) 1, 2, 3, and 4
- Aft Power Control Assemblies (APCA) 4, 5, and 6
- Aft Power Control Assemblies (APCA) 1, 2, and 3
- Aft Load Control Assemblies (ALCA) 1, 2, and 3
- Aft Motor Control Assemblies (AMCA) 1, 2, and 3
- Forward Power Control Assemblies (FPFA) 1, 2, and 3
- Forward Load Control Assemblies (FLCA) 1, 2, and 3
- Forward Motor Control Assemblies (FMCA) 1, 2, and 3
- AC Generation & Distribution Assemblies (AGDA) 1, 2, and 3
- Flight Deck Panel Controls & Displays (FDPC&D)
- Mid Deck Panel Controls & Displays (MDPC&D)
- 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.

<table>
<thead>
<tr>
<th>Summary of IOA Failure Modes By Criticality (HW/F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criticality</td>
</tr>
<tr>
<td>Number</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Summary of IOA Potential Critical Items (HW/F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criticality</td>
</tr>
<tr>
<td>Number</td>
</tr>
</tbody>
</table>

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 (MMCAs) 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 FMCAs 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.
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.

<table>
<thead>
<tr>
<th>TABLE I Summary of IOA Failure Modes and Criticalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criticality:</td>
</tr>
<tr>
<td>MDDA</td>
</tr>
<tr>
<td>MPCA</td>
</tr>
<tr>
<td>MMCA</td>
</tr>
<tr>
<td>APCA (4-6)</td>
</tr>
<tr>
<td>APCA (1-3)</td>
</tr>
<tr>
<td>ALCA</td>
</tr>
<tr>
<td>AMCA</td>
</tr>
<tr>
<td>FPCA</td>
</tr>
<tr>
<td>FLGA</td>
</tr>
<tr>
<td>FMCA</td>
</tr>
<tr>
<td>AGDA</td>
</tr>
<tr>
<td>FDPC&amp;D</td>
</tr>
<tr>
<td>MDPC&amp;D</td>
</tr>
<tr>
<td>MISC</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Criticality:</th>
<th>1/1</th>
<th>2/1R</th>
<th>2/2</th>
<th>3/1R</th>
<th>3/2R</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDDA</td>
<td>-</td>
<td>21</td>
<td>-</td>
<td>77</td>
<td>8</td>
<td>106</td>
</tr>
<tr>
<td>MPCA</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>12</td>
<td>21</td>
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<tr>
<td>MMCA</td>
<td>-</td>
<td>26</td>
<td>-</td>
<td>14</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>APCA (4-6)</td>
<td>3</td>
<td>9</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>APCA (1-3)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>ALCA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>AMCA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>FPCA</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>51</td>
<td>-</td>
<td>57</td>
</tr>
<tr>
<td>FLCA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>FMCA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>AGDA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18</td>
<td>-</td>
<td>18</td>
</tr>
<tr>
<td>FDPC&amp;D</td>
<td>6</td>
<td>23</td>
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<td>59</td>
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<tr>
<td>MDPC&amp;D</td>
<td>-</td>
<td>42</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>48</td>
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<tr>
<td>MISC</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12</td>
<td>136</td>
<td>-</td>
<td>292</td>
<td>28</td>
<td>468</td>
</tr>
</tbody>
</table>

#### 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:


2. VS70-948102 Integrated System Schematic - Solid Rocket Booster Subsystem, Revision 14, 26 September 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
PRCCB - 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
RTLS - Return-to-Landing Site
STS - Space Transportation System
TAL - Transatlantic Abort Landing
TCS - Thermal Control System (Subsystem)
WRS - Water Removal Subsystem

A-1
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
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.
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
HDW/FUNC

SUBSYSTEM: EPDIC
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

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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

REPORT DATE 03/31/87 C-2
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5001

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)

CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5002

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

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)
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CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5003

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)
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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

REPORT DATE 03/31/87 C-5
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)
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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

REPORT DATE 03/31/87  C-6
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)
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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

REPORT DATE 03/31/87  C-7
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5006

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE: 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5007

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 2/1R

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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-9
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5008

HIGHEST CRITICALITY
HDW/FUNC: FLIGHT: 2/1R
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
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9) 05-6

CRITICALITIES

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LOCATION: 54V76A134F2
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

REPORT DATE 03/31/87  C-10
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

CRITICALITIES

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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

ABORT: 3/3

MDAC ID: 5010

FLIGHT: 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)
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5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 40V76A31R2

PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

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

REFERENCES: 76B20D

REPORT DATE 03/31/87 C-12
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5011

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

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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

REPORT DATE 03/31/87 C-13
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5012

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87  C-14
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-15
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5014

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

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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

REPORT DATE 03/31/87
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)
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6) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-17
## INDEPENDENT ORBITER ASSESSMENT
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**FAILURES 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

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

**LOCATION:** 40V76A31R6  
**PART NUMBER:** RBR54LI4001AR

**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 FLIGHT: 2/1R
SUBSYSTEM: EPD&C  ABORT: 2/1R
MDAC ID: 5017

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


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

REPORT DATE 03/31/87  C-19
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

| DATE:          | 3/11/87 |
| SUBSYSTEM:     | EPD&C   |
| MDAC ID:       | 5018    |
| 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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-20
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5019

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 5A TO MPCA-I, FPCA-I, 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-I, FPCA-I, APCA-4
5) [ ]
6) [ ]
7) [ ]
8) [ ]
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-21
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)
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9) 05-6

CRITICALITIES

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE AS CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76B17C

REPORT DATE 03/31/87 C-22
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5021

HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/3
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)
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7)
8)
9) 05-6

CRITICALITIES

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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 BUSSES ARE TIED TOGETHER. THE LOSS OF ISOLATION CAPABILITY BETWEEN TWO BUSSES WOULD HAVE NO EFFECT AS THE TIE BUSSES ARE FUSE ISOLATED.

REFERENCES: 76B17C

REPORT DATE 03/31/87
C-23
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76B16C

REPORT DATE 03/31/87 C-24
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5023

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76B16C

REPORT DATE 03/31/87 C-25
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**BREAKDOWN HIERARCHY:**
1) MAIN DC BUS A
2) MAIN DC DIST ASSY #1
3) FUSE, 150A TO DC TIE BUS
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9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:**

**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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

**REFERENCES:** 76B16C

**REPORT DATE 03/31/87 C-26**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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

BRE Akoww AN Ey tis ARCHY:
1) MAIN DC BUS A
2) MAIN DC DIST ASSY #1
3) SWITCH, MOTORIZED (MAIN DC BUS A F/C PWR)
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8)
9) 05-6

CRITICALITIES

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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 EXITS 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

REPORT DATE 03/31/87 C-27
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5026
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-28
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
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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

REPORT DATE 03/31/87  C-29
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

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

REPORT DATE 03/31/87 C-30
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5029

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
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9) 05-6

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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

REPORT DATE 03/31/87 C-31
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5030

ITEM: SHUNT, DC AMMETER (TO F/C 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) SHUNT, DC AMMETER (TO F/C 1)
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LOCATION: 40V76A31R11
PART NUMBER: MSB-501

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF POWER FROM FUEL CELL #1. 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 HELIUM BLOWDOWN VALVES AND FORWARD RCS ISOL 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: 76B3B

REPORT DATE 03/31/87 C-32
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

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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

REPORT DATE 03/31/87  C-33
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-34
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5033

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-35
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5034

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-36
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5035

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)

CRITICALITIES

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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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-38
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) MPMA - 1
4) RPC, 7.5A (MAIN DC BUS A F/C PWR)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-39
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
SUBSYSTEM ID: 5038

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)

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CRITICALITIES

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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

REPORT DATE 03/31/87 C-40
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
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-41
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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

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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

REPORT DATE 03/31/87   C-42
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**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**

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**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

REPORT DATE 03/31/87  C-43
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5042

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

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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

REPORT DATE 03/31/87 C-44
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

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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

REPORT DATE 03/31/87 C-45
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5044

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-46
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5045

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-47
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5046

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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8)
9) 05-6

CRITICALITIES

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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
SUBSYSTEM: EPD&C
MDAC ID: 5047

HIGHEST CRITICALITY
FLIGHT: 2/1R
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) RIA1 PANEL
3) MAIN DC DIST ASSY #1
4) SWITCH, TOGGLE SPDT (MAIN BUS TIE A)
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87
C-49
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5048

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-50
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5049

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

LEAD ANALYST: 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)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1510
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

REPORT DATE 03/31/87 C-51
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5050

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-52
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**BREAKDOWN HIERARCHY:**

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

**CRITICALITIES**

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**REDUNDANCY SCREENS:**


**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

**REPORT DATE 03/31/87** C-53
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5052

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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 BUSSES THROUGH BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76B19H

REPORT DATE 03/31/87 C-54
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5053

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

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

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

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

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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 BUSSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76B19H

REPORT DATE 03/31/87 C-55
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5054

HIGHEST CRITICALITY
FLIGHT: 3/3
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

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

LOCATION: 33V73A13CR1
PART NUMBER: JANTX1LN1204RA

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

REPORT DATE 03/31/87 C-56
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5055

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-57
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**I. Item:**
- **Failure Mode:** DIODE, ISOLATION 12A FAILS OPEN
- **LEAD ANALYST:** K. SCHMECKPEPER
- **SUBSYS LEAD:** K. SCHMECKPEPER

**II. 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

**III. Criticalities**

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**V. Location:** 33V73A13CR2

**VI. Part Number:** JANTX1N1204RA

**VII. Causes:** Contamination, Thermal Stress, Vibration, Mech Shock

**VIII. Effects/Rationale:**
No effect on crew/vehicle until third failure and a main DC bus or fuel cell must be isolated and main DC busses tied. Possible loss of crew/vehicle could result in this case.

**IX. References:** 76B19H

**X. Report Date:** 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5057

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)

 CRITICALITIES

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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

REPORT DATE 03/31/87 C-59
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5058

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

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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

REPORT DATE 03/31/87
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-61
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5060

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 3/1R
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

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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
SUBSYSTEM: EPD&C
MDAC ID: 5061

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-63
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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

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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

REPORT DATE 03/31/87  C-64
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5063

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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-65
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
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9) 05-6

CRITICALITIES

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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 BUSSES AND TWO ESSENTIAL BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76C22H

REPORT DATE 03/31/87  C-66
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5065

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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)

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9) 05-6

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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

REPORT DATE 03/31/87 C-67
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)
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9) 05-6

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

REPORT DATE 03/31/87  C-68
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)

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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

REPORT DATE 03/31/87 C-69
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5068

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

LEAD ANALYST: 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)

CRITICALITIES

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

REPORT DATE 03/31/87 C-70
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87
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)
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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO
LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76C4D

REPORT DATE 03/31/87  C-72
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)
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9) 05-6

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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 Busses. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76C4D

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5072

Highest Criticality
HDW/Func

Flight: 3/3
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)

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

Report Date 03/31/87 C-74
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) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-75
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5074

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-76
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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

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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

REPORT DATE 03/31/87  C-77
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
MDAC ID: 5076
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
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


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

REPORT DATE 03/31/87 C-78
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5077

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)
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7)
8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-79
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&D&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

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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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-81
# INDEPENDENT ORBITER ASSESSMENT

## ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**ITEM:** CIRCUIT BREAKER, 10A (CONT BUS BC1, BC2, BC3)

**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER

**LEAD ANALYST:** 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**

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**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 busses. Loss of all power to control busses would likely cause loss of crew/vehicle due to inability to control critical loads.

**REFERENCES:** 76C19G

**REPORT DATE** 03/31/87
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

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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

REPORT DATE 03/31/87
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-84
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY

SUBSYSTEM: EPD&C
MDAC ID: 5083

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

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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

REPORT DATE 03/31/87  C-85
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5084

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-86
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5085
FLIGHT: 3/1R
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) 
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9) 05-6

CRITICALITIES

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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

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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

REPORT DATE 03/31/87  C-88
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

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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

REPORT DATE 03/31/87  C-89
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5088

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

REPORT DATE 03/31/87 C-90
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EP&D&C
MDAC ID: 5089

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-91
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5090

ITEM: RPC, 5A (FMCA-1 PWR CONT)
FAILURE MODE: FAILS OFF

LEAD ANALYST: 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


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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&CC
MDAC ID: 5091

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-I
4) FUSE, 150A TO MAIN DC DIST ASSY 1
5) 
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7) 
8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-93
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5092

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-94
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-95
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) 
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-96
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5095

**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-I  
4) RESISTOR, 1.8K TO SIG COND OF1

**CRITICALITIES**

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**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

**REPORT DATE:** 03/31/87  
**C-97**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5096

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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-I
4) FUSE, 35A TO FLCA-1

CRITICALITIES

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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

REPORT DATE 03/31/87 C-98
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5097

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-99
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5098

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-100
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

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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

REPORT DATE 03/31/87  C-101
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5100

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

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER
TO ESSENTIAL BUSSES COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76F24G

REPORT DATE 03/31/87 C-102
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)
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7)
8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-103
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)
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6)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-104
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5103

MDAC ID:

ITEM: RPC, 5A (TO MMCA-1)

FAILURES 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) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-105
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5104

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

CRITICALITIES

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LOCATION: 40V76A31F23
PART NUMBER: MB451-0016-2035 (?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

REPORT DATE 03/31/87 C-106
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-107
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5106

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 150A TO APCA-I
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-I
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-108
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5107

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 1/1
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
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9) 05-6

CRITICALITIES

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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 OAI)
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 OAI)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-110
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5109

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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-111
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5110

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5111

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)

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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

REPORT DATE 03/31/87  C-113
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5112

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-114
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC 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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-115
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5114

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)
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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

REPORT DATE 03/31/87 C-116
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5115

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)

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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

REPORT DATE 03/31/87 C-117
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5116

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87  C-118
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY
SUBSYSTEM:  EPD&C  HDW/FUNC
MDAC ID:  5117  FLIGHT: 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)  MPDA-1
4)  RPC, 5A (TO MMCA-3)
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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/MISION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES:  76J16E

REPORT DATE 03/31/87  C-119
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY
SUBSYSTEM: EPD&C  HDW/FUNC
MDAC ID: 5118  FLIGHT: 2/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-120
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) HIGHEST CRITICALITY HDW/FUNC
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)
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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

REPORT DATE 03/31/87 C-121
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EP&D&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)
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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

REPORT DATE 03/31/87  C-122
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5121

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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

LOCATION: 55V76A135RPC2
PART NUMBER: MC450-0017-1075

REFERENCES: 76L23F

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.

REPORT DATE 03/31/87 C-123
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-124
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5123

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) 
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8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-125
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5124

HIGHEST CRITICALITY
FLIGHT: 3/3
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)

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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

REPORT DATE 03/31/87 C-126
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5125
FLIGHT: 2/1R
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-127
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC FLIGHT: 2/1R
SUBSYSTEM: EP&D&C  ABORT: 2/1R
MDAC ID: 5126

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
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CRITICALITIES

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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

REPORT DATE 03/31/87  C-128
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
SUBSYSTEM: EPD&C
MDAC ID: 5127
FLIGHT: 3/3
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
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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

REPORT DATE 03/31/87 C-129
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5128

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

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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

REPORT DATE 03/31/87 C-130
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5129

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-131
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-132
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5131

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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
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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

REPORT DATE 03/31/87 C-133
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

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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

REPORT DATE 03/31/87           C-134
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5133

HIGHEST CRITICALITY
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-135
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-136
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5135

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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

REPORT DATE 03/31/87 C-137
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5136

ITEM: SHUNT, DC AMMETER (TO F/C 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) SHUNT, DC AMMETER (TO F/C 2)
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9) 05-6

CRITICALITIES

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LOCATION: 40V76A32R11
PART NUMBER: MSB-501

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF POWER FROM FUEL CELL #2. 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 EXPLOSIVE GAS IN THE AFT COMPARTMENT OR LACK OF CG CONTROL DURING ENTRY.

REFERENCES: 76L3B

REPORT DATE 03/31/87 C-138
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5137

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-139
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5138

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

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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

REPORT DATE 03/31/87 C-140
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-141
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5140

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FAILURE MODE: FUSE, 200A TO DC TIE BUS FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD:  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

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L17C

REPORT DATE 03/31/87 C-142
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5141

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

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L17C

REPORT DATE 03/31/87 C-143
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5142

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) 
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9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C

REPORT DATE 03/31/87 C-144
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

CRITICALITIES

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C

REPORT DATE 03/31/87  C-145
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5144

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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8)
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76L16C

REPORT DATE 03/31/87 C-146
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5145

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-147
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5146

ITEM: FAILURE
FAILURE MODE: FUSE, 200A TO APCA-5, FAILS OPEN
LEAD ANALYST: K. SCHMECKPEPER

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

CRITICALITIES

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LOCATION: 40V76A32F15
PART NUMBER: ME451-0016-2150(7-2200)

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

REPORT DATE 03/31/87  C-148
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5147

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 2/1R

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

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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

REPORT DATE 03/31/87  C-149
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

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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 BUSSSES WOULD CAUSE LOSS OF CREW/VEHICLE AS CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76L17C

REPORT DATE 03/31/87  C-150
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)
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8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 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 BUSSES ARE TIED TOGETHER. THE LOSS OF ISOLATION CAPABILITY BETWEEN TWO BUSSES WOULD HAVE NO EFFECT AS THE TIE BUSSES ARE FUSE ISOLATED.

REFERENCES: 76L17C
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5150

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-152
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)
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9) 05-6

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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 EXITS 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

REPORT DATE 03/31/87  C-153
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5152

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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 EXITS 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

REPORT DATE 03/31/87 C-154
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5153

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-155
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**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)  
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9) 05-6

**CRITICALITIES**

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**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 BUSSES ARE TIED TOGETHER. THE LOSS OF  
ISOLATION CAPABILITY BETWEEN TWO BUSSES WOULD HAVE NO EFFECT AS  
THE TIE BUSSES ARE FUSE ISOLATED.

**REFERENCES:** 76Y17C

REPORT DATE 03/31/87  C-156
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5155

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE AS CRITICAL LOADS COULD NOT BE POWERED (I.E. MPS VALVES).

REFERENCES: 76Y17C

REPORT DATE 03/31/87 C-157
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5156

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-158
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

HIGHEST CRITICALITY: HDW/FUNC

MDAC ID: 5157

FLIGHT: 3/3

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

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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

REPORT DATE 03/31/87 C-159
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  

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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  

REPORT DATE 03/31/87  C-160
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5159
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-161
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5160

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 3/3
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) MFCA - 2
4) RPC, 7.5A (MAIN DC BUS B F/C PWR)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-162
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87  C-163
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C

MDAC ID: 5162

FLIGHT: 3/3

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)

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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

REPORT DATE 03/31/87 C-164
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5163

HIGHEST CRITICALITY
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-165
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5164

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-166
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5165

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

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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

REPORT DATE 03/31/87  C-167
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) MPMA - 2
4) DC TIE BUS MAIN B
5) DIODE, ISOLATION 35A
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-168
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5167

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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: 76118E

REPORT DATE 03/31/87 C-169
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5168

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
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9) 05-6

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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

REPORT DATE 03/31/87 C-170
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
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9) 05-6

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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

REPORT DATE 03/31/87 C-171
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&c
MDAC ID: 5170

HIGHEST CRITICALITY
FLIGHT: 3/3
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
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9) 05-6

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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

REPORT DATE 03/31/87   C-172
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5171

ITEM: DIODE, ISOLATION 35A
FAILURE MODE: SHORTS

LEAD ANALYST: 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
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9) 05-6

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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

REPORT DATE 03/31/87 C-173
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5172

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-174
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)
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9) 05-6

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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

REPORT DATE 03/31/87    C-175
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5174

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-176
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5175
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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 BUSSES THROUGH BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76L20H

REPORT DATE 03/31/87 C-177
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
HIGHEST CRITICALITY HDW/FUNC
MDAC ID: 5176
PHASE: 3/1R
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
9) 05-6

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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

REPORT DATE 03/31/87 C-178
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5177

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

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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

REPORT DATE 03/31/87 C-179
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

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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 BUSSES TIED. POSSIBLE LOSS OF CREW/VEHICLE COULD RESULT IN THIS CASE.

REFERENCES: 76L19H

REPORT DATE 03/31/87 C-180
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5179
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-181
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5180  ABOERT: 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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-182
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5181

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)
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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: 76LI7H

REPORT DATE 03/31/87 C-183
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5182
HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87 C-184
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5183

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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) RIA1 PANEL
3) MAIN DC DIST ASSY #2
4) SWITCH, TOGGLE SPDT (FC/MN BUS B)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-185
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5184

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-186
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5185

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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-187
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5186

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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) 05-6
7) 8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-188
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5187

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)

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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

REPORT DATE 03/31/87 C-189
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5188

ITEM: FUSE, 80A
FAILURE MODE: FAILS OPEN

LEAD ANALYST: 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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-190
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5189

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-191
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5190

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87  C-192
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5191

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-193
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5192

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87 C-194
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC FLIGHT: 3/1R  ABORT: 3/1R

SUBSYSTEM: EPD&C  MDAC ID: 5193

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

CRITICALITIES

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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 BUSSES AND TWO ESSENTIAL BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76M21H

REPORT DATE 03/31/87 C-195
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5194

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-196
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-197
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-198
## INDEPENDENT ORBITER ASSESSMENT
## ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5197

**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

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**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

**REPORT DATE** 03/31/87  
**C-199**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5198

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

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

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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

REPORT DATE 03/31/87 C-200
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5199
FLIGHT: 3/1R
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

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76M19G

REPORT DATE 03/31/87 C-201
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

| HDW/FUNC | FLIGHT: 3/3 | ABORT: 3/3 |

SUBSYSTEM: EPD&C

MDAC ID: 5200

HIGHEST CRITICALITY

| HDW/FUNC | FLIGHT: 3/3 | 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) 
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8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-202
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 5201

FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-203
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C

MDAC ID: 5202

FLIGHT: 3/3

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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87

C-204
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 5203

FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-205
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5204

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-206
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5205

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-207
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)

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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

REPORT DATE 03/31/87  C-208
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)
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8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 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

REPORT DATE 03/31/87 C-209
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5208
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-210
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5209

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) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-211
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5210

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 150A TO FPCA-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) MAIN DC DIST ASSY #2
3) FUSE, 150A TO FPCA-2

CRITICALITIES

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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

REPORT DATE 03/31/87  C-212
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5211

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-213
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5212
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-214
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5213

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87 C-215
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5214

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-216
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5215

HIGHEST CRITICALITY

FLIGHT: 3/1R
ABORT: 3/IR

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

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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

REPORT DATE 03/31/87 C-217
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5216

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 150A TO MAIN DC DIST ASSY 2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD: 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

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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-218
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5217

ITEM: FUSE, 35A TO FLCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD: 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
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CRITICALITIES

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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 WHICH WILL RESULT IN A CG PROBLEM DUE TO REDUCED DUMP CAPABILITY. THIS MAY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76P8D

REPORT DATE 03/31/87 C-219
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-220
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-221
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5220

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)

CRITICALITIES

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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
SUBSYSTEM: EPD&C
MDAC ID: 5221
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87 C-223
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5222
HIGHEST CRITICALITY HDW/FUNC
FIRE A 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-224
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5223
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-225
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) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-226
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&D&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

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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

REPORT DATE 03/31/87  C-227
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5226

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-228
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

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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

REPORT DATE 03/31/87 C-229
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C

MDAC ID: 5228

FLIGHT: 2/1R

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)
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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

REPORT DATE 03/31/87 C-230
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5229

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-231
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5230

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-232
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5231

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-233
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5232

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES. LOSS OF ALL POWER TO ESSENTIAL BUSSES COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76R24C

REPORT DATE 03/31/87 C-234
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5233

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

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) MAIN DC DIST ASSY #2
3) RESISTOR, 5.1K 1/4W (TO GSE MONITOR)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-235
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5234

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-236
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5235

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) MPC-A-2
4) RPC, 5A (TO MMCA-1)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-237
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5236

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)

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

LOCATION: 40V76A26RPC10
PART NUMBER: MC450-0017-0050

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

REPORT DATE 03/31/87 C-238
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)

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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

REPORT DATE 03/31/87 C-239
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5238

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-240
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5239

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)
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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

REPORT DATE 03/31/87 C-241
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5240

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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
SUBSYSTEM: EPD&C
MDAC ID: 5241

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87  C-243
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
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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

REPORT DATE 03/31/87  C-244
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5243

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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LOCATION: 40V76A32F24
PART NUMBER: ME451-0016-2050 (73050)

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

REPORT DATE 03/31/87 C-245
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5244

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-246
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5245

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) MADAC ID: 5245
6) MDAC ID: 5245
7) MDAC ID: 5245
8) MDAC ID: 5245
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-247
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5246

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 1/1
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
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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

REPORT DATE 03/31/87 C-248
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5247

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-249
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5248

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-250
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5249

HIGHEST CRITICALITY
FLIGHT: 2/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-251
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5250

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-252
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5251

HIGHEST CRITICALITY
FLIGHT: 2/1R
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)

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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

REPORT DATE 03/31/87 C-253
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY: HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 5252

ABORT: 3/3
FLIGHT: 3/3

ITEM: RPC, 5A (TO AMCA-2)

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 AMCA-2)
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9) 05-6

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

LOCATION: 55V76A135RPC24
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: 76T17H

REPORT DATE 03/31/87 C-254
**INDEPENDENT ORBITER ASSESSMENT**
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/2R  
**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)  
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**REDUNDANCY SCREENS:**  
A [ 2 ]  
B [ F ]  
C [ P ]

**LOCATION:** 32V73A1A111R1  
**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

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**REPORT DATE 03/31/87 C-255**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5254

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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)
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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

FLIGHT: 3/2R

ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5255

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)

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


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

REPORT DATE 03/31/87 C-257
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-258
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5257

HIGHEST CRITICALITY
FLIGHT: 3/3
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 BUSSES A & B
2) RIA1 PANEL
3) SWITCH, TOGGLE DPDT (PAYLOAD AUX)
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9) 05-6

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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

REPORT DATE 03/31/87 C-259
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 BUSSES A & B
2) R1A1 PANEL
3) SWITCH, TOGGLE DPDT (PAYLOAD AUX)
4) 
5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-260
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5259

ITEM: SWITCH, TOGGLE SPDT (PAYLOAD CABIN)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES A & B
2) RL1A1 PANEL
3) SWITCH, TOGGLE SPDT (PAYLOAD CABIN)
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9) 05–6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-261
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5260

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/2R
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 BUSSES A & B
2) RIA1 PANEL
3) SWITCH, TOGGLE SPDT (PAYLOAD CABIN)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-262
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-263
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5262

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) RIA1 PANEL
3) RESISTOR, 5.1K 1/4W (TO MDM OF4)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-264
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5263

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) RIA1 PANEL
3) RESISTOR, 5.1K 1/4W (TO MDM OF4)

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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-265
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/2R
MDAC ID: 5264  ABORT: 3/3

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSSES
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, 20A TO P/L AUX & P/L EMERGENCY BUSSES
5) 6)
7) 8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A25RPC20
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: 76U23D

REPORT DATE 03/31/87  C-266
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5265
HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSSES
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-I
4) RPC, 20A TO P/L AUX & P/L EMERGENCY BUSSES
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9) 05-6

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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

REPORT DATE 03/31/87 C-267
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5266

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

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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

REPORT DATE 03/31/87 C-268
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5267

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/2R
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-I
4) RPC, 15A TO PAYLOAD CABIN
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-269
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5268

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

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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

REPORT DATE 03/31/87 C-270
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5269

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

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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

REPORT DATE 03/31/87 C-271
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5270

**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) 
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9) 05-6

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**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

**REPORT DATE 03/31/87**  
**C-272**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5271

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) MPDA-1
4) RPC, 15A TO PAYLOAD CABIN

CRITICALITIES

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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

REPORT DATE 03/31/87 C-273
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5272

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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-274
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5273

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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)
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9) 05-6

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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
SUBSYSTEM: EP&D&C
MDAC ID: 5274

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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)
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6)
7)
8)
9) 05-6

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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

REPORT DATE 03/31/87 C-276
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5275

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/2R
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)
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8)
9) 05-6

DIODE, ISOLATION 35A (TO PAYLOAD CABIN)

CRITICALITIES

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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/Leloads.

REFERENCES: 76U19E

REPORT DATE 03/31/87 C-277
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)
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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

REPORT DATE 03/31/87 C-278
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) RIA1 PANEL
3) MPCPA-1
4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
5)
6)
7)
8)
9) 05-6

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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

REPORT DATE 03/31/87  C-279
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

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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

REPORT DATE 03/31/87  C-280
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5279
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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

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LOCATION: 40V76A25A2CR7
PART NUMBER: JANTX1IN1188R

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

REPORT DATE 03/31/87 C-281
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET  

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5280  

HIGHEST CRITICALITY HDW/FUNC  
FLIGHT: 3/2R  
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  

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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  

REPORT DATE 03/31/87 C-282
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5281

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)
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9) 05-6

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

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


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

REPORT DATE 03/31/87 C-283
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5282

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) RIAl PANEL
3) MPCA-2
4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
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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

REPORT DATE 03/31/87 C-284
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

HIGHEST CRITICALITY
HDW/FUNC: 

FLIGHT: 3/2R
ABORT: 3/3

MDAC ID: 5283

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) MPC-A-2
4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
5) 
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7) 
8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-285
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5284

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) RIA1 PANEL
3) MPCA-2
4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
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8) 05-6

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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

REPORT DATE 03/31/87 C-286
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) RIA1 PANEL
3) MPCA-2
4) DIODE, ISOLATION 35A (TO PAYLOAD CABIN)
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7) 
8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-287
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5286

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

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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 R1A1.

REFERENCES: 76U17F

REPORT DATE 03/31/87 C-288
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
SUBSYSTEM: EPD&C
MDAC ID: 5287
FLIGHT: 3/2R
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

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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

REPORT DATE 03/31/87 C-289
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET  

DATE: 3/11/87  
HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C  
MDAC ID: 5288  

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)  
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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  

REPORT DATE 03/31/87  
C-290
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5289
FLIGHT: 3/2R
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

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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

REPORT DATE 03/31/87 C-291
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5290

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 
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7) 
8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-292
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5291

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
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9) 05-6

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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

REPORT DATE 03/31/87 C-293
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 BUSSES  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 BUSSES
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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

REPORT DATE 03/31/87  C-294
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5293

ITEM: RPC, 20A TO P/L AUX & P/L EMERGENCY BUSSES
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 BUSSES
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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

REPORT DATE 03/31/87 C-295
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5294

HIGHEST CRITICALITY HDW/FUNC
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

ITEM: RESISTOR, 1.8K (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 (TO MDM OF2)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A26A1R5
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: 76U22C

REPORT DATE 03/31/87 C-296
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5295

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-297
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5296

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RPC, 7.5A (P/L PWR KILL MAIN B/C)
FAILURE MODE: FAILS OPEN

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

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LOCATION: 40V76A26RPC27
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 CAPABILITY TO CUT PAYLOAD POWER FROM MAIN DC BUSSES B AND C. NO EFFECT UNLESS THE REMOVAL OF POWER IS REQUIRED, IN WHICH CASE, THERE IS A POSSIBILITY OF LOSS OF CREW/VEHICLE.

REFERENCES: 76U11H

REPORT DATE 03/31/87 C-298
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5297

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) ...

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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

REPORT DATE 03/31/87 C-299
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5298

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)
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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

REPORT DATE 03/31/87 C-300
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)
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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 BUSSES IS SWITCHED OUT FROM PANEL R1A1. POSSIBLE LOSS OF MISSION DUE TO LOSS OF POWER TO THE P/L BAY LOADS.

REFERENCES: 76U11G

REPORT DATE 03/31/87 C-301
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5300

HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/2R
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)
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5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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 BUSSES IS SWITCHED OUT FROM PANEL R1A1.

REFERENCES: 76U11G

REPORT DATE 03/31/87 C-302
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5301

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

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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: 76UL11G

REPORT DATE 03/31/87 C-303
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5302

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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) 
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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

REPORT DATE 03/31/87 C-304
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EP&D&C
MDAC ID: 5303

ITEM: DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)
FAILURR MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MPC-3
3) DIODE, ISOLATION 35A (TO P/L PWR KILL - FC#3)
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9) 05-6

CRITICALITIES

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

LOCATION: 40V76A27A2CR6
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
NO EFFECT

REFERENCES: 76U13H

REPORT DATE 03/31/87 C-305
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5304

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/1R
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-306
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)
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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

REPORT DATE 03/31/87 C-307
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5306

HIGHEST CRITICALITY
FLIGHT: 3/2R
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) RIAL PANEL
3) SWITCH, TOGGLE SPDT (PAYLOAD PRI MN B)
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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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

FLIGHT: 3/2R

ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5307

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)
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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

REPORT DATE 03/31/87 C-309
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)
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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

REPORT DATE 03/31/87  C-310
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5309

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/2R
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) RIA1 PANEL
3) SWITCH, TOGGLE SPDT (PAYLOAD PRI F/C#3)

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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

REPORT DATE 03/31/87 C-311
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)
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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

REPORT DATE 03/31/87 C-312
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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-313
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5312

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/2R
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) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-314
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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-315
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5314

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-316
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5315

ITEM: RESISTOR, 1.2K 2W
FAIL. 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
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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

REPORT DATE 03/31/87 C-317
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5316

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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)
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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
SUBSYSTEM: EPD&C
MDAC ID: 5317

HIGHEST CRITICALITY
FLIGHT: 3/2R
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)
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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

REPORT DATE 03/31/87 C-319
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5318

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRLAUNCH: 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:

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

REPORT DATE 03/31/87 C-320
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5319

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87 C-321
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5320

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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


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

REPORT DATE 03/31/87 C-322
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5321

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
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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

REPORT DATE 03/31/87 C-323
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
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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

REPORT DATE 03/31/87  C-324
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

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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

REPORT DATE 03/31/87  C-325
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5324

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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

 CRITICALITIES
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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

REPORT DATE 03/31/87 C-326
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5325

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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

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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

REPORT DATE 03/31/87 C-327
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5326

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-328
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5327

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-329
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5328

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-330
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5329

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) 
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-331
## INDEPENDENT ORBITER ASSESSMENT
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**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) 
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9) 05-6

### CRITICALITIES

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**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

**REPORT DATE 03/31/87** C-332
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5331

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

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

LOCATION: 40V76A33CR5
PART NUMBER: JANTX1N1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
NO EFFECT

REFERENCES: 76U5B

REPORT DATE 03/31/87 C-333
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5332

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

LOCATION: 40V76A33CR6
PART NUMBER: JANTX1IN1188R

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
NO EFFECT

REFERENCES: 76U5C

REPORT DATE 03/31/87 C-334
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5333

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) 
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9) 05-6

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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

REPORT DATE 03/31/87 C-335
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5334
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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

CRITICALITIES

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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
SUBSYSTEM: EPD&C
MDAC ID: 5335

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

REPORT DATE 03/31/87 C-337
INDEPENDENT ORBITER ASSESSMENT
ORBITER subsystem ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/Func
SUBSYSTEM: EPD&C FLIGHT: 2/1R
MDAC ID: 5336 ABOPT: 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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-338
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5337

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-339
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5338

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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)
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6)
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9) 05-6

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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

REPORT DATE 03/31/87 C-340
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5339

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

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 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

REPORT DATE 03/31/87 C-341
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5340

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

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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

REPORT DATE 03/31/87 C-342
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5341

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-343
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5342

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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**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)  
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9) 05-6

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**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

**REPORT DATE 03/31/87** C-345
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5344

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-346
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

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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

REPORT DATE 03/31/87 C-347
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5346

HIGHEST CRITICALITY
FLIGHT: 2/1R
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-348
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5347

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-349
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5348

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-350
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&D&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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-351
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
MDAC ID: 5350 FLIGHT: 3/3

SUBSYSTEM: EPD&G 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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-352
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5351

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-353
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5352

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-354
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5353

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-355
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5354

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

CRITICALITIES

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

LOCATION: 40V76A33R9
PART NUMBER: RLR42C122GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

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

REFERENCES: 76Y16B

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5355

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)
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-357
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5356

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-358
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5357

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 2/1R
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) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-359
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/IR
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) 
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9) 05-6

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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

REPORT DATE 03/31/87  C-360
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5359

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 2/1R
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) 

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7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 40V76A33F15
PART NUMBER: ME451-0016-2150(7-2200)

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

REPORT DATE 03/31/87 C-361
# INDEPENDENT ORBITER ASSESSMENT
## ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5360  
**HIGHEST CRITICALITY**  
**HDW/FUNC:** FLIGHT: 3/3  
**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

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**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

**REPORT DATE 03/31/87** C-362
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5361

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) 
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9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76Y16C

REPORT DATE 03/31/87 C-363
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5362

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
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CRITICALITIES

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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 BUSSES. LOSS OF ALL PATHS COULD CAUSE LOSS OF CREW/VEHICLE IF A BUS TIE WERE REQUIRED.

REFERENCES: 76Y16C

REPORT DATE 03/31/87  C-364
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5363

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-365
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5364

HIGHEST CRITICALITY
HDW/FUNC

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5364

HIGHEST CRITICALITY
HDW/FUNC

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
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELANCE: 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


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

REPORT DATE 03/31/87 C-366
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
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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

REPORT DATE 03/31/87 C-367
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5366

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76A33F33
PART NUMBER: ME451-0009-0003

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

REPORT DATE 03/31/87 C-368
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
SUBSYSTEM: EPD&C
MDAC ID: 5367
HDW/FUNC FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-369
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

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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 BUSSES THROUGH BUS TIES AND OTHER CIRCUIT BREAKERS.

REFERENCES: 76Y20H

REPORT DATE 03/31/87  C-370
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)
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8)
9) 05-6

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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

REPORT DATE 03/31/87  C-371
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) RIA1 PANEL
3) MAIN DC DIST ASSY #3
4) SWITCH, TOGGLE SPDT (MAIN BUS TIE C)
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9) 05-6

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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

REPORT DATE 03/31/87  C-372
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5371

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-373
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5372

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87  C-374
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)
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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

REPORT DATE 03/31/87 C-375
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-376
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC: 3/2R
SUBSYSTEM: EPD&C
ABORT: 3/3
MDAC ID: 5375

ITEM: RELAY (TO AFT PAYLOAD BUS)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-377
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5376

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-378
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5377

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
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
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9) 05-6

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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

REPORT DATE 03/31/87 C-379
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 5378
ABORT: 3/3

ITEM: RESISTOR, 5.1K
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) APCA-3
3) RESISTOR, 5.1K
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 56V76A133A2R5
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: 76Y9G

REPORT DATE 03/31/87  C-380
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5379

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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-381
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5380

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-382
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)
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8)
9) 05-6

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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

REPORT DATE 03/31/87  C-383
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) 
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8) 
9) 05-6

CRITICALITIES

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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

FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5383

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)
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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

REPORT DATE 03/31/87 C-385
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5384

HIGHEST CRITICALITY
HDW/FUNC: 
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87  C-386
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
SOFTWARE: EPD&C
MDAC ID: 5385

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)
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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

REPORT DATE 03/31/87 C-387
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5386

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-388
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5387

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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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

REPORT DATE 03/31/87 C-389
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
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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

REPORT DATE 03/31/87  C-390
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
HDW/FUNC: 3/3

SUBSYSTEM: EPD&C
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) MPC6 - 3
4) DC TIE BUS MAIN C
5) DIODE, ISOLATION 35A

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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

REPORT DATE 03/31/87  C-391
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5390

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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9) 05-6

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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

REPORT DATE 03/31/87 C-392
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) 0S-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-393
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5392

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

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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

REPORT DATE 03/31/87 C-394
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5393

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

CRITICALITIES

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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

REPORT DATE 03/31/87
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

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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

REPORT DATE 03/31/87   C-396
### INDEPENDENT ORBITER ASSESSMENT

#### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5395

**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

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**REDUNDANCY SCREENS:**  

**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

**REPORT DATE 03/31/87**  
**C-397**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5396  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

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LOCATION: 40V76A33F20
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: 76AA23H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5397

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)
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9) 05-6

CRITICALITIES

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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) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-400
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5399

HIGHEST CRITICALITY
HDW/FUNC FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-401
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5400
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 35A
FAILURE MODE: FAILS OPEN
LEAD ANALYST: 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

LEAD SUBSYS LEAD: K. SCHMECKPEPER

CRITICALITIES

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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

REPORT DATE 03/31/87 C-402
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5401

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

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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

REPORT DATE 03/31/87 C-403
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5402
ITEM: FUSE, 35A
FAIL. 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

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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

REPORT DATE 03/31/87 C-404
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

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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

REPORT DATE 03/31/87 C-405
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5404

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-406
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5405

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

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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

REPORT DATE 03/31/87  C-407
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)
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9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AA18A

REPORT DATE 03/31/87  C-408
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5407

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

REPORT DATE 03/31/87  C-409
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5408

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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 BUSSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76AA16A

REPORT DATE 03/31/87 C-410
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)
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9) 05-6

CRITICALITIES

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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 BUSSSES. CONTROL BUS CIRCUIT IS FURTHER PROTECTED BY 10 A CIRCUIT BREAKER. THE NET RESULT IS NO EFFECT.

REFERENCES: 76AA16A

REPORT DATE 03/31/87  C-411
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5410

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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


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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO
LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

REPORT DATE 03/31/87 C-412
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5411

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)
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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76AA16A

REPORT DATE 03/31/87 C-413
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)
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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

REPORT DATE 03/31/87  C-414
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5413

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)

CRITICALITIES

FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 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

REPORT DATE 03/31/87 C-415
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5414

HIGHEST CRITICALITY
HDW/FUNC: FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-416
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
MDAC ID: 5415 FLIGHT: 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

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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

REPORT DATE 03/31/87 C-417
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5416

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-418
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&D&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

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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

REPORT DATE 03/31/87  C-419
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5418

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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

LOCATION: 36V73AI1A1S13
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

REPORT DATE 03/31/87 C-420
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5419

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

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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

REPORT DATE 03/31/87 C-421
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5420

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-422
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5421

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 2/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-423
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5422

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-424
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5423

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
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
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-425
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

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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

REPORT DATE 03/31/87  C-426
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5425

**HIGHEST CRITICALITY**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**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**

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**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

**REPORT DATE** 03/31/87  
**C-427**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5426

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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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

REPORT DATE 03/31/87 C-428
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5427

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
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-429
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5428

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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

LOCATION: 83V76A24AIR13
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

REPORT DATE 03/31/87 C-430
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5429

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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7)
8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-431
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5430

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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9) 05-6

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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
SUBSYSTEM: EPD&C
MDAC ID: 5431

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

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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

REPORT DATE 03/31/87 C-433
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5432

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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)
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-434
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5433
HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-435
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5434
FLIGHT: 2/1R
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)
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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

REPORT DATE 03/31/87  C-436
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5435

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-437
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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<td>FAILURE MODE:</td>
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<td>K. Schmeckpeper</td>
<td>SUBSYS LEAD: K. Schmeckpeper</td>
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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

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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 bus power on two essential busses. Loss of all power to essential busses could cause loss of crew/vehicle.

REFERENCES: 76AD24D

REPORT DATE 03/31/87 C-438
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5437

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-439
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5438

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5439

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

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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

REPORT DATE 03/31/87 C-441
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
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-442
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5441

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-443
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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)
6) 7)
7) 8)
8) 9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-444
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5443

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)

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-445
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5444

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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) 05-6
9) ...

CRITICALITIES

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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

REPORT DATE 03/31/87 C-446
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EP&D&C
SUBSYSTEM: EP&D&C
MDAC ID: 5445
MDAC ID: 5445

ITEM: FUSE, 150A TO APCA-3
FAILURE MODE: FAILS OPEN

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

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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

REPORT DATE 03/31/87 C-447
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

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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

REPORT DATE 03/31/87  C-448
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) 05-6
9) 

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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

REPORT DATE 03/31/87  C-449
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5448

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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)
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9) 05-6

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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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-451
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87                HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5450

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

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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

REPORT DATE 03/31/87  C-452
INDEPENDENT ORBITER ASSESSMENT
ORBITE SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5451

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)
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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 REDUNDANTLYPOWERED. 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

REPORT DATE 03/31/87 C-453
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)
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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

REPORT DATE 03/31/87  C-454
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5453

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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LOCATION: 32V73A1A14R1
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
BUSSSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AK24H

REPORT DATE 03/31/87 C-455
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

| DATE:       | 3/11/87 |
| SUBSYSTEM:  | EPD&C   |
| MDAC ID:    | 5454    |

**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)
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9) 05-6

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**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

**REPORT DATE 03/31/87 C-456**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5455

HIGHEST CRITICALITY
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87 C-457
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)
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LOCATION: 32V73A1A4R2
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 BUSSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AK21H

REPORT DATE 03/31/87 C-458
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5457

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) RIA1 PANEL
4) RESISTOR, 5.1K 1/4W TO MDM OF4
5) ...
6) ...
7) ...
8) ...
9) 05-6

CRITICALITIES

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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
SUBSYSTEM: EPD&C
MDAC ID: 5458

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 05-6
7) 05-6
8) 05-6
9) 05-6

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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

REPORT DATE 03/31/87 C-460 C-60
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5459

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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


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

REPORT DATE 03/31/87 C-461
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

HDW/FUNC ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5460

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 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
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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

REPORT DATE 03/31/87 C-462
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5461

HIGHEST CRITICALITY
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-463
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87  C-464
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5463

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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) RIAL PANEL
4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-465
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5464

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) R1A1 PANEL
4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 1BC)
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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

REPORT DATE 03/31/87  C-466
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 IBC - GROUND C/O
2) MDM LF1
3) DIODE, BLOCKING
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-467
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5466

HIGHEST CRITICALITY HDW/FUNC

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-468
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5467
HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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
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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

REPORT DATE 03/31/87 C-469
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) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-470
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

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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

REPORT DATE 03/31/87  C-471
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5470

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-472
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

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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

REPORT DATE 03/31/87  C-473
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5472

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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/SAVING: 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

REPORT DATE 03/31/87 C-474
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) R/A1 PANEL
4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)
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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) RIA1 PANEL
4) DIODE, ISOLATION (TO MPCA-3 - ESS BUS 1BC)
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9) 05-6

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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

REPORT DATE 03/31/87  C-476
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-477
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5476

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 
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8) 
9) 05-6

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

LOCATION: 40V76A27A1C4R
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

REPORT DATE 03/31/87 C-478
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5477

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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) ...

CRITICALITIES

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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

REPORT DATE 03/31/87 C-479
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5478

ITEM: DIODE, ISOLATION 35A (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) R1A1 PANEL
4) DIODE, ISOLATION 35A (ESS BUS 1BC)
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9) 05-6

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

LOCATION: 40V76A31CR1
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: 76AK19A

REPORT DATE 03/31/87 C-480
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)
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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

REPORT DATE 03/31/87  C-481
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5480

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-482
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5481

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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

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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**

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**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**

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**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

REPORT DATE 03/31/87  
C-484
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 RIA1 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 RIA1 PANEL - ESS BUS 1BC)
4)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-485
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5484

DATE: 3/11/87
SUBSYSTEM: MDAC ID:

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-486
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET  

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5485  

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  
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9) 05-6  

CRITICALITIES  

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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  

REPORT DATE 03/31/87 C-487
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
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9) 05-6

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AK19G

REPORT DATE 03/31/87 C-488
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5487

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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
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CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AK19G

REPORT DATE 03/31/87 C-489
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-490
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5489

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-491
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5490  

HIGHEST CRITICALITY  
HDW/FUNC  
FLIGHT: 3/3  
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  
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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  

REPORT DATE 03/31/87 C-492
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC  FLIGHT: 3/1R  ABORT: 3/1R
SUBSYSTEM: EPD&C  MDAC ID: 5491
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

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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

REPORT DATE 03/31/87  C-493
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5492

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-494
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5493

HIGHEST CRITICALITY
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-495
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5494

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-496
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5495

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-497
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5496

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-498
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5497

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-499
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5498

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-500
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-501
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5500

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-502
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5501

ITEM: FUSE, 7.5A TO ALCA-I (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-I (MPS)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-503
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5502

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

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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

REPORT DATE 03/31/87 C-504
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5503

ITEM: DIODE, ISOLATION 35A (TO ESS BUS IBC)
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 IBC)
4)
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9) 05-6

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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

REPORT DATE 03/31/87 C-505
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5504

ITEM: DIODE, ISOLATION 35A (TO ESS BUS IBC)
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 IBC)
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9) 05-6

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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

REPORT DATE 03/31/87 C-506
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5505  FLIGHT: 3/3

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

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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

REPORT DATE 03/31/87  C-507
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

HDW/FUNC

SUBSYSTEM: EPD&C

FLIGHT: 3/3

ABORT: 3/3

MDAC ID: 5506

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)
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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

REPORT DATE 03/31/87 C-508
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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-509
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5508

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-510
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5509

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)
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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 BUS. CRITICAL FUNCTIONS ARE PERFORMED OFF OF TWO BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AK4F

REPORT DATE 03/31/87 C-511
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5510

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AK4F

REPORT DATE 03/31/87 C-512
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5511

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 BCI
3) MA73C PANEL
4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 1/2)

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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

REPORT DATE 03/31/87 C-513
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5512

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87 C-514
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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-515
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5514

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-516
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5515

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

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LOCATION: 55V76A115CR1
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two MAIN DC BUSSES 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 BUSSES. 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

REPORT DATE 03/31/87 C-517
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
ABORT: 3/1R
MDAC ID: 5516
FLIGHT: 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

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LOCATION: 55V76A115CR2
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES 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 BUSSES. 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

REPORT DATE 03/31/87 C-518
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5517

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-519
**INDEPENDENT ORBITER ASSESSMENT**
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**HIGHEST CRITICALITY** HDW/FUNC  
**FLIGHT:** 3/1R  
**ABORT:** 3/1R  

**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5518

**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)  
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9) 05-6

**CRITICALITIES**

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

**LOCATION:** 32V73A1A15  
**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

**REPORT DATE** 03/31/87  
**C-520**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5519
INDEPENDENT ORBITER ASSESSMENT

HIGHEST CRITICALITY

HDW/FUNC: 3/3
FLIGHT: 3/3
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) RIAI PANEL
3) MAIN DC DIST ASSY #1 & #3
4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN C/A)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-521
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)
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6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5521  
**HIGHEST CRITICALITY**  
**HDW/FUNC FLIGHT:** 3/1R  
**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)  
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9) 05-6  

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**REDUNDANCY SCREENS:** A [ F ] 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 BUSSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.  

**REFERENCES:** 76AM21H  

**REPORT DATE 03/31/87** C-523
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:  3/11/87
SUBSYSTEM: EPD&C
MDAC ID:  5522

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT:  3/3
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

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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

REPORT DATE 03/31/87  C-524
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5523

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) RIA1 PANEL
4) RESISTOR, 5.1K 1/4W TO MDM OF4
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-525
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5524

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 2)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: 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


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

REPORT DATE 03/31/87 C-526
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

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

REPORT DATE 03/31/87  C-527
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**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**

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**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

**REPORT DATE 03/31/87**  
C-528
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5527

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87  C-529
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) 
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7) 
8) 
9) 05-6

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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

REPORT DATE 03/31/87  C-530
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5529

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-531
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5530

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-532
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET  

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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)  
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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  

REPORT DATE 03/31/87  C-533
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5532

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

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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

REPORT DATE 03/31/87 C-534
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5533
HIGHEST CRITICALITY: 3/3
FLIGHT: 3/3
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
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8) 
9) 05-6

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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

REPORT DATE 03/31/87 C-535
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5534

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
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9) 05-6

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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

REPORT DATE 03/31/87 C-536
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5535

HIGHEST CRITICALITY
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87  C-537
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

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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

REPORT DATE 03/31/87  C-538
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5537

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-539
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) RIA1 PANEL
4) DIODE, ISOLATION (TO MPCA-1 - ESS BUS 2CA)
5) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-540
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5539

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87  C-541
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5540

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 LFI
3) DIODE, BLOCKING
4) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-542
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5541

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 
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9) 05-6

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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

REPORT DATE 03/31/87  C-543
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5542

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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

REPORT DATE 03/31/87 C-544
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5543

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-545
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)
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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

REPORT DATE 03/31/87  C-546
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5545

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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-I
4) DIODE, ISOLATION 35A (ESS BUS 2CA)
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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

REPORT DATE 03/31/87  C-547
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-548
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-549
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) R1AL PANEL
4) DIODE, ISOLATION 35A (ESS BUS 2CA)
5)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-550
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5549

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-551
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5550

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

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


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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AM19G

REPORT DATE 03/31/87 C-552
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5551

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AM19G

REPORT DATE 03/31/87 C-553
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5552

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-554
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5553

ITEM: FUSE, 3A TO SIG COND/MDM MONITOR
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) MAIN DC DIST ASSY #2
3) FUSE, 3A TO SIG COND/MDM MONITOR
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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<td>SUBSYS LEAD:</td>
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**BREAKDOWN HIERARCHY:**
1) ESS BUS 2CA
2) MAIN DC DIST ASSY #2
3) FUSE, 15A TO APCA-5
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9) 05-6

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**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

**REPORT DATE 03/31/87 C-556**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5555

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

CRITICALITIES

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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

REPORT DATE 03/31/87

C-557
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5556

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
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CRITICALITIES

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LOCATION: 40V76A32F9
PART NUMBER: ME451-0009-5100 (71005)

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

REPORT DATE 03/31/87 C-558
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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

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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

REPORT DATE 03/31/87 C-559
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5558

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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-560
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5559

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-561
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5560

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-562
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5561

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-563
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5563

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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-565
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5564

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-566
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-567
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)
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6)  
7)  
8)  
9) 05-6

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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: 76AMI16D

REPORT DATE 03/31/87   C-568
### 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)
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9) 05-6

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**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

**REPORT DATE** 03/31/87  
**C-569**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5568

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 
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CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5569
HIGHEST CRITICALITY HDW/FUNC

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-571
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5570

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)

CRITICALITIES

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5571

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-573
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5572

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)

CRITICALITIES

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LOCATION: 55V76A135F10

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 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

REPORT DATE 03/31/87 C-574
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5573

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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9) 05-6

CRITICALITIES

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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 BUS. CRITICAL FUNCTIONS ARE PERFORMED OFF OF TWO Busses. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AM4F

REPORT DATE 03/31/87  C-575
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5574

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AM4G

REPORT DATE 03/31/87 C-576
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 CA1
3) MA73C PANEL
4) SWITCH, TOGGLE SPST (AFT POD VLV LOGIC GRP 2/3)
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9) 05-6

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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

REPORT DATE 03/31/87 C-577
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5576

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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-578
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5577
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-579
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5578

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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
SUBSYSTEM: EPD&C
MDAC ID: 5579

ITEM: DIODE, 12A (TO RCS/OMS CA BUS)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
Subsys Lead: K. SCHMECKPEPER

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

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


LOCATION: 56V76A116CR1
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES 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
BUSSES. 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

REPORT DATE 03/31/87 C-581
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&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

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LOCATION: 56V76A116CR2  PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC Busses 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
BUSSES. 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)
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9) 05-6

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LOCATION: 56V76A116CR2
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: 76AM6E

REPORT DATE 03/31/87 C-583
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

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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

REPORT DATE 03/31/87  C-584
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)
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9) 05-6

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LOCATION: 54V76A114CR2
PART NUMBER: JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES 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 BUSSES. 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

REPORT DATE 03/31/87 C-585
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)

CRITICALITIES

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LOCATION:  54V76A114CR1
PART NUMBER:  JANTXV1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two main DC busse 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 busse. 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

REPORT DATE 03/31/87  C-586
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5585

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)

CRITICALITIES

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LOCATION: 54V76A114CR1
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: 76AP3E

REPORT DATE 03/31/87 C-587
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

MDAC ID: 5586

ITEM: RPC, 5A (TO RCS/OMS AB BUS)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

LEAD SUBSYS: 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) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-588
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5587

HIGHEST CRITICALITY
FLIGHT: 3/3
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) ...
8) ...
9) 05-6

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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

REPORT DATE: 03/31/87
C-589
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


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/OMS DC BUS. SECOND FAILURE WOULD LOSE THE BUS. LOSS OF ALL RCS/OMS DC BUSSES WOULD CAUSE LOSS OF CREW/VEHICLE IN THE EVENT A CROSSFEED OF PROP IS REQUIRED.

REFERENCES: 76AP4F

REPORT DATE 03/31/87  C-590
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5589

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-591
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5590

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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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 BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL RCS VALVES.

REFERENCES: 76AP4F

REPORT DATE 03/31/87 C-592
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC FLIGHT: 3/3
SUBSYSTEM: EPD&C  ABORT: 3/3
MDAC ID: 5591

ITEM: RESISTOR, 5.1K (ESS BUS 3AB TEST POINT)  HDW/FUNC
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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-593
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5592

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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

LOCATION: 40V76A33R1
PART NUMBER: RLR07CS12GR

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

REPORT DATE 03/31/87 C-594
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-595
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5594

HIGHEST CRITICALITY
HDW/FUNC ABORT
FLIGHT: 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) RIA1 PANEL
4) DIODE, ISOLATION 35A (ESS BUS 3AB)
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-596
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5595

HIGHEST CRITICALITY
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-597
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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-598
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5597

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-599
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-600
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5599

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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-601
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 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) DIODE, ISOLATION 35A (TO R1A1 PANEL - ESS BUS 3AB)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-602
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5601

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AP19G

REPORT DATE 03/31/87 C-603
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5602

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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


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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER LOADS.

REFERENCES: 76AP19G

REPORT DATE 03/31/87 C-604
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5603

ITEM: FUSE, 7.5A
FAILURE MODE: FAILS OPEN

LEAD ANALYST: 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

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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

REPORT DATE 03/31/87 C-605
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

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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

REPORT DATE 03/31/87  C-606
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5605

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-607
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5606

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
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6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-608
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5607

ITEM: FUSE, 10A TO ML86B PANEL
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD SYS: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) FUSE, 10A TO ML86B PANEL
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-609
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5608

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
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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

REPORT DATE 03/31/87 C-610
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5609

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

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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

REPORT DATE 03/31/87 C-611
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5610

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
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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

REPORT DATE 03/31/87 C-612
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5611
HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 2/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-613
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

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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

REPORT DATE 03/31/87 C-614
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5613

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) 
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9) 05-6

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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

REPORT DATE 03/31/87 C-615
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5614

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

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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

REPORT DATE 03/31/87 C-616
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5615

HIGHEST CRITICALITY
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-617
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**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**

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**Redundancy Screens:** A [ ]  
B [ ]  
C [ ]

**Location:** 56V76A136CRI  
**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

REPORT DATE 03/31/87  
C-618
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5617

HIGHEST CRITICALITY
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-619
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

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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

REPORT DATE 03/31/87  C-620
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5619

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-621
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5620

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-622
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5621

HIGHEST CRITICALITY
FLIGHT: 3/1R
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-623
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5622

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
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)
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7)
8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-624
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5623

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) RIA1 PANEL
3) MAIN DC DIST ASSY #3
4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE F/C 3)
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9) 05-6

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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

REPORT DATE 03/31/87 C-625
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5624

HIGHEST CRITICALITY
FLIGHT: 3/3
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) RIAI PANEL
4) RESISTOR, 5.1K 1/4W TO MDM OF4
5)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-626
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5625

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-627
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

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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 BUSSES IS LOST DUE TO THE INABILITY TO POWER ALL CRITICAL LOADS.

REFERENCES: 76AP24H

REPORT DATE 03/31/87  C-628
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)

CRITICALITIES

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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

REPORT DATE 03/31/87  C-629
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) 1A1 PANEL
3) MAIN DC DIST ASSY #1 & #2
4) SWITCH, TOGGLE 3PDT (ESS BUS SOURCE MAIN A/B)
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9) 05-6

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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

REPORT DATE 03/31/87       C-630
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)
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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

REPORT DATE 03/31/87 C-631
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5630

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-632
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5631

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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LOCATION: 40V76A25A1CR1
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: 76AP24B

REPORT DATE 03/31/87 C-633
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5632

ITEM: DIODE, BLOCKING
FAILURE MODE: FAILS OPEN

LEAD ANALYST: 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

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

CRITICALITIES

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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

REPORT DATE 03/31/87 C-634
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5633

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

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

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REPORT DATE 03/31/87  C-635
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5634

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)
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8) [ ]
9) 05-6

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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

REPORT DATE 03/31/87 C-636
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

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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

REPORT DATE 03/31/87  C-637
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5636

HIGHEST CRITICALITY

HDW/FUNC FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-638
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5637

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-639
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 5638

FLIGHT: 3/1R
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-640
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5639

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-641
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5640

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-642
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5641

ITEM: RESISTOR, 2.2K 1/2W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: 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

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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

REPORT DATE 03/31/87 C-643
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5642

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-644
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5643

ITEM: DIODE, BLOCKING
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB - GROUND C/O
2) MDM LFI
3) DIODE, BLOCKING
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-645
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5644

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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-646
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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) RIA1 PANEL
4) DIODE, ISOLATION (TO MPCA-2 - ESS BUS 3AB)
5) 6) 7) 8) 9) 05-6

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LOCATION: 40V76A26A1CR3
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: 76AP21D

REPORT DATE 03/31/87 C-647
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5646

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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7)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-648
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5647

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

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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

REPORT DATE 03/31/87 C-649
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-650
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

| DATE:        | 3/11/87 |
| SUBSYSTEM:   | EPD&C   |
| MDAC ID:     | 5649    |
| 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-2
4) FUSE, 15A
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-651
### INDEPENDENT ORBITER ASSESSMENT
#### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5650

**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**

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**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

**REPORT DATE** 03/31/87  
**C-652**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5651

ITEM: FUSE, 5A
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FPCA-3
4) FUSE, 5A
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-653
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5652

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

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5653

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 #1
3) MPCA-1
4) FUSE, 15A
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9) 05-6

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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

REPORT DATE 03/31/87 C-655
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5654

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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
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8) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-656
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5655  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
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9) 05-6

CRITICALITIES
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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: 76ASI6E

REPORT DATE 03/31/87  C-657
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-658
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5657

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

CRITICALITIES

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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

REPORT DATE 03/31/87  C-659
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
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-660
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

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

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

LOCATION: 83V76A18A:7
PART NUMBER: MC477-0261-3002

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

EFFECTS/RATIONALE:
THIS ITEM IS USED FOR GROUND C/O ONLY.

REFERENCES: 76AT19F

REPORT DATE 03/31/87  C-661
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5660

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-662
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5661

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

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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

REPORT DATE 03/31/87 C-663
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5662

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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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

REPORT DATE 03/31/87 C-664
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5663

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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

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

LOCATION: 83V76A18AR8
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

REPORT DATE 03/31/87 C-665
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5664

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

LOCATION: 83V76A18AR8
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

REPORT DATE 03/31/87 C-666
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5665
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-667
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)
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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

REPORT DATE 03/31/87  C-668
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5667

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87   C-669
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5668

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORB: 3/3 AOA: 3/3
DEORB: 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

REPORT DATE 03/31/87 C-670
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5669

HIGHEST CRITICALITY HDW/FUNC

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)

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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

REPORT DATE 03/31/87  C-671
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5670

FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-672
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

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

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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

REPORT DATE 03/31/87 C-673
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&c
MDAC ID: 5672

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-674
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)
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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

REPORT DATE 03/31/87  C-675
INDDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5674

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

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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

REPORT DATE 03/31/87 C-676
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5675

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87  C-677
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5676

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87 C-678
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) RIA1 PANEL
3) SWITCH, TOGGLE (CONTROL BUS PWR MN A)
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9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL SOURCES MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU24H

REPORT DATE 03/31/87  C-679
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5678

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
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) RIAI PANEL
3) SWITCH, TOGGLE (CONTROL BUS PWR MN A)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-680
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)
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CRITICALITIES

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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 BUS SOURCES TO THE CONTROL BUSSES. LOSS OF ALL SOURCES MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU17H

REPORT DATE 03/31/87  C-681
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5680

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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)
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 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

REPORT DATE 03/31/87 C-682
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5681

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)

CRITICALITIES

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LOCATION: 32V73A1A1S3
PART NUMBER: ME452-0102-7102

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE OF THE THREE MAIN DC BUS SOURCES TO THE CONTROL BUSSES. LOSS OF ALL SOURCES MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU10H

REPORT DATE 03/31/87
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) RIAl PANEL
3) SWITCH, TOGGLE (CONTROL BUS PWR MN C)
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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

REPORT DATE 03/31/87  C-684
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5683

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO CONT BUSSES 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 BUSSES AB & CA RESET)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU24H

REPORT DATE 03/31/87 C-685
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5684
ITEM: RESISTOR, 1.2K 2W (TO CONT BUSSES AB & BC RESET)
FAILURE MODE: FAILS OPEN
LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) MAIN DC DIST ASSY #2
3) RIA1 PANEL
4) RESISTOR, 1.2K 2W (TO CONT BUSSES 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

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 BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU17G

REPORT DATE 03/31/87 C-686
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5685

ITEM: RESISTOR, 1.2K 2W (TO CONT BUSSES 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 BUSSES CA & BC RESET)

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76AU9G

REPORT DATE 03/31/87 C-687
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5686

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) ...

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU23G

REPORT DATE 03/31/87 C-688
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) 05-6
6)
7)
8)
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU23D

REPORT DATE 03/31/87 C-689
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5688

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA1 & AB1
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMEEKPEPER
LEAD: K. SCHMEEKPEPER
SUBSYS LEAD: K. SCHMEEKPEPER

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

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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

REPORT DATE 03/31/87 C-690
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5689

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

CRITICALITIES

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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 BUSSSES. LOSS OF ALL POWER TO CONTROL BUSSSES 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
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 5690

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

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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

REPORT DATE 03/31/87 C-692
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5691

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

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU19D

REPORT DATE 03/31/87 C-693
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

SUBSYSTEM: EPD&C

MDAC ID: 5692

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

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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

REPORT DATE 03/31/87 C-694
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5693

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) 
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9) 05-6

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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

REPORT DATE 03/31/87 C-695
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5694

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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


LOCATION: 81V76A22CR1
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSES.
THERE IS A POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO
POWER CRITICAL LOADS.

REFERENCES: 76AU23D

REPORT DATE 03/31/87 C-696
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

| DATE:       | 3/11/87 |
| SUBSYSTEM:  | EPD&C   |
| MDAC ID:    | 5695    |

| 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)

CRITICALITIES

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LOCATION: 81V76A22CR2
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two main DC busses together, which might cause an RPC failure depending on control bus loading. If the RPC opens, this would remove one source from two control busses. 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

REPORT DATE 03/31/87  C-697
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5696

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) 
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8) 
9) 05-6

CRITICALITIES

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LOCATION: 81V76A22CR2
PART NUMBER: JANTX1IN1204RA

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

REPORT DATE 03/31/87 C-698
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&c
MDAC ID: 5697

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)

CRITICALITIES

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

REPORT DATE 03/31/87
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)
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A22CR3
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSES. 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

REPORT DATE 03/31/87 C-700
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5699

HIGHEST CRITICALITY
FLIGHT: 3/1R
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-I
4) DIODE, ISOLATION 12A (TO CONT BUS CA2)
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LOCATION: 81V76A22CR4
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87  C-701
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5700

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-702
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5701  
HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/1R ABORT: 3/1R

ITEM: DIODE, ISOALATION 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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-703
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC: 3/1R
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)

CRITICALITIES

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LOCATION: 81V76A22CR5
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87  C-704
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) CRITICALITIES
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)
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LOCATION: 81V76A22CR6
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSES. 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

REPORT DATE 03/31/87 C-705
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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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)
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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

REPORT DATE 03/31/87 C-706
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5705

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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 ABI & CA1
2) FPCA-1
3) RESISTOR, 2.2K 1/2W (TO MDM OF1)
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REdundancy Screens: A [ ] B [ ] C [ ]

LOCATION: 81V76A22AIR1
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

REPORT DATE 03/31/87 C-707
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5706
FLIGHT: 3/3
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-I
3) RESISTOR, 2.2K 1/2W (TO MDM OF1)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-708
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5707

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-709
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5708

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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 ABI & CA1
2) FPCA-1
3) RESISTOR, 1.8K 1/4W (TO SIG COND OF1)
4) 
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22AIR35
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

REPORT DATE 03/31/87 C-710
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)
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8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-711
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5710

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-712
### INDEPENDENT ORBITER ASSESSMENT
### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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### REDUNDANCY SCREENS:

- A [ ]
- B [ ]
- C [ ]

### LOCATION:

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### 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

### REPORT DATE: 03/31/87

C-713
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. SCHMECKPPEPER SUBSYS LEAD: K. SCHMECKPPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB3 & CA3
2) FPCA-1
3) RESISTOR, 1.8K 1/4W (TO SIG COND OF1)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-714
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5713

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 3/3
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)
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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

REPORT DATE 03/31/87  C-715
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)
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9) 05-6

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

REFERENCES: 76AU24F

REPORT DATE 03/31/87  C-716
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)

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU24F

REPORT DATE 03/31/87  C-717
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5716

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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)

CRITICALITIES

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

REFERENCES: 76AU21F

REPORT DATE 03/31/87 C-718
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-I
5) HYBRID DRIVER TYPE I (CONT BUS CA2 & AB2)
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7)
8)
9) 05-6

CRITICALITIES

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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 Busses. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU21F

REPORT DATE 03/31/87  C-719
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5718

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

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

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

REFERENCES: 76AU19F

REPORT DATE 03/31/87 C-720
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)
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9) 05-6

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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 Busses. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU19F

REPORT DATE 03/31/87 C-721
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5720

HDW/FUNC
HIGHEST CRITICALITY
FLIGHT: 3/3
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) RIA1 PANEL
4) FLCA-2
5) HYBRID DRIVER TYPE I (CONT BUS BC1 & AB1)
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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 BUSSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU17F

REPORT DATE 03/31/87 C-722
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)
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9) 05-6

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LOCATION: 82V76A17ARI
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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU17F

REPORT DATE 03/31/87 C-723
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5722

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)
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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 BUSSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU14F

REPORT DATE 03/31/87  C-724
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5723

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU14F

REVIEWER: T. B. O'CONNER
REPORT DATE 03/31/87 C-725
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5724

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)

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

REFERENCES: 76AU12F

REPORT DATE 03/31/87 C-726
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5725

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU12F

REPORT DATE 03/31/87 C-727
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)
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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 BUSSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU9F

REPORT DATE 03/31/87  C-728
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5727

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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


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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU9F

REPORT DATE 03/31/87 C-729
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5728

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (CONT BUS BC2 & CA2)

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) RIA1 PANEL
4) FLCA-3
5) HYBRID DRIVER TYPE I (CONT BUS BC2 & CA2)

6)
7)
8)
9) 05-6

CRITICALITIES

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

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 INABILITY TO REMOVE POWER FROM TWO CONTROL BUSSES. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76AU7F

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
SUBSYSTEM: EPD&C
HDW/FUNC
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

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU7F

REPORT DATE 03/31/87 C-731
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)
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8)
9) 05-6

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

REFERENCES: 76AU5F

REPORT DATE 03/31/87 C-732
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5731

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE.

REFERENCES: 76AU5F

REPORT DATE 03/31/87 C-733
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5732

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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8)
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU16G

REPORT DATE 03/31/87 C-734
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 BCI & ABI
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 BCI & ABI
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU16D

REPORT DATE 03/31/87 C-735
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
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9) 05-6

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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

REPORT DATE 03/31/87  C-736
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5735

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) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU14D

REPORT DATE 03/31/87 C-737
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5736

ITEM: RPC, 5A TO CONT BUS BC2 & AB2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: 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)
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8)
9) 05-6

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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

REPORT DATE 03/31/87 C-738
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5737

HIGHEST CRITICALITY
FLIGHT: 3/1R
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
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9) 05-6

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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 BUSSES. LOSS OF ALL POWER TO CONTROL
BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU12D

REPORT DATE 03/31/87 C-739
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
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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

REPORT DATE 03/31/87  C-740
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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-741
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5740

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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8)
9) 05-6

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LOCATION: 82V76A23CR1
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87 C-742
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5741

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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

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LOCATION: 82V76A23CR2
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSES. 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

REPORT DATE 03/31/87 C-743
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5742

ITEM: DIODE, ISOLATION 12A (TO CONT BUS BCI)
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 BCI)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-744
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5743

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5744

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) 05-6

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LOCATION: 82V76A23CR3
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSSES. 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

REPORT DATE 03/31/87 C-746
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5745

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
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)
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LOCATION: 82V76A23CR4
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two main DC busses together, which might cause an RPC failure depending on control bus loading. If the RPC opens, this would remove one source from two control busses. 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

REPORT DATE 03/31/87 C-747
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5746

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)
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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

REPORT DATE 03/31/87 C-748
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)
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LOCATION: 82V76A23CR5
PART NUMBER: JANTX11204RA

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

REPORT DATE 03/31/87  C-749
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)
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LOCATION: 82V76A23CR5
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC Busses 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

REPORT DATE 03/31/87 C-750
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5749

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) FFCA-2
4) DIODE, ISOLATION 12A (TO CONT BUS AB3)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A23CR6
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87 C-751
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5750

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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


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

REPORT DATE 03/31/87 C-752
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5751

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 ABl & BC1
2) FPCA-2
3) RESISTOR, 2.2K 1/2W (TO MDM OF2)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-753
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) 05-6
9) 

CRITICALITIES

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

LOCATION: 82V76A23AIR20
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

REPORT DATE 03/31/87 C-754
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5753

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
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

REPORT DATE 03/31/87 C-755
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5754

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
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) 
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-756
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5755

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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 ABL & BCI
2) FPCA-2
3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
4) 
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8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-757
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-758
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5757

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)

CRITICALITIES

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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)

CRITICALITIES

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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:  76AUI11D

REPORT DATE 03/31/87  C-760
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5759

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.8K 1/4W (TO DC RETURN)
FAILRE 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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-761
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5760
FLIGHT: 3/3
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)

CRITICALITIES

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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

REPORT DATE 03/31/87 C-762
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-763
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

SUBSYSTEM: EPD&C

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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-764
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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87  C-765
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5764

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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 CAL & BCl
2) FPCA-3
3) RESISTOR, 1.8K 1/4W (TO DC RETURN)
4) 
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-766
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5765

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)
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CRITICALITIES

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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

REPORT DATE 03/31/87  C-767
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 5766 ABOERT: 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)
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-768
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5767

HIGHEST CRITICALITY HDW/FUNC FLIGHT: 3/3 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)
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9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87    C-769
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87
**SUBSYSTEM:** EPD&C
**MDAC ID:** 5768

**HIGHEST CRITICALITY**
**FLIGHT:** 3/3
**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)
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**CRITICALITIES**

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**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

REPORT DATE 03/31/87 C-770
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)
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CRITICALITIES

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LOCATION: 83V76A24CR1
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

REPORT DATE 03/31/87  C-771
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&G
MDAC ID: 5770

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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LOCATION: 83V76A24CR1
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87 C-772
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5771

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R
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)
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LOCATION: 83V76A24CR2
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two main DC busses together, which might cause an RPC failure depending on control bus loading. If the RPC opens, this would remove one source from two control busses. 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

REPORT DATE 03/31/77
C-773
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5772
FLIGHT: 3/1R
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

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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

REPORT DATE 03/31/87 C-774
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5773

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-775
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

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LOCATION: 83V76A24CR3
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH
MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF
THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL
BUSSES. 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

REPORT DATE 03/31/87  C-776
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)  FAILRE 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)

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LOCATION: 83V76A24CR4  PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC BUSSES TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL BUSSES. 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

REPORT DATE 03/31/87  C-777
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5776

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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LOCATION: 83V76A24CR4
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

REPORT DATE 03/31/87 C-778
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5777

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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) / 
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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

REPORT DATE 03/31/87 C-779
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5778

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)
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LOCATION: 83V76A24CR5
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THE FIRST FAILURE WOULD TIE TWO MAIN DC Busses TOGETHER, WHICH MIGHT CAUSE AN RPC FAILURE DEPENDING ON CONTROL BUS LOADING. IF THE RPC OPENS, THIS WOULD REMOVE ONE SOURCE FROM TWO CONTROL Busses. 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

REPORT DATE 03/31/87 C-780
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5779

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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)

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LOCATION: 83V76A24CR6
PART NUMBER: JANTX1N1204RA

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
The first failure would tie two main DC busses together, which might cause an RPC failure depending on control bus loading. If the RPC opens, this would remove one source from two control busses. 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

REPORT DATE 03/31/87 C-781
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5780

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)
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9) 05-6

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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

REPORT DATE 03/31/87  C-782
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5781

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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
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9) 05-6

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU9D

REPORT DATE 03/31/87 C-783
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5782

ITEM: RPC, 5A TO CONT BUS CA1 & BCI
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 & BCI
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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

REPORT DATE 03/31/87 C-784
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5783

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES. LOSS OF ALL POWER TO CONTROL
BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE
INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU7D

REPORT DATE 03/31/87 C-785
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5784

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 5A TO CONT BUS CA2 & BC2
FAILURE MODE: FAILS CLOSED
LEAD ANALYST: K. SCHMECKPEPER

HIGHEST CRITICALITY:

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

CRITICALITIES

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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

REPORT DATE 03/31/87 C-786
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5785

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

CRITICALITIES

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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 BUSSES. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO THE INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU4D

REPORT DATE 03/31/87 C-787
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5786

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

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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

REPORT DATE 03/31/87 C-788
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  MDAC ID: 5787
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
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)
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8)
9) 05-6

CRITICALITIES

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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 BUSSES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AU9G

REPORT DATE 03/31/87  C-789
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5788

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)
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7)
8)
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-790
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5789

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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 BCl
2) A6Al PANEL
3) FUSE, 1A TO P/L RETENTION LATCHES SYS 2
4) 
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7) 
8) 
9) 05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-791
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) 05-6
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


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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW7H

REPORT DATE 03/31/87 C-792
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

MDAC ID: 5791

SUBSYSTEM: EPD&C

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

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW15G - NOT SHOWN

REPORT DATE 03/31/87 C-793
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5792

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

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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 BUSSES 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
SUBSYSTEM: EPD&C
MDAC ID: 5793

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 5A TO CONT BUS BCL
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSY 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 BCL

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY22F

REPORT DATE 03/31/87 C-795
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) 
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9) 05-6

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY22E - NOT SHOWN

REPORT DATE 03/31/87 C-796
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5795

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R

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

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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 BUS. LOSS OF ALL POWER TO CONTROL BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AV4D

REPORT DATE 03/31/87 C-797
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 5796

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
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

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW11C - NOT SHOWN

REPORT DATE 03/31/87 C-798
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5797

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

CRITICALITIES

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AY21B - NOT SHOWN

REPORT DATE 03/31/87 C-799
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/1R

SUBSYSTEM: EPD&C
MDAC ID: 5798

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

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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 BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL CRITICAL LOADS.

REFERENCES: 76AW22A

REPORT DATE 03/31/87 C-800
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5799

HIGHEST CRITICALITY

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

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


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

REPORT DATE 03/31/87 C-801
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5800

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
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)
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9)
05-6

CRITICALITIES

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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

REPORT DATE 03/31/87 C-802
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5801

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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

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


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

REPORT DATE 03/31/87 C-803
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5802

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
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
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CRITICALITIES

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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

REPORT DATE 03/31/87 C-804