INDEPENDENT ORBITER ASSESSMENT

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

3 APRIL 1987
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5803

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

ITEM: FUSE, 1A TO MMCA-2 & 1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) FUSE, 1A TO MMCA-2 & 1
4) 5) 6) 7) 8)
9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2P34
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: 76BC14F

REPORT DATE 03/31/87 C-805
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5804  
**HIGHEST CRITICALITY HDW/FUNC**

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

**LOCATION:** 32V73A13A2F33  
**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:** 76BC14F  

**REPORT DATE 03/31/87** C-806
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

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

SUBSYSTEM: EPD&C
MDAC ID: 5805

ITEM: FUSE, 1A TO MMCA-4 & 3
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-4 & 3
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2F18
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: 76BC14E

REPORT DATE 03/31/87 C-807
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 2/IR
MDAC ID: 5806
ABORT: 2/IR

ITEM: FUSE, 1A TO MMCA-4 & 3
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS ABI
2) R13A2 PANEL
3) FUSE, 1A TO MMCA-4 & 3
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9) 05-6

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LOCATION: 32V73A13A2F35
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: 76BC14E

REPORT DATE 03/31/87 C-808
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5807  ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-4 & 3
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-4 & 3

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LOCATION: 32V73A13A2F28
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: 76BC14D

REPORT DATE 03/31/87  C-809
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5808

HIGHEST CRITICALITY
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-4 & 3
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-4 & 3
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2F6
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: 76BC14C

REPORT DATE 03/31/87 C-810
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5809

HIGHEST CRITICALITY
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-4 & 3
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB2
2) R13A2 PANEL
3) FUSE, 1A TO MMCA-4 & 3

CRITICALITIES

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LOCATION: 32V73A13A2F12
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: 76BC14B

REPORT DATE 03/31/87 C-811
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5810

HIGHEST CRITICALITY
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: FUSE, 1A TO MMCA-4 & 3
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) FUSE, 1A TO MMCA-4 & 3
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9) 05-6

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LOCATION: 32V73A13A2F31
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: 76BC14B

REPORT DATE 03/31/87 C-812
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 5811 ABORT: 3/3

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A

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LOCATION: 32V73A13A2A4CR1
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14H

REPORT DATE 03/31/87 C-813
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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LOCATION: 32V73A13A2A4CR1
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE: FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14H

REPORT DATE 03/31/87 C-814
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5813

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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LOCATION: 32V73A13A2A4CR2
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14H

REPORT DATE 03/31/87 C-815
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5814

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
4)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2A4CR2
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14H

REPORT DATE: 03/31/87 C-816
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5815

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2A4CR3
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14F

REPORT DATE: 3/31/87 C-817
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5816

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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9) 05-6

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LOCATION: 32V73A13A2A4CR3
PART NUMBER: JANTXV1N551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL Busses TOGETHER WHICH MAY
CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT
POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD
CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/
VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14F

REPORT DATE 03/31/87 C-818
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5817

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS
LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2A4CR4
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14F

REPORT DATE 03/31/87 C-819
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5818

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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9) 05-6

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LOCATION: 32V73A13A2A4CR4
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14F

REPORT DATE 03/31/87 C-820
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5819

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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9) 05-6

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LOCATION: 32V73A13A2A5CR4
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUNNSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUNNSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUNNSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14B

REPORT DATE 03/31/87 C-821
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5820

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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LOCATION: 32V73A13A2A5CR4
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14B

REPORT DATE 03/31/87 C-822
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 5821
ABORT: 3/3

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
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2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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LOCATION: 32V73A13A2A5CR3
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14B

REPORT DATE 03/31/87 C-823
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5822

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB2
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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LOCATION: 32V73A13A2A5CR3
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14B

REPORT DATE 03/31/87 C-824
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5823

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS CAl
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
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LOCATION: 32V73A13A2A5CR2
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14E

REPORT DATE 03/31/87 C-825
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5824

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) CONT BUS CA1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A

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LOCATION: 32V73A13A2A5CR2
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14E

REPORT DATE 03/31/87 C-826
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87    HIGHEST CRITICALITY   HDW/FUNC FLIGHT: 3/1R
SUBSYSTEM: EPD&C    ABORT: 3/3
MDAC ID: 5825

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
4)  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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LOCATION: 32V73A13A2A5CR1
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD TIE TWO CONTROL BUSSES TOGETHER WHICH MAY
CAUSE THE FUSE TO BLOW. THIS WOULD CAUSE THE LOSS OF REDUNDANT
POWER TO THE PLBM BUSSES IN TWO MCAS. A THIRD FAILURE COULD
CAUSE THE LOSS OF TWO PLBM BUSSES WHICH MAY CAUSE LOSS OF CREW/
VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO RENTRY.

REFERENCES: 76BC14E

REPORT DATE 03/31/87   C-827
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5826

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

ITEM: DIODE, ISOLATION 3A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) R13A2 PANEL
3) DIODE, ISOLATION 3A
4) 
5) 
6) 
7) 
8) 
9) 05-6

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LOCATION: 32V73A13A2A5CR1
PART NUMBER: JANTXV1N5551

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO RELAYS THAT CONTROL THREE PHASE AC POWER TO THE PLBM BUSES. CRITICAL LOADS ARE SUPPLIED BY REDUNDANT PLBM BUSES. THIRD FAILURE IN CONTROL CIRCUIT COULD CAUSE THE LOSS OF TWO PLBM BUSES AND MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CLOSE DOORS PRIOR TO ENTRY.

REFERENCES: 76BC14E

REPORT DATE 03/31/87   C-828
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5827

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

ITEM: SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 1)
FAILURE MODE: FAILS OPEN OR SHORTS TO CASE

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

BREAKDOWN HIERARCHY:
1) CONT BUSSES AB1, AB2, CA1, CA2, BC1, & BC2
2) R13A2 PANEL
3) SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 1)
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9) 05-6

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LOCATION: 32V73A13A2S1
PART NUMBER: ME452-0102-7401

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

EFFECTS/RATIONALE:
FAILURE OF THIS ITEM WOULD CAUSE LOSS OF REDUNDANT AC PWR TO P/L LOADS. THE SECOND FAILURE WOULD RESULT IN LOSS OF POWER TO CLOSE P/L BAY DOORS AND/OR RETRACT FREON RADIATORS.

REFERENCES: 76BC13

REPORT DATE 03/31/87  C-829
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5828

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

ITEM: SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 1)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) CONT BUSSES AB1, AB2, CA1, CA2, BC1, & BC2
2) R13A2 PANEL
3) SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 1)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A13A2S1
PART NUMBER: ME452-0102-7401

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

EFFECTS/RATIONALE:
NO EFFECT FROM THIS FAILURE AS THE SWITCH IS NORMALLY "ON".

REFERENCES: 76BC13

REPORT DATE 03/31/87 C-830
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5829

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

ITEM: SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 2)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) CONT BUSSES AB1, AB2, CA1, CA2, BC1, & BC2
2) R13A2 PANEL
3) SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 2)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A13A2S2
PART NUMBER: ME452-0102-7401

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

EFFECTS/RATIONALE:
NO EFFECT FROM THIS FAILURE AS THE SWITCH IS NORMALLY "ON".

REFERENCES: 76BC13

REPORT DATE 03/31/87 C-831
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5830
HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/IR

ITEM: SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 2)
FAILURE MODE: FAILS OPEN OR SHORTS TO CASE

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

BREAKDOWN HIERARCHY:
1) CONT Busses AB1, AB2, CA1, CA2, BC1, & BC2
2) R13A2 PANEL
3) SWITCH, TOGGLE 4PDT (P/L BAY MECH PWR SYS 2)
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LOCATION: 32V73A13A2S2
PART NUMBER: ME452-0102-7401

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

EFFECTS/RATIONALE:
FAILURE OF THIS ITEM WOULD CAUSE LOSS OF REDUNDANT AC PWR TO P/L LOADS. THE SECOND FAILURE WOULD RESULT IN LOSS OF POWER TO CLOSE P/L BAY DOORS AND/OR RETRACT FREON RADIATORS.

REFERENCES: 76BC13

REPORT DATE 03/31/87  C-832
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5831

ITEM: CIRCUIT BREAKER, 3A (AC CONT 1 A)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 1 A)
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LOCATION: 32V73A1A1CB1
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED.
HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BF24H

REPORT DATE 03/31/87 C-833
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5832  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC CONT 1 A)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 1 A)
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9) 05-6

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

LOCATION: 32V73A1A1CB1
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISISSION/VEHICLE.

REFERENCES: 76BF24H

REPORT DATE 03/31/87  C-834
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5833

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 1 B)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 1 B)
4) 5) 6) 7) 8)
9) 05-6

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LOCATION: 32V73A1A1CB2
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED.
HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BF24E
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5834

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 1 B)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 1 B)
4) 5) 6) 7) 8) 9) 05-6

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

LOCATION: 32V73A1A1CB2
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF24E
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5835

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 1 C)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIAL PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 1 C)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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


LOCATION: 32V73A1A1CB3
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED. HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BF24C

REPORT DATE 03/31/87 C-837
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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| LOCATION: | 32V73A1A1CB3 |
| PART NUMBER: | MC454-0026-2030 |

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

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| REFERENCES: | 76BF24C |

REPORT DATE 03/31/87   C-838
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5837

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

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #1)
FAILURE MODE: FAILS TO TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) MAIN DC DIST ASSY #1
4) SWITCH, TOGGLE 3PDT (INVERTER PWR #1)
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6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 32V73A1A1S16
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT OPERATIONS AS THE AC INVERTERS ARE LATCHED ON DURING PRE-LAUNCH. ALTERNATE MEANS OF REMOVING A PHASE FROM THE AC BUS EXIST.

REFERENCES: 76BF24

REPORT DATE 03/31/87 C-839
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5838  ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #1)
FAILURE MODE: INADVERTENT TRANSFER

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 (INVERTER PWR #1)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S16
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
IF THIS FAILURE OCCURS TO THE "OFF" SIDE OF THE SWITCH, AT LEAST ONE INVERTER WILL BE SHUT DOWN AND COULD NOT BE RESTARTED. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BF24
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5839

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN A TO INV 1 ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) HYBRID DRIVER TYPE I (MN A TO INV 1 ON)
5) 
6) 
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8) 
9) 05-6

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

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

LOCATION: 81V76A16AR4
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 AND IS NON-CRITICAL FOR
FLIGHT OPERATIONS.

REFERENCES: 76BF18F

REPORT DATE 03/31/87 C-841
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5840

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

ITEM: HYBRID DRIVER TYPE I (MN A TO INV 1 ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS IBC
3) FLCA-I
4) HYBRID DRIVER TYPE I (MN A TO INV 1 ON)
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CRITICALITIES

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RENDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16AR4
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 AND IS NON-CRITICAL FOR
FLIGHT OPERATIONS.

REFERENCES: 76BF18F

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: 5841  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN A TO INV 1 OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) GSE PWR
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) HYBRID DRIVER TYPE I (MN A TO INV 1 OFF)
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9) 05-6

CRITICALITIES

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

LOCATION:  81V76A16AR5
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES:  76BF18G

REPORT DATE 03/31/87  C-843
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87               HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C            FLIGHT: 3/3
MDAC ID: 5842              ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN A TO INV 1 OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) GSE PWR
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) HYBRID DRIVER TYPE I (MN A TO INV 1 OFF)
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CRITICALITIES

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

LOCATION: 81V76A16AR5
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BF18G

REPORT DATE 03/31/87 C-844
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5843

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

ITEM: HYBRID DRIVER TYPE II (INV 1 A ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE II (INV 1 A ON)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]
LOCATION: 81V76A16AR11
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT
THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS
TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED.
NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BF17G

REPORT DATE 03/31/87 C-845
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5844

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

ITEM: HYBRID DRIVER TYPE II (INV 1 A ON)
FAILURE MODE: Fails Off

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) FLCA-1
3) HYBRID DRIVER TYPE II (INV 1 A ON)
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8) 
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A16AR11
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BF17G

REPORT DATE 03/31/87 C-846
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: 5845

ITEM: HYBRID DRIVER TYPE II (INV 1 B ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-I
3) HYBRID DRIVER TYPE II (INV 1 B ON)
4)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR12
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BF17D

REPORT DATE 03/31/87 C-847
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5846

ITEM: HYBRID DRIVER TYPE II (INV 1 B ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE II (INV 1 B ON)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A16AR12
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BF17D

REPORT DATE 03/31/87 C-848
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5847  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 1 C ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE II (INV 1 C ON)
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9) 05-6

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

LOCATION: 81V76A16AR13
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BF17A

REPORT DATE 03/31/87  C-849
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5848

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

ITEM: HYBRID DRIVER TYPE II (INV 1 C ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE II (INV 1 C ON)
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9) 05-6

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

LOCATION: 81V76A16AR13
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BF17A

REPORT DATE 03/31/87 C-850
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C

FLIGHT: 3/3

MDAC ID: 5849

ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 1 A ON)

FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 A ON)

CRITICALITIES

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

LOCATION: 81V76A16AR14

PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16G

REPORT DATE 03/31/87 C-851
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5850
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 1 A ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 A ON)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A16AR14
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16G

REPORT DATE 03/31/87 C-852
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 5851

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

ITEM: HYBRID DRIVER TYPE III (INV 1 B ON)

FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 B ON)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR15
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16D

REPORT DATE 03/31/87 C-853
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 5852
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 1 B ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 B ON)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR15
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY DEPT ON DURING A FLIGHT.

REFERENCES: 76BF16D

REPORT DATE 03/31/87 C-854
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5853

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

ITEM: HYBRID DRIVER TYPE III (INV 1 C ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 C ON)
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9) 05-6

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

LOCATION: 81V76A16AR16
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE
INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND
AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16B

REPORT DATE 03/31/87 C-855
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5854

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

ITEM: HYBRID DRIVER TYPE III (INV 1 C ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 C ON)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16AR16
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16B

REPORT DATE: 03/31/87 C-856
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 5855
ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 1 A OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 A OFF)
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LOCATION: 81V76A16AR17
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER
RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS
OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY
TO POWER CRITICAL LOADS.

REFERENCES: 76BF16H

REPORT DATE 03/31/87 C-857
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5856

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 1 A OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 A OFF)
4) 
5) 
6) 
7) 
8) 
9) 05-6

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

LOCATION: 81V76A16AR17
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16H

CRITICALITIES

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REFERENCES: 76BF16H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5857

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

ITEM: HYBRID DRIVER TYPE III (INV 1 B OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 B OFF)
4)
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A16AR18
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF16E

REPORT DATE 03/31/87 C-859
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5858

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

ITEM: HYBRID DRIVER TYPE III (INV 1 B OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 B OFF)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A16AR18
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16E

REPORT DATE 03/31/87 C-860
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 5859 ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 1 C OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 C OFF)
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A16AR19
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF16B

REPORT DATE 03/31/87 C-861
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5860  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 1 C OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) HYBRID DRIVER TYPE III (INV 1 C OFF)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16AR19
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BF16B

REPORT DATE 03/31/87  C-862
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5861

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

ITEM: RELAY, LATCHING TO INVERTER 1A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIAI PANEL
3) FLCA-1
4) FPDA-1
5) RELAY, LATCHING TO INVERTER 1A
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A22K1
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS IN ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BF13H

REPORT DATE 03/31/87 C-863
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C   FLIGHT: 3/3
MDAC ID: 5862  ABORT: 3/3

ITEM: RELAY, LATCHING TO INVERTER 1A
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) RELAY, LATCHING TO INVERTER 1A
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22K1
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BF13H

REPORT DATE 03/31/87  C-864
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5863

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

ITEM: RELAY, LATCHING TO INVERTER 1B
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) RELAY, LATCHING TO INVERTER 1B
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CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/1R
LIFTOFF: 3/1R TAL: 3/1R
ONORB: 3/1R AOA: 3/1R
DEORBIT: 3/1R ATO: 3/1R
LANDING/SAFING: 3/3


LOCATION: 8IV76A22K2
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS IN ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BF13E

REPORT DATE 03/31/87 C-865
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5864

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY, LATCHING TO INVERTER 1B
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FPCA-1
4) FLCA-I
5) RELAY, LATCHING TO INVERTER 1B
6) ...
7) ...
8) ...
9) 05-6

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

LOCATION: 81V76A22K2
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BF13E

REPORT DATE 03/31/87 C-866
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5865  ABORT: 3/1R

ITEM: RELAY, LATCHING TO INVERTER 1C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) RELAY, LATCHING TO INVERTER 1C
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9) 05-6

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LOCATION: 81V76A22K3
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS IN ONE PHASE OF THE THREE PHASE AC BUS.
REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BF13C

REPORT DATE 03/31/87  C-867
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5866

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

ITEM: RELAY, LATCHING TO INVERTER 1C
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) RELAY, LATCHING TO INVERTER 1C
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9) 05-6

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

LOCATION: 81V76A22K3
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BF13C
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5867

HIGHEST CRITICALITY

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

ITEM: FUSE, 80A TO INV 1 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) FPCA-1
4) FUSE, 80A TO INV 1 A

CRITICALITIES

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LOCATION: 81V76A22F1
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF13H

REPORT DATE 03/31/87 C-869
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5868

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

ITEM: FUSE, 80A TO INV 1 B
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, 80A TO INV 1 B
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22F2
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF13E

REPORT DATE 03/31/87  C-870
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5869

ITEM: FUSE, 80A TO INV 1 C
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, 80A TO INV 1 C
5) 
6) 
7) 
8) 
9) 05-6

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LOCATION: 81V76A22F3
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF13C

REPORT DATE 03/31/87 C-871
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5870

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

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) MAIN DC DIST ASSY #1
3) FPCA-1
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
5) 
6) 
7) 
8) 
9) 05-6

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

LOCATION: 81V76A22A1R66
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BF12G

REPORT DATE 03/31/87 C-872
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5871

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
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 1/4W (TO MDM OF1)
5) 6) 7) 8) 9) 05-6

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

LOCATION: 81V76A22A1R67
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION. ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BF12E

REPORT DATE 03/31/87 C-873
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5872

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
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 1/4W (TO MDM OF1)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22A1R68
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BF12B

REPORT DATE 03/31/87 C-874
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5873

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FPCA-1
4) DIODE, ISOLATION
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CRITICALITIES

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

LOCATION: 81V76A22A1CR1
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF13G

REPORT DATE 03/31/87 C-875
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5874

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS
LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FPCA-1
4) DIODE, ISOLATION

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

LOCATION: 81V76A22A1CR1
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF13G

REPORT DATE 03/31/87 C-876
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5875  ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) R1A1 PANEL
3) FPCA-I
4) DIODE, ISOLATION
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22A1CR2
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISISON/VEHICLE.

REFERENCES: 76BF13D

REPORT DATE 03/31/87  C-877
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5876  ABORT: 3/3

ITEM:  DIODE, ISOLATION  FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FPCA-1
4) DIODE, ISOLATION
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 81V76A22A1CR2
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF13D

REPORT DATE 03/31/87  C-878
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: FLIGHT: 3/3
SUBSYSTEM: EPD&C
ABORT: 3/3
MDAC ID: 5877

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FPCA-1
4) DIODE, ISOLATION
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF13B

REPORT DATE 03/31/87 C-879
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5878

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FPCA-1
4) DIODE, ISOLATION
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF13B

REPORT DATE 03/31/87 C-880
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 5879

**HIGHEST CRITICALITY**

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**ITEM:** RPC, 7.5A TO INV 1 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) FPCA-1  
4) RPC, 7.5A TO INV 1 A  
5)  
6)  
7)  
8)  
9) 05-6

**CRITICALITIES**

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

**LOCATION:** 81V76A22RPC8  
**PART NUMBER:** MC450-0017-1075

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

**EFFECTS/RATIONALE:**
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

**REFERENCES:** 76BF12F

**REPORT DATE** 03/31/87  
**C-881**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5880

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

ITEM: RPC, 7.5A TO INV 1 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) FPCA-1
4) RPC, 7.5A TO INV 1 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

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

LOCATION: 81V76A22RPC8
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND, AN IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BF12F

REPORT DATE 03/31/87 C-882
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5881

ITEM: RPC, 7.5A TO INV 1 B
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, 7.5A TO INV 1 B
5)
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9) 05-6

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

LOCATION: 81V76A22RPC9
PART NUMBER: MC450-0017-1075

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF12D

REPORT DATE 03/31/87 C-883
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5882

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

ITEM: RPC, 7.5A TO INV 1 B
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, 7.5A TO INV 1 B
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22RPC9
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BF12D

REPORT DATE 03/31/87  C-884
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5883  ABORT: 3/3

ITEM: RPC, 7.5A TO INV 1 C
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, 7.5A TO INV 1 C
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A22RPC10
PART NUMBER: MC450-0017-1075

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF12A

REPORT DATE 03/31/87  C-885
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5884

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

ITEM: RPC, 7.5A TO INV 1 C
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, 7.5A TO INV 1 C
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A22RPC10
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND, AN IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BF12A

REPORT DATE 03/31/87 C-886
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 5885 ABORT: 3/1R

ITEM: INVERTER 1 A
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 A
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9) 05-6

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LOCATION: 81V76A1
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10H

REPORT DATE 03/31/87 C-887
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5886  ABORT: 3/3

ITEM: INVERTER 1 A
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 A

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

LOCATION:  81V76A1
PART NUMBER:  MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BF10H

REPORT DATE 03/31/87  C-888
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5887

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

ITEM: INVERTER 1 A
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RlA1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 A
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: 81V76A1
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10H

REPORT DATE 03/31/87 C-889
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5888

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

ITEM: INVERTER 1 A
FAILURE MODE: PHASE REF CHANGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 A
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LOCATION: 81V76A1
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10H

REPORT DATE 03/31/87 C-890
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5889  ABOJT: 3/1R

ITEM: INVERTER 1 B
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 B

CRITICALITIES

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LOCATION: 81V76A2
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10E

REPORT DATE 03/31/87  C-891
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5890

ITEM: INVERTER 1 B
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1 BC
2) RIA1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 B
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A2
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BF10E

REPORT DATE 03/31/87 C-892
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5891

HIGHEST CRITICALITY
HDW/FUNC

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

ITEM: INVERTER 1 B
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 B
6)
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9) 05-6

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LOCATION: 81V76A2
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO
BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE
SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS
OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10E

REPORT DATE 03/31/87 C-893
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5892

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

ITEM: INVERTER 1 B
FAILURE MODE: PHASE REF CHANGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 B
6)
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9) 05-6

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LOCATION: 81v76a2
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10E

REPORT DATE 03/31/87 C-894
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5893

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

ITEM: INVERTER 1 C
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 C
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LOCATION: 81V76A3
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10C

REPORT DATE 03/31/87 C-895
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5894

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

ITEM: INVERTER 1 C
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 C
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7) 
8) 
9) 05-6

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

LOCATION: 81V76A3
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE: THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BF10C

REPORT DATE 03/31/87 C-896
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5895

ITEM: INVERTER 1 C
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPICA-1
5) INVERTER 1 C

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LOCATION: 81V76A3
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10C

REPORT DATE 03/31/87 C-897
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5896

ITEM: INVERTER 1 C
FAILURE MODE: PHASE REF CHANGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) FPCA-1
5) INVERTER 1 C

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LOCATION: 81V76A3
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BF10C

REPORT DATE 03/31/87 C-898
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&C
MDAC ID: 5897

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 1)
FAILURE MODE: FAILS TO TRANSFER

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 (INV/AC BUS 1)

CRITICALITIES

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LOCATION: 32V73A1A1S19
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
IF THE AC BUS RELAY IS TRIPPED OFF BY THE AC OVER/UNDER VOLTAGE SENSOR AND THIS FAILURE OCCURS, THE RESULT IS THE LOSS OF ONE PHASE OF THE AC BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BG24F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5898

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

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 1)
FAILURE MODE: INADVERTENT TRANSFER

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 (INV/AC BUS 1)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S19
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
THIS FAILURE COULD DISCONNECT ONE PHASE OF THE AC BUS FROM THE INVERTER. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BG24F

REPORT DATE 03/31/87 C-900
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5899

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

ITEM: HYBRID DRIVER TYPE III (AC BUS 1 ON)
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-I
4) HYBRID DRIVER TYPE III (AC BUS 1 ON)
5) 
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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: 81V76A16AR9
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: 76BG23G

REPORT DATE 03/31/87 C-901
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5900

HIGHEST CRITICALITY
HDW/FUNC: 3/3

FLIGHT:
3/3

ABORT:
3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 1 ON)
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 (AC BUS 1 ON)
5) GSE POWER
6) PRE-FLIGHT TEST BUS #1
7) FLCA-1
8) HYBRID DRIVER TYPE III (AC BUS 1 ON)
9) 05-6

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

LOCATION: 81V76A16AR9
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: 76BG23G

REPORT DATE 03/31/87 C-902
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: 5901

ITEM: HYBRID DRIVER TYPE III (AC BUS 1 OFF)
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 (AC BUS 1 OFF)

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

CRITICALITIES

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

LOCATION: 81V76A16AR10
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: 76BG23H

REPORT DATE 03/31/87 C-903
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5902  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 1 OFF)
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 (AC BUS 1 OFF)
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8)
9) 05-6

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

LOCATION: 81V76A16AR10
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: 76BG23H

REPORT DATE 03/31/87  C-904
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5903

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

ITEM: FUSE, 3A TO AC BUS 1 CMD
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) FUSE, 3A TO AC BUS 1 CMD
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9) 05-6

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

LOCATION: 81V76A16F
PART NUMBER: ME451-0010-1030

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: 76BG23H

REPORT DATE 03/31/87 C-905
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5904
HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 1 CMD
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) FUSE, 3A TO AC BUS 1 CMD
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8)
9) 05-6

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

LOCATION: 81V76A16F
PART NUMBER: ME451-0010-1030

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: 76BG23G

REPORT DATE 03/31/87 C-906
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5905

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

ITEM: AC OVER/UNDER VOLT SNSR 1
FAILURE MODE: INADVERTENT OUTPUT

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

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR 1
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9) 05-6

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LOCATION: 81V76A35VS1
PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BG

REPORT DATE 03/31/87 C-907
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: 5906

ITEM: AC OVER/UNDER VOLT SNSR 1

FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR 1
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35VS1

PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO AUTOMATICALLY DETECT AND INTERRUPT AN OVERLOADED AC INVERTER. MANUAL METHODS OF INVERTER SHUTDOWN ARE AVAILABLE. NO EFFECT TO CREW/MISSION/VEHICLE

REFERENCES: 76BG

REPORT DATE 03/31/87 C-908
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5907
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 1 A SET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 A SET)
6)
7)
8)
9) 05-6

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

LOCATION: 81V76A35A1CR1
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87 C-909
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: 5908

ITEM: DIODE, BLOCKING 1A (TO 1 A SET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 A SET)
6)
7)
8)
9) 05-6

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

LOCATION: 81V76A35A1CR1
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87 C-910
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

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

ITEM: DIODE, BLOCKING 1A (TO 1 B SET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 B SET)
6) 7) 8) 9) 05-6

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

LOCATION: 81V76A35A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87 C-911
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5910

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

ITEM: DIODE, BLOCKING 1A (TO 1 B SET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 B SET)
6)
7)
8)
9) 05-6

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

LOCATION: 81V76A35A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87 C-912
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5911  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 1 C SET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 C SET)
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 81V76A35A1CR3
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87  C-913
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5912

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

ITEM: DIODE, BLOCKING 1A (TO 1 C SET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 C SET)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1CR3
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21G

REPORT DATE 03/31/87 C-914
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

SUBSYSTEM: EPD&C

HDW/FUNC

MDAC ID: 5913

FLIGHT: 3/1R

ABORT: 3/1R

ITEM: DIODE, BLOCKING 1A (TO 1 A RESET)

FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 A RESET)
6)
7)
8)
9) 05-6

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LOCATION: 81V76A35A1CR4

PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS
FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH
WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF
LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87  C-915
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5914

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

ITEM: DIODE, BLOCKING 1A (TO 1 A RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 A RESET)
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9) 05-6

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

LOCATION: 81V76A35A1CR4
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87 C-916
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5915  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 1 B RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 B RESET)
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  81V76A35A1CR5
PART NUMBER:  JANTXV1N49444

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87  C-917
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: 5916

ITEM: DIODE, BLOCKING 1A (TO 1 B RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 B RESET)
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9) 05-6

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LOCATION: 81V76A35A1CR5
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87  C-918
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5917

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

ITEM: DIODE, BLOCKING 1A (TO 1 C RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 C RESET)
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: 81V76A35A1CR6
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87 C-919
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: 5918

ITEM: DIODE, BLOCKING 1A (TO 1 C RESET)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 1)
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) INV DIST & CONT ASSY #1
5) DIODE, BLOCKING 1A (TO 1 C RESET)

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

LOCATION: 81V76A35A1CR6

PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BG21H

REPORT DATE 03/31/87 C-920
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5919

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

ITEM: DIODE, BLOCKING 1A (TO 1 C RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 C RESET)

CRITICALITIES

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

LOCATION: 81V76A35A1CR7
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS. HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE RELAY AUTOMATICALLY.
SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG15F

REPORT DATE 03/31/87 C-921
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5920  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 1 C RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 C RESET)
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8)
9) 05-6

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

LOCATION: 81V76A35A1CR7
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BG15F

REPORT DATE 03/31/87  C-922
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5921  ABORT: 3/3

ITEM:  DIODE, BLOCKING 1A (TO 1 B RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 B RESET)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A35A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BG15F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5922

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

ITEM: DIODE, BLOCKING 1A (TO 1 B RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 B RESET)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS. HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE RELAY AUTOMATICALLY.
SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG15F

REPORT DATE 03/31/87 C-924
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5923  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 1 A RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 A RESET)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS. HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE RELAY AUTOMATICALLY. SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG15F

REPORT DATE 03/31/87  C-925
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5924

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

ITEM: DIODE, BLOCKING 1A (TO 1 A RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) DIODE, BLOCKING 1A (TO 1 A RESET)
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9) 05-6

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

LOCATION: 81V76A35A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BG15F

REPORT DATE 03/31/87 C-926
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5925

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC BUS OVER/UNDER VOLTAGE SNSR
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
5)
6)
7)
8)
9) 05-6

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

LOCATION: 81V76A35A1R2
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO FLIGHT OPERATION.

REFERENCES: 76BG19C

REPORT DATE 03/31/87 C-927
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: 5926

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) AC BUS OVER/UNDER VOLTAGE SNSR
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R1

PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BG19C

REPORT DATE 03/31/87 C-928
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5927

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

ITEM: RESISTOR, 2.2K 1/4W
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) 013 PANEL
3) R1A1 PANEL
4) INV DIST & CONT ASSY #1
5) RESISTOR, 2.2K 1/4W TO MDM OF1

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

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

LOCATION: 81V76A35A1R6
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BG19C

REPORT DATE 03/31/87 C-929
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5928

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

ITEM: RESISTOR, 2.2K 1/4W
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) 013 PANEL
3) R1A1 PANEL
4) INV DIST & CONT ASSY #1
5) RESISTOR, 2.2K 1/4W TO MDM OF1

CRITICALITIES

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

LOCATION: 81V76A35A1R9
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BG19C

REPORT DATE 03/31/87 C-930
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5929

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) AC BUS 1
2) INV DIST CONT & ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) RESISTOR, 1.8K 1/4W (TO MDM OF1)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R7
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BG20C

REPORT DATE 03/31/87 C-931
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5930

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
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) AC BUS 1
2) INV DIST CONT & ASSY #1
3) AC OVER/UNDER VOLT SNSR #1
4) RESISTOR, 1.8K 1/4W (TO MDM OF1)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1R8
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BG20C

REPORT DATE 03/31/87 C-932
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5931

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

ITEM: SWITCH, TOGGLE SPDT (AC 1 BUS SNSR)
FAILURE MODE: FAILS TO TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) 013 PANEL
3) R1A1 PANEL
4) SWITCH, TOGGLE SPDT (AC 1 BUS SNSR)

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LOCATION: 32V73A1A1S22
PART NUMBER: ME452-0102-7103

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

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BG22B

REPORT DATE 03/31/87 C-933
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5932  ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (AC 1 BUS SNSR)
FAILURE MODE: INADVERTENT TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) 013 PANEL
3) R1A1 PANEL
4) SWITCH, TOGGLE SPDT (AC 1 BUS SNSR)
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9) 05-6

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LOCATION: 32V73A1A1S22
PART NUMBER: ME452-0102-7103

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

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BG22B

REPORT DATE 03/31/87  C-934
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5933  ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 3A TO AC1 BUS SENSOR
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) 013 PANEL
3) CIRCUIT BREAKER, 3A TO AC1 BUS SENSOR
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 33V73A13CB3
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

REFERENCES: 76BF24B

REPORT DATE 03/31/87 C-935
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM:  EPD&C  FLIGHT:  3/1R
MDAC ID:  5934  ABORT:  3/1R

ITEM:  CIRCUIT BREAKER, 3A TO AC1 BUS SENSOR
FAILURE MODE:  FAILS OPEN

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

BREAKDOWN HIERARCHY:
1)  ESS BUS 1BC
2)  013 PANEL
3)  CIRCUIT BREAKER, 3A TO AC1 BUS SENSOR
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LOCATION:  33V73A13CB3
PART NUMBER:  MC454-0026-2030

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

EFFECTS/RATIONALE:
WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

REFERENCES:  76BF24B

REPORT DATE 03/31/87  C-936
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5935

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

ITEM: RELAY, LATCHING TO AC BUS 1A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1A

CRITICALITIES

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LOCATION: 81V76A35K1
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG11

REPORT DATE 03/31/87 C-937
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5936

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

ITEM: RELAY, LATCHING TO AC BUS 1A
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1A
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35KI
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BG11

REPORT DATE 03/31/87 C-938
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5937  ABORT: 3/3

ITEM: RELAY, LATCHING TO AC BUS 1B
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1B
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35K2
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BG11

REPORT DATE 03/31/87  C-939
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5938

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

ITEM: RELAY, LATCHING TO AC BUS 1B
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1B
4) 
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A35K2
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG11

REPORT DATE 03/31/87 C-940
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5939

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

ITEM: RELAY, LATCHING TO AC BUS 1C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1C
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LOCATION: 81V76A35K3
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG11

REPORT DATE 03/31/87 C-941
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5940

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

ITEM: RELAY, LATCHING TO AC BUS 1C
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) RELAY, LATCHING TO AC BUS 1C

CRITICALITIES

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REduNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35K3
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BG11

REPORT DATE 03/31/87 C-942
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 5941  ABORT: 3/1R

ITEM: FUSE, 3A TO AC BUS 1A  FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST CONT ASSY #1
3) AC O/V VOLT SNSR 1
4) FUSE, 3A TO AC BUS 1A
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9) 05-6

CRITICALITIES

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LOCATION: 81V76A35F1
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD
CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF
ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF
POWER TO CRITICAL LOADS.

REFERENCES: 76BG9E

REPORT DATE 03/31/87  C-943
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5942

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

ITEM: FUSE, 3A TO AC BUS 1 B
FAILURE MODE: Fails Open

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST CONT ASSY #1
3) AC O/V VOLT SNSR 1
4) FUSE, 3A TO AC BUS 1 B
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9) 05-6

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LOCATION: 81V76A35F2
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG9D

REPORT DATE 03/31/87 C-944
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: 5943

ITEM: FUSE, 3A TO AC BUS 1 C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST CONT ASSY #1
3) AC O/V VOLT SNSR 1
4) FUSE, 3A TO AC BUS 1 C
5)
6)
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8)
9) 05-6

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LOCATION: 81V76A35F3
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BG9B

REPORT DATE 03/31/87 C-945
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5944  ABORT: 3/3

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

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

BREAKDOWN HIERARCHY:
1) AC BUS 1 
2) INV DIST CONT ASSY #1 
3) FUSE, 3A TO AC VOLTMETER
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A35F4
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON
CREW/MISSION/VEHICLE.

REFERENCES: 76BG9E

REPORT DATE 03/31/87  C-946
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5945

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

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

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST CONT ASSY #1
3) FUSE, 3A TO AC VOLTMETER

CRITICALITIES

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

LOCATION: 81V76A35F5
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG9C

REPORT DATE 03/31/87 C-947
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 5946
ABORT: 3/3

ITEM: FUSE, 3A TO AC VOLTOMETER
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST CONT ASSY #1
3) FUSE, 3A TO AC VOLTOMETER
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35F6
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THESE FUSES CONNECT TO A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG9B

REPORT DATE 03/31/87 C-948
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5947

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

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) ESS BUS 1BC
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R3
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BG12H

REPORT DATE 03/31/87 C-949
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 5948 ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) ESS BUS 1BC
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
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9) 05–6

CRITICALITIES

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

LOCATION: 81V76A35A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BG12G

REPORT DATE 03/31/87 C-950
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5949  ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF1)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) ESS BUS 1BC
4) RESISTOR, 5.1K 1/4W (TO MDM OF1)
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9) 05-6

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

LOCATION: 81V76A35A1R5
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BG12G

REPORT DATE 03/31/87  C-951
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5950  ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 1 A VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 4.3K 1/8W (AC BUS 1 A VOLTAGE)
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  81V76A35A1R16
PART NUMBER:  RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES:  76BG9A

REPORT DATE 03/31/87  C-952
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 5951 ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 1 B VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 4.3K 1/8W (AC BUS 1 B VOLTAGE)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R17
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BG9A

REPORT DATE 03/31/87 C-953
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 5952 ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 1 C VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 4.3K 1/8W (AC BUS 1 C VOLTAGE)
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9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R18
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BG9A

REPORT DATE 03/31/87 C-954
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5953

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

ITEM: RESISTOR, 150K 1/2W (AC BUS 1 A VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 150K 1/2W (AC BUS 1 A VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1R13
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BG10E

REPORT DATE 03/31/87 C-955
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5954

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

ITEM: RESISTOR, 150K 1/2W (AC BUS 1 B VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 150K 1/2W (AC BUS 1 B VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1R14
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BG10D

REPORT DATE 03/31/87 C-956
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

SUBSYSTEM: EPD&C

FLIGHT: 3/3

MDAC ID: 5955

ABORT: 3/3

ITEM: RESISTOR, 150K 1/2W (AC BUS 1 C VOLTAGE)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 150K 1/2W (AC BUS 1 C VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1R15

PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BG10B

REPORT DATE 03/31/87 C-957
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5956

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

ITEM: RESISTOR, 100K (AC BUS 1 A CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 100K (AC BUS 1 A CURRENT)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35A1R10
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BG13E

REPORT DATE 03/31/87 C-958
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5957    ABORT: 3/3

ITEM: RESISTOR, 100K (AC BUS 1 B CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 100K (AC BUS 1 B CURRENT)
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 81V76A35A1R11
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BG13D

REPORT DATE 03/31/87   C-959
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5958

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

ITEM: RESISTOR, 100K (AC BUS 1 C CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #1
3) RESISTOR, 100K (AC BUS 1 C CURRENT)

CRITICALITIES

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

LOCATION: 81V76A35A1R12
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BG13B

REPORT DATE 03/31/87 C-960
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5959

ITEM: AC VOLTMETER
FAILURE MODE: FAILS OPEN OR SHORTS

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

BREAKDOWN HIERARCHY:
1) F9A2 PANEL
2) AC VOLTMETER
3) ...
4) ...
5) ...
6) ...
7) ...
8) '
o5-6

CRITICALITIES

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

LOCATION: 34V73A9A2M1
PART NUMBER: MC432-0237-0002

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
NO EFFECT AS THIS METER PROVIDES NON-CRITICAL MEASUREMENTS. ALTERNATE MEASUREMENT VISIBILITY IS AVAILABLE.

REFERENCES: 76BG7H

REPORT DATE 03/31/87 C-961
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5960

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

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV & DIST CONT ASSY #1
3) L4 PANEL
4) F1 PANEL
5) M052J PANEL
6) SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 80V73A124S2
PART NUMBER: ME452-0102-7303

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

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15B

REPORT DATE 03/31/87 C-962
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5961  ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV & DIST CONT ASSY #1
3) L4 PANEL
4) F1 PANEL
5) M052J PANEL
6) SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
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8) 
9) 05-6

CRITICALITIES

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

LOCATION: 80V73A124S2
PART NUMBER: ME452-0102-7303

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

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15B

REPORT DATE 03/31/87  C-963
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5962

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

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV & DIST CONT ASSY #1
3) L4 PANEL
4) F1 PANEL
5) SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
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CRITICALITIES

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

LOCATION: 34V73A1S2
PART NUMBER: ME452-0102-7303

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

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15D

REPORT DATE 03/31/87 C-964
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

SUBSYSTEM: EPD&C

MDAC ID: 5963

FLIGHT: 3/3

ABORT: 3/3

ITEM:
SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)

FAILURE MODE:
FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) AC BUS 1
2) INV & DIST CONT ASSY #1
3) L4 PANEL
4) F1 PANEL
5) SWITCH, TOGGLE 3PDT (AC BUS 1 UTIL PWR)
6)
7)
8)
9) 05-6

CRITICALITIES

FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC

PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

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

LOCATION: 34V73A1S2
PART NUMBER: ME452-0102-7303

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

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15D

REPORT DATE 03/31/87 C-965
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5964

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

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) L4 PANEL
4) CIRCUIT BREAKER, 3P 3A TO AC UTIL POWER
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 31V73A4CB28
PART NUMBER: MC452-0032-3030

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

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO AN AC UTILITY OUTLET. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15G

REPORT DATE 03/31/87  C-966
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 5965

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

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) L4 PANEL
4) CIRCUIT BREAKER, 3P 3A TO AC UTIL POWER
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 31V73A4CB28
PART NUMBER: MC452-0032-3030

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

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO AN AC UTILITY OUTLET. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BH15G
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5966  ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO FMCA-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-1
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB1
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BJ22D

REPORT DATE 03/31/87 C-968
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: 5967

ITEM: CIRCUIT BREAKER TO FMCA-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-1

CRITICALITIES

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

LOCATION:  85V73A129CB1
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ22D

REPORT DATE 03/31/87 C-969
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

SUBSYSTEM: EPD&C

FLIGHT: 2/1R

MDAC ID: 5968

ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO MMCA-1

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-1
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CRITICALITIES

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LOCATION: 85V73A129CB2

PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BJ22G

REPORT DATE 03/31/87 C-970
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 5969 ABORT: 3/3

ITEM: CIRCUIT BREAKER TO MMCA-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-1
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB2
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ22G

REPORT DATE 03/31/87 C-971
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5970  ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO MMCA-3
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-3
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB3
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BJ22F

REPORT DATE 03/31/87  C-972
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5971

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

ITEM: CIRCUIT BREAKER TO MMCA-3
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-3
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB3
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ22F

REPORT DATE 03/31/87 C-973
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

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

ORBITER
SUBSYSTEM ANALYSIS WORKSHEET

ITEM: CIRCUIT BREAKER TO AMCA-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:

1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO AMCA-1
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB4
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BJ22H

REPORT DATE 03/31/87 C-974
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5973

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

ITEM: CIRCUIT BREAKER TO AMCA-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER TO AMCA-1
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB4
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ22H

REPORT DATE 03/31/87 C-975
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5974

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

ITEM: CIRCUIT BREAKER AC 1A TO RCS/OMS-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1A TO RCS/OMS-1
5)
6)
7)
8)
9) 05-6

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LOCATION: 85V73A129CB38
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BJ23C

REPORT DATE 03/31/87 C-976
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 5975  ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 1A TO RCS/OMS-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1A TO RCS/OMS-1
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7) 
8) 
9) 05-6

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

LOCATION: 85V73A129CB38
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ23C

REPORT DATE 03/31/87  C-977
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 5976

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

ITEM: CIRCUIT BREAKER AC 1B TO RCS/OMS-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1B TO RCS/OMS-1
5)
6)
7)
8)
9) 05-6

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LOCATION: 85V73A129CB39
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BJ23B

REPORT DATE 03/31/87 C-978
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

SUBSYSTEM: EP&D&C

MDAC ID: 5977

FLIGHT: 3/3

ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 1B TO RCS/OMS-I

FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1B TO RCS/OMS-I
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB39

PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ23B

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

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5978

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

ITEM: CIRCUIT BREAKER AC 1C TO RCS/OMS-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1C TO RCS/OMS-1
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB40
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BJ23B

REPORT DATE 03/31/87 C-980
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5979

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

ITEM: CIRCUIT BREAKER AC 1C TO RCS/OMS-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER AC 1C TO RCS/OMS-1

CRITICALITIES

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

LOCATION: 85V73A129CB40
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BJ23B

REPORT DATE 03/31/87 C-981
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5980  ABORT: 2/1R

ITEM: RELAY TO PLBD AC1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY TO PLBD AC1
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION:  40V76A119K20
PART NUMBER:  MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES:  76BJ14E

REPORT DATE 03/31/87  C-982
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5981

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

ITEM: RELAY TO PLBD ACI
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY TO PLBD ACI
6)
7)
8)
9) 05-6

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LOCATION: 40V76A119K20
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BJ14E

REPORT DATE 03/31/87 C-983
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5982

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

ITEM: RELAY TO PLBD AC1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY TO PLBD AC1
6)
7)
8)
9) 05-6

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LOCATION: 40V76A119K22
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BJ14E

REPORT DATE 03/31/87  C-984
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5983

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

ITEM: RELAY TO PLBD AC1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY TO PLBD AC1
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A119K22
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BJ14E

REPORT DATE 03/31/87  C-985
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5984

ITEM: RELAY TO PLBD ACI
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY TO PLBD ACI
6)
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8)
9) 05-6

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LOCATION: 40V76A117K66
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BJ7D

REPORT DATE 03/31/87 C-986
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5985

ITEM: RELAY TO PLBD AC1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY TO PLBD AC1
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8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A117K66
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BJ7D

REPORT DATE 03/31/87 C-987
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 5986

ITEM: RELAY TO PLBD AC1  
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1  
2) INV DIST & CONT ASSY #1  
3) MA73C PANEL  
4) MMCA-1  
5) RELAY TO PLBD AC1  
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REDUNDANCY SCREENS: A [ 1 ]  
B [ P ]  
C [ P ]

LOCATION: 40V76A117K78  
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BJ7D

REPORT DATE 03/31/87  
C-988
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5987

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

ITEM: RELAY TO PLBD AC1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY TO PLBD AC1


LOCATION: 40V76A117K78
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BJ7D

REPORT DATE 03/31/87 C-989
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5988  ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC1  FAILURE MODE: FAILS OPEN
LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY, 4P TO PLBM-AC1
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LOCATION: 40V76A117K80
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BJ6D

REPORT DATE 03/31/87  C-990
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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ITEM: RELAY, 4P TO PLBM-AC1  
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT AssY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY, 4P TO PLBM-AC1
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9) 05-6

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

LOCATION: 40V76A117K80  
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BJ6D

REPORT DATE 03/31/87  C-991
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5990

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

ITEM: RELAY, 4P TO PLBM-AC1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY, 4P TO PLBM-AC1
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LOCATION: 40V76A117K84
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BJ6D

REPORT DATE 03/31/87 C-992
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5991

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

ITEM: RELAY, 4P TO PLBM-AC1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-1
5) RELAY, 4P TO PLBM-AC1
6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 40V76A117K84
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BJ6D

REPORT DATE 03/31/87 C-993
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5992

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

ITEM: RELAY, 4P TO PLBM-AC1
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC1
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A119K7
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BK23D

REPORT DATE 03/31/87 C-994
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5993

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

ITEM: RELAY, 4P TO PLBM-AC1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC1
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A119K7
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BK23D

REPORT DATE 03/31/87 C-995
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 5994  ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC1
6)
7)
8)
9) 05-6

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


LOCATION: 40V76A119K9
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BK23E

REPORT DATE 03/31/87  C-996
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5995

ITEM: RELAY, 4P TO PLBM-ACI
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-ACI
6)
7)
8) 05-6

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LOCATION: 40V76A119K9
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BK23E

REPORT DATE 03/31/87 C-997
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5996

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 2 A)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 2 A)
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9) 05-6

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LOCATION: 32V73A1A1CB4
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED. HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BM24H

REPORT DATE 03/31/87 C-998
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5997

ITEM: CIRCUIT BREAKER, 3A (AC CONT 2 A)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 2 A)
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9) 05-6

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

LOCATION: 32V73A1A1CB4
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM24H

REPORT DATE 03/31/87  C-999
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5998

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 2 B)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 2 B)

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LOCATION: 32V73A1A1CB5
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED.
HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BM24D
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 5999

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

ITEM: CIRCUIT BREAKER, 3A (AC CONT 2 B)
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 2 B)
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5)
6)
7)
8)
9) 05-6

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

LOCATION: 32V73A1A1CB5
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM24D

REPORT DATE 03/31/87 C-1001
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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

**ITEM:** CIRCUIT BREAKER, 3A (AC CONT 2 C)  
**FAILURE MODE:** FAILS OPEN

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

**BREAKDOWN HIERARCHY:**
1) ESS BUS 2CA  
2) R1A1 PANEL  
3) CIRCUIT BREAKER, 3A (AC CONT 2 C)  
4)  
5)  
6)  
7)  
8)  
9) 05-6

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**LOCATION:** 32V73A1A1CB6  
**PART NUMBER:** MC454-0026-2030

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

**EFFECTS/RATIONALE:**
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED. HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

**REFERENCES:** 76BM24C

**REPORT DATE 03/31/87** C-1002
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6001  

ITEM: CIRCUIT BREAKER, 3A (AC CONT 2 C)  
FAILURE MODE: FAILS CLOSED  

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA  
2) R1A1 PANEL  
3) CIRCUIT BREAKER, 3A (AC CONT 2 C)  
4)  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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

LOCATION: 32V73A1A1CB6  
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
This CB is closed during normal operations and the crew may switch out this circuit with a toggle switch in case of an overload which would result in the loss of one phase of the AC bus. Since most AC motors can operate on two phases, this failure plus an overload condition would have no effect on crew/mission/vehicle.

REFERENCES: 76BM24C

REPORT DATE 03/31/87  C-1003
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: 6002

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #2)
FAILURE MODE: FAILS TO TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) MAIN DC DIST ASSY #2
4) SWITCH, TOGGLE 3PDT (INVERTER PWR #2)
5) 6)
6) 7)
8) 9) 05-6

CRITICALITIES

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

LOCATION: 32V73A1A1S17
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON NORMAL FLIGHT OPERATIONS AS THE AC INVERTERS ARE LATCHED ON DURING PRELAUNCH. ALTERNATE MEANS EXIST TO TURN OFF ONE AC BUS PHASE IF REQUIRED.

REFERENCES: 76BM24

REPORT DATE 03/31/87 C-1004
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6003

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

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #2)
FAILURE MODE: INADVERTENT TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) MAIN DC DIST ASSY #2
4) SWITCH, TOGGLE 3PDT (INVERTER PWR #2)
5) 
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8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S17
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
IF THIS FAILURE OCCURS TO THE "OFF" SIDE OF THE SWITCH, AT LEAST ONE INVERTER WILL BE SHUT DOWN AND COULD NOT BE RESTARTED. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BM24

REPORT DATE 03/31/87 C-1005
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6004

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

ITEM: HYBRID DRIVER TYPE I (MN B TO INV 2 ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) GSE PWR
2) ESS BUS 2CA
3) FLCA-2
4) HYBRID DRIVER TYPE I (MN B TO INV 2 ON)
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9) 05-6

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

LOCATION: 82V76A17AR4
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BM18F

REPORT DATE 03/31/87 C-1006
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6005  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN B TO INV 2 ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) GSE PWR
2) ESS BUS 2CA
3) FLCA-2
4) HYBRID DRIVER TYPE I (MN B TO INV 2 ON)
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CRITICALITIES

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

LOCATION: 82V76A17AR4
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BM18F

REPORT DATE 03/31/87  C-1007
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET 

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ITEM: HYBRID DRIVER TYPE I (MN B TO INV 2 OFF)  
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 (MN B TO INV 2 OFF)  
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9) 05-6  

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]  
LOCATION: 82V76A17AR5  
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.  

REFERENCES: 76BM18G  

REPORT DATE 03/31/87  
C-1008
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6007

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN B TO INV 2 OFF)
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 (MN B TO INV 2 OFF)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR5
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BM18G

REPORT DATE 03/31/87   C-1009
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6008
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 2 A ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE II (INV 2 A ON)

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

LOCATION: 82V76A17AR11
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE MISSION.

REFERENCES: 76BM17G

REPORT DATE 03/31/87 C-1010
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6009  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 2 A ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE II (INV 2 A ON)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR11
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.

THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BM17G

REPORT DATE 03/31/87  C-1011
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6010

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

ITEM: HYBRID DRIVER TYPE II (INV 2 B ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE II (INV 2 B ON)
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR12
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BM17D

REPORT DATE 03/31/87 C-1012
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6011  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 2 B ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE II (INV 2 B ON)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17AR12
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULDN'T CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULDN'T BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BMI17D

REPORT DATE 03/31/87  C-1013
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**ITEM:** HYBRID DRIVER TYPE II (INV 2 C ON)  
**FAILURE MODE:** FAILS ON  
**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) ESS BUS 2CA  
2) FLCA-2  
3) HYBRID DRIVER TYPE II (INV 2 C ON)  
4)  
5)  
6)  
7)  
8)  
9) 05-6

**CRITICALITIES**

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

**LOCATION:** 82V76A17AR13  
**PART NUMBER:** MC477-0262-0002

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

**EFFECTS/RATIONALE:**
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

**REFERENCES:** 76BM17A

**REPORT DATE 03/31/87**  
**C-1014**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6013

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

ITEM: HYBRID DRIVER TYPE II (INV 2 C ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE II (INV 2 C ON)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR13
PART NUMBER: MC477-0262-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BM17A

REPORT DATE 03/31/87 C-1015
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6014

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

ITEM: HYBRID DRIVER TYPE III (INV 2 A ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 A ON)

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

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

LOCATION: 82V76A17AR14
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16G

REPORT DATE 03/31/87 C-1016
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6015

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 2 A ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 A ON)
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR14
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16G

REPORT DATE 03/31/87  C-1017
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6016

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

ITEM: HYBRID DRIVER TYPE III (INV 2 B ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 B ON)
4) 5) 6) 7) 8) 9) 05-6

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

LOCATION: 82V76A17AR15
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16D

REPORT DATE 03/31/87 C-1018
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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ITEM: HYBRID DRIVER TYPE III (INV 2 B ON)
FAILURE MODE: FAILS OFF
LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 B ON)
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8)
9) 05-6

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

LOCATION: 82V76A17AR15
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16D

REPORT DATE 03/31/87 C-1019
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 6018

ITEM: HYBRID DRIVER TYPE III (INV 2 C ON)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 C ON)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR16
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE
INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND
AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16B

REPORT DATE 03/31/87 C-1020
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6019  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 2 C ON)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 C ON)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17AR16
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16B

REPORT DATE 03/31/87  C-1021
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6020

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

ITEM: HYBRID DRIVER TYPE III (INV 2 A OFF)
FAILURE MODE: FAILS ON
LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 A OFF)
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A17AR17
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM16H

REPORT DATE 03/31/87 C-1022
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6021

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 2 A OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 A OFF)

CRITICALITIES

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

LOCATION: 82V76A17AR17
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16H

REPORT DATE 03/31/87 C-1023
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY: HDW/Func
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6022  ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 2 B OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 B OFF)
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A17AR18
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM16E

REPORT DATE 03/31/87  C-1024
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6023

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

ITEM: HYBRID DRIVER TYPE III (INV 2 B OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 B OFF)

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
Prelaunch: 3/3 RTLS: 3/3
Liftoff: 3/3 TAL: 3/3
Onorbit: 3/3 AOA: 3/3
Deorbit: 3/3 ATO: 3/3
Landing/Safing: 3/3

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

LOCATION: 82V76AI7AR18
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16E

REPORT DATE 03/31/87 C-1025
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6024

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

ITEM: HYBRID DRIVER TYPE III (INV 2 C OFF)
FAILURE MODE: FAILS ON

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 C OFF)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 82V76A17AR19
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM16C

REPORT DATE 03/31/87 C-1026
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6025
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 2 C OFF)
FAILURE MODE: FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) HYBRID DRIVER TYPE III (INV 2 C OFF)

CRITICALITIES

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

LOCATION: 82V76A17AR19
PART NUMBER: MC477-0263-0002

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BM16C

REPORT DATE 03/31/87 C-1027
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6026

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

ITEM: FUSE, 3A TO AC BUS 2 CMD
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) FUSE, 3A TO AC BUS 2 CMD
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F
PART NUMBER: ME451-0010-1030

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: 76BN23H

REPORT DATE 03/31/87 C-1028
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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ITEM: FUSE, 3A TO AC BUS 2 CMD
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) FUSE, 3A TO AC BUS 2 CMD
5) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F
PART NUMBER: ME451-0010-1030

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: 76BN23G

REPORT DATE 03/31/87 C-1029
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6028

ITEM: FUSE, 3A TO AC BUS 2C OFF
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) FUSE, 3A TO AC BUS 2C OFF
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F5
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16

REPORT DATE 03/31/87 C-1030
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6029

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

ITEM: FUSE, 3A TO AC BUS 2B OFF
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) FUSE, 3A TO AC BUS 2B OFF
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F6
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16E

REPORT DATE 03/31/87 C-1031
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6030

ITEM: FUSE, 3A TO AC BUS 2A OFF  
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA  
2) FLCA-2  
3) FUSE, 3A TO AC BUS 2A OFF
4)  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F7  
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16H

REPORT DATE 03/31/87  C-1032
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6031

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

ITEM: FUSE, 3A TO AC BUS 2C ON
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) FUSE, 3A TO AC BUS 2C ON
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A17F8
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16B

REPORT DATE 03/31/87 C-1033
### INDEPENDENT ORBITER ASSESSMENT

#### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6032

**ITEM:** FUSE, 80A TO INV 2 A  
**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, 80A TO INV 2 A  
5)  
6)  
7)  
8)  
9) 05-6

### CRITICALITIES

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**LOCATION:** 82V76A23F1  
**PART NUMBER:** ME451-0016-0080

**CAUSES:** CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

**EFFECTS/RATIONALE:**

THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

**REFERENCES:** 76BM13H

**REPORT DATE 03/31/87**  
**C-1034**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6033
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 80A TO INV 2 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) FPCA-2
4) FUSE, 80A TO INV 2 B
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A23F2
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM13E

REPORT DATE 03/31/87 C-1035
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6034

ITEM: FUSE, 80A TO INV 2 C
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, 80A TO INV 2 C
5) 6) 7) 8) 9) 05-6

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


LOCATION: 82V76A23F3
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM13C

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

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6035

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

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
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 1/4W (TO MDM OF2)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1R3
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BM14H

REPORT DATE 03/31/87 C-1037
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6036

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

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
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 1/4W (TO MDM OF2)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BM14E

REPORT DATE 03/31/87 C-1038
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6037

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)

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 1/4W (TO MDM OF2)

CRITICALITIES

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

LOCATION: 82V76A23A1R5
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACKS) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BM14B

REPORT DATE 03/31/87 C-1039
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6038

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPETER
SUBSYS LEAD: K. SCHMECKPETER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FPCA-2
4) DIODE, ISOLATION

CRITICALITIES

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

LOCATION: 82V76A23A1CR1
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13G

REPORT DATE 03/31/87 C-1040
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6039

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

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FPCA-2
4) DIODE, ISOLATION
5)
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8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1CR1
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13G

REPORT DATE 03/31/87 C-1041
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6040

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FPCA-2
4) DIODE, ISOLATION
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1CR4
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13D

REPORT DATE 03/31/87 C-1042
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6041

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

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FPCA-2
4) DIODE, ISOLATION

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

LOCATION: 82V76A23A1CR4
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13D

REPORT DATE 03/31/87 C-1043
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6042

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

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FPCA-2
4) DIODE, ISOLATION
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13B

REPORT DATE 03/31/87  C-1044
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6043

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

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIAI PANEL
3) FPCA-2
4) DIODE, ISOLATION
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8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM13B

REPORT DATE 03/31/87 C-1045
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6044

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

ITEM: DIODE TO INV 2 A
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 TO INV 2 A
5)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23CR22

PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BM12F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6045

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

ITEM: DIODE TO INV 2 A
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 TO INV 2 A

CRITICALITIES

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

LOCATION: 82V76A23CR22
PART NUMBER: 82V76A23CR22

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BM12F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6046

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

ITEM: DIODE TO INV 2 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) FPCA-2
4) DIODE TO INV 2 B
5) 6) 7) 8) 9) 05-6

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

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

LOCATION: 82V76A23CR23
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BM12D

REPORT DATE 03/31/87 C-1048
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
   SUBSYSTEM: EPD&C       FLIGHT:   3/3
   MDAC ID: 6047       ABORT:    3/3

ITEM: DIODE TO INV 2 B
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 TO INV 2 B
5)
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9) 05-6

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

LOCATION: 82V76A23CR23
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BM12D

REPORT DATE 03/31/87  C-1049
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6048 ABORT: 3/3

ITEM: DIODE TO INV 2 C
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 TO INV 2 C

CRITICALITIES

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

LOCATION: 82V76A23CR24
PART NUMBER: 82V76A23CR24

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BM12B

REPORT DATE 03/31/87 C-1050
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6049

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

ITEM: DIODE TO INV 2 C
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 TO INV 2 C
5)
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7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23CR24
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BM12B

REPORT DATE 03/31/87 C-1051
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6050

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

ITEM: RPC, 7.5A TO INV 2 A
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, 7.5A TO INV 2 A
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23RPC7
PART NUMBER: MC450-0017-1075

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISISON/VEHICLE.

REFERENCES: 76BM12F

REPORT DATE 03/31/87 C-1052
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6051

ITEM: RPC, 7.5A TO INV 2 A
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, 7.5A TO INV 2 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23RPC7
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AN IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BM12F

REPORT DATE 03/31/87 C-1053
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6052 ABORT: 3/3

ITEM: RPC, 7.5A TO INV 2 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) FPCA-2
4) RPC, 7.5A TO INV 2 B
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9) 05-6

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

LOCATION: 82V76A23RPC8
PART NUMBER: MC450-0017-1075

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM12D
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6053

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

ITEM: RPC, 7.5A TO INV 2 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) FPCA-2
4) RPC, 7.5A TO INV 2 B
5)
6)
7)
8)
9) 05-6

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

LOCATION: 82V76A23RPC8
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AN IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BM12D

REPORT DATE 03/31/87 C-1055
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6054

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

ITEM: RPC, 7.5A TO INV 2 C
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, 7.5A TO INV 2 C
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23RPC9
PART NUMBER: MC450-0017-1075

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM12A

REPORT DATE 03/31/87 C-1056
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6055

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 7.5A TO INV 2 C
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, 7.5A TO INV 2 C
5)
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8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23RPC9
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AN IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BM12A

REPORT DATE 03/31/87 C-1057
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
HIGHEST CRITICALITY HDW/FUNC  
SUBSYSTEM: EPD&C  
FLIGHT: 3/1R  
MDAC ID: 6056  
ABORT: 3/1R

ITEM: RELAY, LATCHING TO INVERTER 2A  
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) RELAY, LATCHING TO INVERTER 2A
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: 82V76A23K1  
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:  
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER  
RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS.  
REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL  
REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO  
CRITICAL LOADS.

REFERENCES: 76BM13H

REPORT DATE 03/31/87 C-1058
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6057

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

ITEM: RELAY, LATCHING TO INVERTER 2A
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) RELAY, LATCHING TO INVERTER 2A

CRITICALITIES

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

LOCATION: 82V76A23K1
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BM13H

REPORT DATE 03/31/87 C-1059
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6058

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

ITEM: RELAY, LATCHING TO INVERTER 2B
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RL1A1 PANEL
3) FLCA-2
4) FPCA-2
5) RELAY, LATCHING TO INVERTER 2B
6) 
7) 
8) 
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC
PRELAUNCH: 3/3
LIFTOFF: 3/1R
ONORBIT: 3/1R
DEORBIT: 3/1R
LANDING/SAVING: 3/3

ABORT HDW/FUNC
RTLS: 3/1R
TAL: 3/1R
AOA: 3/1R
ATO: 3/1R


LOCATION: 82V76A23K2
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER
RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS.
REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL
REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO
CRITICAL LOADS.

REFERENCES: 76BM13E

REPORT DATE 03/31/87  C-1060
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6059 ABORT: 3/3

ITEM: RELAY, LATCHING TO INVERTER 2B
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FLCA-2
4) FPSCA-2
5) RELAY, LATCHING TO INVERTER 2B

CRITICALITIES

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

LOCATION: 82V76A23K2
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BM13E

REPORT DATE 03/31/87 C-1061
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6060

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

ITEM: RELAY, LATCHING TO INVERTER 2C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) RELAY, LATCHING TO INVERTER 2C

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

LOCATION: 82V76A23K3
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BM13C

REPORT DATE 03/31/87 C-1062
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6061

ITEM: RELAY, LATCHING TO INVERTER 2C
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIAI PANEL
3) FLCA-2
4) FPCA-2
5) RELAY, LATCHING TO INVERTER 2C
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A23K3
PART NUMBER: MC455-0128-0001

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BM13C

REPORT DATE 03/31/87 C-1063
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6062
ABORT: 3/1R

ITEM: INVERTER 2 A
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 A
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7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A4
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10H

REPORT DATE 03/31/87 C-1064
INDEPENDENT ORBITER ASSESSMENT
ORBiter SUBSYSTEM ANALYSIS WORKSHEET

ITEM: INVERTER 2 A
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 A
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A4
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BM10H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6064  ABORT: 3/1R

ITEM: INVERTER 2 A
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 A
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 82V76A4
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10H
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: 6065

ITEM: INVERTER 2 A
FAILURE MODE: PHASE REF CHANGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 A
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7) 
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A4
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10H

REPORT DATE 03/31/87 C-1067
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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ITEM: INVERTER 2 B
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 B
6)
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9) 05-6

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LOCATION: 82V76A5
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10E

REPORT DATE 03/31/87 C-1068
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6067

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: INVERTER 2 B
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPDA-2
5) INVERTER 2 B
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A5
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BM10E

REPORT DATE 03/31/87 C-1069
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6068

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

ITEM: INVERTER 2 B
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 B

CRITICALITIES

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LOCATION: 82V76A5
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10E

REPORT DATE 03/31/87 C-1070
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C      FLIGHT: 3/1R
MDAC ID: 6069     ABORT: 3/1R

ITEM: INVERTER 2 B
FAILURE MODE: PHASE REF CHANGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 B

CRITICALITIES

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LOCATION: 82V76A5
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10E

REPORT DATE 03/31/87  C-1071
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C MDAC ID: 6070

ITEM: INVERTER 2 C
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 C
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A6
PART NUMBER: MC495-0012-0004

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10C

REPORT DATE 03/31/87

C-1072
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6071

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

ITEM: INVERTER 2 C
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 C
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8)
9) 05-6

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

LOCATION: 82V76A6
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BM10C

REPORT DATE 03/31/87 C-1073
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6072

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

ITEM: INVERTER 2 C
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPCA-2
5) INVERTER 2 C
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9) 05-6

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LOCATION: 82V76A6
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10C

REPORT DATE 03/31/87 C-1074
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6073

HIGHEST CRITICALITY
HDW/FUNC

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

ITEM: INVERTER 2 C
FAILURE MODE: PHASE REF Change

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) FPAC-2
5) INVERTER 2 C
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9) 05-6

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LOCATION: 82V76A6
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BM10C

REPORT DATE 03/31/87 C-1075
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: 6074

ITEM: HYBRID DRIVER TYPE III (AC BUS 2 ON)
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 (AC BUS 2 ON)
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9) 05-6

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REdundancy Screens: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR9
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: 76BN23G

REPORT DATE 03/31/87 C-1076
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6075

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

ITEM: HYBRID DRIVER TYPE III (AC BUS 2 ON)
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 (AC BUS 2 ON)
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9) 05-6

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

LOCATION: 82V76A17AR9
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: 76BN23G

REPORT DATE 03/31/87  C-1077
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6076

ITEM: HYBRID DRIVER TYPE III (AC BUS 2 OFF)
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 (AC BUS 2 OFF)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR10
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: 76BN23H

REPORT DATE 03/31/87  C-1078
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6077
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 2 OFF)
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 (AC BUS 2 OFF)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17AR10
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: 76BN23H

REPORT DATE 03/31/87 C-1079
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6078

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

ITEM: FUSE, 3A TO AC BUS 2B ON
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) FUSE, 3A TO AC BUS 2B ON

CRITICALITIES

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

LOCATION: 82V76A17F9
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16D

REPORT DATE 03/31/87 C-1080
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6079

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

ITEM: FUSE, 3A TO AC BUS 2A ON

FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FLCA-2
3) FUSE, 3A TO AC BUS 2A ON

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

LOCATION: 82V76A17F10
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BM16G

REPORT DATE 03/31/87 C-1081
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6080  ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 2)
FAILURE MODE: FAILS TO TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) MAIN DC DIST ASSY #2
4) SWITCH, TOGGLE 3PDT (INV/AC BUS 2)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S20
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
IF THE AC BUS RELAY IS TRIPPED OFF BY THE AC OVER/UNDER VOLTAGE SENSOR AND THIS FAILURE OCCURS, THE RESULT IS THE LOSS OF ONE PHASE OF THE AC BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BN24F

REPORT DATE 03/31/87  C-1082
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6081

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

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 2)
FAILURE MODE: INADVERTENT TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) MAIN DC DIST ASSY #2
4) SWITCH, TOGGLE 3PDT (INV/AC BUS 2)
5)
6)
7)
8)
9) 05-6

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LOCATION: 32V73A1A1S20
PART NUMBER: ME452-0102-7305

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

EFFECTS/RATIONALE:
THIS FAILURE COULD DISCONNECT ONE PHASE OF THE AC BUS FROM THE INVERTER. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BN24F

REPORT DATE 03/31/87

C-1083
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6082

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

ITEM: CIRCUIT BREAKER, 3A TO AC2 BUS SENSOR
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) CIRCUIT BREAKER, 3A TO AC2 BUS SENSOR

CRITICALITIES

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LOCATION: 33V73A13CB11
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN24B

REPORT DATE 03/31/87 C-1084
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6083  

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

ITEM: CIRCUIT BREAKER, 3A TO AC2 BUS SENSOR
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) CIRCUIT BREAKER, 3A TO AC2 BUS SENSOR
4)  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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LOCATION: 33V73A13CB11
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

REFERENCES: 76B24B

REPORT DATE 03/31/87  C-1085
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6084
ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (AC 2 BUS SNSR)
FAILURE MODE: FAILS TO TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) R1A1 PANEL
4) SWITCH, TOGGLE SPDT (AC 2 BUS SNSR)
5) 
6) 
7) 
8) 
9) 05-6

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LOCATION: 32V73A1A1S23
PART NUMBER: ME452-0102-7103

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

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BN22B

REPORT DATE 03/31/87 C-1086
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6085
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (AC 2 BUS SNSR)
FAILURE MODE: INADVERTENT TRANSFER

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) RIA1 PANEL
4) SWITCH, TOGGLE SPDT (AC 2 BUS SNSR)
5)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S23
PART NUMBER: ME452-0102-7103

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

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BN22B

REPORT DATE 03/31/87  C-1087
**INDEPENDENT ORBITER ASSESSMENT**
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**ITEM:** DIODE, BLOCKING 1A (TO 2 A SET)
**FAILURE MODE:** FAILS OPEN

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

**BREAKDOWN HIERARCHY:**
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 A SET)
6)
7)
8)
9) 05-6

**CRITICALITIES**

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

**LOCATION:** 82V76A36A1CR1
**PART NUMBER:** JANTXV1N4944

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

**REFERENCES:** 76BN21G

**REPORT DATE 03/31/87**  
**C-1088**
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: 6087

ITEM: DIODE, BLOCKING 1A (TO 2 A SET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 A SET)

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

LOCATION: 82V76A36A1CR1
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21G

REPORT DATE 03/31/87 C-1089
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6088

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 B SET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 B SET)
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9) 05-6

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

LOCATION: 82V76A36A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21G

REPORT DATE 03/31/87 C-1090
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6089

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 B SET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 B SET)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21G

REPORT DATE 03/31/87 C-1091
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6090

ITEM: DIODE, BLOCKING 1A (TO 2 C SET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 C SET)

LOCATION: 82V76A36A1CR3
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21G

REPORT DATE 03/31/87 C-1092
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6091  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** DIODE, BLOCKING 1A (TO 2 C SET)  
**FAILURE MODE:** SHORTS

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

**BREAKDOWN HIERARCHY:**
1. GROUND C/O (AC BUS 2)
2. PRE-FLIGHT TEST BUS #2
3. FLCA-2
4. INV DIST & CONT ASSY #2
5. DIODE, BLOCKING 1A (TO 2 C SET)
6.  
7.  
8.  
9. 05-6

**CRITICALITIES**

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

**LOCATION:** 82V76A36A1CR3  
**PART NUMBER:** JANTXV1N4944

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**  
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

**REFERENCES:** 76BN21G

**REPORT DATE 03/31/87**  
**C-1093**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6092

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

ITEM: DIODE, BLOCKING 1A (TO 2 A RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 A RESET)
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7)
8)
9) 05-6

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LOCATION: 82V76A36A1CR4
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS
FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH
WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF
LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN21H

REPORT DATE 03/31/87 C-1094 C - 4
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6093

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

ITEM: DIODE, BLOCKING 1A (TO 2 A RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 A RESET)
6) 
7) 
8) 
9) 05-6

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

LOCATION: 82V76A36A1CR4
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL
FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21H

REPORT DATE 03/31/87 C-1095
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6094

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

ITEM: DIODE, BLOCKING 1A (TO 2 B RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 B RESET)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36A1CR5
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21H

REPORT DATE 03/31/87 C-1096
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6095

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

ITEM: DIODE, BLOCKING 1A (TO 2 B RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 B RESET)
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LOCATION: 82V76A36A1CR5
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN21H

REPORT DATE 03/31/87 C-1097
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6096

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R

ABORT: 3/1R

ITEM: DIODE, BLOCKING 1A (TO 2 C RESET)

FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 C RESET)
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LOCATION: 82V76A36A1CR6
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN21H

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

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6097

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 C RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 2)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) INV DIST & CONT ASSY #2
5) DIODE, BLOCKING 1A (TO 2 C RESET)
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REdundancy SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36A1CR6
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BN21H

REPORT DATE 03/31/87  C-1099
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6098

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

ITEM: DIODE, BLOCKING 1A (TO 2 C RESET)

FAILURE MODE: Fails Open

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 C RESET)

CRITICALITIES

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

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

LOCATION: 82V76A36A1CR7

PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE
AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLTAGE SENSOR TRIPS.
HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE
RELAY AUTOMATICALLY.
SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC
POWER FROM THE AFFECTED INVERTER. NO EFFECT ON
CREW/MISSION/VEHICLE.

REFERENCES: 76BN15F

REPORT DATE 03/31/87 C-1100
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6099  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 C RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 C RESET)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A36A1CR7
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN
THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY.
THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BN15F

REPORT DATE 03/31/87  C-1101
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6100

ITEM: DIODE, BLOCKING 1A (TO 2 B RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 B RESET)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN THE AC OVER/UNDER VOLTAGE SENSOR AND THE AFFECTED PHASE RESET RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BN15F

REPORT DATE 03/31/87 C-1102
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6101  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 B RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 B RESET)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A36A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS. HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE RELAY AUTOMATICALLY.
SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN15F

REPORT DATE 03/31/87  C-1103
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6102

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

ITEM: DIODE, BLOCKING 1A (TO 2 A RESET)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 A RESET)

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9) 05-6

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

LOCATION: 82V76A36A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLTAGE SENSOR TRIPS. HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE RELAY AUTOMATICALLY. SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN15F

REPORT DATE 03/31/87         C-1104
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6103
HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 2 A RESET)
FAILURE MODE: SHORTS

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) DIODE, BLOCKING 1A (TO 2 A RESET)
5) 
6) 
7) 
8) 
9) 05-6

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

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

LOCATION: 82V76A36A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN
THE AC OVER/UNDER VOLTAGE SENSOR AND THE AFFECTED PHASE RESET
RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BN15F

REPORT DATE 03/31/87 C-1105
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6104  ABORT: 3/1R

ITEM: FUSE, 3A TO AC BUS 2 A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) AC O/V VOLT SNSR 2
4) FUSE, 3A TO AC BUS 2 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 82V76A36F1
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN9E

REPORT DATE 03/31/87  C-1106
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6105  ABORT: 3/1R

ITEM:  FUSE, 3A TO AC BUS 2 B
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) AC O/V VOLT SNSR 2
4) FUSE, 3A TO AC BUS 2 B
5)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A36F2
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN9D

REPORT DATE 03/31/87  C-1107
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6106

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

ITEM: FUSE, 3A TO AC BUS 2 C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) AC O/V VOLT SNSR 2
4) FUSE, 3A TO AC BUS 2 C
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A36F3
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD
CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF
ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF
POWER TO CRITICAL LOADS.

REFERENCES: 76BN9B

REPORT DATE 03/31/87 C-1108
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6107

ABORT: 3/3

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

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) FUSE, 3A TO AC VOLTMETER

CRITICALITIES

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

LOCATION: 82V76A36F4
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN9E

REPORT DATE 03/31/87 C-1109
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6108

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

ITEM: FUSE, 3A TO AC VOLTMETER

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) FUSE, 3A TO AC VOLTMETER
4) 
5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36F5

PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN9C

REPORT DATE 03/31/87 C-1110
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6109

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

ITEM: FUSE, 3A TO AC VOLTOMETER
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) FUSE, 3A TO AC VOLTOMETER
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36F6
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN9B

REPORT DATE 03/31/87 C-1111
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6110

ITEM: RELAY, LATCHING TO AC BUS 2A
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2A
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A36KI
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN11

REPORT DATE 03/31/87 C-1112
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6111

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

ITEM: RELAY, LATCHING TO AC BUS 2A
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2A
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36K1
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BN11

REPORT DATE 03/31/87  C-1113
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6112

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

ITEM: RELAY, LATCHING TO AC BUS 2B
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2B
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9) 05-6

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LOCATION: 82V76A36K2
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN11

REPORT DATE 03/31/87 C-1114
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6113

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

ITEM: RELAY, LATCHING TO AC BUS 2B
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2B
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36K2
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BN11

REPORT DATE 03/31/87 C-1115
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6114

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

ITEM: RELAY, LATCHING TO AC BUS 2C
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2C
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 82V76A36K3
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BN11
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6115
ABORT: 3/3

ITEM: RELAY, LATCHING TO AC BUS 2C
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT ASSY #2
3) RELAY, LATCHING TO AC BUS 2C
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36K3
PART NUMBER: MC451-0122-0001(?)

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BN11
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: 6116

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) AC BUS OVER/UNDER VOLTAGE SNSR
4) RESISTOR, 5.1K 1/4W (TO MDM OF2)
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R1
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BN19C

REPORT DATE 03/31/87 C-1118
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET  

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6117  

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

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)  
FAILURE MODE: FAILS OPEN  

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

BREAKDOWN HIERARCHY:  
1) AC BUS 2  
2) INV DIST & CONT ASSY #2  
3) AC BUS OVER/UNDER VOLTAGE SNSR  
4) RESISTOR, 5.1K 1/4W (TO MDM OF2)  
5)  
6)  
7)  
8)  
9) 05-6  

CRITICALITIES  

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]  
LOCATION: 82V76A36A1R2  
PART NUMBER: RLR07C512GR  

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK  

EFFECTS/RATIONALE:  
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.  

REFERENCES: 76BN19C  

REPORT DATE 03/31/87  
C-1119
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6118

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) ESS BUS 2CA
4) RESISTOR, 5.1K 1/4W (TO MDM OF2)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R3
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BN12H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6119  ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) ESS BUS 2CA
4) RESISTOR, 5.1K 1/4W (TO MDM OF2)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BN12G

REPORT DATE 03/31/87  C-1121
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6120

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) ESS BUS 2CA
4) RESISTOR, 5.1K 1/4W (TO MDM OF2)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R5
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BN12G

REPORT DATE 03/31/87 C-1122
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6121

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

ITEM: RESISTOR, 2.2K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) R1A1 PANEL
4) INV DIST & CONT ASSY #2
5) RESISTOR, 2.2K 1/4W (TO MDM OF2)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R6
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BN19C

REPORT DATE 03/31/87  C-1123
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6122

HIGHEST CRITICALITY HDW/FUNC
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) AC BUS 2
2) INV DIST CONT & ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) RESISTOR, 1.8K 1/4W (TO MDM OF2)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R7
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BN20C

REPORT DATE 03/31/87  C-1124
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: 6123

ITEM: RESISTOR, 1.8K 1/4W (TO MDM 0F2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST CONT & ASSY #2
3) AC OVER/UNDER VOLT SNSR #2
4) RESISTOR, 1.8K 1/4W (TO MDM OF2)
5)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36AIR8
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BN20C

REPORT DATE 03/31/87 C-1125
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6124

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

ITEM: RESISTOR, 2.2K 1/4W (TO MDM OF2)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) 013 PANEL
3) R1A1 PANEL
4) INV DIST & CONT ASSY #2
5) RESISTOR, 2.2K 1/4W (TO MDM OF2)

CRITICALITIES

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

LOCATION: 82V76A36A1R9
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BN19C

REPORT DATE 03/31/87 C-1126
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6125

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

ITEM: RESISTOR, 100K (AC BUS 2 A CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 100K (AC BUS 2 A CURRENT)

CRITICALITIES

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REDUNDANCE SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36A1R10
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BN13E

REPORT DATE 03/31/87  C-1127
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6126

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

ITEM: RESISTOR, 100K (AC BUS 2 B CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 100K (AC BUS 2 B CURRENT)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R11
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BN13D

REPORT DATE 03/31/87 C-1128
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EP&D&C
ABORT: 3/3
MDAC ID: 6127

ITEM: RESISTOR, 100K (AC BUS 2 C CURRENT)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 100K (AC BUS 2 C CURRENT)

CRITICALITIES

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

LOCATION: 82V76A36A1R12
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BN13B

REPORT DATE 03/31/87 C-1129
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: 6128

ITEM: RESISTOR, 150K 1/2W (AC BUS 2 A VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 150K 1/2W (AC BUS 2 A VOLTAGE)
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R13
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN10E

REPORT DATE 03/31/87 C-1130
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6129

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

ITEM: RESISTOR, 150K 1/2W (AC BUS 2 B VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 150K 1/2W (AC BUS 2 B VOLTAGE)
4) 
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R14
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN10D

REPORT DATE 03/31/87 C-1131
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6130  ABORT: 3/3

ITEM: RESISTOR, 150K 1/2W (AC BUS 2 C VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 150K 1/2W (AC BUS 2 C VOLTAGE)
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8) 
9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R15
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN10B

REPORT DATE 03/31/87  C-1132
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6131

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

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 2 A VOLTAGE)  
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 4.3K 1/8W (AC BUS 2 A VOLTAGE)
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9) 05-6

CRITICALITIES

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

LOCATION: 82V76A36A1R16
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE: 
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN9A
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6132

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

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 2 B VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE FWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 4.3K 1/8W (AC BUS 2 B VOLTAGE)

CRITICALITIES

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

LOCATION: 82V76A36A1R17
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN9A

REPORT DATE 03/31/87  C-1134
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6133  ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 2 C VOLTAGE)
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #2
3) RESISTOR, 4.3K 1/8W (AC BUS 2 C VOLTAGE)
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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| DEORBIT:     | 3/3      | ATO: 3/3 |
| LANDING/SAFING | 3/3    |       |

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

LOCATION: 82V76A36A1R18
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BN9A

REPORT DATE 03/31/87  C-1135
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6134

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

ITEM: AC OVER/UNDER VOLT SNSR 2
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR 2
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9) 05-6

CRITICALITIES

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LOCATION: 82V76A36V81
PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BN

REPORT DATE 03/31/87 C-1136
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6135 ABORT: 3/3

ITEM: AC OVER/UNDER VOLT SNSR 2
FAILURE MODE: LOSS OF OUTPUT

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

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) AC OVER/UNDER VOLT SNSR 2
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CRITICALITIES

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

LOCATION: 82V76A36VS1
PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF A THREE PHASE
AC BUS. LOSS OF ALL AC BUSSES WOULD LIKELY CAUSE LOSS OF
CREW/VEHICLE.

REFERENCES: 76BN

REPORT DATE 03/31/87 C-1137
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6136

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

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3P 3A TO PAYLOAD
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9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB15
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO A PAYLOAD PATCH PANEL. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BP9C

REPORT DATE 03/31/87 C-1138
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6137  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A 3-P  FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3P 3A TO PAYLOAD
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB15
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO A PAYLOAD PATCH PANEL. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BP9C

REPORT DATE 03/31/87  C-1139
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6138

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

ITEM: CIRCUIT BREAKER AC 2A TO RCS/OMS-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2A TO RCS/OMS-2
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB41
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR23C

REPORT DATE 03/31/87 C-1140
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6139  ABORT: 3/1R

ITEM: CIRCUIT BREAKER AC 2A TO RCS/OMS-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2A TO RCS/OMS-2
5)  
6)  
7)  
8)  
9) 05-6

HIGHEST CRITICALITIES

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LOCATION: 85V73A129CB41
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BR23C

REPORT DATE 03/31/87 C-1141
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6140

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 2B TO RCS/OMS-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2B TO RCS/OMS-2
5)
6)
7)
8)
9) 05-6

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

LOCATION: 85V73A129CB42
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR23C

REPORT DATE 03/31/87 C-1142
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6141

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

ITEM: CIRCUIT BREAKER AC 2B TO RCS/OMS-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2B TO RCS/OMS-2
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB42
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BR23C

REPORT DATE 03/31/87 C-1143
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6142

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

ITEM: CIRCUIT BREAKER AC 2C TO RCS/OMS-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2C TO RCS/OMS-2
5) 
6) 
7) 
8) 
9) 05-6

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

LOCATION: 85V73A129CB43
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR24C

REPORT DATE 03/31/87 C-1144
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6143

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

ITEM: CIRCUIT BREAKER AC 2C TO RCS/OMS-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER AC 2C TO RCS/OMS-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

LOCATTION: 85V73A129CB43
PART NUMBER: MC454-0026-2030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BR24C

REPORT DATE 03/31/87 C-1145
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 2/1R
MDAC ID: 6144 ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO FMCA-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-2
5) 
6) 
7) 
8) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB5
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BR22H

REPORT DATE 03/31/87 C-1146
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6145

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

ITEM: CIRCUIT BREAKER TO FMCA-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-2
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB5
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22H

REPORT DATE 03/31/87 C-1147
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6146

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER TO MMCA-1
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-1
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB6
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22D

REPORT DATE 03/31/87  C-1148
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6147

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

ITEM: CIRCUIT BREAKER TO MMCA-1
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-1
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB6
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BR22D

REPORT DATE 03/31/87 C-1149
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 2/1R
MDAC ID: 6148 ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO MMCA-2
FAILURE MODE: Fails Open

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-2
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB7
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BR22D

REPORT DATE 03/31/87 C-1150
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6149

ITEM: CIRCUIT BREAKER TO MMCA-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-2

CRITICALITIES

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

LOCATION: 85V73A129CB7
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22D
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6150

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

ITEM: CIRCUIT BREAKER TO MMCA-3
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-3
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9) 05-6

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

LOCATION: 85V73A129CB8
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22G

REPORT DATE 03/31/87 C-1152
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6151

ITEM: CIRCUIT BREAKER TO MMCA-3
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-3
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB8
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BR22G

REPORT DATE 03/31/87 C-1153
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6152

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

ITEM: CIRCUIT BREAKER TO MMCA-4
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-4
5) 
6) 
7) 
8) 
9) 05-6

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


LOCATION: 85V73A129CB9
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRE TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BR22G

REPORT DATE 03/31/87  C-1154
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
SUBSYSTEM: EPD&C
MDAC ID: 6153
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER TO MMCA-4
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-4
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8)
9) 05-6

CRITICALITIES

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REdundancy Screens: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB9
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22G

REPORT DATE 03/31/87 C-1155
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6154
ABORT: 3/3

ITEM: CIRCUIT BREAKER TO AMCA-2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO AMCA-2
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9) 05-6

CRITICALITIES

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

LOCATION: 85V73A129CB10
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BR22H

REPORT DATE 03/31/87 C-1156
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 6155  ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO AMCA-2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER TO AMCA-2
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9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB10
PART NUMBER: MC454-0032-3030

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BR22H

REPORT DATE 03/31/87  C-1157
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6156

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

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A119K65
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR17F

REPORT DATE 03/31/87 C-1158
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6157

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC2
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9) 05-6

CRITICALITIES

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LOCATION: 40V76A119K65
PART NUMBER: MC455-0129-0001

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

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR17F

REPORT DATE 03/31/87 C-1159
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6158

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

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED

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

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC2
6) 
7) 
8) 
9) 05-6


LOCATION: 40V76A119K77
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR17F

REPORT DATE 03/31/87 C-1160
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6159

HIGHEST CRITICALITY
HDW/FUNC: FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-3
5) RELAY, 4P TO PLBM-AC2

CRITICALITIES

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LOCATION: 40V76A119K77
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR17F

REPORT DATE 03/31/87 C-1161
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6160

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC2

CRITICALITIES

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LOCATION: 40V76A118K37
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BR17D

REPORT DATE 03/31/87 C-1162
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6161

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K37
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BR17D

REPORT DATE 03/31/87  C-1163
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6162

ITEM: RELAY TO P/L BAY AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY TO P/L BAY AC2
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8)
9) 05-6

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LOCATION: 40V76A118K39
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BR17C

REPORT DATE 03/31/87 C-1164
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITI CALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 6163  ABORT: 2/1R

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC2
6)  
7)  
8)  
9) 05-6

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LOCATION: 40V76A118K39
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BR17C

REPORT DATE 03/31/87  C-1165
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6164

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC2
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8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K56
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR16C

REPORT DATE 03/31/87  C-1166
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6165

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K56
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR16C

REPORT DATE 03/31/87 C-1167
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6166

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED
LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC2
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CRITICALITIES

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LOCATION: 40V76A118K58
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR16D

REPORT DATE 03/31/87 C-1168
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6167

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC2
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9) 05-6

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LOCATION: 40V76A118K58
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR16D

REPORT DATE 03/31/87 C-1169
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6168

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC2
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9) 05-6

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LOCATION: 40V76A120K29
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BR9C

REPORT DATE 03/31/87 C-1170
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6169

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC2
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LOCATION: 40V76A120K29
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BR9C

REPORT DATE 03/31/87 C-1171
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6170

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC2
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9) 05-6

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LOCATION: 40V76A120K41
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BR9C

REPORT DATE 03/31/87 C-1172
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6171

ITEM: RELAY TO PLBD AC2
FAILURE MODE: FAILS OPEN
LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K41
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BR9C

REPORT DATE 03/31/87 C-1173
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6172

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K49
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR8D

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: 6173  ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K49
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR8D

REPORT DATE 03/31/87  C-1175
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6174 ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC2
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8)
9) 05-6

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LOCATION: 40V76A120K61
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM
INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME
CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD
FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD
CAUSE LOSS CREW/VEHICLE.

REFERENCES: 76BR8C

REPORT DATE 03/31/87 C-1176
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6175

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC2
6)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K61
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BR8C

REPORT DATE 03/31/87 C-1177
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6176 ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 A)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 A)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1CB7
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED.

HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BU24H

REPORT DATE 03/31/87 C-1178
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6177  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 A)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 A)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1CB7
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU24H

REPORT DATE 03/31/87  C-1179
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6178
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 B)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 B)
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1CB8
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU24D

REPORT DATE 03/31/87 C-1180
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6179

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 B)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 B)
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9) 05-6

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LOCATION: 32V73A1A1CB8
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED. HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BU24D

REPORT DATE 03/31/87 C-1181
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC FLIGHT: 3/1R
SUBSYSTEM: EPD&C  ABORT: 3/1R
MDAC ID: 6180

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 C)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 C)
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LOCATION: 32V73A1A1CB9
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL POWER TO ONE INVERTER (ONE AC PHASE OF ONE AC BUS). SINCE THE INVERTERS ARE STARTED ON THE GROUND AND HAVE LATCHED POWER INPUTS, THIS FAILURE WOULD HAVE NO EFFECT ONCE THE INVERTERS WERE STARTED. HOWEVER, IF THIS FAILURE OCCURRED AFTER A PHASE HAD TRIPPED OUT, THE PHASE COULD NOT BE RE-ENERGIZED. LOSS OF ALL CAPABILITY TO RE-POWER THE AC BUSSES COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 76BU24C

REPORT DATE 03/31/87 C-1182
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6181

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC CONT 3 C)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) CIRCUIT BREAKER, 3A (AC CONT 3 C)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1CB9
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS CB IS CLOSED DURING NORMAL OPERATIONS AND THE CREW MAY SWITCH OUT THIS CIRCUIT WITH A TOGGLE SWITCH IN CASE OF AN OVERLOAD WHICH WOULD RESULT IN THE LOSS OF ONE PHASE OF THE AC BUS. SINCE MOST AC MOTORS CAN OPERATE ON TWO PHASES, THIS FAILURE PLUS AN OVERLOAD CONDITION WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU24C

REPORT DATE 03/31/87 C-1183
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6182

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #3)
FAILURE MODE: INADVERTENT TRANSFER

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 (INVERTER PWR #3)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S18
PART NUMBER: ME452-0102-7305

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
IF THIS FAILURE OCCURS TO THE "OFF" SIDE OF THE SWITCH, AT LEAST ONE INVERTER WILL BE SHUT DOWN AND COULD NOT BE RESTARTED. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BU24

REPORT DATE 03/31/87 C-1184
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6183

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (INVERTER PWR #3)
FAILURE MODE: FAILS TO TRANSFER

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 (INVERTER PWR #3)
5)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1S18
PART NUMBER: ME452-0102-7305

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT OPERATIONS AS THE AC INVERTERS ARE LATCHED ON DURING PRE-LAUNCH. ALTERNATE MEANS OF REMOVING A PHASE FROM THE AC BUS EXIST.

REFERENCES: 76BU24

REPORT DATE 03/31/87 C-1185
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6184
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN C TO INV 3 ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) HYBRID DRIVER TYPE I (MN C TO INV 3 ON)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR4
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BU18F

REPORT DATE 03/31/87 C-1186
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6185

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN C TO INV 3 ON)

FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) HYBRID DRIVER TYPE I (MN C TO INV 3 ON)
5) 
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR4
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 AND IS NON-CRITICAL FOR
FLIGHT OPERATIONS.

REFERENCES: 76BU18F

REPORT DATE 03/31/87 C-1187
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6186

ITEM: HYBRID DRIVER TYPE I (MN C TO INV 3 OFF)
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 (MN C TO INV 3 OFF)

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18AR5
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 AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BU18G
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6187  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I (MN C TO INV 3 OFF)
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 (MN C TO INV 3 OFF)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18AR5
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 AND IS NON-CRITICAL FOR
FLIGHT OPERATIONS.

REFERENCES: 76BU18G

REPORT DATE 03/31/87  C-1189
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6188

HIGHEST CRITICALITY

FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 3 A ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 A ON)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR11
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BU17G

REPORT DATE 03/31/87  C-1190
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6189

HIGHEST CRITICALITY     HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 3 A ON)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 A ON)
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR11
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BU17G

REPORT DATE 03/31/87  C-1191
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6190  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 3 B ON)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 B ON)

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18AR12
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT. THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BU17D

REPORT DATE 03/31/87  C-1192
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6191

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 3 B ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 B ON)
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A16AR12
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BU17D

REPORT DATE 03/31/87 C-1193
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: 6192

ITEM: HYBRID DRIVER TYPE II (INV 3 C ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 C ON)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR13
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF INVERTER CONTROL INPUT SUCH THAT THE INVERTER COULD NOT BE TURNED OFF. NORMAL FLIGHT PROCEDURE IS TO LEAVE INVERTER RUNNING AND DISCONNECT ITS OUTPUT IF REQUIRED. NO EFFECT ON CREW/VEHICLE/MISSION.

REFERENCES: 76BU17B

REPORT DATE 03/31/87 C-1194
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6193
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II (INV 3 C ON)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE II (INV 3 C ON)
4) 
5) 
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR13
PART NUMBER: MC477-0262-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL INPUT POWER TO THE INVERTER (7.5A STILL AVAILABLE), CAUSING A LOW POWER PHASE ON ONE AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON, THIS FAILURE WOULD HAVE NO EFFECT DURING NORMAL FLIGHT.
THIS FAILURE WOULD NOT BE DETECTABLE UNLESS AN INVERTER IS POWERED DOWN AND A RESTART IS ATTEMPTED. THIS IS AN OFF-NOMINAL PROCEDURE.

REFERENCES: 76BU17B

REPORT DATE 03/31/87 C-1195
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87                  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C              FLIGHT: 3/3
MDAC ID: 6194                ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 A ON)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 A ON)
4)
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR14
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16G

REPORT DATE 03/31/87 C-1196
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6195

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 A ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 A ON)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR14
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16G

REPORT DATE 03/31/87 C-1197
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6196  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 B ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 B ON)
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  83V76A18AR15
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16D

REPORT DATE 03/31/87  C-1198
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6197

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 B ON)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 B ON)

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR15
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16D

REPORT DATE 03/31/87 C-1199
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM:  EPD&C  FLIGHT:  3/3
MDAC ID:  6198  ABORT:  3/3

ITEM:  HYBRID DRIVER TYPE III (INV 3 C ON)
FAILURE MODE:  FAILS OFF

LEAD ANALYST:  K. SCHMECKPEPER  SUBSYS LEAD:  K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 C ON)
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [   ]  B [   ]  C [   ]

LOCATION:  83V76A18AR16
PART NUMBER:  MC477-0263-0002

CAUSES:  VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF FULL POWER TO AN AC INVERTER (7.5A STILL AVAILABLE). WORST CASE IS THE LOSS OF ONE INVERTER BECAUSE IT COULD NOT BE RESTARTED WITH FULL POWER. INVERTERS ARE STARTED ON THE GROUND AND NORMALLY KEPT ON DURING A FLIGHT.

REFERENCES:  76BU16B

REPORT DATE 03/31/87  C-1200
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6199 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 C ON)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 C ON)
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR16
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT POWER CONTROL TO THE INVERTER. NO EFFECT SINCE INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16B
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6200

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 3 A OFF)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 A OFF)
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   5) 
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   9) 05-6

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LOCATION: 83V76A18AR17
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU16H

REPORT DATE 03/31/87 C-1202
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6201
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 A OFF)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 A OFF)

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR17
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION,
PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16H

REPORT DATE 03/31/87 C-1203
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6202

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (INV 3 B OFF)

FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) ESS BUS 3AB

2) FLCA-3

3) HYBRID DRIVER TYPE III (INV 3 B OFF)

4) 

5) 

6) 

7) 

8) 

9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR18

PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16E

REPORT DATE 03/31/87 C-1204
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6203  ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 3 B OFF)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 B OFF)
4)
5)
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9) 05-6

CRITICALITIES

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LOCATION: 83V76A18AR18
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU16E

REPORT DATE 03/31/87  C-1205
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C   FLIGHT: 3/1R
MDAC ID: 6204  ABORT: 3/1R

ITEM: HYBRID DRIVER TYPE III (INV 3 C OFF)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 C OFF)
4)
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9) 05-6

CRITICALITIES

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LOCATION: 83V76A18AR19
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD ENERGIZE THE "OFF" RELAY TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC POWER COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU16C

REPORT DATE 03/31/87  C-1206
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  MDAC ID: 6205
SUBSYSTEM: EPD&C  MDAC ID: HIGHEST CRITICALITY HDW/FUNC
FAILURE MODE: FAILS OFF

ITEM: HYBRID DRIVER TYPE III (INV 3 C OFF)
LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) HYBRID DRIVER TYPE III (INV 3 C OFF)
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR19
PART NUMBER: MC477-0263-0002

CAUSES: VIBRATION, MECH SHOCK, THERMAL STRESS, CONTAMINATION, PIECE PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ABILITY TO TURN THE INVERTER OFF. NO EFFECT ON CREW/MISSION/VEHICLE SINCE THE INVERTER OUTPUT CAN BE DISCONNECTED FROM ITS LOADS. INVERTERS ARE STARTED ON THE GROUND AND KEPT ON DURING A FLIGHT.

REFERENCES: 76BU16C

REPORT DATE 03/31/87  C-1207
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6206

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 3C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3C OFF
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F5
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BU16C

REPORT DATE 03/31/87 C-1208
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6207

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 3B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3B OFF

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F6
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
This failure would prevent the crew from changing the state of the latching relay for one phase of an AC bus. Since the inverters are started on the ground and latched on for the duration of the flight, this failure would have no effect on crew/mission/vehicle. Alternate means of removing power from an inverter exist if it were necessary to do so.

REFERENCES: 76BU16E

REPORT DATE 03/31/87 C-1209
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6208

ITEM: FUSE, 3A TO AC BUS 3A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3A OFF
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F7
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BU16H

REPORT DATE 03/31/87 C-1210
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6209
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 3C ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3C ON

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F8
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BU16B

REPORT DATE 03/31/87 C-1211
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6210

ITEM: FUSE, 3A TO AC BUS 3B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3B ON
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F9
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BU16D

REPORT DATE 03/31/87 C-1212
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6211  ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 3A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FLCA-3
3) FUSE, 3A TO AC BUS 3A ON
4)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18F10
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BU16G

REPORT DATE 03/31/87  C-1213
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6212

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 80A TO INV 3 A
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, 80A TO INV 3 A
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9) 05-6

CRITICALITIES

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LOCATION: 83V76A24F1
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU13H

REPORT DATE 03/31/87 C-1214
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC 
SUBSYSTEM: EPD&C  FLIGHT: 3/1R 
MDAC ID: 6213  ABORT: 3/1R 

ITEM: FUSE, 80A TO INV 3 B 
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, 80A TO INV 3 B 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 83V76A24F2 
PART NUMBER: ME451-0016-0080 

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS 

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU13E 

REPORT DATE 03/31/87  C-1215
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6214

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 80A TO INV 3 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) FPCA-3
4) FUSE, 80A TO INV 3 C
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 83V76A24F3
PART NUMBER: ME451-0016-0080

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE INVERTER AC PHASE OUTPUT. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU13C

REPORT DATE 03/31/87 C-1216
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6215

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIAI PANEL
3) FPCA-3
4) DIODE, ISOLATION
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1CR1
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13G

REPORT DATE 03/31/87 C-1217
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC

SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6216
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FPCA-3
4) DIODE, ISOLATION
5)
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8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24AICRI
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13G

REPORT DATE 03/31/87 C-1218
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6217

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIAI PANEL
3) FPCA-3
4) DIODE, ISOLATION
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1CR2
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13D

REPORT DATE 03/31/87 C-1219
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6218

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FPCA-3
4) DIODE, ISOLATION
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1CR2
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13D

REPORT DATE 03/31/87 C-1220
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6219

ITEM: DIODE, ISOLATION
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIAI PANEL
3) FPCA-3
4) DIODE, ISOLATION

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13B
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6220

ITEM: DIODE, ISOLATION
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
LEAD: K. SCHMECKPEPER

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FPCA-3
4) DIODE, ISOLATION
5) 6) 7) 8) 9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1CR3
PART NUMBER: JANTXV1N4246

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS IN A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEANS OF MEASURING ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU13B

REPORT DATE 03/31/87 C-1222
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6221

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO INV 3A
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 TO INV 3A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24CR13
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE
PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON
THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT
DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED
DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE
ENOUGH REDUNDANT AC BUSSNES TO HANDLE THE LOADS.

REFERENCES: 76BU12F

REPORT DATE 03/31/87 C-1223
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6222

ITEM: DIODE TO INV 3 A
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) MAIN DC DIST ASSY #3
3) FPCA-3
4) DIODE TO INV 3 A
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24CR13

PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BU12F

REPORT DATE 03/31/87 C-1224
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6223

ITEM: DIODE TO INV 3 B
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 TO INV 3 B
5)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24CR14
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE
PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON
THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT
DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED
DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE
ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BU12D

REPORT DATE 03/31/87 C-1225
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6224

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO INV 3 B
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 TO INV 3 B
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24CR14
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BU12D

REPORT DATE 03/31/87 C-1226
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6225  ABORT: 3/3

ITEM: DIODE TO INV 3 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) FPCA-3
4) DIODE TO INV 3 C
5) 
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A24CR15
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BU12B
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6226

HIGHEST CRITICALITY:
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

HDW/FUNC
3/3

ITEM: DIODE TO INV 3 C
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 TO INV 3 C
5)
6)
7)
8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24CR15
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BU12B

REPORT DATE 03/31/87 C-1228
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY: HDW/FUNC

SUBSYSTEM: EPD&C

FLIGHT: 3/3

MDAC ID: 6227

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) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) FPCA-3
4) 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: 83V76A24A1R3

PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACK) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BU14H

REPORT DATE 03/31/87 C-1229
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6228

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) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) FPCA-3
4) RESISTOR, 5.1K 1/4W (TO MDM OF3)
5)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION.
ALTERNATE INDICATORS (TALKBACK) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BU14E

REPORT DATE 03/31/87 C-1230
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: 6229

ITEM: RESISTOR, 5.1K 1/4W (TO MDM OF3)
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 1/4W (TO MDM OF3)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24A1R5
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM SUPPORTS A NON-CRITICAL MEASUREMENT FUNCTION. ALTERNATE INDICATORS (TALKBACK) PROVIDE THE SAME FUNCTION.

REFERENCES: 76BU14B

REPORT DATE 03/31/87 C-1231
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6230

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 7.5A TO INV 3 A
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, 7.5A TO INV 3 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC8
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH
SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF.
HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS.
INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT
ON CREW/MISSON/VEHICLE.

REFERENCES: 76BU12F

REPORT DATE 03/31/87 C-1232
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6231

ITEM: RPC, 7.5A TO INV 3 A
FAILURE模式: 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, 7.5A TO INV 3 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC8
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BU12F

REPORT DATE 03/31/87 C-1233
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: 6232

ITEM: RPC, 7.5A TO INV 3 B
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, 7.5A TO INV 3 B
5) 6)
7) 8)
9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A24RPC9
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEING TURNED OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU12D

REPORT DATE 03/31/87  C-1234
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6233

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: RPC, 7.5A TO INV 3 B

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, 7.5A TO INV 3 B
5) ...
6) ...
7) ...
8) ...
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC9

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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BU12D

REPORT DATE 03/31/87 C-1235
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6234  ABORT: 3/3

ITEM: RPC, 7.5A TO INV 3 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) FPCA-3
4) RPC, 7.5A TO INV 3 C
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7)
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9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A24RPC10
PART NUMBER: MC450-0017-1075

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE AC INVERTER FROM BEINGTurned OFF. HOWEVER THE INPUT CURRENT WOULD BE LIMITED TO 7.5 AMPS. INVERTERS ARE NORMALLY ON DURING FLIGHT OPERATIONS, SO NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU12A

REPORT DATE 03/31/87  C-1236
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 6235

ITEM: RPC, 7.5A TO INV 3 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) FPCA-3
4) RPC, 7.5A TO INV 3 C
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24RPC10
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 CURRENT SURGE PROTECTION ON THE INVERTER STARTUP. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND IN-FLIGHT FAILURE WOULD HAVE NO EFFECT. IF AN INVERTER RESTART IS NEEDED IN-FLIGHT, IT MAY BE DAMAGED OR LOST.

REFERENCES: 76BU12A

REPORT DATE 03/31/87 C-1237
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6236

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, LATCHING TO INVERTER 3A
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FPCA-3
4) FLCA-3
5) RELAY, LATCHING TO INVERTER 3A
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 83V76A24K1
PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BU13H

REPORT DATE 03/31/87  C-1238
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6237

ITEM: RELAY, LATCHING TO INVERTER 3A
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) RELAY, LATCHING TO INVERTER 3A
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A24K1
PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BU13H

REPORT DATE 03/31/87  C-1239
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: 6238

ITEM: RELAY, LATCHING TO INVERTER 3B

FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) FPCA-3
5) RELAY, LATCHING TO INVERTER 3B
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24K2

PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BU13E

REPORT DATE 03/31/87 C-1240
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6239

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, LATCHING TO INVERTER 3B
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) RELAY, LATCHING TO INVERTER 3B
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 83V76A24K2
PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BU13E

REPORT DATE 03/31/87 C-1241
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6240

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, LATCHING TO INVERTER 3C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) RELAY, LATCHING TO INVERTER 3C
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CRITICALITIES

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LOCATION: 83V76A24K3
PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF DC POWER TO THE INVERTER RESULTING IN THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT POWER IS AVAILABLE FOR CRITICAL LOADS. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BU13C

REPORT DATE 03/31/87 C-1242
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6241

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY, LATCHING TO INVERTER 3C
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) RELAY, LATCHING TO INVERTER 3C
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A24K3
PART NUMBER: MC455-0128-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT REMOVING DC POWER TO THE INPUT OF THE INVERTER. NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BU13C

REPORT DATE 03/31/87 C-1243
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6242

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 A
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 A
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LOCATION: 83V76A7
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, MECH SHOCK, VIBRATION, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10H

REPORT DATE 03/31/87 C-1244
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6243

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INVERTER 3 A
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIAI PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 A
6)
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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: 83V76A7
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BU10H

REPORT DATE 03/31/87 C-1245
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6244

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 A
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 A
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9) 05-6

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LOCATION: 83V76A7
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10H

REPORT DATE 03/31/87 C-1246
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6245

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 A
FAILURE MODE: PHASE REF CHANGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 A

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LOCATION: 83V76A7
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10H

REPORT DATE 03/31/87 C-1247
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6246

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 B
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 B
6)
7)
8)
9) 05-6

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LOCATION: 83V76A8
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, MECH SHOCK, VIBRATION, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10E

REPORT DATE 03/31/87 C-1248
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6247

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: INVERTER 3 B
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 B
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A8
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BU10E

REPORT DATE 03/31/87 C-1249
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6248

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 B
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 B
6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 83V76A8
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10E

REPORT DATE 03/31/87 C-1250
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6249
ABORT: 3/1R

ITEM: INVERTER 3 B
FAILURE MODE: PHASE REF CHANGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIAI PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 B
6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 83V76A8
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10E

REPORT DATE 03/31/87 C-1251
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6250

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 C
FAILURE MODE: FAILS OFF, OUTPUT UNDER/OVER VOLTAGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 C
6)
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8)
9) 05-6

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LOCATION: 83V76A9
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, MECH SHOCK, VIBRATION, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUSS. MOST MOTORS ON THE VEHICLE CAN OPERATE ON TWO PHASES. CRITICAL LOADS ARE REDUNDANTLY POWERED FROM THE OTHER TWO BUSSSES. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10C

REPORT DATE 03/31/87 C-1252
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6251  

HIGHEST CRITICALITY  
HDW/FUNC FLIGHT: 3/3  
ABORT: 3/3

ITEM: INVERTER 3 C  
FAILURE MODE: OVERLOAD SIGNAL FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 C
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A9  
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE PREVENTS THE AUTOMATIC CUT OFF OF THE OVERLOADED INVERTER. CREW MAY BE ABLE TO DETECT OVERLOAD CONDITION VIA OVER/UNDER VOLTAGE SENSORS.

REFERENCES: 76BU10C

REPORT DATE 03/31/87  C-1253
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6252

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 C
FAILURE MODE: INADVERTENT OVERLOAD SIGNAL OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 C

CRITICALITIES

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LOCATION: 83V76A9
PART NUMBER: MC495-0012-0004

CAUSES: TEMPERATURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE ONE PHASE OF THE THREE PHASE AC BUS TO BE LOST. THE PHASE COULD BE RESTORED BY CREW ACTION AND THE SIGNAL INHIBITED. MULTIPLE FAILURES OF THIS MODE MAY CAUSE LOSS OF CREW VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10C

REPORT DATE 03/31/87 C-1254
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6253

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: INVERTER 3 C
FAILURE MODE: PHASE REF CHANGE

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) FPCA-3
5) INVERTER 3 C
6)
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9) 05-6

CRITICALITIES

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LOCATION: 83V76A9
PART NUMBER: MC495-0012-0004

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD PROBABLY CAUSE AN OVERLOAD SIGNAL TO BE OUTPUT AND ALL THREE PHASES OF ONE AC BUS WOULD BE CUT OFF. CRITICAL LOADS ARE REDUNDANTLY POWERED SO NO EFFECT ON FIRST FAILURE. LOSS OF ALL REDUNDANCY WOULD PROBABLY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BU10C

REPORT DATE 03/31/87 C-1255
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: 6254

ITEM: HYBRID DRIVER TYPE III (AC BUS 3 ON)
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 (AC BUS 3 ON)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18AR9
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: 76BV22G

REPORT DATE 03/31/87 C-1256
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6255

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 3 ON)
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 (AC BUS 3 ON)
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18AR9
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: 76BV22G

REPORT DATE 03/31/87 C-1257
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6256

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 3 OFF)
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 (AC BUS 3 OFF)
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9) 05-6

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REDUNDANCY SCREENS: A [ ]    B [ ]    C [ ]

LOCATION: 83V76A18AR10
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: 76BV22H

REPORT DATE 03/31/87 C-1258
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6257

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III (AC BUS 3 OFF)
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 (AC BUS 3 OFF)
5) 
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18AR10
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: 76BV22H

REPORT DATE 03/31/87  C-1259
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6258 ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 3)
FAILURE MODE: FAILS TO TRANSFER

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 (INV/AC BUS 3)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S21
PART NUMBER: ME452-0102-7305

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
IF THE AC BUS RELAY IS TRIPPED OFF BY THE AC OVER/UNDER VOLTAGE SENSOR AND THIS FAILURE OCCURS, THE RESULT IS THE LOSS OF ONE PHASE OF THE AC BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BV24F

REPORT DATE 03/31/87 C-1260
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6259
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE 3PDT (INV/AC BUS 3)
FAILURE MODE: INADVERTENT TRANSFER

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 (INV/AC BUS 3)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S21
PART NUMBER: ME452-0102-7305

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE COULD DISCONNECT ONE PHASE OF THE AC BUS FROM THE INVERTER. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL LOADS.

REFERENCES: 76BV24F

REPORT DATE 03/31/87 C-1261
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6260

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (AC 3 BUS SNSR)
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) 013 PANEL
3) R1A1 PANEL
4) SWITCH, TOGGLE SPDT (AC 3 BUS SNSR)
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9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S24
PART NUMBER: ME452-0102-7103

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BV22B

REPORT DATE 03/31/87  C-1262
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87                       HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C                     FLIGHT: 3/1R
MDAC ID: 6261                       ABORT: 3/1R

ITEM: SWITCH, TOGGLE SPDT (AC 3 BUS SNSR)
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER       SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) 013 PANEL
3) R1A1 PANEL
4) SWITCH, TOGGLE SPDT (AC 3 BUS SNSR)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A1A1S24
PART NUMBER: ME452-0102-7103

CAUSES: PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, CONTAMINATION

EFFECTS/RATIONALE:
WORST CASE FAILURE IS LOSS OF CONTROL OF THE AC OVER/UNDER VOLTAGE SENSOR WHICH COULD PREVENT THE DETECTION AND CORRECTION OF AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL REDUNDANCY COULD LEAD TO LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO LOADS.

REFERENCES: 76BV22B

REPORT DATE 03/31/87 C-1263
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6262
ABORT: 3/1R

ITEM: CIRCUIT BREAKER, 3A TO AC3 BUS SENSOR
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) 013 PANEL
3) CIRCUIT BREAKER, 3A TO AC3 BUS SENSOR
4) 5)
6) 7)
8) 9) 05-6

CRITICALITIES

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LOCATION: 33V73A13CB17
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV24B

REPORT DATE 03/31/87 C-1264
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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<td>SUBSYS LEAD:</td>
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**BREAKDOWN HIERARCHY:**

1) ESS BUS 3AB
2) 013 PANEL
3) CIRCUIT BREAKER, 3A TO AC3 BUS SENSOR

**CRITICALITIES**

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**REDUNDANCY SCREENS:**


**LOCATION:**

33V73A13CB17

**PART NUMBER:**

MC454-0026-2030

**CAUSES:** CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

**EFFECTS/RATIONALE:**

WORST CASE FAILURE OCCURS WHEN THE SENSOR MONITOR/AUTO SWITCH FAILS ALSO. THE RESULT IS LOSS OF CAPABILITY TO DETECT AND CORRECT AN INVERTER/AC BUS ERROR CONDITION. LOSS OF ALL AC POWER WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DUE TO LACK OF POWER TO CRITICAL LOADS.

**REFERENCES:**

76BV24B

**REPORT DATE**

03/31/87  C-1265
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6264

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: AC OVER/UNDER VOLT SNSR 3
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR 3
4)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 83V76A37VS1
PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BV

REPORT DATE 03/31/87 C-1266
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

HIGHEST CRITICALITY: HDW/FUNC

SUBSYSTEM: EPD&C
MDAC ID: 6265

ITEM: AC OVER/UNDER VOLT SNSR 3
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR 3
4)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37VS1
PART NUMBER: MC431-0129-0011

CAUSES: CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF A THREE PHASE AC BUS. LOSS OF ALL AC BUSSES WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BV
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6266

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 A SET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (3 TO A SET)
6)
7)
8)
9) 05-6

LOCATION: 83V76A37A1CR1
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G

REPORT DATE 03/31/87 C-1268
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6267

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 A SET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 A SET)

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR1
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6268

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 B SET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 B SET)
6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G

REPORT DATE 03/31/87 C-1270
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6269  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 B SET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 B SET)
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1CR2
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G

REPORT DATE 03/31/87  C-1271
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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ITEM:       DIODE, BLOCKING 1A (TO 3 C SET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 C SET)
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1CR3
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G

REPORT DATE 03/31/87 C-1272
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6271

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 C SET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 C SET)
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR3
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21G

REPORT DATE 03/31/87 C-1273
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6272

ITEM: DIODE, BLOCKING 1A (TO 3 A RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 A RESET)

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1CR4
PART NUMBER: JANTEXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21H

REPORT DATE 03/31/87  C-1274
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6273

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: DIODE, BLOCKING 1A (TO 3 A RESET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 A RESET)
6)
7)
8)
9) 05-6

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LOCATION: 83V76A37A1CR4
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV21H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6274 ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 B RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 B RESET)
6)
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9) 05-6

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REDUNDANCY SCREENS: A [ ]   B [ ]   C [ ]

LOCATION: 83V76A37A1CR5
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21H

REPORT DATE 03/31/87 C-1276
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**REDUNDANCY SCREENS:***  

**LOCATION:** 83V76A37A1CR5  
**PART NUMBER:** JANTXV1N4944

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**  
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

**REFERENCES:** 76BV21H

**REPORT DATE 03/31/87**  
C-1277
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6276

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 C RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 C RESET)
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR6
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED FOR GROUND OPERATIONS ONLY AND IS NON-CRITICAL FOR FLIGHT OPERATIONS.

REFERENCES: 76BV21H

REPORT DATE 03/31/87 C-1278
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6277
ABORT: 3/1R

ITEM: DIODE, BLOCKING 1A (TO 3 C RESET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GROUND C/O (AC BUS 3)
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) INV DIST & CONT ASSY #3
5) DIODE, BLOCKING 1A (TO 3 C RESET)
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7) 
8) 
9) 05-6

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LOCATION: 83V76A37A1CR6
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
IF THE AC OVER/UNDER VOLTAGE SENSOR TURNS ONE PHASE OFF, THIS FAILURE WOULD CAUSE LOSS OF THE ENTIRE AC BUS. DURING HIGH WORKLOAD PERIODS THIS MAY CAUSE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV21H

REPORT DATE 03/31/87 C-1279
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6278

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 C RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 C RESET)
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7)
8)
9) 05-6

CRITICALITIES

FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTL: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR7
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE
AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS.
HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE
RELAY AUTOMATICALLY.
SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE INCLUDING REMOVING DC
POWER FROM THE AFFECTED INVERTER. NO EFFECT ON
CREW/MISISON/VEHICLE.

REFERENCES: 76BV15F

REPORT DATE 03/31/87 C-1280
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6279  ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 C RESET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 C RESET)
5)
6)
7)
8)
9) 05-6

CRITICALITIES
FLIGHT PHASE  HDW/FUNC  ABORT  HDW/FUNC
PRELAUNCH: 3/3  RTLS: 3/3
LIFTOFF: 3/3  TAL: 3/3
ONORBIT: 3/3  AOA: 3/3
DEORBIT: 3/3  ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1CR7
PART NUMBER: JANTXVIN4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN
THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY.
THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BV15F

REPORT DATE 03/31/87  C-1281
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6280

ITEM: DIODE, BLOCKING 1A (TO 3 B RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 B RESET)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
This failure would cause the loss of capability to reset the affected phase relay when the AC over/under volt sensor trips. However, the crew will hear alarms and be able to reset the phase relay automatically. Several means of manual reset are available including removing DC power from the affected inverter. No effect on crew/mission/vehicle.

REFERENCES: 76BV15F

REPORT DATE 03/31/87  C-1282
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6281

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 B RESET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 B RESET)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR8
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY. THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BV15F

REPORT DATE 03/31/87 C-1283
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6282

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 A RESET)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 A RESET)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF CAPABILITY TO RESET THE
AFFECTED PHASE RELAY WHEN THE AC OVER/UNDER VOLT SENSOR TRIPS.
HOWEVER, THE CREW WILL HEAR ALARMS AND BE ABLE TO RESET THE PHASE
RELAY AUTOMATICALLY. SEVERAL MEANS OF MANUAL RESET ARE AVAILABLE
INCLUDING REMOVING DC POWER FROM THE AFFECTED INVERTER. NO
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV15F

REPORT DATE 03/31/87 C-1284
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6283 ABORT: 3/3

ITEM: DIODE, BLOCKING 1A (TO 3 A RESET)
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) DIODE, BLOCKING 1A (TO 3 A RESET)
5)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1CR9
PART NUMBER: JANTXV1N4944

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD RESULT IN LOSS OF REDUNDANT ISOLATION BETWEEN
THE AC OVER/UNDER VOLT SENSOR AND THE AFFECTED PHASE RESET RELAY.
THE SENSOR HAS AN INTERNAL ISOLATION DIODE AS A BACK-UP.

REFERENCES: 76BV15F

REPORT DATE 03/31/87 C-1285
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6284

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) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC BUS OVER/UNDER VOLTAGE SNSR
4) 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: 83V76A37A1R1
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BV19C

REPORT DATE 03/31/87  C-1286
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6285

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) AC BUS 3
2) INV DIST & CONT ASSY #3
3) AC BUS OVER/UNDER VOLTAGE SNSR
4) RESISTOR, 5.1K 1/4W (TO MDM OF3)
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R2
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BV19C

REPORT DATE 03/31/87 C-1287
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6286

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) AC BUS 3
2) INV DIST & CONT ASSY #3
3) ESS BUS 3AB
4) RESISTOR, 5.1K 1/4W (TO MDM OF3)
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8)
9) 05-6

CRITICALITIES
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R3
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BV12H

REPORT DATE 03/31/87  C-1288
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6287  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) AC BUS 3
2) INV DIST & CONT ASSY #3
3) ESS BUS 3AB
4) 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: 83V76A37A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BV12G

REPORT DATE 03/31/87  C-1289
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6288 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) AC BUS 3
2) INV DIST & CONT ASSY #3
3) ESS BUS 3AB
4) 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: 83V76A37A1R5
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS MEASUREMENT IS NOT CRITICAL TO VEHICLE OPERATION.

REFERENCES: 76BV12G

REPORT DATE 03/31/87 C-1290
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6289

HIGHEST CRITICALITY HDW/FUNC
ABORT: 3/3

ITEM: RESISTOR, 2.2K 1/4W
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) 013 PANEL
3) R1A1 PANEL
4) INV DIST & CONT ASSY #3
5) RESISTOR, 2.2K 1/4W TO MDM OF3
6)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R6
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BV19C

REPORT DATE 03/31/87 C-1291
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6290

ITEM: RESISTOR, 1.8K 1/4W (TO MDM OF3)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT & ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) RESISTOR, 1.8K 1/4W (TO MDM OF3)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R7
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BV20C

REPORT DATE 03/31/87 C-1292
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6291  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) AC BUS 3
2) INV DIST CONT & ASSY #3
3) AC OVER/UNDER VOLT SNSR #3
4) RESISTOR, 1.8K 1/4W (TO MDM OF3)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1R8
PART NUMBER: RLR07C182GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR IS PART OF A MONITORING FUNCTION AND IS NOT CRITICAL FOR VEHICLE OPERATION.

REFERENCES: 76BV20C

REPORT DATE 03/31/87  C-1293
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: 6292

ITEM: RESISTOR, 2.2K 1/4W  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB  
2) 013 PANEL  
3) R1A1 PANEL  
4) INV DIST & CONT ASSY #3  
5) RESISTOR, 2.2K 1/4W TO MDM OF3  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  
B [ ]  
C [ ]

LOCATION: 83V76A37A1R9  
PART NUMBER: RLR20C222GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:  
THIS IS A NON-CRITICAL MONITORING CIRCUIT.

REFERENCES: 76BV19C

REPORT DATE 03/31/87  C-1294
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6293
ABORT: 3/3

ITEM: RESISTOR, 100K (AC BUS 3 A CURRENT)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 100K (AC BUS 3 A CURRENT)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R10
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BV13E

REPORT DATE 03/31/87 C-1295
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6294
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 100K (AC BUS 3 B CURRENT)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 100K (AC BUS 3 B CURRENT)
4) 
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A3R11
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BV13D

REPORT DATE 03/31/87  C-1296
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6295  ABORT: 3/3

ITEM: RESISTOR, 100K (AC BUS 3 C CURRENT)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 100K (AC BUS 3 C CURRENT)
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CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A3R12
PART NUMBER: RLR05C1003GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL GSE MEASUREMENT THAT IS NOT USED DURING FLIGHT.

REFERENCES: 76BV13B

REPORT DATE 03/31/87  C-1297
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6296
ABORT: 3/3

ITEM: RESISTOR, 150K 1/2W (AC BUS 3 A VOLTAGE)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 150K 1/2W (AC BUS 3 A VOLTAGE)
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R13

PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV10E

REPORT DATE 03/31/87  C-1298
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: 6297

ITEM: RESISTOR, 150K 1/2W (AC BUS 3 B VOLTAGE)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

LEAD SYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 150K 1/2W (AC BUS 3 B VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R14

PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV10D

REPORT DATE 03/31/87 C-1299
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: 6298

ITEM: RESISTOR, 150K 1/2W (AC BUS 3 C VOLTAGE)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 150K 1/2W (AC BUS 3 C VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R15
PART NUMBER: RLR20C154GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV10B

REPORT DATE 03/31/87 C-1300
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6299

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 3 A VOLTAGE)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 4.3K 1/8W (AC BUS 3 A VOLTAGE)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R16
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV9A

REPORT DATE 03/31/87 C-1301
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: 6300

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 3 B VOLTAGE)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 4.3K 1/8W (AC BUS 3 B VOLTAGE)

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37A1R17

PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV9A

REPORT DATE 03/31/87 C-1302
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6301

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 4.3K 1/8W (AC BUS 3 C VOLTAGE)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE PWR MONITOR
2) INV DIST & CONT ASSY #3
3) RESISTOR, 4.3K 1/8W (AC BUS 3 C VOLTAGE)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

<table>
<thead>
<tr>
<th>FLIGHT PHASE</th>
<th>HDW/FUNC</th>
<th>ABORT</th>
<th>HDW/FUNC</th>
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<td>TAL:</td>
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<td>3/3</td>
<td>AOA:</td>
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<td>DEORBIT:</td>
<td>3/3</td>
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<tr>
<td>LANDING/SAFING:</td>
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<td></td>
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37A1R18
PART NUMBER: RLR05C432GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A GSE MEASUREMENT THAT IS NOT CRITICAL DURING FLIGHT.

REFERENCES: 76BV9A

REPORT DATE 03/31/87  C-1303
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: 6302

ITEM: FUSE, 3A TO AC BUS 3 A

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) AC BUS 3
2) INV DIST CONT ASSY #3
3) AC O/V VOLT SNSR 3
4) FUSE, 3A TO AC BUS 3 A
5)
6)
7)
8)
9) 05-6

CRITICALITIES

FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/1R
LIFTOFF: 3/1R TAL: 3/1R
ONORBIT: 3/1R AOA: 3/1R
DEORBIT: 3/1R ATO: 3/1R
LANDING/SAFING: 3/3


LOCATION: 83V76A37F1

PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV9E

REPORT DATE 03/31/87 C-1304
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6303 ABORT: 3/1R

ITEM: FUSE, 3A TO AC BUS 3 B
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) AC O/V VOLT SNSR 3
4) FUSE, 3A TO AC BUS 3 B
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 83V76A37F2
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:

IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD
CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF
ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF
POWER TO CRITICAL LOADS.

REFERENCES: 76BV9D

REPORT DATE 03/31/87 C-1305
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6304

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: FUSE, 3A TO AC BUS 3 C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) AC O/V VOLT SNSR 3
4) FUSE, 3A TO AC BUS 3 C
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 83V76A37F3
PART NUMBER: ME451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
IF THE AC BUS SENSOR SWITCH IS IN "AUTO", THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV9B

REPORT DATE 03/31/87 C-1306
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C               FLIGHT: 3/3
MDAC ID: 6305  ABORT: 3/3

ITEM: FUSE, 3A TO AC VOLTMETER  FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER            SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) FUSE, 3A TO AC VOLTMETER
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37F4
PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV9E

REPORT DATE 03/31/87 C-1307
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6306

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: FUSE, 3A TO AC VOLTMETER

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) FUSE, 3A TO AC VOLTMETER
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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<td>ONORBIT</td>
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<td>AOA:</td>
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<td>DEORBIT</td>
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<td>LANDING/SAFING</td>
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37F5

PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT. ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV9C

REPORT DATE 03/31/87 C-1308
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: FUSE, 3A TO AC VOLTMETER

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) FUSE, 3A TO AC VOLTMETER
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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<td>LANDING/SAFING:</td>
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37F6

PART NUMBER: MC451-0009-1003

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FUSE CONNECTS TO A NON-CRITICAL MEASUREMENT CIRCUIT.
ALTERNATE MEASUREMENTS ARE AVAILABLE TO THE CREW. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV9B

REPORT DATE 03/31/87 C-1309
### Independent Orbiter Assessment

**Orbiter Subsystem Analysis Worksheet**

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<th>HDW/FUNC</th>
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<td>FAILURE MODE:</td>
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<td>LEAD ANALYST:</td>
<td>K. Schmeckpeper</td>
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<tr>
<td>SUBSYS LEAD:</td>
<td>K. Schmeckpeper</td>
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<tr>
<td>BREAKDOWN HIERARCHY:</td>
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<td>1)</td>
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<td>9)</td>
<td>05-6</td>
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<td>CAUSES:</td>
<td>Mech Shock, Piece Part Structural Failure, Vibration, Contamination</td>
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<tr>
<td>EFFECTS/RATIONALE:</td>
<td>This failure would cause the loss of one phase of the three phase AC BUS. Redundant busses would provide power to critical loads. Loss of all redundancy could cause loss of crew/vehicle due to loss of power to critical loads.</td>
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**Report Date 03/31/87**

C-1310
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6309

HIGHEST CRITICALITY
HDW/FUNC
3/3

FLIGHT:
3/3

ABORT:
3/3

ITEM: RELAY, LATCHING TO AC BUS 3A
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) RELAY, LATCHING TO AC BUS 3A

CRITICALITIES
FLIGHT PHASE
HDW/FUNC
ABORT
HDW/FUNC
PRELAUNCH: 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: 83V76A37KI
PART NUMBER: MC451-0122-0001(?)

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BV11

REPORT DATE 03/31/87  C-1311
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: 6310

ITEM: RELAY, LATCHING TO AC BUS 3B
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) RELAY, LATCHING TO AC BUS 3B
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 83V76A37K2
PART NUMBER: MC451-0122-0001(?)

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV11

REPORT DATE 03/31/87 C-1312
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6311

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY, LATCHING TO AC BUS 3B
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) RELAY, LATCHING TO AC BUS 3B
4)
5)
6)
7)
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37K2
PART NUMBER: MC451-0122-0001(?)

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BV11

REPORT DATE 03/31/87
C-1313
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT:  3/1R
MDAC ID:  6312  ABORT:  3/1R

ITEM: RELAY, LATCHING TO AC BUS 3C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) RELAY, LATCHING TO AC BUS 3C
4)  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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LOCATION: 83V76A37K3
PART NUMBER: MC451-0122-0001(?)

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF ONE PHASE OF THE THREE PHASE AC BUS. REDUNDANT BUSSSES WOULD PROVIDE POWER TO CRITICAL LOADS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER TO CRITICAL LOADS.

REFERENCES: 76BV11

REPORT DATE 03/31/87  C-1314
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6313 ABORT: 3/3

ITEM: RELAY, LATCHING TO AC BUS 3C
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST CONT ASSY #3
3) RELAY, LATCHING TO AC BUS 3C
4)...

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37K3
PART NUMBER: MC451-0122-0001(?)

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE INABILITY TO DISCONNECT THE PHASE FROM THE AC BUS. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS RELAY IS NORMALLY CLOSED DURING FLIGHT OPERATIONS.

REFERENCES: 76BV11

REPORT DATE 03/31/87 C-1315
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6314

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) L4 PANEL
4) CIRCUIT BREAKER, 3P 3A TO AC UTIL POWER
5) 
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 31V73A4CB29
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO AN AC UTILITY OUTLET. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW15G

REPORT DATE 03/31/87 C-1316
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6315  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) L4 PANEL
4) CIRCUIT BREAKER, 3P 3A TO AC UTIL POWER
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 31V73A4CB29
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO AN AC UTILITY OUTLET. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW15G

REPORT DATE 03/31/87  C-1317
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6316
HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3P 3A TO PAYLOAD
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB16
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO A PAYLOAD PATCH PANEL. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW9C

REPORT DATE 03/31/87 C-1318
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: 6317

ITEM: CIRCUIT BREAKER, 3A 3-P
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3P 3A TO PAYLOAD
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB16
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM PROVIDES POWER AND CIRCUIT PROTECTION TO A PAYLOAD PATCH PANEL. THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW9C

REPORT DATE 03/31/87 C-1319
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM:  EPD&C  FLIGHT: 3/3
MDAC ID: 6318  ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV & DIST CONT ASSY #3
3) L4 PANEL
4) A15 PANEL
5) SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  36V73A15S3
PART NUMBER: ME452-0102-7303

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW15D

REPORT DATE 03/31/87  C-1320
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6319

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV & DIST CONT ASSY #3
3) L4 PANEL
4) A15 PANEL
5) SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A15S3
PART NUMBER: ME452-0102-7303

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW MISSION VEHICLE.

REFERENCES: 76BW15D

REPORT DATE 03/31/87 C-1321
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6320

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV & DIST CONT ASSY #3
3) L4 PANEL
4) A15 PANEL
5) M013Q PANEL
6) SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)

LOCATION: 80V73A81S12
PART NUMBER: ME452-0102-7303

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW15B

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

REPORT DATE 03/31/87 C-1322
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6321
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV & DIST CONT ASSY #3
3) L4 PANEL
4) A15 PANEL
5) M013Q PANEL
6) SWITCH, TOGGLE 3PDT (AC BUS 3 UTIL PWR)
7) 8) 9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 80V73A81S12
PART NUMBER: ME452-0102-7303

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH CONTROLS A NON-CRITICAL AC UTILITY POWER OUTLET. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BW15B

REPORT DATE 03/31/87 C-1323
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6322  ABORT: 3/1R

ITEM: CIRCUIT BREAKER AC 3A TO RCS/OMS-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3A TO RCS/OMS-3

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LOCATION: 85V73A129CB44
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BY23C

REPORT DATE 03/31/87  C-1324
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C  
FLIGHT: 3/3
MDAC ID: 6323  
ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 3A TO RCS/OMS-3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3A TO RCS/OMS-3
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB44
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY23C

REPORT DATE 03/31/87  C-1325
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6324  ABORT: 3/1R

ITEM: CIRCUIT BREAKER AC 3B TO RCS/OMS-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3B TO RCS/OMS-3
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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LOCATION:  85V73A129CB45
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BY23B

REPORT DATE 03/31/87  C-1326
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6325  ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 3B TO RCS/OMS-3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3B TO RCS/OMS-3
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB45
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY23B

REPORT DATE 03/31/87  C-1327
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6326

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: CIRCUIT BREAKER AC 3C TO RCS/OMS-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3C TO RCS/OMS-3
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES
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LOCATION: 85V73A129CB46
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE PHASE OF THE THREE PHASE AC RCS/OMS BUS. LOSS OF ALL REDUNDANCY WOULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL ISOLATION VALVES AND MANIFOLDS DURING A CROSSFEED SITUATION WHERE THE PROP TANKS ARE ISOLATED.

REFERENCES: 76BY23B

REPORT DATE 03/31/87 C-1328
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6327  ABORT: 3/3

ITEM: CIRCUIT BREAKER AC 3C TO RCS/OMS-3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER AC 3C TO RCS/OMS-3
5)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB46
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY23B

REPORT DATE 03/31/87 C-1329
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6328

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO FMCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-3
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB11
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD LOSE ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BY22G

REPORT DATE 03/31/87 C-1330
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6329

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER TO FMCA-3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO FMCA-3
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB11
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY22G

REPORT DATE 03/31/87  C-1331
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
HDW/FUNC: FLIGHT: 2/1R
ABORT: 2/1R

SUBSYSTEM: EPD&C
MDAC ID: 6330

ITEM: CIRCUIT BREAKER TO MMCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-2
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8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB12
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD CAUSE LOSS OF ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRED TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BY22G

REPORT DATE 03/31/87 C-1332
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6331  ABORT: 3/3

ITEM: CIRCUIT BREAKER TO MMCA-2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-2
5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB12
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY22G

REPORT DATE 03/31/87  C-1333
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6332

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO MMCA-4
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-4
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9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB13
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD CAUSE LOSS OF ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED. AFTER SECOND FAILURE, CREW EVA REQUIRED TO CLOSE AND LATCH PAYLOAD BAY DOORS AND LATCHES.

REFERENCES: 76BY22D

REPORT DATE 03/31/87 C-1334
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: 6333

ABORT: 3/3
HDW/FUNC

ITEM: CIRCUIT BREAKER TO MMCA-4
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
LEAD: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO MMCA-4
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB13
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BY22D

REPORT DATE 03/31/87 C-1335
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6334

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: CIRCUIT BREAKER TO AMCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER TO AMCA-3
5)
6)
7)
8)
9) 05-6

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LOCATION: 85V73A129CB14
PART NUMBER: MC454-0032-3030

CAUSES: CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO REDUNDANT AC POWER SOURCES TO DOOR MOTORS. SECOND FAILURE WOULD CAUSE LOSS OF ALL POWER TO THESE MOTORS. LOSS OF CREW/VEHICLE IS LIKELY DUE TO STRUCTURAL DAMAGE ON ENTRY, IF DOORS CANNOT BE OPERATED.

REFERENCES: 76BY22H

REPORT DATE 03/31/87 C-1336
# INDEPENDENT ORBITER ASSESSMENT

## ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/3  
**ABORT:** 3/3  
**MDAC ID:** 6335

### ITEM:
CIRCUIT BREAKER TO AMCA-3  
**FAILURE MODE:** Fails Closed

**LEAD ANALYST:** K. Schmeckpeper  
**SUBSYS LEAD:** K. Schmeckpeper

### BREAKDOWN HIERARCHY:
1) AC BUS 3  
2) INV DIST & CONT ASSY #3  
3) MA73C PANEL  
4) CIRCUIT BREAKER TO AMCA-3  
5)  
6)  
7)  
8)  
9) 05-6

### CRITICALITIES

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**REDUNDANCY SCREENS:** A [ ]  
B [ ]  
C [ ]

**LOCATION:** 85V73A129CB14  
**PART NUMBER:** MC454-0032-3030

**CAUSES:** CONTAMINATION, PIECE PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL STRESS

**EFFECTS/RATIONALE:**  
THIS FAILURE HAS NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

**REFERENCES:** 76BY22H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6336

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 2/I R
ABORT: 2/I R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC3
6) 
7) 
8) 
9) 05-6

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LOCATION: 40V76A118K42
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BY14F

REPORT DATE 03/31/87 C-1338
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6337

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC3
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LOCATION: 40V76A118K42
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BY14F

REPORT DATE 03/31/87 C-1339
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6338

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC3
6)
7)
8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTL3: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 2/1R AOA: 3/3
DEORBIT: 3/3 ATO: 2/1R
LANDING/SAFING: 3/3


LOCATION: 40V76A118K54
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BY14F

REPORT DATE 03/31/87 C-1340
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6339

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY TO PLBD AC3
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9) 05-6

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LOCATION: 40V76A118K54
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BY14F

REPORT DATE 03/31/87 C-1341
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6340

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC3
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LOCATION: 40V76A120K8
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BY16C

REPORT DATE 03/31/87 C-1342
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6341

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC3
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LOCATION: 40V76A120K8
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BY16C

REPORT DATE 03/31/87 C-1343
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6342

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC3
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LOCATION: 40V76A120K20
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT AC POWER TO THE PAYLOAD BAY DOOR MOTORS. SECOND FAILURE IN THE REDUNDANT POWER SOURCE WOULD PREVENT CLOSING THE PAYLOAD BAY DOORS PRIOR TO ENTRY.

REFERENCES: 76BY16C

REPORT DATE 03/31/87 C-1344
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT:  3/1R
MDAC ID: 6343  ABORT:  3/1R

ITEM: RELAY TO PLBD AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY TO PLBD AC3
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LOCATION: 40V76A120K20
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY TO PREVENT PREMATURE POWER TO THE P/L BAY DOORS. IF POWER WERE APPLIED PREMATURELY (MULTIPLE FAILURES), THE CREW/VEHICLE COULD BE LOST DUE TO PREMATURE OPENING OR CLOSING THE P/L BAY DOORS.

REFERENCES: 76BY16C

REPORT DATE 03/31/87  C-1345
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6344

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC3

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LOCATION: 40V76A120K30
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BY15C

REPORT DATE 03/31/87 C-1346
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6345

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC3
6)
7)
8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABOART 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: 40V76A120K30
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM
INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME
CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD
FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD
CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BY15C

REPORT DATE 03/31/87 C-1347
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6346

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC3
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K42
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BY15C

REPORT DATE 03/31/87 C-1348
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6347 ABOBT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-4
5) RELAY, 4P TO PLBM-AC3
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 40V76A120K42
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BY15C

REPORT DATE 03/31/87 C-1349
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6348

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC3

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 2/1R AOA: 3/3
DEORBIT: 3/3 ATO: 2/1R
LANDING/SAFING: 3/3


LOCATION: 40V76A118K61
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/VEHICLE ON ENTRY.

REFERENCES: 76BZ2D

REPORT DATE 03/31/87 C-1350
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC3
6) 7) 8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K61
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BZ2D

REPORT DATE 03/31/87 C-1351
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT:  2/1R
MDAC ID: 6350  ABORT:  2/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC3
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8)
9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K63
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE POWER SOURCE TO DUAL REDUNDANT POWERED FUNCTIONS. SECOND FAILURE COULD MAKE THESE FUNCTIONS (PAYLOAD BAY DOOR LATCHES) INOPERATIVE. THIS IS VERY LIKELY TO CAUSE LOSS OF CREW/Vehicle ON ENTRY.

REFERENCES: 76BZ22E

REPORT DATE 03/31/87  C-1352
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6351  ABORT: 3/1R

ITEM: RELAY, 4P TO PLBM-AC3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS 3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) MMCA-2
5) RELAY, 4P TO PLBM-AC3
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9) 05-6

CRITICALITIES

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LOCATION: 40V76A118K63
PART NUMBER: MC455-0129-0001

CAUSES: MECH SHOCK, PIECE PART STRUCTURAL FAILURE, VIBRATION, CONTAMINATION

EFFECTS/RATIONALE:
FIRST FAILURE WOULD REMOVE REDUNDANT PROTECTION FROM INADVERTENTLY POWERING A PAYLOAD BUS. SECOND FAILURE IN THE SAME CIRCUIT WOULD SUPPLY POWER TO CERTAIN PAYLOAD LOADS. THIRD FAILURE IN THE LOAD MAY PREMATURELY CAUSE AN ACTION THAT COULD CAUSE LOSS OF CREW/VEHICLE.

REFERENCES: 76BZ2E

REPORT DATE 03/31/87  C-1353
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6352

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO MEC #1)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) 017 PANEL
3) RESISTOR, 1.2K 2W (TO MEC #1)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 33V73A17A8R1
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO ONE MEC. THE LOSS OF ALL POWER TO BOTH MECS COULD CAUSE LOSS OF VEHICLE/CREW DUE TO INABILITY TO SEPERATE THE ET AND SRBS.

REFERENCES: 76DA24G

REPORT DATE 03/31/87  C-1354
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6353

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO MEC #1)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB2
2) 017 PANEL
3) RESISTOR, 1.2K 2W (TO MEC #1)
4) 
5) 
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8) 
9) 05-6

CRITICALITIES

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LOCATION: 33V73A17A8R2
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO ONE MEC.
THE LOSS OF ALL POWER TO BOTH MECS COULD CAUSE LOSS OF VEHICLE/CREW DUE TO INABILITY TO SEPERATE THE ET AND SRBS.

REFERENCES: 76DA24C

REPORT DATE 03/31/87 C-1355
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6354

HIGHEST CRITICALITY
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO MEC #2)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BCI
2) 017 PANEL
3) RESISTOR, 1.2K 2W (TO MEC #2)

CRITICALITIES

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LOCATION: 33V73A17A9R2
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO ONE MEC.
THE LOSS OF ALL POWER TO BOTH MECS COULD CAUSE LOSS OF
VEHICLE/CREW DUE TO INABILITY TO SEPERATE THE ET AND SRBS.

REFERENCES: 76DA13G

REPORT DATE 03/31/87 C-1356
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6355

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RESISTOR, 1.2K 2W (TO MEC #2)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BC2
2) 017 PANEL
3) RESISTOR, 1.2K 2W (TO MEC #2)
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9) 05-6

CRITICALITIES

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LOCATION: 33V73A17A9R1
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF REDUNDANT POWER TO ONE MEC.
The loss of all power to both MECS could cause loss of vehicle/crew due to inability to separate the ET and SRBS.

REFERENCES: 76DA13C

REPORT DATE 03/31/87 C-1357
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6356

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, TOGGLE DPDT (MEC 1)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSES AB1 & AB2
2) 017 PANEL
3) SWITCH, TOGGLE DPDT (MEC 1)
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 33V73A17S5
PART NUMBER: ME452-0102-7301

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
NO EFFECT AS THIS IS NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA24

REPORT DATE 03/31/87  C-1358
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6357
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: SWITCH, TOGGLE DPDT (MEC 1)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

HIERARCHY:
1) CONTROL BUSSES AB1 & AB2
2) 017 PANEL
3) SWITCH, TOGGLE DPDT (MEC 1)
4)
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8)

9) 05-6

CRITICALITIES

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LOCATION: 33V73A17S5
PART NUMBER: ME452-0102-7301

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO ONE MEC. LOSS OF ALL POWER TO MECS DURING LIFTOFF OR ABORT PHASES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO INABILITY TO COMPLETE MEC FUNCTIONS.

REFERENCES: 76DA24

REPORT DATE 03/31/87 C-1359
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 6358

ITEM: SWITCH, TOGGLE DPDT (MEC 2)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSES BC1 & BC2
2) 017 PANEL
3) SWITCH, TOGGLE DPDT (MEC 2)
4)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A17S6
PART NUMBER: ME452-0102-7301

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
NO EFFECT AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA12

REPORT DATE 03/31/87 C-1360
**INDEPENDENT ORBITER ASSESSMENT**

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6359

**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/1R  
**ABORT:** 3/1R

**ITEM:** SWITCH, TOGGLE DPDT (MEC 2)  
**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) CONTROL BUSSES BC1 & BC2  
2) 017 PANEL  
3) SWITCH, TOGGLE DPDT (MEC 2)  
4)  
5)  
6)  
7)  
8)  
9) 05-6

### CRITICALITIES

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**REDUNDANCY SCREENS:**  
A [ 1 ]  
B [ P ]  
C [ P ]

**LOCATION:** 33V73A17S6  
**PART NUMBER:** ME452-0102-7301

**CAUSES:** PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF TWO POWER SOURCES TO ONE MEC. LOSS OF ALL POWER TO MECS DURING LIFTOFF OR ABORT PHASES WOULD LIKELY RESULT IN LOSS OF CREW/VEHICLE DUE TO INABILITY TO COMPLETE MEC FUNCTIONS.

**REFERENCES:** 76DA12

**REPORT DATE** 03/31/87  
**C-1361**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6360

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K 1/4W TO MDM OAI 3/3 3/3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS ABl
2) 017 PANEL
3) APCA-1
4) RESISTOR, 5.1K 1/4W TO MDM OAI
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A131A1R4
PART NUMBER: RLR07C512GR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MEASUREMENT CIRCUIT.

REFERENCES: 76DA21G

REPORT DATE 03/31/87 C-1362
### INDEPENDENT ORBITER ASSESSMENT
### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY HDW/FUNC:**  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6361  
**FLIGHT:** 3/3  
**ABORT:** 3/3  

**ITEM:** RESISTOR, 5.1K 1/4W TO MDM OA2  
**FAILURE MODE:** FAILS OPEN  
**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) CONT BUS BC1  
2) 017 PANEL  
3) APCA-2  
4) RESISTOR, 5.1K 1/4W TO MDM OA2  
5)  
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7)  
8)  
9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:** A [ ]  
**B [ ]**  
**C [ ]**  

**LOCATION:** 55V76A132A1R12  
**PART NUMBER:** RLR07C512GR  

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK  
**EFFECTS/RATIONALE:**  
THIS IS A NON-CRITICAL MEASUREMENT CIRCUIT.

**REFERENCES:** 76DA9G

**REPORT DATE 03/31/87**  
**C-1363**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6362

ITEM: RPC, 10A TO MEC #2
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) RPC, 10A TO MEC #2
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 55V76A132RPC3
PART NUMBER: MC450-0017-1100 (?-2100)

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 ONE MEC. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL FUNCTIONS.

REFERENCES: 76DA9H

REPORT DATE 03/31/87 C-1364
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6363

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 10A TO MEC #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) APCA-2
5) RPC, 10A TO MEC #2
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132RPC3
PART NUMBER: MC450-0017-1100 (?-2100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF RPC CONTROL TO ONE OF TWO POWER SOURCES TO ONE MEC. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA9H

REPORT DATE 03/31/87  C-1365
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6364

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RPC, 10A TO MEC #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) APCA-6
4) APCA-3
5) RPC, 10A TO MEC #2
6)
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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: 3/3 AOA: 3/1R
DEORBIT: 3/3 ATO: 3/1R
LANDING/SAFING: 3/3


LOCATION: 56V76A133RPC5
PART NUMBER: MC450-0017-1100 (?-2100)

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 ONE MEC. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL FUNCTIONS.

REFERENCES: 76DA9D

REPORT DATE 03/31/87 C-1366
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6365

ITEM: RPC, 10A TO MEC #2
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) RPC, 10A TO MEC #2
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133RPC5
PART NUMBER: MC450-0017-1100 (?-2100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF RPC CONTROL TO ONE OF TWO POWER SOURCES TO ONE MEC. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA9D

REPORT DATE 03/31/87 C-1367
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6366

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RPC, 10A TO MEC #1
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) RPC, 10A TO MEC #1
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9) 05-6

CRITICALITIES

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LOCATION: 55V76A132RPC2
PART NUMBER: MC450-0017-1100 (?-2100)

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 ONE MEC. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO POWER CRITICAL FUNCTIONS.

REFERENCES: 76DA20D

REPORT DATE 03/31/87 C-1368
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6367

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 10A TO MEC #1
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) RPC, 10A TO MEC #1

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132RPC2
PART NUMBER: MC450-0017-1100 (?-2100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF RPC CONTROL TO ONE OF TWO POWER SOURCES TO ONE MEC. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA20D

REPORT DATE 03/31/87 C-1369
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6368

HIGHEST CRITICALITY
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: RPC, 10A TO MEC #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) APCA-1
5) RPC, 10A TO MEC #1
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 54V76A131RPC5
PART NUMBER: MC450-0017-1100 (?-2100)

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
ONE MEC. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE
DUE TO INABILITY TO POWER CRITICAL FUNCTIONS.

REFERENCES: 76DA20H

REPORT DATE 03/31/87 C-1370
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6369
ABORT: 3/3

ITEM: RPC, 10A TO MEC #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) APCA-1
5) RPC, 10A TO MEC #1
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A131RPC5
PART NUMBER: MC450-0017-1100 (?-2100)

CAUSES: PIECE PART STRUCTURAL FAILURE, CONTAMINATION, MECH SHOCK, THERMAL STRESS, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF RPC CONTROL TO ONE OF TWO POWER SOURCES TO ONE MEC. NO EFFECT ON CREW/VEHICLE/MISSION AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76DA20H

REPORT DATE 03/31/87 C-1371
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6370

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 B
2) MAIN DC DIST ASSY #2
3) R15 PANEL
4) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA1)
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8) 
9) 05-6

CRITICALITIES

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LOCATION: 32V73A2CR7
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 CRUZ/VEHICLE DUE TO LOSS OF CRITICAL FUNCTION CONTROL.

REFERENCES: 76M12E

REPORT DATE 03/31/87  C-1372
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&G
MDAC ID: 6371

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 B
2) MAIN DC DIST ASSY #2
3) R15 PANEL
4) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA1)
6) 
7)
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR7
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: 76M12E

REPORT DATE 03/31/87 C-1373
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6372

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

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 B
2) MAIN DC DIST ASSY #2
3) R15 PANEL
4) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA2)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A2CR8
PART NUMBER: JANX1N1204RA

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: 76M12E

REPORT DATE 03/31/87 C-1374
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6373

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA2)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) MAIN DC DIST ASSY #2
3) R15 PANEL
4) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA2)
6) 05-6

CRITICALITIES

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LOCATION: 32V73A2CR8
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 CRITICAL FUNCTION CONTROL.

REFERENCES: 76M12E

REPORT DATE 03/31/87  C-1375
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6374

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: DIODE, ISOLATION 12A (TO CONT BUS CA3)
FAILRE 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) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA3)
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LOCATION: 32V73A2CR9
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: 76M12E

REPORT DATE 03/31/87 C-1376
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6375  ABORT: 3/3

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 B
2) MAIN DC DIST ASSY #2
3) R15 PANEL
4) R2 PANEL
5) DIODE, ISOLATION 12A (TO CONT BUS CA3)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 32V73A2CR9
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: 76M12E

REPORT DATE 03/31/87  C-1377
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6376

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 C
2) 013 PANEL
3) MAIN DC BUS A
4) MAIN C CONTR
5) DIODE, ISOLATION 12A
6) 7) 8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B[ ] C[ ]

LOCATION: 33V73A13CR5
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: NOT SHOWN ON 76Y19H

REPORT DATE 03/31/87 C-1378
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6377  ABO RT: 3/1R

ITEM: DIODE, ISOLATION 12A
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) 013 PANEL
3) MAIN DC BUS A
4) MAIN C CONTR
5) DIODE, ISOLATION 12A

6) 7)
8) 9) 05-6

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LOCATION: 33V73A13CR5
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: NOT SHOWN ON 76Y19H

REPORT DATE 03/31/87  C-1379
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6378

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 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 C
2) 013 PANEL
3) ESS BUS 3AB
4) MAIN C CONTR
5) DIODE, ISOLATION 12A
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LOCATION: 33V73A13CR6
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: SHOWN AS CR16 ON 76Y19H

REPORT DATE 03/31/87 C-1380
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: 6379

ITEM: DIODE, ISOLATION 12A
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) O13 PANEL
3) ESS BUS 3AB
4) MAIN C CONTR
5) DIODE, ISOLATION 12A
6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 33V73A13CR6
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: SHOWN AS CR16 ON 76Y19H

REPORT DATE 03/31/87  C-1381
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6380

ITEM: DIODE TO INV 1 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) FPCA-1
4) DIODE TO INV 1 A
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR15
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER.
SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BF12F

REPORT DATE 03/31/87 C-1382
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6381

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO INV 1 A
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 TO INV 1 A
5)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR15
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BF12F

REPORT DATE 03/31/87 C-1383
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6382

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO INV 1 B
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 TO INV 1 B
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR16
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BF12D
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6383

ITEM: DIODE TO INV 1 B
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 TO INV 1 B
5) 
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR16
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BF12D

REPORT DATE 03/31/87 C-1385
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6384

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO INV 1 C
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) FCCA-1
4) DIODE TO INV 1 C
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR17
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE THE LOSS OF INPUT CURRENT SURGE PROTECTION TO THE INVERTER. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED "ON", THIS FAILURE WOULD HAVE NO EFFECT DURING A NORMAL MISSION. IF THE INVERTER HAD TO BE RESTARTED DURING FLIGHT, IT MIGHT BE DAMAGED OR LOST. HOWEVER, THERE ARE ENOUGH REDUNDANT AC BUSSES TO HANDLE THE LOADS.

REFERENCES: 76BF12B

REPORT DATE 03/31/87  C-1386
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6385

ITEM: DIODE TO INV 1 C
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 TO INV 1 C
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A22CR17
PART NUMBER:

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THERE IS NO CURRENT FLOW THROUGH THIS DIODE AFTER INVERTER START UP.

REFERENCES: 76BF12B

REPORT DATE 03/31/87 C-1387
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6386
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 1C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) FUSE, 3A TO AC BUS 1C OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16F5
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM ChangINg THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16C

REPORT DATE 03/31/87 C-1388
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6387

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 1B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-I
3) FUSE, 3A TO AC BUS 1B OFF

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16F6
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF
THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE
INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE
DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON
CREW/MISSON/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN
INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16E

REPORT DATE 03/31/87 C-1389
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:  3/11/87  
SUBSYSTEM: EP&D&C  
MDAC ID:  6388

ITEM: FUSE, 3A TO AC BUS 1A OFF  
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) FUSE, 3A TO AC BUS 1A OFF
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION:  81V76A16F7  
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16H

REPORT DATE 03/31/87  
C-1390
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6389

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 1C ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-I
3) FUSE, 3A TO AC BUS 1C ON
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16F8
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16B

REPORT DATE 03/31/87 C-1391
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6390

ITEM: FUSE, 3A TO AC BUS 1B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) FUSE, 3A TO AC BUS 1B ON

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16F9
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16D

REPORT DATE 03/31/87 C-1392
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6391

ITEM: FUSE, 3A TO AC BUS 1A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FLCA-1
3) FUSE, 3A TO AC BUS 1A ON
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16F10
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD PREVENT THE CREW FROM CHANGING THE STATE OF
THE LATCHING RELAY FOR ONE PHASE OF AN AC BUS. SINCE THE
INVERTERS ARE STARTED ON THE GROUND AND LATCHED ON FOR THE
DURATION OF THE FLIGHT, THIS FAILURE WOULD HAVE NO EFFECT ON
CREW/MISISON/VEHICLE. ALTERNATE MEANS OF REMOVING POWER FROM AN
INVERTER EXIST IF IT WERE NECESSARY TO DO SO.

REFERENCES: 76BF16G

REPORT DATE 03/31/87 C-1393
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6392

ITEM: FUSE, 3A TO AC BUS 3 CMD
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) FUSE, 3A TO AC BUS 3 CMD
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F
PART NUMBER: ME451-0010-1030

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: 76BV23H

REPORT DATE 03/31/87 C-1394
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6393

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: FUSE, 3A TO AC BUS 3 CMD
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) FUSE, 3A TO AC BUS 3 CMD
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18F
PART NUMBER: ME451-0010-1030

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: 76BV23G

REPORT DATE 03/31/87 C-1395
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6394 ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-I
4) DIODE, ISOLATION TO INV 1A OFF
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17H

REPORT DATE 03/31/87 C-1396
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6395

HIGHEST CRITICALITY  HDW/FUNC
FLIGHT: 3/3  
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B OFF
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8)
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17E

REPORT DATE 03/31/87  C-1397
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6396

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-I
4) DIODE, ISOLATION TO INV 1C OFF

CRITICALITIES
FLIGHT PHASE HDW/FUNC * ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17C

REPORT DATE 03/31/87 C-1398
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6397

HIGHEST CRITICALITY

HDW/FUNC FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A OFF
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8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17H

REPORT DATE 03/31/87 C-1399
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6398  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17E

REPORT DATE 03/31/87  C-1400
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6399

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/3

ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C OFF

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C OFF
5)
6)
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8)
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR

PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17C

REPORT DATE 03/31/87  C-1401
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6400

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A OFF
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17H

REPORT DATE 03/31/87  C-1402
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6401

ITEM: DIODE, ISOLATION TO INV 3B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B OFF
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17E

REPORT DATE 03/31/87  C-1403
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6402
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C OFF
5) 
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17C

REPORT DATE 03/31/87 C-1404
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6403

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS IBC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1A OFF
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17H

REPORT DATE 03/31/87 C-1405
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6404

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B OFF

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17E

REPORT DATE 03/31/87 C-1406
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6405  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1C OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1C OFF
5) 
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8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17C

REPORT DATE 03/31/87  C-1407
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6406

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A OFF
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17H

REPORT DATE 03/31/87 C-1408
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6407  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17E
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6408

ITEM: DIODE, ISOLATION TO INV 2C OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RIA1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17C

REPORT DATE 03/31/87  C-1410
### INDEPENDENT ORBITER ASSESSMENT
### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY**  
**HDW/FUNC**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** DIODE, ISOLATION TO INV 3A OFF  
**FAILURE MODE:** SHORTS

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

### BREAKDOWN HIERARCHY:
1) ESS BUS 3AB  
2) R1A1 PANEL  
3) FLCA-3  
4) DIODE, ISOLATION TO INV 3A OFF  
5)  
6)  
7)  
8)  
9) 05-6

### CRITICALITIES

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**REDUNDANCY SCREENS:**  
A [ ]  
B [ ]  
C [ ]

**LOCATION:** 83V76A18CR  
**PART NUMBER:** JANTXV1N5551

**CAUSES:** THERMAL STRESS, VIBRATION, MECH. SHOCK

**EFFECTS/RATIONALE:**  
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

**REFERENCES:** 76BU17H

**REPORT DATE 03/31/87**  
**C-1411**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6410

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3B OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B OFF
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17E

REPORT DATE 03/31/87 C-1412
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6411

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C OFF
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17C

REPORT DATE 03/31/87 C-1413
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6412

ITEM: DIODE, ISOLATION TO INV 3C ON SHORTS
FAILURE MODE: HDW/FUNC

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) RIA1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C ON SHORTS
5) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  83V76A18CR
PART NUMBER:  JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES:  76BU17A

REPORT DATE 03/31/87  C-1414
## INDEPENDENT ORBITER ASSESSMENT
### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6413  
**HIGHEST CRITICALITY**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** DIODE, ISOLATION TO INV 3B ON SHORTS  
**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

### BREAKDOWN HIERARCHY:
1. ESS BUS 3AB  
2. RIAI PANEL  
3. FLCA-3  
4. DIODE, ISOLATION TO INV 3B ON  
5.  
6.  
7.  
8.  
9. 05-6

### CRITICALITIES

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**REDUNDANCY SCREENS:**  
A [ ]  
B [ ]  
C [ ]

**LOCATION:** 83V76A18CR  
**PART NUMBER:** JANTXV1N5551

**CAUSES:** THERMAL STRESS, VIBRATION, MECH. SHOCK

**EFFECTS/RATIONALE:**  
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

**REFERENCES:** 76BU17C
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6414  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A ON
5) 6) 7) 8) 9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17F

REPORT DATE 03/31/87  C-1416
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6415  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RL1 A PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C ON
5) 
6) 
7) 
8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17A

REPORT DATE 03/31/87  C-1417
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6416

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17C

REPORT DATE 03/31/87 C-1418
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6417

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY
SUBSYSTEM: EPD&C  HDW/FUNC
MDAC ID: 6418  FLIGHT: 3/3

ITEM: DIODE, ISOLATION TO INV 1C ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1C ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17A

REPORT DATE 03/31/87 C-1420
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6419

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17C

REPORT DATE 03/31/87 C-1421
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6420

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1A
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17F

REPORT DATE 03/31/87       C-1422
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6421

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17A

REPORT DATE 03/31/87 C-1423
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6422

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B ON
5) 6) 7) 8) 9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17C
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6423
HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) R1A1 PANEL
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A ON
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BU17F

REPORT DATE 03/31/87 C-1425
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6424  
HIGHEST CRITICALITY HDW/FUNC: FLIGHT: 3/3, ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C ON  
FAILURE MODE: FAILS OPEN  
LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA  
2) R1A1 PANEL  
3) FLCA-2  
4) DIODE, ISOLATION TO INV 2C ON  
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  
B [ ]  
C [ ]

LOCATION: 82V76A17CR  
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:  
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17A

REPORT DATE 03/31/87  
C-1426
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6425

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) RLA1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B ON
5) 
6) 
7) 
8) 
9) 05-6

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REduDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17C
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6426  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) R1A1 PANEL
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A ON
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE: THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BM17F

REPORT DATE 03/31/87  C-1428
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6427

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV IC ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV IC ON
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17A

REPORT DATE 03/31/87 C-1429
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6428

HIGHEST CRITICALITY

HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) RIA1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B ON
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17C

REPORT DATE 03/31/87 C-1430
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6429  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) R1A1 PANEL
3) FLCA-1
4) DIODE, ISOLATION TO INV 1A ON
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT DURING FLIGHT OPERATIONS AS THE INVERTER POWER IS LATCHED "ON" PRE-LAUNCH.

REFERENCES: 76BF17F

REPORT DATE 03/31/87  C-1431
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**HIGHEST CRITICALITY** HDW/FUNC  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** DIODE, ISOLATION TO INV 1A OFF  
**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**  
1) GSE POWER  
2) PRE-FLIGHT TEST BUS #1  
3) FLCA-1  
4) DIODE, ISOLATION TO INV 1A OFF

**CRITICALITIES**

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**REDUNDANCY SCREENS:** A [ ]  B [ ]  C [ ]

**LOCATION:** 81V76A16CR  
**PART NUMBER:** JANTXV1N5551

**CAUSES:** THERMAL STRESS, VIBRATION, MECH. SHOCK  
**EFFECTS/RATIONALE:**  
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

**REFERENCES:** 76BF17H

**REPORT DATE** 03/31/87  
**C-1432**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6431 ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B OFF
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17E

REPORT DATE 03/31/87 C-1433
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6432
HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1C OFF
FAILURER MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) DIODE, ISOLATION TO INV 1C OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17C

REPORT DATE 03/31/87 C-1434
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6433  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A OFF
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17H

REPORT DATE 03/31/87  C-1435
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6434

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B OFF

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17E

REPORT DATE 03/31/87 C-1436
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6435

**HIGHEST CRITICALITY**  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** DIODE, ISOLATION TO INV 2C OFF  
**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) GSE POWER  
2) PRE-FLIGHT TEST BUS #2  
3) FLCA-2  
4) DIODE, ISOLATION TO INV 2C OFF  
5)  
6)  
7)  
8)  
9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:**  
A [ ] B [ ] C [ ]

**LOCATION:** 82V76A17CR  
**PART NUMBER:** JANTXV1N5551

**CAUSES:** THERMAL STRESS, VIBRATION, MECH. SHOCK

**EFFECTS/RATIONALE:**
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

**REFERENCES:** 76BM17C

**REPORT DATE** 03/31/87  
**C-1437**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6436

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A OFF
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17H

REPORT DATE 03/31/87  C-1438
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6437

HIGHEST CRITICALITY

FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B OFF

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17E

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
ABORT: 3/3
MDAC ID: 6438
FLIGHT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C OFF
5)
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9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  83V76A18CR
PART NUMBER:  JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES:  76BU17C

REPORT DATE 03/31/87  C-1440
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6439

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) DIODE, ISOLATION TO INV 1A OFF
5)
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7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17H

REPORT DATE 03/31/87 C-1441
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6440 ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-I
4) DIODE, ISOLATION TO INV 1B OFF
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17E

REPORT DATE 03/31/87  C-1442
**INDEPENDENT ORBITER ASSESSMENT**
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**HIGHEST CRITICALITY**

| HDW/FUNC | FLIGHT: 3/3 | ABORT: 3/3 |

**ITEM:** DIODE, ISOLATION TO INV 1C OFF

**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER

**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) GSE POWER
2) PRE-FLIGHT TEST BUS #1
3) FLCA-1
4) DIODE, ISOLATION TO INV 1C OFF
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9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:**
A [ ]
B [ ]
C [ ]

**LOCATION:** 81V76A16CR

**PART NUMBER:** JANTXV1N5551

**CAUSES:** THERMAL STRESS, VIBRATION, MECH. SHOCK

**EFFECTS/RATIONALE:**
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

**REFERENCES:** 76BF17C

---

REPORT DATE 03/31/87 C-1443
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C                     FLIGHT:  3/3
MDAC ID:  6442                          ABORT:  3/3

ITEM: DIODE, ISOLATION TO INV 2A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER          SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A OFF
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES:  76BM17H

REPORT DATE 03/31/87 C-1444
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6443

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17E

REPORT DATE 03/31/87 C-1445
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6444

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C OFF
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17C

REPORT DATE 03/31/87 C-1446
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6445

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A OFF
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17H

REPORT DATE 03/31/87 C-1447
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6446

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3B OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B OFF
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17E

REPORT DATE 03/31/87 C-1448
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPP&C
MDAC ID: 6447

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C OFF
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
LEAD: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) PRE-FLIGHT TEST BUS #2
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C OFF
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXVN15551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17C

REPORT DATE 03/31/87 C-1449
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6448

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) DIODE, ISOLATION TO INV 1A ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]
B [ ]
C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO
EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17G

REPORT DATE 03/31/87 C-1450
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: 6449

ITEM: DIODE, ISOLATION TO INV 1B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B ON

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17D

REPORT DATE 03/31/87 C-1451
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6450

ITEM: DIODE, ISOLATION TO INV IC ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) DIODE, ISOLATION TO INV IC ON
5) 6)
7) 8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17B

REPORT DATE 03/31/87 C-1452
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6451

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A ON
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7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17G

REPORT DATE 03/31/87 C-1453
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6452
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17D

REPORT DATE 03/31/87 C-1454
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6453

HIGHEST CRITICALITY

FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C ON
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17B

REPORT DATE 03/31/87 C-1455
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6454
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A ON
5)
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8)
9) 05-6

CRITICALITIES

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CRITICALITIES

RTLS: 3/3
TAL: 3/3
AOA: 3/3
ATO: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17G

REPORT DATE 03/31/87 C-1456
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6455

HIGHEST CRITICALITY  
FLIGHT: 3/3  
ABORT: 3/3

ITEM:  
DIODE, ISOLATION TO INV 3B ON

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B ON
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  
A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXVLN5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17D

REPORT DATE 03/31/87  C-1457
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6456  ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C ON
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C ON
5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17B

REPORT DATE 03/31/87  C-1458
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6457
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1A ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-I
4) DIODE, ISOLATION TO INV 1A ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17G

REPORT DATE 03/31/87      C-1459
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6458
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1B ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) DIODE, ISOLATION TO INV 1B ON

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17D

REPORT DATE 03/31/87 C-1460
INDEPENDENT ORBITER ASSESSMENT

ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY

SUBSYSTEM: EPD&C  HDW/FUNC
MDAC ID: 6459  FLIGHT: 3/3

ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 1C ON

FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 1BC
3) FLCA-1
4) DIODE, ISOLATION TO INV 1C ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFINING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A16CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF17B

REPORT DATE 03/31/87 C-1461
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6460

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2A ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2A ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17G

REPORT DATE 03/31/87 C-1462
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6461 ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2B ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2B ON

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17D

REPORT DATE 03/31/87 C-1463
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6462

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 2C ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 2CA
3) FLCA-2
4) DIODE, ISOLATION TO INV 2C ON
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A17CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM17B

REPORT DATE 03/31/87 C-1464
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6463

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3A ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3A ON
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFINING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO
EFFECT ON CREW/MISION/VEHICLE.

REFERENCES: 76BU17G

REPORT DATE 03/31/87 C-1465
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3B ON

CRITICALITIES
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17D

REPORT DATE 03/31/87 C-1466
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6465

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE, ISOLATION TO INV 3C ON
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) GSE POWER
2) ESS BUS 3AB
3) FLCA-3
4) DIODE, ISOLATION TO INV 3C ON
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A18CR
PART NUMBER: JANTXV1N5551

CAUSES: THERMAL STRESS, VIBRATION, MECH. SHOCK

EFFECTS/RATIONALE:
THIS DIODE IS USED DURING GROUND C/O ONLY AND WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU17B

REPORT DATE 03/31/87 C-1467
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6466

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, ROTARY 4P9P, DC INDICATOR SELECT
FAILURE MODE: FAILS OPEN OR SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) F9A2 PANEL
2) SWITCH, ROTARY 4P9P, DC INDICATOR SELECT
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4)
5)
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7)
8) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A9A2S2
PART NUMBER: ME452-0093-5029

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH PROVIDES THE CAPABILITY TO VISUALLY MONITOR DC VOLTAGES, AMPERAGES, AND SIGNAL STRENGTHS. THESE ARE NON-CRITICAL MEASUREMENTS BECAUSE ALTERNATE METHODS OF MEASUREMENT ARE AVAILABLE.

REFERENCES: 76B-G

REPORT DATE 03/31/87 C-1468
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6467

HIGHEST CRITICALITY

HDW/FUNC: 3/3
FLIGHT: 3/3
ABORT: 3/3

ITEM: SWITCH, ROTARY DP9P, AC DISPLAY SELECT

FAILURE MODE: FAILS OPEN OR SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) F9A2 PANEL
2) SWITCH, ROTARY DP9P, AC DISPLAY SELECT
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4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  34V73A9A2S1

PART NUMBER:  ME452-0093-5023

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS SWITCH PROVIDES THE CAPABILITY TO VISUALLY MONITOR AC VOLTAGES. THESE ARE NON-CRITICAL MEASUREMENTS BECAUSE ALTERNATE METHODS OF MEASUREMENT ARE AVAILABLE.

REFERENCES: 76BG-G

REPORT DATE 03/31/87  C-1469
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6468

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3 ABORT: 3/3

ITEM: INDICATOR, EVENT (FC/MAIN BUS A)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) MAIN DC DIST ASSY #1
3) R1A1 PANEL
4) INDICATOR, EVENT (FC/MAIN BUS A)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS1
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B12H

REPORT DATE 03/31/87 C-1470
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6469

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (FC/MAIN BUS B)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) MAIN DC DIST ASSY #2
3) R1A1 PANEL
4) INDICATOR, EVENT (FC/MAIN BUS B)
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS3
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L13H

REPORT DATE 03/31/87 C-1471
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6470

ITEM: INDICATOR, EVENT (FC/MAIN BUS C)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) R1A1 PANEL
4) INDICATOR, EVENT (FC/MAIN BUS C)
5)
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7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS5
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76Y13H

REPORT DATE 03/31/87 C-1472
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6471

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (MAIN TIE BUS A)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) MAIN DC DIST ASSY #1
3) R1A1 PANEL
4) INDICATOR, EVENT (MAIN TIE BUS A)
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7)
8)
9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1DS2
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B16H

REPORT DATE 03/31/87  C-1473
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6472

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (MAIN TIE BUS B)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) MAIN DC DIST ASSY #2
3) R1A1 PANEL
4) INDICATOR, EVENT (MAIN TIE BUS B)
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1DS4
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L16H

REPORT DATE 03/31/87  C-1474
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6473
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (MAIN TIE BUS C)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) R1A1 PANEL
4) INDICATOR, EVENT (MAIN TIE BUS C)
5) 
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]
LOCATION: 32V73A1A1DS6
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76Y16H

REPORT DATE 03/31/87 C-1475
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6474

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (INV/AC BUS #1)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) INV DIST & CONT ASSY #1
3) R1A1 PANEL
4) INDICATOR, EVENT (INV/AC BUS #1)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS8
PART NUMBER: MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG8H

REPORT DATE 03/31/87 C-1476
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6475  ABORT: 3/3

ITEM: INDICATOR, EVENT (INV/AC BUS #2)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) INV DIST & CONT ASSY #2
3) RIAI PANEL
4) INDICATOR, EVENT (INV/AC BUS #2)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  32V73A1A1DS10
PART NUMBER:  MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES:  76BN8H

REPORT DATE 03/31/87  C-1477
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6476 ABORT: 3/3

ITEM: INDICATOR, EVENT (INV/AC BUS #3)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS
LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) INV DIST & CONT ASSY #3
3) R1A1 PANEL
4) INDICATOR, EVENT (INV/AC BUS #3)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS12
PART NUMBER: MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV8H

REPORT DATE 03/31/87 C-1478
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6477

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (INVERTER PWR #1)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 1BC
2) FPCA-1
3) R1A1 PANEL
4) INDICATOR, EVENT (INVERTER PWR 1)

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
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LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS7
PART NUMBER: MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BF24A

REPORT DATE 03/31/87 C-1479
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6478

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (INVERTER PWR #2)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) FPCA-2
3) R1A1 PANEL
4) INDICATOR, EVENT (INVERTER PWR #2)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS9
PART NUMBER: MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BM24A

REPORT DATE 03/31/87 C-1480
INDDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT:  3/3
MDAC ID:  6479  ABORT:  3/3

ITEM: INDICATOR, EVENT (INVERTER PWR #3)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) FPCA-3
3) R1A1 PANEL
4) INDICATOR, EVENT (INVERTER PWR #3)
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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1DS11
PART NUMBER: MC432-0222-0032

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BU24H

REPORT DATE 03/31/87  C-1481
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6480

ITEM: INDICATOR, EVENT (PAYLOAD PRI MN B)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 2CA
2) MAIN DC DIST ASSY #2
3) R1A1 PANEL
4) INDICATOR, EVENT (PAYLOAD PRI MN B)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS15
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76U13F

REPORT DATE 03/31/87 C-1482
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6481

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (PAYLOAD PRI MN C)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) R1A1 PANEL
4) INDICATOR, EVENT (PAYLOAD PRI MN C)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1DS17
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76U13D

REPORT DATE 03/31/87 C-1483
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6482

HIGHEST CRITICALITY
HDW/FUNC FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATOR, EVENT (PAYLOAD PRI FC3)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) RIA1 PANEL
4) INDICATOR, EVENT (PAYLOAD PRI FC3)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1DS16
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76U13C

REPORT DATE 03/31/87 C-1484
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6483

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: INDICATER, EVENT (STRUCT RTN)
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) MAIN DC DIST ASSY #3
3) A12 PANEL
4) INDICATER, EVENT (STRUCT RTN)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 36V73A12DS4
PART NUMBER: MC432-0222-0016

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76U4H

REPORT DATE 03/31/87 C-1485
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6484

ITEM: DC VOLTMETER
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) F9A2 PANEL
2) DC VOLTMETER
3) 
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A9A2M2
PART NUMBER: MC432-0237-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B10H

REPORT DATE 03/31/87 C-1486
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6485  ABORT: 3/3

ITEM: DC AMMETER
FAILURE MODE: FAILS TO INDICATE PROPER STATUS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) F9A2 PANEL
2) DC AMMETER
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 34V73A9A2M3
PART NUMBER: MC432-0237-0003

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL INDICATOR. ALTERNATE MEANS OF STATUS INDICATION ARE AVAILABLE. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B6H

REPORT DATE 03/31/87  C-1487
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6486

HIGHEST CRITICALITY

FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO 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) RESISTOR, 1.2K 2W (TO ESS BUS 1BC)
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A4R1
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF CURRENT LIMITING PROTECTION TO CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE SWITCHED OFF.

REFERENCES: 76AK24H

REPORT DATE 03/31/87    C-1488
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: 6487

ITEM: RESISTOR, 1.2K 2W (TO 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) RESISTOR, 1.2K 2W (TO ESS BUS 1BC)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A4R2

PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:

THIS FAILURE WOULD CAUSE LOSS OF CURRENT LIMITING PROTECTION TO CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE SWITCHED OFF.

REFERENCES: 76AK21H

REPORT DATE 03/31/87 C-1489
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6488

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO 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) RESISTOR, 1.2K 2W (TO ESS BUS 2CA)
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
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LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A5R1
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF CURRENT LIMITING PROTECTION TO CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE SWITCHED OFF.

REFERENCES: 76AM24H

REPORT DATE 03/31/87 C-1490
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6489  ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO 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) RESISTOR, 1.2K 2W (TO ESS BUS 2CA)
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9) 05-6

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REDUNDANCY SCREENS:  A [   ]  B [   ]  C [   ]

LOCATION:  32V73A1A1A5R2
PART NUMBER:  RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOS OF CURRENT LIMITING PROTECTION TO CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE SWITCHED OFF.

REFERENCES:  76AM21H

REPORT DATE 03/31/87  C-1491
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: 6490

ITEM: RESISTOR, 1.2K 2W (TO 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) MLA1 PANEL
4) RESISTOR, 1.2K 2W (TO ESS BUS 3AB)
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 32V73A1A1A6R2
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF CURRENT LIMITING PROTECTION TO CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE SWITCHED OFF.

REFERENCES: 76AP24H

REPORT DATE 03/31/87 C-1492
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6491  ABORT: 3/3

ITEM: RESISTOR, 1.2K 2W (TO 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) RESISTOR, 1.2K 2W (TO ESS BUS 3AB)
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 32V73A1A1A6R1
PART NUMBER: RWR80S1211FR

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF CURRENT LIMITING PROTECTION TO
CIRCUIT. IN THE CASE OF AN OVERLOAD THIS CIRCUIT COULD BE
SWITCHED OFF.

REFERENCES: 76AP21H

REPORT DATE 03/31/87  C-1493
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6492

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 1A
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) CURRENT SENSOR, AC 1A
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35CS1
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG12F

REPORT DATE 03/31/87 C-1494
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6493 ABORT: 3/3

ITEM: CURRENT SENSOR, AC 1B
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) CURRENT SENSOR, AC 1B
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35CS2
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG12E

REPORT DATE 03/31/87 C-1495
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6494

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 1C
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) CURRENT SENSOR, AC 1C
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 81V76A35CS3
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK
EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BG12C

REPORT DATE 03/31/87 C-1496
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**HIGHEST CRITICALITY** HDW/FUNC  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6495  
**FLIGHT:** 3/3  
**ABORT:** 3/3

**ITEM:** CURRENT SENSOR, AC 2A  
**FAILURE MODE:** FAILS TO INDICATE PROPER VALUE.

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) AC BUS #2  
2) INV DIST & CONT ASSY #2  
3) CURRENT SENSOR, AC 2A  
4)  
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8)  
9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:** A [ ]  
B [ ]  
C [ ]

**LOCATION:** 82V76A36CS1  
**PART NUMBER:** ME449-0152-0011

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

**REFERENCES:** 76BN12F

REPORT DATE 03/31/87  
C-1497
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6496
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 2B
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) CURRENT SENSOR, AC 2B
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 82V76A36CS2
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN12E

REPORT DATE 03/31/87  C-1498
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6497

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 2C
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) CURRENT SENSOR, AC 2C

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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 82V76A36CS3
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BN12C

REPORT DATE 03/31/87 C-1499
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6498
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 3A
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) CURRENT SENSOR, AC 3A
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37CS1
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV12F

REPORT DATE 03/31/87  C-1500
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) CURRENT SENSOR, AC 3B
4)...
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 83V76A37CS2
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV12E

REPORT DATE 03/31/87  C-1501
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6500

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, AC 3C
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) CURRENT SENSOR, AC 3C
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 83V76A37CS3
PART NUMBER: ME449-0152-0011

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76BV12C

REPORT DATE 03/31/87  C-1502
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6501
HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-1 TO APCA-4)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) CURRENT SENSOR, DC (MDDA-1 TO APCA-4)
3) 4)
5) 6)
7) 8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS4
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76B20C

REPORT DATE 03/31/87 C-1503
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6502

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-1 TO FPCA-1)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) CURRENT SENSOR, DC (MDDA-1 TO FPCA-1)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS1
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76E23G

REPORT DATE 03/31/87 C-1504
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6503  ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-1 TO MPCA-1)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) CURRENT SENSOR, DC (MDDA-1 TO MPCA-1)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 40V76CS7
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76F23G

REPORT DATE 03/31/87  C-1505
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6504

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-2 TO APCA-5)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) CURRENT SENSOR, DC (MDDA-2 TO APCA-5)
3)
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS5
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76L20C

REPORT DATE 03/31/87 C-1506
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C                  FLIGHT: 3/3
MDAC ID: 6505                      ABORT: 3/3

ITEM: CURRENT SENSOR, DC (APCA-2 TO AFT PAYLOAD)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER      SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) CURRENT SENSOR, DC (APCA-2 TO AFT PAYLOAD)
3) 
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5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 50V76CS10
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/Mission/VEHICLE.

REFERENCES: 76L6G

REPORT DATE 03/31/87  C-1507
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6506

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-2 TO FPCA-2)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) CURRENT SENSOR, DC (MDDA-2 TO FPCA-2)
3) 
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS2
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76P23G

REPORT DATE 03/31/87 C-1508
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
SHOOT: 3/3
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 6507

ITEM: CURRENT SENSOR, DC (MDDA-2 TO MPCA-2)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) CURRENT SENSOR, DC (MDDA-2 TO MPCA-2)
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS8
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76R23C

REPORT DATE 03/31/87  C-1509
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6508

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-3 TO APCA-6)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) CURRENT SENSOR, DC (MDDA-3 TO APCA-6)
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6) 
7) 
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS6
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76Y20C

REPORT DATE 03/31/87 C-1510
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6509

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
3) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
4) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
5) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
6) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
7) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
8) CURRENT SENSOR, DC (APCA-3 TO AFT PAYLOAD)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 50V76CS11
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76Y6G

REPORT DATE 03/31/87 C-1511
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6510

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-3 TO FPCA-3)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) CURRENT SENSOR, DC (MDDA-3 TO FPCA-3)

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS3
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AC23G

REPORT DATE 03/31/87 C-1512
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6511

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CURRENT SENSOR, DC (MDDA-3 TO MPCA-3)
FAILURE MODE: FAILS TO INDICATE PROPER VALUE.

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) CURRENT SENSOR, DC (MDDA-3 TO MPCA-3)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 40V76CS9
PART NUMBER: ME449-0152

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS A NON-CRITICAL MEASUREMENT SENSOR. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 76AD23D

REPORT DATE 03/31/87 C-1513
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87            HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C            FLIGHT: 3/3
MDAC ID: 6512              ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 1A TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER            SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1A TO FWD RCS VALVES)
5)  
6)  
7)  
8)  
9) 05-6

CRITICALITIES
FLIGHT PHASE     HDW/FUNC     ABORT     HDW/FUNC
PRELAUNCH:        3/3             RTLS:        3/3
LIFTOFF:          3/3             TAL:         3/3
ONORBIT:          3/3             AOA:         3/3
DEORBIT:          3/3             ATO:         3/3
LANDING/SAFING:   3/3

REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB29
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BH9B (42T12H)

REPORT DATE 03/31/87          C-1514
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6513

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 1B TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1B TO FWD RCS VALVES)
5) ...
6) ...
7) ...
8) ...
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB30
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BH9B (42T12H)

REPORT DATE 03/31/87  C-1515
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6514  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 1C TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1C TO FWD RCS VALVES)
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7)  
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB31
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BH9B (42T12H)

REPORT DATE 03/31/87  C-1516
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6515 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2A TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2A TO FWD RCS VALVES)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB32
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BP13C (42T22H)

REPORT DATE 03/31/87  C-1517
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6516

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2B TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2B TO FWD RCS VALVES)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB33
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BP12C (42T22H)

REPORT DATE 03/31/87
C-1518
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6517
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2C TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2C TO FWD RCS VALVES)

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB34
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BP12C (42T22H)

REPORT DATE 03/31/87 C-1519
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6518 ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3A TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3A TO FWD RCS VALVES)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 85V73A129CB35
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BW11B (42T22H)

REPORT DATE 03/31/87 C-1520
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6519

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3B TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3B TO FWD RCS VALVES)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB36
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BW10B (42T22H)

REPORT DATE 03/31/87  C-1521
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6520  ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3C TO FWD RCS VALVES)
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3C TO FWD RCS VALVES)
5)
6)
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 85V73A129CB37
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS IS THE NORMAL FLIGHT CONFIGURATION.

REFERENCES: 76BW10B (42T22H)

REPORT DATE 03/31/87  C-1522
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6521

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 1A TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1A TO FWD RCS VALVES)

CRITICALITIES

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LOCATION: 85V73A129CB29
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76BH9B (42T12H)

REPORT DATE 03/31/87 C-1523
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6522

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 1B TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1B TO FWD RCS VALVES)
5)
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7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB30
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76BH9B (42T12H)

REPORT DATE 03/31/87 C-1524
## INDEPENDENT ORBITER ASSESSMENT
### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

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**ITEM:** CIRCUIT BREAKER, 3A (AC 1C TO FWD RCS VALVES)

**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER

**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) AC BUS #1
2) INV DIST & CONT ASSY #1
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 1C TO FWD RCS VALVES)
5) 
6) 
7) 
8) 05-6
9) 05-6

### CRITICALITIES

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**LOCATION:** 85V73A129CB31

**PART NUMBER:** MC454-0026-2030

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**

FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

**REFERENCES:** 76BH9B (42T12H)

**REPORT DATE 03/31/87**

**C-1525**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6524

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2A TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2A TO FWD RCS VALVES)
5)
6)
7)
8)
9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/2R TAL: 3/3
ONORBIT: 3/2R AOA: 3/3
DEORBIT: 3/2R ATO: 3/3
LANDING/SAFING: 3/3


LOCATION: 85V73A129CB32
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76BP13C (42T22H)

REPORT DATE 03/31/87 C-1526
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6525

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2B TO FWD RCS VALVES)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2B TO FWD RCS VALVES)
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CRITICALITIES

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LOCATION: 85V73A129CB33
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76BP12C (42T22H)

REPORT DATE 03/31/87 C-1527
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6526

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 2C TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #2
2) INV DIST & CONT ASSY #2
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 2C TO FWD RCS VALVES)
5)
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7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB34
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76BP12C (42T22H)

REPORT DATE 03/31/87 C-1528
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6527

HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/2R

ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3A TO FWD RCS VALVES)

FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3A TO FWD RCS VALVES)
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 85V73A129CB35

PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76AW11B (42T22H)

REPORT DATE 03/31/87 C-1529
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6528

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3B TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3B TO FWD RCS VALVES)
5) 
6) 
7) 
8) 
9) 05-6

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LOCATION: 85V73A129CB36
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76AW10B (42T22H)
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6529

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/2R
ABORT: 3/3

ITEM: CIRCUIT BREAKER, 3A (AC 3C TO FWD RCS VALVES)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) AC BUS #3
2) INV DIST & CONT ASSY #3
3) MA73C PANEL
4) CIRCUIT BREAKER, 3A (AC 3C TO FWD RCS VALVES)
5)
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9) 05-6

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LOCATION: 85V73A129CB37
PART NUMBER: MC454-0026-2030

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO FORWARD RCS VALVES. LOSS OF ALL REDUNDANCY WOULD LIKELY CAUSE LOSS OF MISSION DUE TO INABILITY TO CONTROL FORWARD RCS PROP TANKS AND THEREFORE FORWARD RCS JET FIRING.

REFERENCES: 76AW10B (42T22H)

REPORT DATE 03/31/87 C-1531
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6530

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I TO APCA-1
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) ALCA-1
3) HYBRID DRIVER TYPE I TO APCA-1
4) 
5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 54V76A121AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO THE SRB BUS.
LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48A21G

REPORT DATE 03/31/87 C-1532
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EP&D&C  FLIGHT: 3/3
MDAC ID: 6531  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I TO APCA-I
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) ALCA-I
3) HYBRID DRIVER TYPE I TO APCA-I

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 54V76A121AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS CIRCUIT IS NORMALLY ON DURING LAUNCH PHASE.

REFERENCES: 48A21G

REPORT DATE 03/31/87  C-1533
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6532

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I TO APCA-1
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) ALCA-1
3) HYBRID DRIVER TYPE I TO APCA-1

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LOCATION: 54V76A121AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO THE SRB BUS.
LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48B21G

REPORT DATE 03/31/87 C-1534
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6533

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I TO APCA-1
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) ALCA-1
3) HYBRID DRIVER TYPE I TO APCA-1

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A121AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS CIRCUIT IS NORMALLY ON DURING LAUNCH PHASE.

REFERENCES: 48B21G

REPORT DATE 03/31/87 C-1535
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6534  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE I TO APCA-2
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LOCATION:  55V76A122AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO THE SRB BUS.
LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48BN21G
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87          HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C          FLIGHT: 3/3
MDAC ID: 6535          ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE I TO APCA-2
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS CIRCUIT IS NORMALLY ON DURING LAUNCH PHASE.

REFERENCES: 48BN21G

REPORT DATE 03/31/87 C-1537
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6536

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE I TO APCA-2
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LOCATION: 55V76A122AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO THE SRB BUS.
LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48BP21G

REPORT DATE 03/31/87 C-1538
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6537

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE I
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE I TO APCA-2

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR
PART NUMBER: MC477-0261-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS CIRCUIT IS NORMALLY ON DURING LAUNCH PHASE.

REFERENCES: 48BP21G

REPORT DATE 03/31/87 C-1539
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6538
HIGHEST CRITICALITY HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
4)
5)
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7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48A21C

REPORT DATE 03/31/87 C-1540
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6539

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
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8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48A21C

REPORT DATE 03/31/87 C-1541
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6540

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
4) 
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTLS: 3/3
LIFTOFF: 3/1R TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3


LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48B21C

REPORT DATE 03/31/87 C-1542
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6541

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-1 & APCA-3
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48B21C

REPORT DATE 03/31/87 C-1543
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6542

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-2 & APCA-3
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-2 & APCA-3
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LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48BN21C

REPORT DATE 03/31/87 C-1544
### INDEPENDENT ORBITER ASSESSMENT
#### ORBITER SUBSYSTEM ANALYSIS WORKSHEET

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6543

**ITEM:** HYBRID DRIVER TYPE II TO APCA-2 & APCA-3  
**FAILURE MODE:** FAILS ON

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**HIGHEST CRITICALITY**  
**HDW/FUNC:** FLIGHT: 3/3  
ABORT: 3/3

#### BREAKDOWN HIERARCHY:
1) ESS BUS 3AB  
2) ALCA-3  
3) HYBRID DRIVER TYPE II TO APCA-2 & APCA-3

#### CRITICALITIES

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**LOCATION:** 56V76A123AR  
**PART NUMBER:** MC477-0262-0002

**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**  
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

**REFERENCES:** 48BN21C

**REPORT DATE:** 03/31/87  
**C-1545**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6544 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-2 & APCA-3
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-2 & APCA-3
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9) 05-6

CRITICALITIES

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LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE
DURING LAUNCH PHASE.

REFERENCES: 48BP21C

REPORT DATE 03/31/87 C-1546
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6545
FLIGHT: 3/3 ABORT: 3/3

ITEM: HYBRID DRIVER TYPE II TO APCA-2 & APCA-3
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) ESS BUS 3AB
2) ALCA-3
3) HYBRID DRIVER TYPE II TO APCA-2 & APCA-3

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0262-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/FISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48BP21C

REPORT DATE 03/31/87 C-1547
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**ITEM:** HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II  
**FAILURE MODE:** FAILS OFF  
**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
4) 5) 6) 7) 8) 9) 05-6

**LOCATION:** 56V76A123AR
**PART NUMBER:** MC477-0265-0002


**CAUSES:** CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

**EFFECTS/RATIONALE:**
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

**REFERENCES:** 48A21B

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**REFERENCES:** 48A21B

**REPORT DATE 03/31/87 C-1548**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6547

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48A21B

REPORT DATE 03/31/87  C-1549
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6548  

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II  
FAILURE MODE: FAILS OFF  

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER  

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C  
2) ALCA-3  
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II  
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LOCATION: 56V76A123AR  
PART NUMBER: MC477-0265-0002  

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK  

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.  
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE  
DURING LAUNCH PHASE.  

REFERENCES: 48B21B  

REPORT DATE 03/31/87 C-1550
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6549

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
4) 5) 6) 7) 8) 9) 05-6

HIERARCHY:

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48B21B

REPORT DATE 03/31/87 C-1551
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6550  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
4) 
5) 
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8) 
9) 05-6

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LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48BN21B

REPORT DATE 03/31/87  C-1552
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6551

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE. THIS CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48BN21B

REPORT DATE 03/31/87 C-1553
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6552  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
4) 
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6) 
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8) 
9) 05-6

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LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB BUS.
LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48BP21B

REPORT DATE 03/31/87 C-1554
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6553

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) ALCA-3
3) HYBRID DRIVER TYPE V TO HYBRID DRIVER TYPE II

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REDUNDANCY SCREENS: A [ ]
B [ ]
C [ ]

LOCATION: 56V76A123AR
PART NUMBER: MC477-0265-0002

CAUSES: CONTAMINATION, THERMAL STRESS, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.
CIRCUIT IS NORMALLY POWERED ON DURING LAUNCH PHASE.

REFERENCES: 48BP21B

REPORT DATE 03/31/87 C-1555
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6554

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K TO APCA-1
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 5.1K TO APCA-1

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  56V76A133A1R19
PART NUMBER: RLR07C5101GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MEASUREMENT ITEM AND HAS NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48A21F

REPORT DATE 03/31/87  C-1556
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6555

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K TO APCA-1
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 5.1K TO APCA-1
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7) 
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R52
PART NUMBER: RLR07C5101GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MEASUREMENT ITEM AND HAS NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48B21F

REPORT DATE 03/31/87 C-1557
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6556

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 5.1K TO APCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 5.1K TO APCA-2
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R30
PART NUMBER: RLR07C5101GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MEASUREMENT ITEM AND HAS NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BN21F

REPORT DATE 03/31/87 C-1558
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6557

ITEM: RESISTOR, 5.1K TO APCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 5.1K TO APCA-2
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R31
PART NUMBER: RLR07C5101GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS IS A NON-CRITICAL MEASUREMENT ITEM AND HAS NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BP21F

REPORT DATE 03/31/87 C-1559
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6558

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 7.5K TO DC RETURN
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-1
3) ALCA-3
4) RESISTOR, 7.5K TO DC RETURN
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123R
PART NUMBER: RLR07C7501GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR PREVENTS A FALSE SIGNAL TO THE SRB POWER CONTROL. THIS FAILURE IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 48A21A

REPORT DATE 03/31/87 C-1560
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: 6559

ITEM: RESISTOR, 7.5K TO DC RETURN
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-1
3) ALCA-3
4) RESISTOR, 7.5K TO DC RETURN
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123R
PART NUMBER: RLR07C7501GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR PREVENTS A FALSE SIGNAL TO THE SRB POWER CONTROL. THIS FAILURE IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 48B21A

REPORT DATE 03/31/87 C-1561
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EP&D&C   FLIGHT: 3/3
MDAC ID: 6560        ABORT: 3/3

ITEM: RESISTOR, 7.5K TO DC RETURN
FAILURES MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) ALCA-3
4) RESISTOR, 7.5K TO DC RETURN
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123R
PART NUMBER: RLR07C7501GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR PREVENTS A FALSE SIGNAL TO THE SRB POWER CONTROL. THIS FAILURE IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 48BN21B

REPORT DATE 03/31/87 C-1562
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6561

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 7.5K TO DC RETURN
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) ALCA-3
4) RESISTOR, 7.5K TO DC RETURN

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A123R
PART NUMBER: RLR07C7501GR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS BLEED-OFF RESISTOR PREVENTS A FALSE SIGNAL TO THE SRB POWER CONTROL. THIS FAILURE IS NON-CRITICAL TO FLIGHT OPERATIONS.

REFERENCES: 48BP21B
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6562

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RESISTOR, 15K TO ALCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-1
3) RESISTOR, 15K TO ALCA-3
4)
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6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 54V76A131A1R45
PART NUMBER: RBR56L15001BR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48A16G

REPORT DATE 03/31/87 C-1564
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6563
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RESISTOR, 15K TO ALCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
   2) APCA-I
   3) RESISTOR, 15K TO ALCA-3
   4) 
   5) 
   6) 
   7) 
   8) 
   9) 05-6

CRITICALITIES

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LOCATION: 54V76A131A1R46
PART NUMBER: RBR56L15001BR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48B16G

REPORT DATE 03/31/87 C-1565
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6564

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RESISTOR, 15K TO ALCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 15K TO ALCA-3
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 55V76A132A1R44
PART NUMBER: RBR56L15001BR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48BN16G

REPORT DATE 03/31/87 C-1566
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6565

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RESISTOR, 15K TO ALCA-3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 15K TO ALCA-3
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9) 05-6

CRITICALITIES

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LOCATION: 55V76A132A1R45
PART NUMBER: RBR56L15001BR

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF CONTROL OF REDUNDANT POWER TO SRB BUS. LOSS OF ALL POWER TO SRB BUS WOULD LIKELY CAUSE LOSS OF CREW/VEHICLE DURING LAUNCH PHASE.

REFERENCES: 48BP16G

REPORT DATE 03/31/87 C-1567
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6566

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 2.2K
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 2.2K
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A1R36
PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48G21G

REPORT DATE 03/31/87   C-1568
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLT: 3/3
MDAC ID: 6567
ABORT: 3/3

ITEM: RESISTOR, 2.2K
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 2.2K
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R24
PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48G21C

REPORT DATE 03/31/87 C-1569
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6568
ITEM: RESISTOR, 1.8K
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 1.8K
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A1R35

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48G21G

REPORT DATE 03/31/87  C-1570
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6569

ITEM: RESISTOR, 1.8K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 1.8K
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7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R23
PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48G21C

REPORT DATE 03/31/87 C-1571
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6570

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.8K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 1.8K
4) 05-6
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A1R37

PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48H21G

REPORT DATE 03/31/87  C-1572
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6571

ITEM: RESISTOR, 1.8K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 1.8K
4) 
5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R26
PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48H21C

REPORT DATE 03/31/87 C-1573
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6572
ABORT: 3/3

ITEM: RESISTOR, 2.2K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RESISTOR, 2.2K
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A1R38
PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48H21G

REPORT DATE 03/31/87 C-1574
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: 6573

ITEM: RESISTOR, 2.2K

FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:

1) MAIN DC BUS C
2) APCA-3
3) RESISTOR, 2.2K
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A1R27

PART NUMBER:

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:

THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. WORST CASE FAILURE WOULD CAUSE DELAY OF LAUNCH.

REFERENCES: 48H21C

REPORT DATE 03/31/87 C-1575
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6574

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.2K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) F6 PANEL
3) RESISTOR, 1.2K

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6A11R1
PART NUMBER: RLR42C1201GM

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N24E

REPORT DATE 03/31/87 C-1576
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6575

ITEM: RESISTOR, 1.2K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BC2
2) F6 PANEL
3) RESISTOR, 1.2K

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6A11R2
PART NUMBER: RLR42C1201GM

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N24D

REPORT DATE 03/31/87 C-1577
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6576

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RESISTOR, 1.2K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) P6 PANEL
3) RESISTOR, 1.2K

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6A11R3
PART NUMBER: RLR42C1201GM

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/Mission/VEHICLE.

REFERENCES: 48Q24E

REPORT DATE 03/31/87  C-1578
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6577

ITEM: RESISTOR, 1.2K
FAILURE MODE: FAILS OPEN, SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BCI
2) F6 PANEL
3) RESISTOR, 1.2K
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 34V73A6A11R4
PART NUMBER: RLR42C1201GM

CAUSES: PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, THERMAL SHOCK, MECH SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q24D

REPORT DATE 03/31/87  C-1579
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6578

HIGHEST CRITICALITY
HDW/FUNC

FLIGHT: 3/1R
ABORT: 3/3

ITEM: RPC, 20A TO APCA-1
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-1
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 56V76A133RPC27
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48A21F

REPORT DATE 03/31/87 C-1580
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6579

ITEM: RPC, 20A TO APCA-1
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-1
4) 
5) 
6) 
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8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] , B [ ], C [ ]

LOCATION: 56V76A133RPC27
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/EHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48A21F

REPORT DATE 03/31/87 C-1581
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6580

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RPC, 20A TO RELAY
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-I
3) RPC, 20A TO RELAY
4)
5)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 54V76A131RPC3
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48A18G

REPORT DATE 03/31/87 C-1582
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  
FLIGHT: 3/3
MDAC ID: 6581  
ABORT: 3/3

ITEM: RPC, 20A TO RELAY
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-I
3) RPC, 20A TO RELAY
4)
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7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A131RPC3
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48A18G

REPORT DATE 03/31/87  C-1583
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6582

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BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-1
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9) 05-6

CRITICALITIES

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LOCATION: 56V76A133RPC25
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48B21F

REPORT DATE 03/31/87 C-1584
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6583

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 20A TO APCA-1
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-1
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133RPC25
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/EHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48B21F

REPORT DATE 03/31/87 C-1585
**INDEPENDENT ORBITER ASSESSMENT**  
**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

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**ITEM:** RPC, 20A TO RELAY  
**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) MAIN DC BUS A  
2) APCA-1  
3) RPC, 20A TO RELAY  
4)  
5)  
6)  
7)  
8)  
9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:**  
A [ 1 ]  
B [ NA ]  
C [ P ]

**LOCATION:** 54V76A131RPC4  
**PART NUMBER:** MC450-0017-2200

**CAUSES:** PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

**EFFECTS/RATIONALE:**
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

**REFERENCES:** 48B18G

**REPORT DATE 03/31/87**  
C-1586
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6585

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 20A TO RELAY
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS A
2) APCA-1
3) RPC, 20A TO RELAY
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 54V76A131RPC4
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48B18G

REPORT DATE 03/31/87 C-1587
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/1R
MDAC ID: 6586
ABORT: 3/3

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO ORB BUS C

CRITICALITIES

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LOCATION: 55V76A132RPC44
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48G22G

REPORT DATE 03/31/87 C-1588
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6587

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO ORB BUS C
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132RPC44
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS NORMALLY ON DURING FLIGHT OPERATIONS.

REFERENCES: 48G22G

REPORT DATE 03/31/87
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6588

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO ORB BUS C
4)
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8)
9) 05-6

CRITICALITIES

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LOCATION: 56V76A133RPC3
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48G22B

REPORT DATE 03/31/87 C-1590
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6589
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO ORB BUS C
4)
5)
6)
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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: 56V76A133RPC3
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS NORMALLY ON DURING FLIGHT OPERATIONS.

REFERENCES: 48G22B

REPORT DATE 03/31/87  C-1591
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
HIGHEST CRITICALITY  HDW/FUNC  
SUBSYSTEM: EPD&C  
FLIGHT: 3/1R  
MDAC ID: 6590  
ABORT: 3/3  

ITEM: RPC, 20A TO ORB BUS C  
FAILURE MODE: FAILS OFF  

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER  

BREAKDOWN HIERARCHY:  
1) MAIN DC BUS B  
2) APCA-2  
3) RPC, 20A TO ORB BUS C  
4)  
5)  
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8)  
9) 05-6  

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LOCATION: 55V76A132RPC45  
PART NUMBER: MC450-0017-2200  

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS  
EFFECTS/RATIONALE:  
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE  
GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF  
ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO  
CONTROL SRBS.  

REFERENCES: 48H22G
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EP&D&C
MDAC ID: 6591

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO ORB BUS C
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132RPC45
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS NORMALLY ON DURING FLIGHT OPERATIONS.

REFERENCES: 48H22G

REPORT DATE 03/31/87 C-1593
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/1R
MDAC ID: 6592 ABORT: 3/3

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO ORB BUS C
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8)
9) 05-6

CRITICALITIES

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LOCATION: 56V76A133RPC4
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48H22B

REPORT DATE 03/31/87 C-1594
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: 6593

ITEM: RPC, 20A TO ORB BUS C
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO ORB BUS C

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133RPC4
PART NUMBER: MC450-0017-2200

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS NORMALLY ON DURING FLIGHT OPERATIONS.

REFERENCES: 48H22B

REPORT DATE 03/31/87 C-1595
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6594

HIGHEST CRITICALITY
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RPC, 20A TO APCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-2
4) 
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7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 56V76A133RPC26
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BN21F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6595  ABORT: 3/3

ITEM: RPC, 20A TO APCA-2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-2
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 56V76A133RPC26  PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48BN21F

REPORT DATE 03/31/87  C-1597
### INDEPENDENT ORBITER ASSESSMENT

**ORBITER SUBSYSTEM ANALYSIS WORKSHEET**

**DATE:** 3/11/87  
**SUBSYSTEM:** EPD&C  
**MDAC ID:** 6596

**ITEM:** RPC, 20A TO RELAY  
**FAILURE MODE:** FAILS OPEN

**LEAD ANALYST:** K. SCHMECKPEPER  
**SUBSYS LEAD:** K. SCHMECKPEPER

**BREAKDOWN HIERARCHY:**
1) MAIN DC BUS B  
2) APCA-2  
3) RPC, 20A TO RELAY  
4)  
5)  
6)  
7)  
8)  
9) 05-6

**CRITICALITIES**

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**REDUNDANCY SCREENS:**  
A [1]  
B [NA]  
C [P]

**LOCATION:** 55V76A132RPC5  
**PART NUMBER:** MC450-0017-2200

**CAUSES:** PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

**EFFECTS/RATIONALE:**  
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

**REFERENCES:** 48BN18G

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**REPORT DATE** 03/31/87  
**C-1598**
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6597  ABDOR: 3/3

ITEM: RPC, 20A TO RELAY  FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO RELAY
4)
5)
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7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 55V76A132RPC5
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/EHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48BN18G

REPORT DATE 03/31/87  C-1599
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6598

ITEM: RPC, 20A TO APCA-2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-2
4) 05-6
5) 6)
6) 7)
7) 8)
8) 9)

CRITICALITIES

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LOCATION: 56V76A133RPC24
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BP21F

REPORT DATE 03/31/87  C-1600
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6599

ITEM: RPC, 20A TO APCA-2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) RPC, 20A TO APCA-2
4) 
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 56V76A133RPC24
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/EHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48BP21F

REPORT DATE 03/31/87   C-1601
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6600

ITEM: RPC, 20A TO RELAY
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO RELAY
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9) 05-6

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LOCATION: 55V76AI32RPC4
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BP18H

REPORT DATE 03/31/87 C-1602
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6601

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RPC, 20A TO RELAY
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) RPC, 20A TO RELAY

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132RPC4
PART NUMBER: MC450-0017-2200

CAUSES: PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
NO EFFECT ON CREW/MISSION/VEHICLE AS THIS ITEM IS COMMANDED "ON" DURING FLIGHT OPERATIONS.

REFERENCES: 48BP18H
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6602

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: DIODE TO ORB BUS C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) DIODE TO ORB BUS C
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9) 05-6

CRITICALITIES

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LOCATION: 56V76A133A3CR9
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48G21B

REPORT DATE 03/31/87 C-1604
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6603

ITEM: DIODE TO ORB BUS C
FAIL CRE mode: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) DIODE TO ORB BUS C
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A3CR9
PART NUMBER: 56V76A133A3CR9

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48G21B

REPORT DATE 03/31/87 C-1605
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6604

ITEM: DIODE TO ORB BUS C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) DIODE TO ORB BUS C
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5) 
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7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 55V76A132A3CR6
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48G22F

REPORT DATE 03/31/87 C-1606
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6605  ABORT: 3/3

ITEM: DIODE TO ORB BUS C
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) DIODE TO ORB BUS C
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9) 05-6

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION:  55V76A132A3CR6
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48G22F

REPORT DATE 03/31/87  C-1607
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 6606

ITEM: DIODE TO ORB BUS C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) DIODE TO ORB BUS C
4)
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9) 05-6

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

CRITICALITIES

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LOCATION: 55V76A132A3CR7

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL SRBS.

REFERENCES: 48H22F

REPORT DATE 03/31/87 C-1608
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6607

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE TO ORB BUS C
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) APCA-2
3) DIODE TO ORB BUS C
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A132A3CR7
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48H22F

REPORT DATE 03/31/87    C-1609
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6608

ITEM: DIODE TO ORB BUS C
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) DIODE TO ORB BUS C
4)
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7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 56V76A133A3CR10
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANT POWER TO SRB RATE
GYRO ASSY. EACH SRB HAS REDUNDANT RATE GYRO ASSEMBLIES. LOSS OF
ALL REDUNDANCY MAY CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO
CONTROL SRBS.

REFERENCES: 48H21B

REPORT DATE 03/31/87 C-1610
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6609

ITEM: DIODE TO ORB BUS C
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER

SUBSYSTEM HIERARCHY:
1) MAIN DC BUS C
2) APCA-3
3) DIODE TO ORB BUS C
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 56V76A133A3CR10
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS FAILURE WOULD HAVE NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48H21B

REPORT DATE 03/31/87 C-1611
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

MDAC ID: 6610

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
4) 
5) 
6) 
7) 
8) 
9) 05-6

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N23C

REPORT DATE 03/31/87  C-1612
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6611

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 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: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N23C

REPORT DATE 03/31/87 C-1613
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6612

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
4) 
5) 
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8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48P23C

REPORT DATE 03/31/87 C-1614
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6613

ITEM: DIODE
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48P23C

REPORT DATE 03/31/87 C-1615
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6614

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
4) 
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q23C

REPORT DATE 03/31/87  C-1616
INDEPENDENT ORBITER ASSESSMENT  
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  
SUBSYSTEM: EPD&C  
MDAC ID: 6615

ITEM: DIODE  
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER  
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PANT NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q23C

REPORT DATE 03/31/87  C-1617
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6616

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48R23C

REPORT DATE 03/31/87 C-1618
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6617

ITEM: DIODE
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
PRELAUNCH: 3/3 RTL5: 3/3
LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFIN6: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISION/VEHICLE.

REFERENCES: 48R23C

REPORT DATE 03/31/87 C-1619
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6618

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BJ2G

REPORT DATE 03/31/87 C-1620
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6619

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BJ2G

REPORT DATE 03/31/87 C-1621
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6620

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: DIODE
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER:

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BF2G

REPORT DATE 03/31/87 C-1622
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6621

ITEM: DIODE
FAILURE MODE: SHORTS

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) RSS BUS
2) F6 PANEL
3) DIODE
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6CR
PART NUMBER: 34V73A6CR

CAUSES: CONTAMINATION, VIBRATION, MECH SHOCK, THERMAL STRESS

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BF2G

REPORT DATE 03/31/87 C-1623
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6622

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RELAY TO OIA BUS
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC Busses A & C
2) APCA-1
3) RELAY TO OIA BUS
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 54V76A131K8
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48A17F

REPORT DATE 03/31/87 C-1624
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
MDAC ID: 6623
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RELAY TO OIA BUS
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES A & C
2) APCA-1
3) RELAY TO OIA BUS
4)
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9) 05-6

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LOCATION: 54V76A131K8
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48A17F

REPORT DATE 03/31/87 C-1625
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6624

ITEM: RELAY TO OIA BUS
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES A & C
2) APCA-I
3) RELAY TO OIA BUS
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9) 05-6

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LOCATION: 54V76A131K9
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48B17F

REPORT DATE 03/31/87 C-1626
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EP&D&C  FLIGHT: 3/1R
MDAC ID: 6625  ABORT: 3/3

ITEM: RELAY TO OIA BUS
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES A & C
2) APCA-1
3) RELAY TO OIA BUS
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LOCATION: 54V76A131K9
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48B17F

REPORT DATE 03/31/87  C-1627
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6626

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RELAY TO OIB BUS
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC Busses B & C
2) APCA-2
3) RELAY TO OIB BUS
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9) 05-6

CRITICALITIES

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LOCATION: 55V76A132K10
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BN17F

REPORT DATE 03/31/87 C-1628
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C
MDAC ID: 6627

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RELAY TO OIB BUS
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES B & C
2) APCA-2
3) RELAY TO OIB BUS
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LOCATION: 55V76A132K10
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BN17F

REPORT DATE 03/31/87 C-1629
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6628

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: RELAY TO OIB BUS
FAILURE MODE: FAILS TO TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES B & C
2) APCA-2
3) RELAY TO OIB BUS
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LOCATION: 55V76A132K9
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BP17F

REPORT DATE 03/31/87 C-1630
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6629

ITEM: RELAY TO OIB BUS
FAILURE MODE: INADVERTENT TRANSFER

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUSSES B & C
2) APCA-2
3) RELAY TO OIB BUS
4) ...
5) ...
6) ...
7) ...
8) ...
9) 05-6

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LOCATION: 55V76A132K9
PART NUMBER: MC455-0129-0001

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
A FAILURE IN THE "OPEN" POSITION WOULD CAUSE THE LOSS OF REDUNDANT POWER TO AN SRB BUS. LOSS OF ALL POWER TO THE SRB BUS COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY TO CONTROL THE SRBS DURING LAUNCH PHASE.

REFERENCES: 48BP17F
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6630

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSES AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3
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8) 
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K1A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N23C

REPORT DATE 03/31/87 C-1632
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6631  ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER   SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSES AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3
4) 
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9) 05-6

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 34V73A6K1A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N23C

REPORT DATE 03/31/87   C-1633
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6632
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSSES AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3
4)
5)
6)
7)
8)
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K1B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48P23C

REPORT DATE 03/31/87 C-1634
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6633

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONTROL BUSSES AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3
4)
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8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K1B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48P23C

REPORT DATE 03/31/87 C-1635
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6634

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS ABI & BCI
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #2
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K3B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q23C

REPORT DATE 03/31/87 C-1636
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87

SUBSYSTEM: EPD&C

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

MDAC ID: 6635

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC1
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #2
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9) 05-6

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REDUNDANCY SCREENS: A [ ]    B [ ]    C [ ]

LOCATION: 34V73A6K3B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q23C

REPORT DATE 03/31/87 C-1637
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6636

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS ABI & BCI
2) P6 PANEL
3) RELAY TO ACA #1 & ACA #2
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K3A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48R23C

REPORT DATE 03/31/87 C-1638
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6637

HIGHEST CRITICALITY
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC1
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #2
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K3A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48R23C

REPORT DATE 03/31/87 C-1639
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: 6638

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K2A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BF2G

REPORT DATE 03/31/87 C-1640
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6639

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #3
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER
SUBLYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC2
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #3

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K2A
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION,
MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON
CREW/MISMISSION/VEHICLE.

REFERENCES: 48BF2G

REPORT DATE 03/31/87 C-1641
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6640

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC1
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #2
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9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K2B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BJ2G

REPORT DATE 03/31/87 C-1642
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C FLIGHT: 3/3
MDAC ID: 6641 ABORT: 3/3

ITEM: RELAY TO ACA #1 & ACA #2
FAILURE MODE: FAILS CLOSED

LEAD ANALYST: K. SCHMECKPEPER SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC1
2) F6 PANEL
3) RELAY TO ACA #1 & ACA #2
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9) 05-6

CRITICALITIES
FLIGHT PHASE HDW/FUNC ABORT HDW/FUNC
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LIFTOFF: 3/3 TAL: 3/3
ONORBIT: 3/3 AOA: 3/3
DEORBIT: 3/3 ATO: 3/3
LANDING/SAFING: 3/3

REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6K2B
PART NUMBER: MC455-0129

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BJ2G

REPORT DATE 03/31/87 C-1643
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: 6642

ITEM: ACA #1 - CHANNEL 39
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS ABI
2) F6 PANEL
3) ACA #1 - CHANNEL 39
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 30V73A16
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N21E

REPORT DATE 03/31/87 C-1644
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/3
MDAC ID: 6643  ABORT: 3/3

ITEM: ACA #3 - CHANNEL 39
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BC2
2) F6 PANEL
3) ACA #3 - CHANNEL 39
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CRITICALITIES

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REDUNDANCY SCREENS: A [ ]  B [ ]  C [ ]

LOCATION: 30V73A18
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N21D

REPORT DATE 03/31/87  C-1645
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6644

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: RSS LIGHTS - RANGE SAFE ARM
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC2
2) F6A8 PANEL
3) RSS LIGHTS - RANGE SAFE ARM
4)
5)
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7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS:  A [ ]  B [ ]  C [ ]

LOCATION: 34V73A6A8DS53
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48N22E

REPORT DATE 03/31/87  C-1646
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6645

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: ACA #1 - CHANNEL 35
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1
2) F6 PANEL
3) ACA #1 - CHANNEL 35
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 30V73A16
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q21E

REPORT DATE 03/31/87 C-1647
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6646

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: ACA #2 - CHANNEL 39
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS BC1
2) F6 PANEL
3) ACA #2 - CHANNEL 39
4) 5)
6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 30V73A17
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q21D

REPORT DATE 03/31/87 C-1648
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6647

HIGHEST CRITICALITY

ITEM: RSS LIGHTS - RANGE SAFE ARM
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) CONT BUS AB1 & BC1
2) F6A8 PANEL
3) RSS LIGHTS - RANGE SAFE ARM
4)  
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8)  
9) 05-6

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 34V73A6A8DS3

PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK, THERMAL SHOCK

EFFECTS/RATIONALE:
THIS ITEM IS IN A NON-CRITICAL INDICATOR CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48Q22E

REPORT DATE 03/31/87 C-1649
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6648

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/3

ITEM: SWITCH, PUSHBUTTON (ET SEP)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, PUSHBUTTON (ET SEP)
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9) 05-6

CRITICALITIES

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LOCATION: 35V73A3A7S4
PART NUMBER: ME452-0061-4133

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT AS THE MODE SWITCH MUST BE PLACED IN "MANUAL" POSITION BEFORE THIS SWITCH CAN BE ENERGIZED. LOSS OF CREW/VEHICLE AFTER MULTIPLE FAILURES IS POSSIBLE DUE TO PREMATURE SEPERATION OF THE ET.

REFERENCES: 48BR14H

REPORT DATE 03/31/87 C-1650
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6649

HIGHEST CRITICALITY
FLIGHT: 1/1
ABORT: 3/3

ITEM: SWtich, PUSHBUTTON (ET SEP)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, PUSHBUTTON (ET SEP)
3) 4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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LOCATION: 35V73A3A7S4
PART NUMBER: ME452-0061-4133

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF MANUAL CONTROL OF ET SEPERATION FUNCTION. CREW CAN OVERRIDE WITH GPC COMMAND. ET SEP FAILURE COULD RESULT IN LOSS OF CREW/VEHICLE.

REFERENCES: 48BR14H

REPORT DATE 03/31/87 C-1651
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6650

HIGHEST CRITICALITY
FLIGHT: 3/1R
ABORT: 3/3

ITEM: SWITCH, PUSHBUTTON (SRB SEP)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, PUSHBUTTON (SRB SEP)
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9) 05-6

CRITICALITIES
FLIGHT PHASE      HDW/FUNC      ABORT      HDW/FUNC
PRELAUNCH:        3/3           RTLS:       3/3
LIFTOFF:          3/1R          TAL:        3/3
ONORBIT:          3/3           AOA:        3/3
DEORBIT:          3/3           ATO:        3/3
LANDING/SAFING:   3/3


LOCATION: 35V73A3A7S2
PART NUMBER: ME452-0061-4133

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT AS THE MODE SWITCH MUST BE PLACED IN "MANUAL" BEFORE SRB SEP COULD OCCUR. LOSS OF CREW/VEHICLE COULD OCCUR IF SRBS ARE SEPERATED PREMATURELY.

REFERENCES: 48BR10H

REPORT DATE 03/31/87 C-1652
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6651
HIGHEST CRITICALITY FLIGHT: 1/1
ABORT: 3/3

ITEM: SWITCH, PUSHBUTTON (SRB SEP)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, PUSHBUTTON (SRB SEP)
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9) 05-6

CRITICALITIES

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LOCATION: 35V73A3A7S2
PART NUMBER: ME452-0061-4133

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF MANUAL CONTROL OF SRB SEP FUNCTION DURING A GPC INHIBIT CONDITION. IF THE CREW COULD NOT REMOVE THE INHIBIT CONDITION, THIS WOULD RESULT IN LOSS OF CREW/VEHICLE.HRO

REFERENCES: 48BR10H

REPORT DATE 03/31/87 C-1653
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6652

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 1/1
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
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9) 05-6

CRITICALITIES

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LOCATION: 35V73A3A7S3
PART NUMBER: ME452-0102-7352

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY IN ET SEP FUNCTION. IF MANUAL ET SEP WERE REQUIRED, IT COULD NOT BE PERFORMED RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 48BR17G

REPORT DATE 03/31/87 C-1654
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6653

HIGHEST CRITICALITY

FLIGHT: 3/1R
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
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4)
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7)
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9) 05-6

CRITICALITIES

FLIGHT PHASE  HDW/FUNC  ABORT  HDW/FUNC
PRELAUNCH: 3/3  RTLS: 3/3
LIFTOFF: 3/1R  TAL: 3/3
ONORBIT: 3/3  AOA: 3/3
DEORBIT: 3/3  ATO: 3/3
LANDING/SAFING: 3/3


LOCATION: 35V73A3A7S3
PART NUMBER: ME452-0102-7352

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT AS A PUSHBUTTON MUST BE PUSHED TO INITIATE ET SEP. A SECOND FAILURE COULD INITIATE PREMATURE ET SEP RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 48BR17G

REPORT DATE 03/31/87  C-1655
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6654

HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 1/1
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
FAILURE MODE: FAILS OFF - SHORTS POLE TO POLE OR GND

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P LEVER LOCK (ET SEP SLCT)
3) ...

CRITICALITIES

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LOCATION: 35V73A3A7S3
PART NUMBER: ME452-0102-7352

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF REDUNDANCY IN ET SEP FUNCTION. IF MANUAL ET SEP WERE REQUIRED, IT COULD NOT BE PERFORMED RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 48BR17G

REPORT DATE 03/31/87 C-1656
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6655

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 1/1
ABORT: 3/3

ITEM: SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
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LOCATION: 35V73A3A7S1
PART NUMBER: ME452-0102-7301

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF MANUAL SRB SEP FUNCTION DURING A GPC INHIBIT CONDITION. IF THE CREW COULD NOT FLY OUT OF THE INHIBIT REGION, SRB SEP WILL NOT OCCUR LEADING TO LOSS OF CREW/VEHICLE.

REFERENCES: 48BR10G

REPORT DATE 03/31/87 C-1657
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 6656  ABORT: 3/3

ITEM: SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
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9) 05-6

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LOCATION: 35V73A3A7S1
PART NUMBER: ME452-0102-7301

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT AS A PUSHBUTTON WOULD HAVE TO BE PUSHED TO INITIATE MANUAL SRB SEP. A SECOND FAILURE COULD CAUSE PREMATURE SRB SEP RESULTING IN LOSS OF CREW/VEHICLE.

REFERENCES: 48BR10G

REPORT DATE 03/31/87  C-1658
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY: HDW/FUNC
FLIGHT: 1/1
ABORT: 3/3

SUBSYSTEM: EPD&C
MDAC ID: 6657

ITEM: SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
FAILURE MODE: FAILS OFF - SHORTS POLE TO POLE OR GND

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) C3A7 PANEL
2) SWITCH, TOGGLE 3P2P (SRB SEP SLCT)
3) ...

CRITICALITIES

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LOCATION: 35V73A3A7S1
PART NUMBER: ME452-0102-7301

CAUSES: CONTAMINATION, PIECE-PART STRUCTURAL FAILURE, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD CAUSE LOSS OF MANUAL SRB SEP FUNCTION DURING A GPC INHIBIT CONDITION. IF THE CREW COULD NOT FLY OUT OF THE INHIBIT REGION, SRB SEP WILL NOT OCCUR LEADING TO LOSS OF CREW/VEHICLE.

REFERENCES: 48BR10G

REPORT DATE 03/31/87 C-1659
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: EPD&C
FLIGHT: 3/3
MDAC ID: 6658
ABORT: 3/3

ITEM: FUSE, 3A TO ET TUMBLE ARM
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) ALCA-2
5) FUSE, 3A TO ET TUMBLE ARM
6)
7)
8)
9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122F
PART NUMBER: ME451-0010-1030

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK

EFFECTS/RATIONALE:
THIS FAILURE WOULD ONLY CAUSE LOSS OF THE ET TUMBLING FUNCTION
AFTER SEP. NO EFFECT ON CREW/VEHICLE/MISSION

REFERENCES: 48BM19G

REPORT DATE 03/31/87  C-1660
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6659

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III TO ET TUMBLE CKT
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE III TO ET TUMBLE CKT
4) 5) 6) 7) 8) 9) 05-6

CRITICALITIES

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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR
PART NUMBER: MC477-0263-0002

CAUSES: MECH SHOCK, VIBRATION, THERMAL SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ET TUMBLE CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BM20F

REPORT DATE 03/31/87 C-1661
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: 6660

ITEM: HYBRID DRIVER TYPE III TO ET TUMBLE CKT
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE III TO ET TUMBLE CKT
4) 5) 6) 7) 8) 9) 05-6

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LOCATION: 55V76A122AR
PART NUMBER: MC477-0263-0002

CAUSES: MECH SHOCK, VIBRATION, THERMAL SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT. SECOND FAILURE "ON" WOULD ENERGIZE THE ET TUMBLE VALVE PREMATURELY WHICH COULD CAUSE LOSS OF MISSION DUE TO LOSS OF PROPELLANT.

REFERENCES: 48BM20F

REPORT DATE 03/31/87 C-1662
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6661

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III TO ET TUMBLE CKT
FAILURE MODE: FAILS OFF

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE III TO ET TUMBLE CKT
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REDUNDANCY SCREENS: A [ ] B [ ] C [ ]

LOCATION: 55V76A122AR
PART NUMBER: MC477-0263-0002

CAUSES: MECH SHOCK, VIBRATION, THERMAL SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ET TUMBLE CIRCUIT. NO EFFECT ON CREW/MISSION/VEHICLE.

REFERENCES: 48BM20D

REPORT DATE 03/31/87 C-1663
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/2R
MDAC ID: 6662  ABORT: 3/3

ITEM: HYBRID DRIVER TYPE III TO ET TUMBLE CKT
FAILURE MODE: FAILS ON

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MAIN DC BUS B
2) ALCA-2
3) HYBRID DRIVER TYPE III TO ET TUMBLE CKT
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LOCATION: 55V76A122AR
PART NUMBER: MC477-0263-0002

CAUSES: MECH SHOCK, VIBRATION, THERMAL SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD HAVE NO EFFECT. SECOND FAILURE "ON" WOULD ENERGIZE THE ET TUMBLE VALVE PREMATURELY WHICH COULD CAUSE LOSS OF MISSION DUE TO LOSS OF PROPELLANT.

REFERENCES: 48BM20D

REPORT DATE 03/31/87  C-1664
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6663

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: MASTER EVENTS CONTROLLER #1 - CRITICAL COMMANDS
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #1 - CRITICAL COMMANDS
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CRITICALITIES

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LOCATION: 54V76A13
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR COMMAND CIRCUITS FOR MEC FUNCTIONS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY OF MEC TO INITIATE STAGING AND SEP.

REFERENCES: 76DA19H

REPORT DATE 03/31/87 C-1665
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 2/1R
MDAC ID: 6664  ABORT: 2/1R

ITEM: MASTER EVENTS CONTROLLER #1 - CRITICAL COMMANDS
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #1 - CRITICAL COMMANDS
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LOCATION:  54V76A13
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE DEGRADATION OF PROTECTION AGAINST PREMATURE OPERATION OF CRITICAL FUNCTIONS. A SECOND FAILURE COULD CAUSE A PREMATURE INITIATION OF A CRITICAL OR NON-CRITICAL FUNCTION RESULTING IN LOSS OF CREW/MISSION/VEHICLE.

REFERENCES: 76DA19H

REPORT DATE 03/31/87  C-1666
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6665

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/1R
ABORT: 3/1R

ITEM: MASTER EVENTS CONTROLLER #2 - CRITICAL COMMANDS
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #2 - CRITICAL COMMANDS
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CRITICALITIES

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LOCATION: 55V76A14
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR COMMAND CIRCUITS FOR MEC FUNCTIONS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO INABILITY OF MEC TO INITIATE STAGING AND SEP.

REFERENCES: 76DA7H

REPORT DATE 03/31/87  C-1667
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6666

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: MASTER EVENTS CONTROLLER #2 - CRITICAL COMMANDS
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #2 - CRITICAL COMMANDS
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LOCATION: 55V76A14
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE DEGRADATION OF PROTECTION AGAINST PREMATURE OPERATION OF CRITICAL FUNCTIONS. A SECOND FAILURE COULD CAUSE A PREMATURE INITIATION OF A CRITICAL OR NON-CRITICAL FUNCTION RESULTING IN LOSS OF CREW/MISSION/VEHICLE.

REFERENCES: 76DA7H

REPORT DATE 03/31/87 C-1668
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6667  ABORT: 3/1R

ITEM: MASTER EVENTS CONTROLLER #1 - NON-CRITICAL COMMANDS
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #1 - NON-CRITICAL COMMANDS
2)
3)
4)
5)
6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 54V76A13
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK,
PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR MONITOR CIRCUITS
FOR MEC FUNCTIONS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF
CREW/VEHICLE DUE TO LOSS OF POWER FOR CREW/VEHICLE SAFETY.

REFERENCES: 76DA19H

REPORT DATE 03/31/87  C-1669
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6668

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: MASTER EVENTS CONTROLLER #1 - NON-CRITICAL
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #1 - NON-CRITICAL COMMANDS
2) 
3) 
4) 
5) 
6) 
7) 
8) 
9) 05-6

CRITICALITIES

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LOCATION: 54V76A13
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE DEGRADATION OF PROTECTION AGAINST PREMATURE OPERATION OF CRITICAL FUNCTIONS. A SECOND FAILURE COULD CAUSE A PREMATURE INITIATION OF A CRITICAL OR NON-CRITICAL FUNCTION RESULTING IN LOSS OF CREW/MISSION/VEHICLE.

REFERENCES: 76DA19H

REPORT DATE 03/31/87 C-1670
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87  HIGHEST CRITICALITY  HDW/FUNC
SUBSYSTEM: EPD&C  FLIGHT: 3/1R
MDAC ID: 6669  ABORT: 3/1R

ITEM: MASTER EVENTS CONTROLLER #2 - NON-CRITICAL COMMANDS
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: K. SCHMECKPEPER  SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #2 - NON-CRITICAL COMMANDS
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9) 05-6

CRITICALITIES

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LOCATION:  55V76A14
PART NUMBER:  MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE LOSS OF ONE OF FOUR MONITOR CIRCUITS FOR MEC FUNCTIONS. LOSS OF ALL REDUNDANCY COULD CAUSE LOSS OF CREW/VEHICLE DUE TO LOSS OF POWER FOR CREW/VEHICLE SAFETY.

REFERENCES:  76DA7H

REPORT DATE 03/31/87  C-1671
INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 3/11/87
SUBSYSTEM: EPD&C
MDAC ID: 6670

HIGHEST CRITICALITY
HDW/FUNC
FLIGHT: 2/1R
ABORT: 2/1R

ITEM: MASTER EVENTS CONTROLLER #2 - NON-CRITICAL
COMMANDS
FAILURE MODE: INADVERTENT OUTPUT

LEAD ANALYST: K. SCHMECKPEPER
SUBSYS LEAD: K. SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) MASTER EVENTS CONTROLLER #2 - NON-CRITICAL COMMANDS
2)
3)
4)
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6)
7)
8)
9) 05-6

CRITICALITIES

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LOCATION: 55V76A14
PART NUMBER: MC450-0016-0001

CAUSES: CONTAMINATION, THERMAL SHOCK, VIBRATION, MECH SHOCK, PIECE-PART STRUCTURAL FAILURE

EFFECTS/RATIONALE:
FIRST FAILURE WOULD CAUSE DEGRADATION OF PROTECTION AGAINST PREMATURE OPERATION OF CRITICAL FUNCTIONS. A SECOND FAILURE COULD CAUSE A PREMATURE INITIATION OF A CRITICAL OR NON-CRITICAL FUNCTION RESULTING IN LOSS OF CREW/MISSION/VEHICLE.

REFERENCES: 76DA7H

REPORT DATE 03/31/87 C-1672
## APPENDIX D

### POTENTIAL CRITICAL ITEMS

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## APPENDIX D (CONT'D)

### POTENTIAL CRITICAL ITEMS (CONT'D)

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# APPENDIX D (CONT’D)

## POTENTIAL CRITICAL ITEMS (CONT’D)

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## APPENDIX D (CONT’D)

### POTENTIAL CRITICAL ITEMS (CONT’D)

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APPENDIX D (CONT’D)

POTENTIAL CRITICAL ITEMS (CONT’D)

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## APPENDIX D (CONT’D)

### POTENTIAL CRITICAL ITEMS (CONT’D)

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## APPENDIX D (CONT'D)

### POTENTIAL CRITICAL ITEMS (CONT'D)

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### POTENTIAL CRITICAL ITEMS (CONT’D)

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### APPENDIX D (CONT'D)

#### POTENTIAL CRITICAL ITEMS (CONT'D)

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### APPENDIX D (CONT'D)

#### POTENTIAL CRITICAL ITEMS (CONT'D)

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<td>SWITCH, PUSHBUTTON (SRB SEP)</td>
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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 GTL Projects Office to perform the hardware analysis using the instructions and ground rules defined in MSE 22296, 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 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 (FPMA) 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.

Volume 2 continues the presentation of IOA analysis worksheets and contains the potential critical items list.
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>
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<th>1/1</th>
<th>2/1R</th>
<th>2/2</th>
<th>3/1R</th>
<th>3/2R</th>
<th>3/3</th>
<th>TOTAL</th>
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<tr>
<td>Number        :</td>
<td>12</td>
<td>136</td>
<td>-</td>
<td>478</td>
<td>69</td>
<td>976</td>
<td>1671</td>
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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:

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<th>2/2</th>
<th>3/1R</th>
<th>3/2R</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number        :</td>
<td>12</td>
<td>136</td>
<td>-</td>
<td>292</td>
<td>28</td>
<td>468</td>
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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.