VOLUME IV APPENDIX E

WAIVERS/DARs

1. BI 1630, 07/26/88,LEVEL II, PRCB S94549N

   Requirement: NHB 5300.4 (3A-1) requires inspection of all solder joints.

   Departure: PBIS (In I.E.A.) Design requires flush mounting of transformer T2. This precludes solder joints from being inspected.

   Rationale: There have been no failures attributed to the solder joints in question during the whole life cycle of the program.

2. BI 1524 R3, 10/20/89, LEVEL III, SB3-01-0481B

   Requirement: MIL-W-16878 wire in I.E.A. is required to be qualified for flight per Mil-STD-975.

   Departure: Wire is not qualified per MIL-STD-975.

   Rationale:
   - o I.E.A. provides an environment which is purged with inert gas.
   - o Past flight history shows none of the experienced failures to be due to nickel plated wire or silver plated wire.
   - o Scheduled post flight teardown of selected LRUs will point out any trend toward degradation of the hardware.

3. BI 1643, 08/09/88, LEVEL III, SB3-01-1446

   Requirement: The E&I subsystem shall control and distribute orbiter bus power to the operative systems.

   Departure: Insufficient operating voltage supplied to GG HTR 1 and 2, FCV FSOV. Voltage requirement is 23 to 30.5 VDC. Actual voltage is approximately 21 VDC.

   Rationale: Valves will operate at a pull-in voltage as low as 13 VDC. APU Acceptance Test specification requires only 20.7 VDC.

   (Note) For GG HTRS, a lower input voltage will only result in a longer preheat.

4. BI 1693 R1, 01/09/89, LEVEL III, SB3-01-2009

   Requirement: 10CEI-0001 paragraph 3.3.5.11 states that "malfunction or inadvertent operation of vehicle electrical or electronic equipment caused by exposure to conducting or nonconducting debris or foreign material shall be prevented by design".

   Departure: Many of the PWAs of the Forward and Aft IEAs have an exposed uninsulated air gap between the board and card edge connector. The contacts and solder joints inside the gap are not conformal coated and thus subjected to debris related problems.

   Rationale: The air gap between connector edge and circuit card exists by design and is approximately .036". It is unlikely that debris would lodge in the space. The boards are also cleaned per NHB 5300.4 (1C), (1D-1), (3A) and MSFC-STD 136 and 154 A. Each IEA also must pass a vibration, electrical and functional test.

5. BI 1836 R1, 05/30/90, LEVEL III, SB3-01-3474B

Requirement: Crimping must be in accordance with JD-001.

Departure: Allied signal manufacturing processes do not meet all requirements of JD-001.

(Note) For complete list of requirements not met see waiver BI 1836.

Rationale: All crimping has been accomplished under an approved process using calibrated tools and certified operators. Three sample crimps done with the tool at checkout and checking have been verified via tensile tests. All crimps have under gone 100% visual inspection by certified inspectors. No inflight failures have occurred due to improperly crimped connections.

6. BI 1445, 08/24/84, LEVEL III, SB3-00-9265

Requirement: MIL-M-38510 and MIL-STD-883B require cooldown under bias at burn in.

Departure: Fairchild P/N MIL-M-38510 and MIL-STD-883B parts did not receive proper biased cooldown.

Rationale: These parts are used only in the resistance and load test circuitry. If failure occurred, it would not affect the proper operation of the PIC Charge and Fire circuitry.

7. BI-1982, 12/20/95, LEVEL III, SB3-01-5010 (BI077 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8403041 and 8807071
PN 10400-0329-803: SN's 8310036 and 8504036

Requirement: 10CEI-0001
Paragraph 3.2.7.2.1 - Ascent Vibration, Acoustic and Shock Environments per SE-019-049-2H, Book 1 (Release Date February 12, 1991)
Paragraph 3.2.7.2.2 - Ascent Vibration, Acoustic and Shock Environments per SE-019-049-2H, Book 2 (Release Date February 12, 1991)

Departure: The IEA's have always been tested with an imposed Acceleration Spectral Density Tolerance of +3/-1.5 dB. The vendor had vibration abort limits set significantly higher during the Acceptance Test for repaired IEA's.

Rationale: The exceedance was within the Flight/Reentry Qualification Vibration Envelope. The Qualification Unit (IEA) has been through 20 Flight Qualification Missions. The Flight Qualification is to the maximum expected environments over the life of the IEA. This is a High Frequency narrow band spike that is separated by over 1 octave from the broad resonance's.

8. BI-1985, 02/09/96, LEVEL III, SB3-01-5023 (BI078 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8012031, 8507057 and 9309075
PN 10400-0329-803: SN's 7811012 and 8410050

Refer to Item 7 for Requirement, Departure and Rationale information

9. BI-1986, 02/22/96, LEVEL III, SB3-01-5042 (BI079 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8008027 and 8501049
PN 10400-0329-803: SN's 8012028 and 8409048

Refer to Item 7 for Requirement, Departure and Rationale information

10. BI-1986A, 04/10/96, LEVEL III, SB3-01-5064 (BI080 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 7901015, 8502051 and 8503053
PN 10400-0329-803: SN's 8010026, 8405042, 8503054 and 8606068

Refer to Item 7 for Requirement, Departure and Rationale information

11. BI-1986B, 06/24/96, LEVEL III, SB3-01-5080 (BI082 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8009025, 8103033, 8311035, 8506055, 8711061, 8712067 and 8806069
PN 10400-0329-803: SN's 7901016, 8401038, 8401040, 8408046 and 8505060

Refer to Item 7 for Requirement, Departure and Rationale information

12. BI-1986C, 08/08/96, LEVEL III, SB3-01-5093 (BI083 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's7908019, 8401037, 8404039, 8712065, 8808073, 9209077, 7811011, 8412047 and 9404079
PN 10400-0329-803: SN's 8010020, 8102030, 8108032, 8310034, 8405044, 8509066 and 7906018

Refer to Item 7 for Requirement, Departure and Rationale information

13. BI-1986D, 10/17/96, LEVEL III, SB3-01-5110 (BI087 - BI999)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8011029
PN 10400-0329-803: SN's 7812014 and 8505058

Refer to Item 7 for Requirement, Departure and Rationale information

14. BI-1990, 3/14/97, LEVEL III, SB3-01-5140 (BI086-BI089)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 7901015, 8011029, 8103033, 8401037, 8501049 and 9209077
PN 10400-0329-803: SN's 7906018, 8108032, 8405044, 8505060 and 8509066

Requirement: 10CEI-0001, Paragraph 4. 2. 3 Acceptance Test and Inspections and ACO OMRSD Paragraphs 1.2.1.8.B and 2.2.1.1.7.3.B, (IEA Leak Rate Verification)

Departure: ACO OMRSD Paragraphs 1.2.1.8.B and 2.2.1.1.7.3.B, (IEA Leak Rate Verification) were not performed due to schedule constraints. These requirements were violated while performing a limited intrusive inspection to look for unlocked bayonet type electrical connectors.

Rationale: Failure to meet this requirement will not impact Flight, Mission or Crew. Each assembly has passed a helium leak test after reassembly/cover installation. Historically, water intrusion into the IEA has been a rare occurrence. This is a reuse concern only.

15. BI-1990A, 3/26/97, LEVEL III, SB3-01-5146 (BI086-BI089)

Effects Part Numbers and Serial Numbers as follows:

PN 10400-0328-803: SN's 8404039 and 8412047
PN 10400-0329-803: SN's 8102030, 8310036 and 8503054

Refer to Item 14 for Requirement, Departure and Rationale information

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