GRAVITY PROBE B

PROCEDURE FOR

PAYLOAD VERIFICATION

MEASUREMENT OF TOP HAT TO TOP PLATE RESISTANCE

July 13, 1999

Prepared by: M. Taber

Approvals:

Program Responsibility	Signature	Date
D. Murray Cryogenic Test Director		
M. Taber Payload Test Director		
GP-B System Engineering		
D. Ross GP-B Quality Assurance		
S. Buchman GP-B Hardware Manager		

NOTES:
Level of QA required during performance of this procedure:
_X_ Stanford QA Representative
___ Government QA Representative

All redlines must be approved by QA

Revision Record:

Rev	Rev Date	ECO #	Summary Description
NR	6/17/99	–	Initial release

Acronyms and Abbreviations:

Acronym / Abbreviation	**Meaning**
SMD	Science Mission Dewar

Table of Contents

A Scope

This procedure measures the electrical resistance between the Probe-C top hat flange and the SMD top plate after probe-dewar integration.

B Requirements Verification

B.1 Science Payload Specification No. 3.7.4.2.1

B.2 Expected Data for verification per requirement: Top hat-to-top plate resistance ≤10 mohm

C Configuration Requirements

Probe-C integrated into the SMD per Probe-C / SM Dewar Assembly drawing no. 65113-1C34292. Scaffolding should be installed around the dewar to allow access to the top plate area.

D Hardware Required

D.1 Flight hardware required

Description	No. Req'd
Probe-C / SM Dewar Assembly	1

D.2 Commercial test equipment

Manufacturer	Model	Serial Number	Calibr. Exp. Date
Keithley	580 micro-ohmmeter	005157	4/15/00

D.3 Mechanical/Electrical Special test equipment

Description	Part No.	Rev. no.	Serial No.	Certification Date
Clip leads for micro-ohmmeter	–	–	–	–

D.4 Tools

Description	No. Req'd
N/A	

D.5 Expendables

Description	Quantity
N/A	

E **Software Required:** N/A

F **Procedures Required**

Procedure Name	Procedure No.
N/A	

G **Equipment Pretest Requirements**

Equipment	Serial No.	Test Required	Proc. No.	Test Performed	
				Date	By
N/A					

H **Personnel Requirements**

This test to be conducted only by certified personnel: either Mike Taber or Dave Murray. QA will be either Dorrene Ross or Russ Leese. Note: The ONR representative shall be notified 24 hours prior to beginning this procedure.

I **Safety Requirements**

Normal safety precautions used in working in proximity to flight equipment should be exercised. No operations involving flight electrical connectors are required.

J **General Instructions**

J.1 Redlines can be initiated by Mike Taber and Dave Murray and must be approved by QA.

J.2 Any nonconformance or test anomaly should be reported by a Discrepancy Report. Refer to the Quality Plan, P0108, for guidance. Do not alter or break test configuration if a test failure occurs; notify quality assurance.

J.3 Only the following persons have the authority to exit/terminate this test or perform a retest: Mike Taber and Dave Murray

K **References and Applicable Documents:** None

Op. Order No.
Date Initiated
Time Initiated

L Operations

L.1 Confirm that the Keithley Micro-ohmmeter is as specified in section D.2.

QA:

L.2 Turn on and set up the Keithley Micro-ohmmeter in the following configuration:

L.2.1 Dry circuit test with 20 mV maximum excitation;

L.2.2 Pulse excitation (to eliminate thermal EMF offsets).

L.3 Short the drive leads together and separately short the sense leads and verify that the ohmmeter reads zero.

L.4 Connect the test leads to the probe and dewar as indicated in Figure 1. One drive lead should be attached to a convenient location on the Cross Flange, and the other should be attached to a flange on the conical portion of the dewar vacuum shell. One sense lead should be attached to the probe as near as possible to the top hat flange; the other should be attached to the dewar as near as possible to the top plate flange and adjacent to the the other sense lead. Observe indicated polarities.

L.5 Measure the resistance across the probe/dewar interface using both positive and negative polarities and record below. QA shall verify that results are as recorded and are ≤10 mohm.

Polarity	Resistance (milli-ohms)
+	
–	

QA:

L.6 Disconnect ohmmeter and remove.

L.7 Enter the above results into an electronic copy of this procedure and store on Payload-Server. Record the path and file name:
_____.

Test completed.

Completed by: _____
Witnessed by: _____
Date: _____
Time: _____

Figure 1