GRAVITY PROBE B

PROCEDURE FOR

PAYLOAD VERIFICATION

P0625 Rev.-

GSE CAGING COMMISSIONING

November 2, 1999

Prepared by: Chris Gray

Program Responsibility	Signature	Date
Chris Gray Responsible Engineer		
Robert Brumley Caging System R. E.		
M. Taber Payload Test Director		
Dorrene 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
X Government QA Representative

All redlines must be approved by QA

Revision Record:

Rev	Rev Date	ECO #	Summary Description

Acronyms and Abbreviations:

Acronym / Abbreviation	**Meaning**
GSE	Ground Support Equipment
QA	Quality Assurance Personnel

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A **Scope**

This procedure commissions the caging GSE to ensure a clean and leak tight system in the caging circuit.

B **Requirements Verification**

B.1 Requirements Cross Reference: N/A

B.2 Expected Data for verification per requirement: N/A

C **Configuration Requirements**

Probe C is integrated into the SMD per dwg 65113-1C34292 and oriented horizontal for phase C testing.

D **Hardware Required**

D.1 Flight hardware required

Description	No. Req'd
65113-1C34292 Probe C / SMD Assy.	1

D.2 Commercial test equipment

Manufacturer	Model	Serial Number	Calibr. Exp. Date
Alcatel Helium Leak Detector	180t		N/A
Met One particle detector	100L		

D.3 Mechanical/Electrical Special test equipment

Description	Part No.	Rev. no.	Serial No.	Certification Date
Absolute Pressure Transducer				
Keithly Electrometer	617		400929	11/01/99
Caging Control Unit				

D.4 Tools

Description	No. Req'd
Wrenches as required	

D.5 Expendables

Description	Quantity
Ni VCR gaskets	As required
High Pressure He Gas 6.0 Grade	

E **Procedures Required** : N/A

F **Equipment Pretest Requirements:** N/A

G **Personnel Requirements**

Qualified personnel are: Robert Brumley, Ken Bower, Bruce Clarke, David Hipkins, and Chris Gray.

H **Safety Requirements**

H.1 High Pressure Gas

H.1.1 Care should be taken when working with high pressure gas. Slowly increase pressure at the regulator and vent gas before disassembly.

I **General Instructions**

I.1 Redlines can be initiated by Chris Gray and Robert Brumley and must be approved by QA.

I.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.

I.3 Only the following persons have the authority to exit/terminate this test or perform a retest: Chris Gray, Robert Brumley, Mike Taber, and Russ Leese.

J **References and Applicable Documents:** N/A

Op. Order No._____
Date Initiated_____
Time Initiated_____

K Operations

K.1 External connections to the Caging Control Box

K.1.1 Connect the external caging control manifold (V5 – V8) to the "OUTPUT" of the Caging Control box with a 1/4" flexible bellows with female 4VCR fittings at each end.

K.1.2 Connect the Ultra Pure He Gas to the gas inlet port on the Caging Control box.

K.1.3 Connect the leak detector to the external manifold at V7.

K.2 Leak Check the Caging Control Circuit.

K.2.1 Confirm the He leak detector is sensitive to He and calibrated to the He calibrated leak.

K.2.2 Open valves V7,V5, V3,V2, metering valve, and the regulator. All the other valves should be closed (V8, V6, V4, and V1).

K.2.3 Pump on the Caging Control manifold and Control Box until the He background is < than 1 X10 $^{-9}$ std cc/sec.

K.2.4 Remove the bottom cover on the Caging Control box for adequate access to the plumbing for Helium leak checking.

K.2.5 Introduce a very small flow of He gas to all connections on the Caging Control box and the external manifold.

K.2.6 Connect the Caging ballast system to V6, pump down, and leak check up to the valves on each ballast tank.

K.3 Verify Cleanliness

K.3.1 Position the Met One Particle detector inlet at the Caging manifold V8.

K.3.2 Open V1 and V8 and increase both the He supply bottle regulator and the Caging Control Unit's regulator to approximately 15 psi. The metering valve should still be fully open and a He purge should be flowing out of V8. The particle detector should be set to the 0.5µ range. Flow gas until the particle dtector is indicating < 3 particles per minute.

Test completed. Completed by: _____

Witnessed by: _____

Date: _____

Time: _____