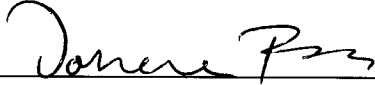
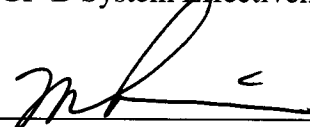


Stanford University
W.W. Hansen Experimental Physics Laboratory
Gravity Probe B Relativity Mission
Stanford, California 94305-4085

**“GP-B Space Vehicle Remove/Install/Configure
for Flight Log As-Run”
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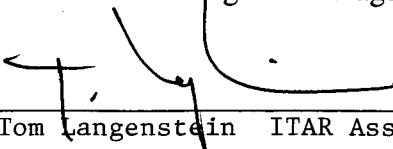
June 16, 2004

Prepared:  Date 7/24/04
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 26 July '04
Tom Langenstein ITAR Assessment Performed, ITAR Control Req'd? Yes/NO Date

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Revision	Date	Change Description
-	06/16/04	Original Release

PURPOSE

This document is the Quality Checklist of all the “As-Run” procedures from all “Remove/Install and Configure for Flight of the Gravity Probe B Space Vehicle.

These records are divided into four phases of operations performed by the Stanford and Lockheed Martin teams at Vandenberg Air Force Base in preparation of an April 20th, 2004 launch.

“Attachment A” consists of the following:

Phase A is for “Prior to and in conjunction with FEE Closeout”.

Phase B is for “Prior to SLC-2 Transport”.

Phase C is for “Prior to Fairing Install”.

Phase D is for “Prior to Launch”.

“Attachment B” is the Gravity Probe B Joint Log of Operations. This log lists the operation order numbers associated to the procedures run at Vandenberg Air Force Base.

The LM VAFB numbered procedures, and Stanford numbered procedures, called out in these checklists have been completed and are located in the Stanford GP-B Quality Library. Note: Lockheed and Stanford agreed “EGSE” procedures would not be delivered to Stanford for records retention.

Attachment A

“Phase A through Phase D checklist for Remove/Install/Configure for Flight Operations”

Item	Action	Qty	8A00286 Note #	Checklist	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
				Prior to and in conjunction with FEE Closeout					
6" Vatterfly Buffer Cans	Remove	2	11	A	P1050	8A00286	SU	SU GP-B INSP 11	
2.5" Vatterfly Buffer Cans	Remove	4	16	A	P1050	8A00286	SU	SU GP-B INSP 11	
Main Tank Vent Line	Remove	1	17	A	P1005	8A00286	SU	SU GP-B INSP 11	
EED Simulators	Remove	4		A	HPF-020	8A00286	LM		QE-★ 688847B
6" Vatterfly Filter/Sunshade Assembly	Install	2	12	A	HPF-025	8A03605	SU	SU GP-B INSP 11	
Main Tank Vent Cap (p/n 5833919-101) & Main Tank Vent Cap O-ring (p/n 2-027V747-	Install	1	17	A	P1005	8A03624	SU	SU GP-B INSP 11	
EED Installation	Install	4	25	A	HPF-020	8A03630	LM		QE-★ 688847B
FEE Skins	Install	6	26	A	HPF-011	8A03559	LM		QE-★ 688847B
FEE Thermal Blankets	Install	12	27	A	HPF-011	8A03547	LM		QE-★ 688847B
P6 Shorting Plug	Install	1	31A	A	GSE-116	8A03482	SU	SU GP-B INSP 11	
Spin-Up, Caging, P1 Line Hand Valves Configuration	Configure	12	24	A	HPF-036	8A03633	LM		QE-★ 688847B
RAV-3 Valve Close	Configure	1		A	P1002A	8A00286	SU	SU GP-B INSP 11	

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Item	Action	Qty	8A00286 Note #	Checklist	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
V12 Valve Open & Stake	Configure	1		A	P1002A; HPT-036	8A00286	SU/LM	SU GP-B INSP 11 SU GP-B INSP 11	QE 688847B
RAV-6B Close	Configure			A	P1002A	8A00286	SU		
SV-9 Close	Configure	1		A	P1005	8A00286	SU	SU GP-B INSP 11	
SU QA Manager Buy-Off of Completion							3/11/04	SU GP-B INSP 31	QE 688847B
LM QA Manager Buy-Off of Completion									

COMPLETED

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Item	Action	Qty	8A00286 Note #	Checklist	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
				Prior to SLC-2 Transport					
Omni Hat Couplers & Bases	Remove	2	14	B	GSE-094	8A00286	LM		QE- J03038
Helium Thruster Teflon Lines	Remove	16	7	B	HPF-041	8A00286	LM		OE- 688847B
GPS Antenna Hat Couplers	Remove	2	8	B	GEM-046	8A00286	LM		OE- J03038
Sun Sensor Protective Covers	Remove	3	10	B	HPF-041	8A00286	LM		688847B
MTM Protective Tape on Filter Openings	Remove	21	20	B	MST-002	8A00286	LM		688847B
Aft ECU Filter Covers	Remove	3	23	B	HPF-041	8A02497	LM		E278889 30
GMA Fill/Drain Valve Manifold	Remove	1	28	B	P0977	8A00286	SU	SU GP-B INSP 11	
LRA Protective Covers	Remove	9	40	B	HPF-041	8A00286	LM		
J6 GSE Cable	Remove	1	31A	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
J800A GSE Cable	Remove	1	31B	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
J803A GSE Cable	Remove	1	31C	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
J804A GSE Cable	Remove	1	31D	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
Solar Panel Assemblies	Install	4	6	B	MEC-006	8A00308	LM		QE- 688847B
GMA Flight Caps	Install		28	B	P0977	8A00286	SU	SU GP-B INSP 11	
LRA Installation	Install	1	40	B	HPF-047 HPF-029	8A03364	LM		688847B 30
W101 Flight Cable	Install	1	31B	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
P803A Shorting Plug	Install	1	31C	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	
W101 Flight Cable	Install	1	31D	B	HPF-053, GSE-116	8A03482	SU	SU GP-B INSP 11	

3/24/04

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Item	Action	Qty	8A00286 Note #	Checklist	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
J201 EPS Test Cover	Install	1	32A	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J207 Mag Test Cover	Install	1	32C	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J209 1553 Bus A Terminations	Install	1	32D	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J210 1553 Bus B Terminations	Install	1	32E	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J211 Gyro Test Cover	Install	1	32G	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J214 Solar Array Monitor Cover	Install	1	32I	B	GSE-145	8A03482	LM		QE-7 J0303
J217 RAV Monitor Cover	Install	1	32J	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J218 SPRU Load Cover	Install	1	32K	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J221 SPRU Test Cover	Install	1	32L	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
J223 CCCA Status Cover	Install	1	32M	B	GSE-145	8A03482	LM		QE-7 J0303 3-24-04
6" Vatterfly Filter/Sunshade Thermal Preps.	Install	AR	13	B	HPF-025	8A03316	LM		QE-7 J0303 3/22/04
SU QA Manager Buy-Off of Completion								SU GP-B INSP 33 3/24/04	
LM QA Manager Buy-Off of Completion									3/24/04

3-24-04

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3-24-04

3/22/04

3/24/04

Item	Action	Qty	8A00286 Note #	Checklist Prior to Fairing Install	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
Helium Thruster Protective Covers	Remove	16	7	C	MST-002	8A00286	LM		50991.8
Star Tracker A Protective Cover	Remove	1	9	C	MST-002	8A00286	LM		
Star Tracker B Protective Cover	Remove	1	9	C	MST-002	8A00286	LM		
Sunshade Protective Cover	Remove	1	15	C	MST-009	8A00286	LM		
Ion Pump Magnet and Guard	Remove	1	38	C	P1003	8A00286	SU		
Separation Nut Bolt Catchers	Install	3	30	C			Boeing		
Secondary Latch Z-Brackets	Install	3	30	C			Boeing		
5214 SA RESIST PLUG	REMOVE	1	-	C	GS145	-	LM		
5214 SA MONITOR CABLE	INSTALL	1	-	C	GS145	-	LM		
SU QA Manager Buy-Off of Completion								SU GP.B INSP 33 4/13/04	
LM QA Manager Buy-Off of Completion									

VEN/1600
4/13/04

monitors TO
SECTION D -
must BE UTILIZED
FOR POWER ON/OFF
OPS

SU GP.B
INSP 33
4/13/04

4/13/04

Item	Action	Qty	8A00286 Note #	Checklist Prior to Launch	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
Guard Tank Vent Valve Assembly	Remove	1	18	D	P1003	8A00286	SU	SU GP-B INSP 31	
Well Pump Down Port Cap	Remove	1	21	D	P1003	8A00286	SU	SU GP-B INSP 31	4/18/04
Burst Disk Vent Lines	Remove	4	22	D	P1003	8A00286	SU	SU GP-B INSP 31	
GMA Vent Extension GSE Access Valve	Remove	1	29	D	MST-006	8A03607GSE	SU	SU GP-B INSP 31	
GSE Mylar Cylinder on Battery Thermal Blanket	Remove	1	41	D	MST-002	8A01242	LM	4/18/04	
J202 Safing Plug	Remove	1		D	PTC-016	8A00286	LM		4/18/04
J203 Safing Plug	Remove	1		D	PTC-016	8A00286	LM		
J204 Non-Flight Cap	Remove	1		D	PTC-015	8A00286	LM		
J205 Non-Flight Cap	Remove	1		D	PTC-015	8A00286	LM		
J219 Non-Flight Cap	Remove	1		D	PTC-014	8A00286	LM		
J220 Non-Flight Cap	Remove	1		D	PTC-014	8A00286	LM		
J222 Non-Flight Cap	Remove	1		D	PTC-013	8A00286	LM		
Guard Tank Thrust Nullifier	Install	1	19	D	MST-003	8A03598	SU,LM		4/18/04
Umbilical Pull Away Harnesses	Install	2	35	D			Boeing	SU GP-B INSP 31	4/18/04 verified
Flight Fill Line Cap	Install	1	36	D	P1003	8A00286	SU	SU GP-B INSP 31	4/18/04

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Item	Action	Qty	8A00286 Note #	Checklist	Op/O	DWG	Responsible	SU QA & DATE	LM QA & DATE
Flight Fill Line Relief Valve Plug	Install	1	37	D	P1003	8A00286	SU	SU GP-B INSP 31 4/10/04	4/10/04
J215 Battery 1 Monitor Caps	Install	1	33A	D	GSE-146	8A03482	LM		
J216 Battery 2 Monitor Caps	Install	1	33B	D	GSE-146	8A03482	LM		
J202 EED Primary Arm Plug	Install	1	34A	D	PTC-016	8A03482	LM		
J203 EED Back-Up Arm Plug	Install	1	34B	D	PTC-016	8A03482	LM		
J204 SARM/ALRM Primary Arm Plug	Install	1	34C	D	PTC-015	8A03482	LM		
J205 SARM/ALRM Back-Up Arm Plug	Install	1	34D	D	PTC-015	8A03482	LM		
J219 LV1, EV1, EV2 Arm Plug	Install	1	34E	D	PTC-014	8A03482	LM		
J220 LV2, EV3, EV4 Arm Plug	Install	1	34F	D	PTC-014	8A03482	LM		
J222 RAV Arm Plug	Install	1	34G	D	PTC-013	8A03482	LM		
Secondary Well Pumpout Valve	Configure			D	P1003A	8A00286	SU	SU GP-B INSP 31	
SV-13 Well Pumpout Valves Staking	Configure			D	P1003A	8A00286	SU	SU GP-B INSP 31	
J214 SA RESIST PLUG	Remove	1	-	D	GSE145	-	LM		4/10/04
J214 SA MONITOR COVER	Install	1	-	D	GSE145	-	LM		4/10/04
SU QA Manager Buy-Off of Completion								SU GP-B INSP 31 4/10/04	4/10/04
LM QA Manager Buy-Off of Completion									4/10/04

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4/13/04

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Attachment B

“Gravity Probe B Joint Log of Operations”

Gravity Probe B **Joint Log of** **Operations**

Log Number		Entry	Description	Pdoc/Opt	Completion Date/Time
LM	SU	Date/Time		Number	
257		7-9-03		GSR-115	7-18-03
258		7-9-03		GSR-050	12-3-03
259		7-9-03		REF-031	7-18-03
260				RTP-156	
261				GSR-101	
262				GSR-030	
263				GSR-142	
264			RIE 7-18-03	GSR-094	
265				GSR-031	
267				GEM-035	7-18-03
268		7-9-03		PWR-006	11-8-03
-	2076	7/21/03	Verify Hg Cylinder	P014	7/21/03
-	2077	7/22/03	Measure G-T Impedance	P1038	7-25-07

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
		Rotate SV to Vertical	HPF-001	
		GPB Flight Battery Condition	PWR-006	
✓ VAFB-001	7/11/03	Remove SV from MPT at B1610	HPF-001	7/11/03
✓ VAFB-002	7/7/03	Solar Array Shipping Procedure	8568718	7/7/03
✓ VAFB-003	7/11/03	Tilt SV	HPF-005	7/11/03
✓ VAFB-004	7/11/03	Install Horiz lift Fixture	HPF-002	7/11/03
✓ VAFB-005	7/11/03	Remove Horiz lift fixture	HPF-003	7/11/03
2061	7/2/03	Transport Payload from LM	P1044	7/12/03
"	1325	B156 to VAFB B1610		
2066	7/13/03 7:00	Prep Payload for Cryo	P0000	7/19/03
		QATS Post Transport		
2067	7/13/03 7:00	Cert Electrical Module,	P1020	7/13/03 14:20
		Gas Module, DAS		
2068	7/13/03 7:40	Cert Vacuum Module	P1022	7/13/03 11:30
2069	7/13/03 7:00	Cert UTS	P0123	7/13/03 11:30
2070	7/8/03 1300	Verify Helium Cylinder	P1014	7/8/03
		(Content)		
2071	7/16/03 0741	Convert VAC MODULE/PUMP ON	P1015	7/16/03
		SMO VACUUM SITELL		

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
2072	7/16/03 1540 7-16-03 1	Disconnect Tm + A & SMD	P1012	7/16/03 1620
2073	7-16-03 1621	Connect Elect GSE to Payload	P1013	7/16/03 1800
263	7-16-03 1620	EGSE Setup in B1610	GSE-142	7-18-03
256	7-16-03 1630	GPS GSE Antenna Hat Coupler Installation	GEN-046	
264	7-16-03 1630	Omni Hat Remove Install	GSE-094	
265	7-16-03 1630	EGSE Connect to SC	GSE-031	
253	7-16-03 1630	Power Quality Verification in B1610	GSE-167	7-18-03
✓ VAFB - 006	7/11/03	Remove Truss Aft support	HPE-016	7/11/03
✓ VAFB - 007	7/16/03	Install EGSE support stand	HPE-026	7/16/03
✓ VAFB - 008	7/11/03	Remove Transport core	HPE-018	7/16/03
2074	7/17/03	Connect GT VENT LINE TO GM	P1008	7-17-03
269	7-17-03	Standard Spacecraft power on	SCF-017	8-05-03 0730
270	7-17-03	Standard Spacecraft power off	SCF-018	8-05-03 0730

Gravity Probe B Joint Log of Operations

Log Number LM SU		Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
✓ VAFB - 009		7/12/03	Transfer SV from Tilt Dolly to Assy Stand	HPF-004	7/15/03
✓ VAFB - 010		7/15/03	Remove SV Tilt Dolly Ring - Split Method	HPF-006	7/17/03
✓ VAFB - 011		7/15/03	Remove SV Vertical Lift Assy from crane	HPF-009	7/15/03
✓ VAFB - 012		7/15/03	Install SV Vertical Lift Assy on crane	HPF-008	7/15/03
		7-18-03	STANDARD S/C POWER ON	SCF-017	7-18-03
		7-18-03	STANDARD S/C POWER OFF	SCFD18	7-18-03
	2075	7-18-03	CONNECT MAIN TRUNK TO GAS MODULE	P1006	7-18-03 1000
247		7-9-03	BCC ETP	ETP-173	7-18-03
248				GSE-148	
249			PCI ETP	ETP-161	
250				ETP-120	
251			L15 ETP	ETP-190	
252				ETP-181	
254				GSE-089	
255		7-9-03		GSE-031	7-18-03

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Gravity Probe B Joint Log of Operations

Log Number LM	SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
	2078	7/23/03	NBP Maint Ent Fill	P1034	7-24-03
		7-23-03	STANDARD PWR ON	SCF 017	} OPENED PREVIOUSLY AND CONSIDERED ON GOING
		7-23-03	STANDARD PWR OFF	SCF 018	
PTE 013		7/23/03	RAV ARM PLUG final install (SEE Redlines)	PTC-013	7-23-03
EGSE - 271	2075	7/24/03	Thrust Notifier Heater Test	P1051	7-27-03
272		7-25-03	UIS ETP	ETP-191	7-25-03
	2080	7/28/03	Connect GT Vent line to FM	P008	7-29-03
		7-28-03	STANDARD PWR ON	SCF 017	} OPENED PREVIOUSLY AND CONSIDERED ON GOING
		7-28-03	STANDARD PWR OFF	SCF 018	
	2081	7-28-03	Re-Pump Well with UTS	P1017	8-14-03/1255
		8-5-03	STD POWER ON	SCF 017	8-7-03
		8-5-03	STD POWER OFF	SCF 018	8-7-03
2082		8-4-03	GOS operations Procedure @ VAPB	P0560	10-25-03
2083		7/24/03	Leak Test Vent Line	P1046	

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
2083	8/6/03	Prep MT for launch	PTC 008 RB	10-17-03 0600
2083	8-6-03	RAV Arm plug install	SCF 017	8/6/03 1600
	8-8-03	STD PWR ON	SCF 018	8-16-03
	8-8-03	STD PWR OFF	P1007	8-16-03
2084	8-11-03	Disconnected MT VL from LM - MT @ NBP	HPF - 030	8/11/03 0930
VAFB-013	8/11/03	Proof Load of Gene Lift for GMA work		8/11/03 1130
PTC 008	8-6-03			
2085	8-13-03/1115	Replace Gun/off Pallet Fill & Drain Valve Snap Ring	P0983 RAVH	08-13-03 1125
278	8-18-03 0730	GSE-099, Orai Hat Removal Install	GSE-099	8-22-03
279	8-18-03 0730	GFB RM/EMC Test	EMC-001	9-26-03
2086	8-18-03/1500	Bleed Down Gun High Pressure	P0974 P0988	08-18-03 1500
2087	8-18-03/1500	GMA RATE OF PRESS RISE	P0974	10-25-03
VAFB-014	8/18/03	EMP TEST	EMC-001	
VAFB-015	8/19/03	Install GSE cable support and Ass'y removal of GSE Hw to Support GSE cabling	HPF-032	10/22/03
VAFB-016	8/19/03	S/V Assembly stand Relocation	HPF-031	8/27/03 0915

Gravity Probe B Joint Log of Operations

Log Number LM SU		Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
BASE 276		8-18-03	STD POWER UP	SCF 017	8-25-03
BASE 277		8-18-03	STD POWER DOWN	SCF 018	8-25-03
	2088	8-19-03	CERTIFY Pump Module	P1025	8-19-03 / 1415
278		8-18-03	GSE-094 HAT COUPLER INST.		8-22-03
280		8-8-03	SCF-017 Power up	SCF-017	8-22-03
		8-8-03	SCF-018 Power off	SCF-018	8-22-03
281		8-5-03	SCF-018 Power off	SCF-018	8-7-03
274		7-13-03	Power off	SCF-018	7-25-03
270		7-17-03	Power on	SCF-017	7-25-03
269		8-5-03	Power on	SCF-017	8-8-03
273		8-26-03	SCF 017 POWER ON	SCF 017	09-01-03
282		8-26-03	SCF 018 POWER OFF	SCF 018	09-01-03
	2089	8/29/03	Correct MT Ver	P1006	8-29-03 / 0905
	2090	9/1/03	NO P ¹⁸ MT Fill	P1034	09-01-03 / 1600
287		9-1-03	MAINT DEMATE RAV222 Arm Plug	PTC 008	09-01-03 / 12:05
285		09-01-03	SCF-017 POWER ON	SCF-017	09-16-03 08:30
286		09-01-03	SCF-018 POWER OFF	SCF-018	09-17-03 15:00
	2091	09-03-03	UBP MT Fill	P1072	09-03-03 / 0920
			GT Full		
288		09-02-03	RAV 222 Arm Plug	PTC 008	9-2-03
289		09-04-03	RAV Arm Plug INSTL.	PTC 008	9-4-03

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
	2092	9-2-03/1055	Replum well with UTS	P1017A 9-13-03 0815
EGSE 290		9-5-03	RAV ARM PLUG INSTL.	4-5-03
VAFB -014			Modify FEE shield	HP12034 9-8-03 0905
	2093	9-2/03		
	2094	9-3-03	GMA Int EXT. SERVICE Ducture	P0973A 10-25-03
	2095	9-4-03/0710	MAINTIC Fill SUBATM	P1036 9-4-03/1930
	2096	9-3-03	Xfer from Tank to 8000L Ducture	P1040 9-3-03/2000
	2097	9-4-03	" " " "	P1040 9-4-03/1330
	2098	9-5-03/0700	MAINTIC Fill SUBATM	P1036 9/6/03 1725
	2099	9-5-03/1120	VERIFY He Cyl. Content	P1014 9-5-03 1145
	2100	9-7-03/0630	Xfer helium from EXTAINER to 1000L	P1040 9-7-03
	2101	9/8/03/0500	MT SUBATM Fill	P1036 9-8-03
EGSE 291		9-8-03	RAV ARM PLUG INST.	PTC-008 9-8-03 0900
	2102	9/9/03 0840	Xfer He from STORAGE CONT → SUBATM	P1040 Canceled
	2103	9/8/03	VERIFY He Cyl. Content	P1014 9/8/03 1055
	2104	9/9/03	MT SUBATM Fill	P1036 9/10/03
EGSE 292		9/10/03	Install/Remove P222	PTC-008 9-9-03 0835
	2105	9/11/03	Xfer He from STORAGE to 500L	P1040 9-11-03 1200
VAFB-017		9/11/03	Pallet Rework GSS x4	HPF-038 10/13/03
	2106	9/12/03	SUBATM Main Tank Fill SUBATM	P1036 9-13-03 1440
	2107	9/12/03	RAV ARM PLUG INSTL.	PTC-008 9-12-03 1045
	2108	9/13/03	Vac Valves + Leak Rate	P1050 9-17-03
	2109	9-15-03	MT Fill SUBATM	P1036 9-16-03

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	2108	9-15-03 0800 Repump well with UTS	P1017A	9-17-03 0800
EGSE 294		9/15/03 Ruskall/Demote P222	PTC- 008	9/15/03 9-26-03
	2109	9-16-03 SU Battery Recharge	P1069	9-18-03
EGSE 295		9-16-03 SCF 017 EGSE PWR ON		9-29-03
EGSE 295		9-16-03 SCF 018 EGSE PWR OFF		9-29-03
EGSE 296		9-16-03 Measure J+Leak	P1050	9-21-03
	2110	9-19-03 EXT Guard Tank Fill	P1027A	9-20-03 0700
EGSE 298		9-19-03 RAV PLUG INSTL.		9-19-03
	2112	9-21-03 Pump well with UTS	P1017A	10-2-03 0900
	2113	9-22-03 EXT Guard Tank Fill	P1027A	9-24-03 1000
EGSE-299		9-23-03 RAV PLUG INSTALL	PTC-008B	9-23-03 1045
EGSE 300		9-23-03 BCC Cable Installation	GSE-173	9-26-03
	2114	9-26-03 EXT Guard Tank Fill	P1027B	9-27-03
EGSE		9/26/03 Mote/Demote P222	PTC-008B	9-26-03
301				
EGSE 302		9-29-03 SCF 017		10-8-03
EGSE 303		3-29-03 SCF 018		10-9-03
	2115	9-30-03 Vitec from Storage to Supply Dewar	P-1040	9-30-03
	2116	9-30-03 Vitec from Storage to Supply Dewar	P-1040	9-30-03
	2117	10-1-03 Guard Tank Fill	P1027B	10-2-03 0800
EGSE 304		10-1-03 RAV PLUG INSTL.	PTC-008	10-1-03
	2118	10-1-03 Disconnect Vacuum module	P10116	10-1-03 1405

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EGSE 305	10-3-03	Pyro Installation	HPF-020	2-11-04
306	2119	Pyro Arm Plug Installation	PTC-016	
	10-6-03	EXT GUARD TR FILL	P1027 B	10-9-03
307	10/6/03	Note Demote P222	DTC-008	10/6/03
	2120	Re-Pump well w/UTS	P1017 A	10-19-03
EGSE 309	10-8-03	check out + Install of Pyro Valve Ordnance Items	HPF-020	10-20-03
EGSE 310	10-8-03	Pyro Arm Plug Installation	PTC-016	10-20-03
EGSE 308	10-7-03	STARTING PLUG INSTALL	GSE-116	10-3-03
VAPB-018	10-8-03	SARM Re-Conditioning POS 2	HPF-037	10/8/03
308	10-8-03	Pyro Arm Plug Install	GSE-018	
EGSE 311	10-8-03	PCI STRAY VOLTAGE TEST	GSE 018	10-8-03 1035
EGSE 312	10-8-03	SCF 017 PWR ON		10-20-03
EGSE 313	10-8-03	SCF 018 PWR OFF		10-21-03
VAPB-019	10/8/03	SARM Reconditioning POS 1	HPF-037	10/8/03
VAPB-020	10/8/03	SARM Reconditioning POS 4	HPF-037	10/8/03
VAPB-021	10/8/03	SARM Reconditioning POS 3	HPF-037	10/8/03
314	10-9-03	Pyro Installation	HPF-020	10-20-03
	2121	Ext GRT FILL	1027	10/11/03 1050
315	10/10/03	Note/Demote P222	DTC-008	10/10/03
	2122	VERIFY He G. CONTENT	P1014	10/11/03
	2123	XFER HE TO Supply Downer	P1040	10/12/03

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2124	10-13-03	MTRAK Fill / G2 TK Paecool	P1036A	10-14-03 0910
EGSE 316	10-13-03	PTC-008 RAV PLUG INSTL.		10-13-03
VAB-022	9/19/03	Transponder Pallet Hertz	CAB-323	10/12/03
VAF-023	10/1/03	Pallet Thermal Rework 2A09, 2F07, 2F/D, 2F11	4PF-042	10/13/03
2125	10-16-03	Cosmic Smo for EXPORT	P1002A	11-24-03
EGSE-317	10/16/03	Mate/Demate P222 (for RAV GB closure)	PTC-008	10/16/03
EGSE 318	10-16-03	Pyro Install	HPF-020	2-11-04
2126	10/17/03	Disconn. Mt Vert Line	PC05A	10/20/03
GGSE-319	10/17/03	Tested Flight Cpl Shorting Plug, final install	GSE-116B	10-17-03
2127	10/19/03	Measure Valtentz Valt.	P1050Rev	10-30-03
EGSE 320	10-20-03	test for SCF 018		10-23-03
EGSE 321	10-20-03	SCF 017		10-29-03
EGSE-323	10-20-03	Pyro Arming Plug Stray voltage/cou test	EPS-076	2-11-04
BGR-324	10-20-03	Pyro Arm Plug Installation	PTC-016	10-21-03

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EGSE 323	10-20-03	Pyro Argus Installation	PTC-016	2-11-04
2128	10-20-03	Repair Well	PT017	10-23-03
2129	10-20-03	LT GT Fill	PT028	10-22-03
EGSE- 326	10/21/03	Mate/Demate P222	DTC-008	10/21/03
EGSE 327	10-22-03	Omni Hat Removal	GSR-094	11-21-03
VAFB- 024	10/14/03	Tape Lower GMA lines	HPF-046	10/22/03
VAFB- 025	10/19/03	Final Ballast Installation	HPF-039	10/22/03
2130	10-23-03	Disconnect M/T vent line	P1005A	10-21-03
2131	10/23/03	OPEN GAS Inlet Valve (GMA)	P0977A	10-25-03
2132	10/24/03	Pump Well W/UT 5	P1017	10-27-03 10/27-03
2133	10/24/03	LT Fill	P1017	10-27-03
EGSE 333	10-24-03	PTC -008		10-27-03 10-25-03 10-27-03 10-24-03
VAFB- 626	10/25/03	Config for Flight of TOP HAT HARD Values	HPF-036	10/26/03

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VAFB-027	10/22/03	Final VAF Valve Filter install	HPF-025	10/25/03
2134	10/27/03	External GT Fill	P1028	10-28-03
2135	10/27/03	Disconnect GTUL	P1009	10-27-03
EGSE 334	10-27-03	Disconnect PTC008 RAV Plug	P1017	10-27-03
2136	10/27/03	Re-pump Well w/UT		10/27/03
VAFB-028	10/27/03	S/V Assy Stand Relocation	HPF-031	10/27/03
EGSE 335	10-28-03	Per SAAW/ALRA Arm plus stray voltage	GSE-048	10-28-03
2137	10-30-03	GD TIE Fill	P1052	10-31-03
EGSE 336	10-29-03	SCF 017		10-6-03
EGSE 337	10-29-03	SCF 018		10-6-03
EGSU-338	10/30/03	Make/Remove RAV Ring Plug P222	BPTC-008	10/30/03
VAFB-029	10/27/03	Solar Array Installation + 1st Motion	MEC-006 SA#2	10/30/03
2138	10/30/03	Re-pump Well w/UTs	P1017	11-02-03
2139	11-2-03	GD TIE Fill	P1052	11-03-03
EGSE-339	11-2-03	Make/Remove RAV P222 Arming Plug	PTC-008	11-2-03 1000
VAFB-030	11-2-03	S/V Assy Stand Relocation	HPF-031	10/30/03
VAFB-031	11-2-03	S/V Assy Stand Relocation	HPF-031	11/2/03 1510

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Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
2140	11/2/03	Repump Well w/ JIS	P1017	11-5-03
EGSE 340	11-4-03	PRI SARA/ALRN Array Stray Voltage	GSE-048	11-4-03
2141	11-5-03	GD TK Fill	P1052	11-6-03
EGSE 341	11-5-03	RAV PLUG INSTL.		11-5-03
2142	11-5-03	Repump Well	P1017	11-12-03
VAFB-032	11/5/03	SU Array Stand Reloc	HPF-031	11/5/03 16:30
VAFB-032	11/6/03	Solar Array Installation & 1st Motion - Position 3	MEC-006 POS 3	11/3/03
VAFB-034	11/6/03	Solar Array Installation & 1st Motion - Position 4	MEC-006	11/6/03
VAFB-035	11/6/03	Solar Array Installation & 1st Motion - Position 1	MEC-006	11/7/03
EGSE 342	11-7-03	GSE-048 PRI STRAY VOLTAGE	GSE-048	11-7-03
EGSE 343	11-6-03	SCF 017 PWR ON		11-19-03
EGSE 344	11-6-03	SCF 018 PWR OFF		11-12-03
2143	11-8-03	Verify Helium CYL	P1014	11-8-03
2144	11-8-03	GD TK Fill	P1052	11-10-03
EGSE 346	11-8-03	BATE/DEBATE D222	PTC-008	11/8/03
EGSE 144	11/8/03	(EGSE SET-UP FOR SLC 2) SAME	GSE-144	2-11-04
EGSE 345	"	(BATTERY DISCHARGE)		2-11-04
PWR006	11-8-03	BATTERY RECONDITIONING		

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Log Number LM SU		Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
VAFB- 036		GPS-055 11/8/03	SA continuity test	GPS-055	11/8/03
	2145	11-11-03	GD TR Fill	P1052	11-12-03
EGSE- 347		11/12/03	EGSE Connect to SC	EGSE-031	11/12/03
VAFB- 037		11/12/03	Install SV Vertical Lift Assy to Crane	HPE-008	11/12/03
VAFB- 038		11/12/03	Remove SV Vertical Lift Assy from Crane	HPE-009	11/12/03
VAFB- 039		11/12/03	Weight Measurement of GP-B SV	HPE-012	11/12/03
VAFB- 040		11/13/03	Install SV on PAF	HPE-014	11/13/03
VAFB- 041		11/13/03	Install SV Vertical Assy to Crane	HPE-08	11/13/03
VAFB- 042		11/13/03	Removal of SV Vert Assy from Crane	HPE-009	11/13/03 11/13/03
VAFB- 043		11/13/03	Removal of GP-B SV Tilt Dolly Ring (split method)	HPE-006	11/13/03 Aborted to DR R72599
VAFB- 044		11/15/03	Removal of GP-B SV Tilt Dolly Ring (split method)	HPE-006	11/15/03 Aborted for ECU fix
	2146	11-15-03	Remove well with UTJ	P1017	11-15-03
	2147	11-15-03	GD TR Fill	P1052	11-16-03
EGSE 347	11-16-03		GPS HAT COUPLER		11-11-03
EGSE 348	11-11-03		ORAM HAT REMOVE		11-11-03
EGSE 349	11-11-03		COUPLER SAVING INSTL.		12-3-03
EGSE 350	11-13-03		EGSE CONNECT TO SIC		11-13-03 11-12-03

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Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
EGSE 351	11-11-03	EGSE CONNECT TO S/C		11-12-03
EGSE 352	11-11-03	EPS 072 1610 SV PWR UP		11-11-03
EGSE 353	11-11-03	RAV PLUG INSTL. PTC 008		11-11-03
EGSE 354	11-11-03	1610 TO MST FLT. CAP INSTL-145		2-11-04
2148	11-15-03	GMA VENT EXPIRATION	P9073	11-15-03
VAFB-045	10/7/03	Close out of MLI Blankets	HPF-027	ABORT - 11/16/03
VAFB-046	11/13/03	Install SV Vertical Lift Assy to crane	HPF-008	11/13/03
EGSE 355	11/13/03	EGSE Disconnect from SC	EGSE-030	11/13/03
VAFB-047	11/13/03	Removal of SV Vertical Lift Assy from crane	HPF-009	11/13/03
EGSE 356	11/12/03	EGSE Disconnect from SC	EGSE-030	11/12/03
VAFB-048	11/12/03	Install SV Tiff Ring (split)	HPF-007	11/12/03
2149	11-14-03	GD TK Fill	P1052	11-20-03
EGSE 357	11-19-03	RAV P222 Plug Install/Remove	PTC-008	11/19/03
VAFB-049	11/20/03	Remove SA Cables & ADM Plug	EPS-074	11/20/03
VAFB-050	11/20/03	Remove SV Vertical Lift Assy from crane	HPF-009	11/20/03
VAFB-051	11/20/03	Install SV Vertical Assy to Crane	HPF-008	11/20/03
2150	11-23-03	GD TK Fill	P1052	11-24-03

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Log Number LM	SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
	2151	11-23-03	Re-pump well w/UTS	P1017	11-24-03
	2152	11-26-03	GD TK Fill	P1052	11/27/03
	2153	11-26-03	Re-pump Well	(017	11/27/03
EGSE 358		11-26-03	PTC-008 RAV PLUG	PTC008	12-2-03
	2154	11-30-03	P1014 verify Helium Ctl	P1014	11/30/03
	2155	11-30-03	GD TK Fill	P1052	12/1/03
	2156	12/3/03	Cut EM PM, CM	P1020	12/3/03
	2157	12/3/03	Connect GT VL to GM	P1008	12/3/03
	2158	12/3/03	Window 4 Environmental	P1053	12/3/03 4/18/04
	2159	12/3/03	Close GAS Inlet Valves (top Hat)	P1056	12/3/03
	2160	12/3/03	Bleed Down of GMA	P0968	12/3/03
	2161	12/3/03	GMA Sleep	P0962	12/3/03
	2162	12/4/03	Re-pump Well	P1017	11-26-03 1-26-04
	2163	12/4/03	GT Fill	P1027	12/5/03
	2164	12/5/03	Reconfig OMD F. ACU	P1055	12-23-04
EGSE 361		12-5-03	Repair T/V Interface O-mat	GSE-100	12-8-03
	2165	12/9/03	Extend GT Fill	P1028	12-9-03

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Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time	
	2166	12-8-03	UV cable TO EW DEMATE	P1075	12-8-03
	2167	12-10-03	Install VUT Valve	P1018	12-11-03
	2168	12-12-03	EXT GD TK Fill	P1028	12-12-03
✓ VAFB -052		10/25/03	Final FEE & Strut Install	HPF-011	11/3/03
✓ VAFB -053		11/11/03	Final Mechanical ops	HPF-029	11/13/03
✓ VAFB -054		11/15/03	Power up timeline	EPB-072	11/15/03
✓ VAFB -055		11/20/03	Transfer SV from PAF to Assy stand	HPF-043	11/20/03
✓ VAFB -056		11/24/03	SA #1 Removal	MFC-009	11/24/03
✓ VAFB -057		11/24/03	SA #2 Removal	MFC-009	11/24/03
✓ VAFB -058		11/25/03	SA #2 Removal	MFC-009	11/25/03
✓ VAFB -059		11/25/03	SA #1 Removal	MFC-009	11/25/03
✓ VAFB -060		12/2/03	FEE shield, Blanket & strut Remove	HPF-045	12/3/03
✓ VAFB -061		12/3/03	Obse SV-12, PIA & SF54	HPF-044	12/3/03
✓ VAFB -062		12/4/03	Pyro Disconn	GSB-177	12/4/03

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Log Number LM	SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
✓ VAFB-063		12/4/03	disconnect ECU cables + connect Payload case cables	CAB-325	12/4/03
✓ VAFB-064		12/7/03	Remove Flight Borts	HPF-046	12/7/03
✓ VAFB-065		12/7/03	Battery cable disconnect + Reconnect	EPS-075	12/10/03
✓ VAFB-066		12/8/03	Disconnect Flight ECU cables	HPF-050	12/8/03
VAFB-067		12/9/03	Remove Flight ECU + ship	HPF-048	12/9/03
VAFB-068		12/10/03	Install Flight Bort pallet	HPF-047	12/10/03
VAFB-069		12/10/03	Remove Flight Vorticity Ektus, Bhelets + include	HPF-049	12/11/03
	2169	12-17-03	EXT GD TANK Fill	P1028	12-17-03
	2170	12-22-03	EXT GD TANK Fill	P1028	12-22-03
	2171	12-27-03	EXT GT Fill - Main tank	P1028	12-27-03
			Solidator		
	2172	12-31-03	EXT GT Fill	P1028	12-31-03
	2173	1-5-04	EXT GT Fill	P1028	1-6-04
	2174	1-8-04	Left PM	P1025	1-8-04
	2175	1-9-04	EXT GT Fill	P1028A	1-9-04
	2176	1-13-04	GDS OPS Procedure	P0960A	1-13-04
	2177	1-14-04	GT Fill	1028	1-15-04
	2178	1-19-04	EXT GT Fill	1028	1-20-04
	2179	1-21-04	GDS OPS Procedure	P0960A	1-22-04 16:30

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2180	1-23-04	EXT GT Fill	P1028	1-23-04
2181	1/24/04	Connect MT Vent Line to GA-MT Tank	P1004	2-10-04
2182	1-27-04	Pump Well w/UTS	1017	2-24-04
2183	1-27/04	EXT Fill	1028	1-28-04
2184	2-2-04	EXT GT Fill	1028	2-3-04
2185	2/6/04	Ext GT Fill	1028	2-6-04
VAFB-070	HPF-046 2/7/04	Remove Flight Battery Pallet	HPF-046	2-7-04 2/7/04
VAFB-071	2/7/04	Battery Electronic Disconnected/Rel	EPS075	2-11-04 2/11/04
VAFB-072	2/7/04	Install Flight AFT ECU to 2A9 Pallet	HPF-051	2-11-04 2/11/04
VAFB-073	2/7/04	Connect Flight ECU cables to AFT Flight ECU	HPF-052	2-12-04 2/12/04
2186	2-9-04	EXT GT Fill	P1028	2-10-04
2187	2-9-04	P9-Gauge CA/CR VASIS	P1058	3-3-04 3/3/04 12:55
2188	2/9/04 0833	Connect JV cables to ECU	P1075	2-9-04
VAFB-074	2/10/04	Install Flight BRT Pallet	HPF-047	3/23/04 1700
VAFB-075	2/10/04	Remove Payload GSE cables & connect ECU Flight cables	HPF-053	3/4/04
VAFB-076	1/19/04	GMA Blanket Reposition	HPF-054	3/7/04

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2189	2/12/04	GMA Flow Test (15.10.1)	P1057-	2.12.04 12:00
2190	2/12/04	GMA Rate of Rise	P0974A	3-3-04 12:55
2191	2/13/04	G/T Fill/Sub atm	P1027	2-13-04
EGSE 374	2-13-04	PTC 008 RAV ARM PLUG		2-13-04 10:30
EGSE 375	2-13-04	SCF 017		2-13-04
EGSE 376	2-13-04	SCF 018		2-13-04
VAFB-077	2/16/04	SARTRC Installation	HPF055	2/16/04
2192	2-18-04	MAIN TR FILL	P1036	2-18-04
EGSE 379	2-18-04	VATTERFLY VALVE TEST	ECG-224	2-19-04
EGSE 377	2-18-04	SCF 017 PWR UP EGSE		2-25-04
EGSE 378	2-18-04	SCF 018 PWR DOWN EGSE		2-25-04
2193	2-20-04	MAIN TR FILL	P1036	2-20-04
EGSE 380	2-20-04	PTC-008 RAV ARM PLUG		2-20-04
VAFB-	2/23/04	S/A Install & 1st Motion	MEC-006B	3/25/04
078		#1		
VAFB-	2/23/04	S/A Install & 1st Motion	MEC-006B	3/25/04
079		#2		
VAFB-	2/23/04	S/A Install & 1st Motion	MEC-006B	3/25/04
080		#3		
VAFB-	2/23/04	S/A Install & 1st Motion	MEC-006B	3/25/04
081		#4		
2194	2-24-04	Disconnect MAIN TR Vent	P1005	3-3-04
2195	2-24-04	Configure SMD	P1002	3/7-04
2196	2-24-04	Depump well with UTS	P10174	3/16/04
2197	2-25-04	G/D Tank Fill	P1027	2-26-04
EGSE 383	2-20-04	PTC-008		2-20-04

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EGSE 381		2-25-04	SCF 017 PWR ON		3-3-04
EGSE 382		2-25-04	SCF 018 PWR OFF		3-3-04
EGSE 384		2-25-04	PTC 008 RAV PLUG		2-25-04
EGSE 385		2-25-04	HPF 020 SPRAY VOLTAGE, PYRO	HPF-020	2-25-04
EGSE 386		2-25-04	PTC-016, pyro arm plug installation	PTC-016	2-25-04
EGSE 387		2-25-04	HPF-020 STRAY voltage CK	HPF-020	2-26-04
EGSE 388		2-26-04	PTC-016 PYRO ARM PLUG	PTC-016	2-26-04
EGSE 389		2-26-04	GSE-094 OMNI Hat coupler	GSE-094	2-26-04
EGSE 396		2-27-04	check out and installation of pyros	HPF-020	3-1-04
EGSE 391		2-27-04	PTC-016 PYRO ARM PLUG	PTC-016	3-3-04
EGSE 392	2198	3/1/04	GT Fill	102 PTC	3-2-04
EGSE 393		3/1/04	PTC-008 RAV ARM PLUG		3-3-04
EGSE 395	2199	3-2-04	MEASURE VAPOR HYDRA LEAK RATE	P1050	3-4-04
EGSE 395		3-27-04	GSE-031 CONNECT TO S/C		3-3-04
VAFB-		3/2/04	Final VAPOR HYDRA FIBER install	HPF-025	3/7/04
082					
2200		3/3/04	Disconnect GT PLS	P1009	3-3-04
2201		3/3/04	Bleed Down GMA	PD968 Rev A	3/3/04
2202		3/3/04	Open Gas Inlet Manual Valves	PD977 Rev A	3/3/04 17:50
2203		3/3/04	GDS Operations Procedure	PD960 Rev B	3-3-04 17:25
EGSE 402		3-3-04	SCF 017 PWR UP EGSE		3-16-04
EGSE 403		3-3-04	SCF 018 PWR DOWN EGSE		3-16-04
EGSE 404		3-3-04	GSE 030 NOMATE FROM S/C		3-3-04
EGSE 405		3-5-04	PTC-008		3-5-04

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
✓ VAFB-083	3/3/04	Configure Top Hat Hand Values for Flight	HPF-036	3/4/04
✓ VAFB-084	3/4/04	EEF & Strut Install	HPF-011	3/7/04
BTJ 3/6/04	2204 3-5-04	GD TK Fill	P1052	3-5-04
	2205 3/10/04	Repump Well	P1017	3-14-04
✓ VAFB-085	3/10/04	S/V Assy Stand Relocation	HPF-031	3/10/04 9:50am
	2206 3/10/04	Extend GT TK Fill	P1052	3/11/04
EGSE 408	3-10-04	PTC-008 RAV PLUG INSTL		3-10-04
EGSE 406	3-9-04	GSE 048 STRAY VOLTAGE PCI		3-9-04
EGSE 407	3-4-04	GSE-030 DISCONNECT Q/A		3-5-04
GC4 3/14	2207 3/14/04	Verify Hecly Conn	1014	3-14-04
	2208 3-14-04	GD TK Fill	P1052	3-15-04
✓ VAFB-086	3/14/04	S/V Assembly Stand Relocation	HPF-031	3/14/04
	2209 3/14/04	Repump Well	11017	3-16-04
2A 3/14	EGSE 410 3-14-04	PTC 008 RAV PLUG	PTC-008	3-14-04
	EGSE 411 3-16-04	SCF 017 EGSE PWR ON	SCF 017	3-24-04
	EGSE 412 3-16-04	SCF 018 EGSE PWR OFF	SCF 018	3-24-04
	EGSE 413 3-16-04	GSE 048 STR VOLTAGE PCI	GSE 048	3-16-04
✓ VAFB-087	3/17/04	S/V Assembly Stand Relocation	HPF-031	3/17/04
GC4 3/17	EGSE-A14 3-18-04	GSE 048 STR VOLTAGE PCI	GSE 048	3-18-04
AC4 3/17	2210 3/19/04	Repump Well w/UTS	P1017	3-21-04

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
EGSE 415	2211 ✓ 3-19-04 3-19-04	Guard Tank Fill PTC 008 RAV PLUG	P1052 PTC 008	3/21/04 3-19-04
✓ VAFB- 088	3-21-04	SU Reloc Assy Speed Relocation	HPF-031	3/24/04
VAFB- 089	3-22-04	Solar Array Installation and First Motion - Position 2	MEC-006B	3/25/04
2212 ✓	3-23-04	Guard Tank Fill	P1052	3-24-04
2213 ✓	3-23-04	Pump well with UTS	P1017	3-24-04
2216	3-23-04	Guard Tank Fill	P1052	CANCELLED 3-23-04
EGSE 416	3-23-04	RAV ARM PLUG INSTL.	PTC 008	3-23-04
94 3-22 VAFB-090	3-27-04	SOLAR ARRAY CONTINUITY	ERS-055C	3/23/04
VAFB-091	3-24-04	Installation of SU tilt Ring - split method	HPF-007A	3/24/04 14:20
EGSE 420	3-24-04	1610 + MST Flight Cap Install	GSR-145	3-29-04
EGSE 417	3-24-04	EGSE Disconnect From SC	GSE-080	3-29-04
EGSE 418	3-24-04	Omni hat Removal	GSR-094	3-24-04
EGSE 419	3-24-04	GPS Hat removal	ERM-046	3-24-04
EGSR 428	3-24-04	Connector Saver Removal	GSE-115	3-24-04
EGSE 429	3-25-04	EGSE PWR UP	SCF 017	3-31-04
EGSE 430	3-25-04	EGSE PWR OFF	SCF 018	3-31-04

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
✓ VAFB-092	3/25/04	Install SV Vertical Lift Assy to Crane	HPF-008	3/25/04
✓ VAFB-093	3/25/04	Remove SV Vertical Lift Assy from Crane	HPF-009	3/25/04
✓ VAFB-094	3-25-04	INSTL OF SV TO PAF	HPF-014	3/26/04
✓ VAFB-095	3-26-04	REMOVAL OF DLS RWR-SLUT	HPF-006A	3-26-04
	2214 3/26/04	Dump Wt w/UTS	P1017A	3/27/04
	2215 3/26/04	GT Fill	P1052	3/27/04
	2216 3/29/04	Gratify Helium	P1014	3/29/04
✓ VAFB-096	3/28/04	PROTECTIVE Cabin Frame Assy	HPF-033	3-29-04
✓ VAFB-097	3/29/04	PROTECTIVE Cabin Assy	HPF-015	3-30-04
✓ VAFB-098	3/29/04	REMOVAL FROM BEARING FIT 0/1010	HPF-041	3/30/04
	2217 3-30-04	Pump wch with UTS	P1017	3-30-04
	2218 3-30-04	Grat TK Fill	P1052	3-30-04
	2219 3-30-04	GMA Vm + Service Cont	P0973A	3-30-04
EGSE-422	3-30-04	EGSE Setup at SLC 2	GSE-144	4-8-04
	2220 3/31/04	Prep SMD for launch	P1003	
	18:40			

Gravity Probe B Joint Log of Operations

Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
2221	3/31/04 19:05	CERTIFY EM, GMA + DAS	P1020	3-31-04
2222	3/31/04 19:05	CERTIFY UTS	P1023	3/31/04 23:45
2223	4/2/04 16:15	GMA Vent Service	P0973A	4/2/04 16:25
2224	4-3-04 10405	RT FILL	P1028	4-3-04 10405
2225	4-3-04 10435	Relump well w/UTS	P1017	4-3-04 10435
2226	4-6-04 19:27	PUMP W/UTS	P1017	4-6-04 19:27
2227	4-6-04 19:27	EXT. Guard T. FILL	P1028	4-6-04 19:27
2228	4-10-04 0234	Pump well w/UTS	P1017	4-10-04 0234
2229	4-10-04 0234	EXT Guard TK FILL	P1028	4-10-04 0234
2230	4-12-04 1600	Pump well w/UTS	P1017	4-12-04 1600
2231	4-12-04 1600	EXT Guard TK FILL	P1028	4-12-04 1600
VAFB099	4-1-04 2100	PROTECTIVE COVER REMOVAL	MST-001	4-1-04 2100
VAFB100	4-12-04 0330	PROTECTIVE FRAME REMOVAL	MST-004	4-13-04 0330
VAFB101	4-13-04	RBF	MST-002	
2232	4-14-04	Pump well w/UTS	P1017	4-14-04
2233	4-14-04	EXT Guard TK FILL	P1028	4-14-04
2234	4-18-04	GMA	P0973A	4-18-04

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Log Number LM SU	Entry Date/Time	Description	Pdoc/Opt Number	Completion Date/Time
EGSE 443	4-14-04	SCF 017 EGSE PWR ON		
EGSE 444	4-14-04	SCF 018 EGSE PWR OFF		
2235 ✓	4/18/04	Repump Well 1w/UTS	P1017	4-18-04
2236 ✓	4/18/04	External Gt Bll	P1028	4-18-04
EGSR 447	4-18-04	SC Arming	GSR-176	4-18-04
EGSR 448	4-18-04	BCL Disconnect & Cap	GSR-146	4-18-04
EGSE 449	4-18-04	Pyro Stray Voltage test	EPS-070	4-18-04
EGSR 450	4-18-04	Pyro Arm plug install	PTC-016	4-18-04
EGSR 451	4-18-04	Rav arm plug install	PTC-013	4-18-04
EGSR 452	4-18-04	EVLV Arm Plug Install	PTC-014	4-18-04
EGSR 453	4-18-04	SARM ALARM Stray Voltage test	EPS-069	4-18-04
EGSR 454	4-18-04	SARM/ALRM Arm Plug Install	PTC-015	4-18-04
✓ VAFB102	4/18/04	Inst of SJ TMSST NULWing	MST-003	4/18/04
✓ VAFB103	4/18/04	Pass of GMA Accession	MST-006	4/18/04