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Gravity Probe B Relativity Mission

IN-PROCESS TEST PROCEDURE FOR THE GYROSCOPE SUSPENSION SYSTEM (GSS) AFT SUSPENSION UNIT (ASU) SUBSYSTEM

PN: 26226-101 REV _____

SN: _____

GP-B Procedure
P0760 Rev A

Prepared by: William Bencze — Date
RE, Gyroscope Suspension System (GSS) Group

Approved by: William Bencze — Date
Payload Electronics Manager.

Approved by: Dorrene Ross — Date
GP-B Quality Assurance

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1.0 Revision History

Rev Level	Comments/notes	Date	Revised By
-	First release of this test procedure	22-Sep-2000	WJ Bencze
A	Modified to only test the APU and ACU Other testing done via P0715. (changed per ECO 1212)	4-Oct-00	WJ Bencze

2.0 Scope:

This procedure details the operations required to perform the initial mate and power on of the GSS ACU assembly (PN 26224-101) with the Battel Engineering Aft Power Unit, (PN BE02598032).

This is done as an in-process engineering test.

Following a successful conclusion of the test, the APU subsystems will be mated to the ACU subsystems per Assembly Drawing 26226.

3.0 Reference Documents

3.1. Procedures:

3.1.1. GSS Gold System Hardware and Software Configuration Standard, P0663.

3.1.2. Test Set Bring Up Procedure, P0691

3.1.3. GSS Aft Control Unit Abbreviated Functional Test, P0692.

3.1.4. GSS GSE Electrical Test Procedure, P0758.

3.2. Assembly Drawing for the Aft Computer Unit (ACU), 26224

3.3. Assembly Drawing for the Aft Suspension Unit (ASU), 26226

3.4. Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment, MIL-STD-1686

4.0 Test Facilities

HEPL Room 127, Stanford University

5.0 QA Provisions:

5.1. This procedure shall be conducted on a formal basis to its latest approved and released version. The QA Program Engineer (D. Ross) and the ONR representative (E. Ingraham) shall be notified 24 hours prior to he start of this procedure. QA may monitor the execution of all or part of this procedure should they elect to do so.

Date/time:_____	Date/time:_____
GP-B QA (D. Ross)	ONR (E. Ingraham)

5.2. Upon completion of this procedure, the GSS manager and the GP-B QA manager shall certify her/his concurrence that the procedure was performed and accomplished in accordance with the prescribed instructions by signing and dating his approval at the end of this procedure.

6.0 Test Personnel

This test procedure is to be conducted only by the following personnel, or others designated by the GSS RE at the time of test (redline names in below as required)

6.1. William Bencze

6.2. Steve Battel (Battel Engineering)

6.3. Ron Zilm

6.4. Scott Smader

6.5. Lo Van Ho

7.0 General Instructions

7.1. Redlines can be initiated by the test personnel listed in Section 6.0 and must be approved by QA.

7.2. Test operators shall read this procedure in its entirety and resolve any apparent ambiguities prior to beginning this test.

7.3. 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.

7.4. Only the following persons have the authority to exit/terminate this test or perform a retest: test operators listed in Section 6.0 and GP-B QA.

8.0 Hardware Safety Requirements:

8.1. This assembly is ESD sensitive; special care shall be exercised per the “Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment”, MIL-STD-1686

8.2. Ensure that power is removed from cable assemblies before connecting or disconnecting cable connectors.

8.3. Connector savers are to be used on all flight connector interfaces unless otherwise specified.

8.4. Examine all mating connectors before attempting to mate them. Remove any foreign particles. Look for any damaged pins or sockets. Do not force the coupling action if excessive resistance is encountered. Ensure that key-ways are aligned when mating connectors.

9.0 External Test Equipment

The following support hardware, test equipment, or software will be used and the applicable information for the instruments shall be recorded below. Hand-written additions to this list may be made in the space provided.

Equipment Description	Make	Model	SN	Cal Due
1. Multimeter	Fluke			
2. Oscilloscope	Tektronix			
3. GSS S/C emulator	SU	NA		NA
4.				
5.				
6.				
7.				

10.0 Equipment Pretest Requirements:

10.1. The GSS Gold System items with which this subsystem is to be tested must have passed the P0663 – Gold System Certification Procedure prior to the start of this test. Record the Gold System serial number and date of its certification, below

GSS Gold System	SN:	
	Date of Certification	
	Configuration (circle one)	Full Partial

	P/F	Notes:
10.2. Verify P0758 has been run on the Spacecraft Emulator GSE within the past 60 days or since the rack has been moved to the current test location.		Date:

11.0 Device Under Test (DUT):

Record the serial number of the Device Undergoing Test, or DUT.

26226-101 GSS Aft Suspension Unit (ASU)	SN:	
Test Operator:	Name:	
Start of test:	Date:	

12.0 Pre-test visual inspection.

Note: All handling of this DUT shall be performed using ESD control methods, as outlined in MIL-STD-1686. Unit shall be inspected at an ESD certified station. Wrist straps and/or heel grounding straps shall be used.

		P/F	Notes
12.1.	Remove DUT from storage container. Verify that all connectors appear undamaged		

13.0 Functional Tests

Important: Ensure that power is removed from cable assemblies before connecting or disconnecting cable connectors.

		P/F
13.1.	Verify that the power panel on the LabView Spacecraft Simulator control panel shows that the power to the APU is OFF.	
13.2.	Cable the ASU as shown in Figure 3.	

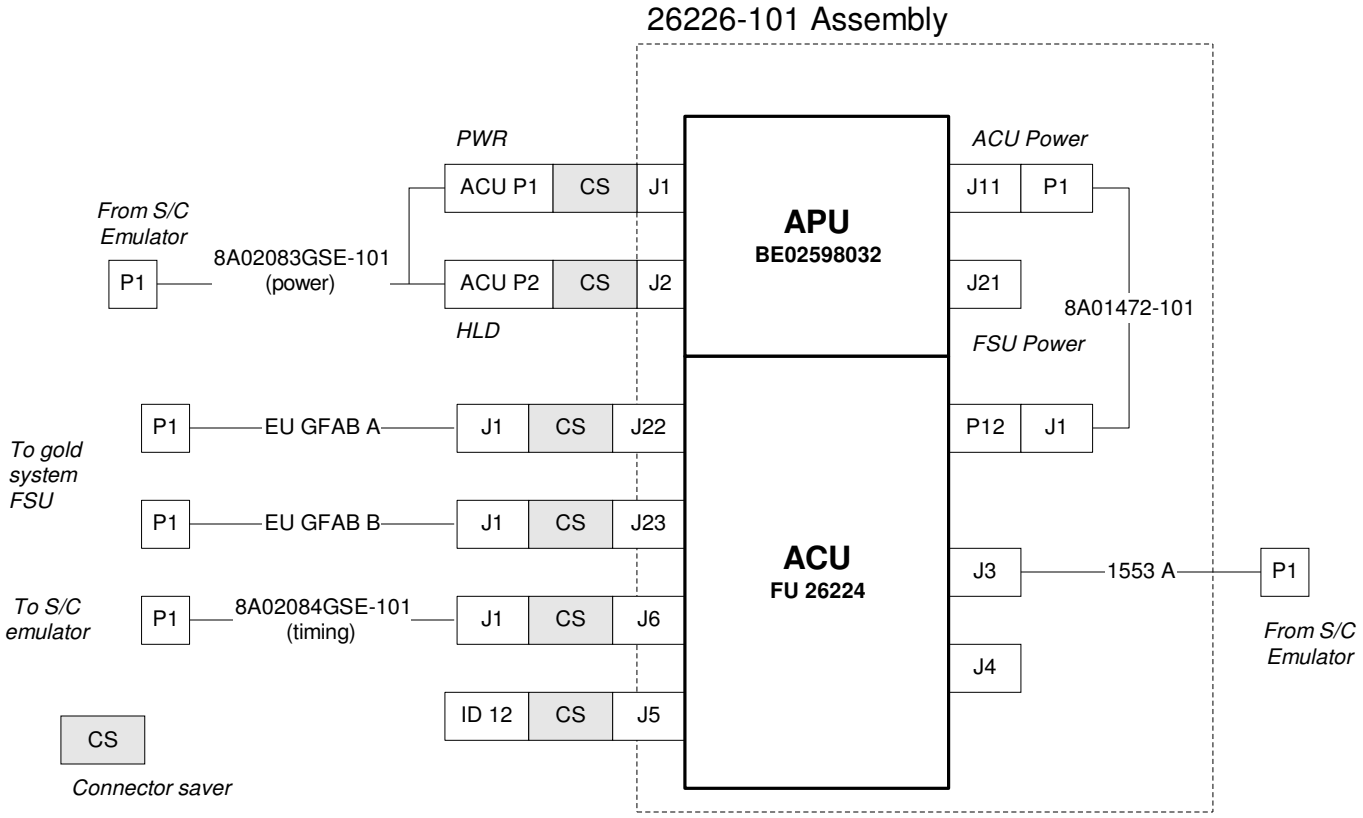

Figure 1: Connection Diagram for ASU tests

		P/F	Notes
13.3.	Apply power via by turning on “FSU Main” on LabView control panel.		
13.4.	Record power-on start time		Start time:
13.5.	Record indicated main bus current as indicated on HP power supply front panel.		Current:
13.6.	**Verify that current is < 550 mA; if greater remove power and cancel test.**		
13.7.	Perform ACU Functional Test per P0692		
13.8.	Turn off power via LabView control panel when complete; disconnect FEU ACU from assembly.		
13.9.	Record power off time		End Time:

14.0 Completion of procedure:

		P/F	Notes
14.1.	Remove all external cables from ASU		
14.2.	Return device to its storage containers.		

I certify that this procedure was performed in whole and that the data recorded above is complete and accurate.

Test Engineer		Date	

This is to certify that the information obtained under this test procedure is as represented and the documentation is completed and correct.

GSS Representative		Date	
Quality Assurance		Date	