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Gravity Probe B Relativity Mission

SOFTWARE OPERATING PROCEDURE (SOP) FOR GSS LVA WIGGLE OPERATIONS

SN:

DATE: June 7, 2001

GP-B Procedure
P0848 Rev -

Prepared by: Ronald Zilm   Date
RE, Gyroscope Suspension System (GSS) Group

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

Approved by: Dorrene Ross   Date
GP-B Quality Assurance

Table of Contents:

1.0 Revision History

Rev Level	Comments/notes	Date	Revised By
-	First release of this operational procedure	June 7, 2001	R Zilm

2.0 Scope:

2.1.   This procedure details the operations of the LVA Wiggle Software.

3.0 Reference Documents

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

3.2.   GSS Test Set Bringup, p0691A

3.3.   Aft Functional test, p0695

4.0 Test Facilities

FISTOPS, Stanford University

5.0 QA Provisions:

5.1.   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.

5.2.   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)

5.3.   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:

6.1.   William Bencze

6.2.   Scott Smader

6.3.   Lo Van Ho

6.4.   Ron Zilm

6.5.   Rick Bevan

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.

7.5.   Finish all software commands (**in BOLD**) by depressing the "Enter" key.

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 Test Equipment/Software

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.

9.1.   Verify current version against the revision noted in the "Version Number" Column

9.2.   Update version number as required.

	Name and Description	Version Number
8.1.	OASIS-CC*	**2.0514.3**
8.2.	MSS 3.2.0s GSS Test Set Software*	**3.2.5s**
8.3.	Ground RealTime Software*	**4.5s**
8.4.	SUN Solaris Operating System*	**5.6**
8.5.	testrts - program to test for G.S.S. presence and location on the spacecraft bus(1553).	**1.1**
8.6.	probe_10hz - program to test availability of 10 hz clock from GSE.	**1.1**
8.7.	GSS System software (GSW - gsw_x_x_x_x.bin)	**2.0.3.1**
8.8.	Gssloader.csh - The shell script to load GSS software into SRAM memory on gss flight processor via 1553 bus. Runs on SUN Solaris OS(see above #9).	**1.1**
8.9.	Gss1553ramload - The executable that loads the GSS software into SRAM memory on gss flight processor via 1553 bus. This executable is launched by the gssloader shell script and receives its setup values via rtloader_setup data file.	**1.1**
8.10.	Rtloader_setup - Is a data file containing necessary setup information to configure gss1553ramload.	**1.5**
8.11.	gss_start.prc - Cstol to configure test set for test.	**1.4**
8.12.	Lvaexp.prc - Cstol to run Wiggle test	**1.1**
8.13.	Perl Script Interpreter: ActiveState's ActivePerl or equivalent. Used to run report-extraction scripts on data output files.	**5.6**
8.14.	Datax.pl - Perl Script to strip commanding and telemetry information from test output report.	**1.1**

10.0   Power On:

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.
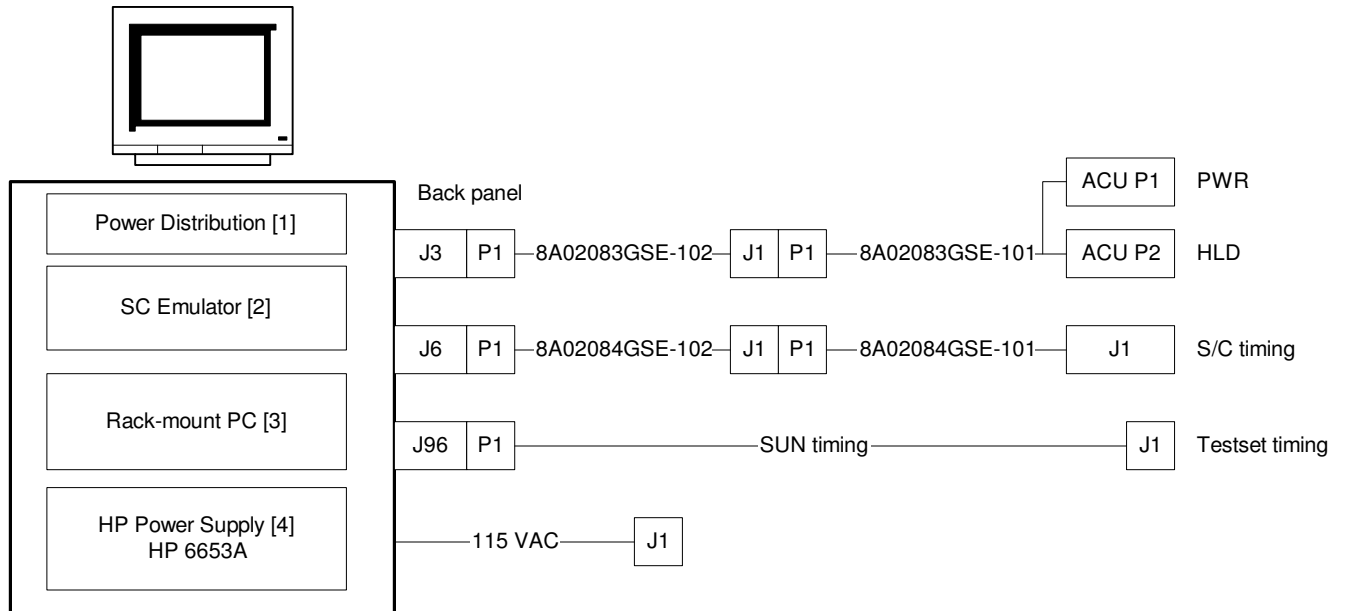

Figure 1: GSE Rack and Cables

	P/F	Notes
10.1. Turn on unit via the circuit breaker on the Power Distribution box [1]		
10.2. Set current limit on HP power supply [4] to 2.0 ± 0.2 A		
10.3. Boot the PC; Run LabView GSE Control Panel from desktop.		Version:
10.4. Record version number of LabView GSE Control Panel.		

11.0   Run Software (Cross over line number on PASS or completion)

11.1.   Run p0691A to Setup test environment.

11.2.   Run p0695 to test Aft GSS.

11.3.   From the menu type "**Wiggle**" to run the LVA Random Voltage test. Follow the instructions on-screen(in green).

11.4.   The run time can be varied.

12.0   Completion of procedure:

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 [   ]