W. W. Hansen Experimental Physics Laboratory

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Gravity Probe B Relativity Mission

Additional Information on Gyroscope Geometry (optional)
(Gyroscope Acceptance Test)

GP-B P0298 Rev -B

23 July, 1998
ECO #833

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D. Hipkins

Additional Information on Gyroscope Geometry (optional)

This procedure is to be performed only by persons listed as certified operators of the gyroscope acceptance facilities.

Purpose To measure the gap and to determine if there are any major contaminants.

Experimental Conditions:

Room temperature or low temperature

3 axis suspension

DDC suspension system

Completed P0299, P0111 (if being performed in RT #3 or RT #4), P0273 (if being performed in the Gyroscope Commissioning Probe)

Gyroscope levitated

Auxiliary Equipment:

None

ESD precautions: Follow accepted ESD procedures.

Procedure A (for Quartz rotor or Silicon Rotor at room temperature):

I. Starting with the gyroscope centered according to the bridge move the rotor 450 µinches in both positive and negative directions along each of the three electrode axes. Record results in either **Rt-Op #1** or **Lt-Op #4**.

II. Move the rotor to +400 µinches on all axes and record the electrode voltages for each of the six electrodes in either **Rt-Op #1** or **Lt-Op #4**. Move the rotor to -400 µinches on all axes and record the electrode voltages for each of the six electrodes in either **Rt-Op #1** or **Lt-Op #4**. Return the rotor to the bridge center. Acknowledge the successful completion of I. and II. in **section III. of either FGT #2 or FGT #3**.

(optional) **III.** Run the charge measurement routine. Have a qualified engineer determine the charge from the data collected by this routine.

(optional) **IV.** Run the gap measurement routine. Have a qualified engineer use the data acquired here along with the charge measurement result to determine the gap. Record the gap measurement in **section III. of FGT #2**.

Procedure B (for silicon rotor at low temperature):

I. Starting with the gyroscope centered according to the bridge move the rotor 600 µinches in both positive and negative directions along each of the three electrode axes. Record results in either **Rt-Op #1** or **Lt-Op #4**.

II. Move the rotor to +550 µinches on all axes and record the electrode voltages for each of the six electrodes in either **Rt-Op #1** or **Lt-Op #4**. Move the rotor to -550 µinches on all axes and record the electrode voltages for each of the six electrodes in either

Rt-Op #1 or **Lt-Op #4**. Return the rotor to the bridge center. Acknowledge the successful completion of I. and II. in **section III. of either FGT #2 or FGT #3**.

(optional) **III.** Run the charge measurement routine. Have a qualified engineer determine the charge from the data collected by this routine.

(optional) **IV.** Run the gap measurement routine. Have a qualified engineer use the data acquired here along with the charge measurement result to determine the gap. Record the gap measurement in **section III. of FGT #2**.