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Gravity Probe B Program
Relativity Mission

LAPPING PROCEDURE FOR GP-B ROTORS

GP-B PROCEDURE NO. P0074

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LAPPING PROCEDURE FOR GP-B ROTORS**PROCEDURE NO. P0074****Supplies:**

Microgrit Alumina Lapping Powder WCA-9T (coarser), WCA-3T (finer)
Deionized water from supply behind HEPL

Lapping Powder Supplier:

Industrial Tool and Supply
1177 North 15th Street
San Jose, California 95115
(408) 292-8853

Procedures:

1. Clean, lubricate and if necessary align the machine.
2. **Preparation of Slurry:**
 - (a) 400 ml deionized water
 - (b) 200 ml Alumina Lapping Powder 9T
 - (c) Load into mixer, start mixer, start pump to check slurry delivery.
3. **Load Sphere into Lapping Machine**
 - (a) Check Laps for Burrs.
 - (b) Load the sphere by making first contact with one lap, then second lap and then third lap.
 - (c) Wet the sphere with slurry.
 - (d) Insert upper lap (A). Lower upper motor and lap..
 - (e) Tighten upper motor. Adjust position of slurry delivery tube.
4. **Starting Motors and Timer:**
 - (a) Initialize digital controllers by pressing ENTER.
 - (b) Motors should run at 250 RPM.
5. **Replenish slurry as necessary.**
6. **After lapping, the rotor should be thoroughly washed and a fresh packaging should be used.**

Monitoring the diameter of the sphere and change to finer abrasive (3T):

Measurement of the diameter is described in **P0076**.

When at 1.51," switch to finer abrasive WCA-3T.

Repeat the steps open (1) through five (5) and carry on the process until diameter is 1.4964"
+ .0001" /-.000."

Perform the measurement by comparing the diameter with the standard sphere R7 and weigh the sphere.

Record polishing time and diameter in laboratory notebook at the end of each run.