

Notes on Mass Measurement Efforts at SWRI

Spent approximately four hours with Bill Oakey and Dick Lorenz on laying out the work to be done under contract # NAS-9-14941.

1. Air bearing low mass device. I loaned them my personal prototype of an air bearing unit with a simple triangular cross section and balsa wood floater using pull-springs and a motion picture optic tube for zero crossing detector. Was mutually agreed to put this into operation using existing laboratory period timers with a possible pulse division interface to allow timing of multiple cycles. I was going to supply the power supply and zero crossing electronics but it now appears that I have only the zero crossing electronics. The power can be supplied by standard lab unit without difficulty however. Only such characteristics as resolution, load, range were to be investigated on this and the hours were to be kept to a minimum.

2. Direct read-out of mass. It was decided to use a "pocket" type calculator such as the SR-52 which has a programmable memory to interface through a register and digital conversion unit directly with the mass measurement device electronics. The mass measurement device to be used will be that which is simplest to interface, possibly one of the flight prototypes which the School of Aerospace Medicine now has.

3. Centrifugal device for homogeneous materials. Provided them with my personal prototype constructed by Whitmore which they will attempt to place in operation with minor refurbishment as required and again investigate fundamental resolution potential accuracy and the like. Again this is to be a quickly done project utilizing minimum hours without major redesign, but with an eye towards possible future design.

4. ^{Ac}~~Ex~~cellerated balance for human and large mass use was agreed to obtain or possibly fabricate a steel yard type balance with appropriate precautions for weightless use, which would have electrical contacts to indicate off-balance condition, which could be flown in weightless parabolas. Depending upon the test results we would then go to an automatic balance arrangement with motor drive. Other items to be done is to change the contract for me to become the technical monitor.