is presumably due to a change in electromagnetic properties of the core material.

The large amount of scatter in the spring calibration data required us to choose another method of calibration to check the first rather indirect one. The second method was a rather straight forward dead-loading technique. A tungsten weight suspended from the top piston by means of a fine wire (Figure 9) was allowed to contact the spacer above the load concentrator directly (see Figure 1 but with the tensile yoke removed). As the weight contacted the spacer, a conical seat arrangement shown in Figure 9 kept the load constant while the piston continued down for approximately 0.030 in. Thus if load-piston movement is plotted on an X-Y recorder a step function should be seen.

During a dead load calibration experiment, the preliminary adjustment of amplifier sensitivity is carried out in the same manner as in the previous calibration procedure. The load cell is then loaded at atmospheric pressure by use of the conical seat arrangement to ensure that all instrumentation and equipment are functioning normally. Under these conditions, curve of the type schematically shown in Figure 10a is obtained. The system is then pressurized and the response of the load cell to the dead load is measured. The pressure at which the calibration is checked can be adjusted through proper choice of the spacer located above the load concentrator. Curves obtained under pressure are similar to that shown schematically in Fig. 10b. The vertical displacement, Y_p, is taken as the measured load at high

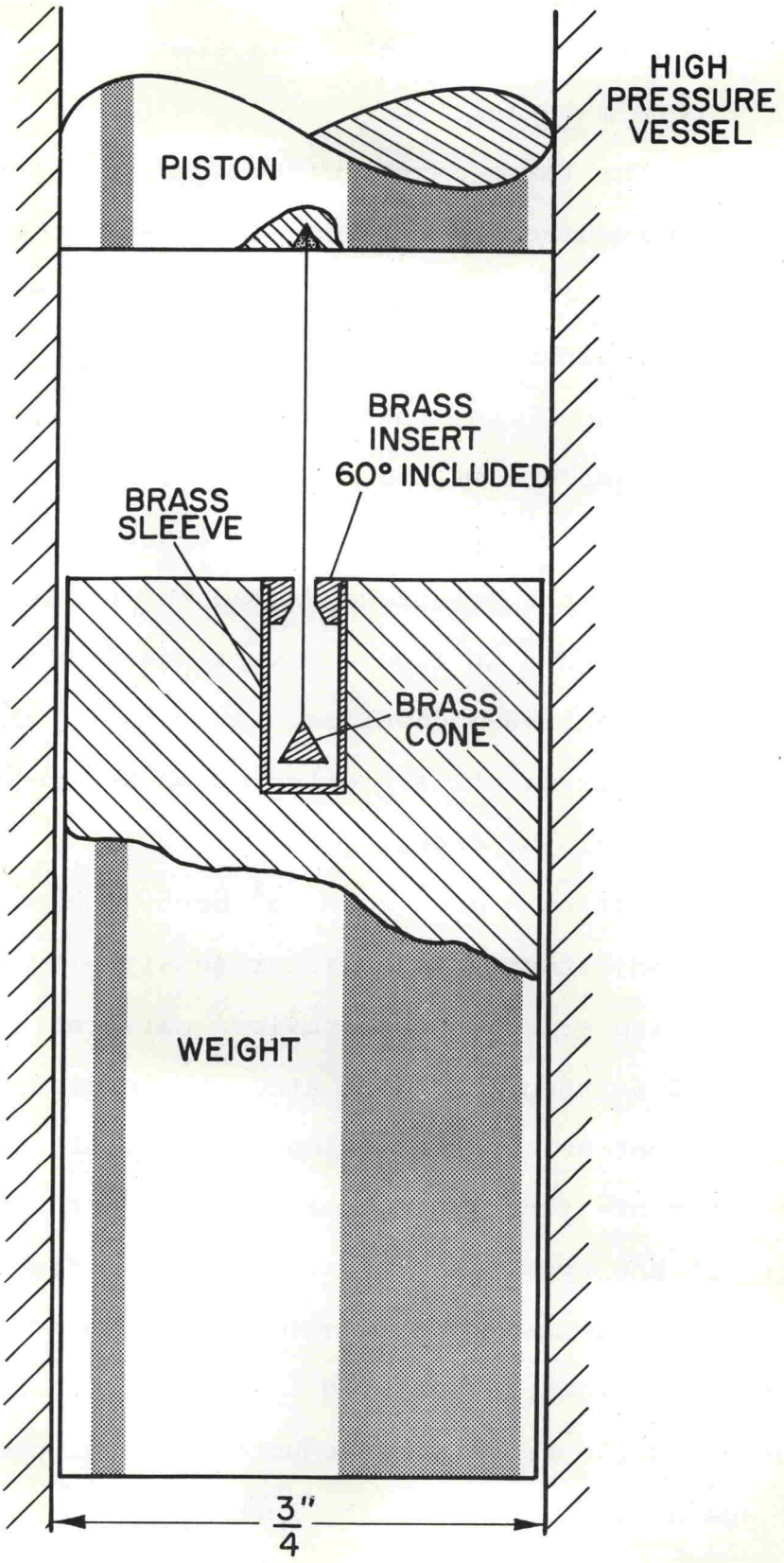

Fig. 9 Dead load calibration apparatus.