

mass on the scale beam. This balances out the mass of the stud on pressure thimble.

NOTE: Make sure that the pressure thimble is **not** engaged in the spring steel bar on the expansion pressure device in this operation.

5. Add mass to the scale beam in 3.5-kg increments up to a total mass of 14 kg (lacking a tare value, leave counterpoise set at the mass above for a stud and pressure thimble). At each increment, balance the scale beam by adjusting the pressure thimble in an upward direction so that it applies the necessary balancing the mass against the spring steel bar in the expansion pressure device, and record the reading of the deflection gage. When the expansion pressure device is in proper adjustment, the readings obtained at each mass should correspond to those listed in Table 1 within ± 0.0025 mm.

TABLE 1

**REQUIRED DEFLECTION VALUES
FOR THE EXPANSION PRESSURE DEVICES**

Mass (kg)	Dial Reading (mm)*
3.5	0.052
7.0	0.103
10.5	0.154
14.0	0.206

*The dial readings are determined from the formula: $D = 0.0147 M$.

Where:

D = Deflection gage dial reading, in mm

M = Mass applied to the spring steel bar in the expansion pressure device, in kg

6. When the dial readings do not correspond to those in Table 1 within the tolerance of ± 0.0025 mm, it will be necessary to alter the deflection characteristics of the

spring steel bar on the expansion pressure device by repositioning the brass shims. This is accomplished by loosening the upper bar on the expansion pressure device and adjusting the position of the shims on the longitudinal axis of the spring steel bar until the dial checks within ± 0.0025 mm of the values given in Table 1 at each mass.

NOTE: The expansion pressure device may remain clamped on the hold-down table when loosening the nuts at the top of the device and adjusting the shims. However, the pressure thimble should be backed off until it does **not** engage the spring steel bar before starting this operation.

7. All expansion pressure devices should be recalibrated at least once every 2 months. In cases where extreme expansion pressure has left a permanent set in the spring steel bar, the expansion pressure device must be recalibrated before using again. It is generally considered that "extreme pressure" has occurred when a dial reading, at the end of a 16 to 24 h test period, exceeds 0.25 mm (one turn around the dial).

NOTE: Methods employing standardized proving levers are also acceptable for the direct calibration of expansion pressure devices where they yield the same results as the method outlined above.

D. SAFETY AND HEALTH

Prior to handling, testing or disposing of any waste materials, testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

**REFERENCE:
California Test 301**

End of Text (California Test 103 contains 5 pages)

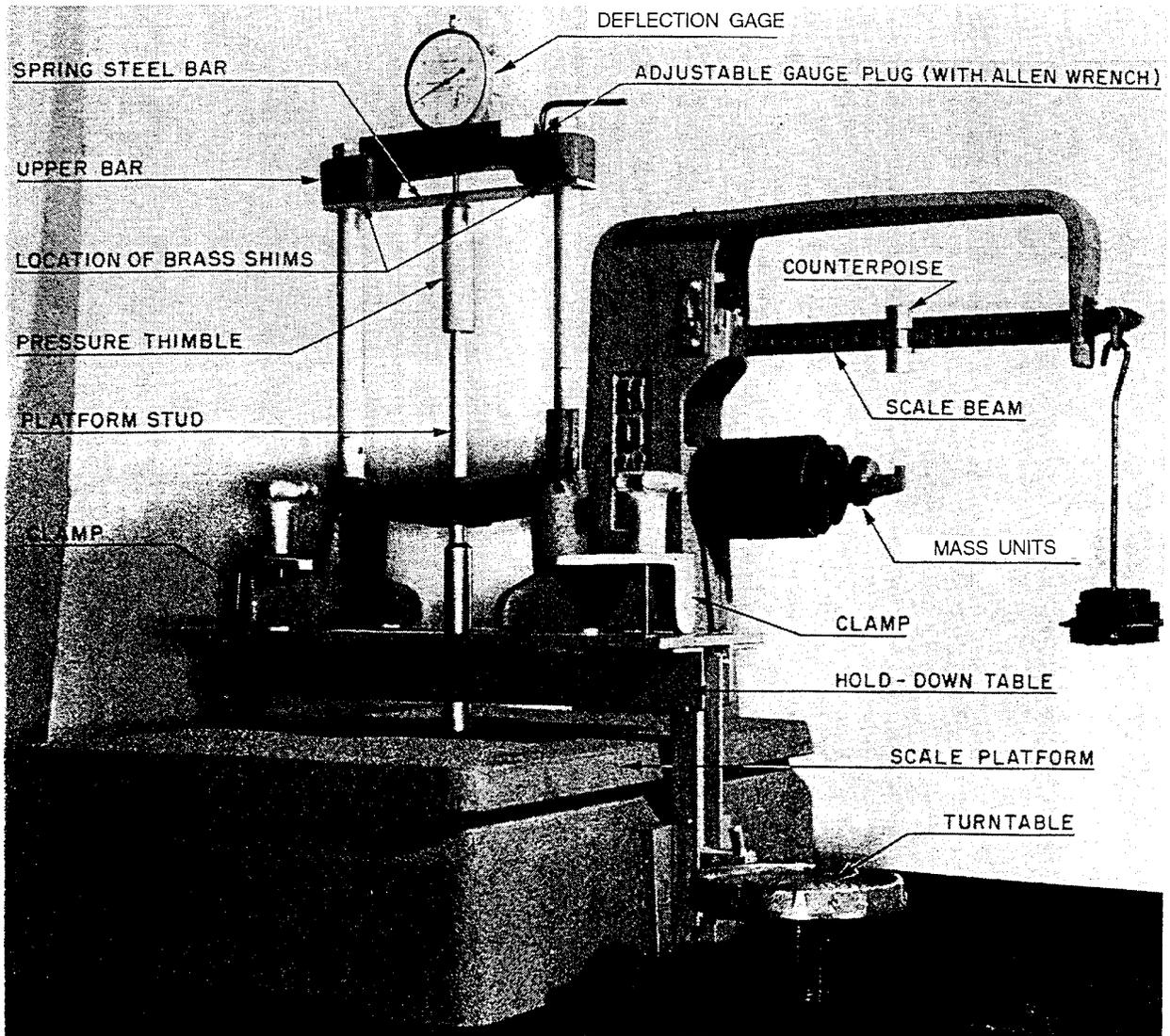
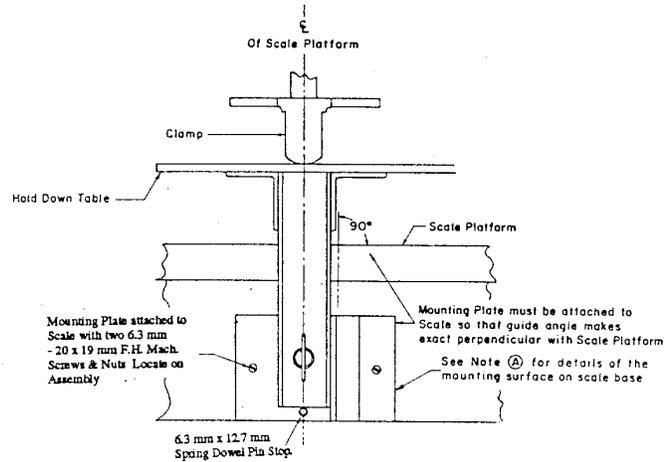
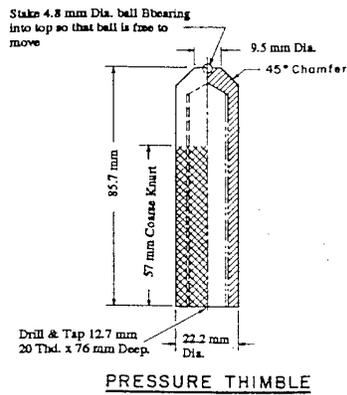


FIGURE 1



NOTES:

- (A) Base of scale must be milled, at the location of the Mounting Plate, to provide a finished surface which is perpendicular with the scale platform. Shims should be inserted as needed between the Mounting Plates and scale base, to provide sliding fit for the legs of the Hold Down Table.
- (B) Drill & Tap scale platform to accept Platform Stud. Position hole in the center of the scale platform. When the entire assembly is in place on the scale, the Platform Stud shall center through the 38 mm Dia. hole in the Hold Down Table.
- (C) The entire calibration apparatus assembly is designed to attach to a "Howe" counter scale No. 3305. If a different make or model of scale is used, then some dimensional modifications may be necessary.

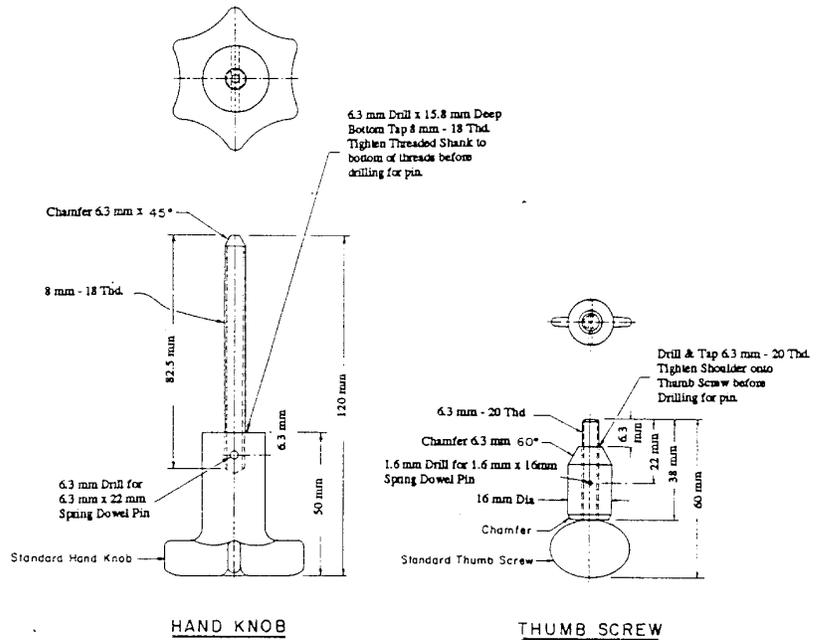
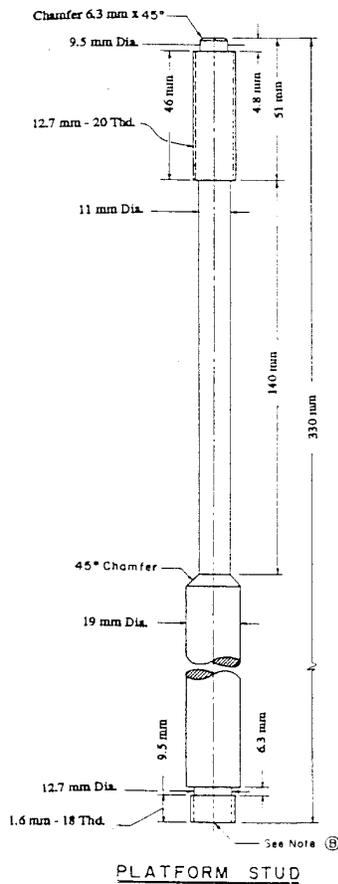


FIGURE 2

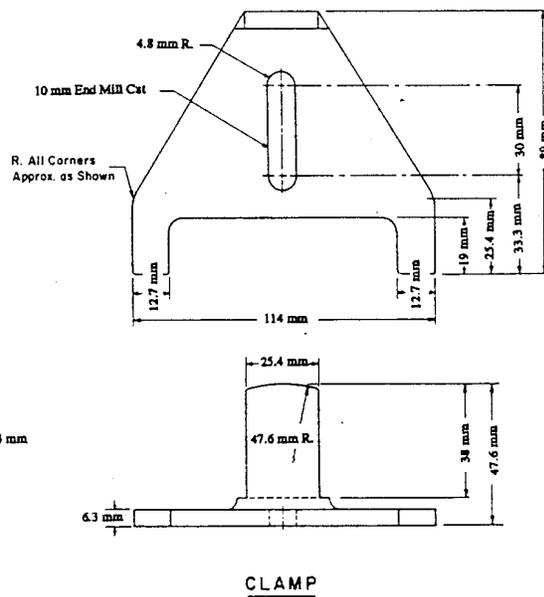
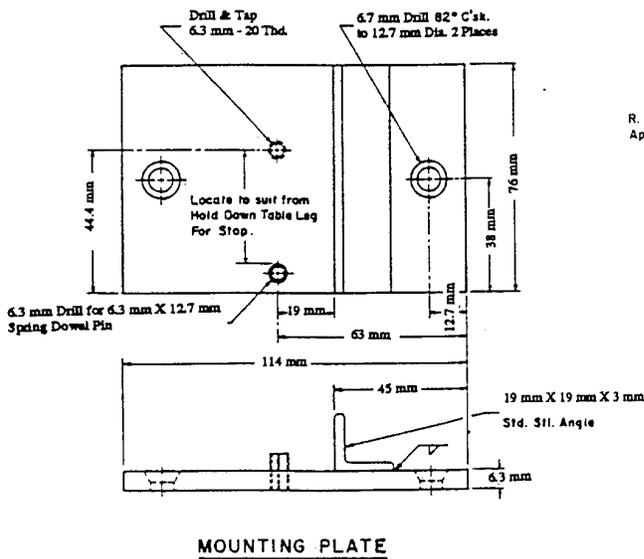
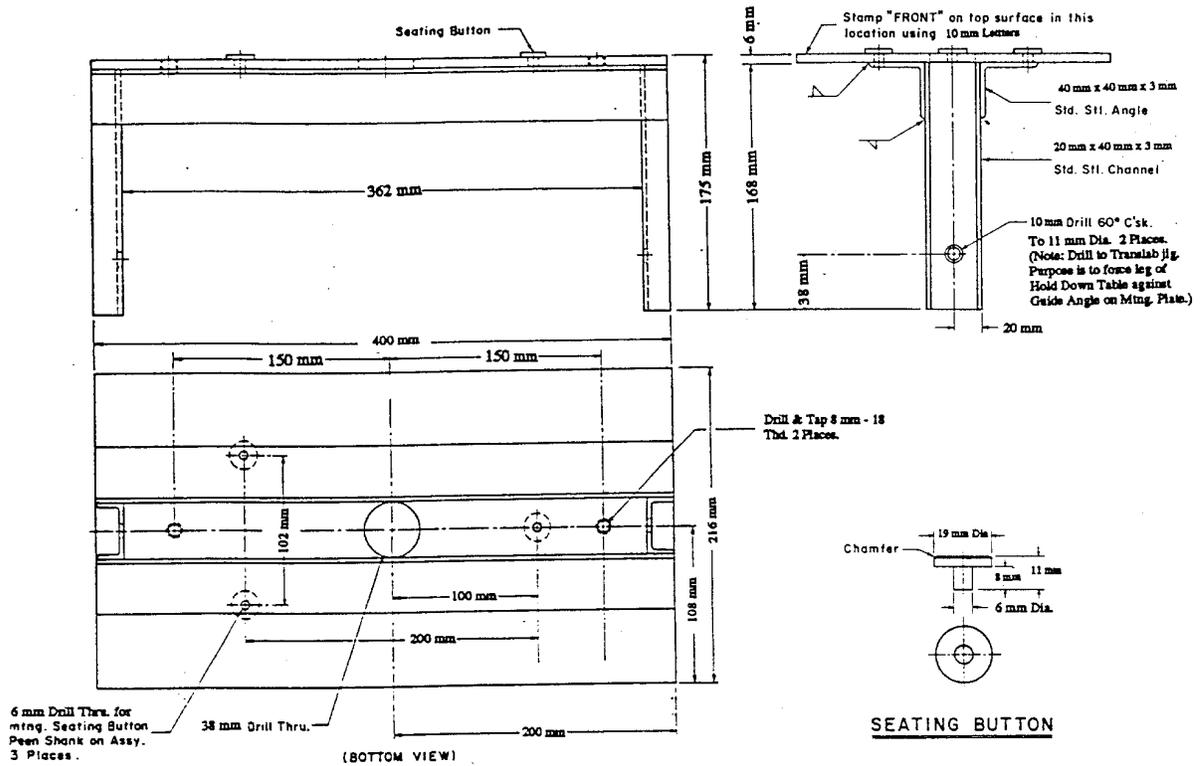


FIGURE 3