and a 2.54 cm air gap.

The chief difficulties with the flying plate technique are loss in planarity of the shock wave and break-up of the flying plate as it traverses the free run distance. The effects from loss of planarity can be minimized by making the velocity measurements in the materials over as small an area as possible. The break-up can be controlled to some extent by placing a thin layer (approximately 0.03 cm thick) of polyethylene between the explosive pad and the flying plate. A 0.16 cm air gap between the explosive charge and the polyethylene sheet also provides some smoothing of the shock wave sent into the flying plate.

E. Liquid Nitrogen Shot Design

The experimental methods and techniques used in these experiments are similar to the designs used for the organic liquids. To keep the liquid nitrogen in a nonboiling state, a special container was designed. Also, a method was devised so that the container and the explosive charge could be joined remotely from the control room a few seconds before firing the shot. Figure 14 is a schematic diagram of the complete shot assembly. Again the material chosen for a standard target material is 2024 dural.

The dural plate is 25.4 cm in diameter and 10.8 cm thick with a well 0.7 cm deep and 6.35 cm diameter machined in the plate to take the coaxial pins for measuring the liquid nitrogen shock velocity. Small holes are drilled next to this well to take the pins for measuring the dural shock velocity. There are 24 pins for each measurement arranged on two pin circles and four setback levels. The