was used above $150^{\circ}C$ to calculate initial conditions for the shock wave experiments. The standard deviation from the least squares fit is less than 0.1% of the largest volume measured.

The variation of specific enthalpy with temperature at atmospheric pressure between $-26^{\circ}C$ and $318^{\circ}C$ was determined with a drop calorimeter. A least squares fit for the data with T in degrees Kelvin and h = 0 at $T_1 = 298^{\circ}K$ is

$$h = 16960(1/T - 1/T_1) - 0.09818(T - T_1) + 4.842 \times 10^{-4}(T^2 - T_1^2)$$

The standard deviation from the least squares fit is less than 3/4% of the largest enthalpy increment measured.

Shock Measurements

Four explosive shots were performed to obtain high pressure equation of state data using an impedance match technique.[1] Each shot assembly contained both cold and hot liquid samples.

A cross section of an assembly showing the brass cells containing the liquid samples is illustrated in Fig. 1. Plane shocks were induced in the liquid samples by the interactions produced by a brass flier striking the cells. The driver system for the flier plate was a P-80 plane-wave lens in contact with a 4-inch pad of high explosive. Shocked conditions in the liquid were varied by varying the composition of the explosive pad.

Direct measurement of shock velocity in the liquid and indirect measurement of the shocked condition in the brass at the cell-liquid interface suffice to calculate the shocked state in the liquid. The measurements were recorded on 70-mm Tri-X film with a Beckmann & Whitley 770 camera writing at a speed of 10 mm/μsec; object-to-image ratio was 2.6/1 and the slit overwrite time was 0.01 μsec. Figure 2 shows a detailed drawing of a streak camera view of the liquid cells. Changes of reflectivity of the steel shims E and C, the brass surface DF, and the mirrored surface H produce signals that depict the series of events for the cold cell in the shock experiment. A typical streak record is shown in Fig. 3,