V. SUMMARY

A. Present Investigation

The investigation of these four liquids revealed several features common to all. First, all the liquids exhibit a linear relationship of the form $U_s = C + MU_p$ between the shock velocity and the particle velocity with the possible exception of carbon tetrachloride. Based on this observation, it is hypothesized that most liquids can be described in terms of the linear relationship between the two velocities. Secondly, all the liquids were observed to undergo some type of transition with benzene, carbon disulfide, and liquid nitrogen yielding the largest volume change. The nature of the high pressure phase for these three liquids is probably very much different from the original liquid state. Freezing could fit the observed behavior for carbon tetrachloride. Thirdly, the intercept of the lower U_s-U_p line with the U_s axis is at a higher value than the measured sound speeds. This could signify a transition occurring below the pressures accessible by the techniques employed in this study. Fourth, carbon disulfide and carbon tetrachloride both exhibited a very large increase in electrical conductivity with pressure while benzene did not for pressures up to 140 kbar. Other similarities are available from the data listed in Table IX.

The experimental apparatus for the organic liquids is basically sound, relatively easy to fabricate, and provides space to