phase transition at 64 kbar. The evidence supporting this hypothesis is (1) a region in the U_s-U_p plane over which the shock velocity is constant, (2) the Rayleigh line connecting the zero pressure point and which goes through the transition cusp intersects the upper P-V curve at a point corresponding to the start of the upper line of the U_s-U_p plot, and (3) the P-V/V_0 Hugoniot curve exhibits a cusp at 64 kbar in agreement with the U_s-U_p data. It is very likely that a two-wave structure accompanies this transition. Experiments to test this suggestion were inconclusive for reasons discussed in the benzene section.

Two very crude experiments were performed to obtain some qualitative information about the electrical conduction of carbon disulfide near the transition region. In one experiment using a 10.16 cm thick Baratol charge, it was observed from rather insensitive instrumentation that there was negligible electrical conduction when underdriving the transition. In the other experiment, a 5.08 cm thick TNT charge was used to shock the carbon disulfide to a pressure slightly above the transition and in this case appreciable electrical conduction was observed. Carbon disulfide at standard pressure and temperature normally is a good insulator but the conductivity increases rapidly upon the application of dynamic pressures. The transformation process may enhance the change in conductivity.

The observed transition is thought to be the transformation of the liquid to a "black substance". This was first discovered by Bridgman[10] and later investigated more fully by Whalley[40] and Butcher and coworkers[41] using static pressure methods. The transformation was found to occur at about 40 kbar over a temperature