liquid phase supercools well below room temperature. A poor seal will permit ringing of the transducer which will prevent sharp cut-off of the impulse, producing long tails on the echoes. Properly made seals will be of negligible thickness.

Elastic Constant Measurement Procedure:

The ultrasonic apparatus was developed by Eros and is described in a previous paper from this laboratory, as is the general procedure and theory.[1] The exciting pulse consisted of from 10 to 15 cycles of a nominal 10 megacycle signal of about 300 volts peak to peak amplitude (open circuit at the transducer). The exciting pulse and the echoes were directly displayed on an oscilloscope whose variable resistance elements in the sweep circuit have been modified to facilitate measurement of time delay between the exciting pulse and any echo by adjusting precision external resistance boxes and a ten turn linear helipot. From knowledge of the time between successive echoes and the length of the specimen the velocity of propagation was obtained and hence the associated ρv^2.

The main problem encountered in making accurate transit time measurements with the ultrasonic pulse echo technique is determining corresponding points on consecutive echoes. The first step was to determine if there was any change of phase of the echoes upon