

to 58-60 Rockwell C and is pressed into (B). The carbide pistons (C) are grade 883 or 999 jacketed with AISI 4140 hardened to 42-44 Rockwell C. Only the lower piston ( $1/8$ " diameter) moves. The salt windows S consist of three sections in the Solar insert plus an outer section. From the inside a hole  $1/8$ " long 0.028" in diameter, a hole  $1/8$ " long 0.047" diameter, and a hole  $3/32$ " long 0.067" diameter. The outer hole is  $1/4$ " in diameter and is filled approximately  $1/4$ " deep. The windows are filled by applying pressure to heated NaCl crystals placed in the outer hole and in the center.

The inner chamber is  $3/16$ " long and is lapped to fit the pistons to 0.0005". The holes gradually stretch in service and the inserts must be replaced after 15-30 runs. The pressure is alternately applied in the center and at the outside until the windows become sufficiently clear. This may take as many as half a dozen applications of alternating pressure of about 30,000 atmospheres. The outer plugs P serve to minimize the breakup of the outer edges of the windows. The center NaCl can be removed and the sample inserted, usually in a very thin section between two alkali halide crystals. Thus it is not affected by any extrusion which takes place. The salt pellet is usually 0.040" - 0.060" thick. The spectra obtained are reversible with rising and falling pressure within about 3% on the pressure scale, indicating that friction is not large. Phase transitions which are not accompanied by a large "region of indifference" as described by Bridgman also show this reversibility.