ment associated with mechanical property evaluation at high pressure either is insufficiently sensitive or is limited to ~ 10 kbar.

Equipment

Overall System

The basic pressure generating equipment used was the Birch-Bridgman 30 kbar apparatus[10] manufactured by Harwood Engineering Co. The tensile testing equipment was designed to fit the 3/4 inch diameter bore (1) in the arrangement shown in Figure 1. The tensile load on the sample (2) is produced by the contact of the top piston (3) with the tensile yoke (4) containing the sample and is transmitted through spacer (5) and the load concentrator (6) to the beam of the load cell (7) which is supported on the cylindrical sleeve (8). Electrical connections to the load cell are made through an eight prong radio plug connected to leads which are brought out to the atmosphere through a hardened steel conical pin-lava seal arrangement.

Tensile Yoke

The tensile yoke is similar in concept to that first used by Bridgman[3] and later by others[11-13]. The principal behind its operation is schematically shown in Figure 2 which demonstrates the conversion of a compressive load on the yoke to a tensile load on the sample. A drawing of the actual yoke and sample used in these experiments is shown in Figure 3 and photographs are shown in Figure 4.

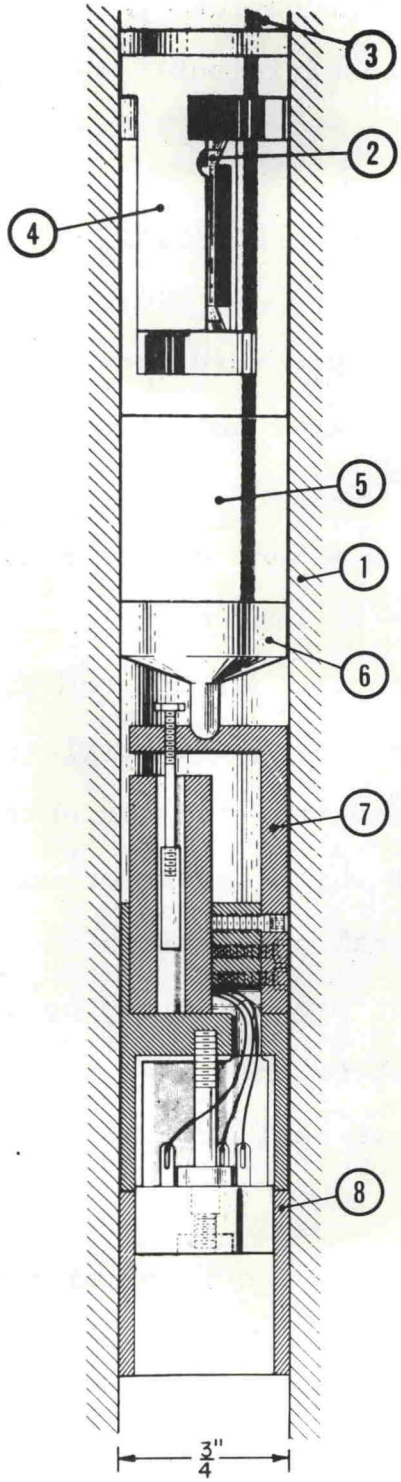

Fig. 1 Schematic representation of high pressure tensile testing apparatus.