

**FIGURE P13-1**

Problem 13-33

- [†]13-33 Figure P13-1 shows a single-cylinder air compressor stopped at top dead center (TDC). There is a static pressure $P = 100$ psi trapped in the 3-in-bore cylinder. The entire assembly weighs 30 lb. Draw the necessary free-body diagrams to determine the forces at points A , B , C , and the supports R_1 and R_2 , which are symmetrically located about the piston centerline. Assume that the piston remains stationary.

[†] These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs.