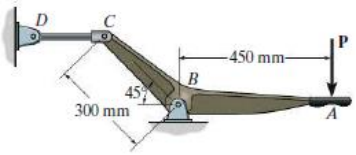
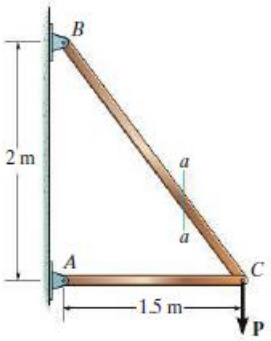
MAK 206 HW #1

*1–64. A vertical force of $P = 1500$ N is applied to the bell crank. Determine the average normal stress developed in the 10-mm diamater rod CD, and the average shear stress developed in the 6-mm diameter pin B that is subjected to double shear.



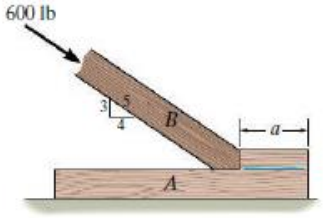
Probs. 1–64/65

1–66. Determine the largest load **P** that can be applied to the frame without causing either the average normal stress or the average shear stress at section a–a to exceed $\sigma = 150$ MPa and $\tau = 60$ MPa, respectively. Member CB has a square cross section of 25 mm on each side.



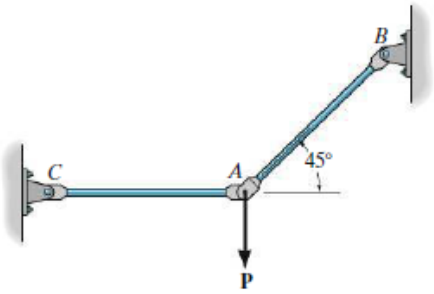
Prob. 1–66

1–74. Member B is subjected to a compressive force of 600 lb. If A and B are both made of wood and are 1.5 in. thick, determine to the nearest $\frac{1}{8}$ in. the smallest dimension a of the support so that the average shear stress along the blue line does not exceed $\tau_{allow} = 50$ psi. Neglect friction.



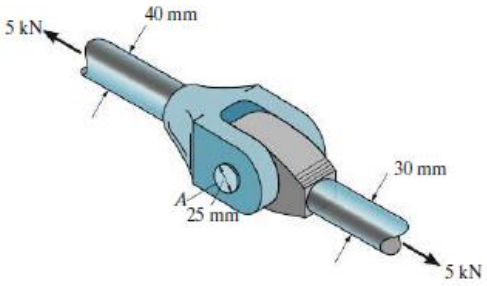
Prob. 1–74

1–86. The two aluminum rods support the vertical force of $P = 20$ kN. Determine their required diameters if the allowable tensile stress for the aluminum is $\sigma_{allow} = 150$ MPa.



Prob. 1–86

1–103. The yoke-and-rod connection is subjected to a tensile force of 5 kN. Determine the average normal stress in each rod and the average shear stress in the pin A between the members.



Prob. 1–103