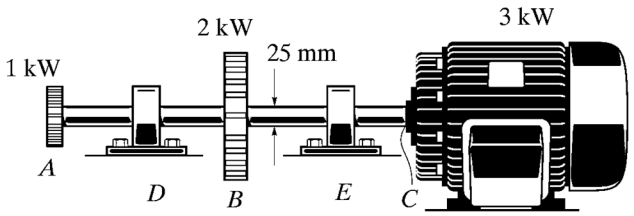
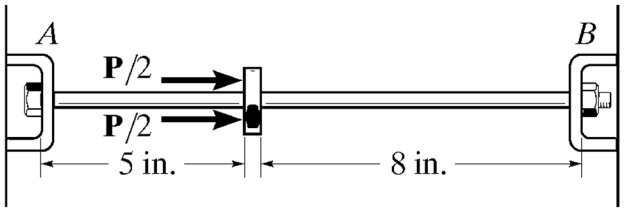
1) GIVEN: A 3 kW motor drives a 25mm shaft at 50 rev/s
Power is drawn from the shaft by gears as shown.
REQ'D: Torque, max shear stress and deflection in each segment of the shaft. G = 75 GPa



2) GIVEN: The nut on the right end of the ∅.5 in aluminum rod is just barely snugged up when T = 70 °F and a load of P = 16 lb is applied.
REQ'D: Reactions at A and B when T = -10 °F
$E_{al} = 10.6 \times 10^6$ psi $\alpha_{al} = 12.8 \times 10^{-6}$/°F



3) GIVEN: The shaft is supported by a smooth thrust bearing at A and smooth journal bearing at B.

REQ'D: Draw the shear and moment diagrams for the shaft and indicate the maximum shear and moment. (H6.33)