

- 11.20. Shafts *A* and *B* in Fig. P11.20 are solid circular cylinders. Shaft *A* is linear elastic, perfectly plastic with $G = 20 \times 10^6$ psi and $k = 50,000$ psi. Shaft *B* is also linear elastic, perfectly plastic with $G = 25 \times 10^6$ psi and $k = 40,000$ psi.

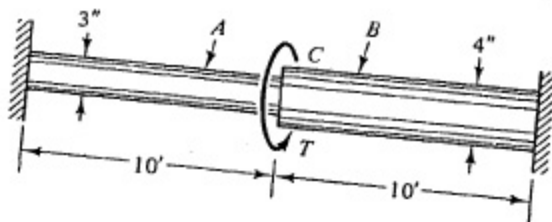


Figure P11.20

516

Torsion of Shafts Chap. 11

- What is the very largest torque T that can be applied with elastic behavior everywhere? (*Hint*: Cut combined shaft at C and consider separate shafts.) What are the supporting torques?
- If one of the shafts has plastic deformation to some degree and the other shaft is just starting to deform plastically, what is the required torque? Determine the supporting torques for this case.
- If the torque in part (a) is increased by 30%, what are the supporting torques?