

#Jenny



Finally I get this ebook, thanks for all these I can get now!

#Rio



Cool! I'am really happy

#Markus Jensen



I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu



wtf this great ebook for free?!

#Che Salsa



My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler



so many fake sites. this is the first one which worked! Many thanks

PROBLEM 2.46

The rigid bar AD is supported by two steel wires of $\frac{1}{2}$ -in. diameter (E = 29×10^6 psi) and a pin and bracket at D. Knowing that the wires were initially taut, determine (a) the additional tension in each wire when a 120-lb load P is applied at B, (b) the corresponding deflection of point B.

SOLUTION

Let δ be the rotation of bar ABCD.

Then $\delta = \theta$

$$P_B \delta = \frac{F_{AC} L_{AC}}{AE} \delta + \frac{F_{BD} L_{BD}}{AE} \delta$$

$$P_B = \frac{EA}{L_{AC}} (29 \times 10^6) \left(\frac{1}{2} \right)^2 (24) + \frac{EA}{L_{BD}} (29 \times 10^6) \left(\frac{1}{2} \right)^2 (36)$$

$$P_B = 142,353 \text{ lb}$$

$$P_D = \frac{EA}{L_{BD}} (29 \times 10^6) \left(\frac{1}{2} \right)^2 (36)$$

$$P_D = 88,971 \text{ lb}$$

Using free body ABCD:

$$\sum M_D = 0: 24(42,353 \text{ lb}) + 36(23) = 36(88,971 \text{ lb}) + 0$$

$$0.40519 \times 10^6 \text{ in}\cdot\text{lb}$$

(a) $F_{AC} = (42,353 \text{ lb}) (0.40519 \times 10^6)$ $F_{BD} = 66.2 \text{ lb}$

(b) $\delta = (88,971 \text{ lb}) (0.40519 \times 10^6)$ $\delta = 41.4 \text{ in}$

(c) $\delta = (16,140,405.19 \text{ lb})$ $\delta = 1,411 \text{ in}$

[Download PDF version of :](#)
Mechanics Of Materials 7th Edition Solutions