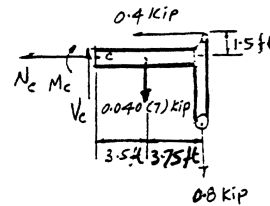
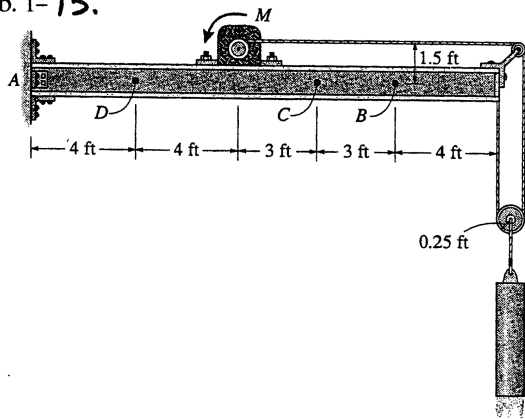


***1-16.** Determine the resultant internal loadings acting on the cross section through points *C* and *D* of the beam in Prob. 1-15.

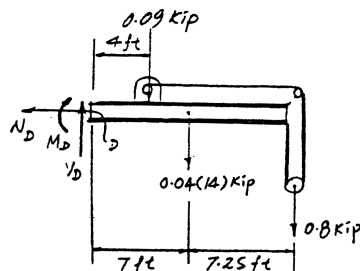


For point *C* :

$$\leftarrow \Sigma F_x = 0; \quad N_C + 0.4 = 0; \quad N_C = -0.4 \text{ kip} \quad \text{Ans}$$

$$+\uparrow \Sigma F_y = 0; \quad V_C - 0.8 - 0.04(7) = 0; \quad V_C = 1.08 \text{ kip} \quad \text{Ans}$$

$$\begin{aligned} \curvearrowright \Sigma M_C = 0; \quad & -M_C - 0.8(7.25) - 0.04(7)(3.5) + 0.4(1.5) = 0 \\ & M_C = -6.18 \text{ kip} \cdot \text{ft} \quad \text{Ans} \end{aligned}$$



For point *D* :

$$\leftarrow \Sigma F_x = 0; \quad N_D = 0 \quad \text{Ans}$$

$$+\uparrow \Sigma F_y = 0; \quad V_D - 0.09 - 0.04(14) - 0.8 = 0; \quad V_D = 1.45 \text{ kip} \quad \text{Ans}$$

$$\begin{aligned} \curvearrowright \Sigma M_D = 0; \quad & -M_D - 0.09(4) - 0.04(14)(7) - 0.8(14.25) = 0 \\ & M_D = -15.7 \text{ kip} \cdot \text{ft} \quad \text{Ans} \end{aligned}$$

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