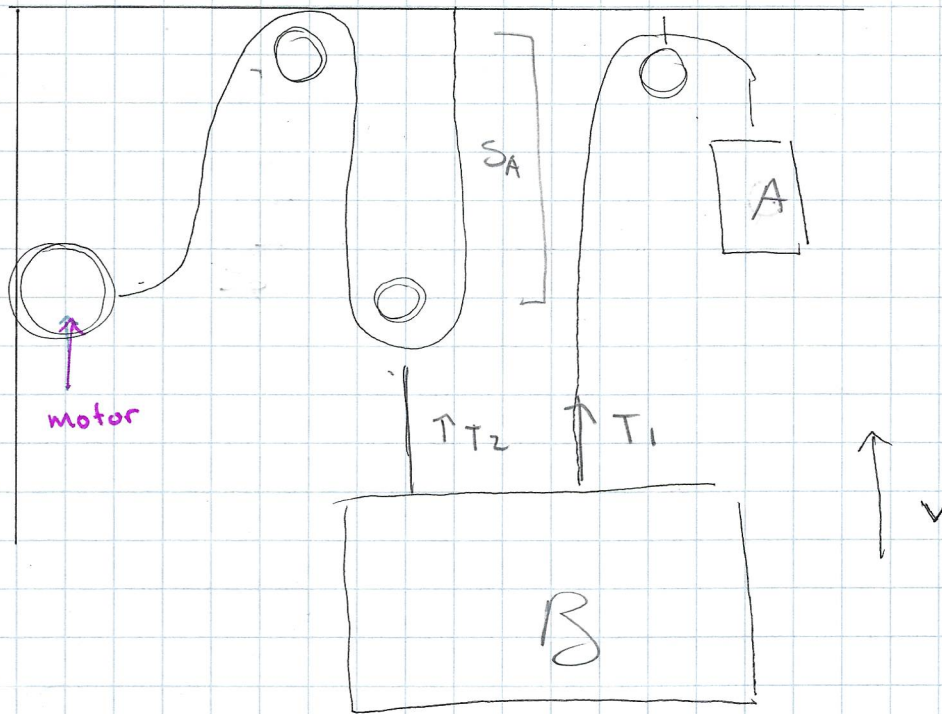


20-P-WE-AF-010

Power and Efficiency: Intermediate

Q: An elevator ^{of a weight of W} moves upwards with a velocity of $v = v_{el}$ m/s. The motor has an efficiency of $e = E$, determine the power supplied.

A:



$$2s_A + s_p = l \Rightarrow 2v_A + v_p = 0$$

← have to flip signs
→ refer to F14-12

$$2v_A = v_p$$

$$\sum F_y = m a_y = 0 = T_2 + T_1 - Mg = 0$$

$$T_2 = Mg - M_A g$$

$$E = \frac{P_{out}}{P_{in}}$$

$$P_{in} = \frac{T_2 \cdot v_p}{E}$$