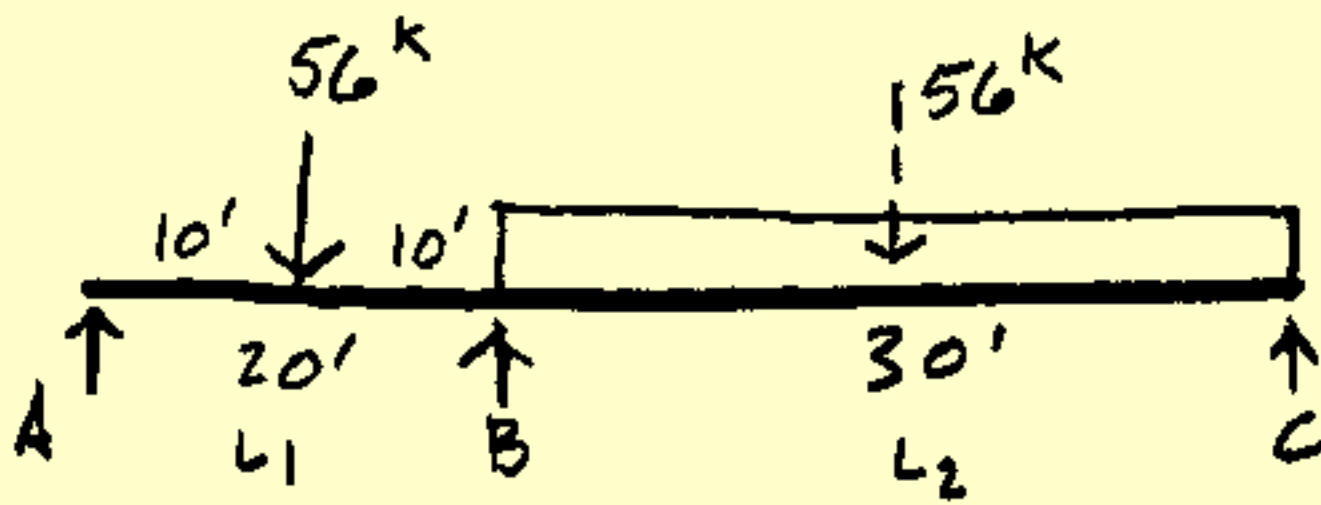


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GENERAL EQUATION:

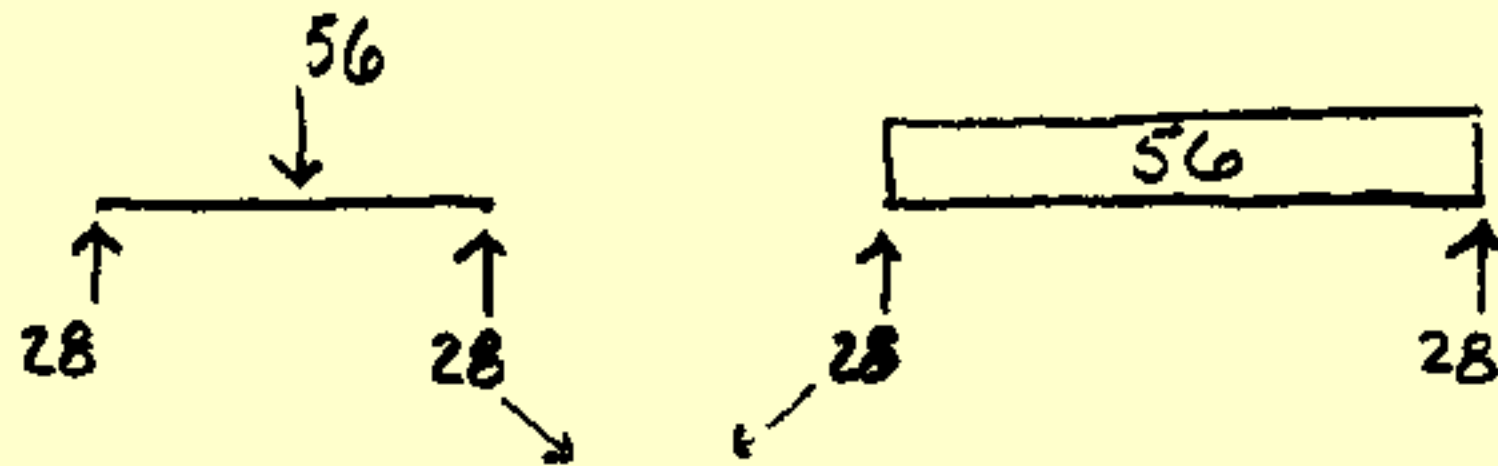
$$M_B = \frac{3}{L_1 + L_2} [EI\theta_1 + EI\theta_2]$$

$$M_B = \frac{3}{20 + 30} \times \left[\frac{PL^2}{16} + \frac{WL^2}{24} \right] = \frac{3}{50} \times \left[\frac{56(20)^2}{16} + \frac{56(30)^2}{24} \right]$$

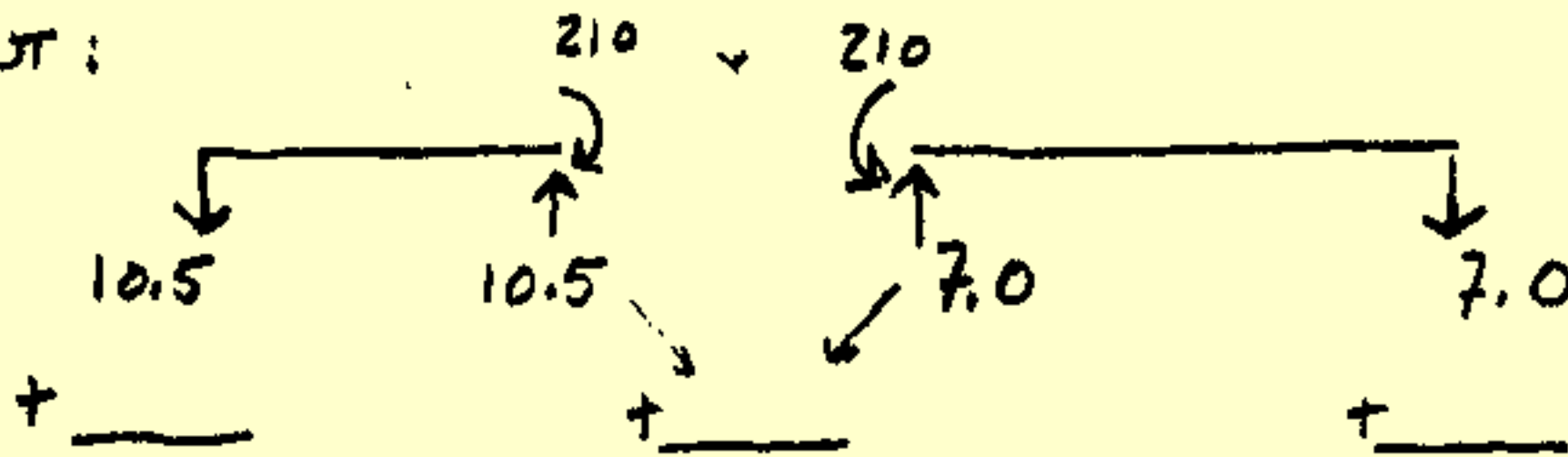
$$M_B = 210 \text{ K-FT}$$

REACTIONS BY SUPERPOSITION:

WITH LOADS:



WITH MOMENT:



TOTAL:

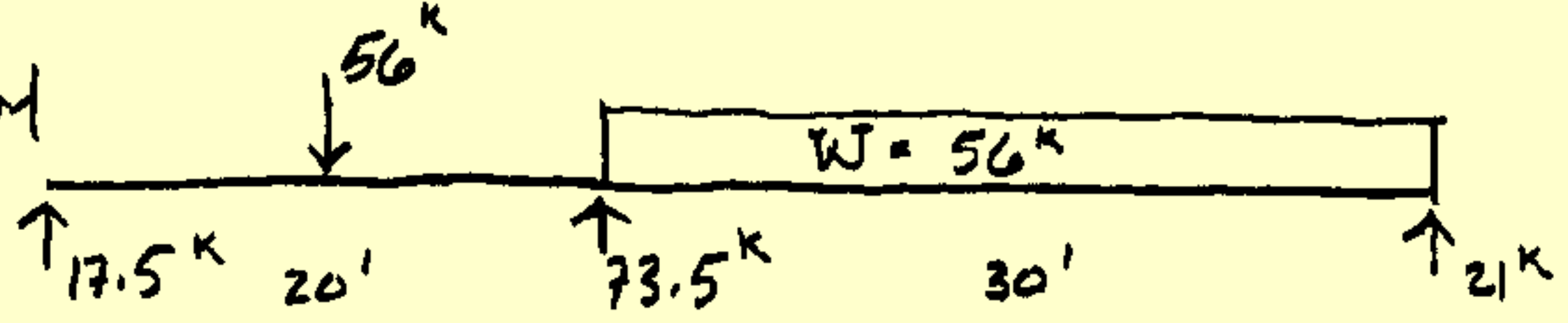
17.5↑
A

73.5
B

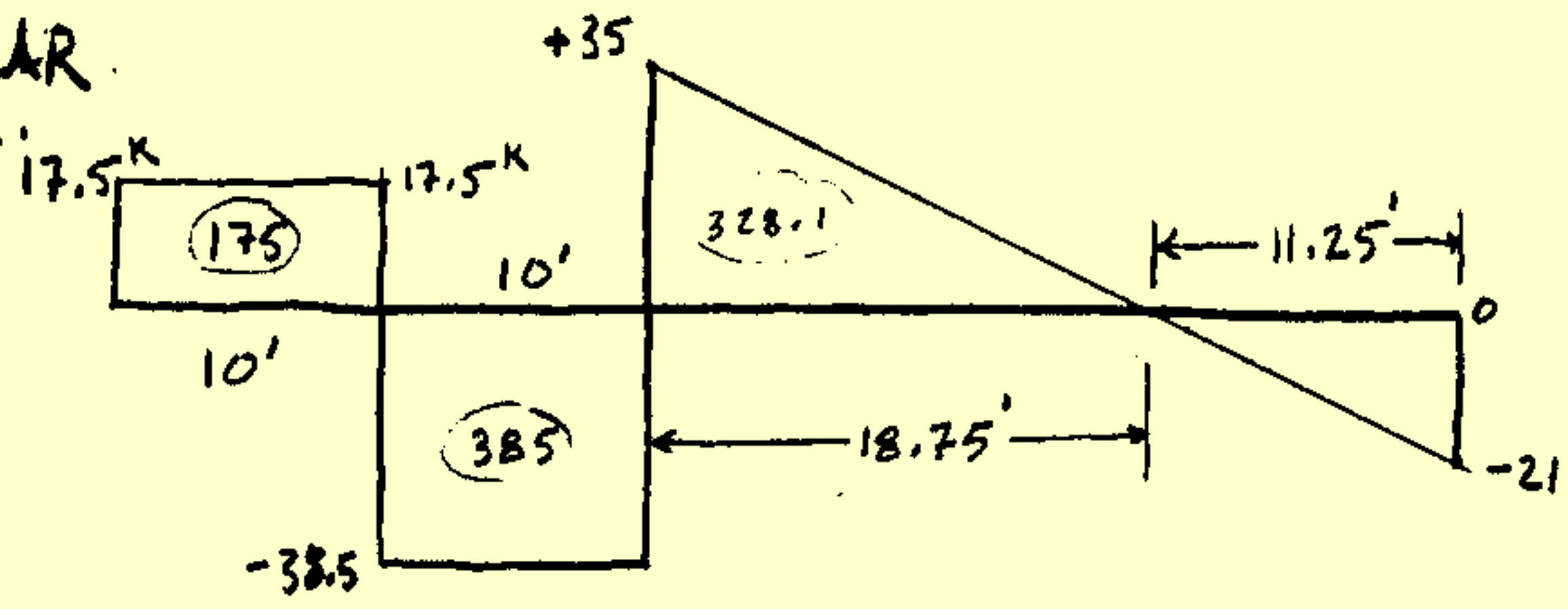
21↑
C



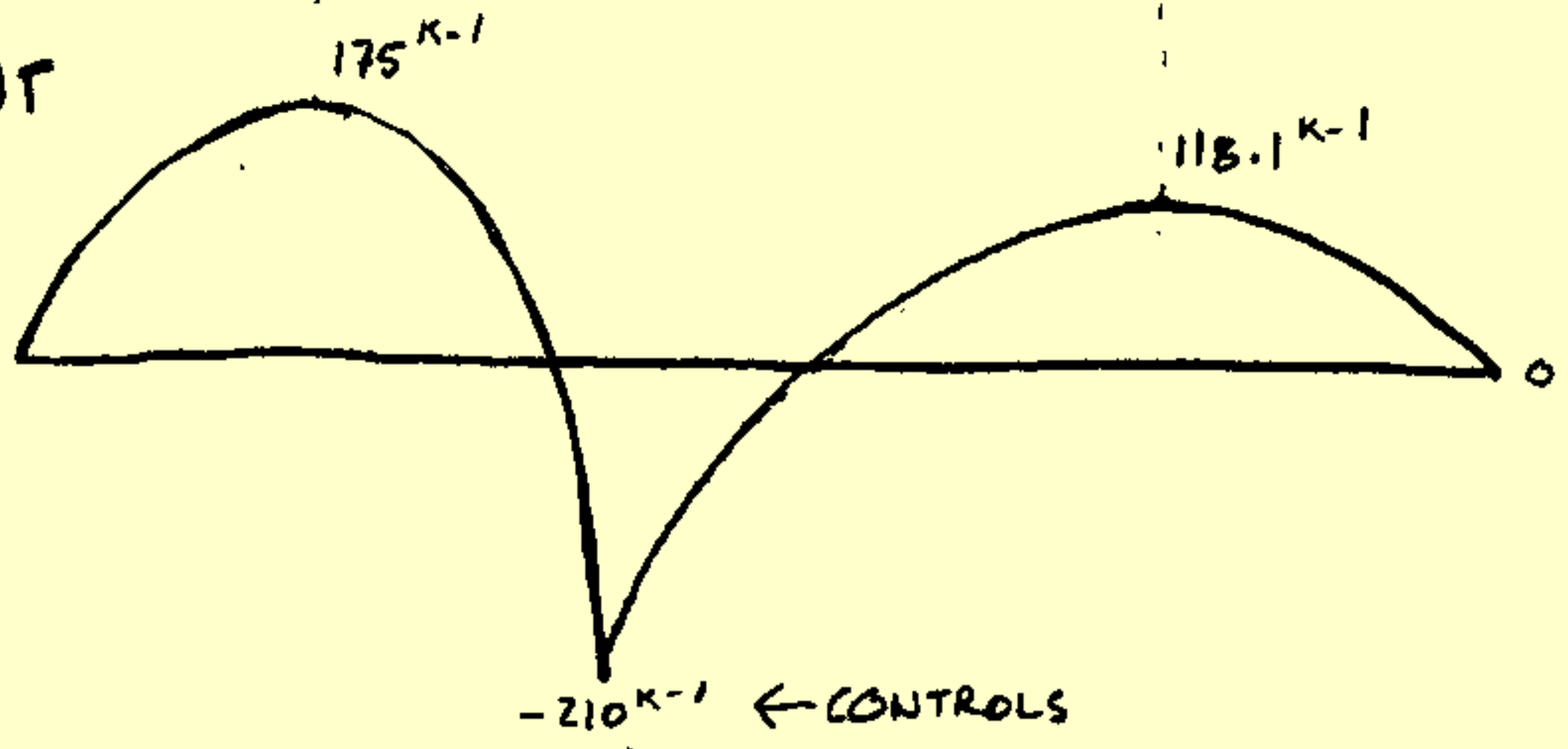
LOAD DIAGRAM



SHEAR DIA.



MOMENT DIA.



PART (A)

$$f = 24 \text{ ksi} = \frac{M}{S} = \frac{210 \times 12}{S} \therefore S = 105$$

$$\therefore \text{USE } W24 \times 55 \quad S_x = 114 > 105 \quad \checkmark \text{ OK}$$

PART (5)

$$M_{\text{SPAN}_1} = \frac{PL}{4} = \frac{56(20)}{4} = 280 \text{ k-ft} \leftarrow \text{CONTROLS}$$

$$M_{\text{SPAN}_2} = \frac{Wl}{8} = \frac{56(30)}{8} = 210 \text{ k-ft}$$

$$f = 24 = \frac{280 \times 12}{S} \therefore S = 140$$

$$\text{USE } W21 \times 68 \quad S_x = 140$$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS