FIGURE S5.73

Force Summation:
\[ \sum F_x = 0 : C_x = 0 \]  \hspace{1cm} (1)
\[ \sum F_y = 0 : A_y + C_y + B_y = 3000 \]  \hspace{1cm} (2)
\[ \sum F_z = 0 : A_z + C_z = 0 \]  \hspace{1cm} (3)

The moment equation is
\[ \sum M_0 = (0.5\hat{\imath} + 0.4\hat{k}) \times (-3000\hat{j}) + (0.5\hat{\imath}) \times (C_z\hat{\imath} + C_y\hat{j} + C_x\hat{k}) + (\hat{\imath} + 1.2\hat{k}) \times B_y\hat{j} \\
+ 1.2\hat{k} \times (A_y\hat{j} + A_z\hat{k}) = 0 \]

Which yields the 3 component equations
\[ \hat{i} : 1200 - 1.2B_y - 1.2A_y = 0 \]  \hspace{1cm} (4)
\[ \hat{j} : -0.5C_x = 0 \]  \hspace{1cm} (5)
\[ \hat{k} : -1500 + 0.5C_y + B_y = 0 \]  \hspace{1cm} (6)

Equations (1), (3) and (5) yield
\[ C_z = A_z = C_x = 0 \]

by inspection. The remaining 3 equations (2, 4, 6) (solved in Mathcad) yield
\[ A_y = 500 \text{ N}, \]
\[ B_y = 500 \text{ N} \]

and
\[ C_y = 2000 \text{ N}. \]