



FIGURE P7-15

Problem 7-45 Power hacksaw Adapted from P. H. Hill and W. P. Rule. (1960). *Mechanisms: Analysis and Design*, with permission

†7-45 Figure P7-15 shows a power hacksaw, used to cut metal. Link 5 pivots at O_5 and its weight forces the sawblade against the workpiece while the linkage moves the blade (link 4) back and forth on link 5 to cut the part. It is an offset slider-crank mechanism with the dimensions shown in the figure. Draw an equivalent linkage diagram, and then calculate and plot the acceleration of the saw blade with respect to the piece being cut over one revolution of the crank at 50 rpm.

† These problems are suited to solution using *Mathcad*, *Matlab*, or *TKSolver* equation solver programs.