L a p C A D 3

- A modeling program for MSC/pal and MSC/NASTRAN-

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PART I

LAPCAD3 is an integrated modeling program for interaction with MSC/pal on the Macintosh.

Objects are created and viewed in 3-D solid and shaded perspective. The finite element modeling features include the creation of nodes in the 3-D space. The nodes are connected into bars and triangular and quadrilateral plates.

Models are stretched, copied, mirrored, moved, rotated or snapped together. Element properties, materials, boundary conditions and external loads are implemented under mouse control. Element shrink mode and hidden line removal is implemented. A standard Macintosh-like interface is utilized.

Stiffness and loads data is saved and printed in either MSC/pal or MSC/NASTRAN format.

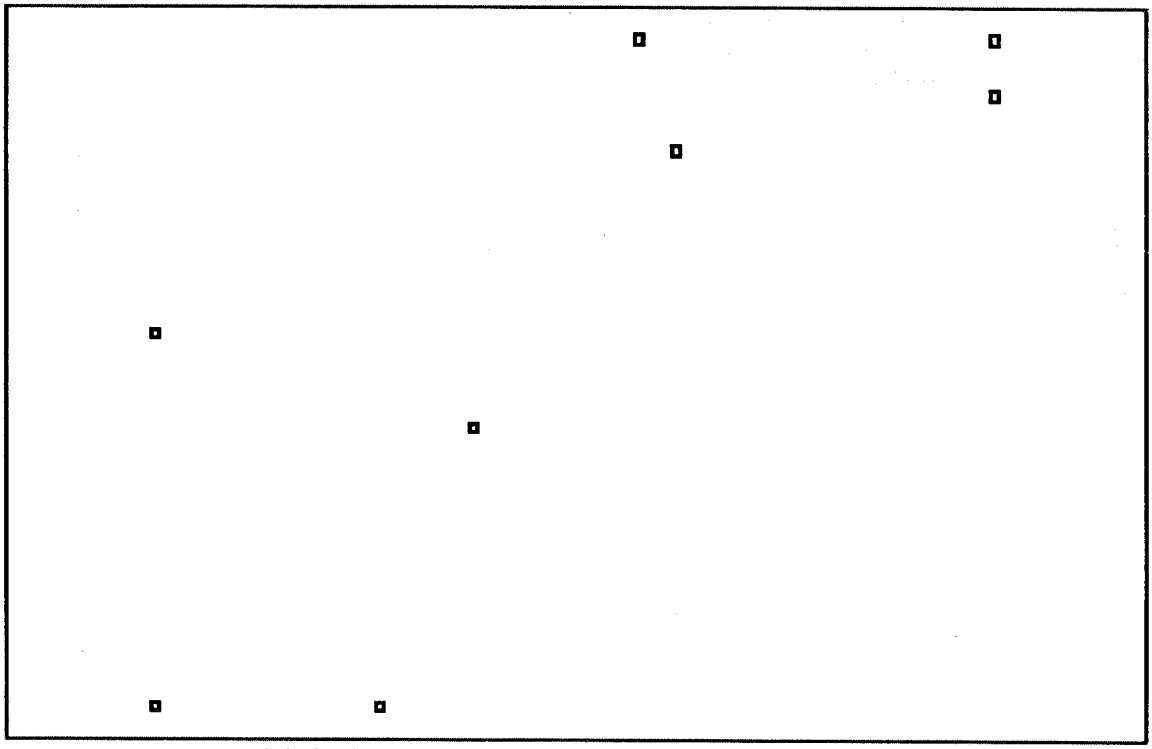
The construction of a model may take several different routes or combinations thereof. A model may start at the lowest level via the digitizing of nodes, with subsequent addition of connectivities, properties and materials.

It can also be automatically generated by utilizing the built-in Standard Object Modeler.

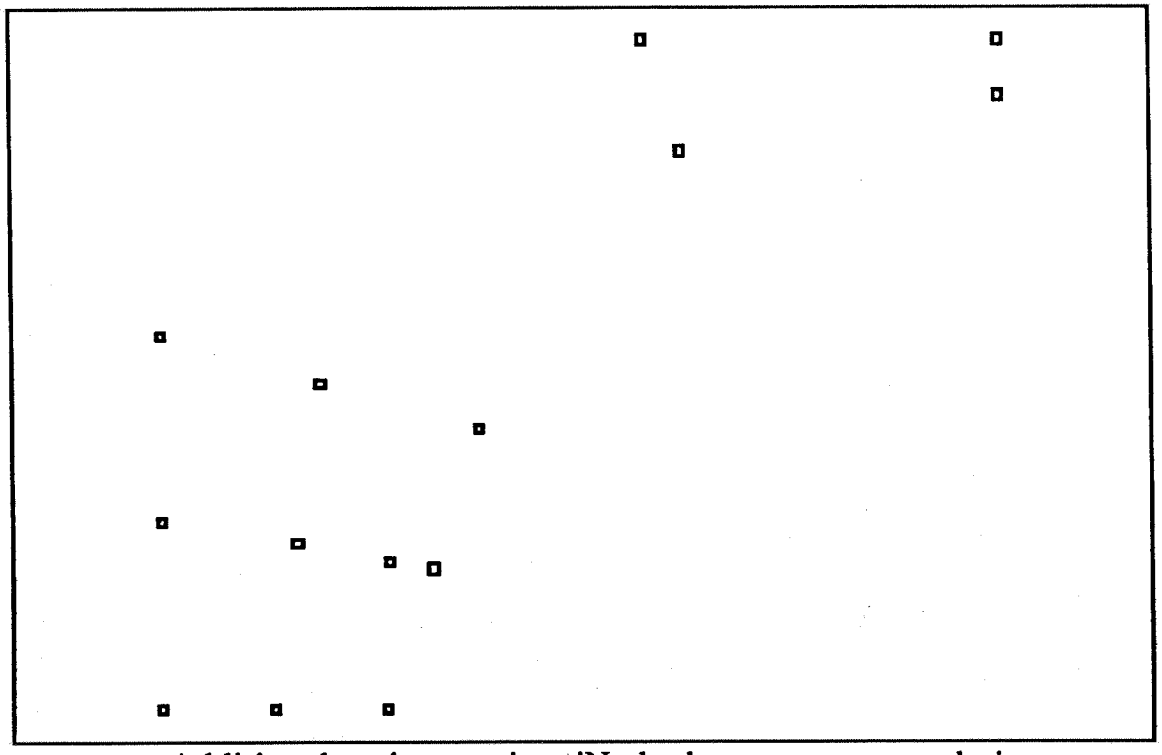
Finally an existing model may serve as a starting point, to which additions or modifications are made. Existing or newly created model entities can also be merged.

PART II

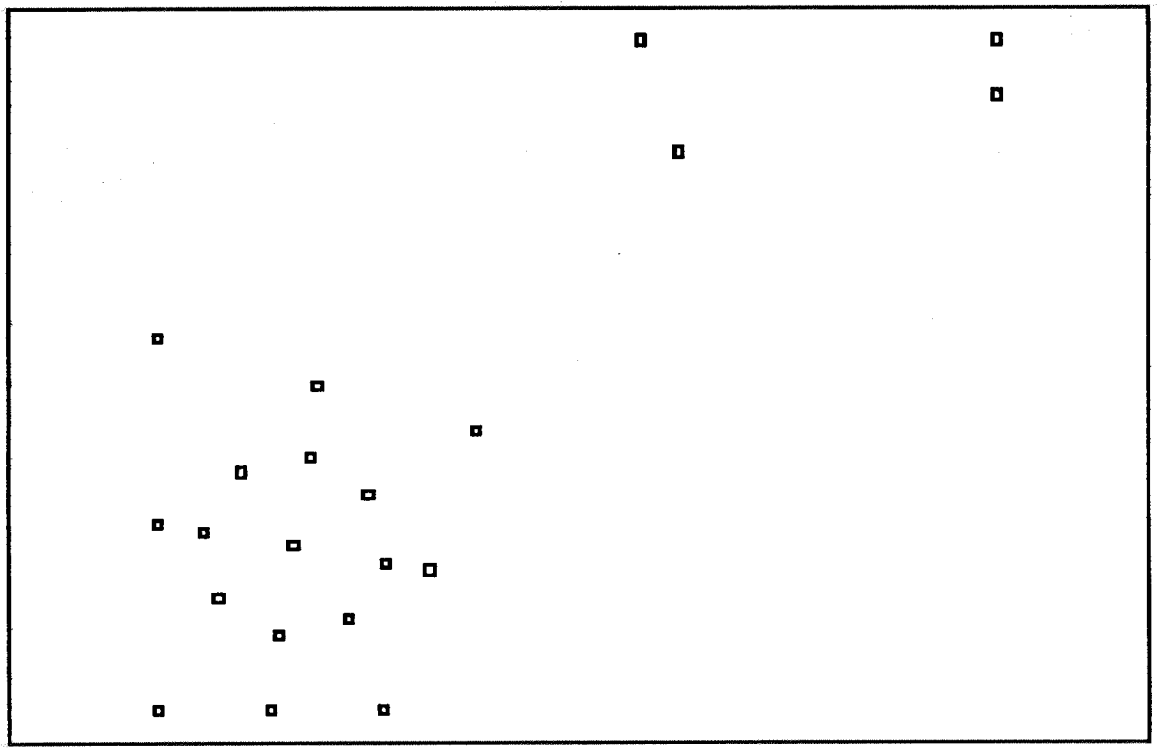
The sample shown in the following illustrates how a model of a support frame was created from scratch, by first digitizing a few corner points.



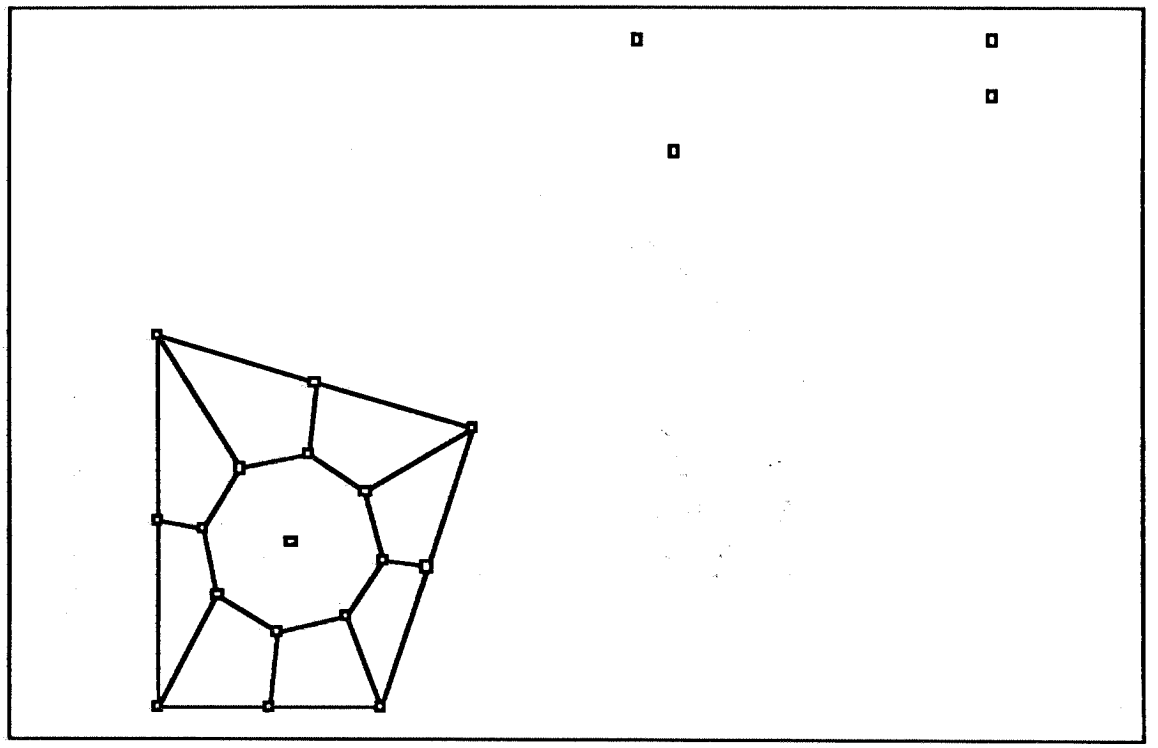
Initial Corner points created via digitizing



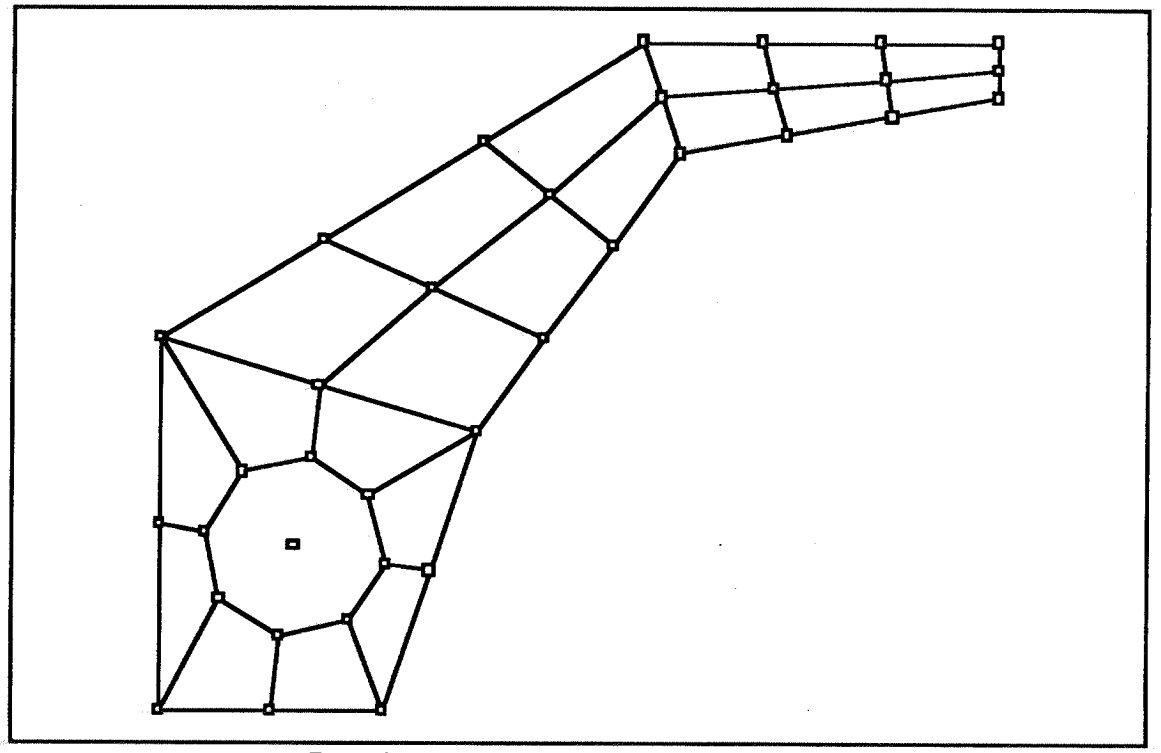
Additional points, using 'Node between two nodes'



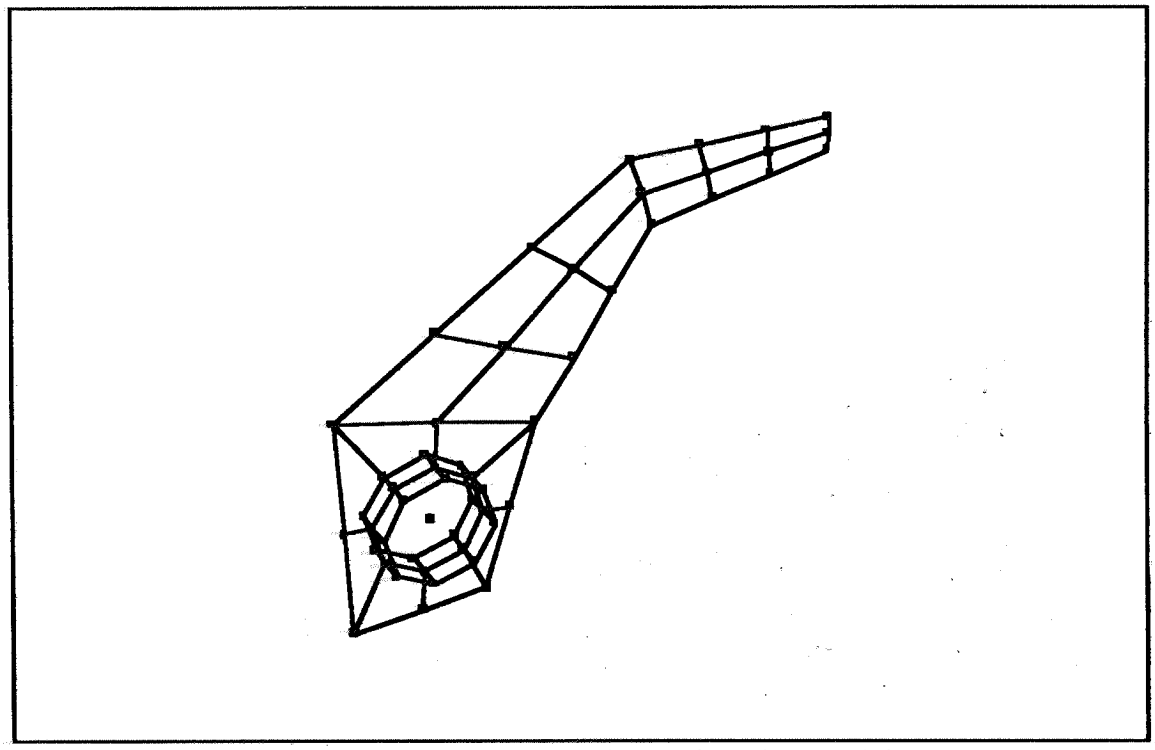
Nodes added for hole, using 'Extrude'



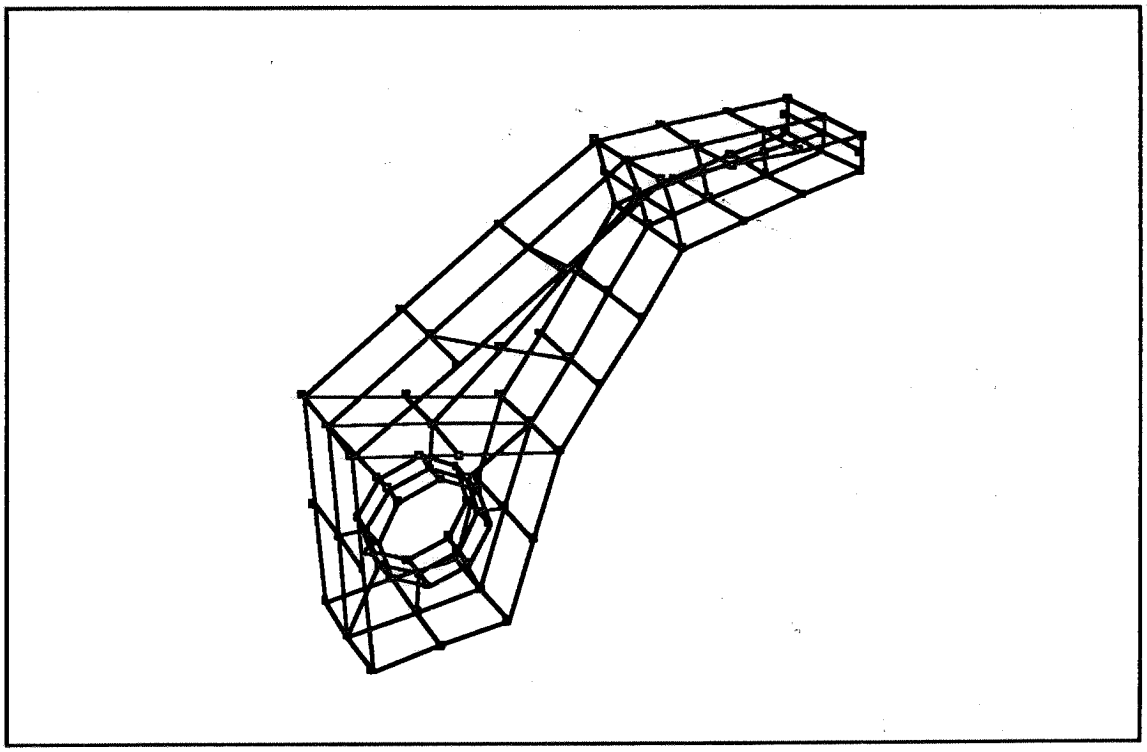
Quadrilateral elements added using 'Connect'



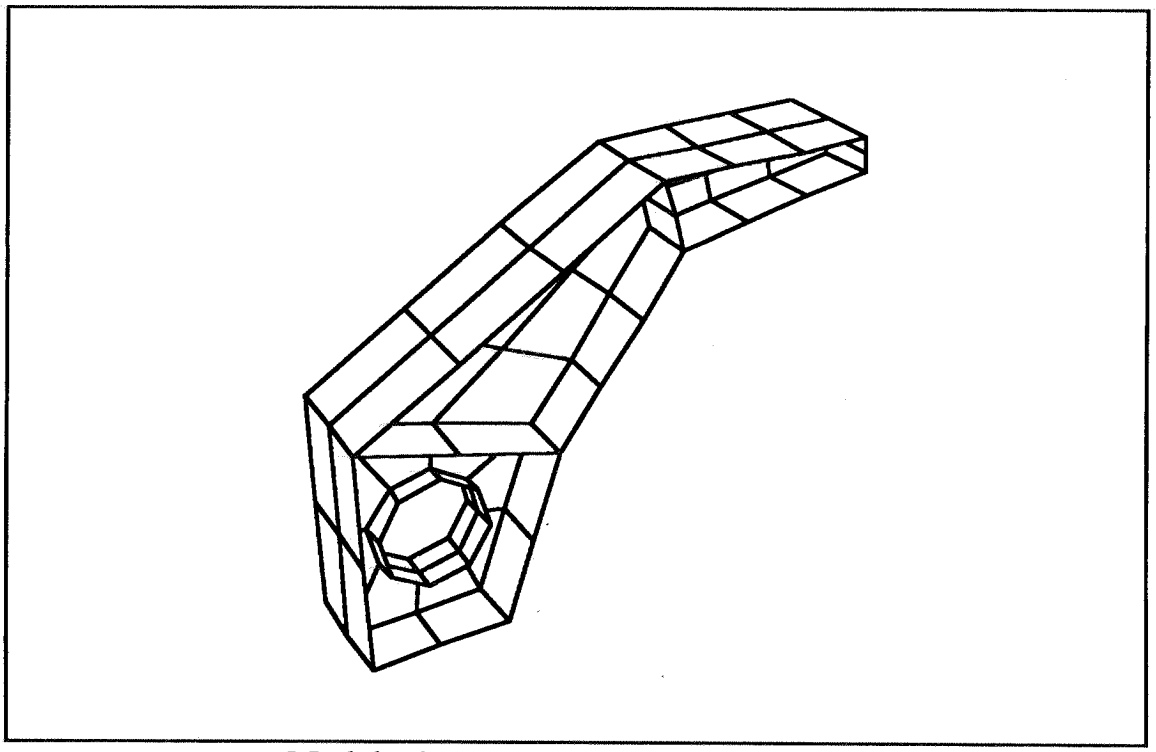
Panels created using 'Add Panel'



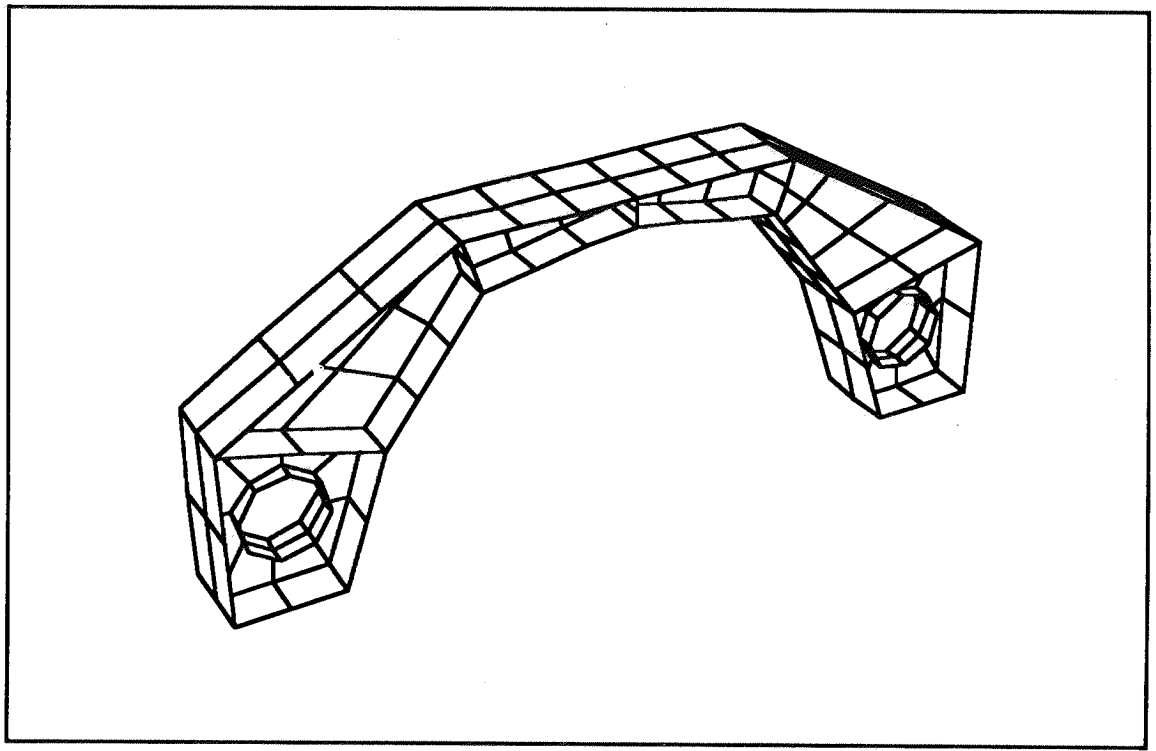
Flange added for hole, using 'Extrude'



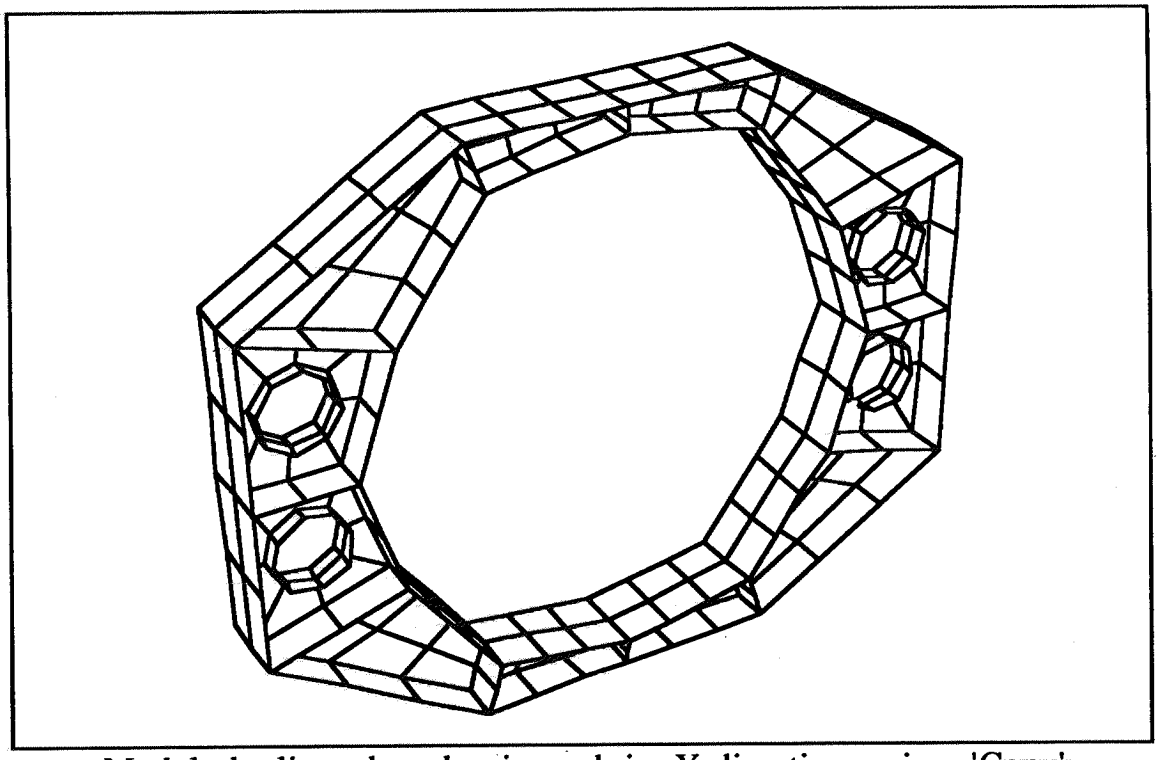
Flanges added using 'Extrude'



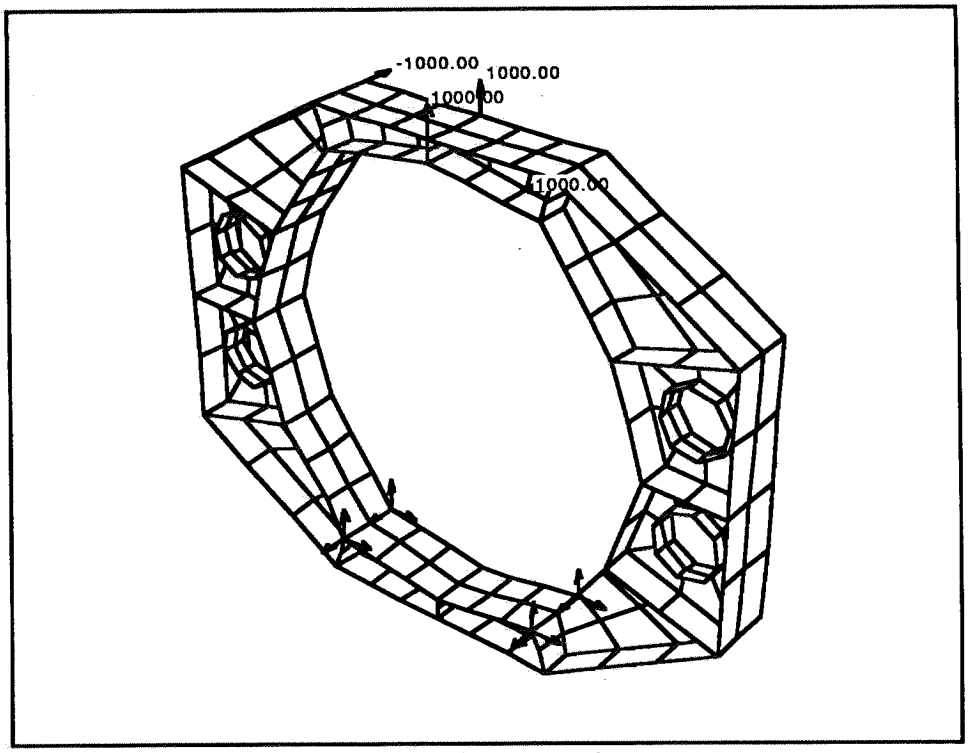
Model shown using 'Hide Elements'



Model duplicated and mirrored in X-direction using 'Copy'



Model duplicated and mirrored in Y-direction using 'Copy'



Model rotated