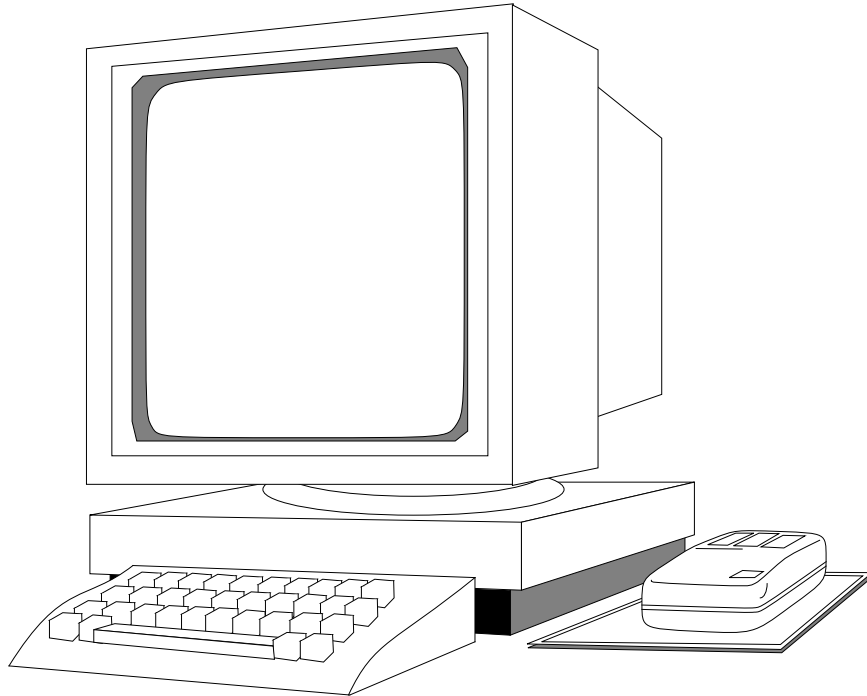

LESSON 1

Getting Started



Objectives:

In this exercise you will perform the following tasks.

- Access MSC/PATRAN and run a Session File.
- Move, resize and iconify windows and forms.
- Become familiar with Screen Picking.
- Become familiar with the on-line help utility.

Model Description:

In this exercise you will access MSC/PATRAN, create an MSC/PATRAN database, and run a prepared Session file. The Session file will create an MSC/PATRAN model that you will use throughout this exercise. Next you will practice moving, resizing and iconifying the graphic viewport and menu forms. You will also learn to use the on-line help utility.

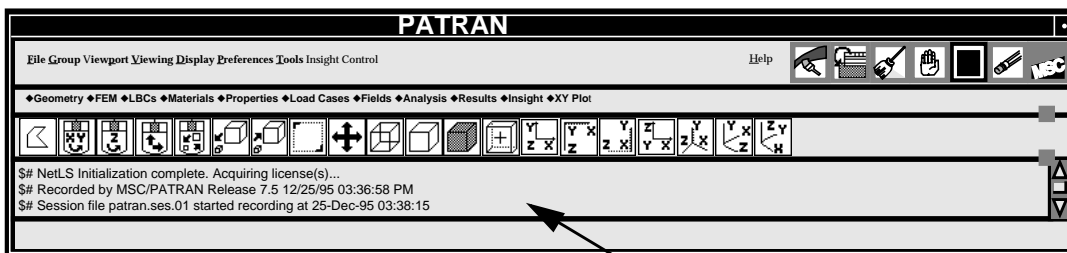
Since the emphasis of this first exercise is learning the fundamentals of MSC/PATRAN, small discussions will be interspersed throughout the lesson to describe the general format and operation of MSC/PATRAN.

Exercise Procedure:

1. In your xterm window type **p3**.

You should see various status messages being printed in the xterm window. After a short time the following MSC/PATRAN menus will appear.

The *Main Form*,



History Window

Initially all selections within the *Main Form* are ghosted except the **File** selection. Typically when an option does not pertain to the task you are performing, MSC/PATRAN ghosts that selection, to make it easier for you to choose the viable options. For example, move the mouse cursor to the **File** selection in the *Main Form* and click the left mouse button. In the pull-down menu that appears only the operations that pertain to the manipulating databases are active, since the first thing you must do when starting MSC/PATRAN is access a database.

Open a new database named **exercise_1.db**.

File/New...

New Database Name

exercise_1

Accessing
PATRAN

OK

In a short time you should see your graphics viewport open.

The *New Model Preferences* form will also appear when a new database is opened. The Tolerance section of the form allows you to select how MSC/PATRAN will decide when two points are coincident.

The *Tolerance* selection, **Based on Model**, calculates the tolerance as 0.05% of the input *Approximate Maximum Model Dimension*. The Tolerance selection, **Default**, uses the default 0.005 global model tolerance. Select the **Default Tolerance**. The form also allows you to select the *Analysis Code* and *Analysis Type* preferences which affect the formatting of various forms throughout your modeling session. Do not change the default **MSC/NASTRAN** and **Structural** settings.

New Model Preference

Tolerance

◆ **Default**

Analysis Code:

MSC/NASTRAN

Analysis Type

Structural

OK

You are now going to play a session file which contains MSC/PATRAN commands. The commands will create the model that will be used in this exercise.

File/Session/Play...

Notice the *Filter* databox.

Filter

/*.ses*

It contains **/*.ses***. Only file names containing that string will appear in the *Session File List*. The ‘*’s are wild-cards and represent any combination of characters.

Change the filter to make it more specific. Change **/*.ses*** to **ex*.ses*** by positioning the mouse cursor after the last forward slash, clicking the left mouse button, and typing the change.

Filter

/ex*.ses*

Filter

Playing a Session File

Changing the Filter

Now all the files in your directory that start with 'ex' and contain '.ses' are available in the *Session File List* selection box.

Session File List

exercise_1.ses

Apply

To set up the display turn on the display lines and entity labels by selecting these two icons from the tool bar

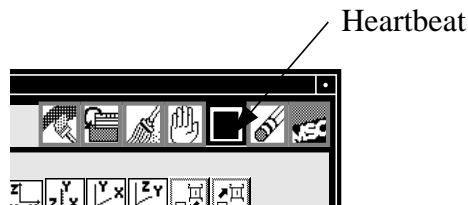


Note: Display lines are used only to help visualize the geometry and the labels are the ID numbers of the geometry. They are placed at the entities centroid.

A *Session File* is a recording of all the commands used during one modeling session. There is actually a *Session File* recording your MSC/PATRAN commands right now.

When you play a *Session File*, you play, or re-enter, all the commands that are stored in the *Session File*. The MSC/PATRAN commands appear in the *History Window* as they are read from the file.

While the *Session File* is running let's discuss the system icons at the top on the *Main Form*. Notice the MSC/PATRAN *Heartbeat* icon.

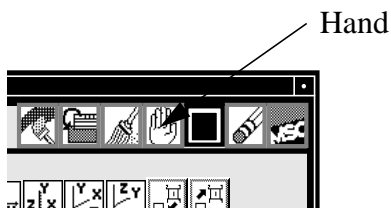


**The PATRAN
Heartbeat**

The heartbeat changes colors to inform the user of MSC/PATRAN's status.

If the heartbeat is **green**, MSC/PATRAN is waiting for you to enter a command.

If the heartbeat is **blue**, MSC/PATRAN is busy with an operation, but it can be interrupted by clicking on the MSC/PATRAN *Hand*. The operation of the *Hand* is similar to “control” C (interrupt task).



If the heartbeat is **red**, MSC/PATRAN is busy with an operation and cannot be interrupted. Typing or mouse selections at this time will be ignored.

There are four more buttons in the upper right hand corner *Main Form*.



The paint brush is the **Refresh Graphics** button which repaints the model. After you delete something from the window, or pull menus over the window, the model might need repainting. If it does, press the **Refresh** icon.



The pencil eraser is the **Undo** button and can be used to undo most commands. Only the previous operation can be undone by the Undo button.

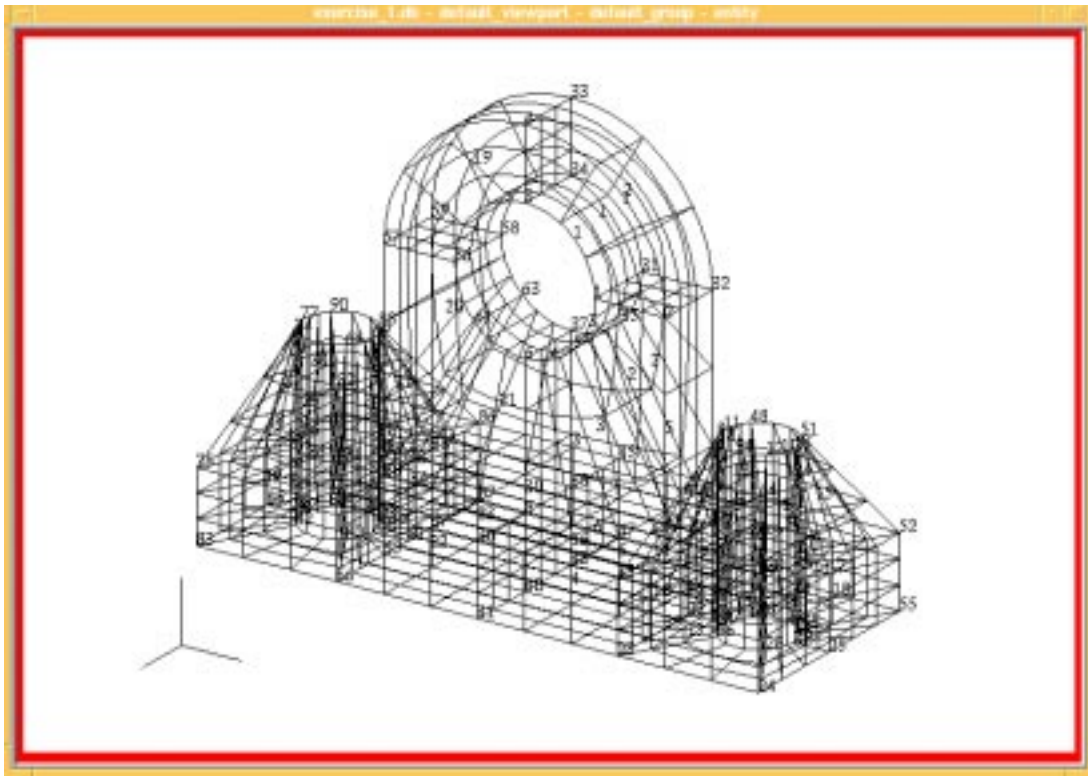


The push broom is the **Reset Graphics** button which removes all fringe and marker plots, all automatic titles, highlighting and deformed shape plots. The viewport will be repainted in wireframe mode. This button works on all posted viewports in Entity Mode but only on the groups posted in the current viewport in Group mode. Repaint button resets your graphics to the default.



When multiple windows are on display, to bring the MSC/PATRAN main display to the top, the **Push Window** icon is used.

The model should now be created and look like the one shown below.



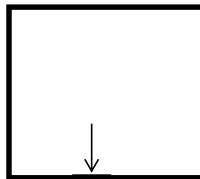
2. You are now going to practice moving, resizing, and iconifying the graphics viewport and MSC/PATRAN forms.

First, place the mouse cursor in the graphics viewport's title bar, hold down the left mouse button, and drag the window down the screen.

An outline of the window will appear as you move the mouse.

Release the mouse button and the window will be rerendered in the new location.

3. To resize the viewport vertically place the cursor over the border at the bottom of the viewport. The pointer will then change to a vertical arrow.

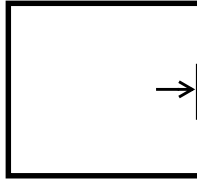


Hold down the left mouse button and drag the pointer down. An outline of the viewport will be displayed as you move the mouse.

**Moving,
resizing and
iconifying**

Release the mouse button and the viewport will be rerendered.

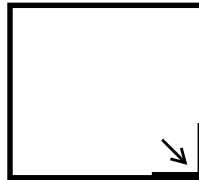
4. To resize the viewport horizontally place the cursor over the border at the right of the viewport. The pointer will change to a horizontal arrow. Hold down the left mouse button and drag the pointer to the right.



As you move the mouse an outline will appear as the view is updated.

Release the mouse button to rerender the viewport.

5. To resize the height and width of the viewport simultaneously place the mouse cursor on the lower right corner of the viewport border. The cursor changes to the arrow shown below.



Hold the left mouse button down and drag the pointer down and to the right. Release the button to rerender the window.

6. Click on the **Iconify button** in the upper right corner of the *Main Form*.



The window will close and an icon will appear.



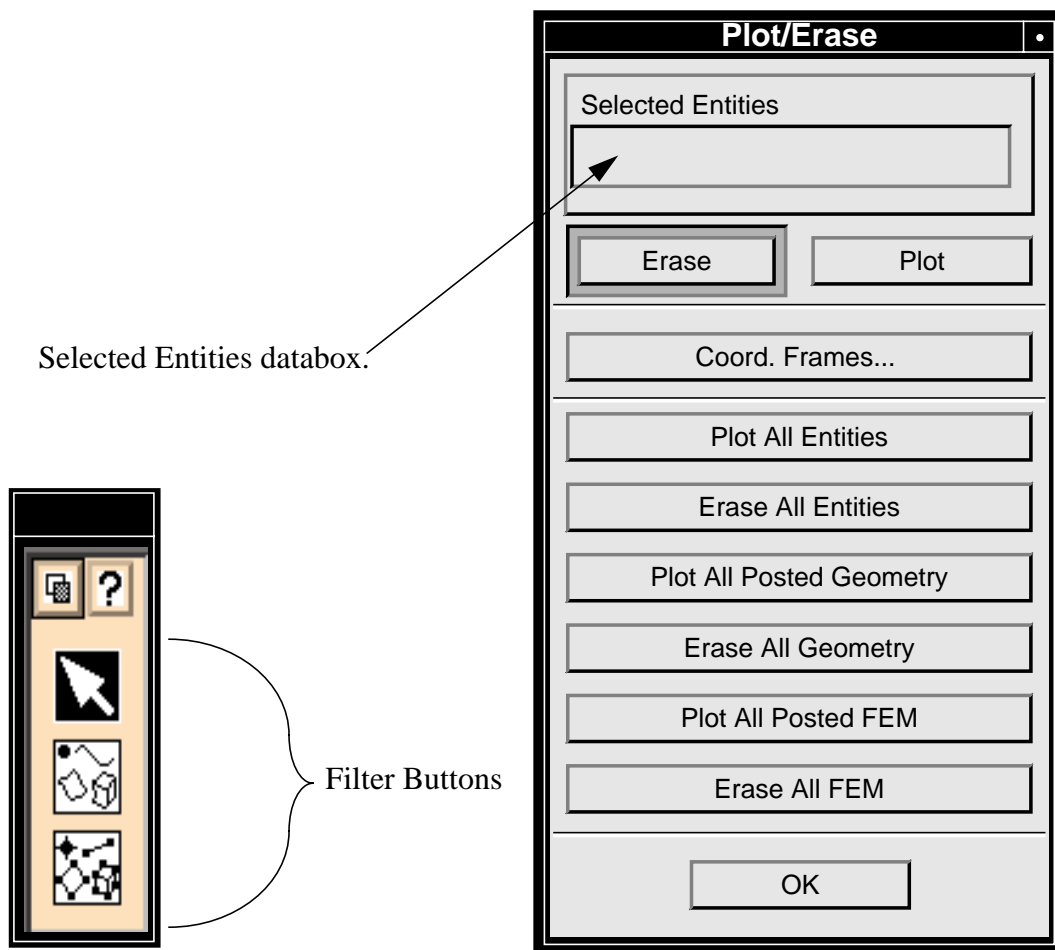
Iconifying Windows

Double click on the icon and the window will reopen.

- You will now practice erasing, not deleting, parts of your MSC/PATRAN model. The purpose of this step is to use the on-line help system to obtain information pertaining to a MSC/PATRAN function that you have not previously used.

Display/Plot/Erase...

You should now see the following two forms.



To obtain help on the use of the *Plot/Erase* form place the mouse cursor in the form and type the **F1**-key (**Help**-key at some sites). Read the help page for the *Plot/Erase* form to familiarize yourself with the function of each box and button on the form. Next, do the same for the *Select Menu*. By reading the first few help pages pertaining to both forms you now know that the *Select Menu* allows you to filter the

entity types you can pick with the mouse, and that there are several selection methods that allow you to singly or multiply select the entity types from your model. You are now going to try a subset of the selection methods. Click on **Done** in the *Help Pages* to remove them from the screen. By pointing to individual icons in the *Select Menu*, keywords will display explaining the function of the icon.

There are three methods that can be used to select multiple MSC/PATRAN entities. They are the shift-click, click-drag, and polygon-pick.

Make sure you understand the picking settings before you do the following steps.

Preferences/Picking...

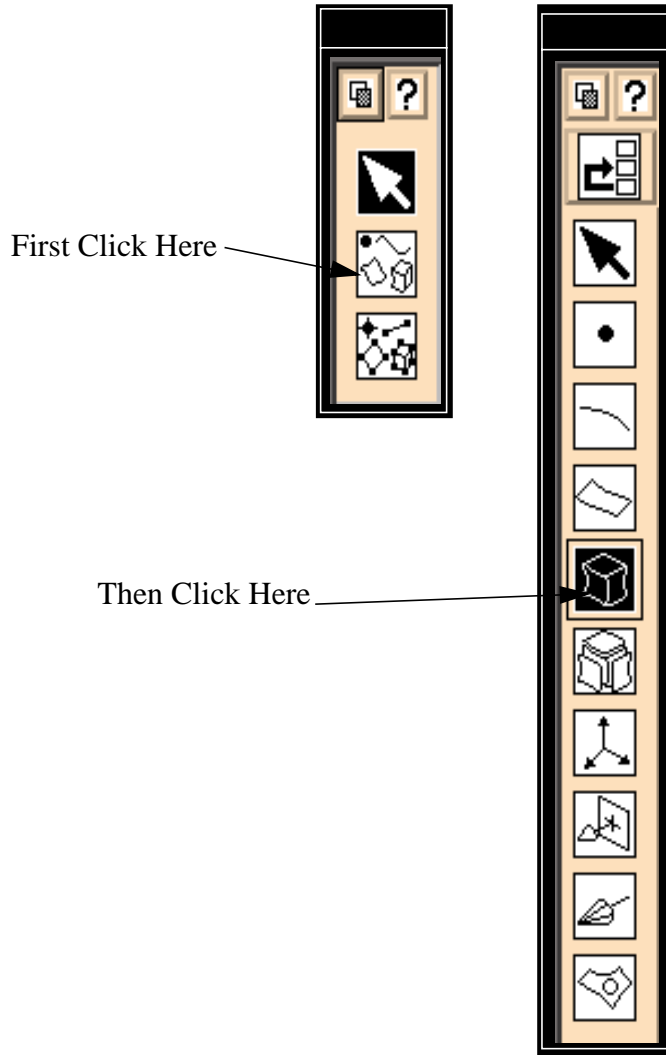
Rectangle/Polygon Picking

◆ **Enclose Centroid**

Close

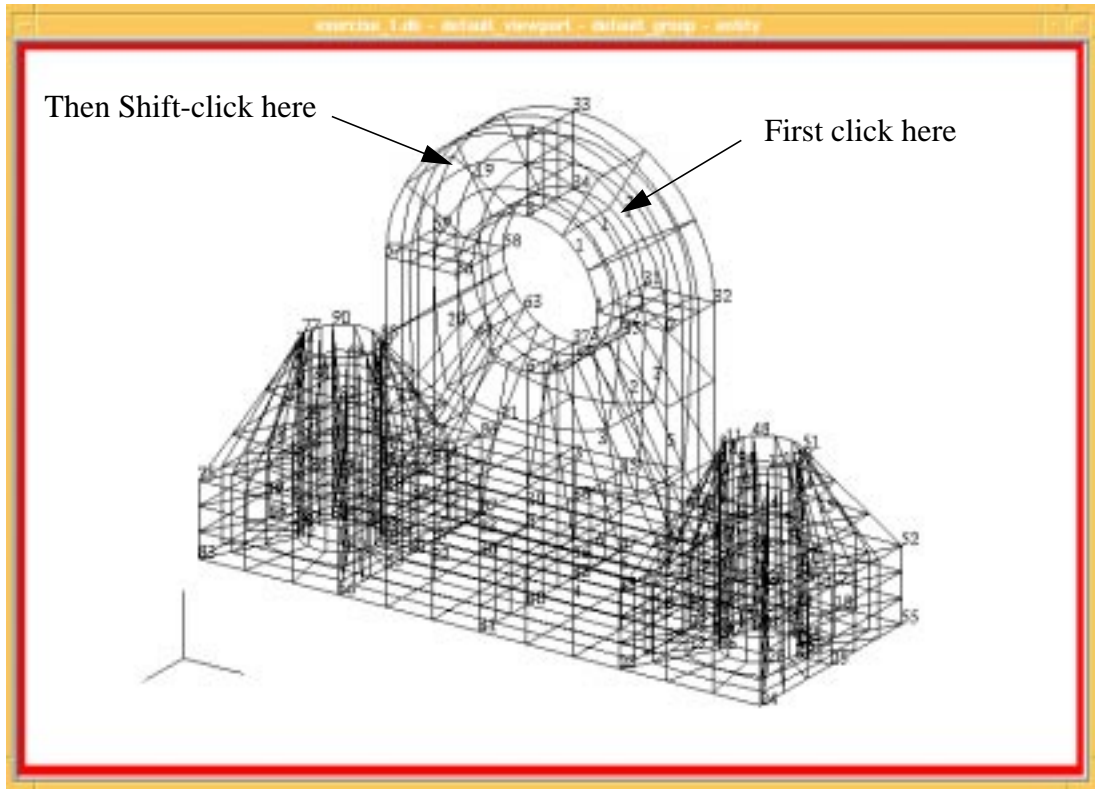
Move the mouse cursor inside the *Selected Entities* box in the *Plot/ Erase* form and click the left mouse button. To make the selection process easier, click on the **Geometric Entity** icon in the *Select*

Menu. The *Select Menu* will reformat showing specific geometric entities. Click on the icon which allows selection of only the solid entities. The two filter selections are shown in the figures below.

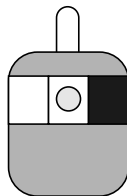


Holding the Shift-key down, mouse select (by clicking the left mouse button when the mouse cursor is located at the centroid of the entities) solids 1 and 19 on the top of the model. Use the figure below to help you identify the two solids. The picture below has entity labels turned

on. If you have **Label Highlighting** turned on under *Preferences/Picking*, the preselection will also display the entity labels as the mouse passes over it.



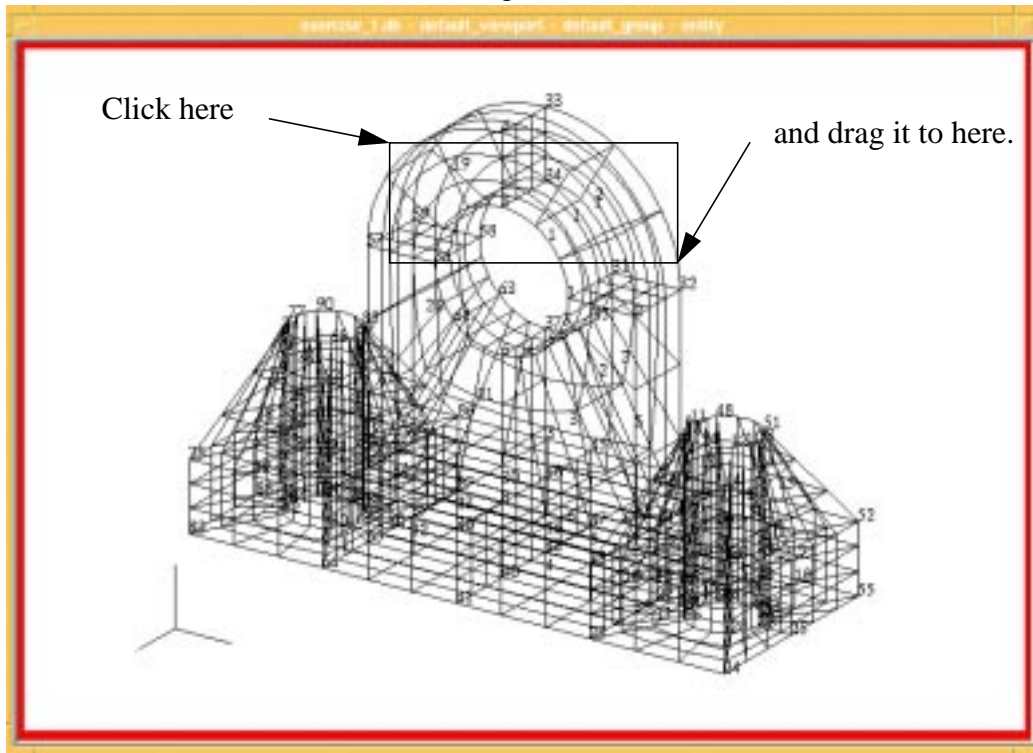
Refer to the **Picking...** option under **Preferences** to check the setting for the **Entity Picking**. For a curve, surface, or solid, you should click on their identification number which is located at their centroid. If you accidentally select the wrong solid, you can deselect it by moving the mouse cursor to the center of that solid and clicking the right mouse button (unshifted) as shown below.



To erase selected entities click on the **Erase** button, and to replot them click on the **Plot** button.

Another way to select the entities is to use a mouse defined rectangle to enclose the entities you wish to identify. To perform this method of selection (click-drag method) first position the mouse cursor at one of the corners of the rectangle you wish to create. Hold down the left

mouse button and drag the mouse cursor to the rectangle's opposite diagonal corner. Make sure that the *Rectangle/Polygon* picking is set to **Enclosed Centroid**. The figure below shows that the rectangle must include the labels of the entities that you wish to select. Remember to use the *Select Menu* filter for solid entities or else you will select all entities within the rectangle.

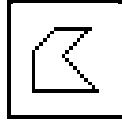


Before you erase the solids try editing the contents of the *Selected Entities* databox in the *Plot/Erase* form.

If you want to change only a few characters in the listbox place the mouse cursor to the right of the character, double-click the left mouse button, delete the character, and then type in your modification. To erase the total contents of the databox first triple click in the box to highlight all the text and then type in the new entity names. Try both of these editing techniques. Before you try the next selection method, click on the **Plot All Entities** button to replot the total model.

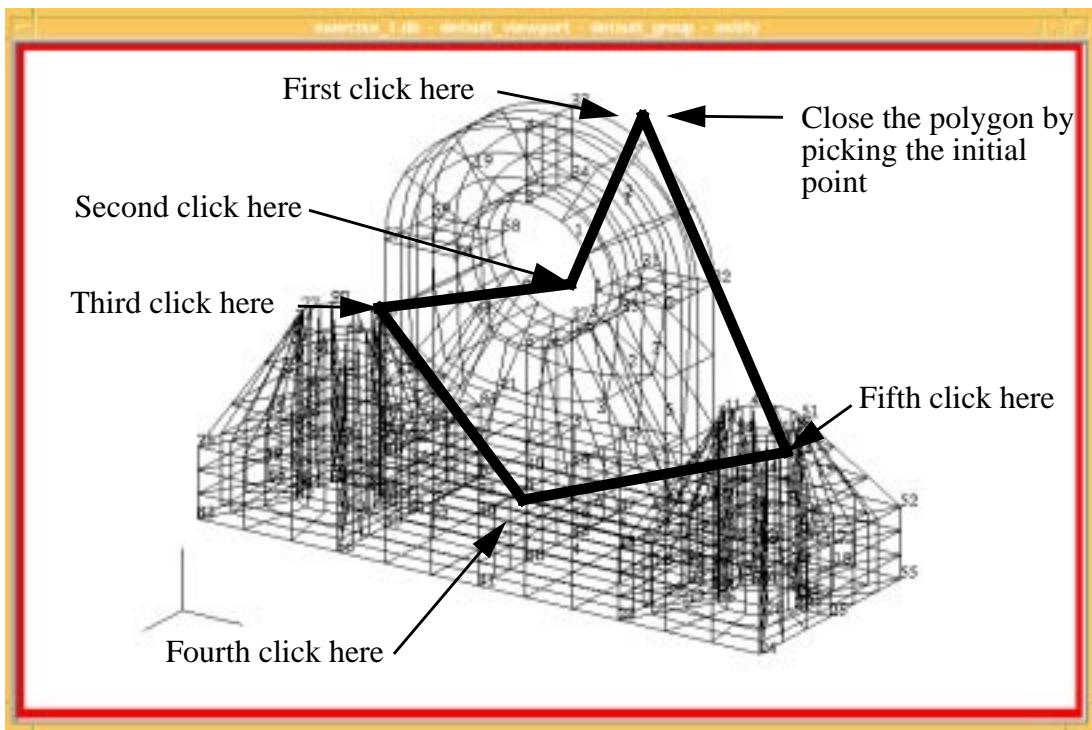
The final selection technique that you will try is the polygon-pick method. This method is used when the entities that you wish to select cannot be selected by a rectangle. Use this method to erase Solids 1,

2, 3, 20, and 21. The figure below shows a sample polygon pick surrounding these solids. To use polygon picking, click on the **polygon** icon in the toolbar.



Then with the left mouse button screen select the vertices of the polygon. Double click the left mouse button to close the polygon

To close the *Plot/Erase* form press the **OK** button



8. The final step of this exercise is to stop MSC/PATRAN.

**Exit
MSC/PATRAN**

File/Quit

Your file is automatically saved for you in PATRAN

You should now be back in your X-window environment. Type **ls** to list your directory. Your directory should now contain the following files:

- exercise1.db The database you just created.
- exercise1.db_m Marker file (if nfs access is on).

- patran.ses.01 MSCPATRAN session file that contains the MSC/PATRAN commands you performed in this modeling session. There is an individual session file per modeling session.

- exercise_1.db.jou Similar to the session file this journal file contains all the MSC/PATRAN commands you performed in all modeling sessions for a specific database.

