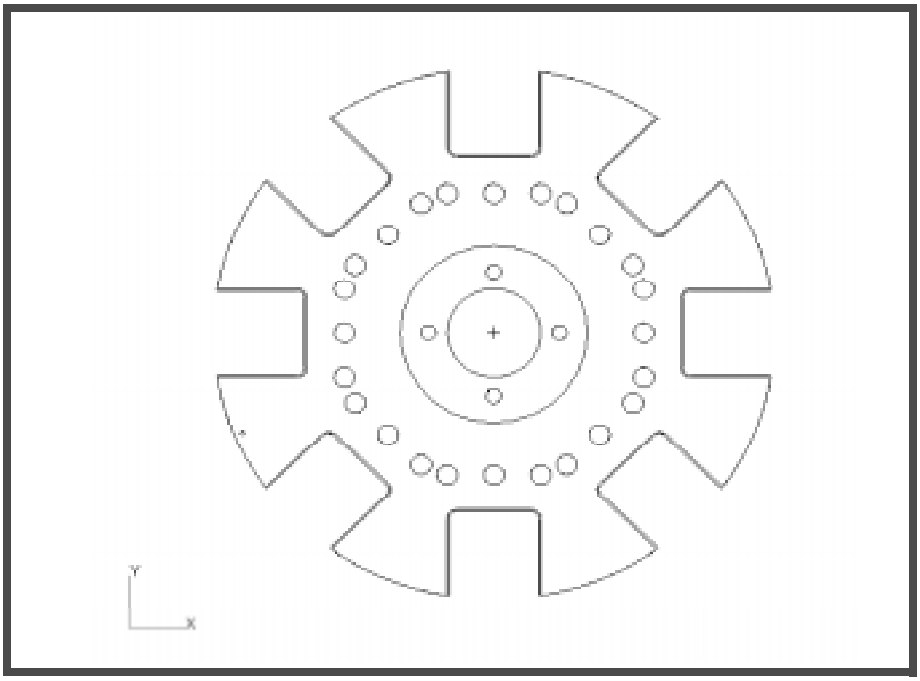
Lesson 7a

Modifying Unigraphics Parameters and Features



Objectives:

- Demonstrate how to suppress/unsuppress features
- Demonstrate how to change parameters of features
- Demonstrate the effects of changing parameters of features used in arrays
- Demonstrate changing the number of instances in an array

Exercise Procedure:

1. Create a new database called **test2.db**.

File/New...

New Database Name: **test2**

OK

In the ***New Model Preference*** form set the following:

Tolerance: ◆ **Default**

OK

2. Import the Unigraphics part file.

File/Import...

Object: **Model**

Source: **Unigraphics**

Unigraphics File: **gear.prt**

Apply

A warning message similar to the following should appear:

> Importing Unigraphics Features will require that the Unigraphics part file be modified to reflect the changes made in PATRAN. Therefore a copy of the part is made to /tmp/hofmann/test1_ug_copy/gear.prt_msc_test1 prior to import. Please do not remove or modify this copy in any way, as subsequent model updates are dependent on the undisturbed copy. This copy will not work with any other PATRAN databases.

Basically, MSC/PATRAN will make a copy of the part file located in a subdirectory titled [database_name]_ug_copy. MSC/PATRAN must be able to access this part file to modify features. If the part file is not in the same location, the user will be prompted for the new location.

Click OK to clear the warning.

OK

The Unigraphics Import summary should appear next. Clear this summary .

OK

3. Remove the small hole in lower left region of model.

◆ **Geometry**

Action: **Edit**

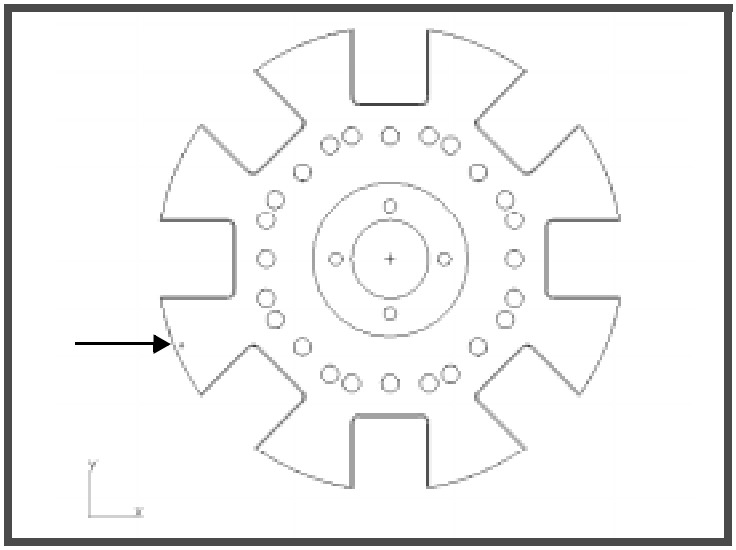
Object: **Feature**

Method: **Suppress**

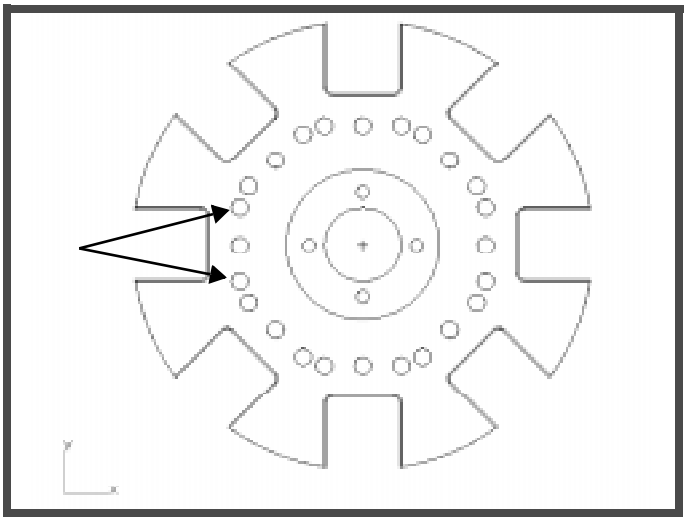
Geometric Entity List: *select hole in lower left*

(both features connected to this hole will be highlighted in the Feature List)

Apply



Next, get rid of some of the holes in the model. Notice that for each notch there is a corresponding set of 3 holes. We want to eliminate all but the ones at the middle of the notch.



Geometric Entity List: *select both the top and bottom holes in the set associated to the left notch, using shift-picking*

Apply

You should now see only 8 holes, corresponding to the 8 notches.

4. Change the hole pattern inside the counter bore to 5 instead of 4.

Action: **Edit**

Object: **Feature**

Method: **Parameters**

Feature List: *select* **CIRCULAR_ARRAY(4)**

The Feature Parameters form should now pop up on the screen, listing some parameters of the selected feature.

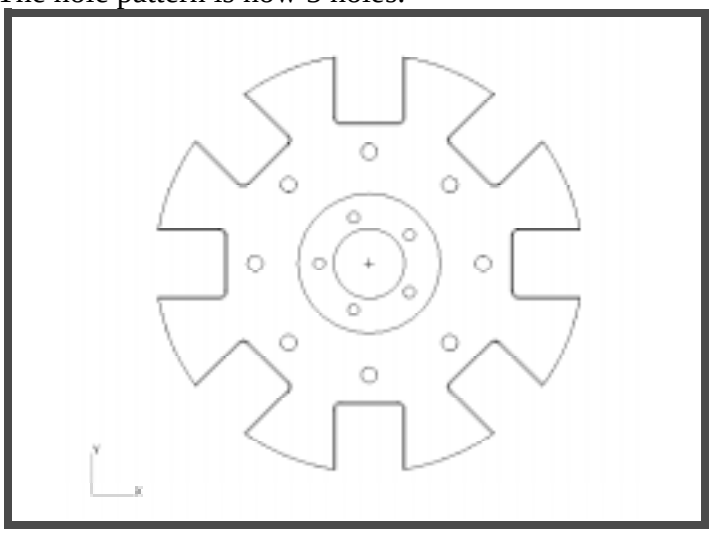
Click in the cell corresponding to **Number / Definition.**

Input Parameter Definition: **5** *be sure to hit* **Enter**

OK

Apply

The hole pattern is now 5 holes.



5. Change the size and radial position of the holes lined up with the notches.

Feature List: *select* **SIMPLE_HOLE(8)**

The Feature Parameters form should now pop up on the screen, listing some parameters of the selected feature.

Click in the cell corresponding to **Diameter / Definition.**

Input Parameter Definition: **18** *be sure to hit* **Enter**

OK

Feature List: *select* **INSTANCE[0](8)/ SIMPLE_HOLE(8)**

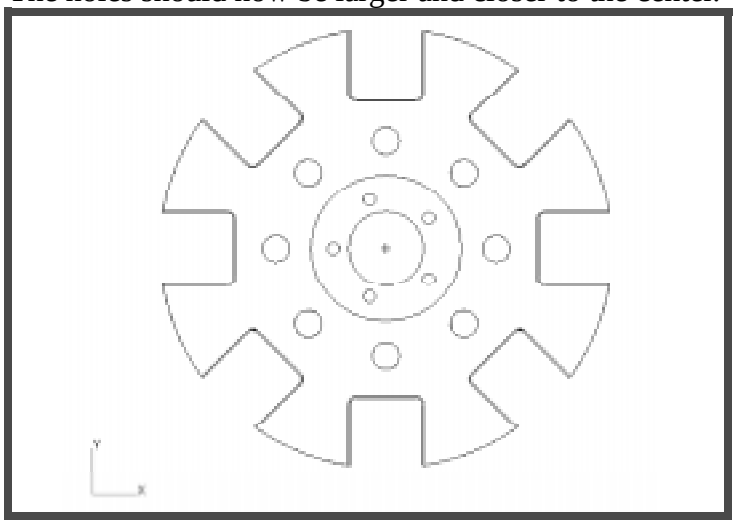
Click in the cell corresponding to
Positioning Dimension Perpendicular Distance / Definition.

Input Parameter Definition: **27** *be sure to hit* **Enter**

OK

Apply

The holes should now be larger and closer to the center.



6. Change the number of holes.

Feature List: *select* **CIRCULAR_ARRAY(11)**

Click in the cell corresponding to **Number / Definition.**

In the cell **Number/Definition** it doesn't contain a number. Instead, it contains the word **FixPosNr**.

Feature List: *select* **CIRCULAR_ARRAY(7)**

Look at the row **Number**. Notice that the '**Name**' is the same word referenced by the number of holes. This means that the number of holes corresponds to the number of notches. Let's see this in action:

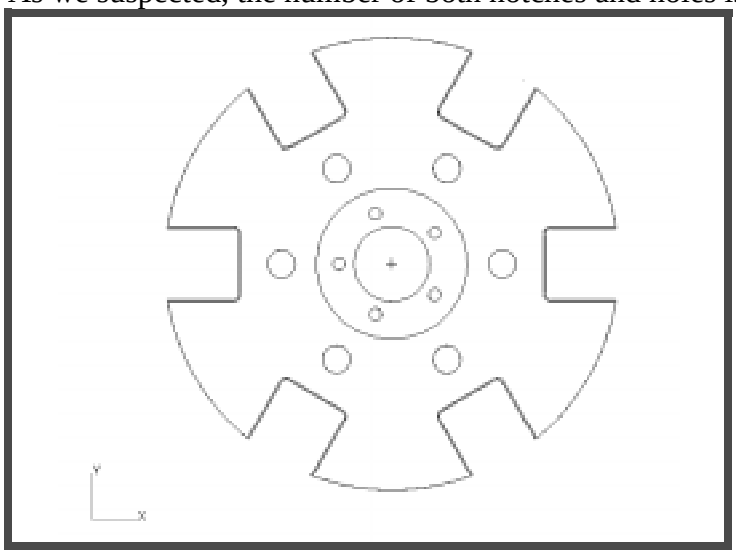
Click in the cell corresponding to **Number / Definition.**

Input Parameter Definition: **6** *be sure to hit* **Enter**

OK

Apply

As we suspected, the number of both notches and holes is now 6.



7. Change the number of notches/holes back to 8 again.

Feature List: *select* **CIRCULAR_ARRAY(7)**

Click in the cell corresponding to **Number / Definition.**

Input Parameter Definition: **8** *be sure to hit* **Enter**

OK

Apply

(Warning:) "The Unigraphics model was unable to be updated with the feature suppression states and parameter values in this database. All feature suppression states and parameter changes made since the last successful regeneration will be cleared."

We are currently unable to reset the number of notches back to 8. The warning suggests something about the current feature suppression states. This error message occurs because Unigraphics was unable to perform this operation. When attempting this step from the Unigraphics user interface, UG will return a message "Error updating Feature."

Clear the warning.

OK

Here's food for thought: The number of notches influences the number of centered holes. The positions of these centered holes in turn influence the positions of the other adjacent holes (remember that they came in sets of 3). Perhaps it might be helpful to unsuppress these adjacent holes.

Unsuppress adjacent holes.

Action:	**Edit**
Object:	**Feature**
Method:	**Unsuppress**
Feature List:	*select all but the last two (with the 16)*

Apply

Let's try one last time to increase the number of notches again.

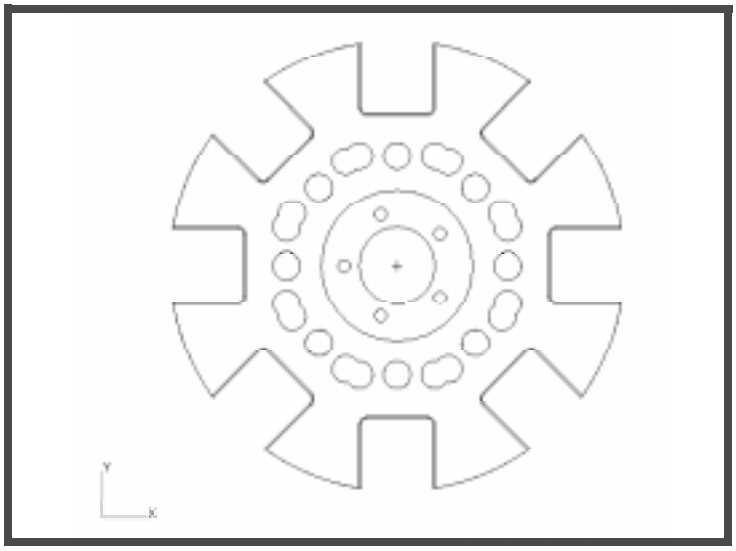
Action:	**Edit**
Object:	**Feature**
Method:	**Parameters**
Feature List:	*select* **CIRCULAR_ARRAY(7)**

Click in the cell corresponding to **Number / Definition.**

Input Parameter Definition: **8** *be sure to hit* **Enter**

OK

Apply



Notice that the procedure now works. Why is this? When you reduce the number of instances in a radial array, there is more of the ‘base entity’ present. If you increase the number of instances, you stand the risk of them intersecting with one another (as you can see in this example). Once you have all affected instances unsuppressed, the procedure works. This is why changing the inner hole pattern from 4 to 5 worked; all affected instances were unsuppressed.

Quit MSC/PATRAN when you have completed this exercise.