

## Basic Alignments

### Introduction:

1. I'm going to assume you know how to do a basic 3-2-1 Alignment and just point out that any feature and any quantity of features can be used to Align a job.
2. Pay close attention to which points are used to define a part, make sure each points has the right vectors to define each axis.
3. If the points used are to close together in either distance or vectors the alignment may not take.

### Troubleshooting

- **While editing alignments in the main window PCDMIS will not recognize some changes done to the alignment.**

### Solution:

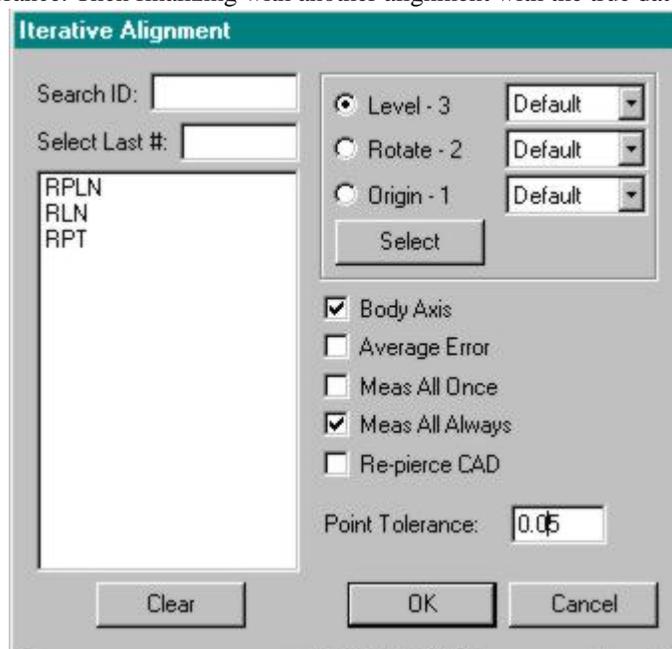
1. Change Alignment values in Alignment Utilities edit window, or re-enter alignment completely.
2. Click the cursor above the alignment and then below the alignment to apply changes.

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## Iterative

### Introduction:

1. With Iterative Alignments you will find either they work or they don't. This is good because it is extremely hard to get a bad alignment. When an Iterative Alignment runs through, you can rest assured it is good, providing your Nominals and Vectors are correct.
2. Like any alignment make sure you use points that will best define the part. Most datum structures will work fine. However sometimes a part could be better defined with other features used for the datum structure.
3. If the datum structure of the part is to close in either nominals or vectors the alignment may not take. A pre-alignment or rough alignment may be required using different features on the part, and may need a high point tolerance. Then finalizing with another alignment with the true datum structure.



### Troubleshooting

- **Alignment will not take or machine limit error.**

### Solution:

1. Verify all Nominal Values and Vectors are correct and running in the right direction.

2. Note points used must define the part in all three axis's.
3. All Circles / Cylinders most of the time need sample points. If sample points are not possible, then construct a Cast Point from the Circle / Cylinder, using the Cast point as part of the alignment to define that feature.
4. Slots will not be recognized by an Iterative Alignment. Construct a Cast Point from the Slot, using the Cast point as part of the alignment.
5. Points used may be too close together in either Nominal value or Vector value, causing Alignment to rotate out in the wrong direction or not run at all.
6. Click the cursor above the alignment and then below the alignment to apply changes.
  - **Alignment will take, but does not repeat.**

Solution:

1. Sometimes it may be necessary to have two Iterative alignments. One being a Rough Iterative with a high tolerance or even different points or features used. The second being your final Iterative alignment with the correct features and the lower tolerance required.
  - **Alignment runs fine, but keeps on running back through the alignment and does not stop.**

Solution:

1. Your point tolerance is too low for that particular part. You may either apply a higher tolerance and re-run the alignment. Or you may stop it after a run and your alignment should be fine.

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## **Rotations / Pattern Offsets**

Introduction:

1. Rotations are pretty straight forward, but Pattern Offsets can be tricky. Using Pattern Offsets can really cut down on programming time depending on your needs. A part that has a number of the same features can be done by programming one feature, then by using Pattern Offset to do the rest of the features.
2. Make sure while working with Rotations or Pattern Offsets to be in the right work plane to which your rotating or work in.

Troubleshooting

- **While editing alignments in EDIT Window PCDMIS may not recognize some changes done to the alignment.**

Solution:

1. Change alignment values in Alignment Utilities edit window, or re-enter alignment completely.
2. You may also edit an Alignment Rotation below a particular Feature, then copy and paste it above that particular Feature after changes are made. Then answer no to Update Commands with new alignment.
  - **Pattern Offsetting while using Alignment Rotations changes Nominal values.**

Solution:

1. Pattern Offset the Features required, then insert the required Alignment Rotations where needed. Then answer no to Update Commands with new alignment.
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