

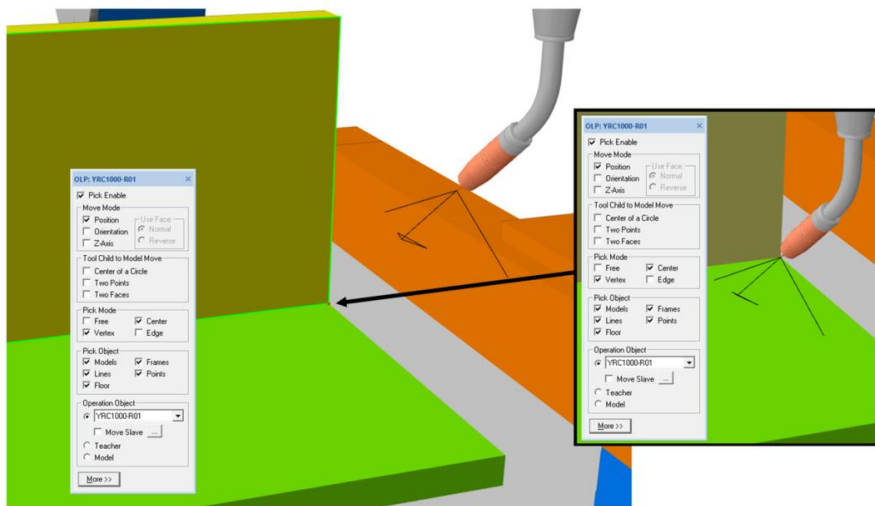
This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Program a Stitch Weld in MotoSim EG-VRC

Introduction

A big advantage of programming in MotoSim EG-VRC is using the OLP pick function. This lets you select a feature on a model and then snap the TCP to that location. Unfortunately, some models do not have any vertices or edges in the necessary location to allow OLP picking. Teaching points on a surface like this requires careful jogging to position and checking the scene from multiple angles to verify that the TCP is in the correct location. It quickly becomes tedious and results in a loss of efficiency. The example shown below is of a stitch weld on a fillet joint that needs to be **100mm** in length:

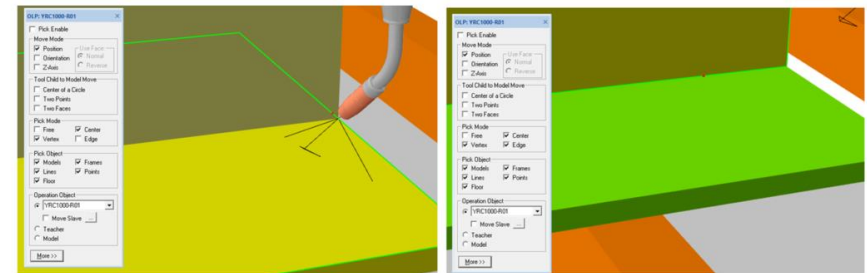
START POINT



Vertex exists - OLP pick successful

GOOD

SECOND POINT

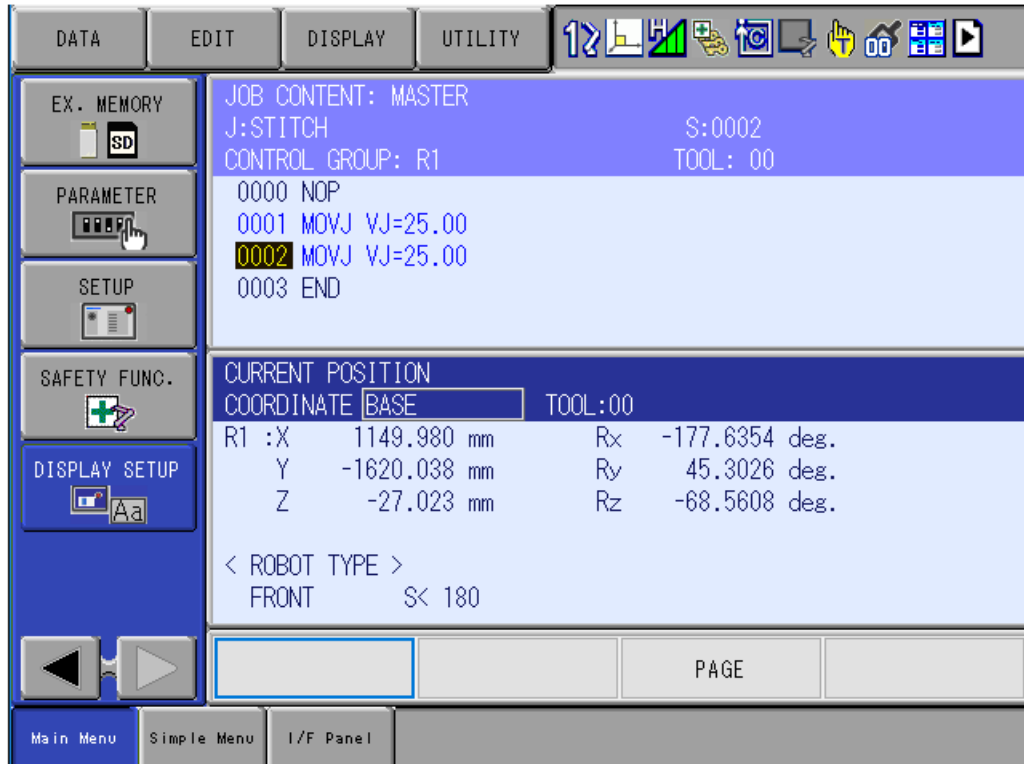


OLP pick to edge is possible, but the distance from the first point is not precise using this method

BAD

Cannot lock onto a feature for OLP pick

This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.



One solution is to view the robot current position in an XYZ data type like BASE/ROBOT/USER. As long as the weld line follows one of these orientations, then you can add/subtract the difference from point to point. This is best done with a multi-window display.

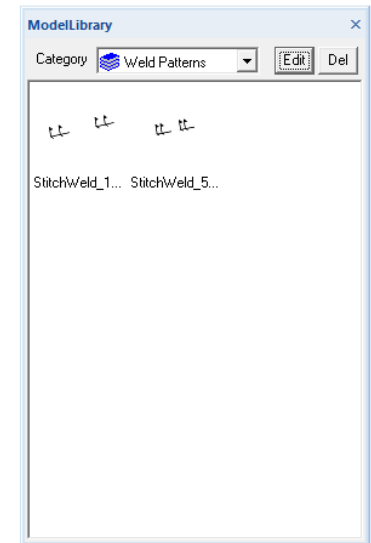
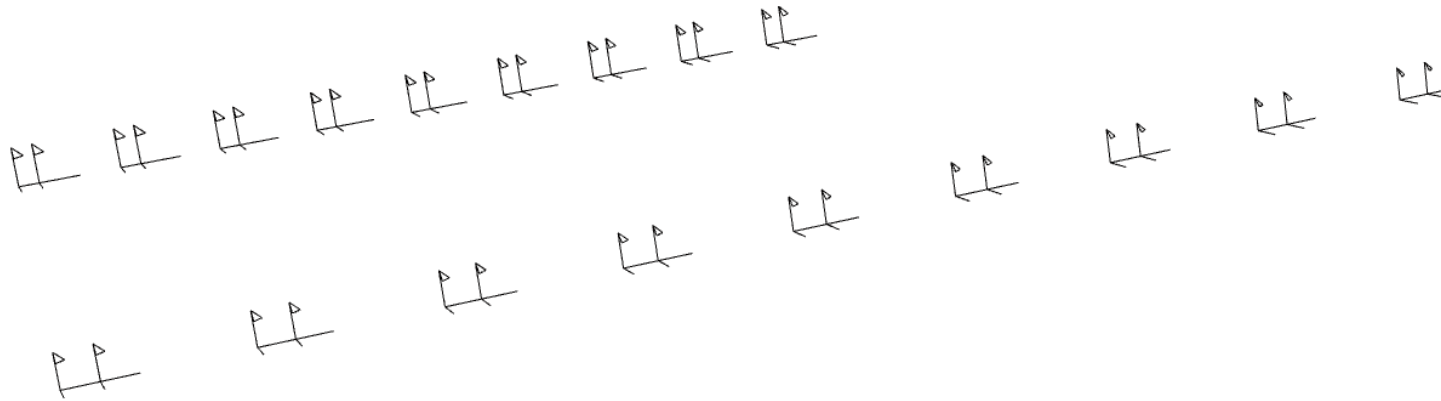
- The start point is at **X=1149.980**
- The next point should be **X=1049.980**

Programming would proceed this way until all the stitch welds are programmed. This is more tedious than it needs to be. If the part does not follow one of the XYZ orientations, then you will be adjusting all 3 elements of each point manually.

This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Stitch Pattern Model

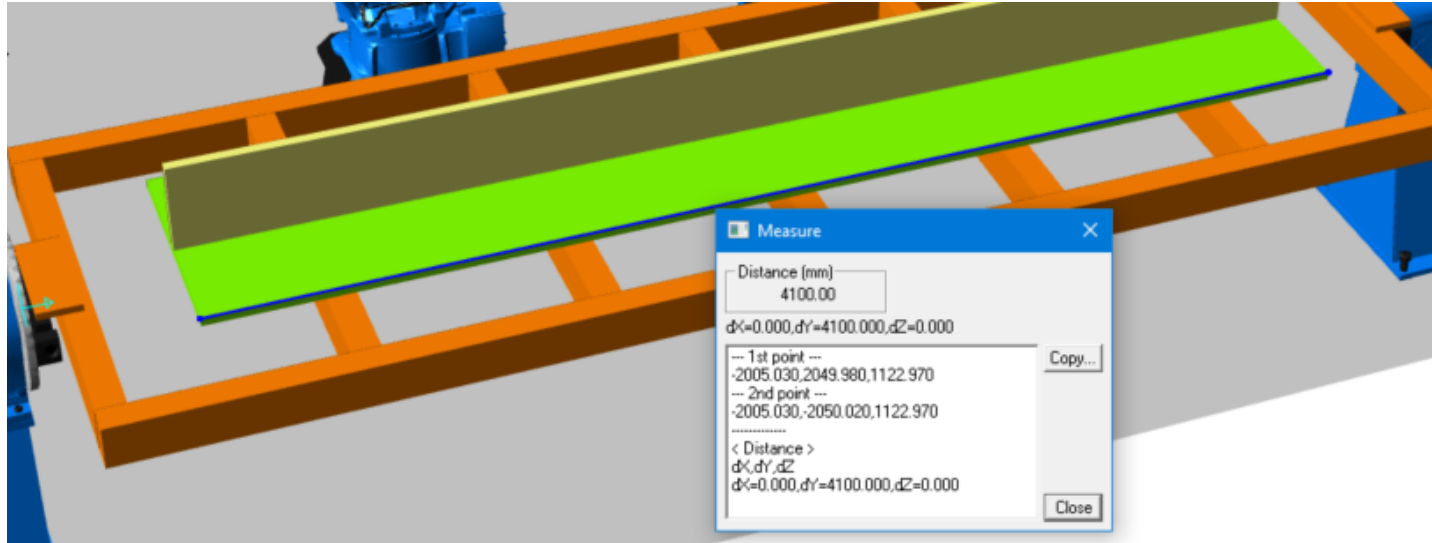
A better solution is to create a model that represents the dimensions of the stitch pattern. OLP pick can be utilized to snap to the points along the weld line. It can be created in any length and moved around to different welds as you program the part. It can also be added to the model library so it can be accessed from any sim you create.



This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Getting Ready

Use the distance tool in MotoSim EG-VRC to measure the length of the part.



This example will use a stitch pattern that has a 100mm weld followed by a 400mm space. This pattern repeats over the length of the part.

The part is 4100mm in length. This stitch pattern will start and end perfectly within the dimensions of the part.

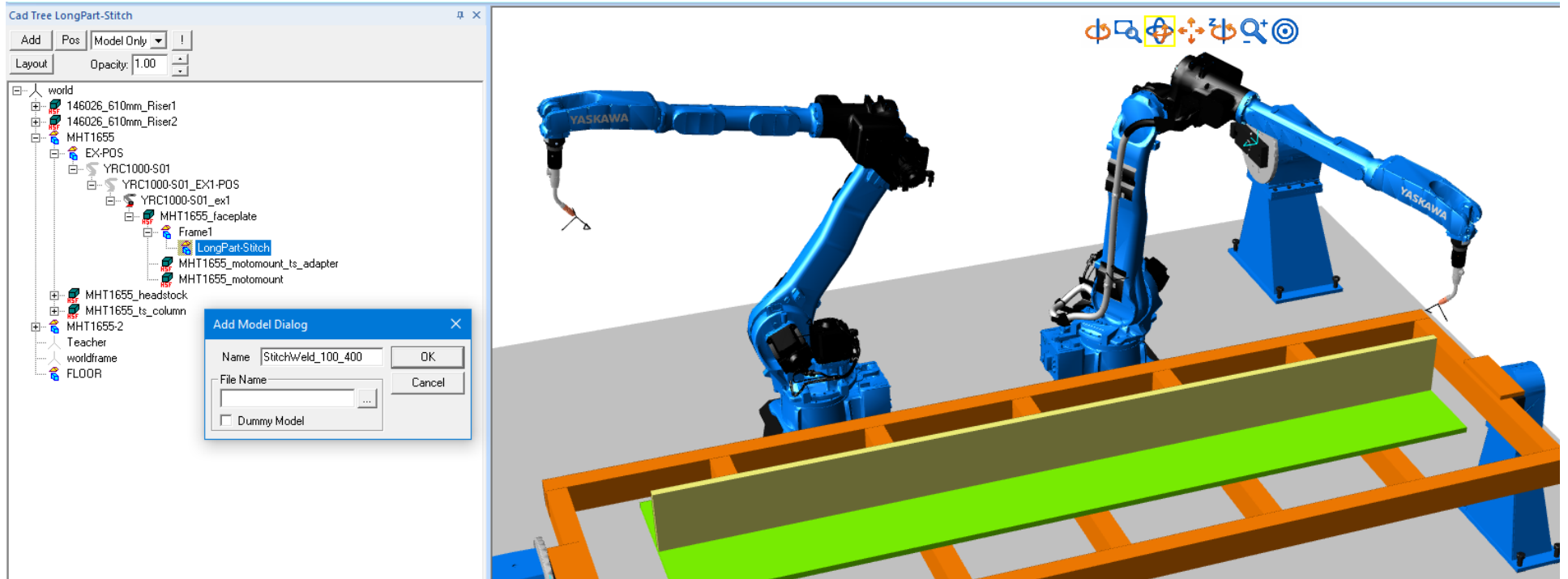
NOTE:

That is not always the case in the real world. Use the weld specifications of the project to determine what to do in that case.

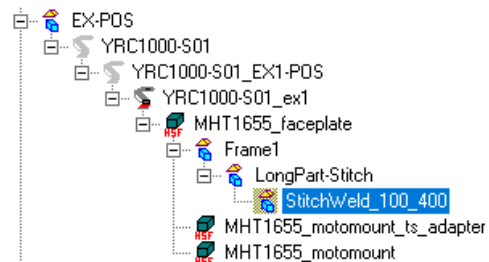
This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Create Stitch Pattern Model

- 1) Create a new model from the CAD tree. The parent is not critical at this time because the model will be moved to the weld joint later.

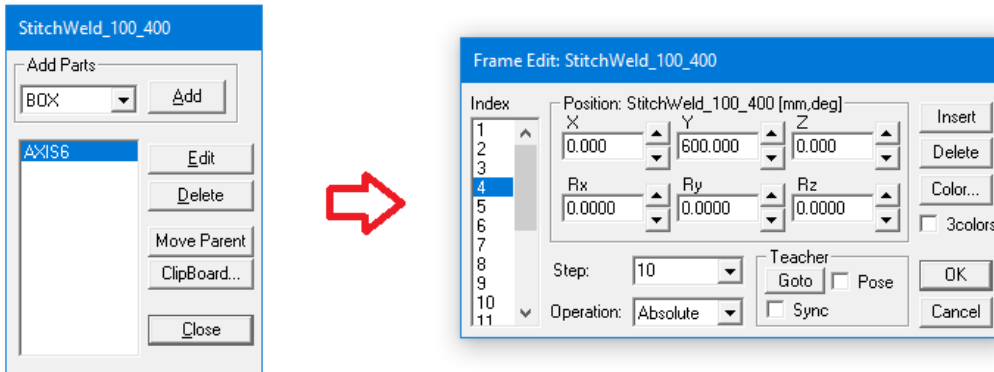


- 2) Double-Click on the new model in the CAD tree to edit.

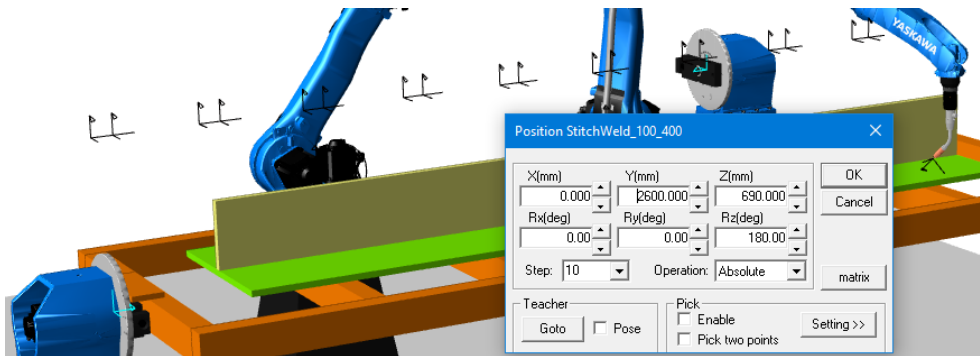


This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

- 3) From the Add Parts drop down menu, select AXIS6 and click the [ADD] button.
- 4) Now click on the AXIS6 in the window and click the [EDIT] button.

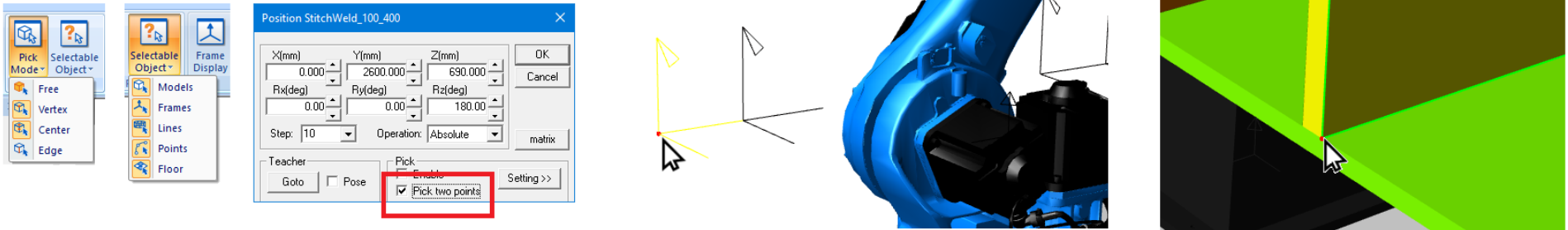


- 5) Use the [INSERT] button to add additional frames under the Index column.
- 6) Select on each number in the Index column to edit the values for each frame.
- 7) The current selected frame will be highlighted as shown.
- 8) Once all the data has been set, click the [OK] button.
- 9) Click the [Close] button on the Add Parts box.
- 10) The stitch pattern model is ready to move to the part. (It can also be added to the Model Library at this time)
- 11) Use the [POS] button on the CAD tree to move the stitch pattern model out into space and orient it to the weld.

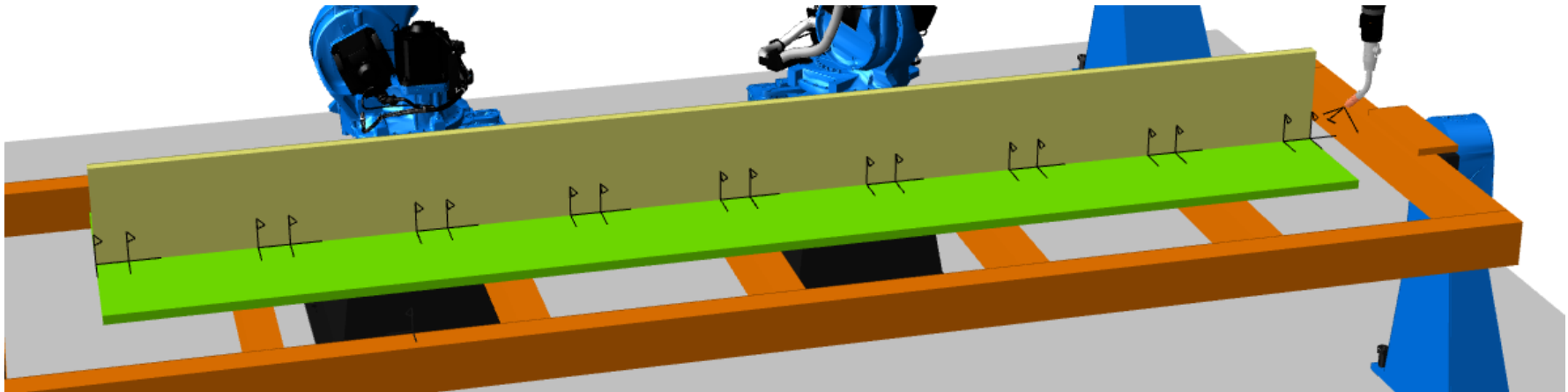


This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

- 12) Make sure Pick Mode is set to Vertex and Center.
- 13) Make sure Selectable Object has Models and Frames selected.
- 14) Click the check box for Pick Two Points.
- 15) Click on the first frame of the stitch pattern model and then click the part model where you want to move the stitch pattern model to.



- 16) The stitch pattern model is moved to the part model.
- 17) Click [OK] to close the model position box.



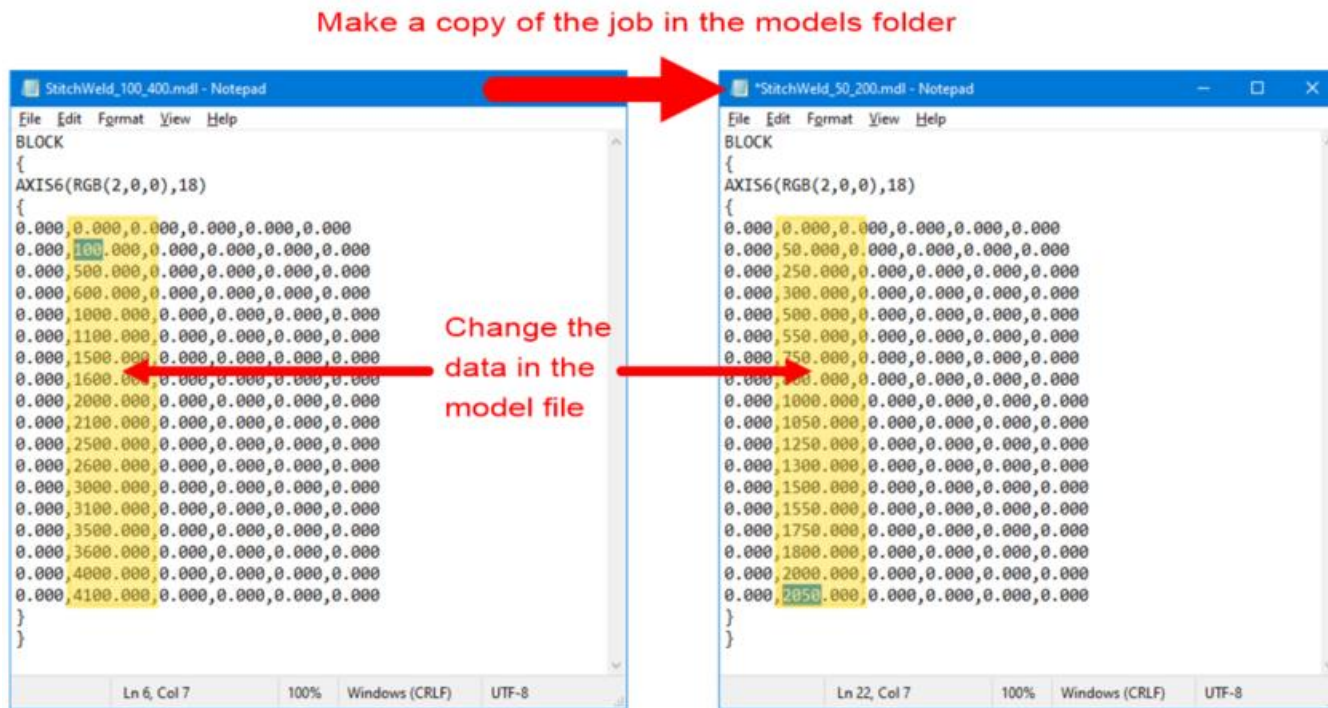
You can now use OLP pick to program the part.

This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Edit Stitch Pattern Model in Notepad

Once an initial stitch pattern model has been created, it is easy to copy the file from the model's folder and edit it in a text editor like Notepad.

You can quickly create a whole library of stitch weld patterns for projects.



Conclusion

One of the benefits of MotoSim EG-VRC is programming efficiency. There are many tools inside the software that make programming a little easier. Use axis6 frames to create single or multi-point models that allow the OLP pick function to move the TCP along the model surface where vertices and snappable features do not exist.