

# Standard Work Instructions for Nesting with Radan for the Mitsubishi Laser

Justin Wayne Liles <sup>1</sup>

04.March.2022

<sup>1</sup>Approved by \*

This is an SWI for the *Mitsubishi Laser*.

1. Ensure proper machine tooling before initializing a new nest.

‘ Confirm machine tooling by looking at the window title bar

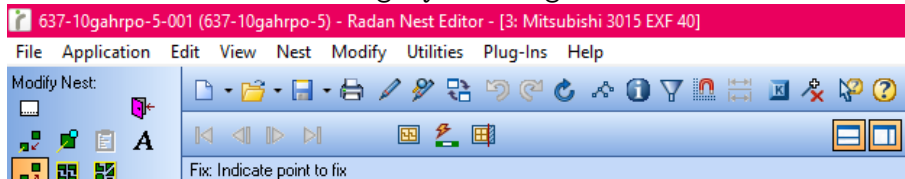


Figure 1: Confirm machine tooling by looking at the window title bar

- 1.1 How to adjust tooling.

#### Change Machine Tooling Menu Location

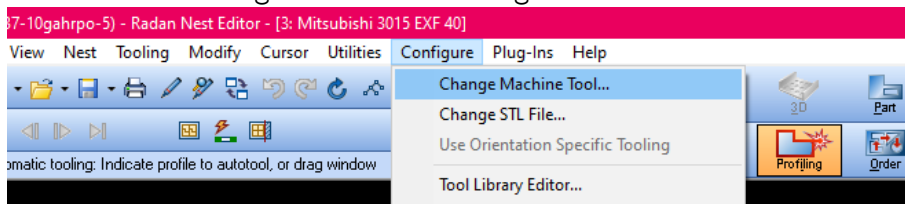


Figure 2: You *MUST* be in the Profiling tab to access this menu

- 1.1.1 Select the correct tooling for the laser being nested.

#### Machine List Dialog

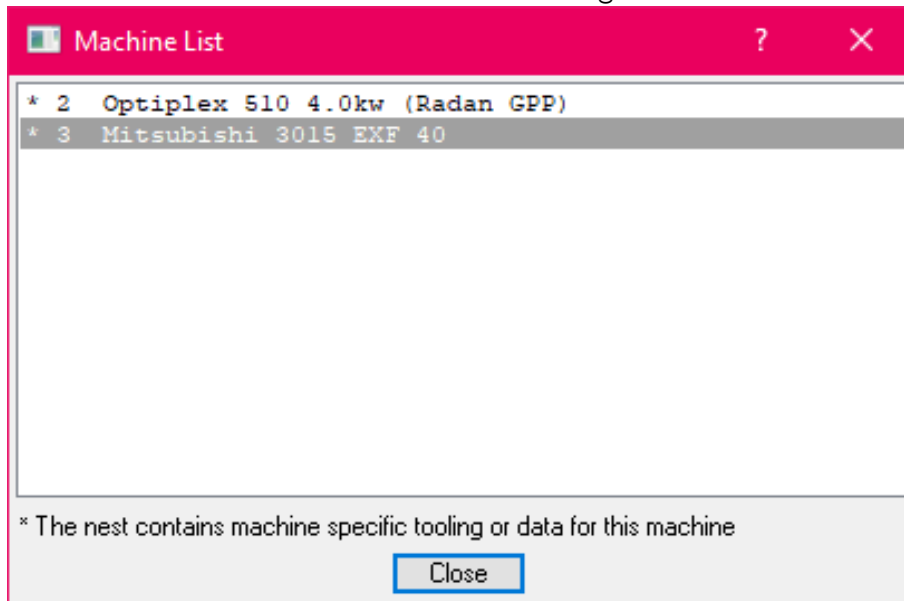


Figure 3: Select Tool - \* 3 Mitsubishi 3015 EXF 40

1.1.2 Verify the tooling has changed.

Tooling Change Notification

Verify the tooling has changed. It will say  
"Now using machine tool {?}" It will depend  
on your selection.

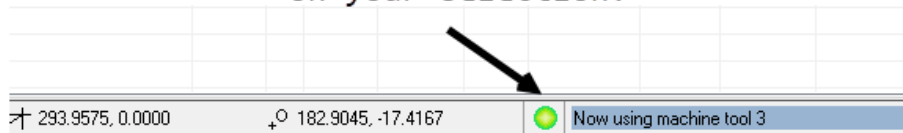


Figure 4: Look at the status bar to confirm the tooling has changed

2. Initialize a new Project.

2.1 Explain how and why we title Projects.

2.1.1 Each programmer has a number used as an identifier.

2.2 Saving the Project.

2.2.1 Ensure that the default locations are set correctly.

2.2.1.1 Explain how to reset the default save locations if they have been modified.

2.3 Explain the difference between initializing a new Project from the "system default" vs. "current Project."

2.3.1 The use of the current Project is helpful if making multiple nests from the same material.

3. Explain how to set material and sheet size.

3.1 How to select the correct material and sheet size.

3.1.1 Which thickness options to use for each type of material? The thickness of the material options listed does not match the thickness of the materials being cut.

3.2 Scrap material.

3.2.1 How to set non-standard sheet sizes in the sheet schedule.

4. How to add parts to the parts schedule.

4.1 Explain the part selection process.

4.1.1 Which folder is used to select parts?

4.1.2 Make sure that the symbols used are for the correct machine.

For example, some symbols are explicitly made for the Mitsubishi to be easier to shake out or designed for common line nesting to increase utilization per sheet.

4.1.3 How to add multiple parts simultaneously.

4.2 Set priority per part.

4.2.1 Explain how the priority setting affects the nesting process and how to use it to ensure higher utilization per sheet.

4.3 Explain required qty vs. extra qty.

- 4.3.1 Explain how this setting can also assist with getting a higher utilization per sheet.
- 4.4 General nesting process.
  - 4.4.1 This section is for any general advice or miscellaneous information involving the nesting process.
- 5. Adjust multi-part nesting settings.
  - 5.1 Set "Nesting Options"
    - 5.1.1 We can modify the allowed time per nest to allow Radan more nesting attempts before moving onto the following program.
    - 5.1.2 The SWI will explain other options at this time as well.
  - 5.2 Set "Clearances"
    - 5.2.1 What measurements to use at each gap.
    - 5.2.2 Explain the reasons for each measurement.
  - 5.3 Set "Automatic Order" in the Automation Tab.
    - 5.3.1 Which Automatic Order option to select.
    - 5.3.2 Why the Automation is not effective with the Mitsubishi laser.
- 6. Run the nester.
  - 6.1 General information on what to watch for while the nester is running.
    - 6.1.1 Watch the parts schedule to see when parts are being nested.
  - 6.2 How to stop the nester while running.
    - 6.2.1 How to stop the nester and why a nest is determined to be inefficient or unnecessary before Radan completing the process.
- 7. Check the nests.
  - 7.1 Check the Utilization.
    - 7.1.1 Explain when a lower utilization is acceptable and set a time limit for seeking a higher utilization.
      - 7.1.1.1 Do not spend excessive time to improve utilization only.
  - 7.2 Check the programs.
    - 7.2.1 Confirm that needed parts are nested.
    - 7.2.2 Confirm the nest is using as few sheets as needed.
      - 7.2.2.1 Reducing the nest size to keep close to the needed parts rather than bloating a nest with low-priority parts.
- 8. Set Automatic Tooling.
  - 8.1 Pick the correct strategy.
    - 8.1.1 Which strategy for each sheet thickness. Note: The Mitsubishi currently cuts all material less than .250" with Nitrogen. Air is not to be used until otherwise told.
    - 8.1.2 The strategy guide is this:
      - 8.1.2.1 Use Air if the material is equal to or less than 0.080.

8.1.2.2 Use Nitrogen if the material is greater than 0.080 and equal to or less than .250.

8.1.2.3 Otherwise, use Oxygen.

9. Set proper tags.

9.1 Explain when tags may be needed or not needed. The larger the gauge or thickness of a material, the less likely it is to need tags. No tags also make it easier to shake out the heavier parts.

10. Set "Rules and Styles"

10.1 Currently, it is unknown to me why a specific style is chosen over any other. However, looking through the styles leads me to believe that the selected styles have the highest drawing and rapid speeds. Therefore, I will investigate this step further.

11. Set Sheet Scrapping and Offcuts.

11.1 Add scrap cuts and scrap cut spacing.

11.1.1 Explain the options contained in the prompt.

11.1.2 Add offcuts if cutting non-standard sheet size.

12. Set the cut order.

12.1 Select the correct Order Style.

12.1.1 I will research more about this aspect of Radan nesting.

12.2 Set the bottom right corner piece as the first to cut to allow the operator to check the cut before letting the sheet run.

13. Compile the program.

13.1 These options are generally set in the actions described above. In addition, this prompt allows for reviewing the conditions before compiling.

13.1.1 When OK is selected, the compilation process will start. Upon completion, choose OK to return to the workspace.

14. Save the Project.

14.1 After completing the compilation process, save the resultant blocks file.

14.1.1 Explain where to save and how to title the programs.

14.2 Take a screen capture of the workspace to use as a cover sheet for the Project when carried out to the laser.

15. Push the Project to the correct laser.

15.1 Explain to which folder a copy of the Project belongs.

16. Print the orders.

16.1 Use the screen capture to print the orders as needed.

- 16.1.1 Some of the orders will need to have qty, material, or work center changed.
  - 16.1.1.1 Sometimes, we will move orders from its original work center to the laser for a faster turnaround.
  - 16.1.1.2 There will be occasions where a part number has multiple orders that are urgent. It is good practice to combine these orders to prevent confusion.
17. Carry the Project packet out to the laser and let the operator know it is there.