**PCB Milling Checklist & Procedures**

**Pre-Milling:**

1. Import Layout - Gerber preferred.

2. Check for Common Flaws:
   a. There should only be Drill holes on the Drill Layer.
   b. Do the tool tables match the bits available?
   c. Are the layers paired with the correct tool tables?
   d. Is the layout logically correct? Are the correct layers mirrored?

3. Isolate copper traces as appropriate: size is in inches for the different passes. Make sure these match tools you have available.

4. Do you need any rubouts? Make sure you have done this with big enough bits and that you have isolated with an equal sized bit.

5. Do you have enough board and backing material?

6. Do you have all of the appropriate drill bits and the $\frac{1}{16}$" allen wrench?

7. Do you have the appropriate tape? (Blue Painters tape or similar masking tape works best)

8. Are you comfortable working with the machine?

   **DO NOT USE SCOTCH TAPE OR STEEL WOOL!**

**Milling:**

1. Turn on Machine.

2. Verify that Home position matches the one posted.

3. Initialize. Change Tool (125mil DB)

4. Use tape to secure the FR4 and Backup Material together.
5. Use 125mil drill bit to drill pilot holes. You can use the broken bit that is stored in the drill chuck to keep the first hole you drill lined up with the Anchor Groove while you drill the second hole. Be sure that the drill is lined up correctly with the ‘Home Position’ when drilling your holes for the anchor dowel pins. Drilling the pilot holes is the only time that the drill head is moved by hand. During this stage, **DO NOT** use the ‘Head Down’ button in the jog tool. The spindle must be turned on and off manually from the jog tool in IsoPro.

6. Secure your board to the milling table. Use the dowel pins and blue tape.

7. Drill Holes: **ONLY USE T-Tech Drill Bits (they should all be the same length)**
   
   a. If using the smaller bits, prep your board with the silver entry material.
   b. Set up drill according to ‘Drill Spindle Setting Order.’ Drilling uses 1a for depth control and 1b should be set to provide clearance.
   c. Run the drill layer. Verify depth for each bit before continuing.

8. Cut Isolation Layers:
   
   a. Make sure to remove silver entry material if it was used.
   b. Set Drill according to ‘Drill Spindle Setting Order.’ End Mills (EM) and Pointed Tools (PT) utilize 1b for depth setting and 1a is set to provide clearance.
   c. Run all of the Isolation layers individually. Do the same size tools on both sides together, flipping the board as necessary. This way you only need to adjust the drill spindle once for each tool.

9. Route Board:
   
   a. Set the routing bit the same as a drill bit, only slightly shallower in its cut. Route the board, try and leave some uncut points which will hold the board in place until you are ready to snap out your piece.