



ProtoPlace S

Pick and Place Machine used for placing surface mount components.

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Introduction

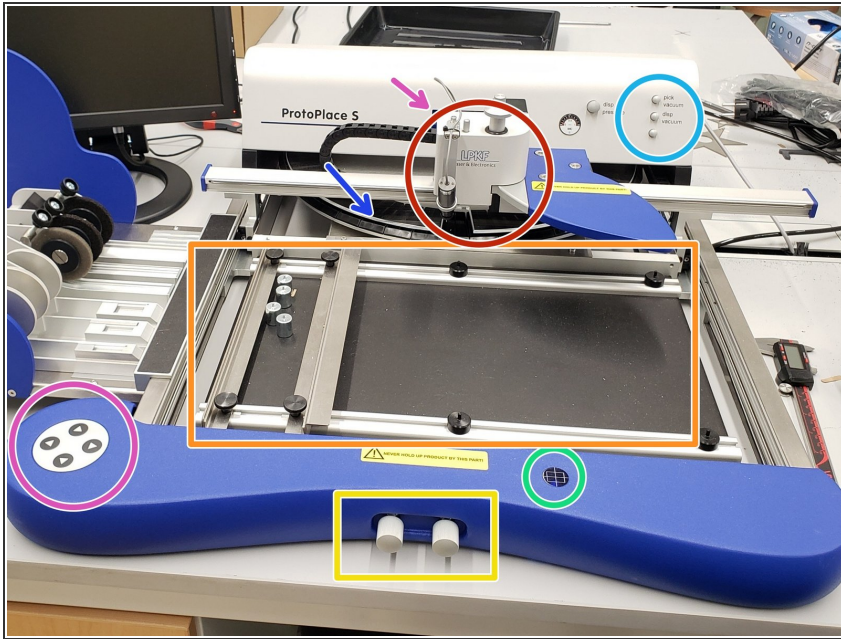
The ProtoPlace S, referred to as the Pick and Place machine, is used to precisely place surface mount components on a PCB.

Step 1 — ProtoPlace S Intro



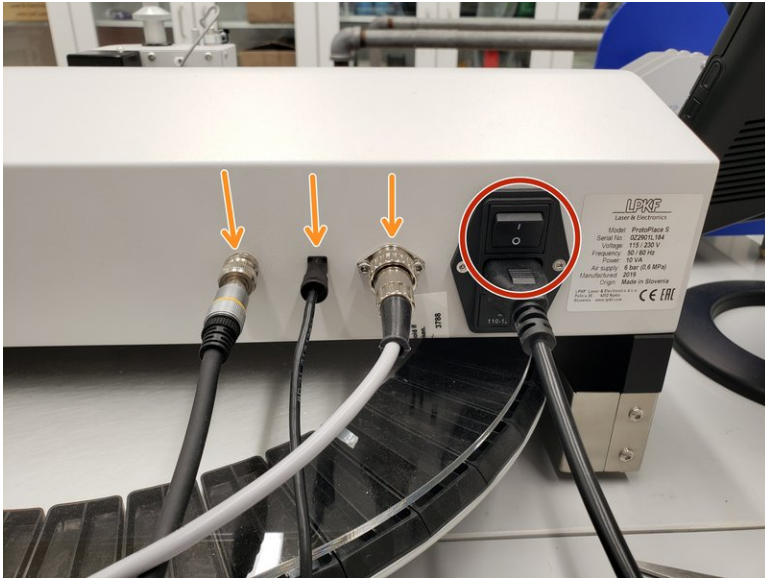
- The ProtoPlace S (commonly referred to as the "Pick and Place Machine") is used to place components onto a PCB using a pressurized needle.
- The needle is moved by hand along two rails on the X and Y axis.
- Before using the machine, your board should already have solder paste applied to its pads.
 - That way you can place your components on top of the solder paste and then melt the solder paste in our reflow oven to create a strong electrical connection.
- [Our preferred method of applying solder paste is with the ProtoPrint S](#)

Step 2 — Parts of the machine



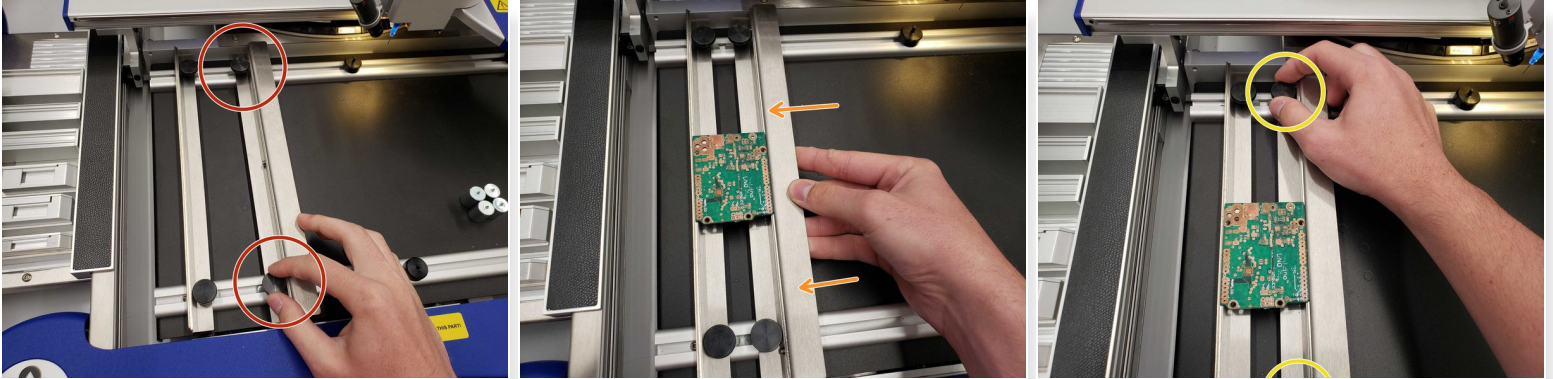
- Manipulator - Moves to pick up and place components with a small vacuum suction nozzle.
- Micro-table - Fixes the board in place between two laths.
 - ⓘ The empty area to the right can be used for palettes with components
- Micro-table knobs - The right one moves the table along the x axis and the left one moves the table along the y axis.
- Table position indicator - Shows how far the knobs have moved the micro table off the coordinate origin.
- Air regulation - Turn these knobs to adjust the pressure of the nozzle.
- Turntable - Can store up to 90 individual components.
- LCD display (hidden) - Controlled with the keypad.

Step 3 — Turning on the machine



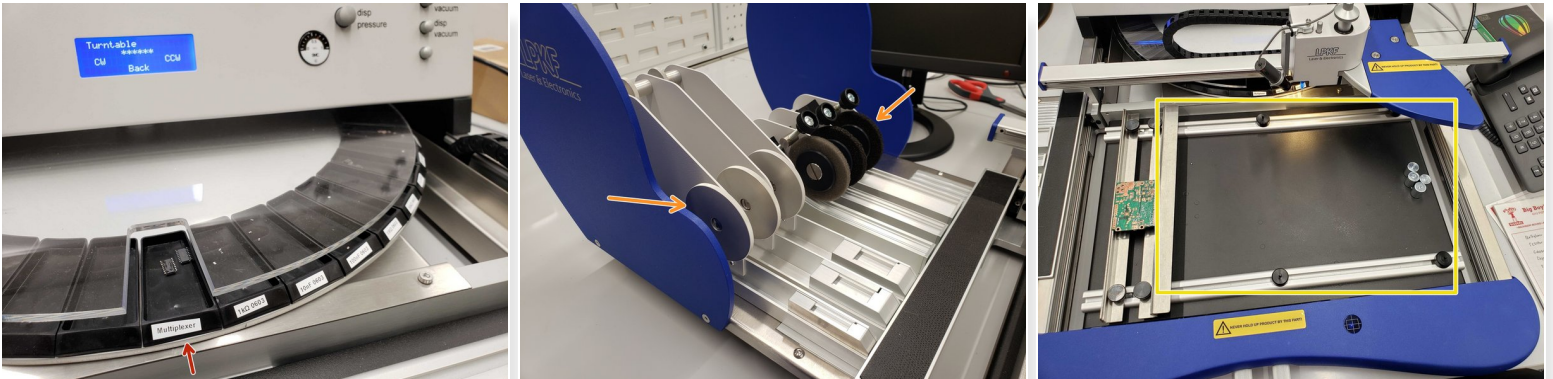
- The power switch is located on the backside of the machine.
- Ensure the monitor, turntable, and foot switch are plugged in.
- Turn on the machine and the monitor. It should start displaying an image.

Step 4 — Placing a board in the machine



- Release the right lath by unscrewing the knobs.
- Adjust it until the board lays firmly between the two laths.
- Tighten the laths.

Step 5 — Loading components



- Individual components can be loaded into the turntable.
- Component tapes can be loading into the tape feeders.
- Palettes can be placed in the empty area on the micro-table.

Step 6 — Navigating the menu



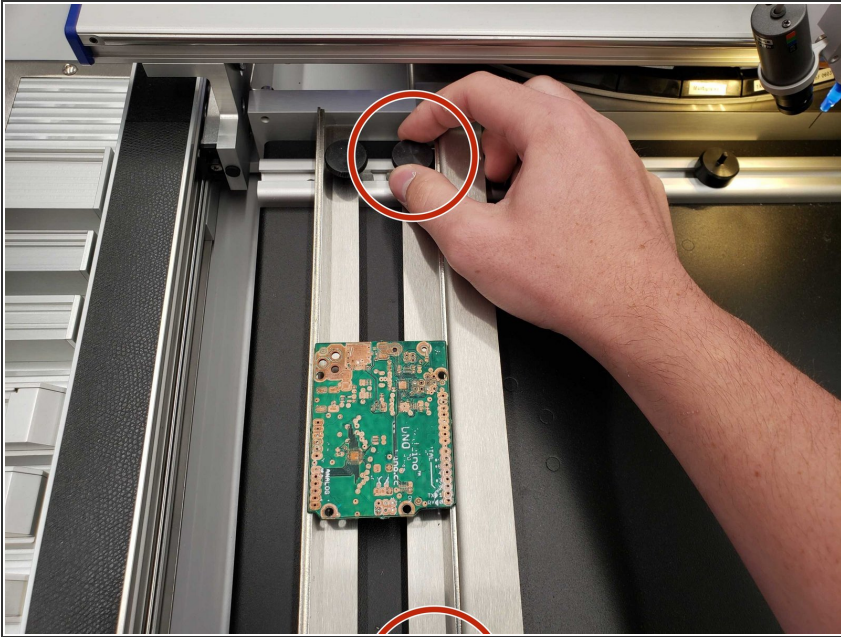
- Push the left arrow button to enter place mode
 - ⓘ Dispense mode is used for dispensing solder paste, which we do not use
- Select *auto* to let the machine activate/deactivate the suction for you or *man* if you would rather control it with the foot pedal
- In auto mode, you can use the right arrow button to turn the brake on and the top arrow to move the turntable

Step 7 — Placing components



- Move the manipulator over the desired component and push down the picking needle to pick it up.
 - ⓘ The vacuum suction will start automatically as you push down. Adjust the vacuum pressure with the "pick vacuum" knob
- Move the component over to its location on the PCB and lower it as close as you can without touching the board. Turn the brake on.
- Use the knobs on the bottom of the machine to precisely line up the board with the picking needle.
- Rotate the component until it is in the correct orientation and select "Place" to automatically place it.

Step 8 — Removing the board



- Move the manipulator out of the way and unscrew the right lath to release the board.
- Now that you have a board with components placed on it the next step is to [melt the solder paste using the ProtoFlow S N2](#).

Now that the parts are laid on the PCB, the next step is to melt the solder paste in the ProtoFlow S N2.