

CUSTOMER SUPPORT GUIDES:

Cleaning the Galvo Mirrors

Formlabs Customer Support can provide additional information on mirror cleaning and in some cases, provide the customer with the appropriate cleaning supplies.

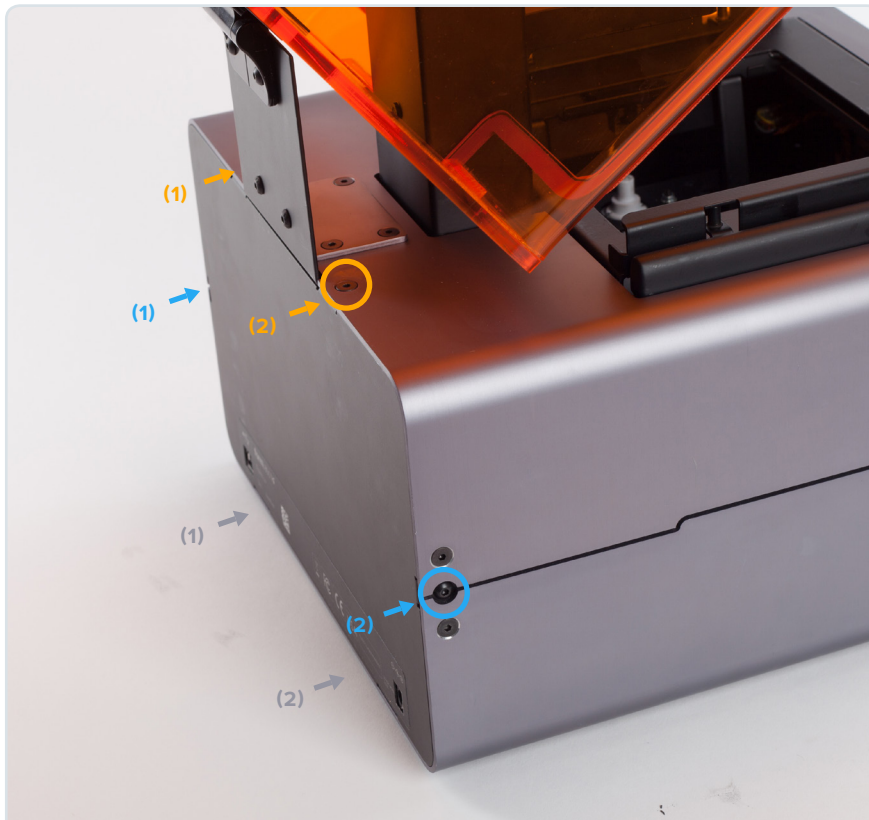
Tools Needed:

2.5 mm hex wrench
Nitrile gloves
PEC*PAD lint free wipes
Isopropyl alcohol
Scissors
Cotton Swabs
Tape

WARNING!

Anything that comes in contact with first surface mirrors in the Form 1+ can cause scratches and irreversible damage. Exercise extreme caution when the mirror is exposed.

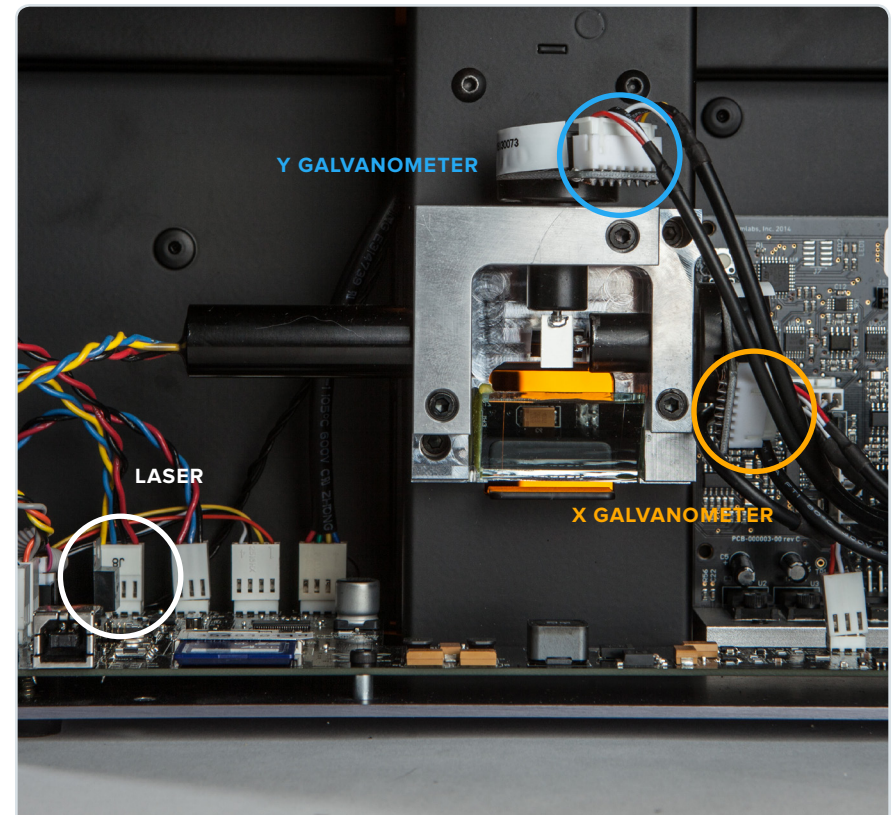
Contact support@formlabs.com with any questions.



STEP 1: REMOVE THE BACK PANEL

- Remove the two (2) black button-head screws, one on each side of the printer.
- Remove the two (2) countersunk screws, one on each side of the cover hinge mount. Lift the cover slightly to gain access to these screws.
- Remove the two (2) countersunk screws on the back bottom edge (some printers may not have this).

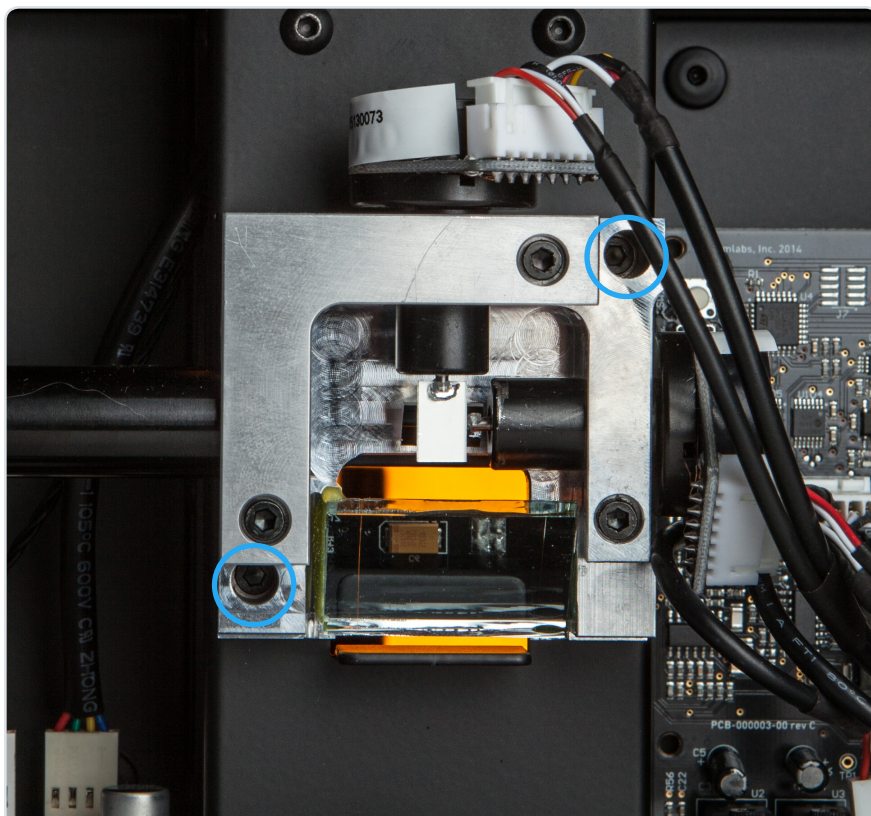
Take note of the screws' lengths. There are 4 or 6 total screws.



STEP 2: UNPLUG CABLES + LASER

Properly label the galvanometer cables so they will not be switched when reconnecting them. Once labeled, unplug the connectors to the Y galvanometer, the X galvanometer, and the laser.

Note: Make sure to wear gloves when working with the Form 1+ mirrors.



STEP 3: REMOVE GALVO BLOCK

Using a 2.5 mm hex wrench, unscrew and remove the recessed screws in the upper right and lower left corners of the galvo block. Once the screws are removed, slowly wiggle the galvo block free from the Form 1+ frame.

WARNING: Do not remove or tamper with any other screws in the galvo block. Adjusting any other screw will move the printer out of calibration.



STEP 4: PREPARE THE SWABS

Cut a strip about 1 cm wide out of a PEC*PAD. Lay a swab stick on the PEC*PAD as shown above. Apply a piece of tape extending beyond the length of the PEC*PAD strip. You will need to make three (3) swabs.



STEP 4A

Fold the end of the PEC*PAD over to the side. Begin wrapping the PEC*PAD tightly down and around the shaft as shown.



STEP 4B

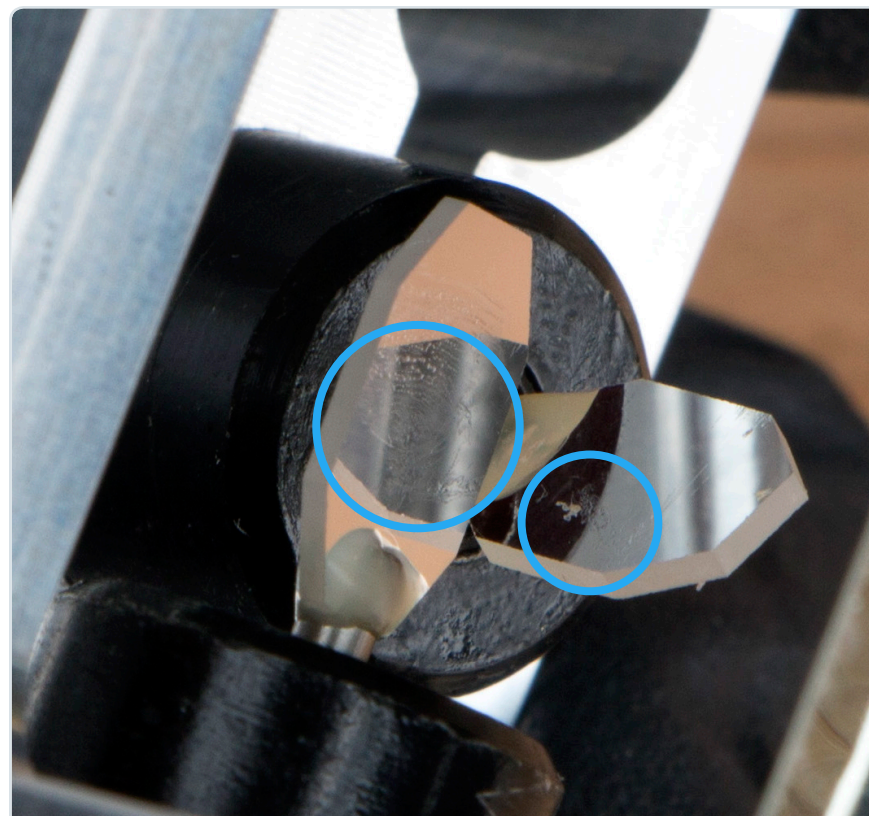
Secure the PEC*PAD strip at the bottom of the shaft with another small piece of tape. When finished, it should look similar to the one shown.





STEP 4C

Apply a small amount of isopropyl alcohol to the tip of the PEC*PAD swab. Be sure to use as little isopropyl alcohol as necessary.



STEP 5: INSPECT THE MIRRORS

Closely inspect the mirrors for any signs of particles, dust or residue. Use a bright light or a flashlight to illuminate the mirrors. It's normal not to see any smudges on your mirror, especially at a high angle, but clean anyways if instructed to do so by the Customer Support team.

Cleaning mirrors with isopropyl alcohol (IPA) should not be used as part of routine maintenance and should only be used when absolutely necessary.



STEP 6: WIPE Y GALVO MIRROR

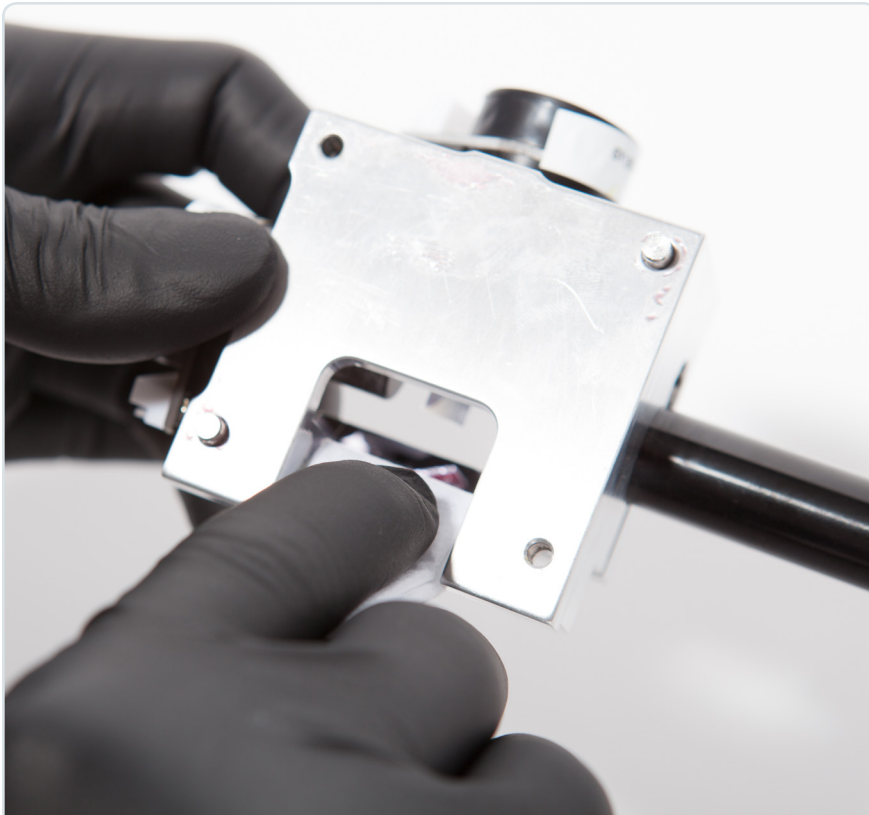
Carefully position the galvo block as shown. Use the swab to gently rotate the mirror so that the surface is more easily accessible. Gently and slowly wipe the mirror from the base of the mirror to the end of the mirror. Rotate the swab and wipe again.

WARNING: Do not exert excessive pressure on the galvo mirror. Never touch the mirror with anything other than a PEC*PAD.



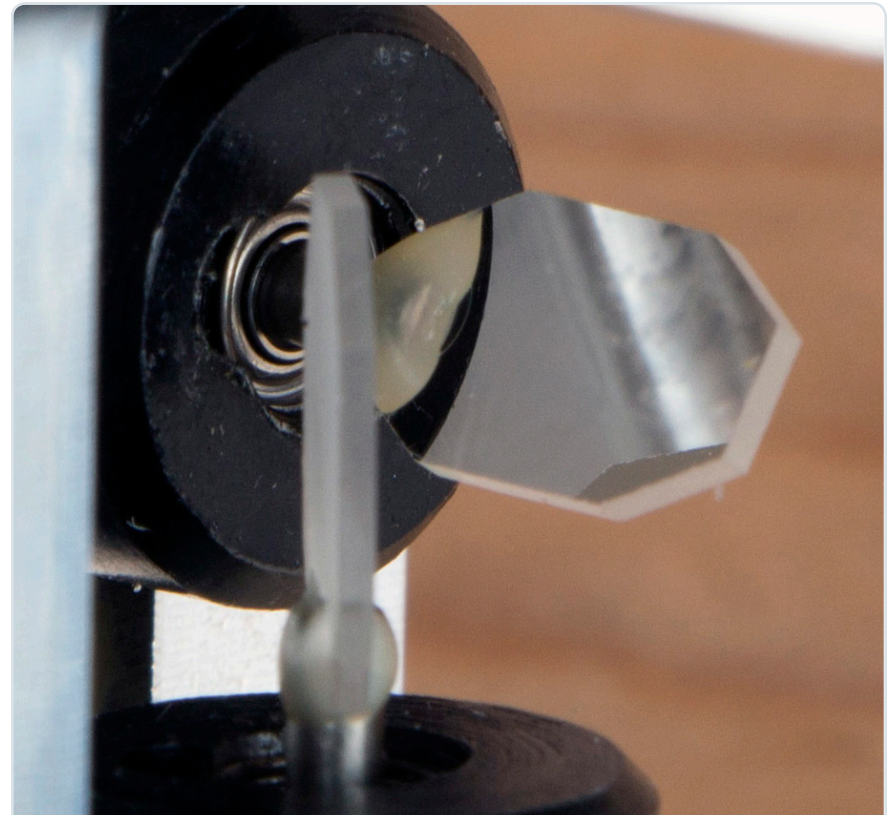
STEP 7: WIPE X GALVO MIRROR

Carefully position the galvo block as shown. Using a new swab, gently rotate the mirror so that the surface is more easily accessible. It is important to use a fresh swab so as not to spread any particles or residues that had been caught by the previous swab. Gently and slowly wipe the mirror from the base of the mirror to the end of the mirror. Rotate the swab and wipe again.



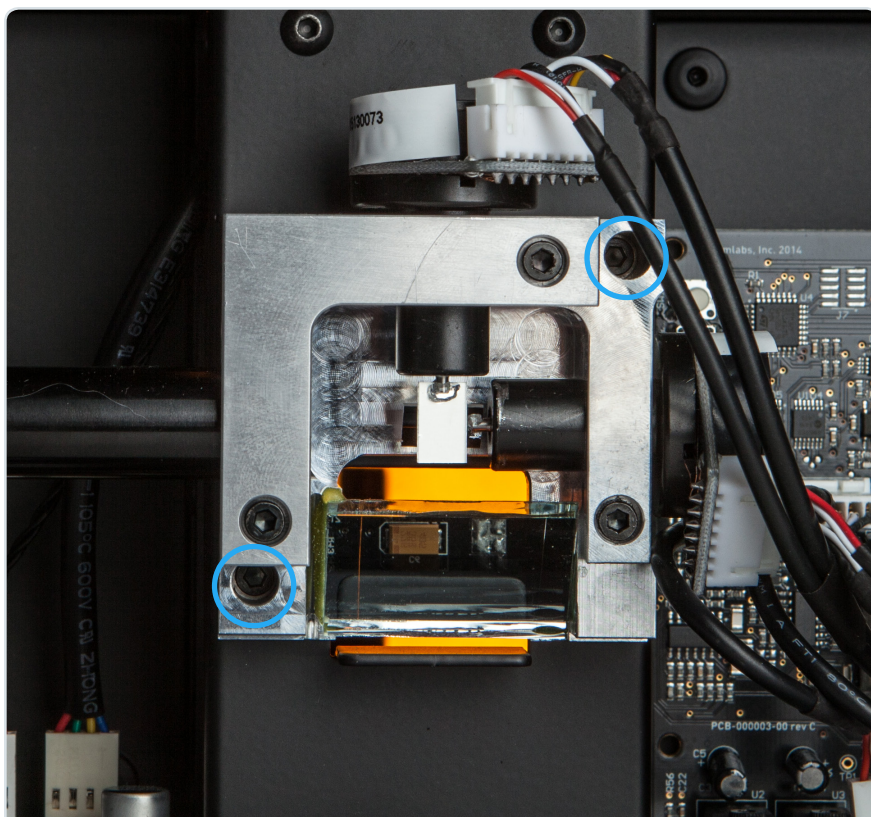
STEP 8: SMALL MIRROR CLEANING

Fold a PEC*PAD to the width of the small, square mirror that is mounted to the aluminum galvo block. The laser will reflect off the inward facing side of the mirror (closest to the galvo mirrors). Rotate the galvo block so that you can access this face of the mirror. With a small amount of IPA on the PEC*PAD make a gentle, slow pass along the surface of the mirror.



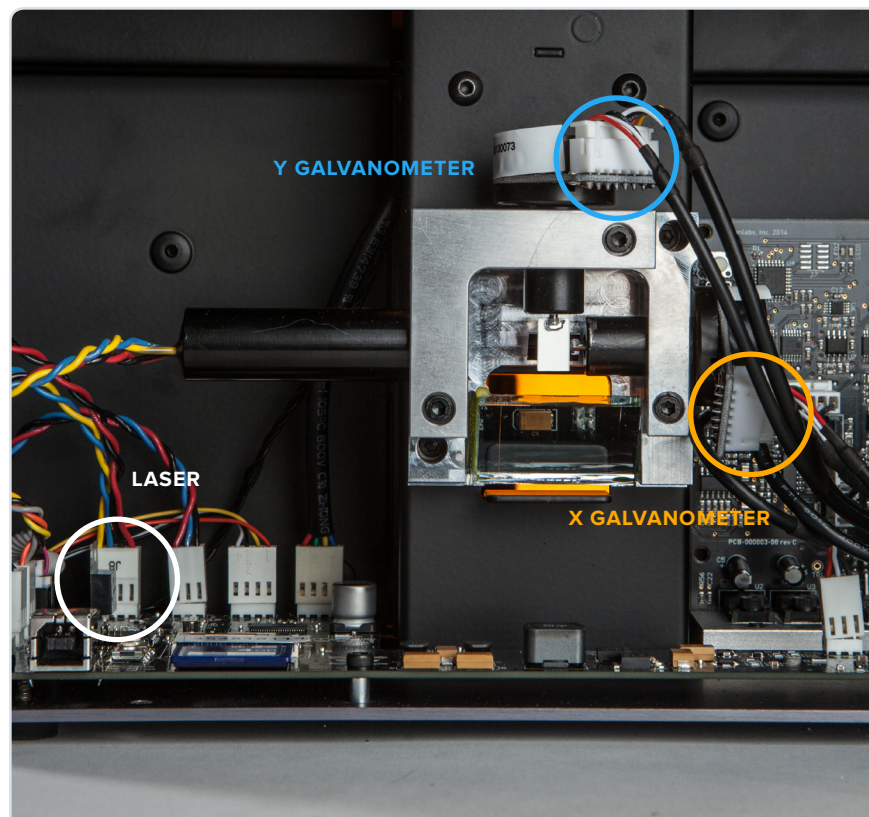
STEP 9: INSPECT THE MIRRORS

Use a bright light or flashlight to illuminate the mirrors and check for cleanliness. Once the mirrors are clean, the galvo block can be reinstalled into the Form 1+.



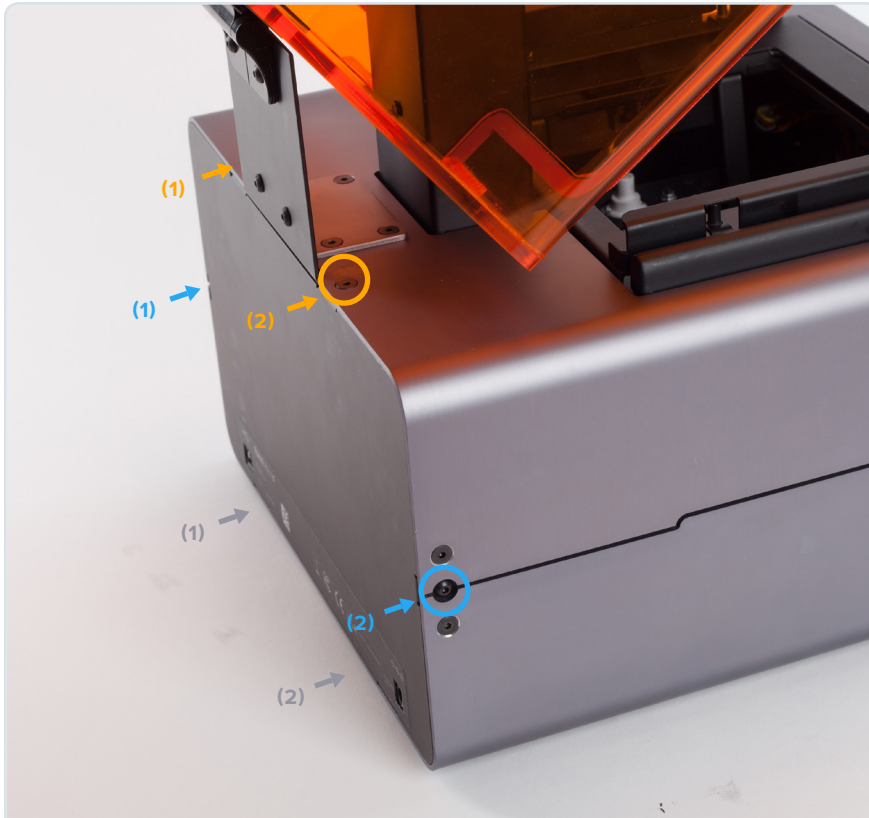
STEP 10: REINSTALL THE GALVO BLOCK

Align the alignment pins on the back of the aluminum block and insert the galvo block into the Form 1+. Insert the two screws and tighten to secure the galvo block to the Form 1+ frame.



STEP 11: PLUG IN CABLES + LASERS

Reconnect the galvanometer cables and the connect the laser to the main board.



STEP 12: INSTALL THE BACK PANEL

- Align and insert the back panel. Insert and tighten the two (2) black button-head screws, one on each side of the printer.
- If the printer originally had screws under the back panel, insert and tighten the two (2) countersunk screws on the back bottom edge. To protect the printer, the screws under the back panel must be the shortest of all the silver screws, though some printers may not have these screws.
- Replace the two (2) countersunk screws, one on each side of the cover hinge mount. Lift the cover slightly to gain access to these screws.