3rd Wave Mainboard Removal and Installation

Removing or replacing the main board in the 3rd Wave is easy, and only requires a couple basic hand tools.

Tools needed: Phillips head screwdriver and a 7/16" socket/nut driver or adjustable wrench, and a 1/8" hex key/Allen Wrench is necessary for the 3rd Wave. Fine tip scissors, utility knife, or wire cutters, and offset or right-angle screwdriver is also extremely helpful.

Do not use power tools, the components in the 3rd Wave can easily be damaged if too much torque is applied.

Note: take extra precaution any time you open the 3rd Wave lid. Turn off the power and disconnect the power cable before opening. Do not touch the power supply and take care when handling the metal top. When the top is open make sure that it is secure so there is no danger of it falling on your hands or fingers.

Getting inside the 3rd Wave:

1. Before you begin, it is a good idea to backup and export any custom programs or wavetables you have on your machine to your computer. You should be receiving the same board back with all of your data still there, but there is always a chance for damage during transit or repair.

2. Turn off power, disconnect all power/MIDI/USB/audio cables.

3. Using a 7/16” socket/nut driver or an adjustable wrench, remove the 13 audio jack nuts and plastic washers on the back of the synth. Save them in a safe place so you can reinstall them later.



Metal nut and integrated plastic washer removed:



4. Using a 1/8" hex key/allen wrench, remove the front screw labeled A from both sides of the synth. Now slightly loosen the rear screws labeled B about a half to one full turn.

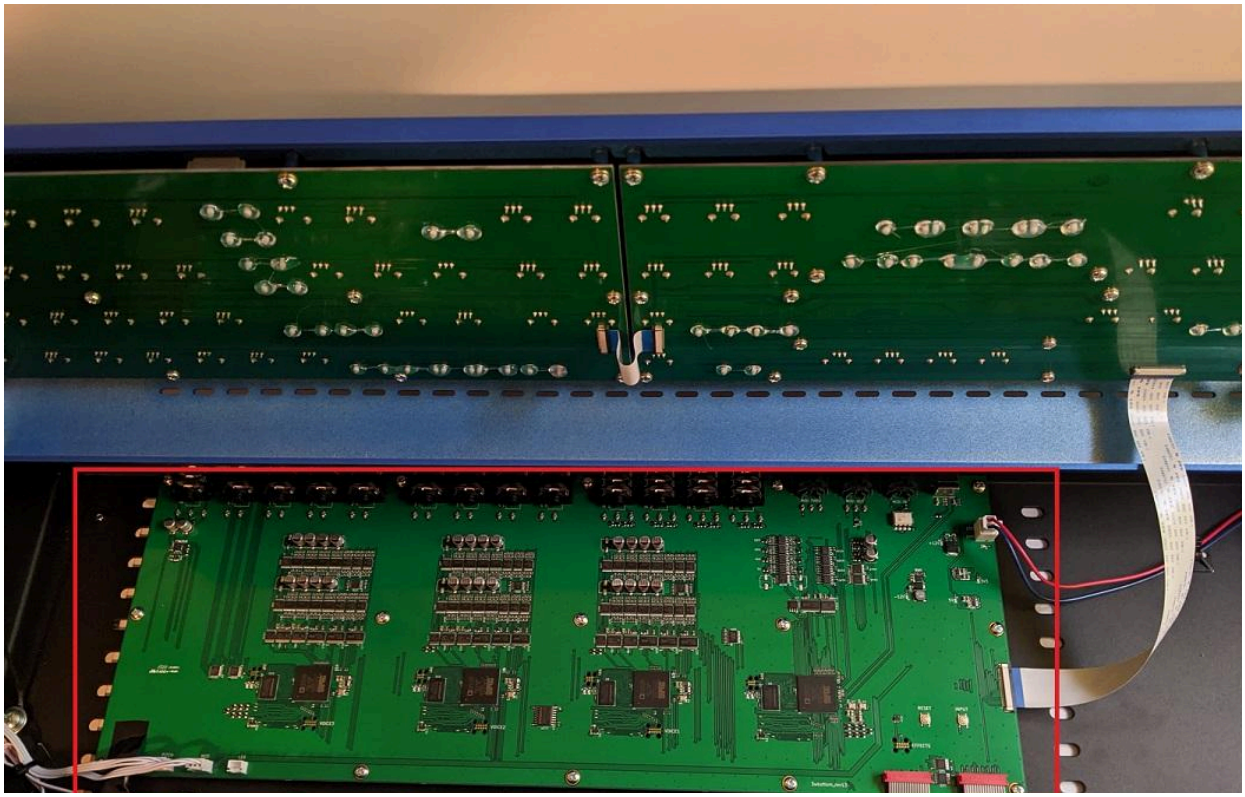


5. You can now lift the front edge of the top panel up. It will feel heavy at first, but it will pivot easily once you get a finger under it. Tilt it all the way back until it rests on the integrated lanyard.

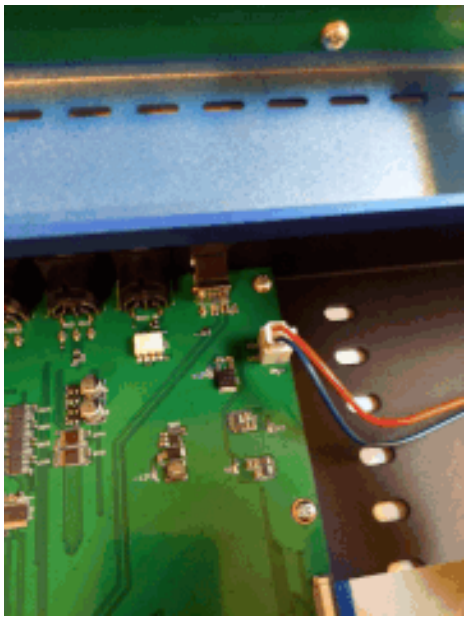


<u>Removing the Mainboard</u>:

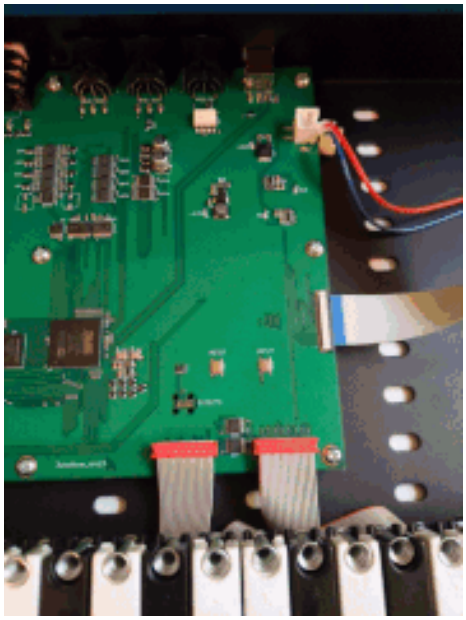
1. The mainboard is sitting in the tray above the keybed.



2. First remove the DC power connector located in the upper right, it's a white vertical rectangle. The right side of the connector has a locking tab. Depress the tab, and gripping the connector itself, pull straight up with a slight side to side wiggle to remove it. **DO NOT** pull on the wires.

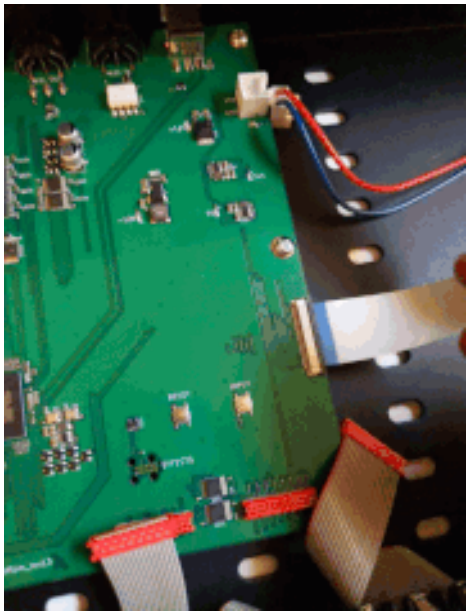


3. Next, remove the two keyboard ribbon cables located on the lower right of the mainboard. Take note of their orientation as they must be reinstalled in the same way. Place your index finger beneath the connector, parallel to the connector itself, and your thumb on top of the ribbon connector. Remove the cable by pulling up and wiggling the connector back and forth with light force.

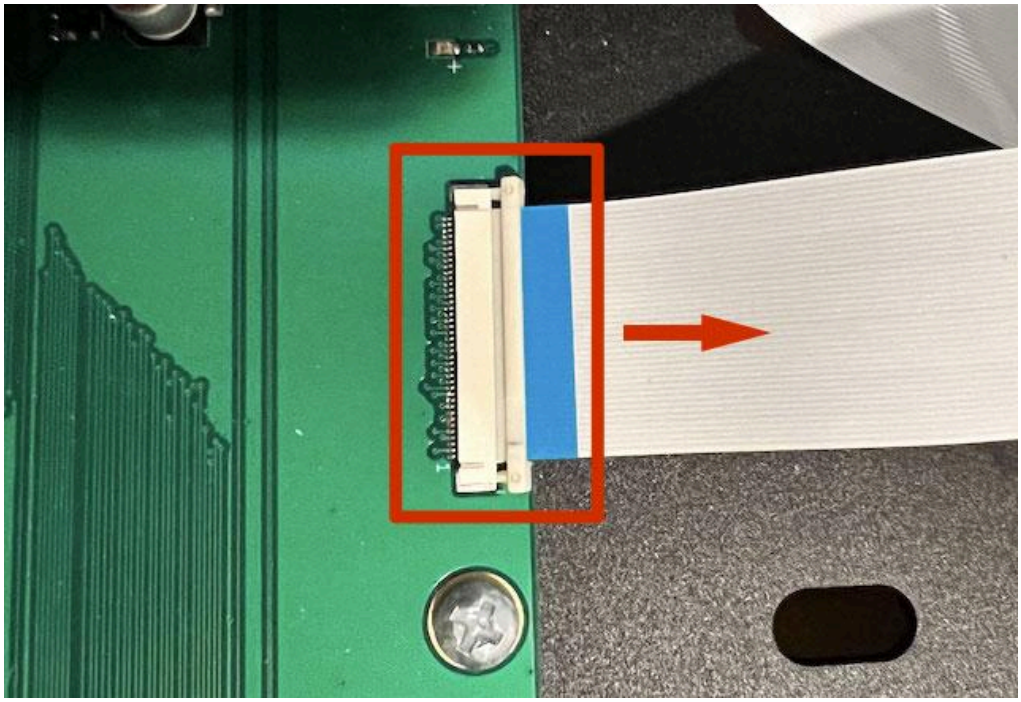


4. Now disconnect the FFC cable running between the middle panelboard and the mainboard. It has a locking mechanism that can be released by sliding each side of the connector forward/away from the mainboard with your fingers/fingernails. The connector only needs to move about 2mm to become fully unlocked. Carefully release it with light force. The ribbon cable will easily slide out easily once the connector is unlocked.

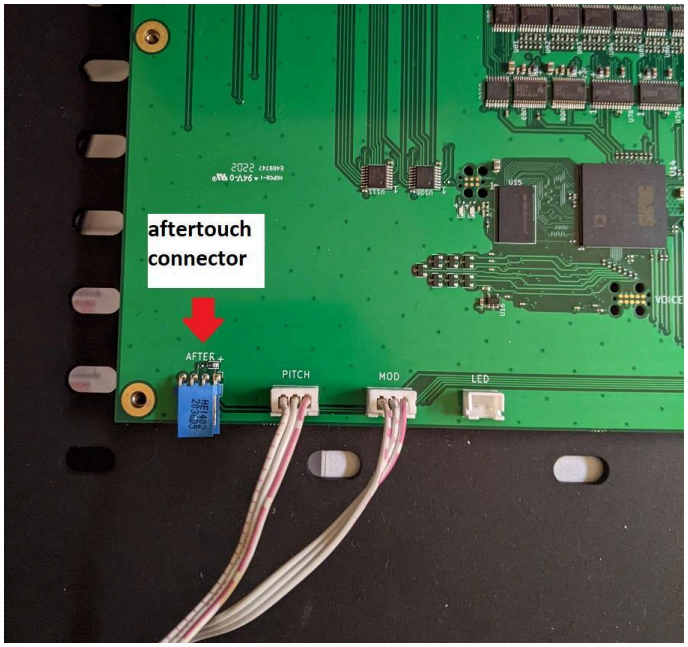
- **Note: The locking mechanism is delicate. Take care to only open it by the amount required to unlock it. If too much force is applied the connector will be damaged.**



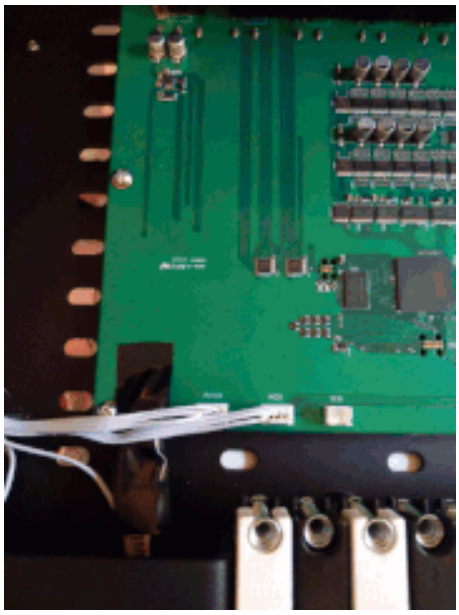
FFC connector fully unlocked:



5. Next, locate the blue aftertouch connector in the lower left of the mainboard. Carefully remove the electrical tape or heat shrink wrap from the cable connector. If you have heat shrink, small fine tip scissors work best to remove it. A utility knife or fine-tipped wire cutters can also be used. Take care to not damage the cable. Once the heat shrink is removed, the cable will slide out easily. A new piece of heat shrink tubing when your mainboard is returned.

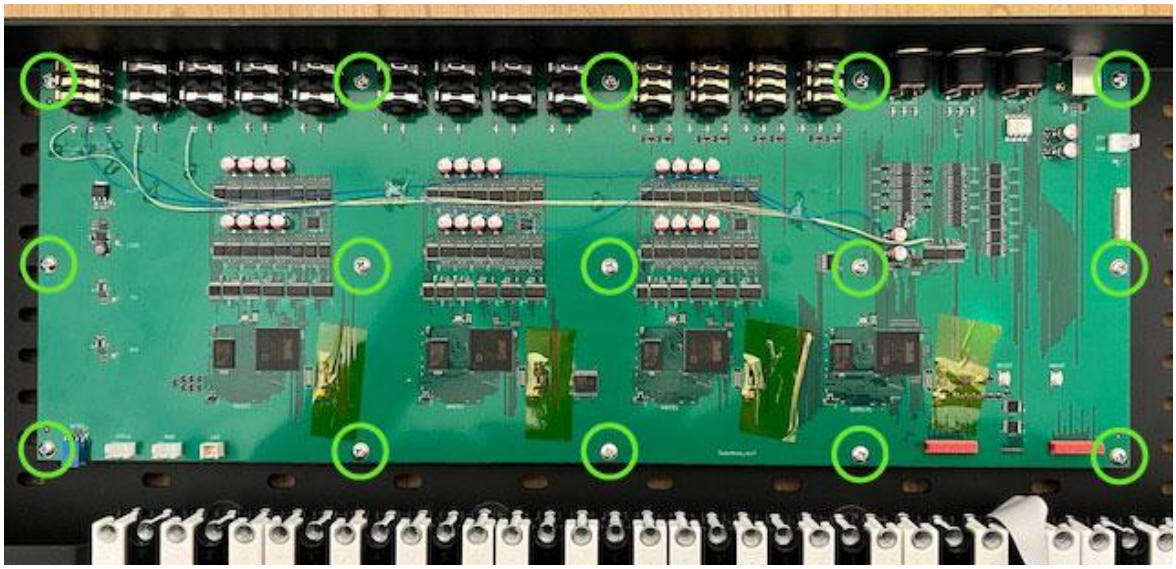


6. Remove pitch wheel and mod wheel connectors. They are next to the aftertouch connector, and labeled on the board. Gripping the connector directly, pull straight up with a slight wiggle to remove. **DO NOT** pull on the wires. Note which cable is which for easy reinstallation later.



7. Remove the 15 screws securing the mainboard. An offset or right-angle screwdriver will be useful for the screws in the back of the unit, although we have also had success doing this with a tiny screwdriver. Store the screws in a safe place, they will be used again to reinstall the board later.

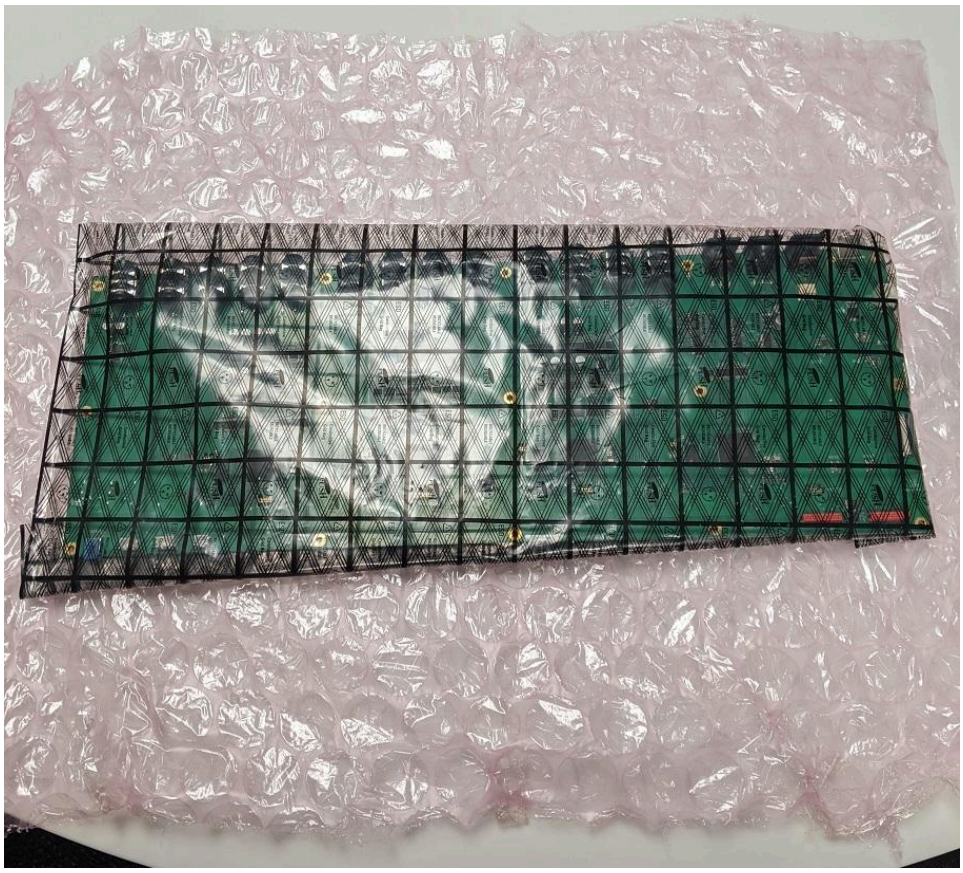
   Holding the keybed connectors out of the way, slide the main board toward the keybed until the audio jacks are free from the metal enclosure and lift it out.



8. Place the mainboard in the supplied antistatic bag and pack carefully in the bubble wrap and return to us for repair. If you have any questions along the way, email us at support@groovesynthesis.com for assistance.

- **Note:** If your unit has a plastic spacer over the 13 threaded jacks, please leave it in place on the mainboard. If you do not have this spacer, one will be installed on your mainboard when it is returned. Please keep this in place when the mainboard is reinstalled.

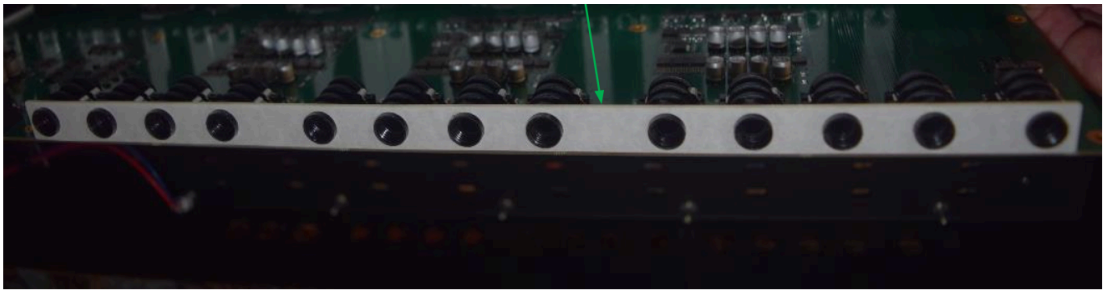
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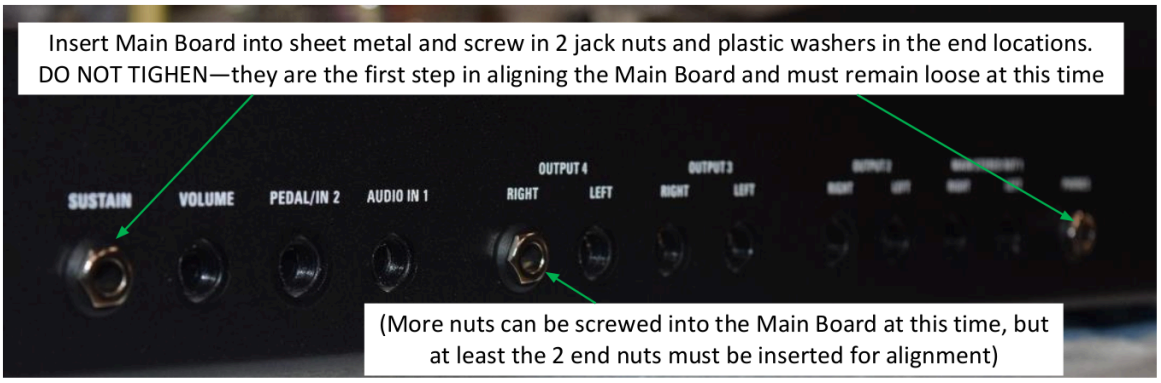
<u>Reinstalling the Mainboard</u>:

1. Review instructions above, and reinstall the mainboard in the reverse order. The power cord should be disconnected before starting.

2. Ensure the spacer is in place over the audio jacks on the mainboard.



3. insert the jacks and USB connector through the rear holes of the metal enclosure. Loosely install the two outermost nuts and plastic washers over the threaded portion of the jacks. Tighten the two jack nuts, keeping them slightly loose while you align the mainboard with the standoffs inside.

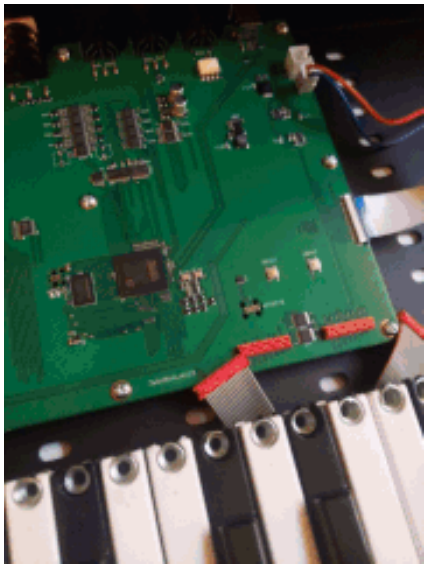


4. Loosely install a few of the 6-32 screws across the mainboard to make sure everything is aligned. All jack nuts can now be installed and fully tightened.

5. Install the remaining 6-32 screws to secure the mainboard. Fully tighten all 15 screws. An offset or right-angle screwdriver will be useful to reach the screws in the back, although we have also had success with a small screwdriver.

6. Connect the keyboard ribbon cables. Line up the connectors and press to lock the ribbon cables in place.

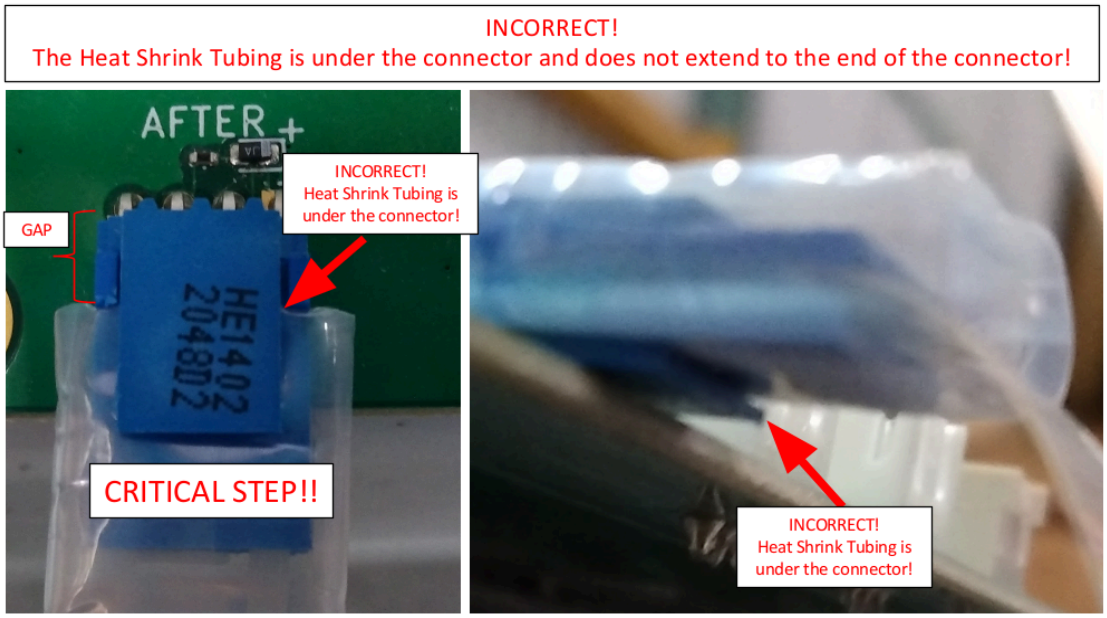
- **Note:** There is a small set pin on the left side of each connector, and a corresponding hole in the main board to the left of each connector socket. When reinstalling the keybed ribbon cables, ensure the pin is aligned with the hole.



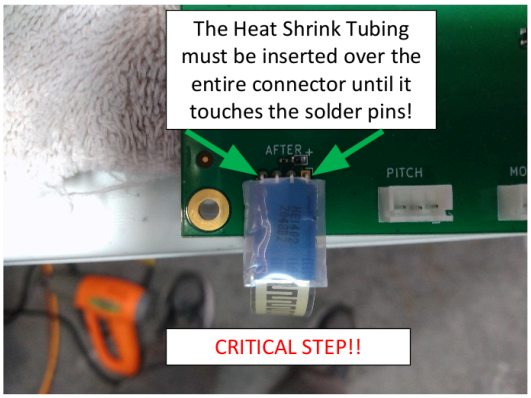
7. Install the aftertouch cable. Heat shrink or electrical tape is optional for extra security. If not using heat shrink: slide the cable into the connector and ensure it is fully seated and the cable connector is fully pushed up against the back of the connector on the mainboard.

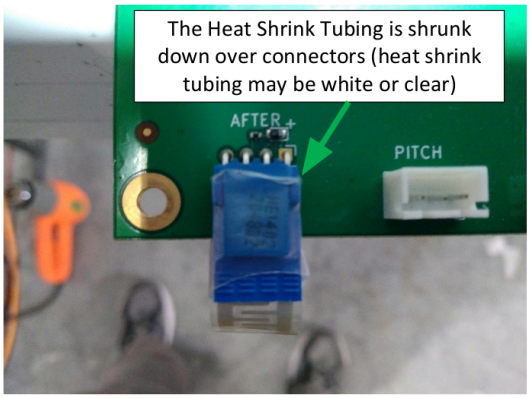
   If using heat shrink, slide the heat shrink tubing over the aftertouch cable, then insert aftertouch cable into the connector on the mainboard. Make sure the cable is fully seated and pushed all the way against the back of the mainboard connector. Slide the tubing over both connectors until it touches the rear pins of the mainboard connector.

   Do not allow the heat shrink tubing to slide underneath the mainboard connector.

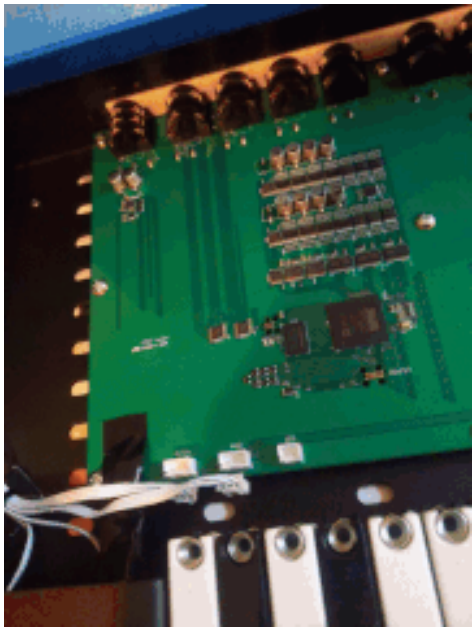


8. Using a hairdryer or heat gun, apply heat on the top and sides only as long as needed to shrink the tubing. Exercise caution if a heat gun is used, as these can get quite hot and damage the mainboard or connectors.

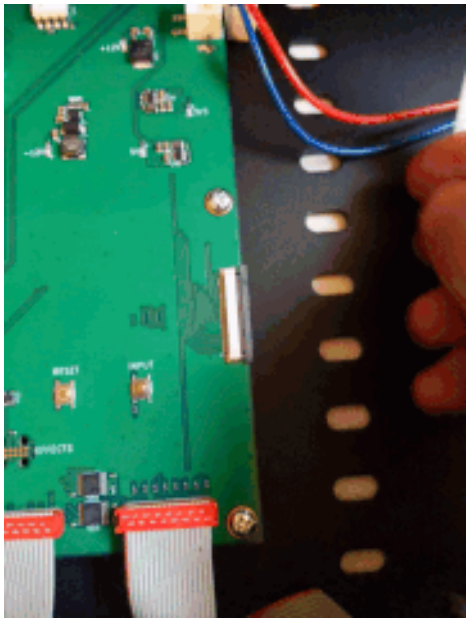




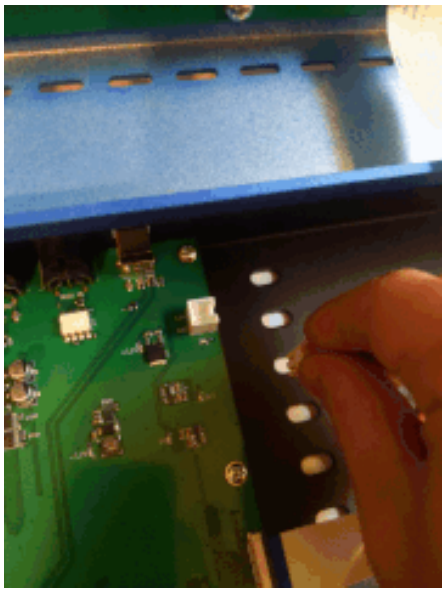
9. Reconnect pitch wheel and mod wheel. The connectors are keyed, so they can only be installed one way. If you reverse the pitch wheel with the mod wheel it will be obvious, and you can switch them if needed after testing.



10. Reinstall the panelboard FFC cable. Ensure the header is in the open/unlocked position, and slide the cable straight into the connector with the blue side facing up. The cable will only slide in if it is properly aligned. The locking mechanism must remain open during insertion. It is easy for this to slide back and prevent the cable from fully inserting. Inspect the connector carefully to ensure the cable goes in all the way and is properly aligned. Note the cable only goes in a few millimeters when fully inserted. Once the cable is in place, close the locking mechanism to secure the cable. Make sure both sides are locked.



11. Reconnect power cable. It is keyed, so there is only one way to insert the cable into the connector. It should lock into place when installed.



12. Close the lid, connect the power cable and turn the power on to test for correct operation. If the screen does not turn on, the panelboard FFC cable is not connected correctly. Check pitch and mod wheel operation as well. Once you are satisfied, install the hex screws in the front side holes. Tighten the rear hex screws at this time.

    Please contact Groove Synthesis Technical Support if you have any questions regarding the above procedure: support@groovesynthesis.com